KENYA POVERTY AND GENDER ASSESSMENT 2015/16

Reflecting on a Decade of Progress and the Road Ahead

WORLD BANK GROUP
Poverty & Equity

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ACKNOWLEDGEMENT

The World Bank greatly appreciates the close collaboration with the Government of Kenya (GoK), particularly the Kenya National Bureau of Statistics (KNBS) in the preparation of this report. This report was prepared by a team led by Utz Pape (Senior Economist) and Carolina Mejia-Mantilla (Economist)[1], with the guidance of Johan Mistiaen (Program Leader) of the Africa Region in the Poverty and Equity Practice. The team consisted of Marina Tolchinsky (Chapter 1), Christine Achieng Awiti (Chapter 1), Nduati Maina Kariuki (Chapter 2), Isis Gaddis (Chapter 3), Habtamu Fuje (Chapter 4), Shohei Nakamura (Chapter 5), Simon Lange (Chapters 6 and 7) and Arden Finn (Chapter 8). The authors received substantive contributions from Haseeb Ali, Paolo Avner, Stephan Dietrich, Yuka Karasawa, Angelo Martelli, Saurabh Naithani, Stephen Okiya, Vera Sagalova, Aaraon Thegeya and the Tegemeo Institute of Agricultural Policy and Development (Egerton University).

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[1] With equal contributions.

ABBREVIATIONS

Currency Equivalents
(Exchange Rate Kenyan Shilling Effective as of Sept 28, 2018)
US$1.00 = Ksh 100.956

AEZ	Agro-Ecological Zone
CBN	Cost of Basic Needs
CDF	Cumulative Density Function
CEC	County Executive Committee
CPI	Consumer Price Index
CRA	Commission on Revenue Allocation
DHS	Demographic and Health Survey
DPT	Diphtheria, Pertussis, and Tetanus
EAC	East African Community
ETP	Extra Teacher Program
FAO	Food and Agriculture Organization
FBO	Faith-Based Organization
FPE	Free Universal Primary Education
FTSE	Free Tuition Secondary Education
GER	Gross Enrollment Ratio
GIC	Growth Incidence Curve
GoK	Government of Kenya
HDI	Human Development Index
HSNP	Hunger Safety Net Program
ICLS	International Conference of Labor Statisticians
IDS	Institute for Development Studies
IEBC	Independent Electoral and Boundaries Commission
ILO	International Labour Organization
IPC	Infection Prevention and Control
IPV	Intimate Partner Violence
ITN	Insecticide-Treated Bed Net
KCPE	Kenya Certificate of Primary Education
KCSE	Kenya Certificate of Secondary Education
KDHS	Kenya Demographic and Health Survey
KES	Kenya Economic Survey
KHHEUS	Kenya Household Health Expenditure and Utilisation Surveys
KICD	Kenya Institute of Curriculum Development
KIHBS	Kenya Integrated Household Budget Surveys
KNBS	Kenya National Bureau of Statistics
KNOCS	Kenyan National Occupation Classification Standard
KNUT	Kenya National Union of Teachers
LMIC	Lower Middle-Income Class
LPM	Linear Probability Model
LSMS	Living Standards Measurement Study
MP	Member of Parliament
NEDI	North & Northeastern Development Initiative
NER	Net Enrollment Rate
NGO	Nongovernmental Organization
NHIF	National Hospital Insurance Fund
NSBDP	National School-Based Deworming Programme
NSNP	National Safety Net Programme
OCOB	Office of the Controller of Budget
ODM	Orange Democratic Movement
OPCT	Older Persons Cash Transfer
OVC	Orphans and Vulnerable Children
PNU	Party of National Unity
PPA	Participatory Poverty Assessment
PPP	Public-Private Partnership
PSM	Propensity Score Matching
RCT	Randomized Control Trial
SDI	Service Delivery Indicators
SPS	Social Protection Secretariat
STEM	Science, Technology, Engineering and Mathematics
STI	Sexually Transmitted Infections
TFP	Total Factor Productivity
TFR	Total Fertility Rate
TSC	Teacher Service Commission
TVET	Technical and Vocational Education and Training
UFS	Urban Food Subsidy
UHC	Universal Health Coverage
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
VIP	Ventilated Improved Pit
WDI	World Development Indicators
WHO	World Health Organization

EXECUTIVE SUMMARY

KENYA MADE PROGRESS IN REDUCING POVERTY AND INEQUALITY OVER THE PAST DECADE

The substantive economic growth of the last decade has brought Kenya into the low middle-income country category in 2014. For the period of focus of this report, 2005/06 to 2015/16, growth in Kenya averaged 5.3 percent, higher than the 4.9 percent observed for sub-Saharan Africa as a whole (Figure 1a). Overall, growth was powered by the service sector, which now accounts for almost half of the nation's GDP. The remarkable expansion of telecommunication and mobile-based financial services shifted the economic paradigm of Kenya to an extent rarely seen in developing economies. Moreover, the country was capable of bouncing back from the violent political outbreak that followed the 2007 presidential election, from the effects of the 2008/09 global financial crisis, and from the harsh drought conditions experienced by most of the African Horn in 2011, aggravated by the increase in the international price of oil.

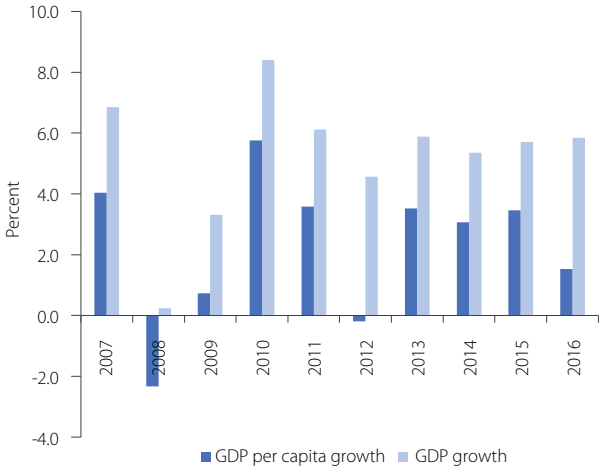
Poverty incidence declined, benchmarked against both the national and the international poverty lines, but remains high relative to other lower middle-income countries. The proportion of the population living beneath the national poverty line fell from 46.8 percent in 2005/06 to 36.1 percent in 2015/16, showing a modest improvement in the living standards of the Kenyan population, considering the ten year gap (Figure 1b). Given the high dependence of the agricultural sector on rainfall, the decline was higher in years of good weather and lower in years of drought. Similarly, poverty under the international poverty line of US$ 1.90 a day declined from 43.7 percent in 2005/06 to 36.8 percent in 2015/16. At this level, poverty in Kenya is below the sub-Saharan Africa average and is amongst the lowest in the East African Community (Figure 1c). However, it is approximately twice as high the average for its middle-income group.

Households in the bottom 40 percent of the distribution experienced notable consumption growth. The annualized consumption growth for the bottom 40 percent, also known as the shared prosperity indicator, was 2.86 percent per year for the period from 2005/06 to 2015/16, and particularly high for the rural households. Even amongst the poor, those at the bottom of the distribution experienced higher consumption growth: households in the bottom 20 percent of the distribution experienced annualized growth rates of around 3 to 4 percent. This trend was more marked in rural areas, which lead to a more pronounced poverty reduction amongst rural households compared to their urban counterparts. However, compared to its regional peers, with the exception of Ethiopia, Kenya has been less successful in boosting shared prosperity (Figure 1d).

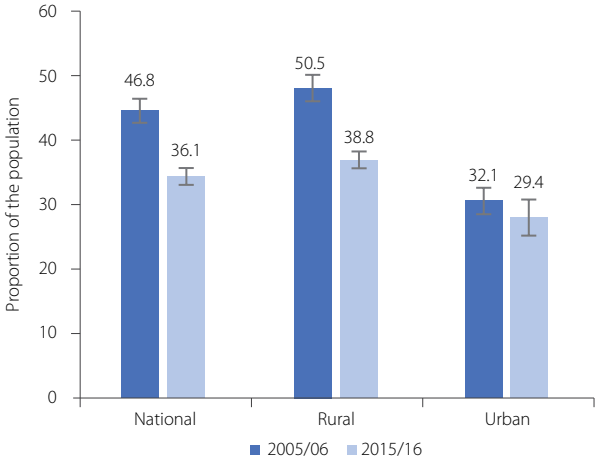
Consistent with this pro-poor pattern of economic growth, inequality declined in Kenya. The Gini index, generally not affected by the upper tail of the distribution, fell from 0.45 in 2005/06 to 0.39 in 2015/16, indicating that Kenya made considerable progress in reducing inequality. Similar trends are observed with the Theil index, the 75/25 ratio and the Atkinson index. This places inequality in Kenya at a moderate level when compared to other countries in the region (Figure 1e). Now, while the fall in inequality contributed to poverty reduction, most of the decline is attributable to economic growth rather than a change in the distribution of resources. This is consistent with the low coverage of the social protection programs in the country, and the fact that fiscal policy as a whole has little incidence on the level of poverty in Kenya, as shown by a recent fiscal incidence (World Bank 2018b). This suggests that a more focused effort on redistributive policies, such as social protection programs and equality of opportunities, can help accelerate poverty reduction going forward.

Figure 1: Kenya's economic and poverty progress

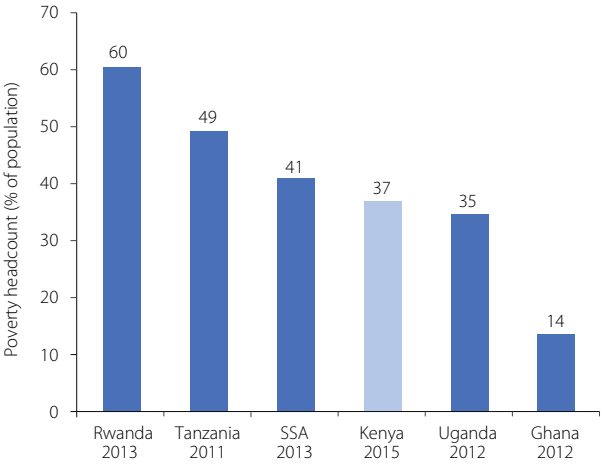
a) GDP growth from 2005 to 2016



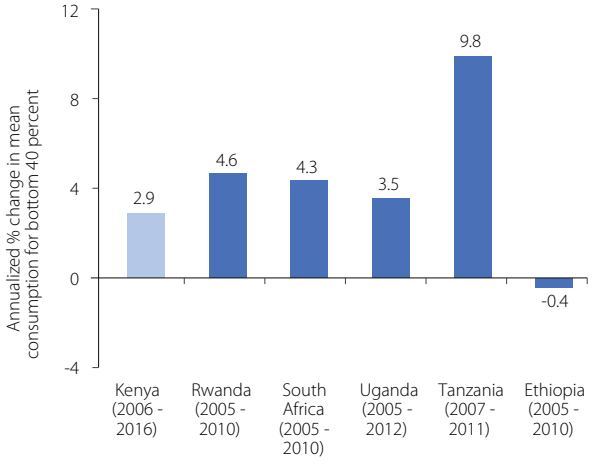
b) Poverty headcount rate under the national poverty line



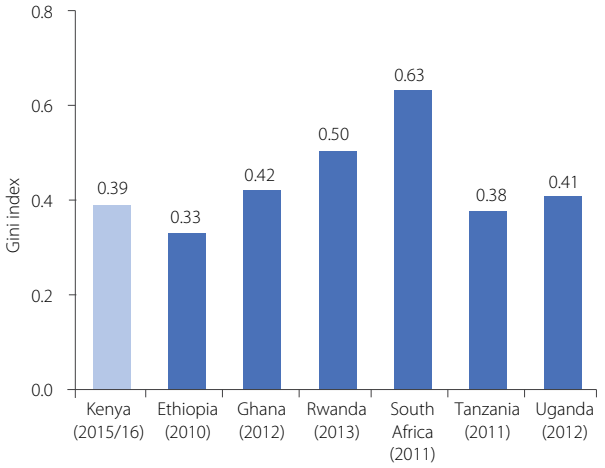
c) Poverty headcount rate under the international poverty line



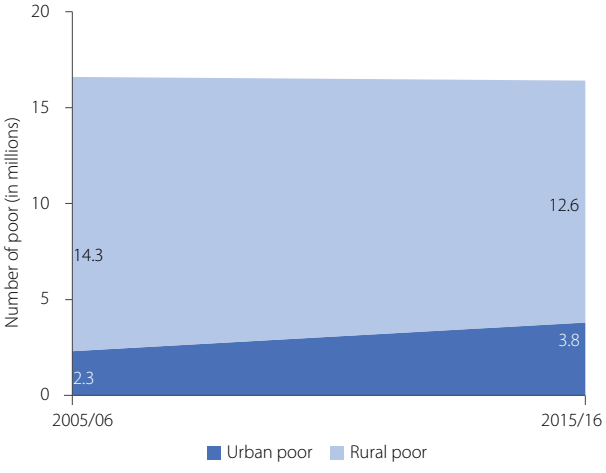
d) Shared prosperity indicator



e) Measuring inequality: Gini index



f) Distribution of the poor population across rural and urban areas



Source: KNBS; own calculations based on KIHBS 2005/06 and KIHBS 2015/16 and World Bank open data catalogue.

Most of the poverty decline is attributable to the progress observed in rural areas. Poverty declined considerably in rural Kenya, from around 50 percent in 2005/06 to 38.8 percent ten years later, resulting in a decline in the number of rural poor from 14.3 million to 12.6 million people. This contrasts with the stagnation of poverty in urban areas, where no clear decline in the poverty headcount is observed as the 2.7 percentage points reduction is not statistically significant from zero. Importantly, the number of urban poor increased during this period, with cities concentrating a larger fraction of the poor than they did before (Figure 1f). This is partly explained by the relative increase in food prices, which is known to affect the urban poor while benefitting rural food net-producers. Housing costs have also increased in medium- and small-sized towns, reflecting that urban growth has exacerbated a shortage in the supply of affordable housing. It seems that cities, particularly secondary cities, are not providing sufficient economic opportunities for individuals to improve their income level and participate in the overall economic progress.

Poor households remain constrained by demographic characteristics, low human capital, and low coverage of basic services. Poverty incidence is higher for households headed by women, the elderly and those with low educational attainment levels. This suggests that the poor are constrained when accessing income generating opportunities. Moreover, poor households tend to be larger, and have higher dependency ratios; demographic factors that usually hinder poverty reduction. In addition, coverage of water, sanitation and electricity services is much lower for poor households (Table 1). In this sense, Kenya should continue to expand the coverage of this basic services to all segments of the population, while ensuring their quality at the same time.

Off-farm diversification played an important role in reducing poverty

The evidence suggests that off-farm diversification has been important for poverty reduction in Kenya. Households whose agricultural income was supplemented by non-agricultural activities, mainly in small-scale services, account for slightly more than a third of the poverty reduction (33.5 percent), the highest share. This highlights the importance of off-farm diversification in poverty reduction over the last ten years. While the agricultural sector has not been as dynamic as the service or the industrial sector, it played a notable role in reducing poverty. Households for which the main source of income is agriculture (including both crop income, livestock income, and earning of wage workers in the agricultural sector) account for 27.6 percent of the overall reduction (Table 2). Finally, households engaged exclusively in non-agricultural activities, including services, manufacturing and construction, contributed with about 21 percentage points.

While agriculture remains the main source of income for rural households in Kenya, the share of income from non-agricultural employment and non-agricultural employment has increased significantly

Table 1: Access to basic services by poverty status

	2005/06			2015/16		
	Non-Poor	Poor	Significance (wald-test)	Non-Poor	Poor	Significance (wald-test)
Access to services						
Improved drinking water	70.2%	51.9%	***	80.4%	65.6%	***
Improved sanitation	56.4%	37.7%	***	72.2%	47.8%	***
Main source light (electricity)	23.0%	4.0%	***	49.9%	18.9%	***
HH electricity access	26.5%	4.5%	***	52.0%	20.7%	***
HH has garbage collected	10.7%	2.9%	***	21.7%	6.0%	***

Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.

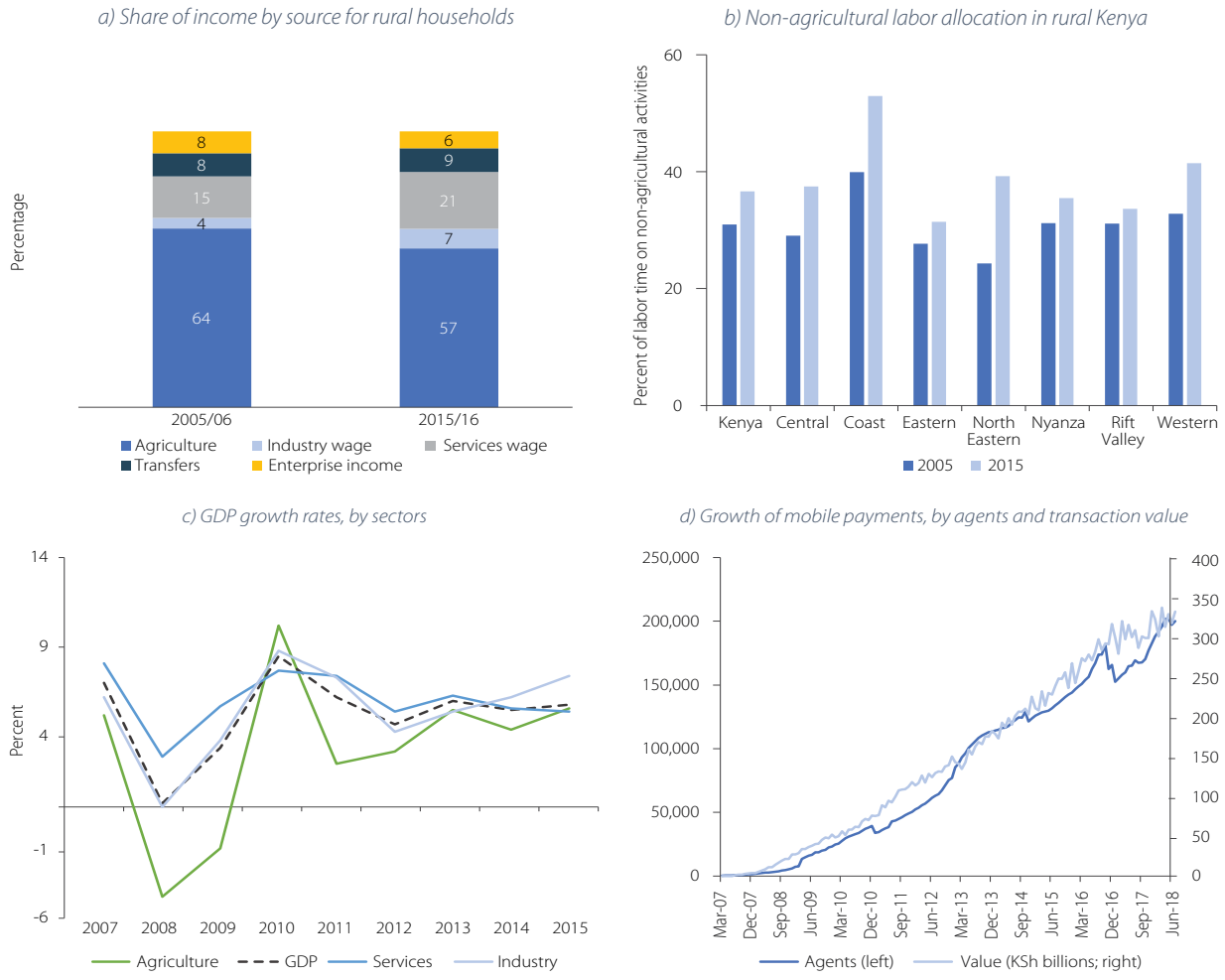
Table 2: Sectoral decomposition of poverty reduction (Ravallion-Huppi)

Source of income	Pop. share in period 1	Absolute change	Percentage change
Non-agricultural income only	31.64	-2.16	21.19
Agriculture income only	39.79	-2.81	27.63
Mixed - agricultural & non agricultural income	28.57	-3.41	33.51
Total intra-sectoral effect		-8.37	82.33
Population shift effect		-1.68	16.49
Interaction effect		-0.12	1.19
Change in headcount rate		-10.17	100.00

Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.

in the last decade. Income from crops and livestock as well as wages in the agricultural sector, declined from 64.0 percent in 2005/06 to 57 percent in 2015/16 (Figure 2a). Wage income from service employment is the second most important source of income in rural areas, increasing from 15 percent of rural household income in 2005/06 to 21 percent in 2015/16. This diversification of income, in which households complement agricultural income with income derived from non-agricultural activities (particularly in services and trading activities), along with an increase in the share of labor time allocated to non-agricultural

Figure 2: Share of income by source for rural households



Source: KNBS; own calculations based on KIHBS 2005/06 and KIHBS 2015/16 and World Bank open data catalogue.

activities between 2005/06 and 2015/16 (Figure 2b), have been important to the reduction of poverty in rural Kenya. Thus, it is important to support rural households in their effort to diversify their income. Investments in human capital, skills formation, as well as attracting non-agricultural economic activities into rural areas, are key areas of actions in which the Government of Kenya should focus.

Those deriving income from non-agricultural activities benefitted greatly from the expansion of mobile money (thanks to M-PESA) throughout the country, particularly in remote previously uncovered areas. The penetration of mobile phones not only brought market efficiency gains associated with a reduction in transaction costs (which likely also benefited those engaged in agriculture). Through mobile money, it also became a platform for service delivery rather than just a communication tool, *changing Kenya's economic paradigm* as some have pointed out (Jack and Suri, 2013, 2014; Suri 2017). Mobile money, used by 18 million people in Kenya in 2017, increased the households' financial resilience and savings, allowing them to: i) invest productively, ii) move out of agriculture or complement that income with that of other businesses, and iii) improve their consumption levels, while also make risk sharing more effectively. The way in which the expansion of mobile money transformed Kenya's economy is an example for other African countries, and the factors that enabled its expansion (including investment in infrastructure, the regulatory environment and the participation of the private sector, among others), can provide important lessons for low and low-middle income countries around the world.

Other factors that likely benefitted Kenyan households, particularly those in rural areas, are the penetration of motorbikes (boda bodas), high commodity prices and increased productivity in the production of bean crops. Boda bodas helped to lower the transaction costs of trading agricultural and non-agricultural goods as well as services, enhancing the income rural households engaged in all different sectors of the economy.[2] Similarly, many farmers have shifted to bean production in recent years, as the country benefited from favorable bean and maize prices from 2011 to 2016. Farmers that shifted to bean production are less likely to be classified as poor. High commodity prices, like those observed between 2010 and 2016, is generally beneficial for Kenya's net-selling farmers. However, this is at the expense of the urban poor, as poor urban households spend a large share of their income on food and are therefore vulnerable to rising food prices. This factor may have contributed to the divergence in poverty reduction between urban and rural areas.

Non-monetary wellbeing also improved, some issues still pending to be solved

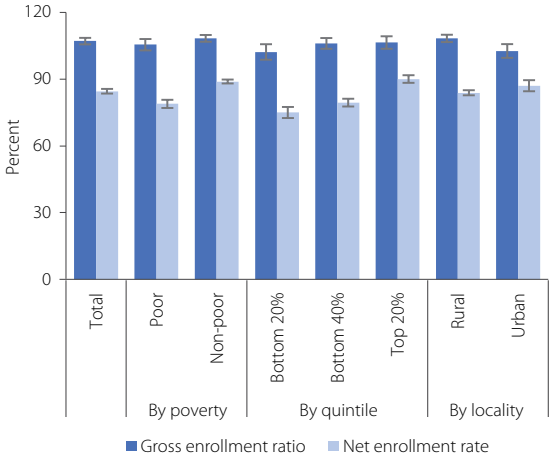
The progress in the wellbeing of the population as evaluated by monetary measures was accompanied by the progress in several non-monetary dimensions of poverty. Kenya's Human Development Index (HDI), a combination of education, inequality, and life expectancy indicators, gained 0.07 points in the decade leading to 2015 reaching 0.55. This is the highest HDI in the East Africa Community, and a relatively high level given the county's poverty headcount.

Enrollment rates at all levels have increased, driven by higher enrolment of children from poor families. The government has invested substantial resources in recent years to increase enrollment rates, particularly at the primary level with the introduction of universal primary education in 2003. As a result, primary education is nearly universal with a net enrollment of 85 percent in 2015/16, including 78.8 percent for the poor (Figure 3a). Enrollment in secondary education increased more gradually, and between 2005/06 and 2015/16 the net enrollment rate increased by more than 20 percentage points reaching 42.2 percent (Figure 3b). Similarly, enrollment in tertiary education has increasing rapidly after 2009, and according to the 2015/16 KIHBS, the gross enrollment rate is about 15.2 percent.

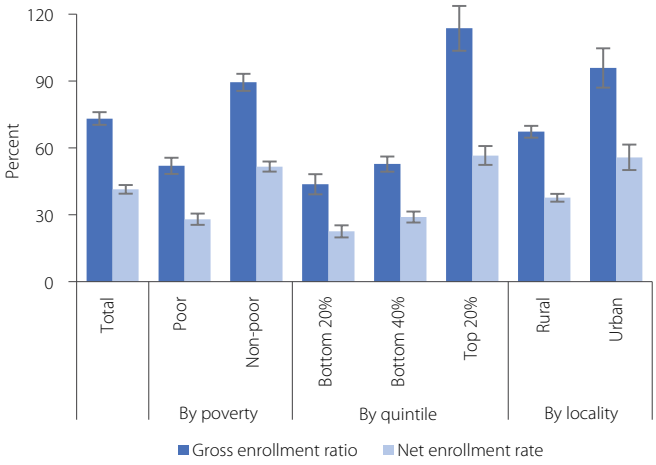
[2] Estimates suggest that in 2008 there were a total of 130,000 motor cycles registered in Kenya. By 2017, this number is likely to have reached one million.

Figure 3: Non-monetary dimensions of wellbeing

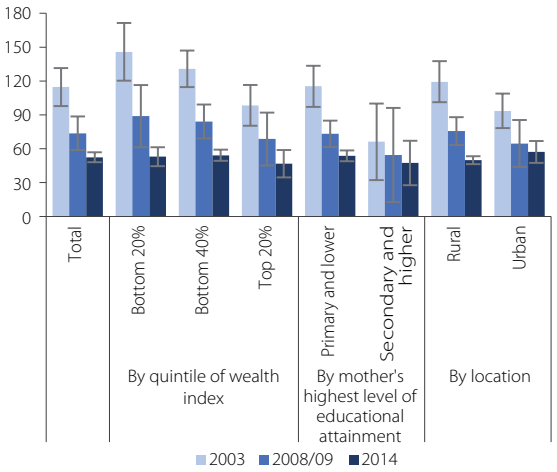
a) Enrollment in primary education, 2015/16



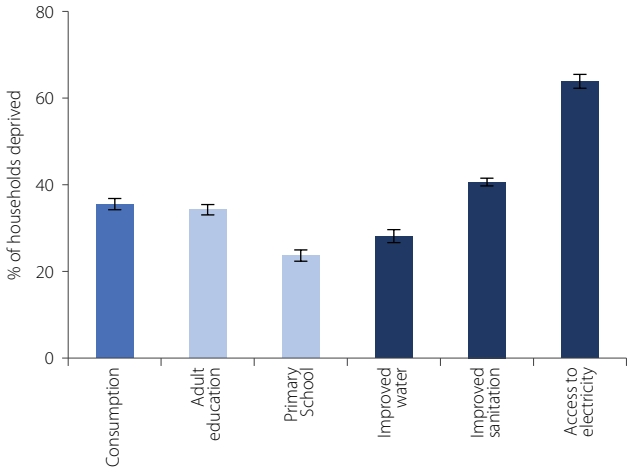
b) Enrollment in secondary education, 2015/16



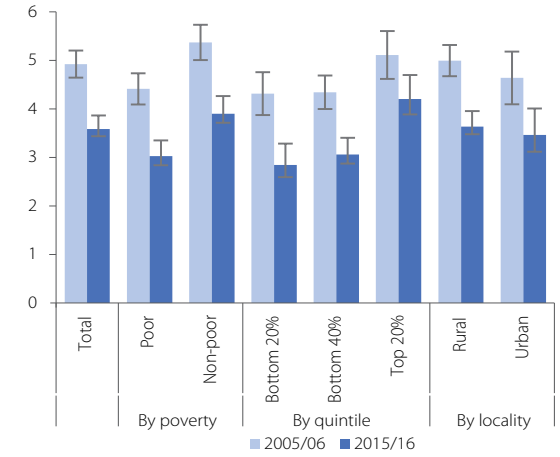
c) Under-five mortality rate (per 1,000 live births)



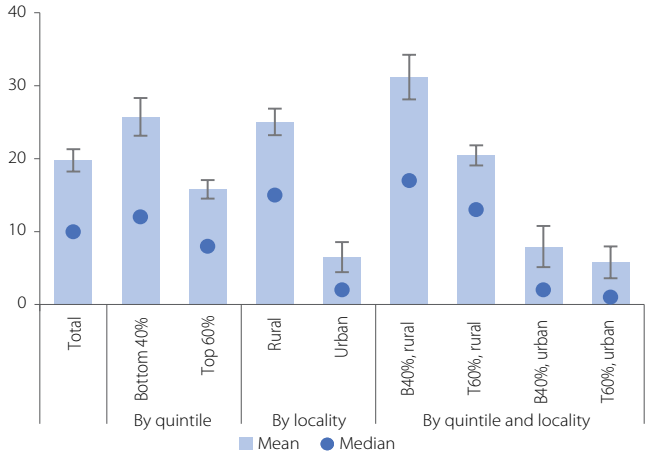
d) Multi-dimensional deprivations, 2015/16



e) Average number of curative visits per person per year (total population)



f) Distance to health facility where a doctor is available, in kilometers, 2015/16



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16, WDI data.

Kenyans have experienced significant gains in a range of population health indicators in the last ten to fifteen years. Mortality among children below the age of five has declined from 114.6 deaths per 1,000 live births in 2003 to only 52 in 2014, a remarkable achievement (Figure 3c). Moreover, the gains were widely shared, as the under-five mortality gap between poor and non-poor children declined. This progress is largely attributed to increased uptake of low-cost, high-impact interventions (such as malaria nets) and declining fertility. Similarly, Kenya has also made substantial gains in reducing child stunting and it now has one of the lowest stunting rates in the region. As of 2014, nearly 1 out of every 4 children under the age of 5 is stunted in Kenya, down since 2003, when 35.6 percent of Kenyan children were stunted. In addition, improvements in uptake of both curative and preventive services were also often more pronounced among the poor.

However, Kenyan remain deprived in many of the dimensions. When looking at poverty as a multidimensional challenge, along the lines of the components of the upcoming multi-dimensional poverty index by the World Bank, households are often deprived beyond the monetary dimension. The most common type of deprivation is access to services, notably sanitation and electricity: 40.7 percent of households lack access to improved sanitation[3] and 64 percent lack access to electricity in 2015/16. Fewer households, around 28.2 percent, are deprived of access to an improved source for drinking water (Figure 3d).[4]

Regardless of the positive trends, geographic and socio-economic disparities in net secondary enrollment remain a challenge and learning assessments suggest that Kenyan children often lag behind the curriculum. Net enrollment in secondary education at 56 percent remains substantially higher among the richest quintile, compared to the poorest quintile, at almost half that level. Rural-urban disparities are pronounced, with a 20 percentage point difference in enrollment (Figure 3b). This is a reflection of low transition rates between primary and secondary school stemming from financial constraints and late enrollment in primary school. While learning outcomes of Kenyan children compare favorably to peer countries, the education system often fails to equip students with basic skills. Learning assessments suggest that Kenyan children quickly fall behind the standards set by the national curriculum: only about half of the children in fourth grade master the basic tasks that second-graders should be able to accomplish (e.g., read and understand a paragraph). Regional disparities in learning outcomes are pronounced and mirror those in enrollment. Finally, while well-paid and knowledgeable by regional standards, Kenya's teachers lack pedagogical skills and are absent from class too often, suggesting that teacher incentives are not always aligned with student learning.

Despite the progress, there are still pronounced socioeconomic gradients in health access and some health outcomes warrant action. Children from poor families are less likely to be vaccinated and poor mothers are less likely to give birth with a qualified health provider present. In fact, in all domains -outpatient care, inpatient care, and preventive care- and across almost all age groups, the poor are less likely to use health services (Figure 3e exemplifies this point by showing the average number of curative care visits per person per year). They also often have to overcome greater distances to access health care, particularly in rural areas. These gaps in access remain large and significant and are a major cause for concern (Figure 3f). In addition, maternal mortality ratio remains high at 510 deaths for every 100,000 live births, close to the average for low-income countries and only somewhat lower than the regional average.

[3] Improved sanitation is defined as a toilet with a flush, a ventilated improved pit latrine or a latrine with a slab.

[4] Improved drinking water sources are defined as a piped water system, public tap, borehole, protected dug well, bottled water or water from rainwater collection vendors.

DESPITE PROGRESS IN REDUCING POVERTY, SEVERAL CHALLENGES REMAIN

Progress has been slow

However, progress is slow and Kenya is not on track to eradicate extreme poverty by 2030. Even though Kenya has experienced moderate GDP growth in the last decade, transmission of growth into increased consumption of households is low. At 0.57, the country's elasticity of poverty reduction to economic growth – how much economic growth translates into poverty reduction – is low, below that of Tanzania, Ghana and Uganda; and weaker than expected given its level of GDP per capita. To eradicate extreme poverty by 2030, an annual poverty reduction rate of 6.1 percent would be necessary, despite the fact that in the last decade it has been 1.6 percent. If the trends observed in the last decade continue, the poverty rate will remain above 25 percent in 2030. To accelerate the pace of poverty reduction, Kenya will require a far more inclusive economic growth coupled with a sharper focus on targeted poverty-reducing policies.

Stark spatial disparities remain

Kenya is characterized by stark regional differences. The wellbeing of the population in the NEDI (North & Northeastern Development Initiative) group of counties, which includes all counties in the North Eastern province, lags considerably behind the rest of Kenya. In the NEDI counties, 68 percent of the population live in poverty compared to 36.1 percent at the national level (Figure 4a). Moreover, these counties saw little progress between 2005/06 and 2015/16 and remain prone to food insecurity, as shown by the food poverty and extreme poverty indicators (Figure 4b,c). Poor households of the NEDI counties also lie far below the poverty line and the prevalence of vulnerability is highest in the counties Mandera, Garissa, Samburu, and Turkana while rates are significantly lower in the central counties, particularly in Nyeri, Kirinyaga and Nairobi.

A sustained, multi-sectoral effort is required to raise the living standards of the population of these areas. Educational enrollment rates are much lower for these counties, particularly in secondary education. In terms of health services, they present lower rates of access to healthcare and up-take rates, particularly in terms of children who are treated for illness, vaccination rates and child-birth delivered by a skilled provider. For example, vaccination rates vary from more than 90 percent in the Central region to about 44 percent in Mandera in the Northeast and only 36 percent in West Pokot, part of the NEDI counties. Limited access to healthcare coupled with extremely high fertility rates, results in the highest maternal mortality rates of the country. In addition, coverage of improved sanitation and electricity, and to a lesser extent, access to improved water, is lower. While the government has implemented some measures to improve the connectivity and overall wellbeing of the population in these areas, a substantive, sustained and cross-sectorial effort is required over the medium term.

Another source of spatial inequality is the growing inequality within cities, as the urban population in Kenya increases over time. Within Nairobi, poverty is highly concentrated in informal settlements, where the living conditions are far worse, not only in comparison to the rest of the city but also in comparison to informal settlements in other major African cities. Nearly a third of informal settlement residents in Nairobi are poor, compared to 9 percent of the population living outside informal settlement areas. Mean per capita monthly consumption of informal settlement residents (Ksh 10,377) is nearly 40 percent lower than that of non-informal settlement residents (Ksh 16,688), as shown in Figure 4f. Moreover, the living conditions in informal settlements, in terms of housing, access to services, environmental problems, and health, are extremely precarious. Informal settlement residents also live far away from jobs, constraining their access to economic opportunities. It also remains difficult to move out of a informal settlement, exacerbating the spatial poverty trap in informal settlements.

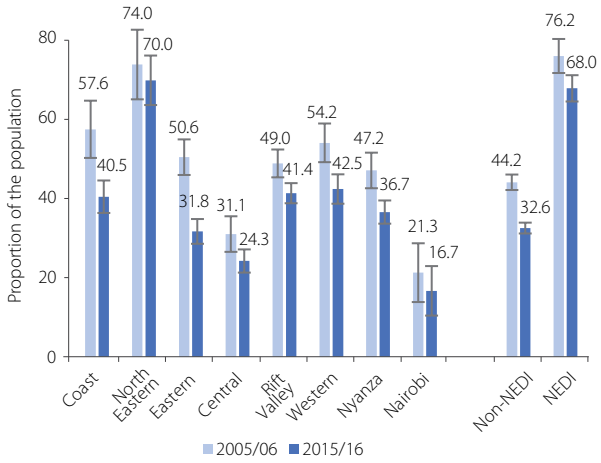
Vulnerability is prevalent

Although vulnerability and poverty rates fell over the last decade, over half of Kenya's population is currently vulnerable to falling into poverty in the near future. Vulnerability rates[5] fell faster in rural areas than

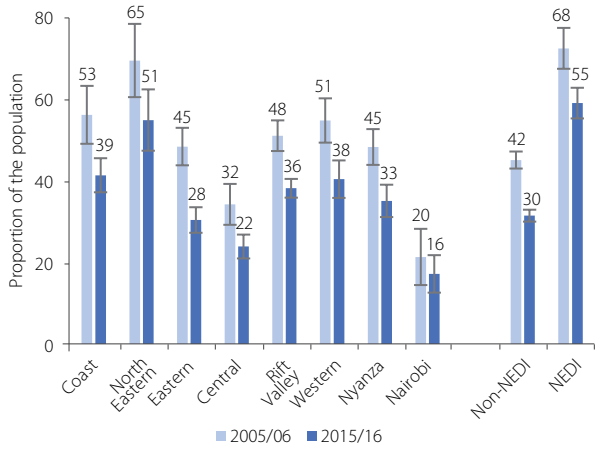
[5] Households are considered to be vulnerable if their predicted probability of being below the poverty line at any stage within the next two years is greater than 50 percent.

Figure 4: Regional patterns in poverty

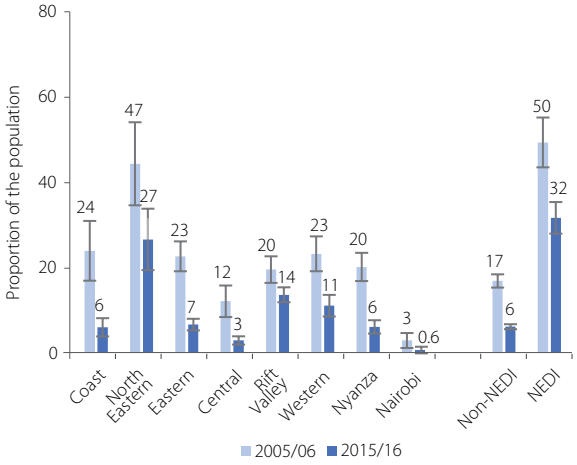
a) Absolute poverty



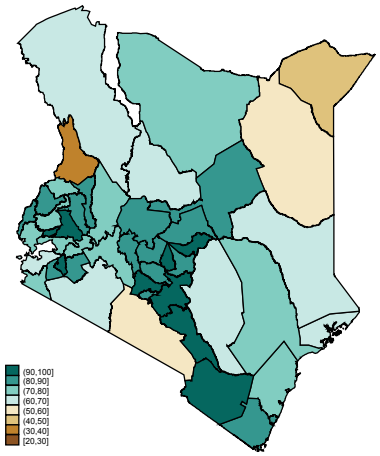
b) Food poverty



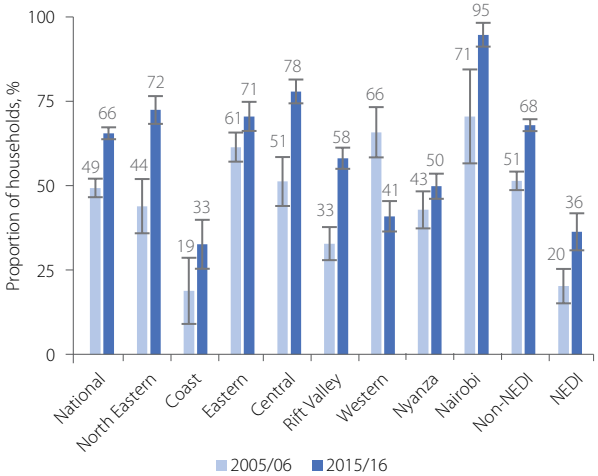
c) Extreme poverty



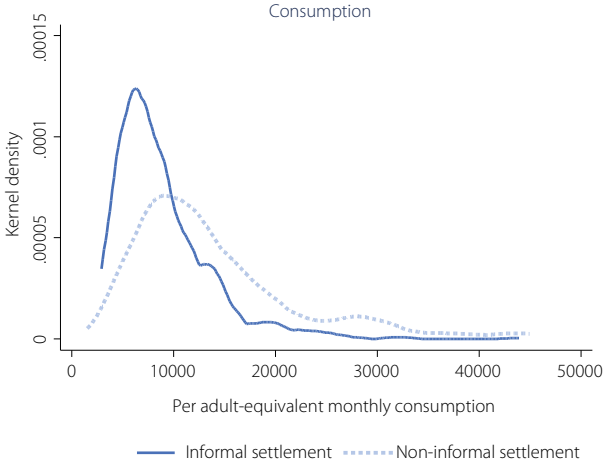
d) Percentage of children age 12-23 months that received all basic vaccinations



e) Access to improved sanitation



f) Household consumption in Nairobi's informal settlement and non-informal settlement areas, 2015/16



they did in urban areas between 2005/06 and 2015/16, but the current urban-rural differences are still very large – 43 percent in urban areas, and 57 percent in rural areas (Figure 5a). Poverty and vulnerability are highly correlated, but over one third of non-poor Kenyans are classified as vulnerable. Vulnerability rates vary widely by county, being highest in the north and east of the country (Figure 5b), and by household characteristics, with high vulnerabilities particularly among those that are engaged primarily in agriculture, and those with low educational attainment (Figure 5c). Many of these non-poor but vulnerable households are clustered just above the poverty line, meaning that even a moderate shock could push them below the line.

When faced by shocks, many poor and rural households often resort to coping strategies with adverse implications for future wellbeing. The overall prevalence of both economic and agricultural shocks declined between 2005/06 and 2015/16. However, the incidences of certain kinds of shocks affecting agricultural households went up. Agricultural households were far more likely to report crop losses from preventable causes such as crop diseases or pests in 2015/16 than they were in 2005/06 (Figure 5d). The most common response of poor households after experiencing a shock is to reduce consumption, while for the richest households the most common response is to use savings (Figure 5e). The inability of poor households to cope with adverse shocks and their limited financial resilience has severe long-term implications, particularly when they are forced to cut spending on food, education and health, curbing human capital accumulation.

Kenya expanded its social protection programs, but coverage and scale remain limited. Over the last few years, Kenya expanded its social protection programs, spending about 0.27 percent of GDP in 2015, well below the average of 1.6 percent of GDP in low- and middle-income countries. The programs are generally well targeted: only 23 percent of grant-receiving households had at least one resident member who was employed. This is in contrast to 48 percent in poor, non-beneficiary households, and 54 percent in non-poor, non-beneficiary households. The programs are effective in fostering food security, improving school enrolment and reducing the probability of children working. Despite recent efforts by the government, these programs have limited geographical coverage and remain small in scale (Figure 5f).

WOMEN ARE LEFT BEHIND IN MANY AREAS

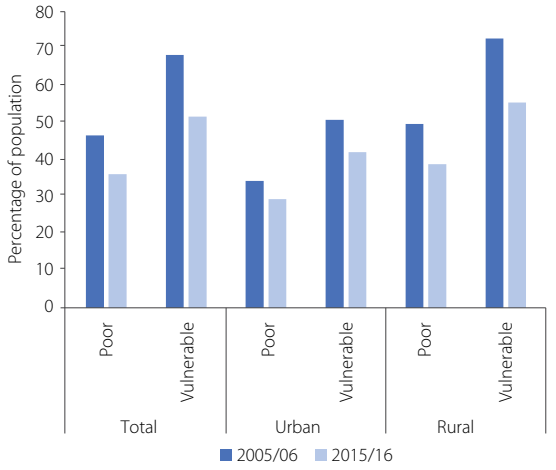
Kenyan women are disproportionately affected by poverty during the core productive and reproductive years, especially if they experienced a marital dissolution. As in other African countries, Kenyan women are more likely to live in poor households than men, starting in their mid-20s and continuing until their 50s (Figure 6a). Moreover, women who are separated, divorced or widowed are more likely to be poor (compared to men), face higher prevalence rates of physical violence (compared to other women) and are disproportionately affected by HIV/AIDS. Kenya is also among the few African countries with gender inequality in formal inheritance rights – i.e. the Law of Succession Act. Gender gaps exist also in terms of access to ICT and financial services, though levels of access are high by regional standards.

Girls and women continue to be disadvantaged in education and health in some regions. Girls have lower enrollment rates and educational outcomes than boys in Northeastern Kenya and the coast – but boys' disadvantages emerge in parts of Central and Western Kenya (Figure 6b). Girls dropping out of secondary school are more likely to be married and to have given birth than girls still attending school.[6] Despite improvements in girls' education, adult women are twice as likely to be illiterate as adult men (Figure 6c), reflecting historical gender inequalities, which continue to put women at a disadvantage in terms of labor market opportunities. Even though maternal mortality declined since 2005, Kenyan women face a staggering lifetime risk of 1:42 of dying due to complications of pregnancy or child birth (Figure 6d).

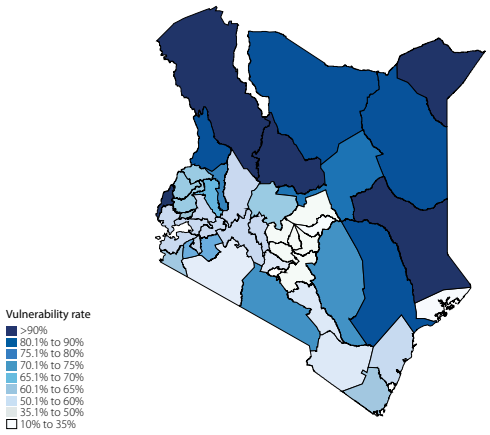
[6] Secondary drop out is defined as having attended secondary school Form 1-3 during the last school year, but no longer attending school during the current school year. Note that there are only few cases of secondary drop outs captured by the KIHBS N=70), which limits the analysis that can be performed.

Figure 5: Poverty and vulnerability in Kenya

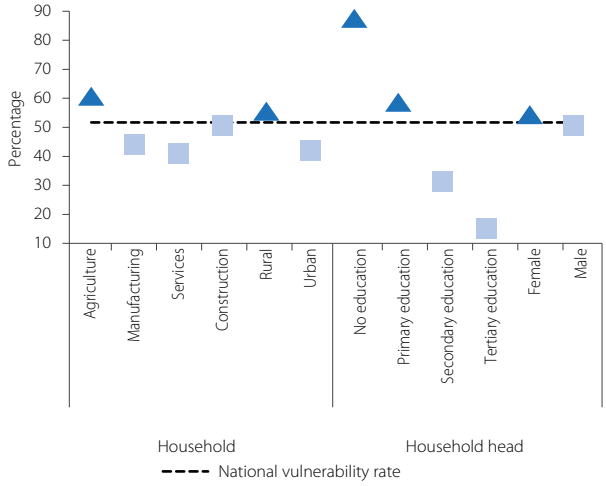
a) Poverty and vulnerability from 2005/06 to 2015/16



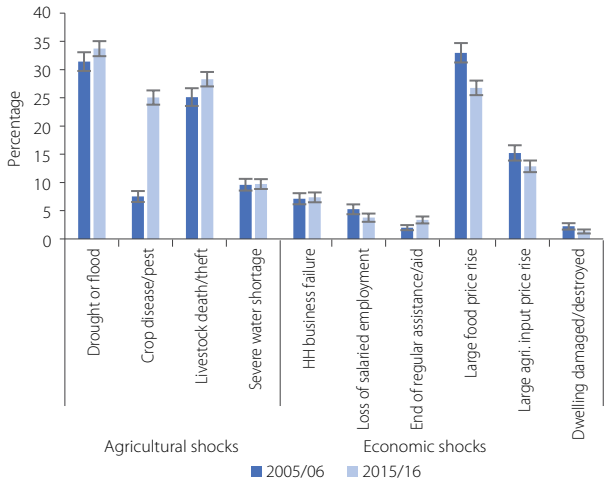
b) Geographic variation of vulnerability in 2015/16



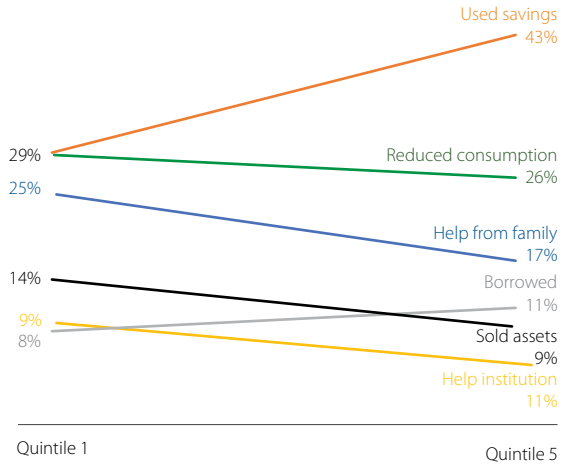
c) Relative vulnerability rates, by household characteristics



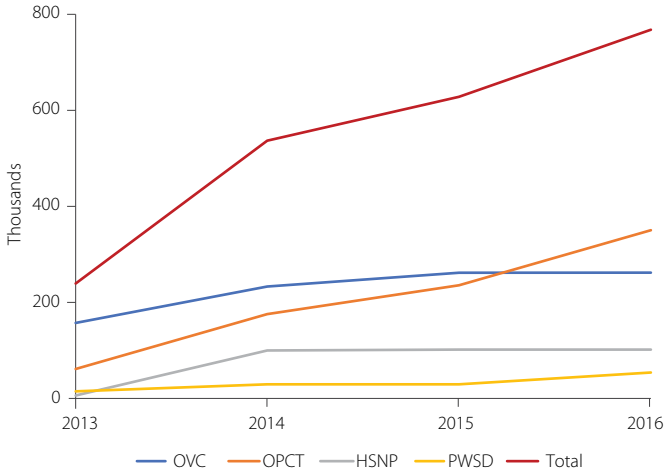
d) Shock prevalence for agricultural households only



e) Coping mechanisms in 2015/16, by poverty quintile



f) Number of households receiving cash transfers



Source: Own calculations based on KIHBS 2005/06, KIHBS 2015/16 and Kenya's Single Registry for Social Protection.

In the Northeast, women often have a lower participation in the labor market because of household work. In 2015/16, Kenya had a female labor force participation rate of 71 percent for the core working-age population (15-64 years), compared with a male labor force participation rate of 77 percent (Figure 6e). However, there are significant regional differences – female labor force participation is high in Central and Western Kenya, but much lower in the Northeast (Figure 6f). Due to traditional gender roles, women spent a significant amount of time on unpaid care work within the household. Every child aged 0-5 years reduces women's probability to be in the labor force by over 2 percent.

There are gender gaps in access to productive resources and sectoral segregation. In line with the international experience, male wage workers earn 30 percent higher wages and salaries than female wage workers. This is likely explained by the fact that women are disproportionately employed in agriculture and services, while men have a higher share of employment in the industrial sector. Also, profits of male-run household enterprises are about twice as high as profits of female-run enterprises and households for which women are the primary decision-makers in agricultural activities achieve lower yields (maize, beans) than other households (Table 3). Only 12 percent of women aged 20-49 years report owning any land on their own, compared with 39 percent of men. Also, Kenya is among the few African countries with gender inequality in formal inheritance rights, for example with respect to the Law of Succession Act.

Reducing the gender gap can unleash Kenya's productive potential

Women's productivity can be increased by abolishing discriminatory practices in women's access to productive assets. Gender biased legislations, such as the differential treatment of male and female surviving spouses under the Law of Succession Act, should be eliminated. Savings products with an element of illiquidity and soft commitment can increase women's savings to unlock investments into productive assets. Information campaigns as well as mentoring programs can help to overcome sectoral segregation locking women into low-productivity jobs. Technological change has the potential to disrupt traditional patterns of sectoral segregation, such as Uber and other ride-hailing services opening up opportunities for women in traditionally male-dominated sectors like transportation.

Closing the gender gap and creating equal opportunities for boys and girls requires, among other interventions, targeted investments in education and health. Programs subsidizing the direct or indirect cost of education can be effective in increasing enrollments and educational performance of boys and girls. Increased secondary school enrollment among adolescent girls may also delay fertility decisions. In health, further initiatives to increase access to and affordability of reproductive health care services are important to reduce maternal mortality, especially in Kenya's arid and semi-arid regions. Public investments in services for care can reduce time constraints of women. Scaling up care services for children, however, requires innovative approaches, combining public and private sources of funding.

Table 3: Monthly earnings in KSh, by gender

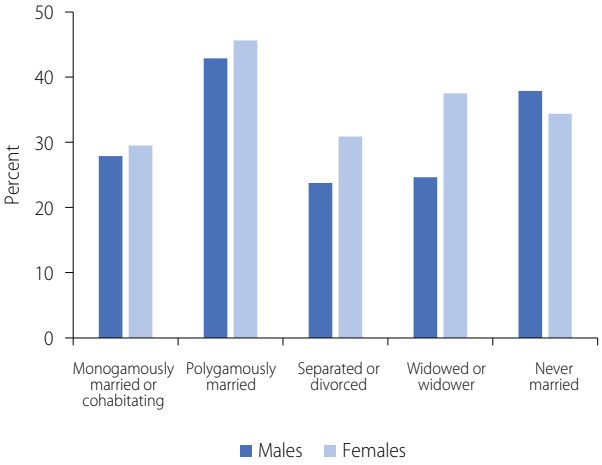
	Male	Female	Ratio male-to-female
Mean	18,276	14,075	1.30
10th percentile	3,000	2,000	1.50
Median	10,000	6,500	1.54
90th percentile	43,300	35,000	1.24

Source: KIHBS 2015/16.

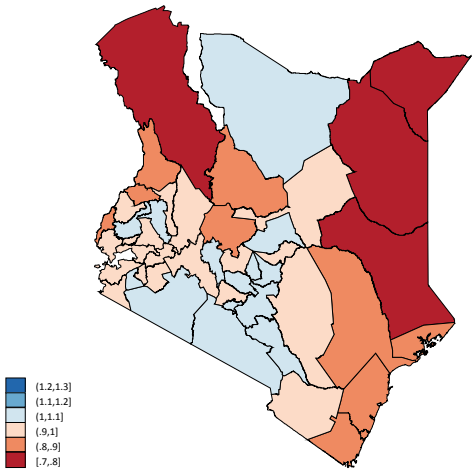
Figure 6. Gender gaps in Kenya

a) Poverty rates and gender-poverty gap

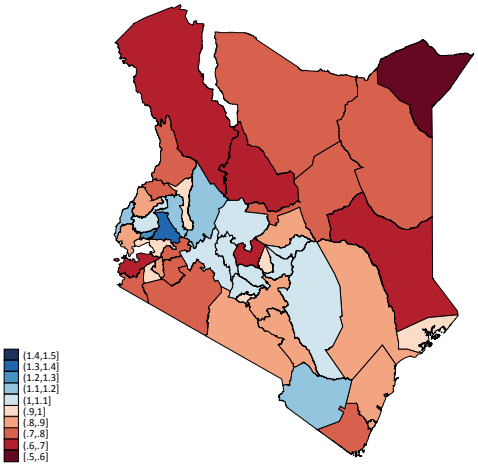
b) Female and male poverty rates by marital status, 2015/6



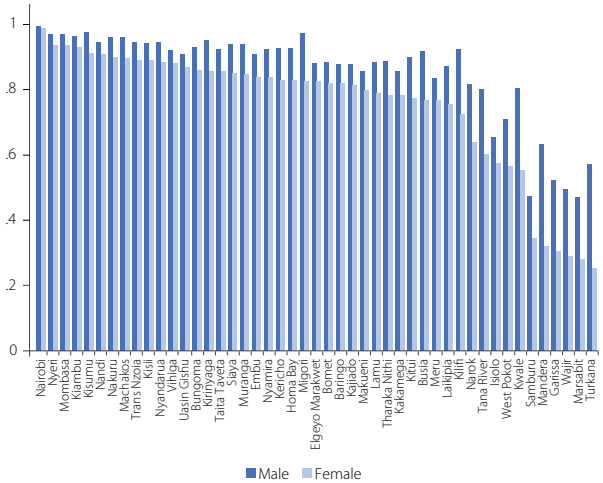
c) Gender parity index for gross primary enrolment rates[6]



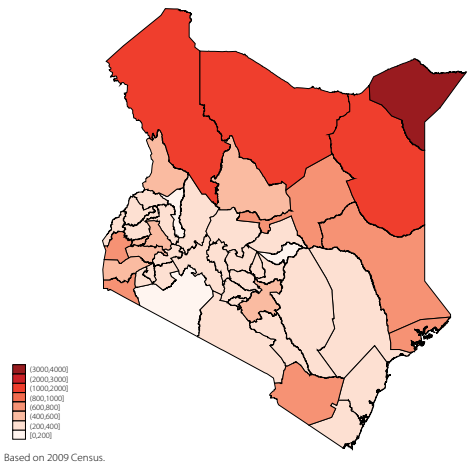
d) Gender parity index for gross secondary enrolment rates[7]



e) Literacy rates, by gender and county



f) Maternal mortality ratio.



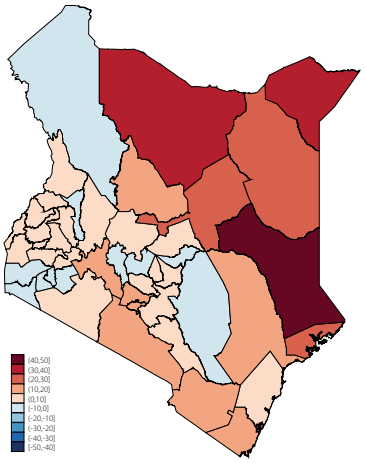
Based on 2009 Census.

[7] The gender parity index is defined as the ratio of female to male enrollment rates. A value above (below) unity indicates that girls have higher (lower) levels of enrollments.

[8] Ibid.

g) Changes in employment, by gender

h) Gender gap in labor force participation



Source: Own calculations based on KIHBS 2005/06, KIHBS 2015/16, KNBS (2012) and Global Findex 2014.

ACCELERATING POVERTY REDUCTION

Improve the productivity of the agricultural sector and enhance access to markets in rural areas

Increasing agricultural productivity remains a potential pathway out of poverty for many households. In Kenya, more productive farmers are less likely to be poor (Figure 7a,b). This correlation between farm productivity and poverty constitutes promising evidence that an enhancing agricultural yields could lead to a reduction of povertys. However, little progress has been made in terms of raising agricultural productivity in the last ten years. This is especially true for the production of maize, Kenya's main food staple, and commercial crops such as coffee. Increased efficiency in the production of beans appears to be the only exception. As a result, agricultural productivity has not been contributing to poverty reduction in rural Kenya, a marked difference from the experience of other countries in the region, such as Ethiopia.

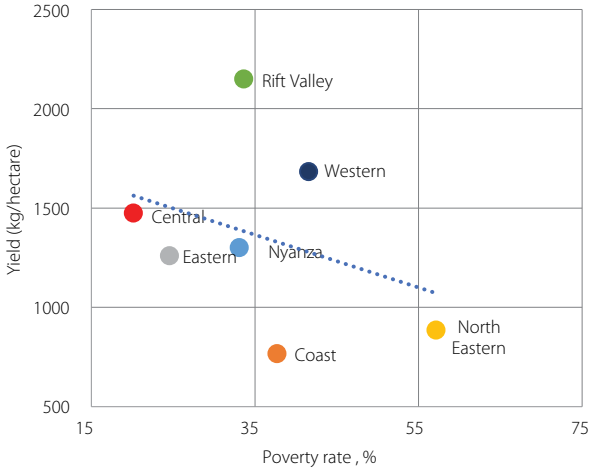
Technology adoption is the main factor associated with higher productivity, according to analysis using farm level data. Farmers that applied chemical fertilizer, for example, experienced a 20-25 percent increase in maize yield. Moreover, farmers who planted improved maize seeds experienced 26-32 percent higher productivity compared to those that used traditional low-yield seeds. Despite the yield-enhancing effects of fertilizer and seeds, the share of farmers adopting these inputs has not changed much between 2000 and 2010. Policies aimed at increasing the adoption of improved agricultural inputs by small farm holders would help to increase their income and help to further reduce poverty. Extension services programs and educational campaigns, together with a competitive inputs markets, are some alternatives.

Similarly, agricultural commercialization is also associated with better living conditions. For farmers, a higher degree of commercialization is associated with higher living standards, as can be observed in Figure 7e. Thus, investments in infrastructure and access to information and communication technologies, so that farmers can more easily reach their clients and can more easily buy the inputs for agricultural production, are an important policy area to focus in order to accelerate the reduction in poverty.

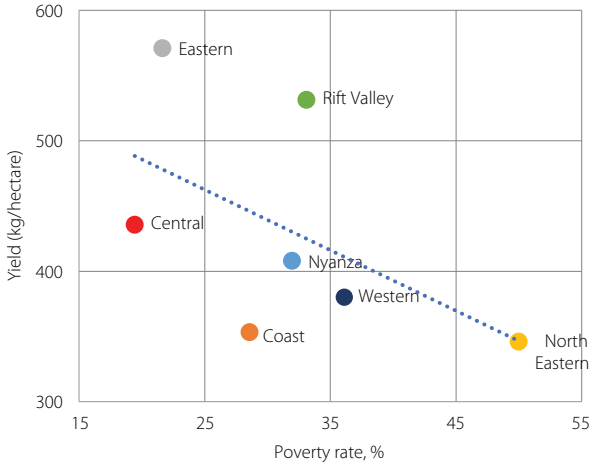
Policymakers may need to allocate more resources to enhance farmers' productivity and make sure that the current spending is efficient and providing the highest returns. Around 2 percent of total public expenditure was allocated to agriculture in 2016/17, even though the sector accounts for 25 percent and 60 percent of the country's GDP and employment, respectively (World Bank 2018). This prevents the country from investing effectively in smallholder agriculture and provide services to improve basic crop yield. There is also a need to asses if the current spending is efficient, taking into account that spending

Figure 7: Socio-Economic indicators of Rural Kenya

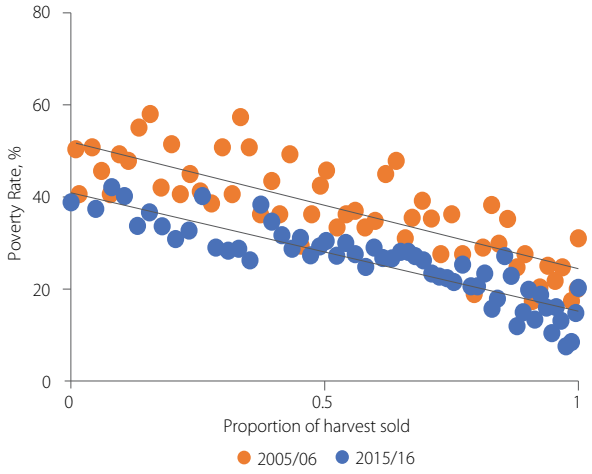
a. Maize yield and poverty rate, 2015/16



b) Bean yield and poverty rate, 2015/16



c) Poverty and the sale of farm produce in rural Kenya



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16, WDI data.

on public goods in this context (e.g. research and development, extension services, etc.) has been proven to be more productive than spending on private goods (e.g. fertilizer subsidies). In addition there is space to reform the input subsidy program by ensuring that the program is targeting small farmers and facilitating technology adoption among them. Moreover, investment in irrigation schemes have a high rate of return[9] and could reduce dependence on rainfall. The fact that food security is one of the *Big Four* priority areas outlined by the government (together with manufacturing, affordable housing and universal healthcare) is a positive sign and the concrete policies that will be proposed should be scrutinized carefully.

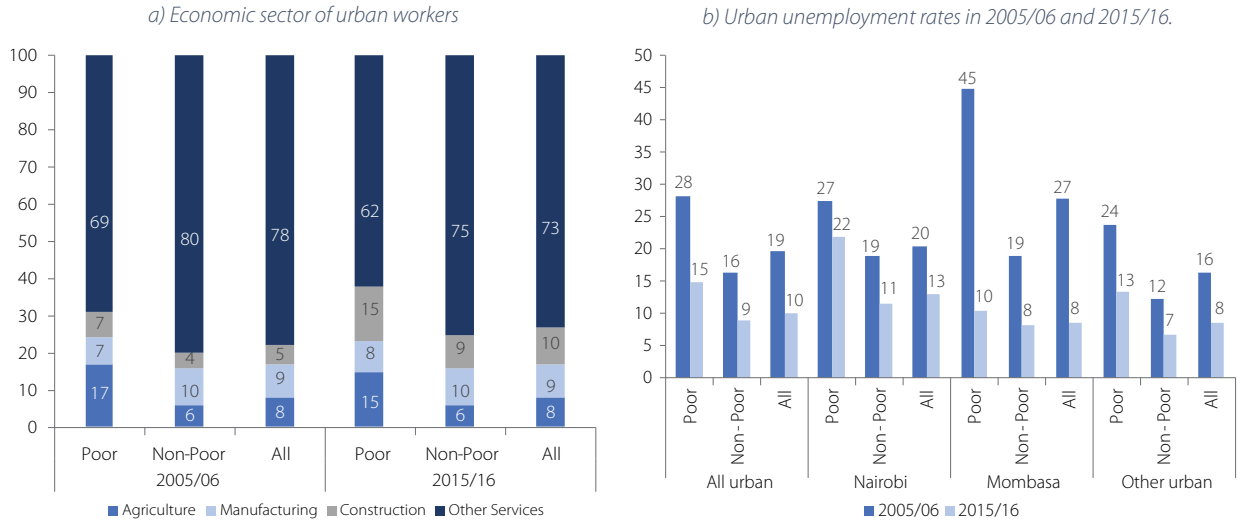
More and better jobs, along with infrastructure investment, is required in urban areas

Many workers remain in volatile and low quality jobs in urban areas, despite a decline in unemployment. Unemployment rates dramatically dropped in urban areas (Figure 8e), in tandem with an increase in labor force participation rates. However, a large fraction of the urban poor, women, and youth are unemployed.[10] The existing jobs in urban areas are casual and do not offer long-term security. Nearly 90 percent of construction jobs in Nairobi are casual work, resulting in 41 percent of the poor being casual workers as opposed to 9 percent for the non-poor (Figure 8d). These jobs do not provide long term security, and may not conduce to better job opportunities in the future.

[9] World Bank, 2018.

[10] In Nairobi, for example, more than 20 percent of the poor are unemployed.

Figure 8: Urbanization remains a challenge for poverty reduction



Source: Own calculations based on KIHBS 2005/06, KIHBS 2015/16, DHS 2014 and Cities Baseline Survey 2013.

It is important to leverage the potential of urbanization for poverty reduction through more and better quality jobs. Manufacturing and high value-added services jobs are still lacking in urban Kenya despite the fact that they can play an important role in providing economic opportunities, especially for the young urban population. The urban poor face several challenges in terms of job availability and accessibility, particularly in informal settlement areas. More and good quality jobs in the manufacturing sector can help to improve the incomes of the urban poor, if paired with investments in transport infrastructure and skills. Some of the areas of focus should be competitiveness and capabilities. Industrial enclaves can help address some of the structural bottlenecks that affect manufacturing competitiveness and help attract foreign direct investment. Worker capabilities can be enhanced by prioritizing literacy, numeracy and ICT skills and by improving the training programs in collaboration with the private sector. As one of the Big 4, manufacturing has great potential to help improve the livelihoods of the urban poor.

Improved connectivity through investments in infrastructure and the provision of high quality public services is also crucial. High transportation costs squeeze the budget of urban households, limiting access to economic opportunities. Using minibus, the main form of motorized transport in Nairobi, a worker can reach only 4 percent (within 30 minutes) and 25 percent (within 60 minutes) of existing jobs, while in Greater Dakar, for example, it allows access to 52 percent of existing jobs within 1 hour of travel. Thus, investments to lower the transportation costs and shortening the distances between the individuals and the economic opportunities is necessary. Moreover, in some areas investments in physical infrastructure lag behind the needs of the urban population. While the share of urban population with access to improved sanitation facilities and electricity increased during the last decade, the share of those with improved water access dropped in some areas, indicating that urbanization outpaced infrastructure provision.

Broader affordable housing can reduce housing costs in urban areas, relaxing the budget constraints. The high costs in terms of food and housing are curbing the purchasing power of the less well off. Targeted policies to ensure affordable housing can help them to escape poverty, which will be hopefully part of the set of policies implemented under the Big 4 umbrella. In the case of informal settlements, localized interventions are required to ensure that informal settlements function as a place of opportunity rather than as a poverty trap, including better service provision.

Improving the provision of education and health

Increasing secondary school enrollment among the poor requires demand-side interventions. While enrollment in secondary has increased among the poor, significant gaps persist. The evidence presented in this report and numerous academic studies suggest that increasing enrollment in secondary education in Kenya requires primarily demand-side interventions aimed at loosening the financial constraints that less well-off households face. Cash transfers have already proven effective in increasing enrollment rates. Similarly, encouraging on-time primary enrollment and the supporting the primary-to-secondary transition could also contribute to raise the enrollment rates at the secondary level.

Enhancing the quality of education and aligning the teachers' incentives with student learning requires a series of interventions combined with a close scrutiny of the recently introduced monitoring and evaluation system. Greater reliance on contract teachers to initially fill vacant positions, subsequently moving to an 'up-or-out' promotion system, in which the best-performing contract teachers are promoted to public school teachers, may have large potential benefits. Contract teachers have average levels of subject and pedagogical knowledge and lower rates of absenteeism, without being paid a premium. In any case, the system requires all teachers to be systematically and regularly evaluated, for benefits to be tied to performance, and a credible threat of discontinuation of employment. The effectiveness of the recently introduced monitoring and evaluation systems should be closely monitored. While they have the potential to improve teacher effort, it is not clear whether head masters and deputy head masters are best placed to monitor teacher presence and performance.

The quality of education would benefit from the involvement of local stakeholders, particularly parents, and from enhanced school governance. Empirical evidence suggests that the local knowledge of stakeholders, particularly parents, may play a key role in monitoring teachers at the school-level. Getting local stakeholders involved may help improve teacher attendance and, eventually, student's outcomes. Along with greater local oversight, schools could be given more resources and greater independence on how to use them. Increasing the capitation grant, along with greater autonomy to school committees to recruit, retain, and promote teachers, has the potential to improve teacher performance and to lower school drop-out. The potential of a greater involvement of private providers could also be explored.

In terms of the provision of universal health coverage (UHC) one of the 'Big Four'-priorities, it must be noted that the incidence of catastrophic health expenditures has decreased recently, which may disincentivize voluntary enrollment going forward. Only around 20 percent of the population are covered by health insurance, with large differences between the poor and the better-off and between rural and urban areas. At the same time, there is evidence that the incidence of catastrophic health expenditures has declined over time and that households rarely resort to adverse coping strategies, such as selling their assets, to finance healthcare. This is in line with the removal of user fees in 2013 for a range of public health services, including birth deliveries, and with the overall improvement of living standards and health amongst Kenyans. The implication maybe that those in the informal sector have little incentive to voluntarily insure, making it harder for the government to expand health insurance coverage.

Similarly, given that the poor are more likely to depend on public health services than the rich, recent disruptions in supply during labor disputes between the government and public-sector unions disproportionately affect the less well-off. The string of recent health worker strikes in the public sector that culminated in major walk-outs at the end of 2016 and in mid-2017, resulted in disruptions that likely affect the poor disproportionately. Health workers' salaries in Kenya remain high by regional standards, despite their recent sluggish growth in real terms. This is particularly true for health workers in the public sector, which earn a substantial premium, in part because of a lengthy list of allowances that account for a significant portion of

their total pay. There should be a more open, informed and transparent debate on adequate remuneration of public health workers, in order to help prevent these disruptions in the future.

Finally, the sustainability of health financing, particularly of priority programs, should be a priority. A recent report has highlighted funding gaps in all five priority programs analyzed (World Bank 2018) and despite a falling share, healthcare financing in Kenya still relies significantly on donors. One vehicle to increase revenues is through an increase of memberships and contributions to the National Hospital Insurance Fund (NHIF). One alternative to increase funding would be by introducing 'health taxes' on food and drinks that contain high amounts of saturated fat, sugar, salt, or other unhealthy ingredients, which would also address the problem of rising obesity among urban, better-off Kenyans.

Expand Social Protection programs and provide the foundations for devolution to work

Expanding assistance to vulnerable households through existing or new social protection programs can reduce vulnerability. The effort that has been made to coordinate and harmonize social protection programs, combined with the creation of a registry of beneficiary households means that the country is well placed to expand assistance to vulnerable households, which would benefit greatly from this potential expansion. Furthermore, specialized programs to mitigate shocks can reduce vulnerabilities. For example, the introduction of emergency cash programs can have the potential to offset some of the negative effects of shocks such as droughts and floods, and protect vulnerable households from resorting to negative scoping strategies with long-term impacts like selling productive assets.

Devolution has the potential to address some of the development challenges, and its implementation should be carefully monitored so that the necessary adjustments can be incorporated. Devolution has the potential to address the wide spatial variation in wellbeing across counties and regions and improve the accountability in service delivery. Decentralization seems like the right path to address these inequities, but counties have various degrees of institutional capacity and economic development and must be provided with the resources required (both human and financial). At the same time, outcomes in all sectors should be closely monitored and counties should be hold accountable for their performance. In the coming years, as more data becomes available and enough time has passed for the effects of decentralization to be apparent, more studies and research should focus on the effects of devolution.

The decade-long gap between the two most recent household consumption surveys makes it difficult to monitor poverty and analyze the impact of policies. While Kenya's most recent household consumption survey was implemented in 2015/16, the previous survey dates back to 2005/06. Without more regular data collection, it is very difficult to monitor progress in terms of poverty reduction, and to assess the impact of policies and programs. An improved monitoring system should be put in place, ideally one that provides information at the county level and that can inform the ongoing devolution process in Kenya. The Government of Kenya's plans to establish a continuous household survey by the KNBS are a good step in the right direction to design and implement policies based on evidence.

ORGANIZATION OF THE REPORT

This report is organized as follows. Chapter 1 provides an overview of macroeconomic drivers of economic growth and its fiscal implications. The trends of poverty (under the international poverty line) are compared with other countries alongside indicators of non-monetary deprivations to provide an international benchmarking. Kenya's context is discussed in an analysis of the political economy, with a focus on the two central themes of political competition and devolution. This is complemented by an analysis of Kenyans' perceptions, embedded in an international comparison.

Chapter 2 first documents the progress made by Kenya in terms of the monetary measures of poverty, during the period of focus of this report, 2005/16 to 2015/16. It analyzes the trends in terms of the national poverty headcount rate, other related indicators (such as the depth and severity of poverty) and the incidence of food and extreme poverty, as officially defined by the Kenya National Bureau of Statistics (KNBS). The chapter then turns to examine the incidence of consumption growth, and how this is reflected in terms of an array of inequality indicators. It also examines the factors behind Kenya's success in reducing poverty, relying on decomposition analysis and the finding of various studied on the impact of mobile money in the wellbeing of the population. The chapter concludes by providing a profile of the poor, in an attempt to identify the factors that may be limiting their economic opportunities and overall wellbeing.

A synthesis of what is known about the gender-poverty nexus in Kenya is presented in Chapter 3. It starts with a basic profile of poverty and gender. Next, following the framework of the 2012 World Development Report on Gender (World Bank 2011) it then proceeds to analyze gender gaps in endowments, gender inequality in economic opportunities and gender differences in voice and agency. Within each of these sections, the chapter also provides a brief discussion of possible policy options to narrow – and ultimately close – gender gaps and promote a more equitable society.

Chapter 4 analyzes rural livelihoods, and explores various factors that might have contributed or hindered the reduction in rural poverty. More specifically, it examines the role of diversification into non-farm employment to differentiate the contributions on income-diversification and agricultural income. An analysis of rural-urban migration sheds light on the role of migration for poverty reduction. In the second part, the chapter delves into agricultural production and productivity by analyzing its trends and its potential impact on poverty reduction. The analysis concludes with a discussion of commodity prices and how they affected rural poverty.

The linkages between urbanization and poverty with a particular focus on the challenges faced by the urban poor are examined in Chapter 5. It reviews Kenya's urbanization trends and examines how the geographic patterns of poverty changed during the last decade. In so doing, it assesses the contribution of urbanization to poverty reduction in the country. It also assesses urban poverty from both a monetary and a non-monetary perspective, in view of its geographic heterogeneity. Thirdly, the chapter analyzes urban labor markets to figure out opportunities and challenges faced by the urban poor. Finally, it takes a closer look at informal settlements—mainly in Nairobi—, where urban poverty is concentrated, showing a stark contrast in living conditions between informal settlement and non-informal settlement areas and the limited residential movements between them.

Recent developments in Kenya's education sector and their relationship to poverty and equity are analyzed in Chapter 6. It takes stock of the recent trends in access to education services as well as their quality and examines the incentives in place to produce quality education for all. The chapter provides background information on Kenya's education system, while analyzing current levels and recent trends in access and enrollment and their links to poverty and equity. It then shifts the focus from access and enrollment to learning outcomes and then analyzes inputs into the educational production and their distribution, including physical inputs and the ability of

teachers to deliver quality education. Finally, it discusses school governance, especially teacher incentives. In addition to the analysis of various data sources[11] including administrative data, household surveys, and school assessments, the analysis draws heavily on recent academic studies.

Chapter 7 analyzes levels and trends in health outcomes, uptake of services, and health equity. It provides background information on recent developments and initiatives in Kenya's health sector, including the devolution of health service delivery to the counties, the removal of user fees, health workers strikes, and universal health coverage (UHC), one component of the 'Big Four'-agenda. It documents the rapid pace at which Kenya in recent years made progress in health outcomes, particularly under-five mortality, and in the uptake of certain health goods and services. While these improvements have often been equitable, the chapter also documents inequities in access and uptake of health services that persist today, including significant geo-spatial variation. Finally, it shifts the focus towards providers and inputs into health production, including provider knowledge and physical inputs. The analysis relies on a wide array of microdata sets and administrative data as well as a review of academic studies.

With the aim of understanding how to address vulnerability in Kenya and make sure that the country enters a sustainable path of poverty reduction, Chapter 8 examines and analyze changes in the vulnerability profiles for Kenya in 2005/06 and in 2015/16. Moreover, it analyzes and compares the welfare shocks that affected households in 2005/06 and 2015/16, as well as which coping strategies were adopted in the face of these shocks. Finally, the chapter assess the coverage and effectiveness of Kenya's social safety net programs, while also measuring their impact on different measures of household welfare.

[11] The report relies on the 2005/06 and 2015/16 Kenya Integrated Household Budget Surveys (KIHBS), the 2012 Service Delivery Indicators (SDI) for education, a facility-based survey of teachers, students, and schools, and the Uwezo data, annual learning assessments. In addition, data from the World Development Indicators (WDI) and the Kenya Economic Survey (KES) was used.

CHAPTER I

KENYA IN CONTEXT

SUMMARY

Since 2005, Kenya has experienced resilient economic growth despite several shocks, contributing to a steady, though moderate, reduction in poverty. Economic and political shocks in the past decade have included electoral violence, drought, and an overhaul of the centralized political system. Perceptions of democracy and trust in the government have suffered over the years, following contested elections and corruption concerns. As Kenya begins its next five-year development strategy, a larger emphasis on redistributive policies and the devolution process is necessary to bring the country closer to eradicating poverty by 2030.

Kenya's economic growth has exceeded average growth in sub-Saharan Africa in the past decade. Growth averaged 5.3 percent in the 2005 to 2015 period, primarily driven by the services sector on the supply-side and household consumption on the demand-side. In particular, the mobile phone revolution contributed to an expansion of the financial services sector by increasing access to credit and providing services to previously unbanked households. The country faced two major economic shocks between 2005 and 2015. The first was due to electoral violence in early 2008 that compounded the effects of the global financial crisis. The government's quick policy actions through a stimulus package helped restore growth in 2009 and 2010. A second shock hit the country in 2011 after an increase in international oil prices, combined with a drought in the Horn of Africa that reduced agricultural production in the region.

The government's development policy has been guided by Vision 2030, Kenya's long-term development plan. Policies were designed to increase aggregate demand, with a focus on supply-side investments in infrastructure projects such as rail transport and renewable energy. While revenue was volatile between 2005 and 2015, the pace of public spending steadily increased and consistently exceeded revenue collections. This put pressure on the fiscal deficit, which increased from 4.7 percent of GDP in 2005/06 to 8.2 percent in 2015/16. Education spending was the largest beneficiary of social sector spending and had a stable upward pace, largely the result of a free universal primary education (FPE) policy.

In the past decade, Kenya has experienced a moderate reduction in poverty. As of 2015, about one third of the Kenyan population lives below the international poverty line of US$ 1.90 a day. Poverty declined from 43.6 percent in 2005 to 35.6 percent in 2015. Poverty reduction has been driven by improvements among the poorest of the poor, and particularly among households engaged in agriculture. Agricultural households remain vulnerable to climate and price shocks, as growth in the sector has a strong impact on household consumption.

Kenya compares favorably in monetary and non-monetary poverty with peer countries, but is not yet on the same level as other lower-middle income countries. At the lower-middle income line of US$ 3.20 a day, both the rate of poverty and the depth of poverty are worse in Kenya than in countries having similar levels of wealth per capita. More than two thirds of the Kenyan population lives below the US$ 3.20 a day line. Poor households are often deprived on multiple dimensions, with the most common being access to services such as improved water and sanitation. Kenya lags behind peer countries in access to improved water sources, but performs fairly well on education and health indicators.

Politics and political institutions in Kenya were until very recently influenced by centralized power residing in the presidency and executive branch. A strong political consensus emerged from the need to devolve powers away from the executive and the central government, with a view to making Kenya's democracy and development more inclusive. Political and civil society efforts culminated in a constitutional referendum in 2010, which led to a "big bang" political and fiscal decentralization that devolved power to 47 counties created from the former eight provinces. Crucial issues however must still be resolved in order for devolution to have its full impact and for the citizenry to trust the process. So far, inherent disparities between counties determine developmental outcomes even if fiscal allocations are equitable. The disputed presidential elections in 2017 renewed the focus on democratic institutions in Kenya and perhaps on the current shortcomings of devolution as implemented.

The Afrobarometer Survey captures key perceptions of Kenyans on democracy, the nature of governance, and on participatory politics. Support for democratic norms and processes remained high even through the political volatility and electoral disputes over the past decade – concluding with the 2017 elections. Perceptions in 2008 however did reflect disillusionment regarding the true extent of democracy. Responses in 2016 show low levels of trust in public officials such as the police, government workers and members of parliament (MPs) who are themselves seen to be involved in corruption to some degree.

1.1 MACROECONOMIC PERFORMANCE OVER THE LAST DECADE

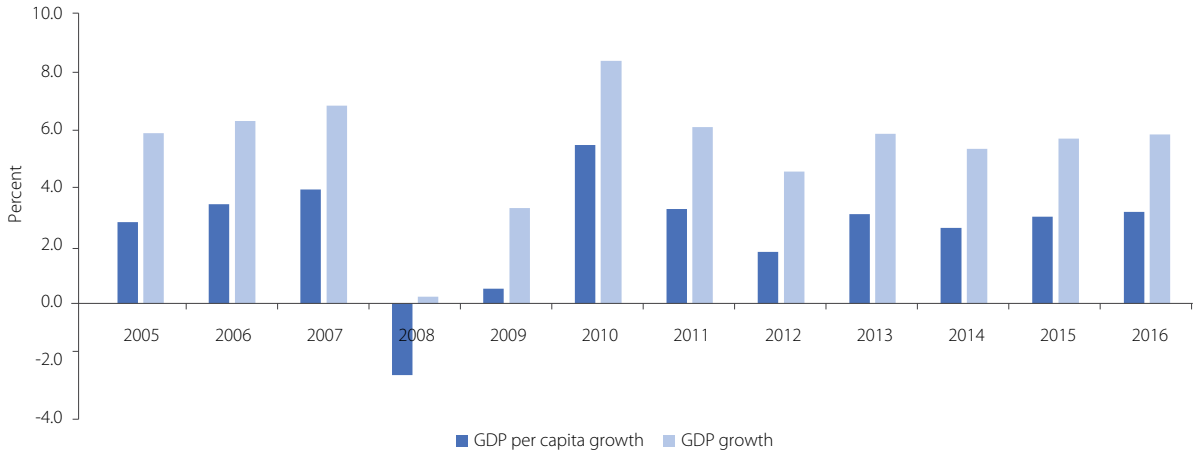
1.1.1 Resilient economic growth

Economic growth between 2005 and 2015 remained resilient, despite several challenges. The Kenyan economy recorded an average annual real growth rate of 5.3 percent between 2005 and 2015. Overall growth was volatile, including both years of high growth (6.9 percent in 2007 and 8.4 percent in 2010) and years of low growth (0.2 percent in 2008). The economy faced two major shocks in this period. First, electoral violence in early 2008 compounded the initial effects of the global financial crisis, reducing annual economic growth to 0.2 percent. The government took quick policy action through a stimulus package, which contributed to an increase in annual growth to 3.3 percent in 2009 and 8.4 percent in 2010. A second dual shock affected the economy in 2011 when international oil prices increased by 37.4 percent while a drought in the Horn of Africa reduced food output.[12] The escalation in food and fuel prices led to an increase in overall inflation (18.9 percent year-on-year as of Q3 2011). Low-income households were affected the most (19.6 percent overall inflation year-on-year) compared to high-income households (14.5 percent overall inflation year-on-year), given smaller expenditure shares for food and transportation for the latter group. The effects of the shocks in 2011 continued into 2012, causing a dip in annual economic growth to 4.6 percent before rebounding to 5.9 percent in 2013.

Real GDP per capita growth mirrored economic growth (Figure 1.1). GDP per capita growth rose from 2.8 percent in 2005 to 4.0 percent in 2007, then fell to -2.5 percent in 2008. Low growth in the agriculture sector following post-election violence in 2008 was the main driver of the decline in per capita growth in 2008. Per capita growth peaked at 5.5 percent in 2009. This can be attributed to a recovery in the agriculture sector, implementation of the government economic stimulus and a recovery in the tourism sector. Since 2009, per capita growth has been moderate, reaching 3.2 percent in 2016.

[12] Kenya Economic Update Edition No. 5.

Figure 1.1: Kenya's GDP growth from 2005 to 2015

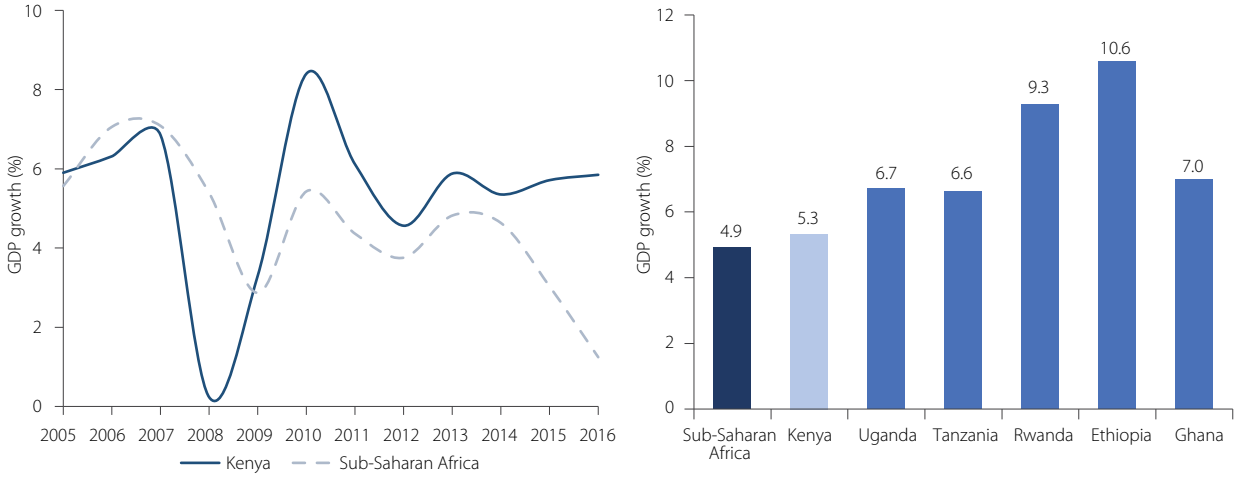


Source: KNBS.

1.1.2 Kenya's performance vis-à-vis the region

Although economic growth in Kenya exceeded average growth in Sub-Saharan Africa, Kenya's performance lagged behind that of its peers in East Africa (Figure 1.2). In Sub-Saharan Africa, annual growth averaged 4.9 percent between 2005 and 2015, 0.4 percentage points lower than growth in Kenya. However, Kenya's growth was, on average, lower than that of Sub-Saharan Africa between 2006 and 2008.[13] Suffering the effects of the 2008 financial crisis, Sub-Saharan Africa's growth dropped to 2.9 percent in 2009 from 5.4 percent the previous year. The growth rate in Kenya however took an upward turn in that year, reaching 3.3 percent thanks the introduction of a stimulus package designed to counteract the shock. Even though the performance was better than average for Sub-Saharan Africa, Kenya's growth was consistently below that of its East African peers, namely Rwanda, Tanzania and Uganda (9.3, 6.6 and 6.7 percent respectively). Higher growth in these East African countries can be explained by the lower base of their economic development compared to Kenya.

Figure 1.2: Annual GDP growth for Sub-Saharan Africa and selected countries, per year and between 2005 and 2015



Source: World Bank – Mfmod.

[13] Growth in the sub-Saharan region pre-2008 financial crisis was driven by high commodity prices. Since Kenya's main exports are horticulture, tea and coffee, Kenya did not benefit very much from the commodity price boom.

1.1.1 Sectoral supply-side growth

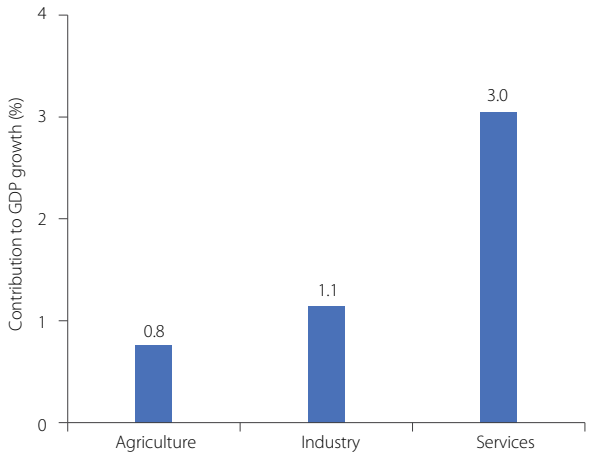
Growth was primarily driven by the services sector, fueled particularly by ICT and financial services. The mobile phone revolution increased the number of mobile subscribers to 40.2 million in 2015/16 (from 17.4 million subscribers in 2008/09), while Internet subscriptions jumped to 26.8 million in 2015/16 (from 1.8 million subscribers in 2008/09).[14] The mobile phone revolution also contributed to an expansion of the financial services sector, driven by the ability to provide financial services to previously unbanked households in the form of the mobile payment system M-PESA, including credit facilities to mobile phone subscribers.

Kenya's relatively well-developed financial sector spurred growth through an increase in access to credit.[15] Credit growth to the private sector averaged 19.6 percent between January 2006 and December 2015, comparable to credit growth in regional peers Uganda and Tanzania. Increased lending across sectors was broad-based, with households/personal loans and the construction sector having a higher concentration. Credit to the private sector is an important measure of the depth of financial systems, and consequently an important driver of short run growth. However, credit growth to the private sector declined to a low of -1.3 percent in 2017. Interest rate caps introduced by legislation complicate this declining credit growth, effectively weakening the private sector.

The industrial sector grew by 5.8 percent in 2016, mainly due to construction. The industry sector contributed 1.1 percent, on average, to GDP growth annually between 2005 and 2015. The construction sector recorded an average growth of 10.2 percent, compared to only 3 percent for the manufacturing subsector. The manufacturing sector experienced a slowdown during the period of shocks (2008 and 2011). In 2008, uncertainty due to post poll violence saw a decline in output in the manufacturing subsector, with growth slowing to 1.1 percent in 2008 and the subsector shrinking by -1.1 percent in 2009. Similarly, growth in the manufacturing subsector slowed down in 2012, following the drought in 2011. The drought had a moderating effect on the production of hydro-power, which in turn increased production costs in manufacturing due to the use of imported backup thermal-generated power.

Performance of the agricultural sector was dependent on rainfall. Agriculture, which contributes about 23 percent to GDP and employs the bulk of the working population, is also the sector that has contributed the least to GDP growth, at 0.8 percent on average (Figure 1.3). Performance in this sector was highly correlated with adequate rain, and years of low rainfall exhibit low growth rates growth rates, such as 2011 when rainfall was low and growth was merely 2.4 percent (Figure 1.4).[16] Low agricultural production affects food prices.[17] Another factor that negatively affected the agricultural sector, mainly after the 2008 financial crisis, was a hampered demand for horticultural products in the euro area. In addition, Kenya's loss of competitiveness within the East Africa region, a consequence of lower productivity, has seen regional demand for agricultural products weaken.[18]

Figure 1.3: Contributions to GDP growth



Source: KNBS.

[14] Communications Authority of Kenya.

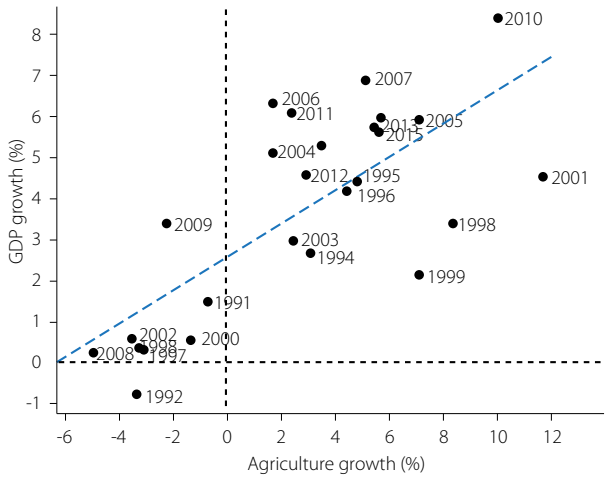
[15] Beck and Fuchs (2004) note that for a country of its size, Kenya has a relatively well developed financial sector.

[16] It is estimated that a 100mm decline in rainfall would reduce GDP growth by 0.5 percentage points.

[17] For example, the year of the drought recorded annual inflation of 14 percent. This was 7 percentage points higher and almost twice as high as the upper limit of the government target rate of 5 percent +/- 2.5 percentage points. The high inflation levels were mainly driven by food inflation as the price of foodstuffs such as maize increased due to the drought.

[18] The Kenya Economic Update Edition 15 notes that Kenya's exports to the East African Region declined from a growth rate of about 29.5 percent in 2007 to -8.9 percent in 2013.

Figure 1.4: Agriculture and GDP Growth

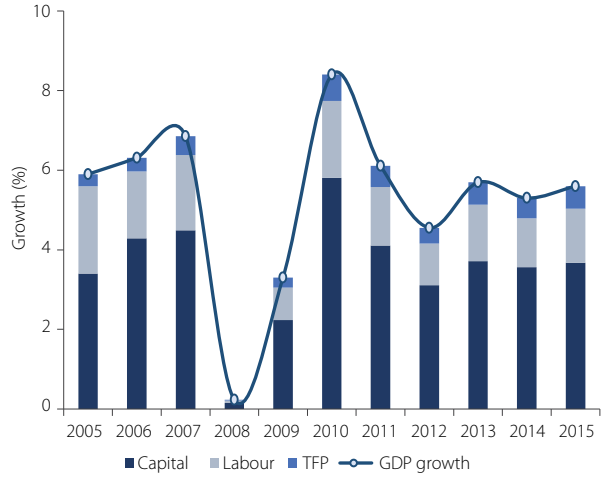


Source: KNBS.

1.1.2 Demand-side growth analysis

Consumption was the main driver of demand-side growth, with household consumption contributing the largest share to GDP growth.[19] With an annual average growth of 4.1 percent between 2005 and 2015, household consumption was the largest contributor to GDP growth. A strong financial services sector, which improved access to credit for households, coupled with high remittances, supported consumption growth. Additionally, the government stimulus program introduced in 2009 led to increased growth in consumption, which contributed 5.7 percentage points to the GDP growth of 8.4 percent in 2010.[20]

Figure 1.5: Productivity and economic growth



Source: KNBS and World Bank.

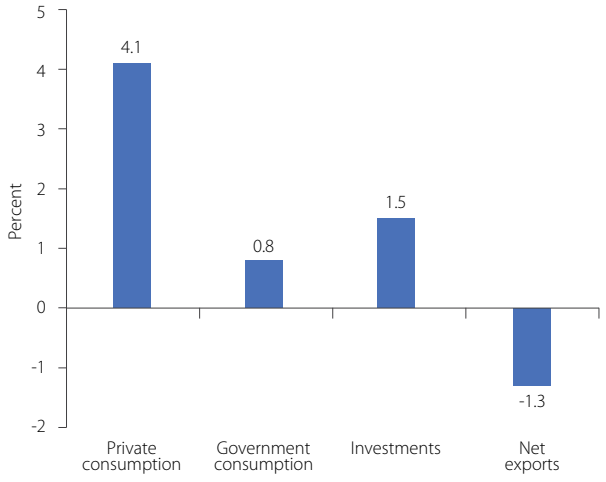
[19] Note that final household consumption is calculated as a residual and is likely to include errors and omissions – KNBS.

[20] The government stimulus was introduced in 2009 to counter the dual shock of post-election violence and the slowdown in demand for exports due to the global financial crisis.

Increasing infrastructure spending, coupled with increased private sector investment, drove investment growth, which in turn supported economic growth. Investment contributed 1.5 percent to GDP growth, second to private consumption. The government ramped up spending on investment to ease supply-side constraints, making capital the main contributor to economic growth (Figure 1.5). Examples of infrastructure projects include the Thika Highway, the Northern and Southern bypasses and the Standard Gauge Railway. Infrastructure projects such as the ones undertaken by the government aim to increase efficiency and reduce production costs, thereby creating incentives for domestic production.

Growth in the value of imports, which was much faster than growth in the value of exports, widened the current account balance.[21] The growth rate of exports slowed from 19.0 percent in 2005 to 5.5 percent in 2015. As a result, the share of the value of exports declined from 24.8 percent of GDP in 2005 to 16.7 percent of GDP in 2015. In contrast, the value of imports increased, averaging a growth rate of 9.4 percent between 2005 and 2015. Consequently, the contribution of net exports to GDP averaged -1.3 percent between 2005 and 2015 (Figure 1.6).

Figure 1.6: Demand-side contribution to growth between 2005 and 2015



Source: KNBS.

[21] The analysis uses values of exports and imports rather than volumes.

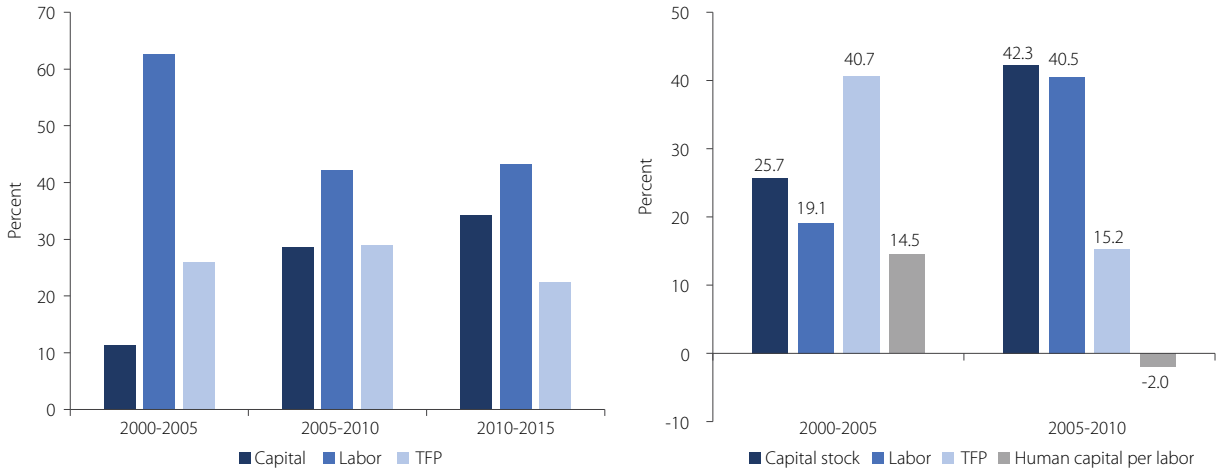
1.1.3 Drivers of growth

Labor was a key driver of real GDP growth. In the five-year period prior to 2005, labor contributed 62.5 percent to growth. Labor's contribution was the largest, followed by total factor productivity (TFP) with 26.0 percent, and capital with 11.5 percent. However, the trend was reversed in subsequent periods, with capital contributing 34.3 percent on average between 2010 and 2015, as the contribution of labor declined to 43.4 percent during the same period (Figure 1.7).[22] Government policy increased spending on infrastructure and led to capital becoming a key contributor to growth.

Despite labor contributing the largest share to real GDP growth, this contribution declined as human capital per unit of labor declined (Figure 1.7).[23] The contribution to GDP growth from human capital per unit of labor averaged 14.5 percent in the five-year period between 2000 and 2005, but became negative averaging -2.0 percent between 2005 and 2010. The decline in human capital during this latter period was due to an increasing labor force (increase in population age 15+)[24], without a matching increase in human capital levels.[25]

TFP was a key driver of growth in countries with lower per capita income. For Rwanda and Tanzania, whose average per capita GDP between 2000 and 2015 was USD 567 and USD 712 respectively, TFP was a key driver of growth, contributing an average of 38.4 percent to growth for Rwanda and 46.1 percent for Tanzania. Capital was the second most important contributor to GDP growth in Rwanda, while for Tanzania, labor's contribution to growth followed the TFP contribution to growth. In contrast to Rwanda and Tanzania, TFP was on average the lowest contributor to GDP growth for Ghana (24.4 percent), Kenya (25.7 percent) and Uganda (26.3 percent) between 2000 and 2015. While labor was the second most important contributor to GDP growth for Kenya and Uganda, capital was the second most important source of growth for Ghana (Figure 1.8).

Figure 1.7: Contributions to real GDP growth



Source: KNBS, Barro and Lee, and WDI.

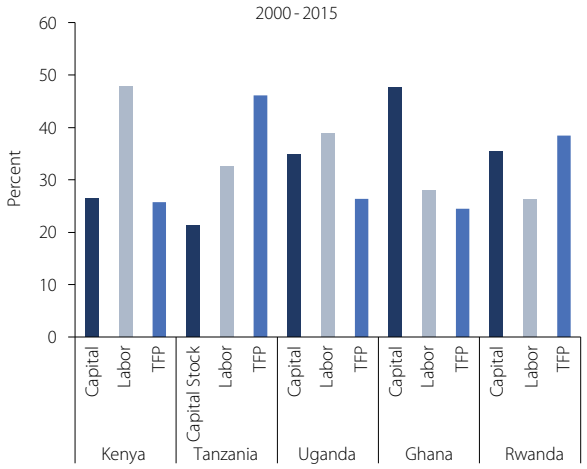
[22] The results are derived from the Long Term Growth model, a World Bank analytical tool.

[23] This analysis uses Barro and Lee's definition of human capital, defined as returns to education per year of schooling.

[24] Kenya's youth population (15+) increased significantly in the period between 2000 and 2010. The government has put in place several programs through the Ministry of Sports and Culture that could take advantage of the increase in population/labor to increase growth.

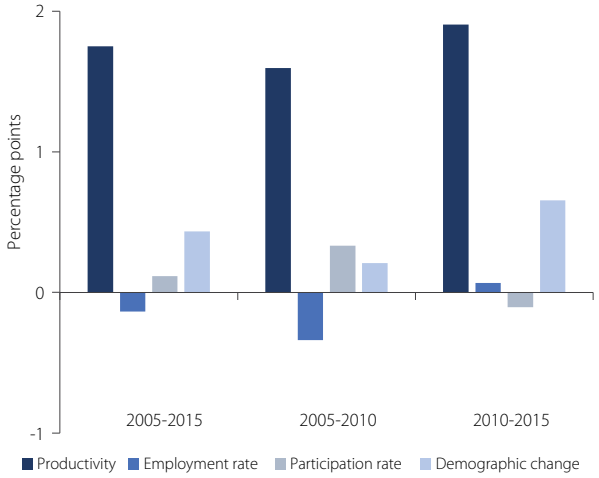
[25] Lucas and Mbiti (2012) note that education outcomes did not change significantly in Kenya even with increased access to education through the Free Primary Education programs.

Figure 1.8: Contributions to GDP growth, regional comparison



Source: KNBS and WDI.

Figure 1.9: Contributions to real GDP per capita growth



Source: KNBS and WDI.

1.1.4 Drivers of per capita GDP Growth[26]

Productivity remains a key driver of per capita GDP growth, with potential for Kenya to reap benefits from the demographic dividends.[27] From 2005 to 2015, productivity contributed 1.75 percentage points, which was 81.1 percent of the total GDP per capita growth. However, productivity's contribution to per capita GDP growth was higher in the first half of the period at 1.60 percentage points, compared to 1.91 percentage points in the second half of the period (Figure 1.9). This decline in productivity occurred in spite of an increase in the employment rate. One explanation for the decline in productivity could be due to the quality of jobs created, as jobs requiring only a low skillset are unlikely to increase productivity substantially.

The second half of the 2005 to 2015 period took advantage of a demographic change in Kenya. During this period, the population aged 15+ grew, leading to an increase in GDP per capita growth of 0.66 percentage points (Figure 1.9). However, the demographic change implied that the contribution from the participation rate to GDP per capita between 2010 and 2015 declined, since the population aged 15+ increased much faster than the number of jobs created. Vision 2030, Kenya's economic blueprint, notes that rapid population growth can be both an asset and a binding constraint to development. The country could benefit from demographic change through an increase in working age population and therefore the potentially larger labor force. However, if this demographic dividend is not utilized by more jobs, the demographic change can have adverse effects on productivity and per capita growth.

Intersectoral reallocation was a key driver of GDP per capita productivity as labor moved from agriculture to services. Agriculture makes up about a quarter of the economy, contributing 25 percent to GDP. However, almost 60 percent of the labor force remains in the agriculture sector. Between 2005 and 2010, productivity in the agriculture sector declined, contributing -0.22 percentage points to per capita GDP growth. Lewis, in his structural adjustment model, points out that as more labor (a variable resource) is put to work on land (a fixed resource) – in this case agricultural land – marginal returns to labor will decrease.[28] Since marginal returns to other sectors are high, a wage premium in other sectors relative to the agriculture sector can emerge. Between 2010 and 2015, the reallocation of labor between sectors effectively increased productivity in the agriculture sector. Its contribution to GDP per capita growth reached 0.39 percentage points. Consequently,

[26] This study uses the shapely decomposition method to analyze the key drivers of per capita GDP growth.

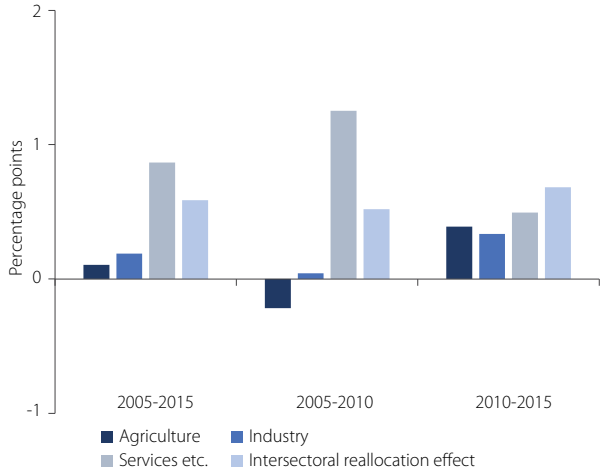
[27] Productivity is defined as output per worker and is calculated by dividing output by the total labor force.

[28] The Lewis structural change model of growth and development defines a dualistic economy where labor is defined as a variable factor input and land as a fixed factor. Initially, labor is concentrated in the agriculture sector. However, labor reallocates to the center to work in the manufacturing sector which is more productive and offers a much higher wage premium. Consequently, productivity increases in both agriculture and manufacturing with the reallocation of labor.

the contribution of productivity in the services sector to GDP per capita growth declined to 0.50 percentage points between 2010 and 2015 (Figure 1.10).

Within the region, productivity has been the main driver of GDP per capita growth. Productivity was a key driver of growth contributing between 80 to 97 percent to GDP per capita growth between 2005 and 2015 (Figure 1.11). However, compared to its peers, Kenya's productivity contribution to GDP per capita growth was the lowest at 80.9 percent, while in Rwanda productivity accounted for most of GDP per capita growth at 97.9 percent. Demographic change was the second most important driver of GDP per capita growth, at 20.1 percent for Kenya, 12.2 percent for Uganda, 6.8 percent for Ghana and 3.2 percent for Rwanda, an indication that the economy benefitted from the increase in the working age population. However, even as the economy benefitted from the demographic dividend, growth in job creation did not match the growth in the working age population, as demonstrated by the declining employment rates. The employment rate contribution to GDP per capita growth was negative at -6.3 percent for Kenya, -4.0 percent for Ghana and -2.1 percent for Rwanda. In contrast, the employment rate was the second most important driver of per capita GDP growth for Tanzania explaining 5.3 percent of the GDP per capita growth.

Figure 1.10: Sectoral contribution to change in real GDP per capita productivity



Source: KNBS and WDI.

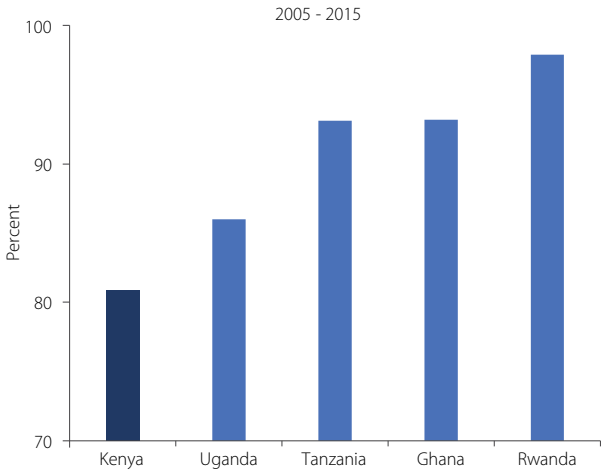
1.2 FISCAL POLICY AND ECONOMIC GROWTH

Vision 2030, the country's development blueprint, outlines government spending policy. Vision 2030 has three key pillars: economic, social and political. Government spending falls under the economic pillar.[29] The plan is implemented in five-year periods, with the first period covering 2008 – 2012. Implementation of the second period (2013 – 2017) is complete. Preparations for the third period are under way, with a focus on the "Big 4" priorities of food security, affordable housing, enhanced manufacturing, and UHC (Box 1.1).

1.2.1 Revenue vs. expenditure

Growth in revenue was erratic, increasing in the first half of the 2005 to 2015 period and declining afterwards. Revenue collection peaked in FY2009/10 at 21.9 percent of GDP, followed by a decline to 17.2 percent of GDP in FY 2015/16. The main source of revenue was income tax, which accounted for almost half of revenue collection (an average of 8.1 percent of GDP in the ten years prior to FY2015/16). Income tax comprises personal income tax and corporate income tax. The second most important source of revenue was VAT, averaging 5.0 percent of GDP in the ten years prior to FY2015/16. Other sources of revenue include import and excise duties.

Figure 1.11: Productivity contribution to real GDP per capita growth



Source: KNBS and WDI.

[29] Vision 2030 is the GoK development plan. It is aimed at ensuring Kenya achieves middle income status by the year 2030.

Box 1.1: The Big 4 policy agenda

The GoK has announced four key priorities to advance Vision 2030 over the next five years. Known as the Big 4, these priorities are food and nutrition security, affordable housing, increased share of manufacturing, and UHC.

Food and nutrition security. The agriculture sector is a key driver of Kenya's economy, contributing about 50 percent to GDP. Low productivity in the sector, in combination with a growing population, leads to a structural food deficit and poses risks to food security in the country. The sector is characterized by low yields, particularly in grain crops, and vulnerability to climatic shocks. The government intends to invest in sustainably exploiting national water resources through water towers and river ecosystems and to address the distribution, wastage, storage and value-addition of agriculture commodities.

Affordable housing. With an estimated housing shortfall of 2 million units, the housing situation in Kenya is expected to deteriorate as urbanization continues. Each year, 500,000 new residents move to urban areas, often residing in informal settlements. Over the next five years, the Government plans to inject capital into the housing sector and provide affordable housing to 500,000 new households. Policy reforms that lower the costs of construction and increase access to mortgages are further intended to increase the affordability of housing.

Enhancing manufacturing. The manufacturing sector holds great potential for high job creation, as witnessed by the impressive poverty reduction in countries in Asia. For this to occur, Kenya's manufacturing firms need to be competitive both domestically against imports and globally in exports, especially within East Africa. Competitiveness challenges in the sector have resulted in a declining share of manufacturing output in GDP. The government aims to increase the share of the manufacturing sector in GDP from 9 percent to 15 percent in the next five years through reductions in power tariffs for manufacturers.

UHC. Kenya is in a favorable position to rapidly expand health coverage given the strong institutional foundations and political will. Health insurance is currently concentrated in the formal sector, where contributions are automatically deducted from salaries. However, 70 to 80 percent of the population remains without health insurance coverage, with most of the uninsured in the informal sector. The government aims to achieve 100 percent universal coverage for all households by reforming and expanding the National Hospital Insurance Fund (NHIF).

Source: Kenya Economic Update, April 2018. Official website of the presidency of Kenya, April 2018, www.president.go.ke.

In contrast, spending increased over this period, consistently outpacing revenues. From FY2005/06 to FY2015/16, the government increased deficit spending (Figure 1.12).[30] Recurrent spending was the main driver of government expenditure, averaging about 17.1 percent of GDP over the period. Wages and salaries were the largest component of recurrent spending, with interest payments picking up during the latter half of the period to 3.2 percent of GDP in FY2015/16.[31] Development spending nearly doubled from 4.5 percent of GDP in FY2005/06 to 8.7 percent of GDP in FY2014/15, a reflection of government policy to increase infrastructure development in a bid to remove supply-side constraints. However, as the government began fiscal consolidation, development spending declined in FY2015/16 to 8.2 percent of GDP.

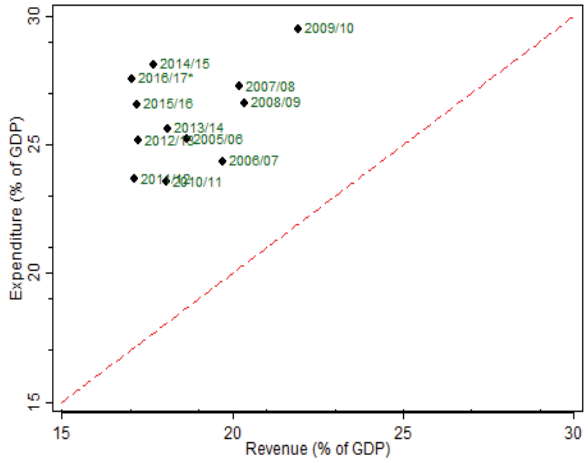
Growth in expenditure was faster than growth in revenue, widening the fiscal deficit (Figure 1.13)**.**[32] The fiscal deficit has been on an upward trajectory, widening by 3.5 percentage points from -4.7 percent of GDP in FY2005/06, to -8.2 percent of GDP in FY2015/16 (Figure 1.14). The -8.2 percent deficit is more than

[30] The pane above the dotted line means that spending is higher than revenue (deficit budget), while any points on the dotted line would mean spending equals revenue collections (balanced budget).

[31] Domestic interest payments make up the larger share of interest payments at 2.6 percent of GDP.

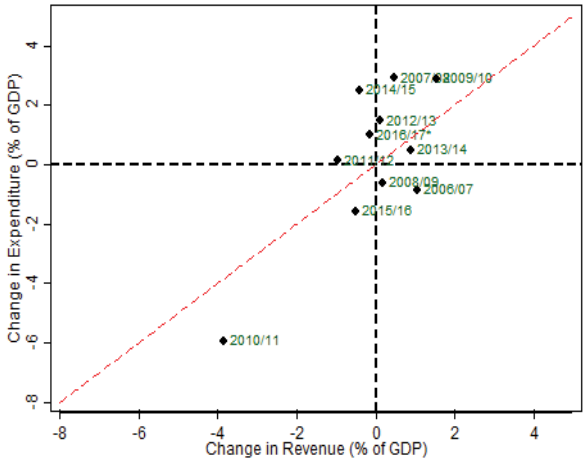
[32] On the red dotted line, a percentage point change in spending will equal a percentage point change in revenue collection, with both variables measured as a percent of GDP.

Figure 1.12: Spending has consistently exceeded revenue collection



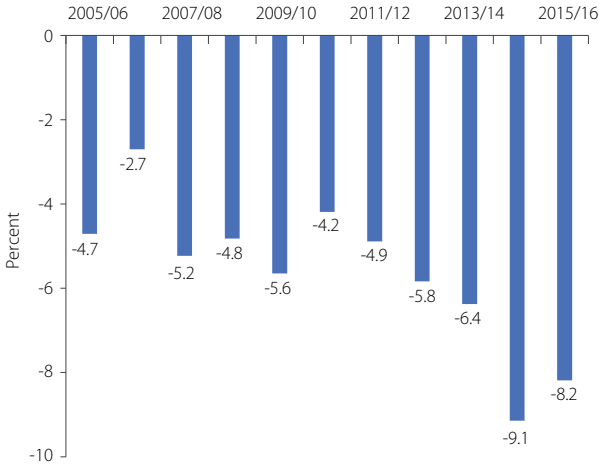
Source: The National Treasury.

Figure 1.13: Revenue collection has not kept up with spending pressures



Source: The National Treasury and World Bank.

Figure 1.14: The evolution of fiscal deficit



Source: The National Treasury.

double the East African Community (EAC) target of 3.0 percent. The government has embarked on a fiscal consolidation plan that should see the deficit decline in the medium term to -3.0 percent of GDP in FY2020/21.

1.2.2 Sectoral analysis in government spending

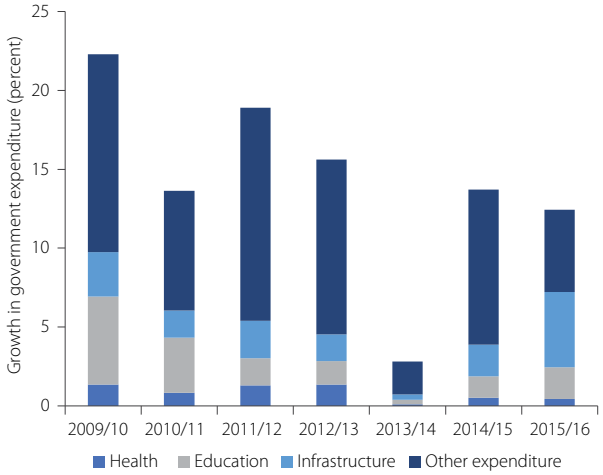
Growth in government spending was uneven. Growth in government spending declined from 22.0 percent in FY2009/10 to 3.0 percent in FY2013/14 (Figure 1.15). The slowdown in spending in FY2013/14 coincided with the entrance of a new administration and the implementation of the 2010 Constitution. However, growth in spending accelerated to 14.0 percent in FY2014/15, but decreased moderately to 12.0 percent the year after.

The education sector has been the largest beneficiary of social sector spending. Education spending maintained its momentum throughout the ten-year period, mirroring government spending. The largest increase in education expenditure as a share of the increase in total government spending was in FY2009/10, after which it slowed to its lowest level in FY2013/14 (Figure 1.15).[33] However, even as education spending tended to increase with government spending, the rate of change in the increases was generally low, an indication that education is not likely to have any fiscal risk effects. The stable increase in education expenditure is attributable to free primary education, as the government employs more teachers to cater for increasing demand.

Implementation of the new constitution led to moderated health expenditures at the national level. Growth in government spending has trickled down at a slower pace to the health sector compared to the education sector (Figure 1.15). Following devolution of the health sector in FY2013/14, the momentum of health expenditures at the national level slowed down significantly. Full devolution of the health sector effectively means local governments are responsible for all health care provision. However, the national government transfers money to a consolidated fund, without specifically earmarking the amount that should go to the health sectors at

[33] Momentum is defined as the increase in education spending due to an increase in total government spending. See also Merotto et. al. (2015).

Figure 1.15: Sectoral contribution to growth in total spending



Source: The National Treasury.

the devolved units. It is unclear if the decline in health spending at the national level is substituted at the devolved units.

Relative increases in social protection spending are large, due to low base effects. In absolute terms, growth in social protection spending increased to a peak of 13.0 percent in FY2010/11. Momentum of social protection spending, defined as the growth rate of total spending multiplied by the share of social protection spending, was at less than 1.0 percent. This indicates a scant allocation to social protection expenditure within the overall budget increases.

In contrast, not only did infrastructure spending have a relatively high growth rate, it also gained momentum. At its peak, infrastructure spending increased by 74 percent (FY2009/10), accounting for more than half of total growth in spending. This reflects government policy priorities, namely the national development plan, which emphasizes improving infrastructure. Infrastructure spending momentum picked up pace from 3.0 percent in FY2009/10 to 5.0 percent in FY2015/16, indicating that as the budget increases, a larger share of spending is allocated towards infrastructure.

1.3 A REVIEW OF SOME POLICIES OVER THE LAST DECADE

Policies were designed to increase aggregate demand, in turn contributing to economic growth in Kenya. Kenya's vision 2030 set a growth target of 10 percent per annum. While the target growth rate has not been achieved, both supply- and demand-side policies aimed at increasing growth have been a recurrent theme in the budget statements over the last 10 years. This section focuses on infrastructure development, use of renewable energy, domestic production, job creation and income inequality reduction, and analyses if these policies could also enhance pro-poor growth.

Supply-side enhancing infrastructure projects, such as rail transport and renewable energy, were prioritized. In 2014, exemptions on import duty for railway products as well as import duty on machinery, spares and inputs for direct and exclusive use in the development and generation of solar and wind energy were introduced. During the same period, imports of railway inputs and machinery increased. A more efficient transportation network – attributable to the construction of the US$ 3.6 billion Standard Gauge Railway – and a stable supply of electricity are crucial in reducing the cost of production and fostering competitiveness of the manufacturing sector.

Kenya has abundant clean energy potential which remains untapped. In order to provide incentives to support local production of clean energy, duty remission was granted on inputs for the production of solar panels in FY2013. Geothermal (290MW) and wind (361MW) energy projects were commissioned (Table 1.1). In addition, to encourage usage of environmentally friendly vehicles which aimed at reducing carbon emission and noise pollution, battery operated vehicles were exempted from duty. However, there are no data to support an increase in imports of environmentally friendly vehicles.

Table 1.1: List of ongoing major projects

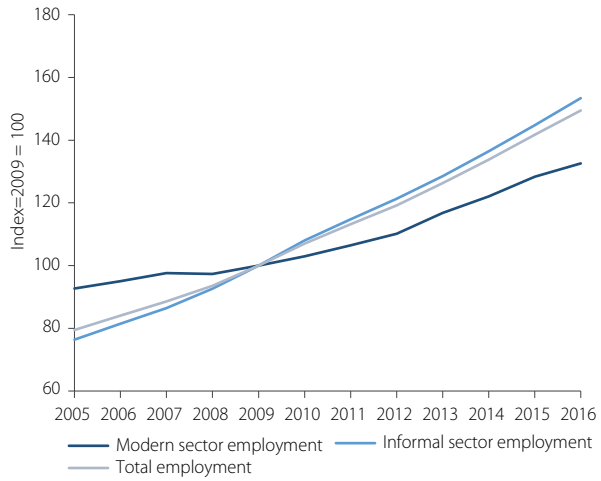
Project name	Type	Distance	Project value (US$ Millions)
Standard Gauge Railway Phase 2A	Railway	120 Km	1,500
Lamu Port Southern Sudan and Ethiopia Corridor (LAPSSET)	Port, Roads, Rail, Pipeline		...
Nairobi Mombasa Expressway	Road	473 Km	2,300
Northern Corridor Transport Improvement Project	Roads		
Public Private Partnerships (PPPs)		**Capacity MW**	**Project value (US$ Millions)**
Thika Power	Thermal	87	146
Triumph	Thermal	82	156.5
Gulf Power	Thermal	80	108
Orpower	Geothermal	150	558
Lake Turkana	Wind	300	847
Longonot	Geothermal	140	760
Kinangop	Wind	61	150
Rabai	HFO	90	155
Kipevu	HFO	74	85
Mumias	Bagasse Co-gen	32	50

Source: PPP Unit, National Treasury; Kenya Railways.

Growth in domestic production and industrial growth are not only key in ensuring overall growth in the economy, but are also important for job creation. In this regard, policies that enhance domestic production spiked from -0.6 percent in 2012 to 5.6 percent in 2013, the growth was attributable to low base effects and a successful election period. Some pro-poor policies on the supply side included the removal of the sugar development levy, duty exemptions for raw materials used in the manufacture of sanitary towels, as well as duty exemptions on all synthetic yarns, acrylic yarn and polyester yarn. Additionally, duty was eliminated for basic commodities that make up the largest share of the consumption basket for poor households. Further, such interventions also increase the competitiveness of exports to the region, which in turn has positive implications for macroeconomic indicators such as the current account balance and the exchange rate. However, exports to the region have declined despite the export-friendly interventions.

Non-traditional sectors were identified as a potential source of employment. In FY2009 and FY2010, VAT and import duty exemptions were granted on television cameras, digital cameras and video camera recorders while a 100 percent grant was proposed to investment deduction on capital expenditure incurred by film producers on purchase of any filming equipment. The purpose of the exemptions was twofold: i) the film industry has traditionally had a very low performance in Kenya, with the introduction of exemptions aimed at creating incentives to promote the industry, and ii) the film industry has potential to create employment for the youth, who are the majority of the population in Kenya. Indeed, employment in the modern sector has increased in recent years (Figure 1.16). A second area envisaged as creating potential employment for the youth was the transport sector, in particular the motorcycle taxi. Motorcycles are a relatively new mode of transportation in the cities, which create jobs often for youth as motorcycle taxi drivers. Motorcycles have the advantage of being much faster than motor vehicles given traffic congestion. In FY2009, duty on motorcycles of between 50cc and 250cc were zero rated, potentially contributing to an increase in the informal sector employment.

Figure 1.16: Employment trends



Source: KNBS.

The social pillar of Kenya's Vision 2030 places emphasis on improved quality of life for all Kenyans. An important condition for a higher standard of living and therefore quality of life is an increase in income. Policies to enhance income equality over the period included reduction of taxes on basic commodities typically consumed by poorer households, such as second-hand clothing. A reduction of import duty from US$ 0.3 per kg to US$ 0.2 per kg on second-hand clothing was implemented in FY2010. Similarly, in FY2015, all imported farm inputs used in the processing and preservation of seeds for planting were exempted.

1.4 OVERVIEW OF MONETARY POVERTY[34]

Poverty incidence declined from 46.8 percent in 2005/06 to 36.1 percent in 2015/16, using Kenya's official national poverty lines. The KNBS released the most recent poverty statistics in March 2018, based on the KIHBS 2015/16. KIHBS 2015/16 closes an important data gap, as the previous survey collecting expenditure data to estimate poverty was implemented 10 years ago in 2005/06.[35]

While the national poverty lines are critical to analyze poverty dynamics and distribution within the country, they are not comparable across countries. Kenya's national poverty line is derived from the Cost of Basic Needs (CBN) method.[36] The CBN method stipulates a consumption bundle deemed to be adequate for "basic consumption needs", and then estimates what this bundle costs in reference prices. As basic consumption needs are usually different across countries, the poverty rate measured by the national poverty line is not comparable across countries. Therefore, this section uses the international poverty line defined at US$ 1.90 using 2011 purchasing power parity (PPP) international dollars (Box 1.2). Chapter 2 provides a detailed assessment of poverty trends at the national poverty line.

1.4.1 *Monetary poverty trends at the international poverty line*

About 1 out of 3 people in Kenya live below the international poverty line. The daily consumption expenditure for 36.8 percent of the population is below US$ 1.90 in 2011 PPP. For 66.2 percent of the population it is below US$ 3.20 in 2011 PPP (Box 1.2). The poverty rate has moderately reduced over the past decade at both international poverty lines, dropping nearly seven percentage points at the US$ 1.90 line and three percentage points at the US$ 3.20 line between 2005 and 2011 (Figure 1.17). Poverty reduction has been steady over the past decade, except for a shock to consumption in the years following the 2008 global economic crisis (Figure 1.19).

Increased consumption for the poorest of the poor has driven poverty reduction in the past decade. The rate of extreme poverty under the threshold of US$1.20 a day in 2011 PPPs has decreased by 7.3 percentage points since 2005 to reach 13.7 percent in 2015 (Figure 1.17). The reduced poverty at the US$ 1.90 international poverty line reflects these improvements. The depth of poverty can be measured by the poverty gap index, representing the average deficit between the total consumption of the poor and the international poverty line. Using this measure, the depth of poverty at the US$ 1.90 line decreased from 16.2 percent of the poverty line in 2005 to 11.6 percent in 2015 (Table 1.2).

[34] This section is derived from the Poverty Special Focus of the Kenya Economic Update, April 2018.

[35] The KIHBS 2015/16 utilized a two-stage stratified cluster sampling method with the objective of providing data for poverty estimates at national and county levels as well as for urban and rural areas. The sample included 24,000 households from 2,400 clusters distributed to urban and rural strata for each of the 47 counties in Kenya based on the 2009 Census. The survey was implemented over 12 months from September 2015 to August 2016 to take into account seasonal effects. Source: KNBS (2018): "Basic Report on Well-Being in Kenya".

[36] Ravallion, Martin. 1994. "Measuring Social Welfare With and Without Poverty Lines." The American Economic Review 84 (2): 359–364.

Table 1.2: Key monetary poverty Indicators[37]

	Poverty headcount		Poverty gap	
	2005	2015	2005	2015
US$ 1.20 2011 PPP poverty line[38]	21.0	13.7	6.7	3.6
US$ 1.90 2011 PPP poverty line	43.7	36.8	16.2	11.6
US$ 3.20 2011 PPP poverty line	69.2	66.2	33.3	28.4

Source: KIHBS 2005, KIHBS 2015, authors' calculations.

Box 1.2: The international poverty lines

The international poverty line is defined in absolute terms as a threshold of being able to purchase a fixed basket of goods that meets basic needs across countries. The concept of an international poverty line was first introduced in the 1990 World Development Report. The objective was to measure poverty in a consistent way across countries, using a poverty line that reflected conditions of poverty in poor countries, while also considering real purchasing power across countries of all incomes. To decide on an international poverty line, the World Bank analyzed data from 33 national poverty lines from both developed and developing countries in the 1970s and 1980s. The threshold of US$ 1 a day was agreed upon and became the first international poverty line.

Over the years, the poverty line has periodically been adjusted as new purchasing power parity (PPP) measures became available. The new measures reflected both changes in relative price levels across countries, as well as changes to methodologies. The poverty line increased from US$ 1 a day at 1985 PPPs to US$ 1.08 at 1993 PPPs, then to US$ 1.25 at 2005 PPPs, and finally to its current level of US$ 1.90 at 2011 PPPs. The increase in the international poverty line can be mostly attributed to changes in U.S. dollar purchasing power relative to the purchasing power of the local currencies in the poorest countries. Essentially, the increase in the poverty line says that US$ 1.90 in 2011 real terms would buy about the same basket of goods that US$ 1.25 bought in 2005.

The World Bank introduced an additional set of international poverty lines in 2016, taking into account the relationship between national poverty lines and the wealth of the country. These lines are defined as the median national poverty line for each grouping of countries by their GNI per capita, using the World Bank classification of countries as low-income, lower middle-income, upper middle-income and high-income. The World Bank now reports poverty rates for countries using the new lower middle-income and upper middle-income poverty lines. The poverty line for lower middle-income countries is US$ 3.21 per day and for upper middle-income countries, it is US$ 5.48 per day. In addition to these poverty lines, this section also uses a US$ 1.25 2011 PPP poverty line to further distinguish between the poor living below US$ 1.90 and the poorest living below US$ 1.25.

To allow for international comparisons, poverty in this section is estimated using the current international poverty line and the lower middle-income class (LMIC) poverty line. Since 2014, Kenya has been classified as a lower middle-income country. Its current GNI per capita of US$ 1,380 puts it at the bottom of the LMIC grouping.[39] As the poverty lines are defined using US$ 2011 PPPs, this is converted to the local currency used to measure consumption for both survey years 2005 and 2015. First, US$ 2011 are converted into Kenyan Shilling in 2011 using the PPP estimate for Kenya (35.43). Second, the change in purchasing power per Kenyan Shilling is adjusted for by considering inflation or deflation to the survey period as measured by the national CPI.

[37] Poverty estimates in this section are preliminary. The official source for World Bank estimated poverty headcounts is PovcalNet. For the estimation for poverty in this section, the poverty line was adjusted using the 2011 PPP estimate and inflated or deflated to the survey period. The official consumer price index (CPI) used for 2011 was 121.1654. For the KIHBS 2005, the weighted average of the official CPI for the survey period was 73.2557. For the KIHBS 2015 survey period, it was 166.299. Poverty was estimated with a per capita aggregate for consumption expenditure. The aggregate was not spatially deflated and excludes rent, unlike the aggregate used in the Poverty Special Focus of the Kenya Economic Update, April 2018. Thus, poverty estimates in this section differ slightly from those in the Economic Update.

[38] The US$ 1.20 line is not an international poverty line. It is included in this section for the purposes of distinguishing the poorest in extreme poverty (Box 1.2).

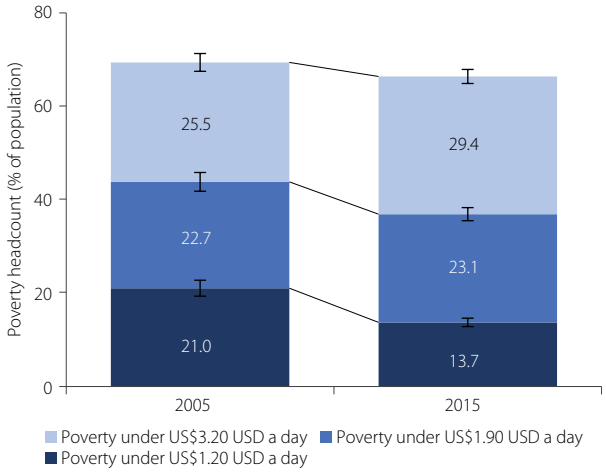
[39] Source: World Bank Open Data Catalogue.

To further distinguish the poorest of the poor, a poverty line of US$ 1.20 in 2011 PPP is included in this section. This line is based on the share of food consumption in total expenditure. On average, Kenyans spend 63 percent of their total daily consumption on food consumption. Starting with the US$ 1.90 international poverty line as a threshold for total consumption, this translates into daily per capita food consumption of US$ 1.20 in 2011 PPP. Those living below US$ 1.20 a day cannot afford the minimum food consumption calories even if they were to cut out all non-food consumption. As the food share specific to Kenya is used to derive this line, it is not suitable for international comparisons. It is only used in this section to distinguish the poorest in extreme poverty.

Well-being has stagnated for households living between the US$ 1.90 and US$3.20 poverty lines. The percentage of the population consuming between US$1.90 and US$3.20 increased by 3.9 percentage points between 2005 and 2015 (Figure 1.17). This is not surprising as increases in consumption of the very poor have pushed them above the US$ 1.90 poverty line while in the same period not as many (net) households increased consumption beyond US$ 3.20. Therefore, still many households have a certain degree of vulnerability to fall back into poverty measured at the US$ 1.90 level. A 10 percent consumption shock would push a fifth of households currently between US$ 1.90 and US$ 3.20 below the US$ 1.90 a day threshold, raising the poverty headcount by six percentage points (Figure 1.18).

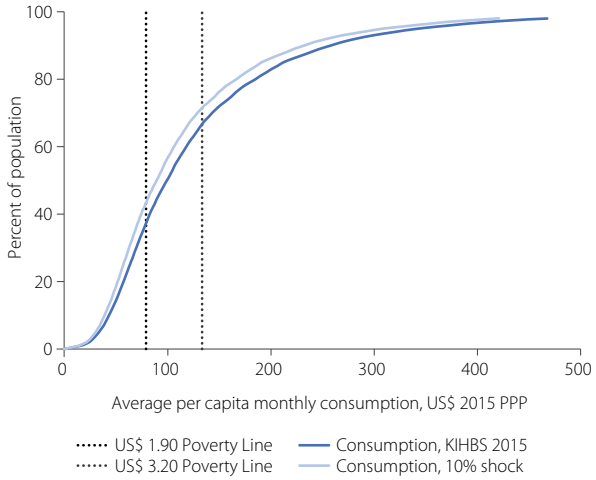
To estimate the relationship between household consumption and growth at the sector level, the evolution of poverty from 2005 to 2015 is simulated based on sectoral growth rates, while assuming no redistribution beyond that resulting from differences in sectoral growth. Consumption expenditure per household from KIHBS 2005 is augmented based on the growth rate of the household head's sector of economic activity. The poverty rate per sector in KIHBS 2015 provides the anchor to estimate the growth-consumption pass-through parameter of that sector.[40] In other words, the pass-through parameter ensures that sectoral GDP growth transmitted to household consumption growth is consistent with the observed changes in poverty between 2005 and 2015. The pass-

Figure 1.17: Poverty at the US$ 1.20, 1.90, and 3.20 lines



Source: KIHBS 2005, KIHBS 2015, authors' calculations.

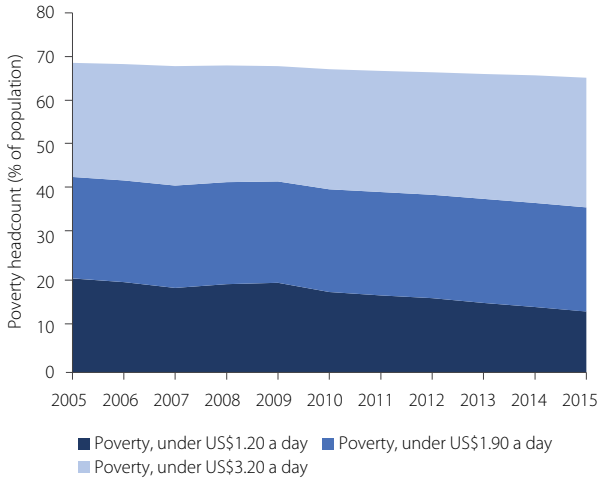
Figure 1.18: Cumulative consumption distribution with shock



Source: KIHBS 2015, authors' calculations.

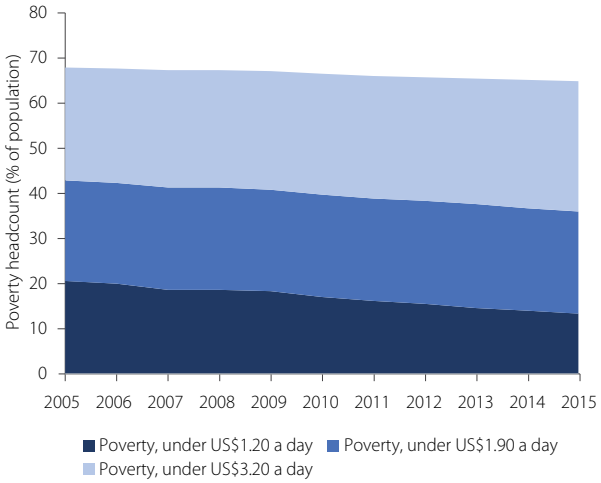
[40] Occupations are categorized into three broad categories: (1) agriculture; (2) manufacturing; (3) services. Assumptions about sectoral pass-through parameters for these sector groupings are drawn from the sectoral decomposition of poverty analysis between 2005 and 2015. Parameters are assumed to be constant over years. For households without reported household head occupation, average GDP growth is applied.

Figure 1.19: GDP sectoral growth simulation of poverty trajectory at international poverty lines, 2005 to 2015



Source: KIHBS 2005, authors' calculations.

Figure 1.20: Overall GDP growth simulation of poverty trajectory at international poverty lines, 2005 to 2015

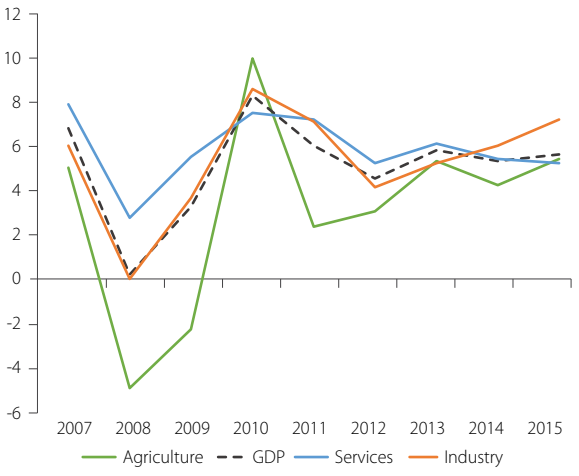


Source: KIHBS 2005, authors' calculations.

through parameter indicates the fraction of sectoral GDP growth that translates into private household consumption. While a large pass-through parameter suggests that high GDP growth helps to improve consumption of households, it also flags the risk that high GDP volatility translates into consumption volatility, making households vulnerable to shocks that affect GDP growth.

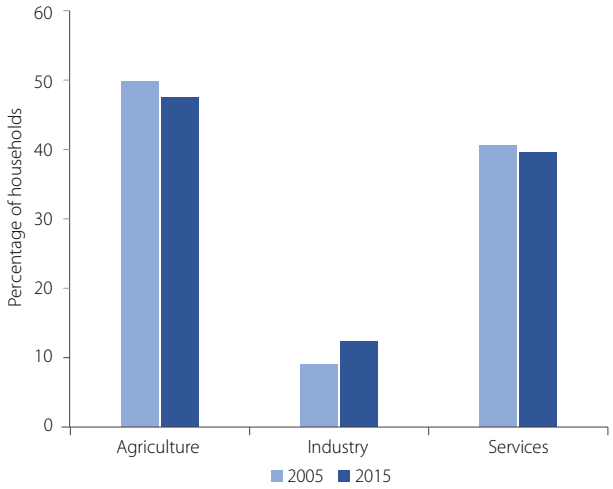
Agricultural GDP growth largely translates into consumption growth, exposing agricultural households to shocks in agricultural GDP. In the years following the slow-down of growth in 2008, the agriculture sector experienced a strong rebound (Figure 1.21). From 2011 to 2015, growth averaged 4.1 percent. Most household heads are engaged in agriculture, followed by services and then industry (Figure 1.22). Households engaged in agriculture benefit from the highest pass-through rate, especially for those consuming less than US$1.20 a day (Figure 1.23). For these households, real consumption increases by 0.75 percent for each one percent growth in the agriculture sector. The flipside of a high pass-through rate is the vulnerability to shocks. The industrial sector has the smaller pass-through rate, indicating a protection against shocks of GDP growth but also implying that households in this sector participate less in sectoral GDP growth.

Figure 1.21: Real sector growth, 2007 to 2015



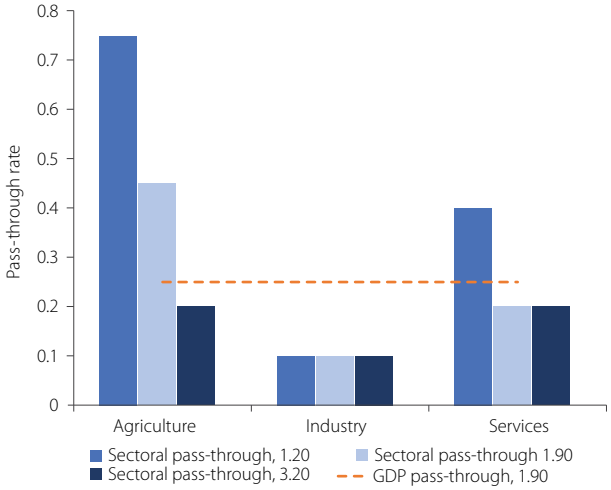
Source: KNBS.

Figure 1.22: Share of households by sector of household head occupation, 2005 vs. 2015



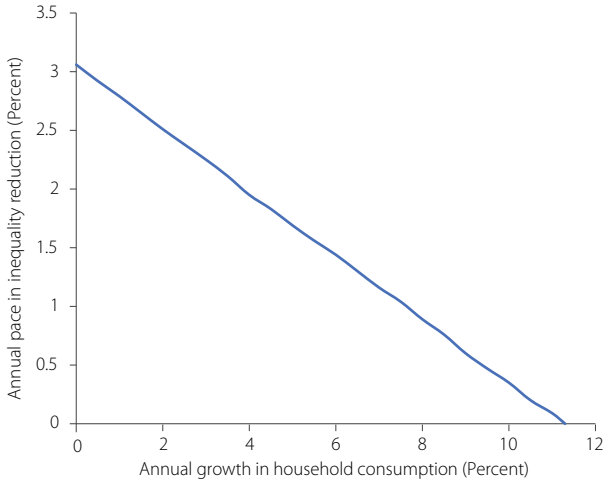
Source: KIHBS 2005, KIHBS 2015, authors' calculations.

Figure 1.23: Consistent sectoral elasticities for poverty pass-through[23]



Source: Authors' calculations.

Figure 1.24: Combination of growth and redistribution needed to eradicate poverty in 2030



Source: KIHBS 2015, authors' calculations.

Kenya is not on track to eradicate poverty by 2030, and higher and more inclusive growth, as well as pro-poor policies, are needed. In order achieve a poverty rate below 3 percent by 2030, the poverty rate must decrease at least 33.8 percentage points. However, Kenya's annualized poverty reduction rate was 1.6 percent between 2005 and 2015. Assuming this rate is maintained for the next 15 years, the poverty rate will remain above 25 percent in 2030. To meet the 3 percent goal in 2030, an annual poverty reduction rate of 6.1 percent would be necessary. Without any reduction in inequality, real household consumption would need to increase on average by 11.3 percent per year to achieve this objective. With the observed growth-consumption pass-through of 0.25, this would imply an unrealistically high annual GDP growth of about 45 percent. Thus, high growth must be complemented by stronger inclusive growth, increasing the pass-through parameter, and a reduction in inequality through pro-poor policies (Figure 1.24).

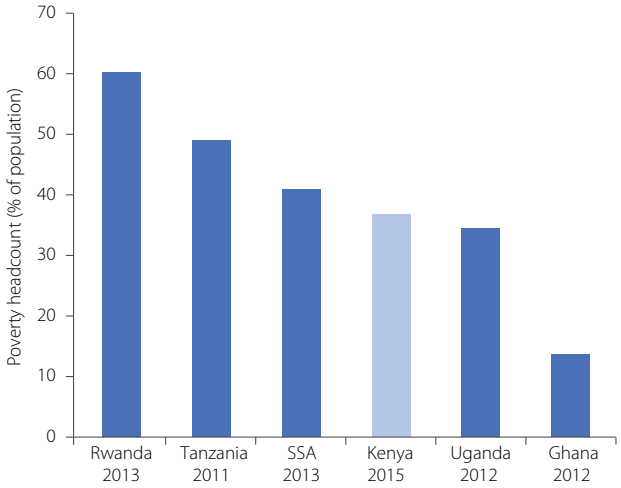
1.4.2 Monetary poverty in international comparison

Kenya's poverty rate is below the average in sub-Saharan Africa and is amongst the lowest of its East African peers.[42] The poverty rate at the US$ 1.90 a day line in Kenya is nearly half the poverty rate of Rwanda in 2013 (60.4 percent). However, it is higher than poverty in Uganda (34.6 percent) and Ghana (13.6 percent), both measured in 2012 (Figure 1.25). When considering GDP per capita in constant PPP terms, poverty in Kenya is in line with expectations given the trend of poverty to GDP per capita in sub-Saharan Africa (Figure 1.26). Kenya's ratio of poverty to GDP per capita is close to that of the sub-Saharan Africa aggregate. Ghana and Uganda both have lower ratios of poverty to GDP per capita. However, it is important to note that Kenya has the most recent estimate for poverty (2015), which may bias its performance in comparison to countries with older poverty estimates such as Ghana and Uganda (both 2012).

[41] This figure shows the sector elasticity assumptions for the trajectory of poverty simulations at the US$ 1.20, 1.90, and 3.20 per day poverty line thresholds. For each threshold simulation, different sectoral elasticities were assumed. The pass-through rate is generally highest for poverty under the US$ 1.20 level, indicating that growth has a larger impact on consumption of the very poor. The pass-through rate of overall GDP growth, in the US$ 1.90 poverty line simulation, is included as a benchmark.

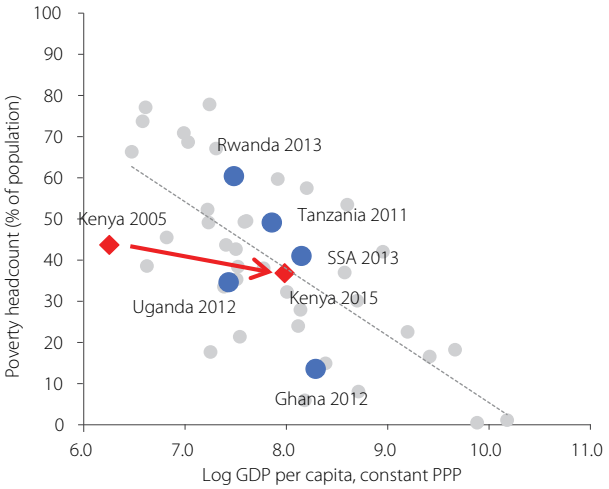
[42] Four countries were selected for the international comparison due to geographic proximity, comparable population size and/or level of wealth: Ghana (GHA), Rwanda (RWA), Tanzania (TZA), and Uganda (UGA). The aggregate for Sub-Saharan Africa is also included as a regional benchmark. Tanzania has a GDP PPP per capita ($2,583) comparable to that of Kenya ($2,926), while Ghana ($3,980) is relatively wealthier. Rwanda ($1,774) and Uganda ($1,687) are both relatively poorer than Kenya. In terms of population, Tanzania (55.6 million) and Uganda (41.5 million) are similar in size to Kenya (48.5 million), whereas Ghana (28.2 million) and Rwanda (11.9 million) are notably smaller.

Figure 1.25: International comparison of poverty



Source: KIHBS 2015, World Bank open data catalogue, authors' calculations.

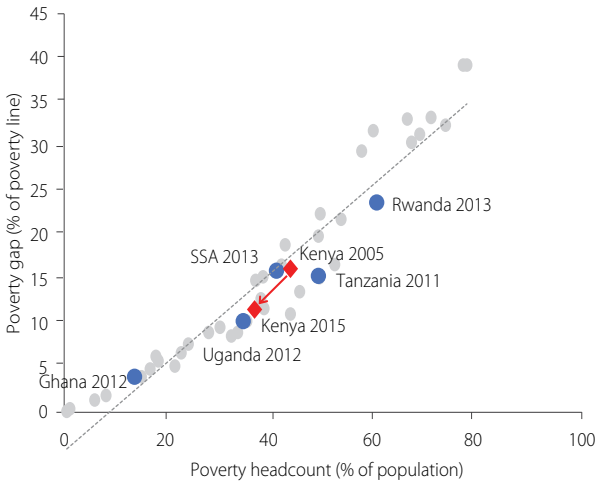
Figure 1.26: Poverty headcount against GDP per capita



Source: KIHBS 2015, KIHBS 2005, World Bank open data catalogue, authors' calculations.

The depth of poverty at the international poverty line is consistent with expectations. The relationship between the poverty headcount and the poverty gap in Kenya conforms to the trend for sub-Saharan African countries (Figure 1.27). Kenya's poverty gap is close to that of Uganda (10.3 percent), but is notably higher than in Ghana (4.0 percent). The improvement in the poverty gap since 2005 suggests that many of the poor are close to reaching the US$ 1.90 a day consumption threshold. This reflects Kenya's notable reduction in poverty below US$ 1.20 a day since 2005.

Figure 1.27: Poverty rate against depth at international poverty line

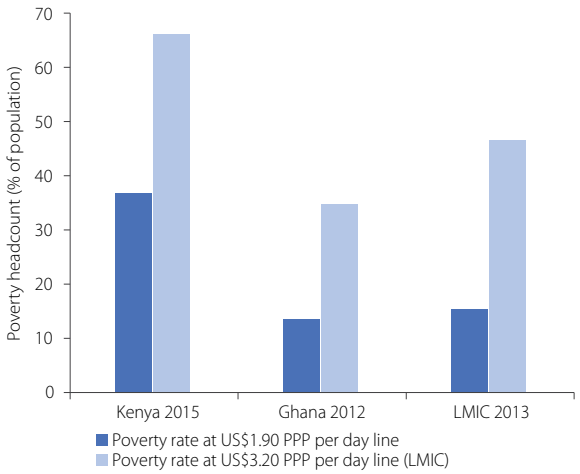


Source: KIHBS 2015, World Bank open data catalogue, authors' calculations.

When considering Kenya's LMIC status, poverty is relatively high. Poverty in Kenya is higher than the aggregate for LMIC countries, both at the US$ 1.90 and US$ 3.20 lines (Figure 1.28). Ghana provides an appropriate benchmark as it has a similar GNI per capita to Kenya (US$ 1,380). The poverty headcount in Ghana at the LMIC line (34.9 percent) is 28.8 percentage points less than that in Kenya. Poverty in Kenya is also much deeper at the LMIC line than it is at the international poverty line. The poverty gap at the LMIC line is 27.5 percent, compared to 11.3 percent at the international poverty line. Kenya's depth of poverty at the LMIC line is substantially higher than Ghana and the LMIC aggregate (Figure 1.29).

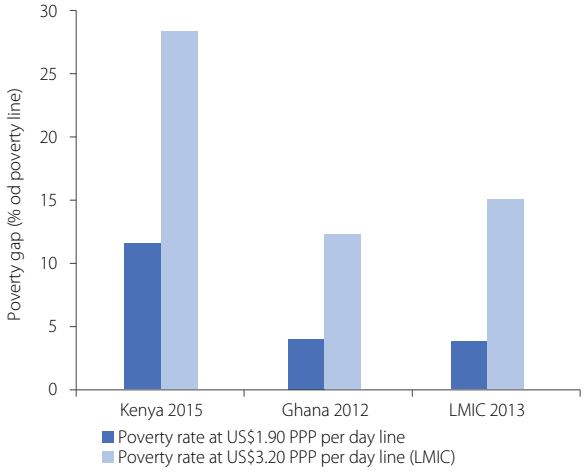
Kenya has a relatively weak relationship between poverty reduction and GDP growth. Between 2005 and 2015, annualized GDP per capita growth in Kenya was 2.75 percent, while the annualized reduction in the poverty rate was 0.7 percentage points, or 1.58 percent. This gives Kenya an elasticity of poverty reduction to GDP growth of 0.57, meaning that for every 1 percent increase in GDP per year, the poverty rate decreases by 0.57 percent. This elasticity is lower than the sub-Saharan aggregate (0.74), as well as Tanzania, Ghana and Uganda (Figure 1.30). Kenya's ratio of GDP per capita to elasticity is in line with the sub-Saharan Africa aggregate (Figure 1.31).

Figure 1.28: Poverty headcount at IPL and LMIC, international comparison



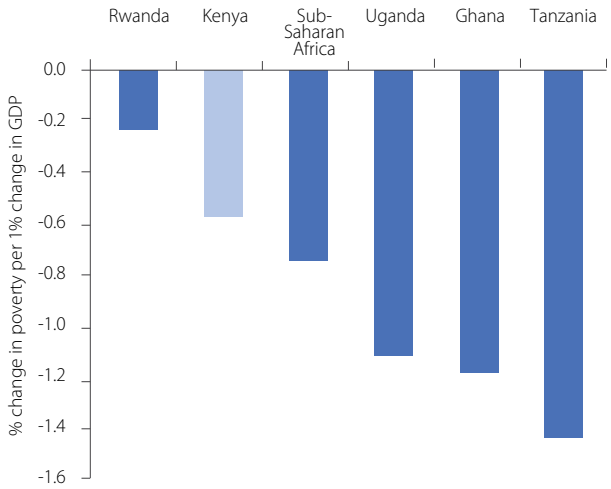
Source: KIHBS 2015, World Bank open data catalogue, authors' calculations.

Figure 1.29: Poverty gap at IPL and LMIC, international comparison



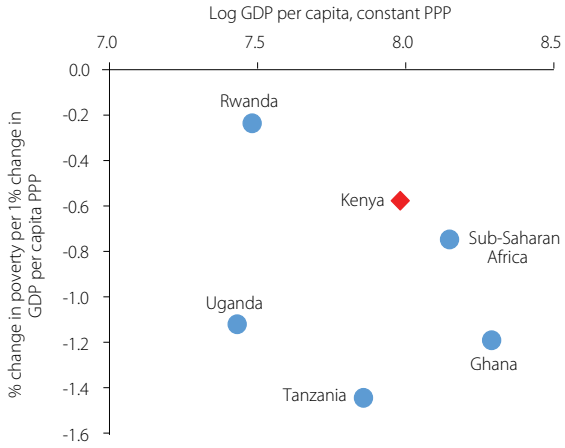
Source: KIHBS 2015, World Bank open data catalogue, authors' calculations.

Figure 1.30: International comparison of elasticity of poverty reduction



Source: KIHBS 2015, KIHBS 2005, World Bank open data catalogue, authors' calculations.

Figure 1.31: Elasticity of poverty reduction against GDP per capita



Source: KIHBS 2015, KIHBS 2005, World Bank open data catalogue, authors' calculations.

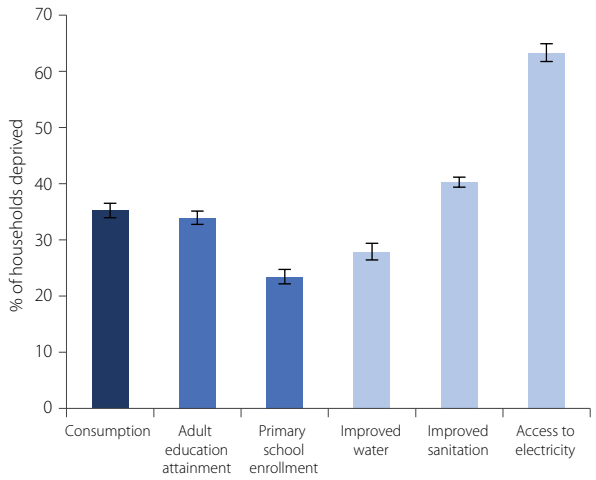
1.5 OVERVIEW OF NON-MONETARY POVERTY

Poor households are often deprived in multiple dimensions. The most common type of deprivation is access to services, notably sanitation and electricity (Figure 1.32). 40.7 percent of households lack access to improved sanitation[43] and 64 percent lack access to electricity. Fewer households are deprived of access to an improved source for drinking water[44] (28.2 percent). The second most common deprivation is monetary, defined as a daily per capita consumption expenditure below US$ 1.90 in 2011 PPP, which affects 36.8 percent of households. In education indicators, nearly one third of all households are deprived in adult educational attainment, meaning no adult in the household has completed primary education. Primary school enrollment is the least common deprivation. Less than one quarter of all households (23.7 percent) have a child of primary-school age not currently attending primary school.

[43] Improved sanitation is defined as a toilet with a flush, a ventilated improved pit (VIP) latrine or a latrine with a slab.

[44] Improved drinking water sources are defined as a piped water system, public tap, borehole, protected dug well, bottled water or water from rainwater collection vendors.

Figure 1.32: Multi-dimensional deprivations, 2015



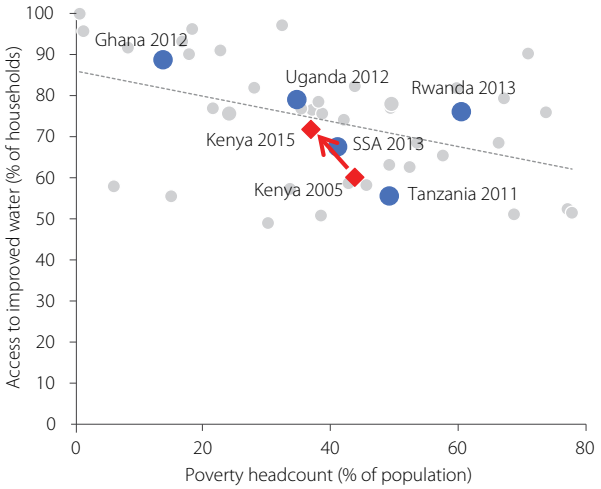
Source: KIHBS 2015, authors' calculations.

Kenya has a relatively high level of access to improved sanitation compared to international benchmarks, but lags behind in access to improved water. The lack of improved water sources increases the time burden for women and children, who generally bear the responsibility of fetching water. Though progress has been made in improving access to improved water since 2005, Kenya still lags behind other countries in the international comparison. Only 71.8 percent of Kenyan households have access to improved water sources. This is below the level of peer countries like Ghana, Rwanda and Uganda. Kenya's rate of improved water is close to the average for sub-Saharan Africa (68 percent) and is in line with its level of poverty (Figure 1.33). Kenya performs much better in access to improved sanitation compared to countries with a comparable poverty headcount (Figure 1.34).

Kenya's performance on human development indicators has improved since 2015, but lags behind Ghana. Kenya's Human Development Index (HDI), calculated by the United Nations Development Program (UNDP) as a combination of education, inequality, and life expectancy indicators, gained 0.07 points in the past decade to reach 0.55 in 2015. This is the highest HDI in the EAC, but still behind Ghana (0.58). Kenya's level of human development is relatively high given its poverty headcount (Figure 1.35), indicating that Kenya performs better on non-monetary dimensions of poverty.

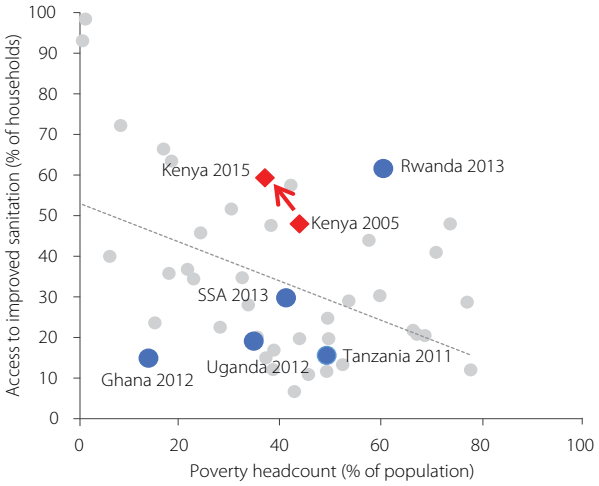
Kenya's adult literacy rate is among the highest in Africa. In 2015, 84 percent of the population aged 15 years and over could read and write in any language, a larger proportion of the population than in a country like Ghana (71 percent), which has a much lower poverty rate (Figure 1.36). The literacy rate has increased by 11 percentage points since 2005, reflecting the progress in enrollment in Kenya over the past decade. This is in line with results from standardized tests suggesting that Kenyan children have somewhat better learning outcomes in primary school than children in other

Figure 1.33: Poverty headcount against access to improved water



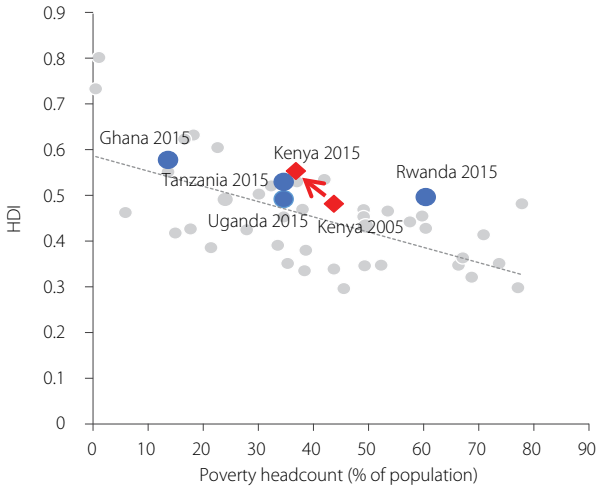
Source: KIHBS 2015, KIHBS2005, World Bank open data catalogue, authors' calculations.

Figure 1.34: Poverty headcount against access to improved sanitation



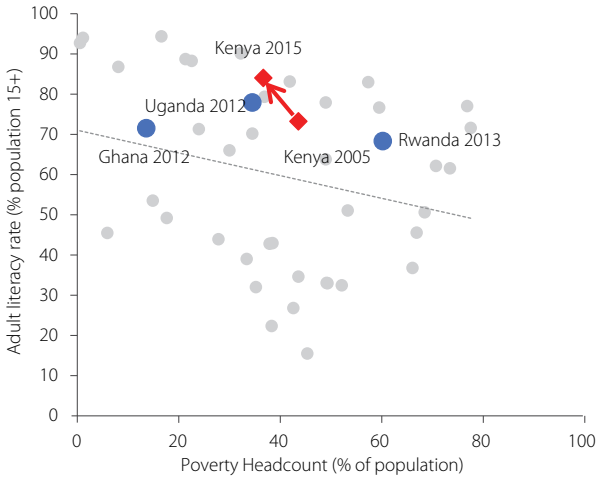
Source: KIHBS 2015, KIHBS2005, World Bank open data catalogue, authors' calculations.

Figure 1.35: Poverty headcount against HDI



Source: UNDP HDI.

Figure 1.36: Poverty headcount against literacy rates

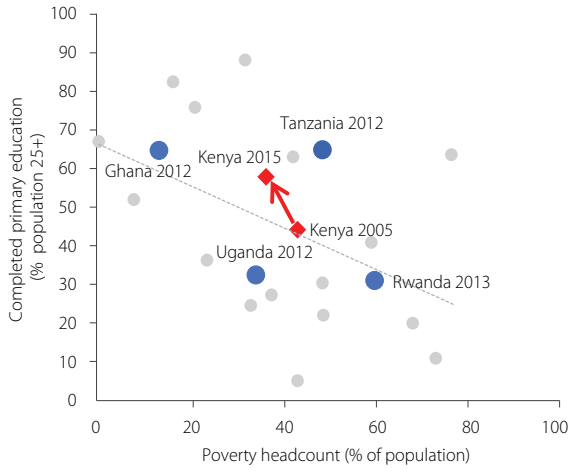


Source: KIHBS 2015, KIHBS2005, World Bank open data catalogue, authors' calculations.

countries in the region.[45] However, significant gender gaps in adult literacy continue to exist, reflecting gender inequalities in primary education.

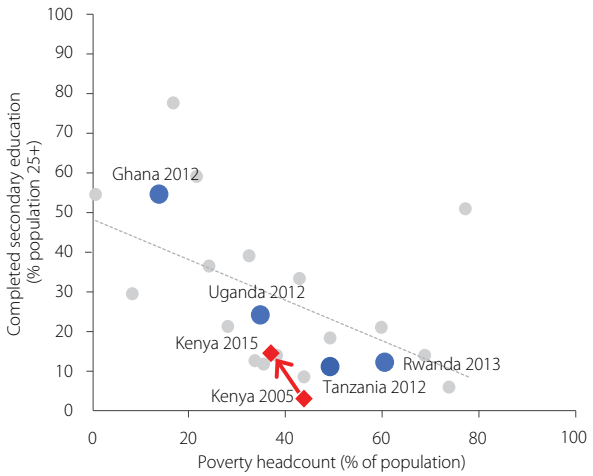
In line with increasing enrollment rates, levels of educational attainment among the adult population have increased. Over half (57.8 percent) of all Kenyan adults above the age of 24 have completed primary education. This marks a notable increase from 2005 (44.2 percent). Adult primary educational attainment is high compared with countries that have a similar poverty rate (Figure 1.37). However, Kenya's rate of adult primary school completion is lower than in Ghana and Tanzania. When considering higher levels of educational attainment, Kenya performs worse (Figure 1.38). Only 14.4 percent of adults aged 25 and older have completed secondary education. While this also marks a substantial improvement over 2005 when only 3 percent of Kenyan adults had completed secondary school, it is far below rates found in other countries with comparable levels of poverty.[46]

Figure 1.37: Poverty headcount against adult educational attainment, primary



Source: KIHBS 2015, KIHBS2005, World Bank open data catalogue, authors' calculations.

Figure 1.38: Poverty headcount against adult educational attainment, secondary



Source: KIHBS 2015, KIHBS2005, World Bank open data catalogue, authors' calculations.

[45] Sandefur, Justin. 2018. "Internationally comparable mathematics scores for fourteen African countries." Economics of Education Review 62 (2018): 267-286.

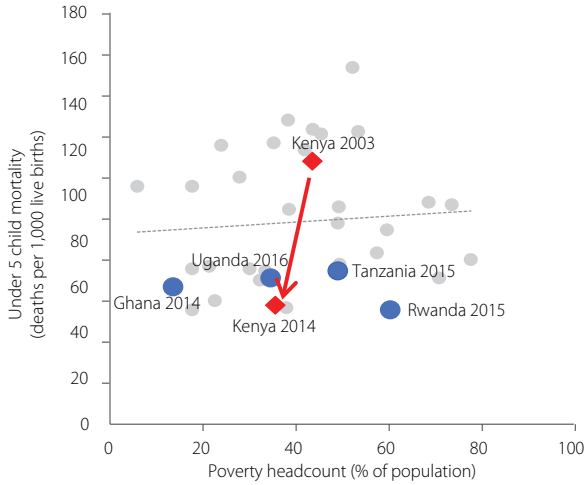
[46] The results might exaggerate differences, as primary education in Kenya is eight years but only seven and six years in Tanzania and Ghana. Kenyan primary school children also score higher on standardized tests than Tanzanians.

Kenya's net school enrollment rates have improved over the last decade. The net primary school enrollment rate, the proportion of age-eligible children who are currently enrolled in primary, is estimated at 84.6 percent in 2015/16. This is lower than expected given Kenya's poverty headcount. Within the EAC, Uganda and Rwanda both have higher net enrollment rates (NERs). However, the net secondary school enrollment rate in Kenya is now the highest among countries of the EAC, at 42.2 percent.[47] It more than doubled since 2005 (21.0 percentage points) and is in line with expectations given Kenya's poverty level. Increases in secondary enrollment in recent years are expected to boost educational attainment among young adults in the near future.

Under-five mortality has declined rapidly in recent years, particularly among the poor, giving Kenya one of the lowest under-five mortality rates in the region. Mortality among children below the age of five has declined from 114.6 deaths per 1,000 live births in 2003 to only 52.4 in 2014. This decline has been driven mostly by the increased provision and uptake of low-cost, high-impact measures, particularly the use of insecticide-treated bed nets (ITNs) that protect children from contracting malaria.[48] The decline has been particularly pronounced among children from poorer families and those residing in rural areas; in fact, differences in mortality between the bottom 40 percent[49] and the top 20 percent and rural and urban children were not statistically significant in 2014. Kenya's under-five mortality rate is lower than expected given the country's level of poverty and is among the lowest in sub-Saharan Africa (Figure 1.39).

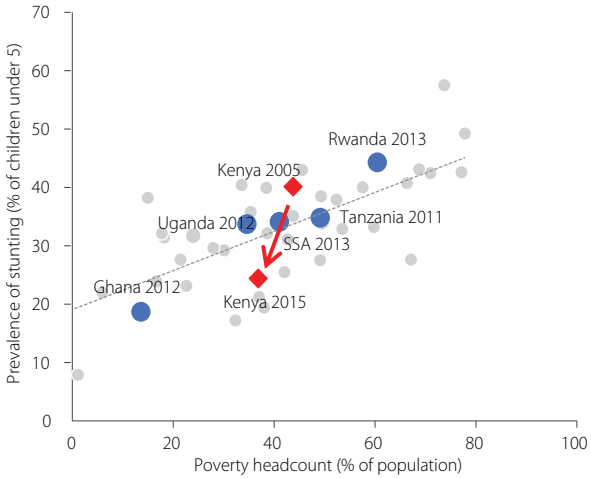
Kenya has also made substantial gains in reducing child stunting; it now has one of the lowest stunting rates in the region. Stunting is defined as a height-for-age z-score that is more than two standard deviations below the median of a reference population.[50] As of 2015, nearly 1 out of every 5 children under the age of 4 (24.4 percent) is stunted in Kenya. While this is the lowest stunting rate among countries of the EAC, it is still higher than in Ghana. When considering Kenya's level of poverty, the rate of stunting is lower than expected (Figure 1.40). The prevalence of child stunting has substantially improved since 2005, when 40.1 percent of Kenyan children were stunted.

Figure 1.39: Poverty headcount against under- five mortality



Source: USAID Demographic and Health Survey (DHS).

Figure 1.40: Poverty headcount against child stunting



Source: KIHBS 2015, KIHBS2005, World Bank open data catalogue, authors' calculations.

47 The net secondary school enrollment rate is similarly defined as the ratio of secondary school-aged children who are currently enrolled in secondary school to the population of all secondary school-aged children.

48 The share of children under the age of five that sleeps under an ITN increased from only 4.6 percent in 2003 to 54.3 in 2014.

49 The statement is based on comparisons across quintiles of a wealth index that uses assets to proxy the material standard of living, not consumption expenditures.

50 The reference used here is that of the World Health Organization (WHO).

1.6 INSTITUTIONAL CONTEXT, ELECTIONS AND DEVOLUTION

Kenya is a presidential-style democratic republic based on a multiparty system in accordance with a constitution passed in 2010. The president of Kenya is both the head of state and the head of government, and leads the executive branch. Legislative powers rest with a bicameral parliament while the judiciary is independent of these two branches. Although democratic processes, particularly elections, are at times accompanied by politically-instigated civil unrest and violence, the country is considered to have a wider democratic space compared to its neighbors.[51] Following major institutional reforms initiated after the Presidential elections of 2007, there is currently a national government and 47 county-level governments that exercise executive and legislative powers at different levels.

The traditional concentration of power in the executive branch has been a source of political grievance. Since independence, there has been a "continuous process of centralization of power" as well as concentration of power in the Presidency.[52] This resulted in a sweeping mandate that allowed for, at different times, the redrawing of districts to create new offices for the president's allies. In addition, new power centers at the sub-national level were created, such as the Provincial Administration, that answered directly to the executive.[53] The executive was also able to hand out public land to patrons and affiliates.

The 2007 elections were marked by widespread political violence and a serious challenge to the legitimacy of the electoral system. The frontrunner Party of National Unity (PNU) was widely perceived to dominate power and access to resources including land and was led by the Kikuyu community.[54] The opposition Orange Democratic Movement (ODM) was politically supported by other ethnic groups, particularly the dominant Luo community. The sitting president Mwai Kibaki of the PNU was initially declared the winner of a contentious election. The results were immediately challenged by the ODM, citing voter intimidation and other irregularities. The situation was exacerbated by the Electoral Commission's own admission of inconsistencies in the process.[55] The elections damaged Kenya's image as a relatively-stable country with politically mature institutions.[56] [57]

The country undertook reconciliatory measures following the political discord. A power-sharing arrangement with intense support of the international community ended the violence and led to the formation of the Unity government in 2008, comprising the incumbent PNU and the opposition ODM. The constitution was altered to create a new position of Prime Minister for the opposition's candidate. The Afrobarometer Survey conducted in 2008 showed 83 percent of Kenyans supporting a constitution that limits the president to two terms in office, and 77 percent thought the National Assembly and MPs represent the people and should therefore make laws even if the President or Prime Minister did not agree with them.[58]

A constitutional referendum in 2010 created new checks on executive power. This process also led to the complete separation of the parliament from the executive under a presidential system of government. Political decentralization had always found some degree of support within the diverse communities in Kenya and the country did have some features of regional autonomy at independence. Successive leaders – the founder Kenyatta, followed by President Moi – centralized state power and influenced key

[51] See Op-Ed "Africa's Powerhouse" by Kimenyi and Kibe, 6th January 2014; online at www.brookings.edu.

[52] Sundet, Geir, Scanteam, and Eli Moen. 2009. Political Economy Analysis of Kenya. Norwegian Agency for Development Cooperation Report 19/2009.

[53] Ibid NORAD; see sub-section on the "Increasing concentration of powers in the Executive", pg.6.

[54] The grievances related to access to and ownership of land in the past are interlinked with political competition along ethnic lines and these have resulted in violent ethnic conflict in multi-ethnic areas. See Sub-section 2.6 on Prospects and Risks regarding Kenya in ODI (2014).

[55] From New York Times coverage of the 2007 elections; Africa: Disputed vote plunges Kenya in bloodshed, 31st December, 2007.Article by J. Gettleman.

[56] Civil unrest over two months recorded over 1,000 dead and up to 500,000 internally displaced, as per Human Rights Watch: see Report titled "Ballots to Bullets, Organized political violence and Kenya's crisis of governance", 16th March, 2008.

[57] See Commentary titled "Kenya: A country redeemed after a peaceful election" by Mwangi Kimenyi, April 2013, online on www.brookings.edu.

[58] See Part II on the Afrobarometer Survey; source: Afrobarometer Survey 2009: "Popular attitudes toward democracy in Kenya: A summary of Afrobarometer indicators, 2003-2008. Published 6th June 2009.

decisions such as the formation of the judiciary and of the parliament.[59] The strong provision for devolution in the new constitution was a "key source of public support for the draft of the constitution".[60]

Devolution of power was at the core of the new constitution and has fundamentally changed the structure of government in Kenya. This major undertaking aimed to address deeply-entrenched disparities between regions, allow for the regions to have greater autonomy, and rebalance power away from a historically strong central government.[61] The general elections of 2013 marked the official launch of the decentralization as the 47 newly formed counties elected their governors and county assemblies, and a new national senate was established to represent the counties.[62]

Devolved governance presents considerable opportunities to Kenya in strengthening local autonomy over resource allocations. As per the constitution, it was agreed that 84.5 percent of the country's revenues are to be allocated to the national government while 15 percent will be allocated to the 47 county governments.[63] The remaining 0.5 percent was designated as an "equalization fund". The Commission on Revenue Allocation (CRA), created in the 2010 referendum, recommends the basis for equitable revenue allocation to the National Assembly, including the percentage of national revenue to be divided between the national and county governments as well as the distribution by county. This is not an easy task as any specific allocation criterion is bound to favor some counties over others and therefore raise questions about the legitimacy of the process. The National Assembly accepted the CRA's recommendation to distribute revenues to the county governments based on a weighted allocation (Table 1.3).

Table 1.3: First revenue-sharing formula among counties in Kenya

Parameter	Percentage weight
Population	45
Poverty index	20
Land area	8
Basic equal share	25
Fiscal responsibility	2

Source: Brookings Institution (2013).

The formula for the horizontal sharing of revenues emphasizes fiscal need. The formula provides historically marginalized counties with higher per capita transfers than historically privileged counties Land area and population are proxies for the costs of service delivery. South Africa places a similar emphasis on fiscal need, taking a more sectoral approach, however they accomplish this by directly measuring the costs of service delivery in the education and health sectors. On the other hand, India's approach to revenue-sharing places an emphasis on fiscal capacity as opposed to need.

The horizontal formula for revenue sharing has been highly equalizing, re-allocating revenues to marginalized areas of the country. In particular, northern parts of the country have benefitted significantly, with Turkana and Mandera receiving higher benefits. Reallocation is envisaged to spur growth in these areas and to contribute to improving living standards and regional economic convergence. The reallocation of revenues has also led to a decrease of revenues previously allocated to urban areas, incentivizing these areas to improve on own-revenue collections by leveraging existing infrastructure.

Continued disparities in capacities will shape both utilization of resource allocations and their ultimate impact. The generalized approach based on an equitable allocation formula may work in principle, but the actual sector-wide utilization of resources depends largely on preexisting capacity at the county-level to effectively utilize the allocated funds. Differences in human resources, technical

[59] See World Bank report titled Devolution without Disruption: Pathways to a successful new Kenya. November 2012.

[60] Ibid; Chapter One: Kenya's devolution in context.

[61] See Working Paper 1 on Kenya Devolution (Overview Note on building public participation in Kenya's devolved government), February 2015, by the Center for Devolution Studies, Kenya School of Government.

[62] The country Executive arm is headed by the County Cabinet comprised of up to ten members known as the County Executive Committee (CEC). Each member of the CEC is in charge of a county department (a "ministry"). This apex body along with most administrative organs have already been created at the sub-counties, wards and village-level and counties recruit key personnel to staff the administrative units.

[63] See Op-ed titled "Devolution and resource sharing in Kenya" by Mwangi S. Kimenyi, on the Brookings Institution online, October 22, 2013.

abilities and existing infrastructure, among others, greatly impact the actual cost of delivering specific services under the management of the county governments.[64] Policymaking has to capture this vital factor in resource allocation.

National agencies resist handing over vital services and functions to the counties given human resource challenges. The reluctance includes key services such as the management of urban and rural roads and rural electrification projects. This is due to the limited administrative and technical capacity to handle these functions in certain counties. The central government also deployed County Commissioners, even before the county governments were fully established, who answer only to the Nairobi.[65] Some public sector agencies and their employees, such as doctors and teachers, are reluctant to be managed by local government units that are deemed less qualified than their national peers, even if the terms and conditions of their services remain the same.[66]

Political and fiscal decentralization enjoys wide political and popular support. There is now widespread acceptance of – and big expectations (Box 1.3) from – the devolution process. The demand for fiscal autonomy is reflected in speed at which new county governments have assumed major responsibilities and received greater funding in health, agriculture, and local roads/infrastructure.[67] The share allocated to counties in 2013-14 was more than twice the minimum 15 percent required by the Constitution.

Devolving authority to county governments has given rise to new political dynamics that policymakers need to address. The political decentralization process in some cases resulted in hastily-drawn boundaries which formed new administrative arrangements. Inter-county competition is growing over the ownership and control of national and regional development projects that straddle county borders. This makes border regions more prone to violent disputes and reprisals against minority residents from rival counties. High impact policy interventions are needed to address disputes between counties, particularly land claims, as well as improved efforts towards ethnic inclusion at the county level governments. The latter is already under way on an ad hoc basis in the form of a "County Inclusion Index" by the National Cohesion and Integration Commission.[68]

The 2017 general election renewed the focus on the presidency and put pressure on the electoral process and its governing institutions. The political decentralization achieved through the comprehensive devolution that Kenya has recently undertaken should in theory mitigate the political stakes of the country's presidential elections, among other accomplishments (Box 1.3). The events of the presidential election in August 2017, however, demonstrate that this process remains a contentious and ethnically polarizing event. This calls into question the effectiveness of new agencies formed under the 2010 referendum, such as the Independent Electoral and Boundaries Commission (IEBC), which may not have exercised their powers to the full extent possible.[69]

Box 1.3: Public expectations from devolution

Citizens will get better public services:

- Citizens will have better opportunities to participate in governance.
- Women will have better opportunities in devolved governments.
- Better transparency and accountability mechanisms will be put in place.
- Minority communities will have better opportunities.
- The process will lead to a more cohesive and peaceful nation.
- Vices such as corruption and impunity will be minimized.

Source: Based on Figure 4 "Kenyan's [sic] expectations of Devolution", Society for Development (2012 figures) in Center for Devolution Studies Working Paper 1 (2015).

64 See "Devolution and resource sharing in Kenya", Op-Ed by Mwangi Kimenyi, 22nd October 2013; online at www.brookings.edu.

65 ODI (2014).

66 Ibid.

67 Center for Devolution Studies Working Paper 1 (2015).

68 This body was created as part of the post-2007 elections' reconciliatory efforts. A key objective now is to ensure that minorities within the counties are included in the governance structures and are marginalized in development efforts.

69 ODI (2014).

Box 1.4: Key features of the 2010 Kenyan Constitution

The demands for constitutional reform in Kenya gathered pace in the 1990s. The impetus for these demands lay primarily within marginalized communities who objected to the centralized nature of power in the presidency. There is a widespread belief in politically disenfranchised communities that devolving powers away from the central government will end bias in resource allocation, among other gains. A referendum in 2005 failed to garner enough support for constitutional change, but a subsequent referendum in 2010 allowed for a groundbreaking redrafting of the constitution. This made way for the first change to the constitution since independence. Key features include:

- The country's first Bill of Rights that states the right of every citizen to basic services such as clean water, decent housing, sanitation and food.
- A guarantee in principle to access to public resources irrespective of any community's lack of influence at the national level.
- A new, decentralized system of 47 local counties established that replaced eight provinces and 46 districts. Each county government consists of an Assembly and an Executive which are both directly elected by their constituents.
- Dilution in the president's appointive powers which are now subject to consultations with various commissions and require approval by the National Assembly.
- The creation of an Upper House of Parliament called the Senate, where county governments have equal representation.
- Establishment of the National Land Commission with powers to allocate land and to repossess illegally-acquired public land. This entity also restricts the ability of the President's office to allocate public land to individuals and parties as done before.
- Article 40 of the constitution sets out principles governing land policy while Article 68 directs the parliament to revise and rationalize existing land laws. Crucially, it stipulates that the manner in which land is converted from one category to another for acquisition must be regulated.
- Chapter 11 establishes mechanisms for political and fiscal devolution and directives to allocate 15 percent of the public revenues towards the 47 counties annually.
- Chapter 12 of the constitution establishes the Commission on Revenue Allocation to oversee an equitable resource-sharing between the center and the county governments.
- A central government funding system that considers counties' population size, area and poverty levels, and acknowledges that counties have autonomy over the design and details of local spending plans.

Source: Online article titled "New constitution means major changes for Kenya". Voice of America, August 11, 2010. Online at www.voanews.com; online article titled "How Kenya is changing under new constitution" Daily Nation online, Friday, August 28th 2015. Online at www.nation.co.ke; online Country Profile on Kenya and related article titled "Kenya's new constitution brings political change". Oxford Business Group, February 2017. Online at oxfordbusinessgroup.com/overview.

The IEBC faced allegations of procedural inconsistencies and weak oversight for the 2017 elections.[70] The commission had initially declared the incumbent President Kenyatta the winner with over 54 percent of the vote. The main challenger Raila Odinga from the ODM within the larger National Super Alliance coalition challenged the results citing hacking and manipulation of the electronic vote-counting system.[71] The Supreme Court nullified the results a month after the elections and determined that the process "was not conducted in accordance with the Constitution and [therefore was] invalid".[72] The IEBC was observed to have clearly ignored electoral laws and procedures.[73] An election re-run in October 2017 was boycotted by the opposition, which demanded reforms to the IEBC.[74]

70 Article titled "What next in Kenya election crisis?", by Dickens Olewe, 11th October 2017. Online at www.bbc.com.

71 Article titled "Kenyan opposition leader to challenge election result in court", Reuters/The Guardian, 16th August 2017. Online at www.theguardian.com.

72 See Al Jazeera Opinion piece titled "Why did Kenya's Supreme Court annul the elections?", by Nanjala Nyabola, 2nd September 2017. Online at www.aljazeera.com.

73 Ibid.; the tallying website on which local and international reporting relied was not public as was earlier promised; IEBC conceded that they did not use an electronic transmission system to record ballots and used text messages and photographs of manually filled forms as sources of information; and, the forms used for reporting results from different regions were apparently not all available in time for the official announcement. The total cost of the elections at USD 500 million makes it one of the most expensive, spending USD 28 per capita in taxpayer money.

74 This re-run was won by the incumbent with 98 percent of the votes while the turnout was recorded at 39 percent and the re-run suspended in 25 constituencies that were opposition strongholds. The Supreme Court upheld the results, which allows the President to serve another five-year term.

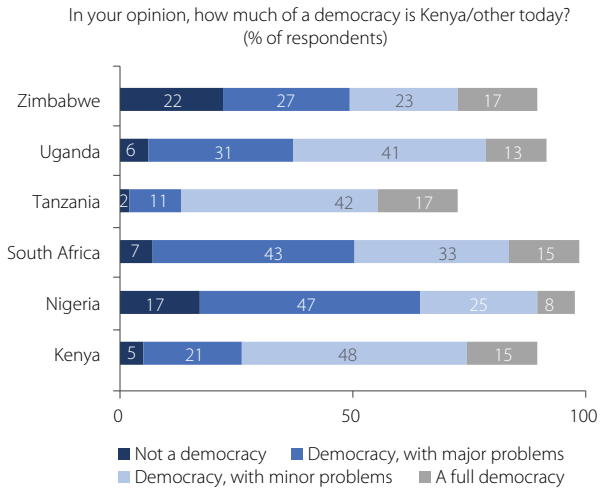
1.7 PERCEPTIONS ON DEMOCRACY, GOVERNANCE AND POLITICAL PARTICIPATION[75]

Kenyans show a strong preference for their democracy and democratic processes. Citizens largely support the nature of democracy in their country and have favorable attitudes towards processes linked to the functioning of a democratic republic, according to the 2016 Afrobarometer survey. Kenyans have a higher regard for their democratic system compared to other countries in sub-Saharan Africa (Figure 1.41); 63 percent of Kenyans see their country as a "full democracy" or a "democracy with minor problems." Kenyans also have a favorable view of the overall environment for electoral politics in the country.

The majority of citizens responded positively to several fundamental democratic rights in place and supported key features of a functioning democracy. In terms of the freedom of opposition parties or candidates to speak or hold rallies and for the respondents to state their views or criticize the government, over 60 percent of respondents thought that there was "somewhat more" or "much more" freedom than before. Over 70 percent disapproved – 50 percent "strongly" – of an election where only one political party is allowed to stand and hold office. A large majority, 83 percent, disapproved – 63 percent did so "strongly" – of the army governing the country as an alternative. Democracy was "preferable to any other kind of government" to 67 percent of Kenyans, an opinion shared by respondents in other sub-Saharan African countries: this statement is supported by 81 percent of Ugandans, 75 percent of Zimbabweans, 66 percent of Nigerians, 64 percent of South Africans, and 57 percent of Tanzanians.

Views before the devolution in 2010 show comparable support for democratic norms and processes. Afrobarometer surveys conducted in Kenya in 2003, 2005 and 2008 show that 57 percent of Kenyans, averaged across the three surveys, regarded their country as a "full democracy" with "minor problems".[76] A majority of Kenyans – 68 percent (again, averaged from the three surveys) – also agreed that "many political parties are needed to make sure that Kenyans have real choices in who governs them". Additionally, on average, over 88 percent of Kenyans in the surveys rejected military rule as an alternative to electoral politics. Democracy "was preferable to any other kind of government" for 80 percent of Kenyans in 2003, 75 percent in 2005, and for 79 percent in 2008.

Figure 1.41: Perception of democracy in sub- Saharan African countries



Source: Afrobarometer Surveys' "summary of Results" Kenya, Round 7, 2016, Question 35: "In your opinion how much of a democracy is Kenya today?"; under Question 35 for Uganda and Zimbabwe and Question 40 for Nigeria, South Africa and Tanzania. Remaining respondents in all countries were under the categories "Did not understand question/Democracy" or "Don't know/refused". These categories comprised 10 percent or less of total respondents in all countries except Tanzania (27 percent).

The 2008 survey shows ratings drop on the perceived true extent of democracy, the satisfaction with democracy, and the quality of the electoral process. Nearly 50 percent of citizens thought that Kenya was "not a democracy or a democracy with major problems", a 19-point increase since 2005. 42 percent of Kenyans were "fairly satisfied or very satisfied" with the way democracy worked in Kenya, an 11-point drop from 2005. Only 20 percent of Kenyans in 2008 claimed that the previous (2007) elections were largely

[75] Data in this section is based on the latest Afrobarometer Survey's "summary of Results", undertaken in Kenya as Round 7 in 2016 (conducted September-October 2016) by the Institute for Development Studies (IDS). Additionally, previous Summary of Results for Kenya from Round 6, 2014 and Round 5, 2011, and, the report "Popular attitudes toward Democracy in Kenya: A summary of Afrobarometer indicators, 2003-2008". Data on sub-Saharan countries is based on Summary of Results from Nigeria, Round 6, 2015; South Africa, Round 6, 2015; Tanzania, Round 6, 2014; Uganda, Round 7, 2017; and Zimbabwe, Round 7, 2017. Online at www.afrobarometer.org.

[76] Source: Afrobarometer Survey report "Popular attitudes toward Democracy in Kenya: A summary of Afrobarometer indicators, 2003-2008", 26th June 2009.

free and fair. The drop in positive perceptions from 2005 to 2008 regarding elections was likely informed by the disputed 2007 elections and the following civil conflict.

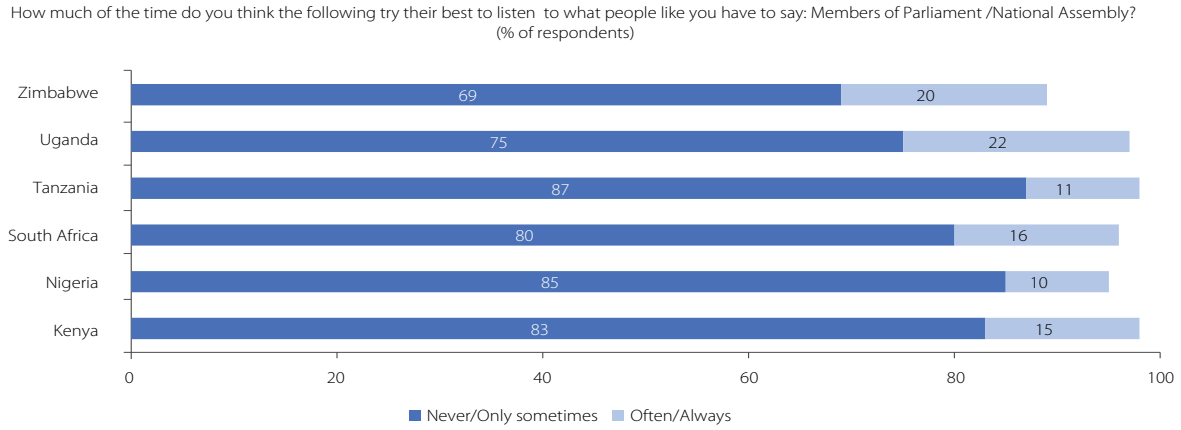
Kenyans hold a neutral view of elected officials. Citizens generally believe that the President, MPs, Members of County Assembly and the County Governor are doing an acceptable job: in terms of how key representatives had performed in their job over a year in 2016, 75 percent of Kenyans "strongly approved or approved" of the performance of the President, 45 percent did so of the MPs, and 47 percent of the Members of the County Assemblies.

The level of responsiveness from elected public officials towards their constituents is a concern. When asked whether MPs tried their best to listen to what people have to say, 83 percent of Kenyans thought that MPs "never did or did so only sometimes," while 15 percent thought "often or always". This is comparable to the perceived responsiveness to constituents in other sub-Saharan African countries (Figure 1.42). The responsiveness of Members of County Assemblies in Kenya was thought to be marginally better[77] even as Kenyans gave a more balanced view of how they performed in 2016.

Kenyans in 2016 listed corruption as the "most important problem facing the country" that should be addressed by the government. This was followed by unemployment, crime and security, and management of the economy.[78] Concern over corruption has steadily risen for citizens since 2011 (Figure 1.43). A majority of Kenyans stated that ordinary citizens were "very likely" to get away with paying a bribe or using personal connections for a) avoiding payment of taxes that they owed to the government (66 percent), b) avoiding paying a traffic fine or going to court (70 percent), and c) registering land that did not belong to them (73 percent).[79] Moreover, 77 percent of Kenyans thought that those who report incidents of corruption "risked retaliation".[80]

Responses around corruption also indicate notably low levels of trust in public institutions. Some of these institutions are mandated with addressing corruption and redressing grievances, such as the police. Most Kenyans reported some level of involvement in corruption by major government institutions (Figure 1.44). Additionally, when asked how well they thought the current government was fighting corruption, over 70 percent thought "very badly" or "fairly badly".

Figure 1.42: Responsiveness of National Assembly members to citizens in sub-Saharan African countries



Source: Afrobarometer Surveys' "summary of results": Under Kenya Round 7, 2016, Question 54A.; Nigeria Round 6, 2015, Question 59A.; South Africa Round 6, 2015, Question 59A.; Tanzania Round 6, 2014, Question 59A.; Uganda Round 7, 2017, Question 54B.; and Zimbabwe Round 7, 2017, Question 54A.

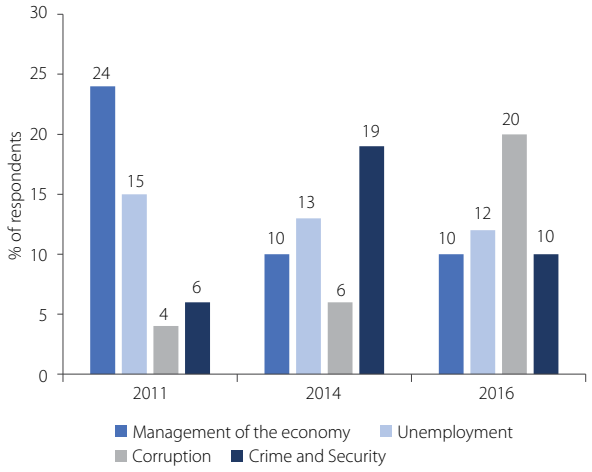
77 Afrobarometer (2016); Question 54A "How much of the time do you think the following try their best to listen to what people like you have to say? Members of Parliament." and Question 54B "How much of the time do you think the following try their best to listen to what people like you have to say? Members of County Assembly."

78 Question 55, Pt.1: In your opinion, what are the most important problems facing this country that government should address? (1st response).

79 Afrobarometer (2016); Questions 48D to 48F: respondents were to choose from a) Not at all likely; b) Not very likely; c) Somewhat likely; d) Very likely; additionally, there were categories of responses under "Missing", "Refused" (-to answer) and "Don't know/Haven't heard".

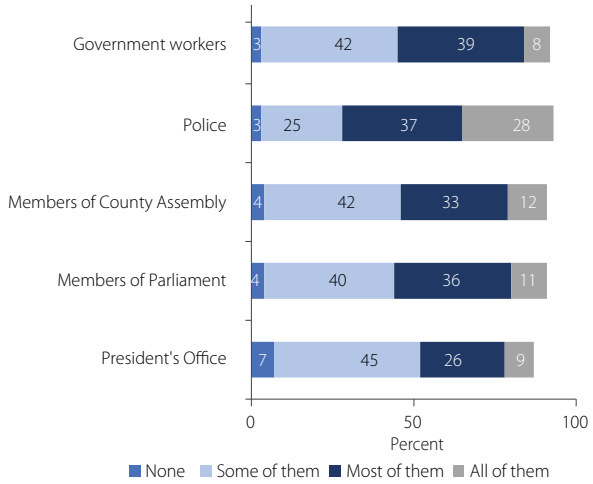
80 Question 47: In this country, can ordinary people report incidents of corruption without fear, or do they risk retaliation or other negative consequences if they speak out?

Figure 1.43: Major issues for citizens in Kenya that government should address



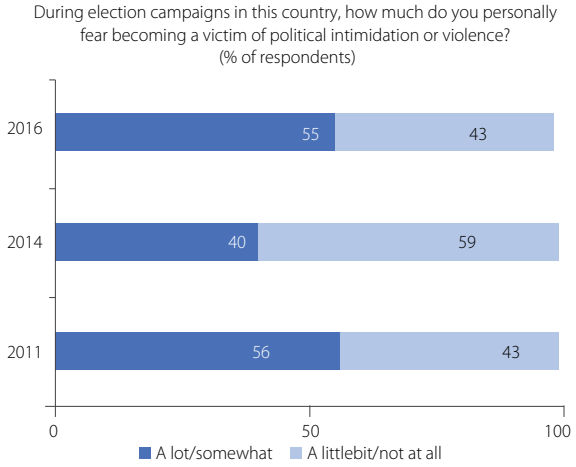
Source: Afrobarometer survey, "summary of results", First Response on Question "In your opinion, what are the important problems facing this country that government should address?, Round 5, 2011, Round 6, 2014 and Round 7, 2016

Figure 1.44: Perceived involvement in corruption, 2016 (% of respondents)



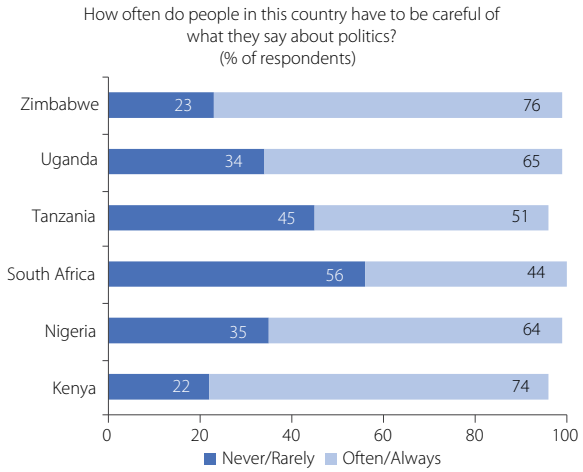
Source: Based on Questions 44A to 44J (How many of the following people do you think are involved in corruption?), Afrobarometer Survey, "summary of results", Kenya 2016.

Figure 1.45: Political intimidation or violence during election campaigns



Source: Afrobarometer survey, "summary of results", Round 5, 2011, Question 54; Round 6, 2014, Question 49; and Round 7, 2016, Question 40.

Figure 1.46: Expressing political views in sub-Saharan African countries



Source: Afrobarometer Survey "summary of results" Kenya Round 7, 2016, Question 42A. In your opinion, how often, in this country: Do people have to be careful of what they say about politics? Question 42A. in Uganda and Zimbabwe surveys, Question 51A. in Nigeria, South Africa and Tanzania.

Kenyans are also more cautious with respect to political participation. A large proportion of respondents are concerned with intimidation or violence during political campaigns in the country (Figure 1.45). A majority, 74 percent, also thought that they "often or always" had to be careful of what they say about politics. Citizens show inhibitions on other crucial dimensions of a participatory democracy as compared to other sub-Saharan African countries, seen in responses on expressing political views and associating with political organizations (Figure 1.46). The percentage of respondents indicating a cautionary attitude towards associating with political organizations has risen considerably over the past decade. Attitudes in 2011 and 2014 indicate fewer inhibitions related to joining a political organization.[81]

[81] According to the Afrobarometer "summary of results" responses, 84 percent of Kenyans thought they were "somewhat free/completely free" to join any political organization that they wanted to in 2014 (Question 15B.) and 82 percent thought the same in 2011 (Question 17b.).

CHAPTER 2

THE EXTENT AND EVOLUTION OF POVERTY AND INEQUALITY IN KENYA

SUMMARY

Kenya recorded steady progress against poverty between 2005/06 and 2015/16. The proportion of the population living beneath the national poverty line fell from 46.8 percent in 2005/06 to 36.1 percent in 2015/16. Most of the poverty decline is attributable to the progress observed in rural areas, where poverty declined from around 50 percent in 2005/06 to 38.8 percent ten years later. This contrasts with the stagnation of poverty in urban areas, particularly outside Nairobi. As Kenya urbanizes, cities are not providing enough economic opportunities for individuals to improve their income levels and maintain their standards of living.

The country also experienced shared prosperity, with substantial consumption growth for households in the bottom 40 percent of the distribution. The annualized consumption growth for the bottom 40 percent has been a satisfactory 2.86 percent per year between 2005/06 and 2015/16, a pattern more pronounced in rural areas. Consistent with this pro-poor pattern of economic growth, inequality declined in Kenya, as confirmed by several inequality measures. While this helped to contribute to poverty reduction, most of the reduction is attributable to economic growth; which means that going forward efforts to reduce inequality can help accelerate poverty reduction.

The evidence suggests that off-farm diversification has been important for poverty reduction in Kenya. While a robust agricultural sector and a dynamic services sector contributed to the wellbeing of rural households, most of the poverty reduction is accounted by households whose agricultural income is supplemented by non-agricultural activities (small-scale services). There is compelling evidence that the enabling factor was mobile money. M-PESA increased the households' financial resilience and savings, allowing them to: i) invest productively, ii) move out of agriculture or complement that income with that of other businesses, and iii) improve their consumption levels.

Kenya is characterized by stark regional differences, both in terms of monetary and non-monetary poverty indicators. The wellbeing of the population in the North & Northeastern Development Initiative (NEDI) counties (which includes all counties in the North Eastern province) lags considerably behind the rest of Kenya.[82] Moreover, these areas have seen little progress between 2005/06 and 2015/16, remain prone to food insecurity, and present very low levels of educational attainment, access to improved sanitation and, to a lesser extent, access to improved water. While the GoK has implemented some measures to improve the connectivity and overall wellbeing of the population in these areas, substantive, sustained and cross-sectorial efforts will be required moving forward.

Poor households remain limited by demographic characteristics, low human capital, and low coverage of basic services. Poverty is associated with female and older household heads, and low levels of educational attainment. This suggests that the poor are constrained when accessing income generating opportunities. Moreover, poor households tend to be larger, and have higher dependency ratios; demographic factors that usually hinder poverty reduction. In addition, coverage of WASH services and household electricity is much lower for poor households. In this sense, Kenya should continue to expand the coverage of this basic services to all segments of the population, while ensuring their quality.

[82] NEDI group of counties: Mandera, Lamu, Wajir, Garissa, Tana River, Marsabit, Samburu, Turkana, West Pokot and Isiolo (a map displaying the NEDI counties is included in Appendix B).

This chapter first documents the progress made by Kenya in terms of the monetary measures of poverty, during the period on which this report focuses, 2005/16 to 2015/16. It analyzes the trends in terms of the national poverty headcount rate, other related indicators (such as the depth and severity of poverty) and the incidence of food and extreme poverty, as officially defined by the KNBS. The chapter then turns to examine the incidence of consumption growth, and how this is reflected in terms of an array of inequality indicators. It also examines the factors behind Kenya's success in reducing poverty, relying on decomposition analysis and the finding of numerous studies on the impact of mobile money in the wellbeing of the population. The chapter concludes by providing a profile of the poor, in an attempt to identify the factors that may be limiting their economic opportunities and overall wellbeing.

2.1 STEADY BUT MODEST PROGRESS AGAINST POVERTY 2005/06-2015/16

Reducing the share of the population living under the poverty line is an important measure of progress for any country. This section analyzes how monetary poverty has evolved in Kenya between 2005/06 and 2015/16, looking closely at the spatial disparities both in terms of the urban and rural divide and of the marked provincial differences. It also pays special attention to the levels and progress of poverty indicators for the NEDI counties.

2.1.1 Progress in the incidence of poverty

Kenya has seen a steady reduction in the poverty rate between 2005/06 and 2015/16 but progress is modest. Over that period and consistent with the overall robust economic growth observed[83], the country has been able to reduce the share of people living below the national poverty line by more than ten percentage points. The national poverty headcount rate went down from 46.8 percent in 2005/06 to 36.1 percent in 2015/16 (Table 2.1), which corresponds to an annualized rate of poverty reduction of 2.6 percent. Despite this successful reduction in the incidence of poverty, the absolute number of poor declined only marginally, from 16.6 million in 2005/06 to 16.4 million ten years later (Table 2.2). A first look at the absolute number of the poor in Kenya reveals that the number of

Table 2.1: Absolute poverty headcount rate, nationally, by area of residence

	2005/06	2015/16	Percentage point change	Annualized change
National	46.8	36.1	-10.7	-2.6
Rural	50.5	38.8	-11.7	-2.6
Urban	32.1	29.4	-2.7	-0.9

Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16

Table 2.2: Poor and total populations, nationally, by area of residence and by NEDI classification

	Population living in poverty (Millions)		Annualized percentage change	Distribution of poor (%)		Percentage point change
	2005/06	2015/06		2005/06	2015/06	
National	16.6	16.4	-0.1	100	100	-
Rural	14.3	12.6	-1.3	86.2	76.9	-9.3
Urban	2.3	3.8	5.1	13.8	23.1	9.3
Non-NEDI	14.3	13.2	-0.8	85.9	83.1	-2.8
NEDI	2.4	3.2	2.9	14.1	16.9	2.8
	Total population (Millions)		Annualized percentage change	Distribution of poor (%)		Percentage point change
	2005/06	2015/06		2005/06	2015/06	
National	35.5	45.4	2.5	100	100	-
Rural	28.4	32.5	1.4	79.9	71.6	-8.3
Urban	7.2	12.9	6.0	20.1	28.4	8.3
Non-NEDI	32.1	39.9	2.2	90.3	88	-2.3
NEDI	3.4	5.4	4.7	9.7	12	2.3

Source: Own calculations based on KIHBS 2005/06 and 2015/16.

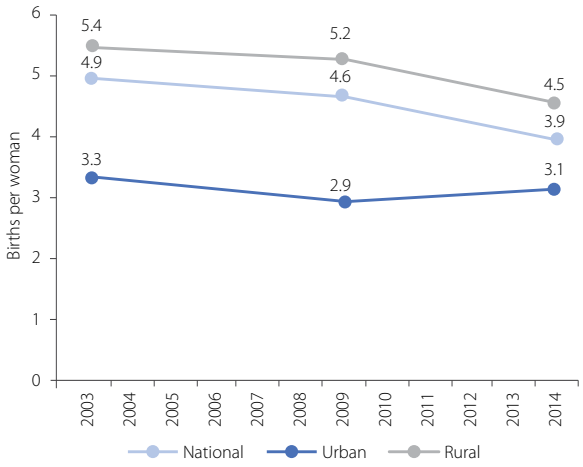
[83] Except for the economic slow-down that resulted from the events that followed the general elections of 2007 and the slowdown of agricultural production in 2011, described in detail in Chapter 1.

people living below the poverty line increased in urban and NEDI counties[84], from 2.3 to 3.8 million and from 2.4 to 3.2 million respectively, whereas it decreased in rural and non-NEDI counties.

Fertility trends in Kenya have not undermined the progress against poverty, as has been the case in many countries in Africa. While the small decline in the number of poor may not appear as major progress, in this sense Kenya presents a better outlook than many other countries in Africa, where high total fertility rates (TFRs) are undermining growth and poverty reduction, as documented by Beegle and Christiaensen (forthcoming). In the case of Kenya, the average TFR is estimated at 3.9 children per woman in 2014 (Figure 2.1), much lower than the 4.85 estimated for Sub-Saharan Africa. This also means that fertility declined by almost one birth per women over the decade leading to 2014, a notable accomplishment.

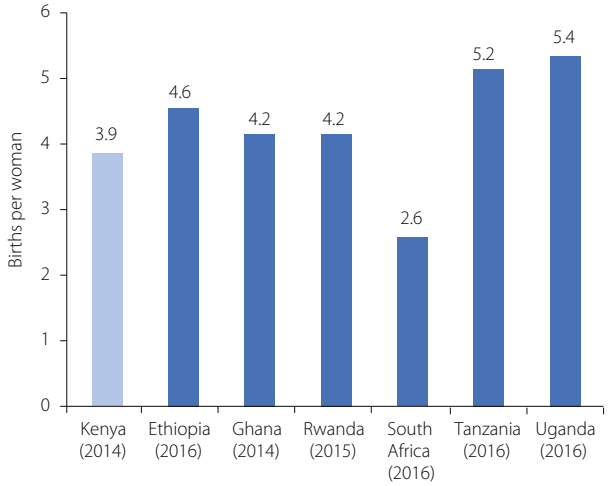
Figure 2.1: Total Fertility Rate (women aged 15-49)

a) Kenya



Source: KDHS 2003, KDHS 2009 & KDHS 2014.

b) Benchmark countries most recent DHS year



Source: KDHS 2014, EDHS 2016, GDHS 2014, RDHS 2014-15, SADHS 2016, TDHS 2015-16, UDHS 2016.

Box 2.1: Kenya Integrated Household Budget Survey (KIHBS): A commendable effort

The analysis of this chapter and most of this report would not be possible without the recent effort by the KNBS to collect the 2015/16 wave of the KIHBS, which comes ten years after the collection of the first wave. Without this effort, it would not be possible to assess with certainty what are the living standards of the Kenyan population along many dimensions, including monetary and non-monetary poverty measures. While both waves are representative at the national, urban/rural, and provincial level, the 2005/06 KIHBS is also representative of Kenya's 69 districts, and the 2015/16 KIHBS of the 47 counties introduced by the 2010 constitution.[85]

In addition to reporting statistics by urban and rural areas and by province, this chapter also refers to the NEDI group of counties. These are historically underdeveloped areas and, as will be shown throughout the chapter, lag behind the rest of the Kenya on a wide range of socio-economic indicators. The ten NEDI counties are Mandera, Lamu, Wajir, Garissa, Tana River, Marsabit, Samburu, Turkana, West Pokot and Isiolo (a map displaying the NEDI counties is included in Appendix B).

[84] However, the number of the poor still grew at a slower pace than the total population, which explains why the proportion of the poor did not go up.

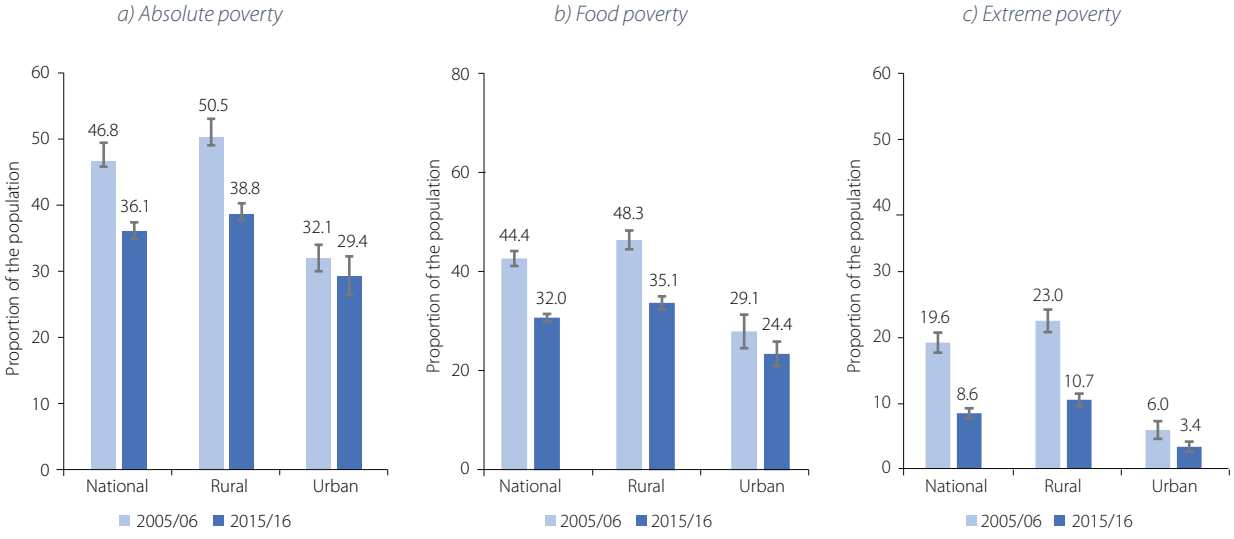
[85] There are two additional differences in the sampling framework of the two waves. Firstly, the 2005/06 survey had 10 households per cluster and an additional 5 replacement households, whereas the 2015/16 KIHBS had the same number of households per cluster without any replacements. Secondly, the 2015/16 KIHBS covered a larger sample: around 21,700 households versus 13,100.

While the reduction in poverty was more pronounced in rural areas, this is where three quarters of the poor still live. Poverty incidence in Kenya is still higher in rural areas than in urban areas, but it was in rural areas where the largest decline occurred. During the ten-year period, rural poverty declined by nearly 12 percentage points from 50.5 percent in 2005/06 to 38.8 in 2015/16. In contrast, there was little or no progress in urban areas: poverty declined by less than 3 percentage points, but the difference is not statistically different from zero (Figure 2.2a). This translates into an annualized poverty decline that is three times as large for rural Kenya (2.9 percent versus 0.9 percent). This is explained by an increased diversification of non-farm income sources of rural households, particularly in the services sector, paired with a robust performance of the agricultural sector for the better part of the period studied.

Poverty is increasingly becoming a concern for Kenya's urban areas. The distribution of the poor population between rural and urban areas changed in line with the distribution of the total population and the little progress made in urban areas. While in 2005/06 roughly one in ten poor lived in urban areas, by 2015/16 this proportion was close to one in four (Table 2.2). This, in addition to the increase of the absolute number of urban poor, indicates the economics benefits of the progress observed at the national level are not reaching the poorest households in urban centers, particularly outside Nairobi, as explored in Chapter 5 of this report.

Moreover, Kenya has been able to reduce the incidence of food poverty and extreme poverty. Following the KNBS definitions, food poverty is defined as the share of the population whose food consumption is below the food poverty line, while extreme poverty is defined as proportion of the population whose total consumption (including food, rent, clothing, energy, health expenditures, and education) is below the food poverty line. Both measures serve as an indication of food security at the household level, and how difficult is for households to fulfill the minimum caloric requirements. The share of food-poor people has declined from 44.4 percent in 2005/06 to 32 percent in 2015/16 — a roughly 28 percent decline, slightly steeper than the absolute poverty reduction. Similarly, extreme poverty fell by

Figure 2.2: Trends in absolute, food and extreme poverty, nationally and by area of residence



Source: Own calculations based on KIHBS 2005/06 and 2015/16.
Note: Lines denote the 95% confidence interval for the statistic.

[86] There are two additional differences in the sampling framework of the two waves. Firstly, the 2005/06 survey had 10 households per cluster and an additional 5 replacement households, whereas the 2015/16 KIHBS had the same number of households per cluster without any replacements. Secondly, the 2015/16 KIHBS covered a larger sample: around 21,700 households versus 13,100.

more than half: from 19.6 percent in 2005/06 to 8.6 percent in 2015/16 (Figure 2.2 c). In both cases, the progress was mainly observed in rural areas. In the case of food poverty, it seems there was no change in the food poverty rate of urban areas as the difference between the two years is not statistically significant (Figure 2.2 b).

Box 2.2: Measuring poverty: Computing the poverty lines, the consumption aggregate and classification of peri-urban households

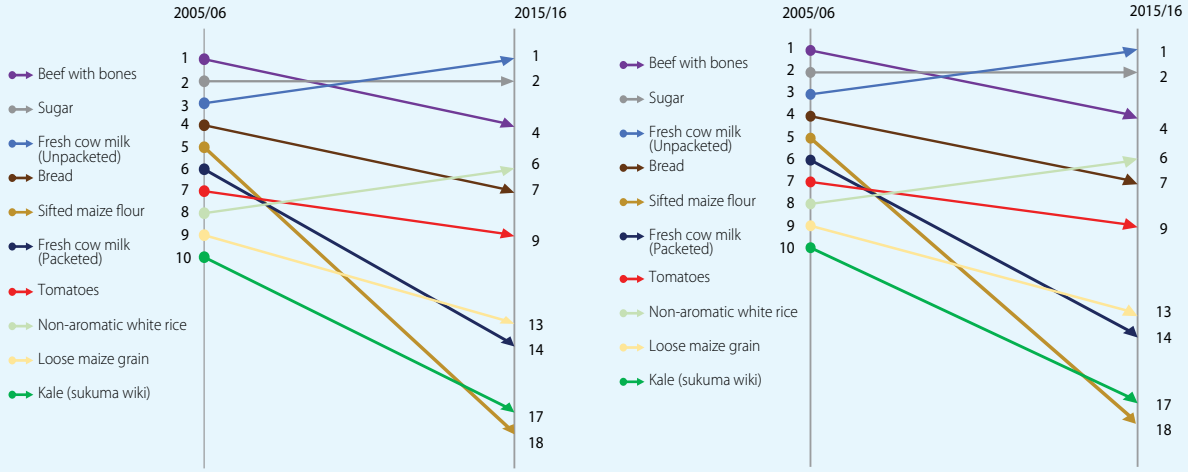
Poverty lines

The food and absolute poverty lines calculated with the 2015/16 KIHBS follow the Cost of Basic Need (CBN) method outlined in Ravallion (1998). The CBN method defines a consumption bundle required to meet one's "basic consumption needs." The cost of this consumption bundle is then estimated using reference prices for either rural or urban areas. The rural and urban food poverty lines in each survey are determined using the cost of a food basket which meets the 2,250 kilocalorie requirement per adult equivalent. The rural and urban absolute poverty lines are then calculated by adding a minimum allowance for non-food consumption to their respective food poverty lines.

While the same methodology had been used in 2005/06 to obtain the food poverty and absolute poverty lines, once the 2015/16 KIBHS was implemented it became evident the changes in the composition and in the relative importance of items within the food consumption basket would require a recalculation of the food poverty line (Figure 2.3). This is not surprising, as ten years later consumer preferences are different and there is larger choice set available to households.

To obtain comparable estimates over time, the 2015/16 lines were deflated and revalued at 2005/06 prices. More specifically, the food poverty line is obtained using the 2015/16 basket of food items (and the weights within the basket) at their 2005/06 prices. The non-food component of the line is deflated using the official CPI.

Figure 2.3: Urban and rural food poverty basket comparison by rank, 2005/06 and 2015/16



Source: KNBS 2018

There is a minimal difference at the national level between the 2005/06 poverty rates resulting from the noncomparable lines (the 2005/06 poverty line) and comparable lines (using the 2015/16 basket of food items at 2005/06 prices). The absolute and extreme poverty rates calculated using comparable poverty lines are just 0.2 and 0.1 percentage points higher, respectively, than when calculated using the original 2005/06 poverty lines (Table 2.3). Nationally, food poverty is 1.4 percentage points lower due to the drop in the urban food poverty line, which also results in a reduction in the urban extreme poverty rate from 8.3 percent to 6.0 percent.

Table 2.3: Comparison of noncomparable and comparable 2005/06 poverty rates

		2005/06 Extreme poverty rate (%)	2005/06 (Noncomparable)
Absolute poverty rate (%)	National	46.6	46.8
	Rural	49.7	50.5
	Urban	34.4	32.1
Food poverty rate (%)	National	45.8	44.4
	Rural	47.2	48.3
	Urban	40.4	29.1
Extreme poverty rate (%)	National	19.5	19.6
	Rural	22.3	23.0
	Urban	8.3	6.0

Source: Own calculations based on KIHBS 2005/06 and 2015/16.

Consumption aggregate

The consumption aggregate in both surveys was constructed using the approach outlined in Deaton & Zaidi (2002). The food aggregate uses a recall period of 7 days and comprises food consumption from four sources, namely: purchases, own production, own stock and gifts. Prices were imputed using the cluster-level median for each item since a household may have consumed but not purchased an item and household-level prices may contain outliers. The non-food component of the aggregate includes consumption of energy, education, transport and clothing among other item groups. Housing rent is also included in the non-food component, however only for urban households, wherein the rent is imputed for households that own their dwelling. Over-the-counter medication (items such as cough syrup, painkillers and anti-malaria medicine) is the only form of health expenditure included the non-food aggregate.

Lastly, in each survey in order to account for spatial and temporal food price differences, a household-level price deflator based on a Paasche price index was created. Spatial adjustment occurs as the cluster median prices are referenced to the overall rural or urban median prices. Temporal adjustment occurs as each cluster is surveyed in a 2-week period within a year and these prices are then referenced to the median price for the entire survey period. This adjusts for differences in the cost-of-living within urban and rural areas after it is applied to the nominal food and total aggregates.

Peri-urban classification

Peri-urban households were classified as rural households in the 2005/06 KIHBS survey for the purpose of generating a consumption basket used to create the food poverty lines as well as for the spatial price deflator and the calculation of poverty rates. However, after Kenya's 2009 Population Census, the KNBS established that the urban category should include peri-urban households.

For this report, and after a careful analysis of the characteristics of the peri-urban households in the KIHBS 2015/16, we classify peri-urban households as being rural (as in the 2005/06 KIBHS). As seen in the Appendix B, the socio-economic conditions of these households are closer to their rural counterparts than their core urban counterparts. Thus, using the urban poverty line to identify if these households are poor would not be appropriate and would result in an underestimation of the welfare of these households.

2.1.2 Regional patterns in poverty and poverty reduction

While poverty fell in every province, there are large spatial differences in the poverty levels and changes across the different provinces of Kenya. Figure 2.4a shows the striking provincial variation in the poverty incidence across the different provinces of Kenya: while 70 percent of the population in the North Eastern Province live in poverty, that is true for only 16.7 of the population in Nairobi. Moreover, this former province barely saw any progress over the period of focus of this study, with poverty declining from 74 to 70 percent between 2005/16; representing the lowest annual reduction rate for all provinces (around 0.6 percent per year). On the contrary, the Eastern and Coast provinces exhibited the largest reductions in the incidence of absolute poverty (of around 18.8 and 17.1 percentage points), with annual reduction rates of 4.5 and 3.5 percent respectively. These two provinces account for around 43 percent of the poverty decline in the country.

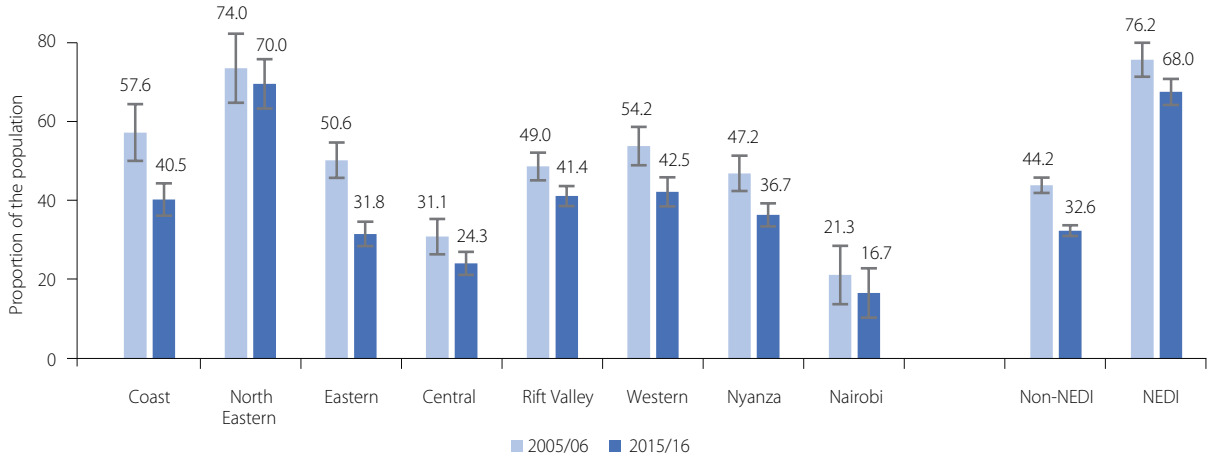
Poverty incidence in the NEDI counties is significantly higher than in the rest of the country. Remarkably, the poverty rate amongst the NEDI counties in 2015/16 is more than double that of the rest of the country, 68.0 percent versus 32.6 percent (Figure 2.4a). Moreover, progress has been slow: while the non-NEDI poverty headcount rate fell by 3 percent annually, it only fell by 1.1 percent in the NEDI counties. This reflects the fact that the economic progress observed during this period is not reaching all areas of the country, and it validates the recent effort of the government to invest these regions. In addition, female headed households in NEDI counties exhibit higher poverty rates (absolute, food and extreme poverty) than in the rest of Kenya.

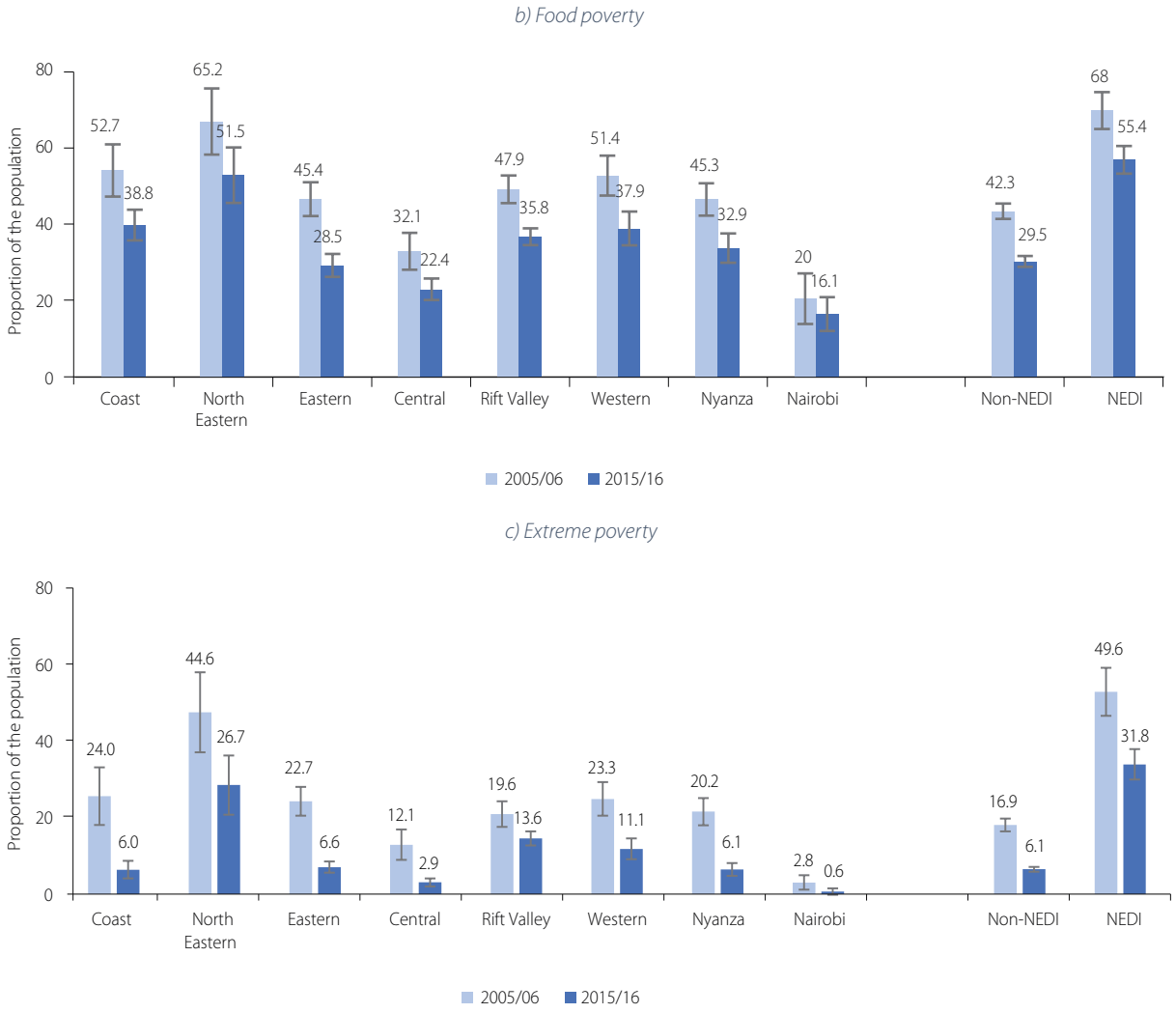
Food and extreme poverty are highly heterogeneous across different provinces. While Nairobi enjoys a food poverty rate that is close to being only half of the national average (16.1 percent, down from 20 percent in 2005/06) and it has almost eliminated extreme poverty, the North Eastern Province performs drastically worse with half of the population being food poor and one in four in extreme poverty. Interestingly, these two extreme cases (the worst- and best- performing provinces) have the lowest rates of progress in the country (Figure 2.4b and c).

It is clear that the NEDI counties are prone to food insecurity. Food poverty and, particularly, extreme poverty, are remarkably high in NEDI counties when compared to the rest of the country. For 55.4 percent of the population in these counties food expenditure is not sufficient to reach the minimum caloric requirement (compared to 29.5 percent for the non-NEDI counties Figure 2.4b). Also, as shown in Figure 2.4c for 31.8 percent of the population, even if they devoted their entire budget into food, this would still not suffice

Figure 2.4: Trends in absolute, food and extreme poverty by province and NEDI classification

a) Absolute poverty





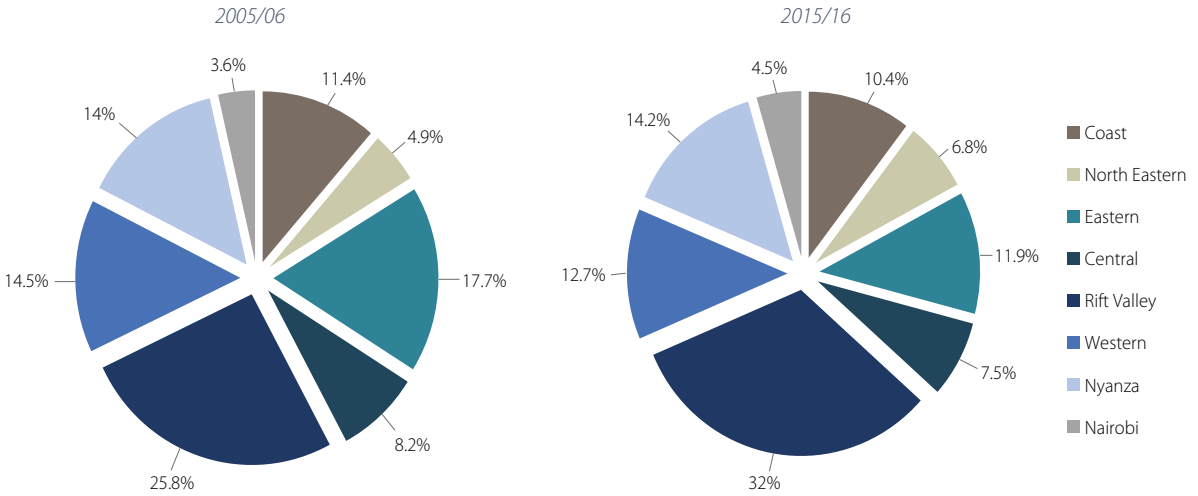
Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.

(compared to 6.1 percent for non-NEDI). Moreover, the progress in these counties has been slower than in the rest of the counties. Not being able to attain the nutrition requirements has severe consequences on health, productivity and the accumulation of human capital among children, which results in poverty traps that are difficult to overcome.

The majority of the poor reside in the Rift Valley, followed by the Nyanza and the Western province. One third of the poor population resides in the Rift Valley, the most populated province of Kenya, followed by Nyanza, accounting for 15 percent of the poor, and the Western province, with 12.7 percent. Overall, as seen in Figure 2.5, the distribution has not changed much in the past ten years, except for a substantial decline in the Eastern province, which as mentioned had a stellar performance in terms of poverty reduction. Looking at the distribution is worth noting that, given its high poverty incidence, the North Eastern province concentrates a higher share of the poor (close to 7 percent) compared to the share of the total population (3.5 percent).

It is clear that the national poverty estimates mask stark spatial disparities across the different regions. Historically, provincial disparities have been marked in Kenya, partly explained by climatic and agro-ecological differences that affect agricultural productivity, partly by differences in infrastructure and access to public services (as will be shown later in the chapter), and partly by the differences in political representation

Figure 2.5: Distribution of the poor by province



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.

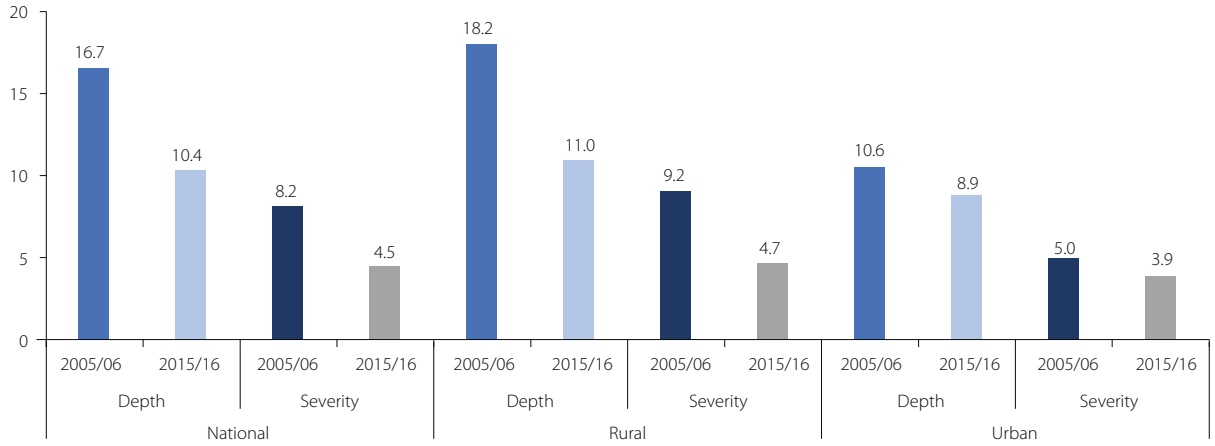
and participation in the decision-making process as discussed in Chapter 1 (World Bank 2008). Making sure that all regions are part of the economic development process and benefit from it will be an important part of sustaining the poverty reduction effort moving forward.

2.1.3 Poverty depth and severity: How far are the poor below the poverty line and how much inequality amongst the poor is there?

Both the depth and severity of poverty have declined in Kenya. The depth of poverty is represented by how far, on average, the poor fall below the poverty line, and is expressed as a percentage of the poverty line value. This is also known as the poverty gap and serves to measure the intensity of poverty in a given population. Between 2005/06 and 2015/16, this measure fell from 16.7 percent to 10.4 percent for Kenya as a whole (Figure 2.6). In other words, if transfers could be perfectly targeted, it would take a transfer of roughly 10.4 percent (KSh 407) of the poverty line to each poor individual to eradicate poverty. Another alternative indicator is the poverty gap squared – or severity of poverty – which describes inequality amongst the poor by placing a greater weight on individuals who are further from the poverty line. During the period of focus of this study, inequality amongst the poor declined nearly by half from 8.2 to 4.5 percent.

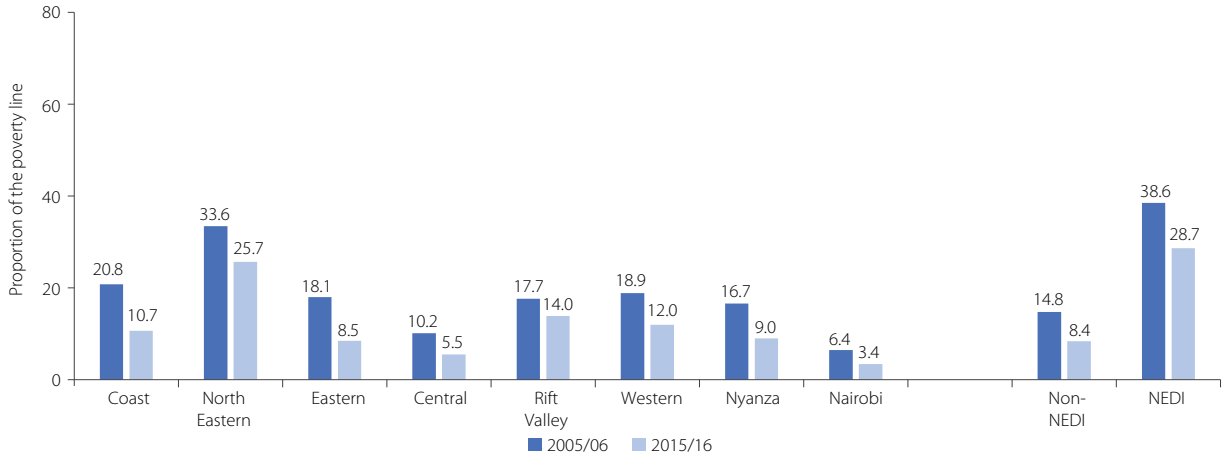
As with the poverty headcount rate, urban areas saw less progress in terms of the depth and severity of poverty. Analyzing the poverty gap and poverty severity for the urban and rural population, once again it is observed that the decline is steeper amongst rural households. The gap went down from 18.2 to 11.0 percent over the last ten years, while in urban areas the decline was only 1.7 percentage points from 10.6 to 8.9 percent. Similarly, rural severity halved from 9.2 percent in 2005/06 to 4.7 in 2015/16, a level similar to that observed in urban areas (Figure 2.6). In short, in terms of how far the poor are below the poverty line and how much inequality exists amongst the poor, rural and urban households currently look quite similar. The same cannot be said of NEDI and non-NEDI counties, where a striking contrast arises. Poverty depth in NEDI countries is a staggering 28.7 percent in 2015/16 (Figure 2.7), significantly higher than in non-NEDI counties, meaning that the effort needed to lift households out of poverty in these areas will be considerable.

Figure 2.6: Poverty depth and severity, nationally and by urban/rural strata



Source: Own calculations based on KIHBS 2005/06 and 2015/16.

Figure 2.7: Poverty depth by province and NEDI classification



Source: Own calculations based on KIHBS 2005/06 and 2015/16.

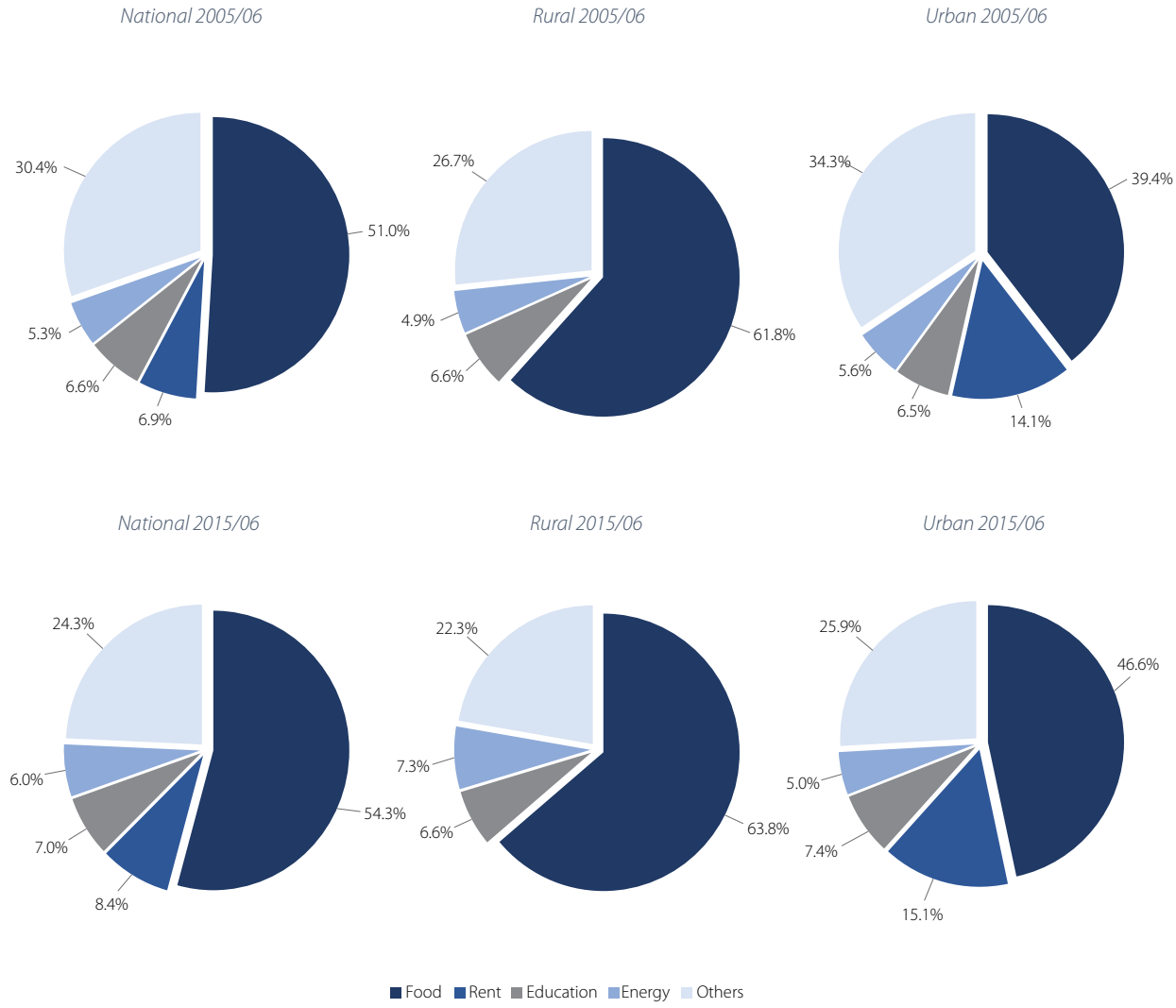
2.1.4 Consumption patterns

The share of consumption spent on food has increased for households across Kenya. Despite the reduction in poverty, the average share of consumption devoted to food has risen by 3.3 percentage points, from 51 in 2005/6 to 54.3 in 2015/16 percent nationally (Figure 2.8). A contributing factor to this phenomenon is that food prices increased at a faster rate compared to non-food prices during that period. As depicted in Figure 2.9, while the cumulative inflation (based on the overall CPI) over this period was 134 percent, food inflation was significantly higher at 219 percent. The relative increase in food prices likely benefited net-food producer households and hurt urban households in the lower part of the distribution (as will be explored in Chapters 5 and 6 of this report, respectively), which helps to explain why poverty declined faster among rural households than urban households. Nonetheless, consistent with a lower level of wellbeing, rural households allocate more of their consumption to food than urban households.

Share of consumption on rent (mainly for urban households), education and energy increased marginally. The share of consumption spent on rent for urban households[87] also increased slightly – from 14.1 to 15.1 percent (Figure 2.8). While the increase is not alarming, the housing deficit in urban Kenya is well documented, and for the majority of poor households the housing conditions in which they live, and the service accessibility do not correspond to the prices paid (World Bank 2018b).

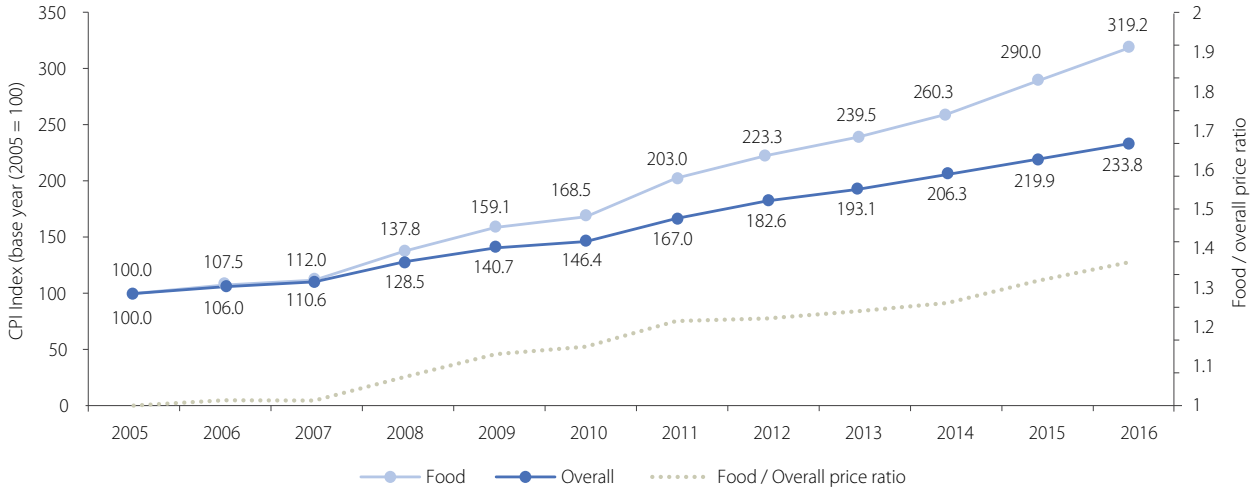
[87] As determined by the KNBS the consumption aggregate for rural households does not include rent.

Figure 2.8: Proportion of consumption by use, nationally and area of residence



Source: Own calculations based on KIHBS 2005/06 and 2015/16.

Figure 2.9: Differential changes in price indices



Source: Own calculations based on KNBS 2017.

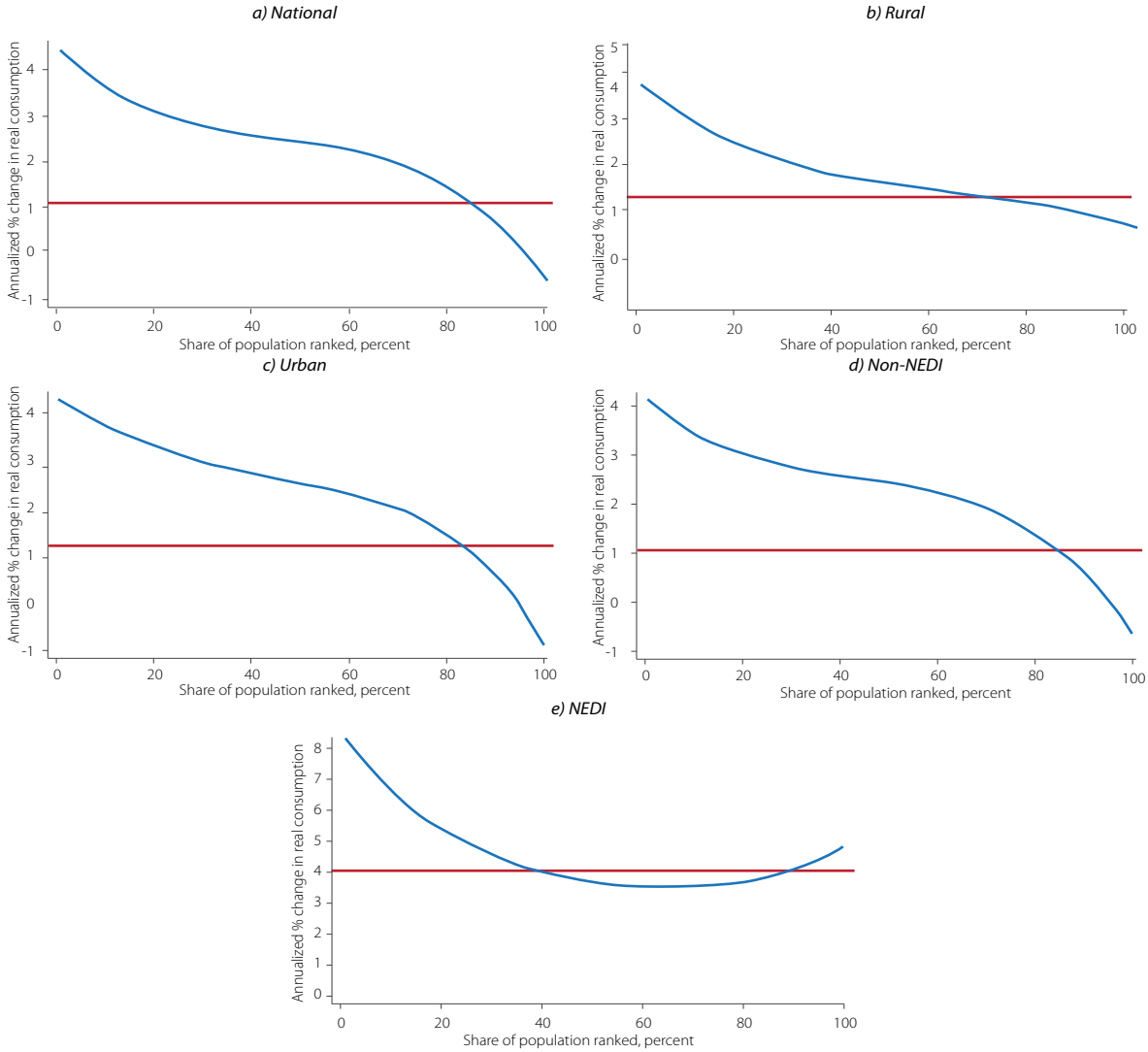
2.2 THE INCIDENCE OF PROGRESS, SHARED PROSPERITY AND INEQUALITY

While poverty is an important measure of how Kenyan living standards have improved, understanding if economic progress has reached all segments of the population and how the distribution of consumption has changed over time is also important. This section takes a closer look at which parts of the distribution have benefitted the most from economic progress experienced by the country between 2005/06 and 2015/16, focuses on the consumption growth if the bottom 40 percent[88] and analyzes changes in consumption distribution in rural and urban areas.

2.2.1 Incidence of progress

Overall, households in the bottom of the distribution, particularly the bottom 20 percent, have experienced substantial growth in real consumption over the last ten years. Growth incidence curves (GICs), which display annualized consumption growth over the entire distribution of the population, reveal that economic growth in Kenya has been pro-poor from 2005/06 to 2015/16 (Figure 2.10a). The lower tail of the distribution, particularly below the 20th percentile, experienced annualized growth rates of around 3-4 percent. These growth rates decline monotonically towards the upper tail of the distribution, reaching 2.86 percent at the

Figure 2.10: GICs nationally, by area of residence and NEDI classification



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.

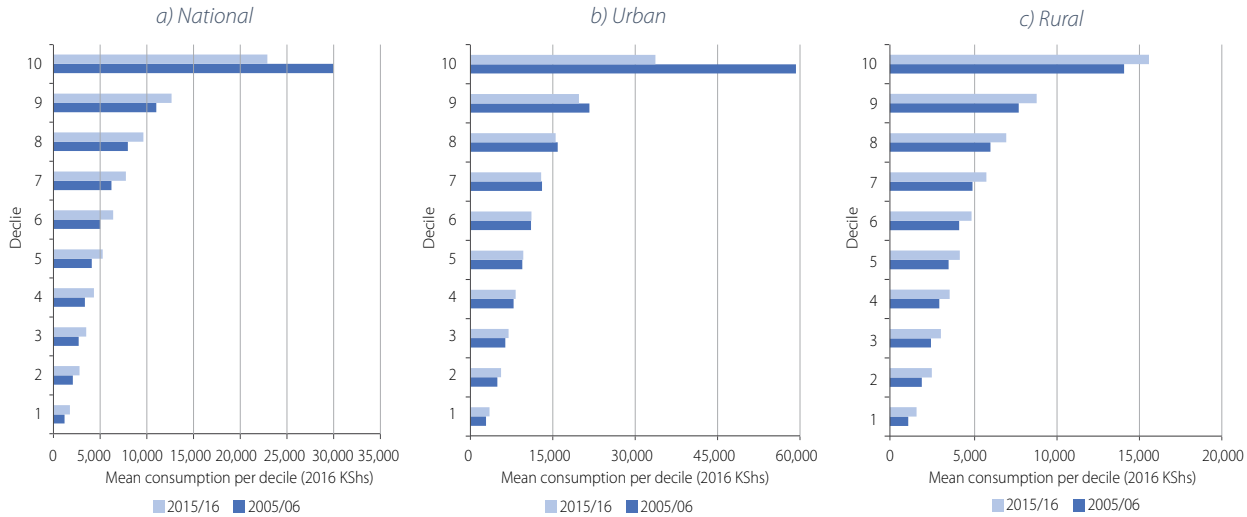
[88] This group is the focus of the World Bank's Group goal of shared prosperity.

40th percentile and 2 percent for the 70th percentile of the population. The rates become negative at the very top of the distribution, but this might be related to the fact that the 2015/16 KIBHS suffered from very high nonresponse rates in households at the top of the distribution in Nairobi, as explained in detail in Box 2.3. Given this nonresponse issue, the data are likely underestimating the consumption levels and thus the growth rates for the top two deciles in Nairobi (see Figure 2.11a). However, this issue does not affect the bottom part of the distribution and given the rather steep decline of the GIC up to the 80th percentile, it is clear that economic progress over the past ten years has benefitted the poor, and even among the poor, it has disproportionally benefitted the poorest of the poor.

While consumption growth in rural areas was higher for the poor, consistent with the impressive decline of poverty incidence, all households along the distribution experienced consumption growth since 2005/06. Despite varying performance, no percentile in rural areas experienced negative real consumption growth, and the average annualized change is roughly 1.5 percent p.a. for rural households. The highest growth rates took place for the poorest ten percent of the population at around 4 percent, while this rate halves when looking at the 40th percentile of the distribution (Figure 2.10b). Pro-poor consumption growth is also observed in urban areas, although the growth rates are less spectacular when compared to their rural counterparts. Given that the nonresponse problems of the 2015/16 KIBHS mainly affected households at the top quintile of the consumption distribution (See Box 2.3), the conclusion that economic growth benefitted the bottom of the distribution in urban settings still remains true.

In NEDI counties, households at the lower end of the distribution also experienced a much higher consumption growth. Looking at GIC for NEDI counties separately, it is worth mentioning that households in the bottom of the distribution experienced substantial annualized real consumption growth. Growth for the 10th percentile was close to 8 percent while at the 40th percentile, it was around 3.5 percent. Nonetheless this was not translated into a substantial poverty decline, as expected, given how far below the national poverty line are the poor in these counties. Moreover, it is only for these counties that we do not observe a decline in real growth at the very top of the distribution, and consumption growth for households at the very top was above the average (which is represented by the horizontal red line in Figure 2.10e).

Figure 2.11: Real consumption deciles (2016 prices), nationally and by area of residence



Source: Own calculations based on KIHBS 2005/06 and 2015/16.

Box 2.3: Nairobi nonresponse rates – dealing with data issues

The KIHBS 2015/16 survey had an irregularly elevated level of nonresponse among households in Nairobi: only 3 out of 4 households (76.9 percent) in the capital successfully completed the questionnaire, whereas the response rate was between 81.9 and 96.5 percent in the rest of the country (see Appendix B)[89]. The high nonresponse rate (both at the item and household level), coupled with the non-replacement of unsuccessful interviewed households, likely caused the survey to not accurately capture the upper end of the consumption distribution. Survey response probabilities usually fall with rising incomes/consumption and if this is not adequately addressed in the sampling strategy, reported mean consumption and inequality measures are likely to be underestimated. Fortunately, the nonresponse can generally be expected to leave all poverty measures widely unaffected (Korinek, Mistiaen, and Ravallion 2006).

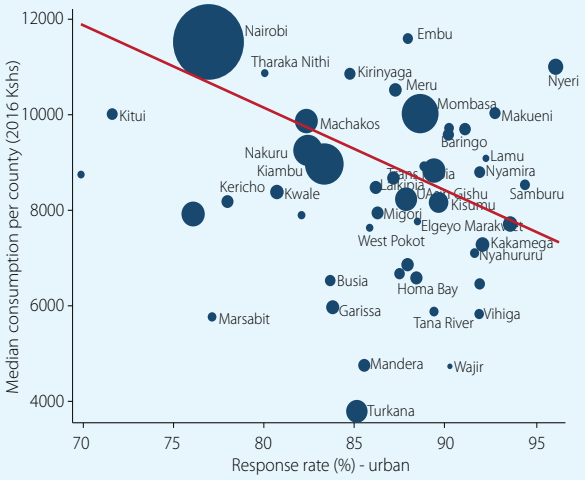
Figure 2.12 below shows the response rate and median consumption by county for all urban households, where each scatter point is weighted by the proportion of total urban households the county represents. The linear trend line shows that in counties with higher median consumption, response rates tended to be lower and it is expected that the same occurs at the household level. Thus, most likely, the nearly 25 percent nonresponse rate in Nairobi was concentrated among wealthier households.

Detailed analysis of asset ownership patterns by consumption quintile provides further evidence for the hypothesis that the missing data stems disproportionally from the upper tail of the distribution (Appendix B). For all of considered assets (house, fridge, sofa, car and washing machine) ownership falls dramatically between the 2005/06 and 2015/16 surveys within the top quintile (and in some instances, within the top two quintiles), which is unlikely to occur. According to the data, house ownership fell from 21.4 percent in 2005/06 to 8.8 percent in 2015/16 in the top quintile and car ownership declined 36.8 to 22.7 percent (Appendix B).

Unfortunately, it is then likely that the consumption level for the top two deciles in Nairobi is underestimated. Thus, the staggering decline of almost 60 percent in the real consumption of the 10th decile (wealthiest ten percent of the population of Nairobi), as well as the 10 percent decline for the 9th decile is likely overstated. As mentioned, while the poverty estimates are likely unaffected, this does affect the inequality estimates. For that reason, the national and urban inequality measures most likely will overestimate the reduction in inequality, despite the fact that inequality did decline over the period of interest, as consumption growth was more prominent among the poorest households both in rural and urban areas.

Household survey data in emerging countries is widely known to underestimate top levels consumption and inequality (Assouad, Chancel, and Morgan 2018). Nonresponse, both item and household nonresponse, is a crucial factor contributing to this challenge (Medeiros, de Castro, and de Azevedo 2016). In countries like Brazil, India and South Africa, tax records have been used to i) verify that household survey data was indeed not properly capturing the income and consumption levels of the top part of the distribution, and more importantly, ii) to estimate more accurate inequality estimators through a combination of imputation and reweighting techniques. It is important to further study if similar techniques could be implemented in the case of Nairobi and Kenya in general, in order to obtain a more accurate measure of inequality in the country.

Figure 2.12: Response rates and consumption among urban households



Source: Own calculations based on KIHBS 2015/16.

[89] Unfortunately, these data are not available for the 2005/06 KIBHS.

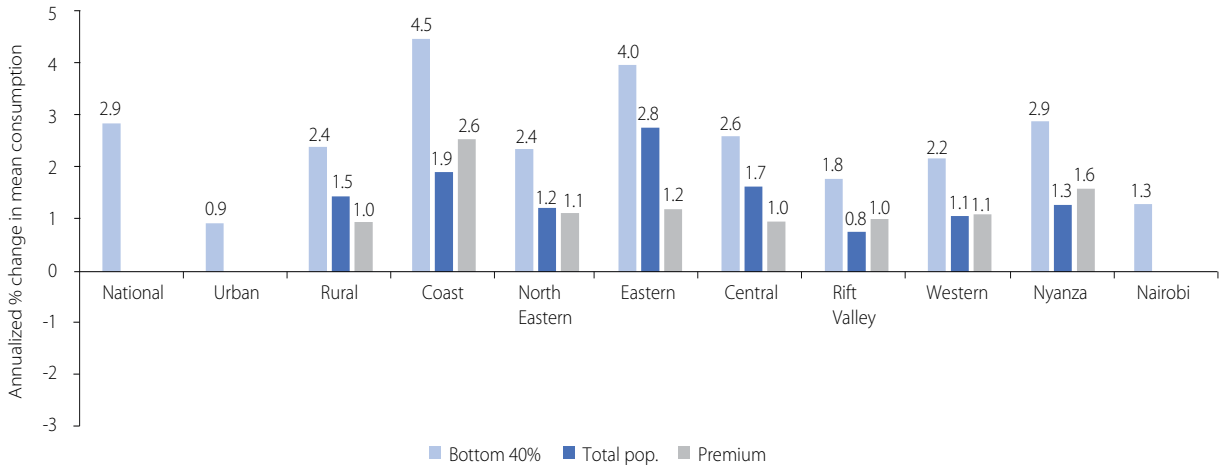
2.2.2 Shared prosperity

Kenya is making satisfactory progress in fulfilling the shared prosperity goal: promoting the consumption growth of the bottom 40 percent of the distribution. The annualized growth rate of Kenya's bottom 40 percent of the population was 2.86 percent for the period between 2005/06 and 2015/16. Consistent with the GICs shown in the previous section, consumption growth amongst the rural bottom 40 percent was 2.5 times higher than for the urban counterpart (2.4 percent versus 0.9 percent). Diversification of income sources off-farm, together with high food prices during this period, benefitted rural households more than urban households in this distribution bracket. The resulting rural shared prosperity premium (calculated as the difference between the growth rate of the bottom 40 percent and the average growth rate for the whole distribution) is estimated at around 1 percentage point (Figure 2.13) This number is likely to be close to the shared prosperity premium for Kenya as a whole over this period.[90]

In all provinces in Kenya real consumption growth for the bottom 40 percent was positive and higher than for the top of the distribution. However, there were marked differences across provinces. Those provinces that saw the largest reduction poverty – mainly the Eastern and Coast provinces – also saw the greatest increases in consumption amongst the bottom 40 percent. The respective annualized rates at 4 and 4.5 percent were above the national average of 2.86 for the period 2005/06 to 2015/16. Nairobi, an entirely urban province, saw the lowest consumption growth for the bottom 40 percent, at an annualized growth rate of 1.3 (Figure 2.13) (this is not at all affected by the nonresponse issue). Growth and economic progress in Kenya was less broad-based in the urban areas, which might help to reduce the urban-rural gap but is not consistent with an outlook in which cities are centers of progress for everyone.

While Kenya's shared prosperity growth indicator is low when compared to other sub-Saharan African countries over comparable periods, economic progress has been concentrated in this lower segment of the distribution. While the annualized real consumption growth for the bottom 40 percent in Kenya was 2.9 between 2005/16 and 2015/16, most countries in the region have experienced higher growth amongst households in this segment. It reached 4.6 percent for Rwanda between 2005 and 2010, 3.51 in Uganda over the period 2005 to 2012 in Uganda and an astonishing 9.76 percent for Tanzania between 2007 and 2011 (Figure 2.14). However, economic growth in Kenya has been markedly pro-poor, and the estimated

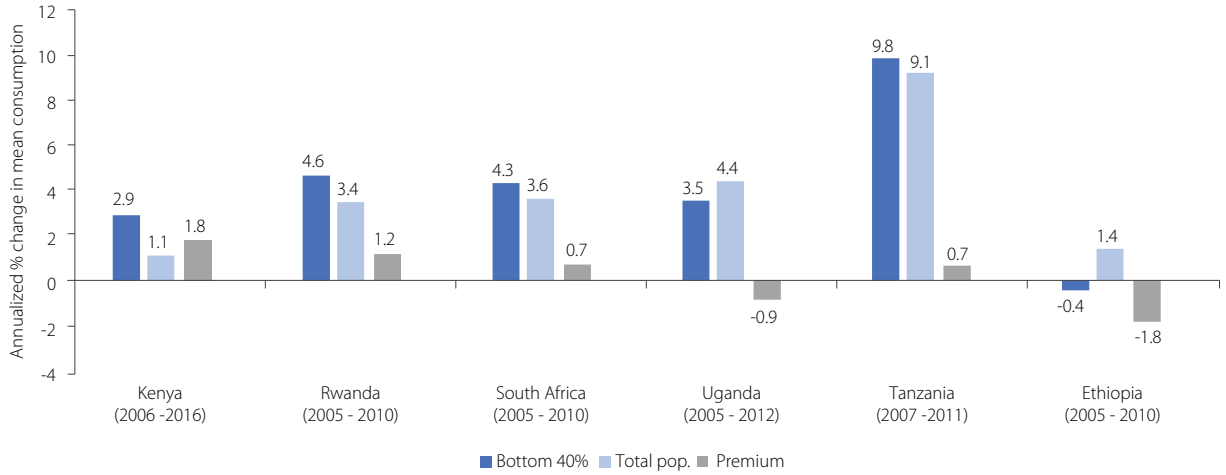
Figure 2.13: Annualized consumption growth, nationally, by area of residence and by province



Source: Own calculations based on KIHBS 2005/06 and 2015/16.
Note: due to the non-response issues in Nairobi, not all categories report all three indicators.

[90] If taking the average consumption growth of 1.1 at face value, the shared prosperity premium is 1.8. However, given that the consumption growth of the top deciles is underestimated (because of the nonresponse rates in Nairobi), the true premium should be much lower than that.

Figure 2.14: Annualized consumption growth compared to benchmark countries



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16

shared prosperity premium (again defined as the difference between the growth rate of the bottom 40 percent and the average growth rate for the whole distribution) of one percentage point is higher than in all benchmark countries except for Rwanda (with a premium of 1.2 percentage points).

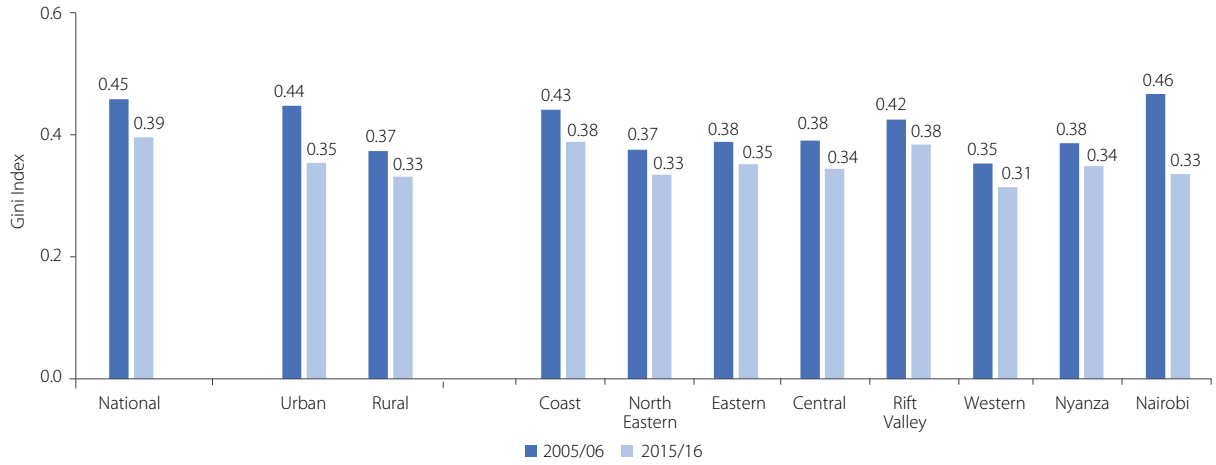
2.2.3 Inequality indicators

Inequality in Kenya declined between 2005/06 and 2015/16, as confirmed by different measures. The nonresponse problem identified for Nairobi does affect the precision of some of the measures of inequality at the urban level using the KIBHS 2015/16, and thus, at the national level. However, the collection of the evidence presented in this section indicates that inequality in Kenya has declined at the national level since 2005/06, in line with the pro-poor pattern of economic growth described by the incidence curves of Section 2.2.1 and contributing to the poverty reduction observed.

The decline in the Gini index indicates an improvement in the distribution of resources in Kenya. The Gini index, which is generally not heavily affected by the upper tail of the distribution (Cowell and Flachaire 2002), fell from 0.45 in 2005/06 to 0.39 in 2015/16, indicating that Kenya made considerable progress in terms of reducing inequality (Figure 2.15). The Gini index in rural areas (unaffected by the nonresponse issue) declined from 0.37 to 0.33, a significant improvement for an indicator that is usually very stable over time. This suggests that redistribution contributed positively to the substantial poverty reduction observed in Kenya's rural areas during this period. In terms of provincial heterogeneity, inequality declined faster in the Coast province (from 0.43 to 0.38), in the Central region (from 0.38 to 0.34), and to a lesser extent in the North Eastern and Rift Valley provinces (Figure 2.15). The level of inequality in Kenya as measured by the GINI index is moderate and comparable to that of Tanzania, Uganda and Ghana, and is much lower than South Africa's index of 0.63 (Figure 2.16).

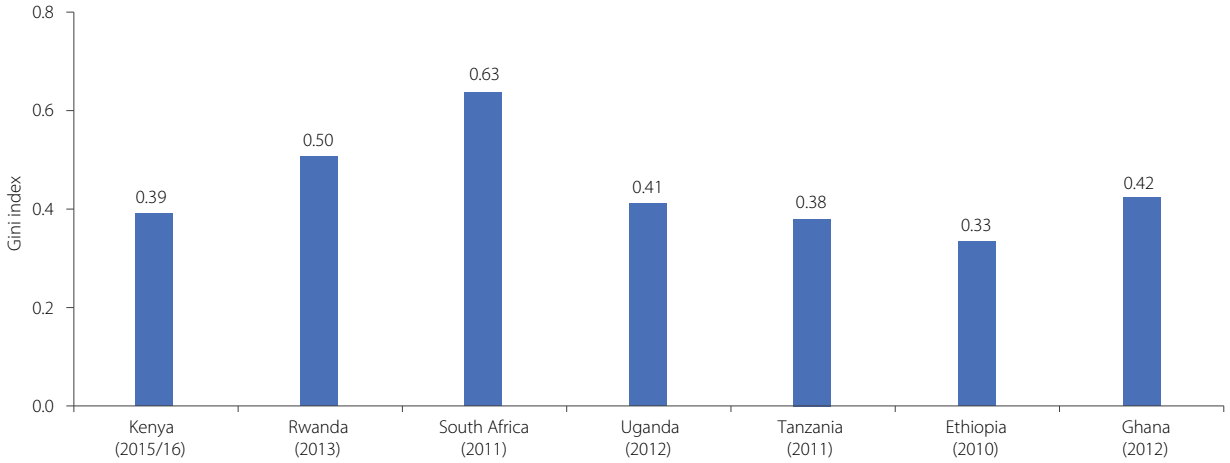
Alternative measures of inequality confirm an improvement in Kenya's distribution. The Atkinson index, which at high levels of the inequality aversion parameter gives more weight to the lower consumption levels making the measure less sensitive to issues at the top of the distribution, confirms that the Consumption distribution has improved. At an inequality aversion parameter ($\sum$=1), the Atkinson index declined from 0.3 in 2005/16 to 0.23 in 2015/16 (Figure 2.17b). This means that in 2015/16, Kenya should be willing to forgo 23 percent of its consumption to achieve a uniform consumption distribution. Another measure that is not affected as much by the nonresponse issue is the ratio of consumption at the 75th and 25th percentile. Under this measure inequality also declined, albeit the drop is less pronounced and the levels and changes in rural and urban areas resemble each other. The consumption

Figure 2.15: Gini inequality index nationally, by area of residence and by province



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16

Figure 2.16: Gini inequality index for select African countries



Source: World Bank Poverty & Equity Databank.

level of the 75th percentile went from being 2.7 times higher than that of the 10th percentile in 2005/06 to 2.5 times higher in 2015/16 (Figure 2.17a).

Inequality in Kenya is primarily explained by differences within urban and rural areas (and within provinces), rather than by differences between these groups. Analysis of the Theil index allows for a better understanding of the nature of inequality and how it has changed over time. More specifically, it helps determine how much of the inequality in the country is rooted within particularly groups and how much is attributed to differences between these groups. Consistent with all measures described so far, under the Theil index, inequality went down by one third from 0.42 to 0.28 in the past ten years (Table 2.4). Moreover, in 2015/16, differences across rural and urban households help explain about one fourth of the overall inequality. Thus, about three quarters of the inequality can be attributed to differences within rural and urban households. Interestingly, these fractions have remained constant over time. Nonetheless, as will be seen later on, the urban-rural divide in non-monetary living conditions and access to services is large, with rural areas lagging behind in access to WASH services and electricity in particular. The analysis of the contribution to inequality from differences within and across provinces produces comparable results, and it is mostly inequality within provinces that helps explain inequality in Kenya.

Box 2.4: Inequality measures

While poverty measures absolute deprivation with respect to a given threshold, inequality is a relative measure of poverty indicating how little some parts of a population have relative the entire population. In the context of monetary poverty, equality can be defined as an equal distribution of consumption / income across the population. This means that each share of the population owns the same share of consumption / income. The Lorenz Curve compares graphically the cumulative share of the population with their cumulative share of consumption / income. A perfectly equal consumption / income distribution is indicated by a diagonal. The other extreme is complete inequality where one individual owns all the consumption / income. These two (theoretical) extremes define the boundaries for observed inequality.

The Gini coefficient is the most commonly used measure for inequality. A Gini coefficient of 0 indicates perfect equality while 1 signifies complete inequality. In relation to the Lorenz Curve, the Gini coefficient measures the area between the Lorenz Curve and the diagonal.

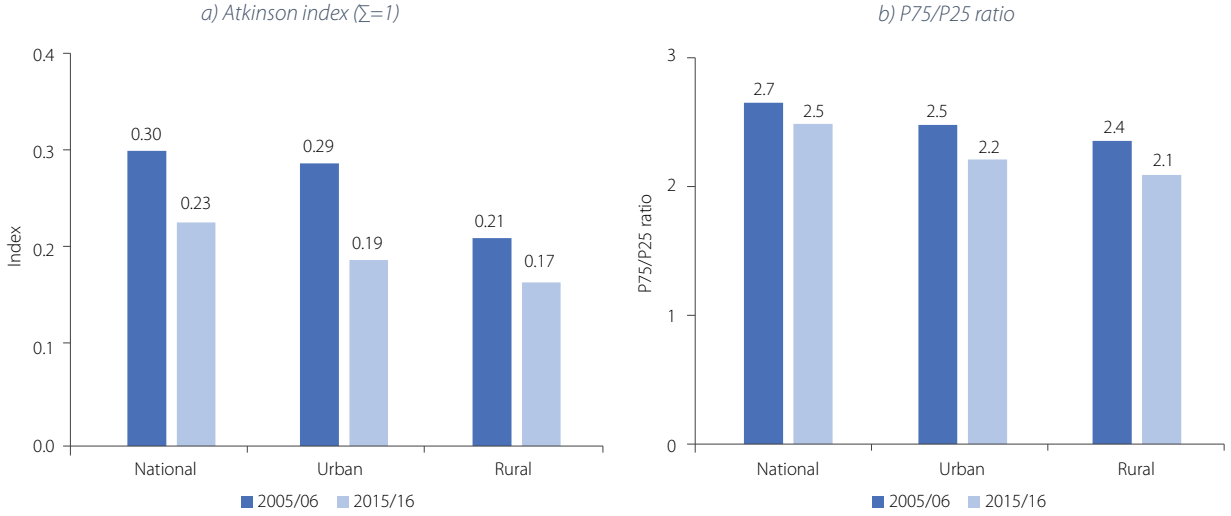
The Theil Index measures inequality based on an entropy measure. A parameter α controls emphasis to measure inequality for higher incomes (larger α) or lower incomes (smaller α). The Theil index with parameter α=1 is usually called Theil T while using α=0 is called Theil L or log deviation measure.

Relative and absolute consumption / income differences can be used to compare inequality dynamics over time. Usually, percentiles are used to compare incomes of different groups. For example, p90/p10 is the ratio (for relative incomes) or difference (for absolute incomes) of the average consumption in the 90th and 10th percentile. Given the nonresponse issues in Nairobi, we opt for the p75/p25 ratio, which is the average consumption ratio in the 75th and 25th percentiles.

Finally, the Atkinson index introduces value judgements about the degree of inequality aversion prevalent in the society, which is expressed by the choice of an inequality aversion parameter. The higher this parameter, the more emphasis is placed on the lower tail of the distributions and the changes experienced there.

Source: World Bank's Poverty Handbook.

Figure 2.17: Atkinson index and P75/P25 inequality index nationally and by area of residence



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16

Table 2.4: Theil inequality index - decomposition by urban/rural location and province

	By urban / rural		By province	
	2005/06	2015/16	2005/06	2015/16
Between group	0.11	0.07	0.10	0.05
Within group	0.30	0.21	0.32	0.23
Total	**0.42**	**0.28**	**0.42**	**0.28**

Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.

2.3 WHAT EXPLAINS THE TRENDS IN POVERTY REDUCTION? POVERTY DECOMPOSITION EXERCISES

Unveiling the main drivers behind the observed changes in the poverty incidence of Kenya is an important objective of this report. This section makes use of several decomposition exercises to help shed some light on what were some of the main factors behind the ten-percentage point decline observed during the ten-year period focus of this report. More specifically, it examines the role of growth versus redistribution, the progress in urban / rural areas and provinces and the population shift amongst them, the relative importance of the household's sources of income (in the sectorial sense), and the role of mobile money.[91]

2.3.1 The role of growth and redistribution

While both economic growth and redistribution contributed to Kenya's poverty reduction, the former helps explain almost two thirds of the decline observed. Consistent with the common view that overall economic growth is usually accompanied by an increase in the living standards of the population, growth accounts for almost 60 percent of the poverty reduction observed in Kenya for the period 2005/06 to 2015/16. The remaining 40 percent (the interaction terms explains less than 1 percent), is attributable to the redistribution effect (Figure 2.18a). This is an important result, as further efforts to improve redistribution and further reduce inequality would likely accelerate poverty reduction for Kenya in the medium term. Redistributive policies such as the expansion of social protection programs at a national level, would have a large impact in terms of poverty reduction, in addition to other benefits in terms of human capital accumulation explored in detail on Chapter 8 of this report. It is nevertheless likely that the nonresponse problem experienced in Nairobi during the collection of the KIHBS 2015/16 survey is overestimating the contribution of the redistribution effect.

The contribution of economic growth to poverty reduction is more marked in rural areas. As shown in Figure 2.18a, poverty reduction is mainly driven by economic growth, accounting for three quarters of the almost twelve percentage point reduction in the share of the rural population living beneath the poverty line. The results of the growth-inequality decomposition for urban areas show that the decline in inequality (redistribution effect) drove the entirety of the reduction in poverty between 2005/06 and 2015/16.[92] However, these results are affected by the nonresponse problem in Nairobi. To partially address this problem, the same decompositions have been conducted in a sample excluding the top twenty percent of households and are presented in Figure 2.18b. This scenario shows that it is likely that economic growth did contribute to the reduction of poverty in urban areas.

Consistent with the pattern observed at the national level, the growth effect was larger than the distributional effect in each of the Kenyan provinces. Economic growth accounts for the majority of the decline observed in the provinces (except for Nairobi), with the magnitude ranging from 5.5 percentage points (almost three quarters of the overall reduction) in Rift Valley to 17 percentage points in the Coast province (which

[91] For the role of mobile money, we mostly review the extensive recent economic literature on the link between access to this financial services and poverty reduction. For most of these studies it is possible to identify a causal link either by the use of randomized control trial (RCT) or the robust econometric identification strategies.

[92] Actually, the results point out that the redistribution effect alone would have reduced poverty by 10.8 percentage points between 2005/06 and 2015/16, resulting in a poverty incidence of 21.3 percent in 2015/16 rather than the observed 29.4 percent, had it not been because the growth effect hindered poverty reduction.

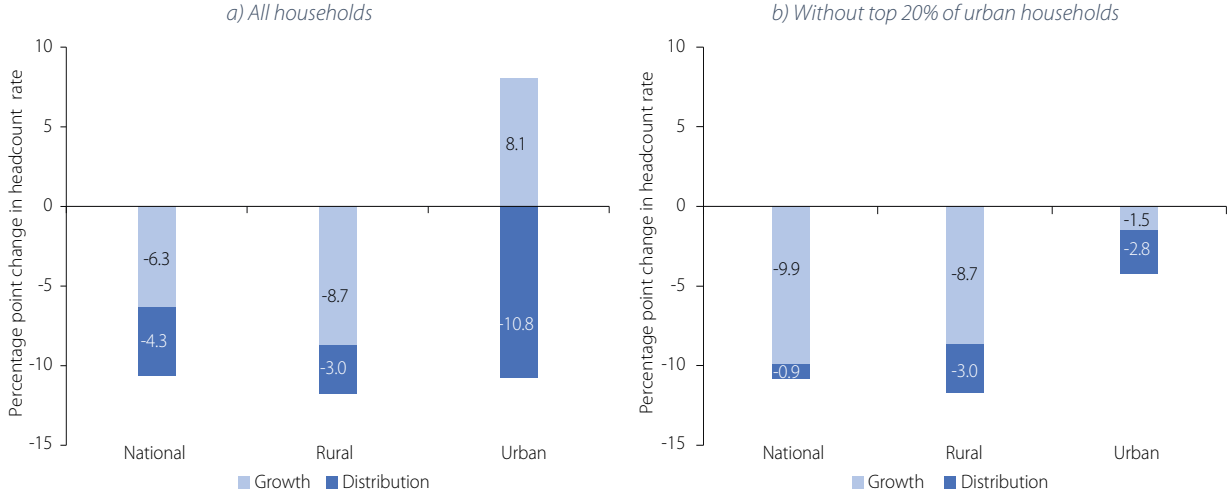
Box 2.5: What does decomposing changes in poverty entail?

In this chapter the results of two decomposition methods are presented. The first method is the Datt-Ravallion approach, which isolates the growth and redistribution effects associated with the decline in poverty over the period of analysis. Conceptually, this decomposition is based on the idea that that a measure of monetary poverty can be expressed as the product of mean consumption and a parameterized Lorenz curve. Keeping the Lorenz curve constant gives the distribution neutral growth that would drive the average increase in consumption across the population, for instance, raising the levels of consumption of all households by the same rate. The other part is derived from holding the mean consumption constant (a mean-preserving redistribution) to capture the change in the shape of the consumption distribution driven by, for instance, a faster growth in the consumption of the poorest relative to the consumption growth of the richest (Datt and Ravallion 1992).

The second is the Ravallion and Huppi (1991) decomposition method, that quantifies how much poverty reduction among mutually exclusive groups or movement between these groups accounts for national poverty reduction. More specifically, the analysis decomposes changes in poverty over time into "intra-group effects" (poverty changes within sectors, within provinces, or within urban and rural areas, while assuming no changes in the distribution of the population across groups), "inter-group effects" (allowing for changes in the distribution of the population between groups keeping poverty rates constant) and an "interaction" term that can be interpreted as a measure of the correlation between the population shifts and the intra-group changes in poverty.

Under both methods, a counterfactual scenario is used and estimates are made as to what would have happened to poverty had the counterfactual scenario occurred. By defining a counterfactual scenario, the changes that have been important to overall poverty reduction can be quantified, be it a distribution-neutral consumption growth, the amount of poverty reduction that took place within a sector (as if the distribution across sectors had not changed), or the amount of poverty reduction that took place as a result of people moving between groups.

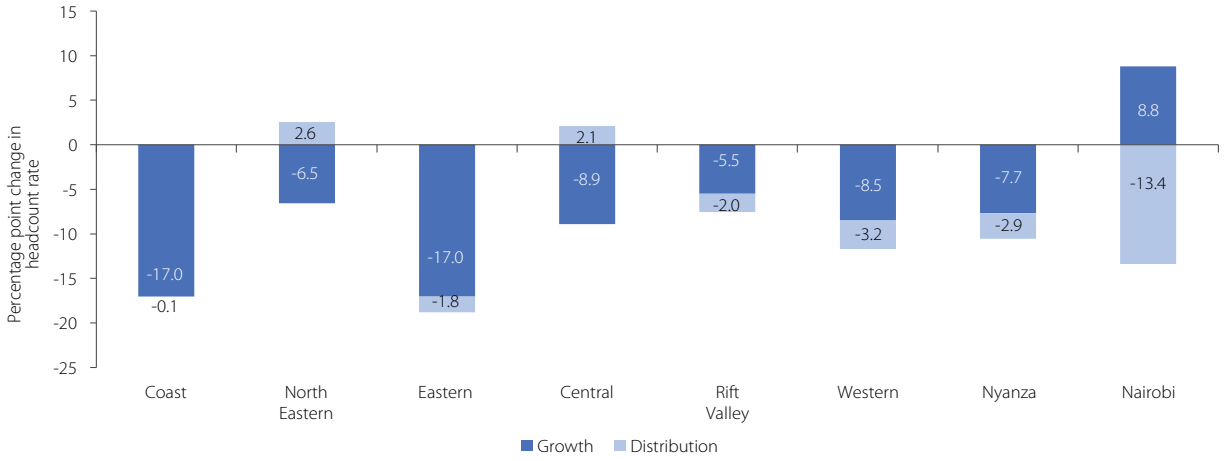
Figure 2.18: Determinants of changes in poverty – Datt-Ravallion decomposition by area of residence



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.

corresponds to nearly the entirety of the reduction, as redistribution contributes mere 0.1 percentage points to the overall decline, Figure 2.19). In the case of two provinces, the North Eastern (poorest) and Central (second-wealthiest) provinces, the distributional effect actually contributed to an increase in poverty, partially offsetting the growth effect. Thus, for these two provinces, the decline in poverty has been hindered by the changes in the consumption distribution, despite the fact that inequality declined in both provinces, as measured by the Gini index (Figure 2.15).

Figure 2.19: Determinants of changes in poverty – Datt-Ravallion decomposition by province



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.

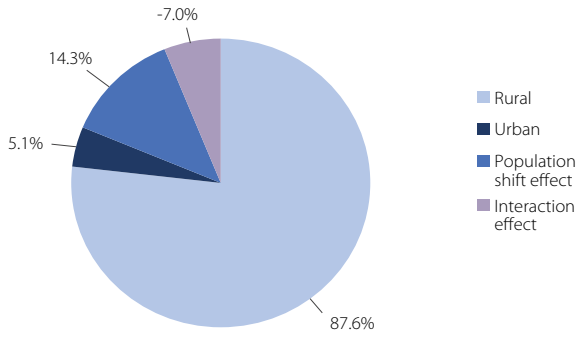
2.3.2 The role of poverty reduction within geographical areas versus internal migration

Unsurprisingly, poverty reduction amongst rural households accounted for almost all the poverty reduction observed at the national level. The Ravallion-Huppi decomposition exercises allow a decomposition of Kenya's change in poverty over time into changes amongst urban households and rural households, assuming no migration between the two sectors, as well as changes due to population shifts among them (internal migration). Unsurprisingly, poverty reduction amongst rural households accounted for 87.6 percent of poverty reduction observed in Kenya during the period 2005/06 to 2015/16 (Figure 2.20a). A robust performance of the agricultural sector after the economic slow-down of 2008, together with high food prices through most of the period analyzed and greater commercialization of agricultural production, increased the wellbeing of households engaged in agricultural production. Moreover, the fact that rural households experienced an increased off-farm diversification of income activities (as showed later in this section) also helped to reduce poverty in rural Kenya.

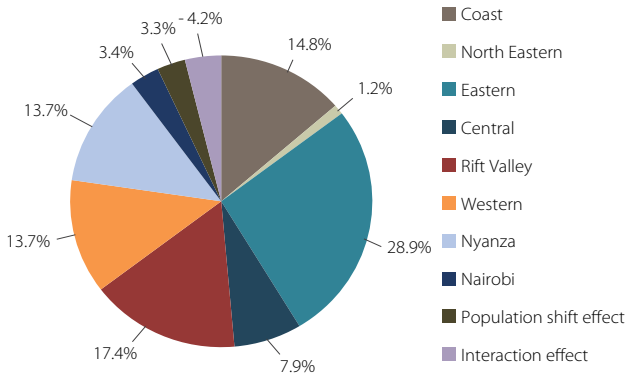
Internal migration, specifically rural-urban migration, is usually associated with economic progress, access to better job opportunities and better living conditions. Rural-urban migration is an inherent aspect of the economic development process all around the world and can in principle support poverty reduction. When migration is driven by "pull" forces that, for instance, attract migrants from rural areas looking for

Figure 2.20: Contribution to poverty reduction

a) Rural/urban



b) Provincial



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16

better and higher paid economic activities, as well as better returns to their endowments, it is usually accompanied by poverty reduction (Kenya Urbanization Review, World Bank 2016). However, migration can also be motivated by "push" factors, where migrants are escaping from conflict, political turmoil, natural disasters, or a particular shock affecting their place of residence. In these cases, internal migration can result in the physical, social and human capital depletion, and can lead to a higher incidence of poverty.

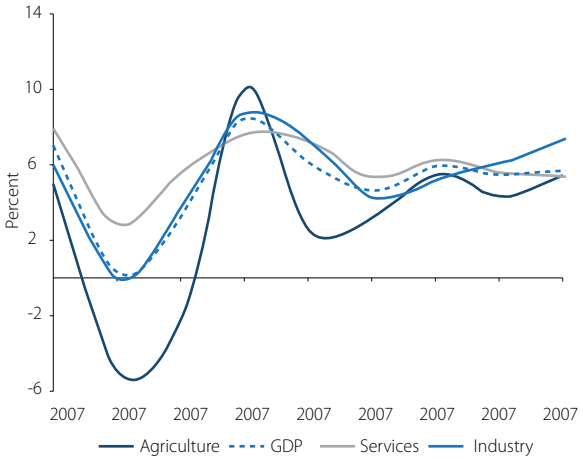
For Kenya, internal migration contributed moderately to poverty reduction throughout the ten-year period being studied. According to the analysis of the two waves of the KIHBS, the population shift among rural-urban households did contribute to poverty reduction in Kenya throughout the period of analysis. Migration between rural and urban areas accounted for about 14 percent of the overall national reduction in poverty (Figure 2.20a). Despite the fact that migration between urban and rural areas is prevalent in Kenya, this modest contribution may be partly explained by migration selection or the fact that those who migrate are usually better off or have higher levels of physical or human capital, as is discussed in Chapter 5 of the report based on data from the DHS.

In terms of the provincial contribution to poverty reduction, the Eastern province accounted for almost one third of the overall poverty reduction. As expected, the extent to which the different Kenyan provinces contributed to the overall decline in poverty varies with the progress experienced by the province, as well as changes in the share of the national population and the share of the poor population living there. The Eastern province, for which poverty incidence declined from 50.6 percent in 2005/06 to 31.8 percent in 2015/16, is responsible for over one fourth of the overall poverty reduction (28.9 percent). Other important contributors were the Rift Valley, the most populated province, and the Coast Province, which experienced a large decline in poverty. On the other hand, Nairobi and the North Eastern Province contributed only 3.4 and 1.2 percent of the decline, respectively (Figure 2.20b).

2.3.3 Structural pattern of poverty reduction

The agricultural sector contributed to poverty reduction. Several studies have determined that growth in the sectors in which the poor are employed is more poverty reducing than growth in other sectors (Loayza and Raddatz 2010; Christiaensen, Chuhan-Pole, and Aly Sanoh 2013). In line with these findings, although the agricultural sector has not been as dynamic as the services or the industrial sector (Figure 2.21), it played a notable role in the reduction of poverty in Kenya in the decade leading up to 2015/16. When looking at the contribution of different sectors to poverty reduction, each household is first attributed to the sector from which it draws at least 50 percent of its total income. Those households which do not rely on any one sector as their main source of income (meaning no source of income accounts for more than 50 percent) are classified as diversified. Households for which the main source of income is the agricultural sector (including crop income, livestock income, and earnings of wage workers in the agricultural sector) account for around 33.85 percent of the overall national poverty reduction (Table 2.5). This contribution stems from the fact that agriculture remains a source of livelihood for around 60 percent of the labor force, and the robust growth of the sector observed throughout the period analyzed, thanks to high food and commodity prices. However, agricultural productivity remains low, particularly the production of grains, which hinders the transformative potential of the sector to boost the incomes of poor households.

Figure 2.21: Real sector growth 2007–2015



Source: World Bank 2018b

Similarly, households deriving their income from the services sector account for almost 30 percent of Kenya's poverty reduction. The expansion of modern services, particularly financial intermediation and mobile communication (as a result of the introduction of innovative solutions like M-PESA), has stimulated the demand for more traditional services, and the sector as a whole is responsible for the bulk of the economic growth of Kenya. Between 2006 and 2013, the sector accounted for 75 percent of GDP growth.[93] Not surprisingly, households that report earning the majority of their income from services (comprising those in wage employment and the majority of those engaged in a non-agricultural enterprise) help explain about 29 percent of the decline in the national poverty rate. Moreover, the inter-sectoral movement of households across these classifications accounts for 16.4 percent of the decline (Table 2.5), suggesting that the structural transformation in the country, mainly from the agricultural sector towards the services sector, has aided poverty reduction.

The evidence suggests that off-farm diversification has been important for poverty reduction in Kenya. Given that close to 70 percent of those households engaged in agriculture have additional sources of income from non-agricultural activities, additional decompositions analyzing the diversification of income sources were undertaken. Households were classified into agricultural, non-agricultural, and mixed households, where agricultural and non-agricultural are defined as deriving at least 90 percent of the total income from either sector, and mixed being everything else in between. Households depending overwhelmingly on agriculture income account for 27.63 percent of poverty reduction, while non-agricultural households account for almost 21.19 percent (Table 2.6). Interestingly, the contribution of diversified households was around 33.51 percent, showing that an important factor for poverty reduction has been the ability of households engaged in agriculture (and sometime deriving the majority of their income from this activity) to complement their incomes through non-agricultural activities. The ability of agricultural households to engage in activities such as petty trading, kiosk retailing, operating taxis and running local enterprises, reduces their vulnerability to climatic and price shocks, and increases their ability to generate income.

2.3.4 The role of mobile money

Access to mobile phones in Kenya increased dramatically over the last 15 years, transforming the economic paradigm. In 1999, the Kenya-based mobile service provider Safaricom projected that the total mobile phone market would reach three million subscribers by 2020 in Kenya. However, by 2009 Safaricom alone had over 14 million subscribers

Table 2.5: Sectoral decomposition of poverty reduction (Ravallion-Huppi)

Source of income	Pop. share in period 1 (percent)	Absolute change	Share of total change (percent)
Agriculture	49.18	-3.32	33.85
Industry wages	5.84	-0.20	2.05
Service wages	24.49	-1.76	17.91
Non-agr. enterprise	7.30	-1.12	11.41
Transfers	5.99	-0.38	3.87
Diversified	7.19	-1.18	11.99
Total intra-sectoral effect		-7.95	81.08
Population shift effect		-1.61	16.40
Interaction effect		-0.25	2.52
Change in headcount rate		-9.81	100.00

Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.

[93] According to the World Bank's Country Economic Memorandum (2016).

Table 2.6: Sectoral decomposition of poverty reduction (Ravallion-Huppi) - alternative definition

Source of income	Pop. share in period 1 (percent)	Absolute change	Share of total change (percent)
Non-agricultural income only	31.64	-2.16	21.19
Agriculture income only	39.79	-2.81	27.63
Mixed - agricultural & non-agricultural income	28.57	-3.41	33.51
Total intra-sectoral effect		-8.37	82.33
Population shift effect		-1.68	16.49
Interaction effect		-0.12	1.19
Change in headcount rate		-10.17	100.00

Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.

(Aker and Mbiti 2010). As in many countries in Africa, mobile phones represented the first modern telecommunication infrastructure of any kind, particularly for those in rural areas. Moreover, the adoption among firms, mainly in urban centers, appears to be correlated with the poor quality of the landline services. While it was clear that the reduction in the communication costs would bring efficiency gains in all economic markets, as information about prices and quantities reaches agents faster than before and better market coordination is possible (Jensen, 2007; Aker, 2008; Aker, 2010; Klonner and Nolen, 2008), the impact of mobile phones has gone well beyond that thanks to introduction of mobile money (more specifically M-PESA). As a growing body of rigorous academic literature has shown recently, mobile phone penetration in Kenya *has shifted the economic paradigm*, constituting a platform for service delivery rather than being a simple communication tool.

Beyond the economic efficiency gains from improved communication, mobile phones, through mobile money, have been shown to increase per capita consumption and reduce poverty among users. As of 2014, 97 percent of Kenyans reported having an M-PESA account and by 2015 there were 65,569 registered M-PESA agents in the country. This service, which allows individuals to transact money without having access to a formal bank account, has expanded the economic possibilities of the population, by increasing their financial resilience and savings, and allowing them to move out of agriculture and into business. A recent study shows that through these mechanisms access to M-PESA increased per capita consumption levels and lifted around 2% of Kenyan households out of poverty (Jack and Suri 2016).[94]

More effective risk-sharing has been a key factor in improving financial resilience. Through mobile money, households are able to share risk more efficiently with relatives, friends and other associates, helping them to smooth consumption over time and increase their savings. Mobile money users report having access to more credit and emergency-related transfers than nonusers, suggesting that both explicit credit and informal insurance arrangements can be more effectively sustained (Suri and Jack, 2013). M-PESA users are more likely to receive and send (internal) remittances (Jack, Ray, and Suri 2013), and in case of a negative shock, M-PESA users receive a larger amount of funds from a wider network than non-users (Jack and Suri 2014).

Mobile money has also contributed to increased employment, savings, and productive investment. The introduction of mobile money has been shown to have a positive effect on local employment (Plyler et al., 2010; Mbiti and Weil 2011), and contributes to an improved business environment and access to trade credit (Plyler, Haas, and Nagarajan 2010; Beck et al. 2015). Using mobile money appears to increase savings not only among the "unbanked" but also among those with access to regular banking services (Morawczynski and Pickens 2009), and creates new savings incentives for smallholder farmers (Kikulwe, Fischer, and Qaim 2014). In turn,

[94] The authors use US$ 1.25 per day as a measure of extreme poverty.

households are able to make productive investments: mobile money has allowed users to accumulate greater amounts of capital (Plyler, Haas, and Nagarajan 2010), and allowed farmers to engage in more commercially-oriented farming, increase sales of harvested products, and realize higher profits per acre of production (Kikulwe, Fischer, and Qaim 2014).

Gender outcomes have also improved due to mobile money. The introduction of mobile money, in conjunction with M-PESA has helped to increase female empowerment in Kenya. This was particularly true in rural areas, where the technology made it easier for women to obtain remittances from relatives (other than their husbands) and friends increasing their financial independence (Morawczynski and Pickens 2009). Similarly, the effects of M-PESA on consumption and poverty accrue particularly to women: the magnitude of the effect for female-headed households was more than twice as high as the average effect (Suri and Jack 2016). More specifically, the evidence suggests that mobile money allowed women to increase their savings and smooth consumption, and induced changes in occupation choice. Financial inclusion helped them to graduate from subsistence agriculture (into sales/small business) and to reduce their reliance on multiple part-time occupations.

More recently, the M-PESA platform has facilitated targeted development interventions in education and health. Recognizing that the transition from primary school to high school is costly and often leads to dropout, an intervention encouraging parents of primary school leavers to open a mobile banking account through the M-PESA platform substantially increased financial savings and high school enrolment (Jack and Habyarimana 2018). The M-PESA platform has also been used for provision of conditional cash transfers and vouchers covering the full cost of giving birth in a medical facility, which appears to be highly effective in increasing institutional deliveries among poor rural women (Grépin, Habyarimana, and Jack 2017).

2.4 POVERTY PROFILES – WHAT ARE CHARACTERISTICS OF THE POOR IN KENYA?

Profiling the characteristics of the poor is helpful in identifying what factors are limiting their economic opportunities. Moreover, comparing poor and non-poor households along different dimensions, such as demographics, human capital, economic activities and asset ownership, can pin down specific policy actions that may help raise their living standards and overcome poverty.

Household living in poverty have older household heads and are more likely to be headed by a woman. Poor households tend to have slightly older household heads. The average age in 2015/16 among poor households was 47 years versus 42 for non-poor households (see Table 2.7). This age gap between poor and non-poor households has remained constant since 2005/06. Female headed households are more likely to be poor, even after all other characteristics of the household are taken into account in a multivariate regression analysis (see column *Significance -Model-* in Table 2.7). This is particularly true for households headed by widows and divorcées (or separated). As explored in detail in Chapter 3, marital rupture frequently entails a loss of economic means for women. In addition to that, the proportion of households headed by a woman has increased slightly between 2005/06 and 2015/16 for both poor and non-poor households. This is important as age and gender reflects the economic opportunities of the household head, which matter significantly for the total income of most households.

Poor households tend to have a larger size and higher dependency ratios. In terms of demographic characteristics, poor households have 1.75 household members more (a considerable gap) and a larger dependency ratio[95] than non-poor households (see Table 2.7). While household size decreased by about one person for both poor and non-poor households between 2005/6 and 2015/16, the dependency ratio did not decline for poor households. Regression analysis

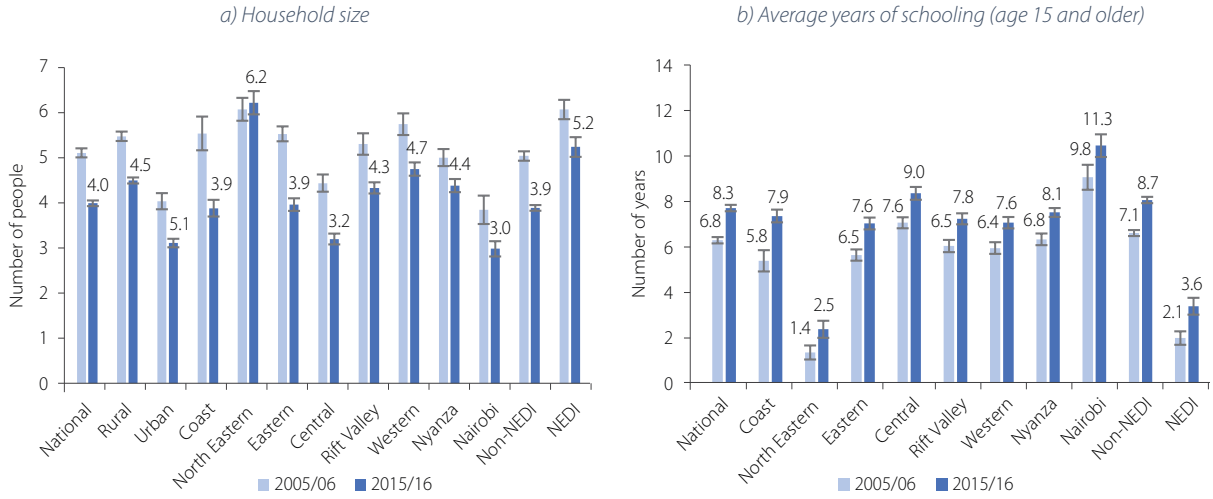
[95] Which imply a lower share of working age male and female members aged 15-65.

Table 2.7: Household characteristics by poverty status

	2005/06				2015/16			
	Non-Poor	Poor	Significance (Wald-test)	Significance (Model)	Non-Poor	Poor	Significance (Wald-test)	Significance (Model)
Demographic								
Age of head	42.6	47.9	***	***	42.1	47.1	***	***
Female head	27.4%	31.3%	***	***	31.2%	35.7%	***	***
HH size	4.4	6.2	***	***	3.5	5.2	***	***
Dependency ratio	36.7%	47.6%	***	***	33.1%	47.4%	***	**
Urban	30.9%	16.9%	***	***	39.9%	27.5%	***	***
Education								
Ave. years sch. (15+)	7.7	5.3	***	***	9.1	6.1	***	***
HH head levels								
No education	14.3%	32.7%	***	Reference	8.8%	27.7%	***	Reference
Some or complete primary	43.4%	51.3%	***		42.5%	52.3%	***	
Some or complete secondary	39.0%	15.9%	***	**	41.6%	19.5%	***	
Some or complete tertiary some or complete	3.2%	0.1%	***	***	7.1%	0.4%	***	***
Sources of income								
Non-agricultural income only	55.5%	44.2%	***	Reference	71.1%	68.1%	***	Reference
Agriculture income only	12.6%	17.4%	***		2.5%	4.4%	***	**
Mixed - agricultural & non agricultural income	31.9%	38.5%	***	***	26.5%	27.4%		***
Access to services								
Improved drinking water	70.2%	51.9%	***	***	80.4%	65.6%	***	
Improved sanitation	56.4%	37.7%	***	***	72.2%	47.8%	***	***
Main source light (electricity)	23.0%	4.0%	***	***	49.9%	18.9%	***	*
HH electricity access	26.5%	4.5%	***	***	52.0%	20.7%	***	***
Assets								
HH owns radio	58.1%	51.2%	***	***	51.8%	40.6%	***	***
HH owns cell phone	27.9%	5.8%	***	***	90.1%	77.8%	***	***
HH owns kerosene stove	53.0%	23.2%	***	***	42.3%	22.9%	***	***
HH owns charcoal jiko	62.6%	40.3%	***	***	61.7%	44.2%	***	***
HH owns mosquito net	40.0%	25.7%	***	***	68.8%	66.1%	**	***
HH owns fridge	5.5%	0.5%	***	***	8.2%	0.7%	***	***
HH owns sofa	56.8%	29.2%	***	***	62.3%	40.2%	***	***

Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.
*Note: Column wald test shows significance values from a wald test of differences between the means. Column Model shows significance values from a log-linear probability model (LPM) (with log of consumption as the dependent variable) controlling for all variables shown along with province dummies. *, **, and *** indicate significance level at 10%, 5%, and 1%. Robust errors used.*

Figure 2.22: Household size and average education level nationally, by province and NEDI classification



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16

confirms that a larger share of dependents within a household is associated with lower consumption, even after considering all other relevant household characteristics. When looking at the evolution of these dimensions at the provincial level (and under the NEDI and non-NEDI classifications), it is clear that the lack of a demographic transition in the North Eastern province and in the NEDI counties has slowed down the pace of poverty reduction in these regions (Figure 2.23a).

As expected, poverty is associated with lower levels of educational attainment. In 2015/16, the average years of schooling (of household members 15 years old and above) for non-poor households is three years higher than for poor households. Similarly, only 19.9 percent of household heads in poor households have completed at least secondary education, compared to 48.7 percent for their non-poor counterparts (see Table 2.7). Of greater concern, the gap in the educational attainment between poor and non-poor households increased between 2005/06 and 2015/16, suggesting that poor households still face notable barriers to access Kenya's the education system, as will be discussed in Chapter 6. Regression analysis shows that every additional year of education at the household level (for those 15 and older) increases consumption by 2.9 percent, consistent with the idea that individuals with higher levels of education have higher paid jobs. Not surprisingly, the North Eastern Province and the NEDI counties lag considerably behind the rest of the country when it comes to education outcomes, with only 2.54 and 3.64 average years of schooling respectively (Figure 2.23b). Improving the education outcomes of the poor is necessary for them to access better income-generating economic activities and enhance their consumption levels.

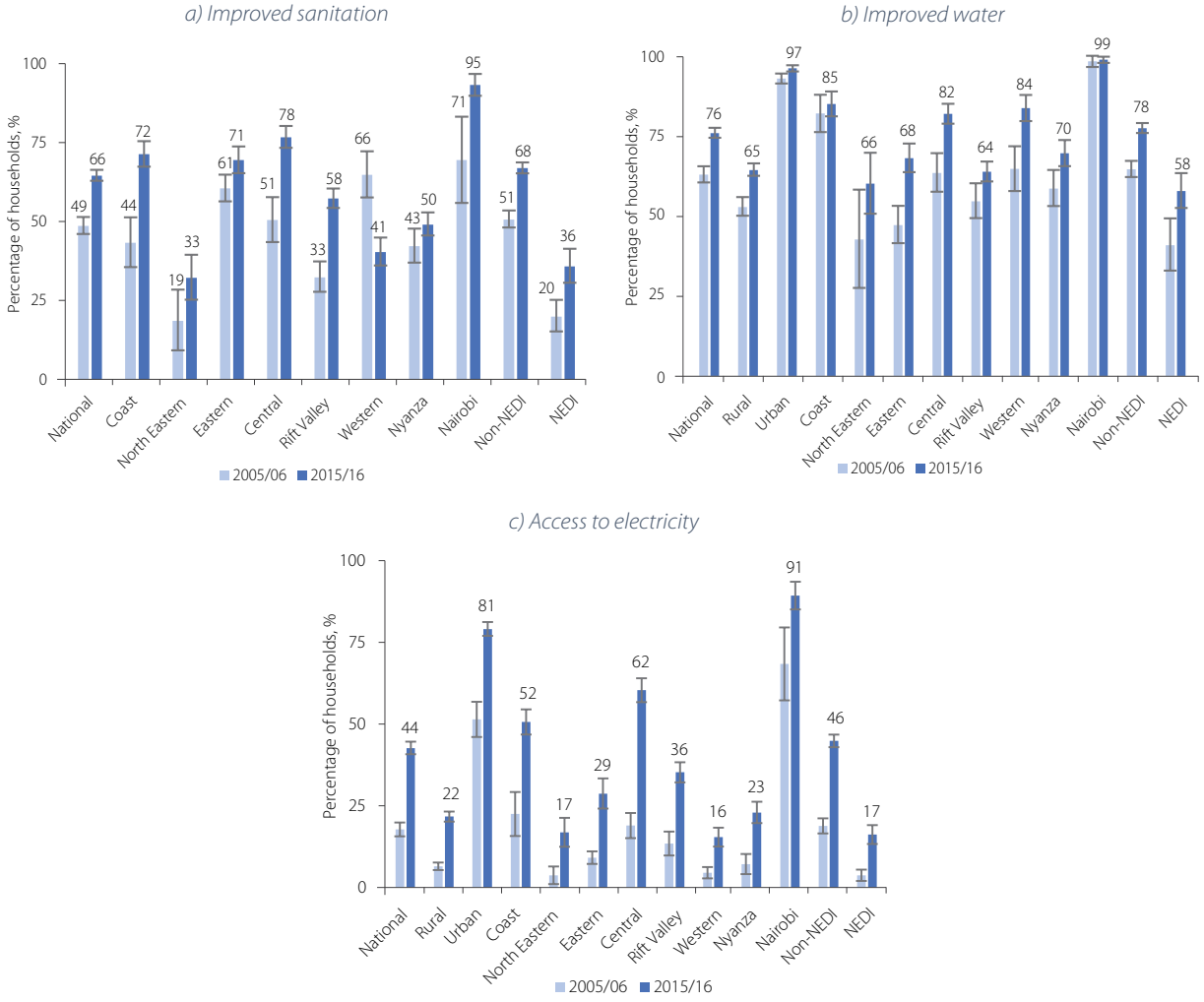
The proportion of households that solely depend on agriculture for their income is much lower than before, but still remains higher amongst the poor. Back in 2005/06, 17.4 percent of poor households depended exclusively on agriculture for their income (12.6 percent for non-poor households), but ten years later this proportion declined to 4.4 percent (2.5 percent of non-poor, see Table 2.7), illustrating the off-farm diversification that propelled the consumption growth among the Kenyan population. As expected, the regression analysis points out that household consumption increases with diversification and decreases with agricultural dependency. Interestingly, the latter was not the case for 2005/06, showing that the structural pattern of poverty has evolved since then.

Access to basic services tends to be lower amongst poor households. Although between 2005/06 and 2015/16 access to sanitation, water and electricity improved for the poor, they continue to have much lower access rates than non-poor households. While three out of four non-poor households have access to improved sanitation, only one in two

poor households do. Moreover, while access for both groups increased since 2005/6, progress was more pronounced amongst non-poor households. In the case of improved water, the coverage rate for the poor is 66 percent, also considerably lower than for non-poor at 80 percent. In terms of electricity, access remains low for non-poor households at 52 percent, and it is even lower for the poor, with a coverage rate of 21 percent (Table 2.7). Access to improved sanitation is remarkably low in the North Eastern province and NEDI counties when compared to the rest of the country. At the same time, access has worsened dramatically in the Western province: while in 2005/06 65.8 percent of the province's population had access to improved sanitation, this number was only 40.9 in 2015/16 calling for an urgent policy action on this front (Figure 2.23a).

Ownership of basic assets is limited for poor households with the exception of mobile phones: almost 80 percent of poor households have one. In general, poor households are characterized by limited ownership of assets when compared to non-poor households. They are less likely to own a radio (41 percent versus 52 percent), a stove (23 versus 42 percent) and a refrigerator (1 percent versus 8 percent), to provide some examples (see Table 2.7). One notable exception is the ownership of mobile phones: between 2005/06 and 2015/16 ownership of mobile phones by poor households increased from 6 to 78 percent. This is relevant, given the importance of mobile phones and, more specifically, of mobile money in transforming the livelihoods of Kenyan households discussed in a previous section of this chapter.

Figure 2.23: Access to improved sanitation, water and electricity by province, urban/rural, and NEDI/non-NEDI status



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16

CHAPTER 3

GENDER AND POVERTY

SUMMARY

Kenyan women are poorer than men during core productive and reproductive years, especially if they experienced a marital dissolution. As in other African countries, Kenyan women are more likely to live in poor households than men starting in their mid-20s and continuing until their 50s. Moreover, women are more likely than men to reside in a poor household if they are separated/divorced (31 vs. 24 percent, $p<0.01$) or widowed (38 vs. 25 percent, $p<0.01$). Women who have experienced a marital dissolution also face higher prevalence rates of physical violence than other women and are disproportionately affected by HIV/AIDS.

In education, girls continue to be disadvantaged in parts of Kenya but there is also an emerging pattern of boys' underperformance. Kenya has achieved significant increases in primary and secondary enrollments of boys and girls since the early 2000s, which has been accompanied by a trend towards greater gender parity. At the subnational level, girls have lower enrollment rates than boys in Northeastern Kenya and the coast – but boys' disadvantages emerge in parts of Central and Western Kenya. Similar patterns are evident for learning outcomes, where advantages for girls are even stronger. Despite these improvements in girls' education, adult women are twice as likely to be illiterate as adult men, reflecting historical gender inequalities in the education sector.

Kenyan women face daunting health challenges and bear the brunt of care work within the household. Despite some decline in maternal mortality since 2005, Kenyan women face a staggering lifetime risk of 1 in 42 of dying due to complications of pregnancy or child birth, which is high even by regional standards. Maternal mortality is most severe in the Northern/Northeastern parts of Kenya, areas with extremely high fertility rates and poor access to reproductive health care. And due to traditional gender roles, women spend a significant amount of time on unpaid care work (for children, elderly and the sick or disabled) within the household.

Women are much less likely than men to own property and gender biases linger in parts of Kenya's legal system. Only 12 percent of women aged 20-49 years report owning any land on their own, compared with 39 percent of men. Kenya is among the few African countries with gender inequality in formal inheritance rights – i.e. with respect to the Law of Succession Act. Gender gaps exist also in terms of access to ICT and financial services, though levels of access are high by regional standards.

In 2015/6, 71 percent of working-age women participated in the labor force, compared with 77 percent among men. There has been a significant increase in male and, particularly, female employment over the past decade. For men, this increase was driven by a rise in wage employment, while for women it reflects both rising wage employment but also increasing employment in (farm and non-farm) household enterprises.

Female labor force participation is linked to religious norms, education, marital status and the presence of young children in the household. Among women, being of Muslim or other non-Christian religion reduces the probability of participating in the labor force by about 30 percent (relative to being Catholic). Women who are widowed, separated/divorced or polygamously married are significantly more likely to participate in

the labor force than women who are monogamously married. Every child aged 0-5 years reduces women's probability to be in the labor force by over 2 percent. On the other hand, education, even at the primary level, increases women's probability to participate in the labor force.

Gender inequality in earnings is substantial and cuts across all segments of the labor market. Male wage workers earn 30 percent higher wages/salaries than female wage workers and profits of male-run household enterprises are about twice as high as profits of female-run enterprises. Similarly, households where women are the primary decision-makers in agriculture achieve lower yields (e.g. for maize and beans) than households where men are the primary decision-makers. Gender inequality in earnings reflects a variety of different factors, including gender gaps in access to productive resources and sectoral segregation by gender (i.e. women being disproportionately engaged in low-paying sectors).

Gender equality is central to Kenya's vision of becoming a "middle-income country providing a high-quality life to all its citizens by the year 2030." (Government of Kenya 2007). No society can develop sustainably without transforming the distribution of opportunities, resources, and choices for males and females so that they have equal power to shape their own lives and contribute to their families, communities, and country.

This chapter provides a synthesis of what is known about the gender-poverty nexus in Kenya. It starts with a basic profile of poverty and gender in section 3.1. Following the framework of the 2012 World Development Report on Gender (World Bank 2011), it then proceeds to analyze gender gaps in endowments (section 3.2), economic opportunities (section 3.3), and voice and agency (section 3.4). At the end of each section, the chapter also provides a short discussion of possible policy levers to narrow – and ultimately close – gender gaps and promote a more equitable society.[96]

3.1 A PROFILE OF POVERTY AND GENDER IN KENYA

One of the key challenges towards an understanding of poverty and gender is that poverty is typically measured at the household level. In the standard approach to measuring poverty, the primary source of information are household surveys and the key indicator is a money-metric measure of welfare based on consumption (or income) data collected for the household as a whole. This approach masks within-household differences in consumption along gender, age and other dimensions.

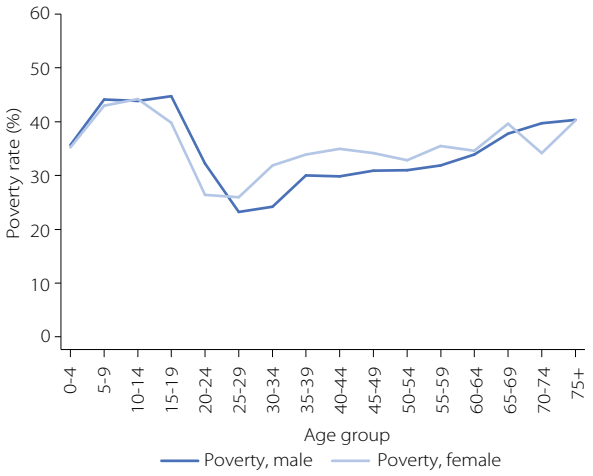
We use a lifecycle approach to obtain a better understanding of gender differences in poverty in Kenya, even with the existing constraints (i.e. poverty status being determined at the household-level). A recent collaborative effort between UN Women and the World Bank (Munoz Boudet et al. 2018) analyzes whether life events – such as the transition from childhood to adolescence, adulthood, and elder years; or marriage, divorce and widowhood – affect men and women differently in terms of their probability to live in poor households The study further develops a demographic taxonomy that categorizes households by the number and sex of adult household members (e.g. 2 adults of opposite sex, single adult male/female households, etc.) to examine the relationship between poverty and the household's demographic composition in a way that goes beyond a comparison of male- and female-headed households. Following this approach and using the data of the 2015/6 KIHBS, this section presents a profile of poverty and gender in Kenya.

[96] Underlying this chapter are several data sources, including the KIHBS of 2015/6 and 2005/6, DHS of 2014, 2008/9 and 2003, Global Findex database for 2014 (Demirguc-Kunt et al. 2015), and other country-level databases (e.g. WDI – World Bank 2017b; Women, Business and the Law – World Bank 2015b). These data sources provide a rich information base to analyze gender gaps in different sectors and their link to poverty in Kenya, but there are still important data gaps. Appendix C1 of this chapter hence provides suggestions for possible tweaks to the KIHBS instrument that would help to fill key gaps in data and knowledge about gender inequality in Kenya.

3.1.1 Gender differences in poverty through the lifecycle

As in other African countries, Kenyan women are more likely to live in poor households than men starting in their mid-20s and continuing until their 50s (Figure 3.1). Women are hence poorer than men during core productive and reproductive stages of life. This pattern suggests that care responsibilities for children combined with constraints in economic opportunities are major vulnerability factors for women.

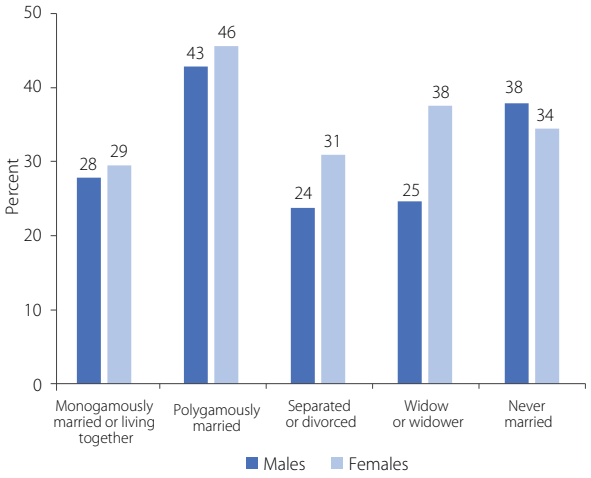
Figure 3.1: Male and female poverty rates by age group, 2015/6



Source: KIHBS 2015/6.
Note: Cross-tabulation of individuals' poverty status (assigned at the household-level) and individual-level characteristics (age, sex).

Gender differences in poverty also emerge from a comparison of male and female poverty rates – i.e. the probability of living in a poor household – by marital status (Figure 3.2). Gender gaps are relatively small among the married population, though still favoring men. Women, however, are much more likely than men to be poor if they are separated/divorced (31 vs. 24 percent, $p<0.01$) or widowed (38 vs. 25 percent, $p<0.01$). These findings are consistent with other studies showing that, for African women, marital rupture frequently entails a loss of economic means and support that are acquired through, and conditional on marriage—including access to productive assets (such as land) and the marital home (Kevane 2004; Djuikom and van de Walle 2018). Conversely, among the never married population (which here includes children), female poverty rates are lower than male poverty rates.

Figure 3.2: Male and female poverty rates by marital status, 2015/6

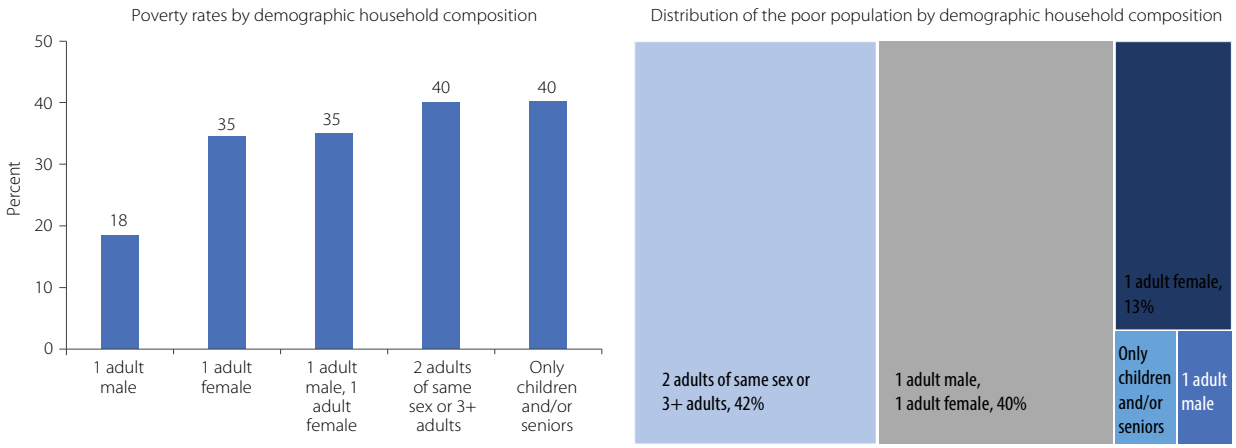


Source: KIHBS 2015/6.
Note: Cross-tabulation of individuals' poverty status (assigned at the household-level) and individual-level characteristics (marital status). All differences between males and females are statistically significant at 1 percent, except for the polygamously married population (significant at 10 percent).

3.1.2 Gender differences in poverty using a demographic taxonomy of households

There is a large gender difference in poverty amongst households with only a single adult (and possibly children). Households comprising one adult female are twice as likely to be poor (35 percent) than households comprising one adult male (18 percent) (Figure 3.3). This reflects, among other things, that women living on their own are much more likely than men to care for children. Poverty rates are highest, at 40 percent, among households comprising only children/seniors and among households comprising 2 adults of same sex or 3+ adults, typically multigenerational households. Almost 42 percent of Kenya's poor live in these multigenerational households. Poverty rates are somewhat lower (35 percent) for households comprising 2 adults of opposite sex, which are in most cases nuclear families. However, due to their prevalence in the population, these households still account for about 40 percent of Kenya's poor population.

Figure 3.3: Poverty and household demographic composition, 2015/6



Source: KIHBS 2015/6.
Note: Household taxonomy is based on the number of male and female adults (18-64 years), irrespective of the number of children (<18 years) and elderly (65+ years). Left: Share of population below the poverty line by demographic taxonomy. Right: Distribution of poor population by demographic taxonomy.

3.2 GENDER GAPS IN ENDOWMENTS

The focus of this section is gender differences in endowments. This includes human capital endowments – education and health – but also time availability and access to physical and financial assets. Gender gaps in endowments not only matter in their own right, but also contribute to gender inequality in economic opportunities (highlighted in section 3.3) and are hence critical for poverty reduction efforts.

3.2.1 Education

Kenya has achieved significant increases in primary and secondary enrollments since the early 2000s, especially among girls. The 2005 Participatory Poverty Assessment (PPA) already provided a glimpse of this societal transformation, as illustrated below by a quotation from a community in Busia.[97] Ten years on, the trend towards higher girls' enrollment is clearly visible. Between 2005/6 and 2015/6, gender parity in gross enrollments, defined as the ratio of female to male enrollment rates, increased at the primary (from 0.95 to 0.97) and secondary (from 0.89 to 0.95) levels. And since girls are less likely than boys to attend school over-aged (for the level at which they are enrolled), NERs are even higher for girls than for boys (Table 3.1). Girls also perform better than boys in Math, English and Kiswahili, especially in earlier grades of primary school (Uwezo 2016).

> *"Previously the community preferred withdrawing a girl child from school during times of economic stress. After the introduction of free primary education, the situation has changed and all children have equal opportunity to attend school."* (Namwitsula community, Busia)

Gender gaps in the education sector, however, differ markedly across regions (Figure 3.4). Gross enrollment rates are higher for girls than for boys in parts of Central and Western Kenya, but in most other areas – especially the Northeast and Coast – the traditional patterns of higher enrollments among boys still hold. In terms of learning outcomes (here math proficiency) girls' advantages are more widespread – consistent with the results at the national level – but show a broadly similar geographic pattern. These regional differences, which may reflect differences across regions in broader development, female labor force participation, religious and social norms, are currently not well understood and would merit further in-depth analysis.

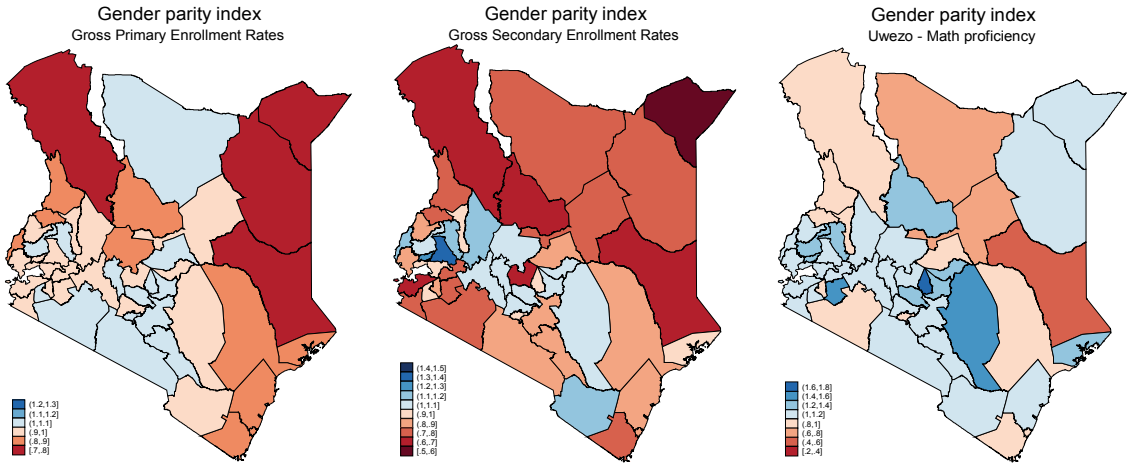
[97] The communities interviewed for the 2005 PPA often commented that a greater emphasis on girls' education came in the wake of Kenya's FPE policy introduced in 2003. However, Lucas and Mbiti (2012a) argue that while FPE boosted primary school completion rates of girls and boys, it had larger effects on boys. These results suggest that FPE was not the primary driver for greater gender parity in Kenya's school.

Table 3.1: Primary and secondary enrollment rates and gender parity, 2005/6 and 2015/6

	Primary					
	Net			Gross		
	Female	*Male*	*Gender parity index*	*Female*	*Male*	*Gender parity index*
2005/6	0.82	0.81	1.01	1.16	1.22	0.95
2015/6	0.85	0.84	1.01	1.06	1.09	0.97
	Secondary					
	Net			Gross		
	Female	*Male*	*Gender parity index*	*Female*	*Male*	*Gender parity index*
2005/6	0.21	0.19	1.09	0.39	0.44	0.89
2015/6	0.44	0.41	1.08	0.73	0.77	0.95

Source: KIHBS 2005/6 and 2015/6.
Note: The gender parity index is defined as the ratio of female to male enrollments.

Figure 3.4: Regional differences in gender parity in the education sector



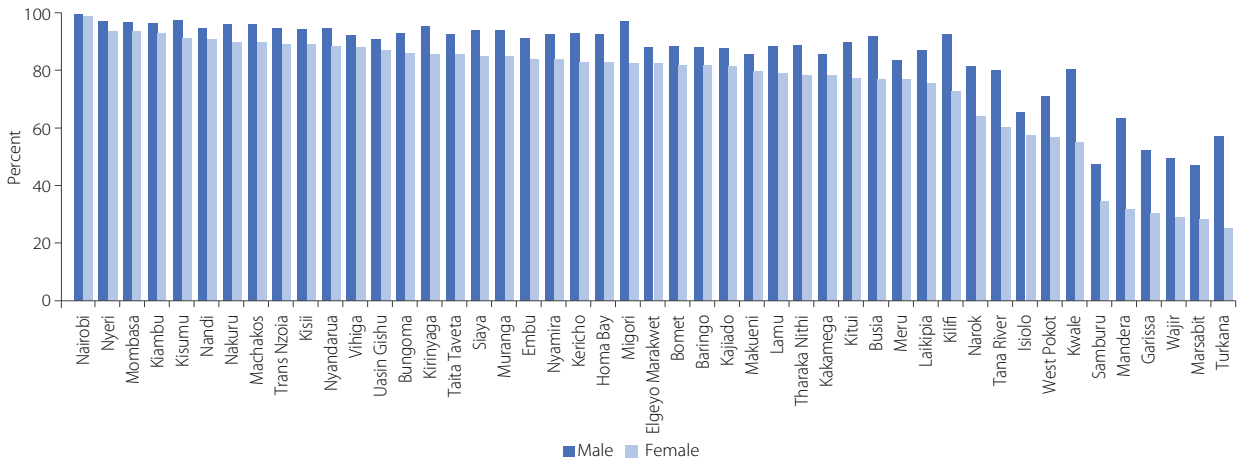
Source: KIHBS 2015/6 and Uwezo 2014 data.
Note: The gender parity index is defined as the ratio of female to male enrollment/proficiency rates. A value above (below) unity indicates that girls have higher (lower) levels of enrollments/proficiency.

Girls and boys, when they drop out of school, often do so for different reasons. Girls dropping out of secondary school are more likely to be married and to have given birth, than girls still attending school.[98] Asked directly about the main reason why a household member stopped attending secondary school (before secondary completion), "school cost" is the most commonly cited reason for boys, followed by "lack of interest." For girls, the reason most commonly mentioned is "pregnancy", followed by "school cost". However, the causality between pregnancy and dropping out of school may run both ways, as decisions about fertility and schooling are typically made jointly (see Ozier 2016; Duflo, Dupas, and Kremer 2015a).

While girls are enrolled in greater numbers in Kenyan schools than ever before, adult women continue to be disadvantaged in educational attainment and literacy compared with adult men. At the national level, illiteracy is almost twice as high among women aged 15+ (18 percent) than among adult men aged 15+ (10 percent), and no county, except Nairobi, has achieved gender parity in literacy among this age group (Figure 3.5). This reflects historical gender inequalities in the education sector, which continue to put women at a disadvantage in terms of labor market opportunities.

[98] Secondary dropout is defined as having attended secondary school Form 1-3 during the last school year, but no longer attending school during the current school year. Note that there are only few cases of secondary dropouts captured by the KIHBS N=70), which limits the analysis that can be performed.

Figure 3.5: Male and female literacy by county, 2015/6



Source: KIHBS 2015/6.
Note: Respondents who report being able to read or write in any language or attended secondary school or above are considered as literate. Population aged 15+ years.

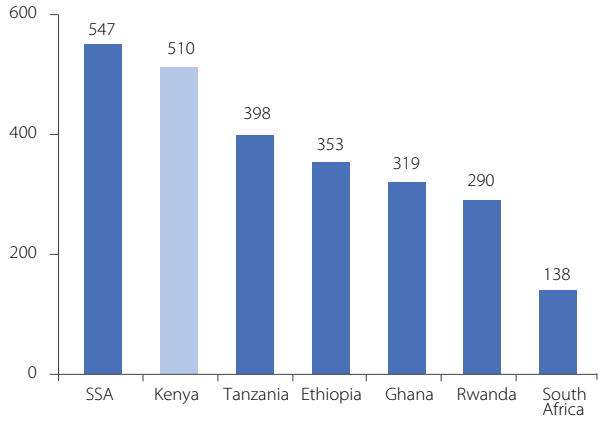
3.2.2 Health and fertility

Kenyan women face a staggering lifetime risk of 1 in 42 of dying due to complications of pregnancy or child birth. While the maternal mortality ratio has declined from 728 to 510 (maternal deaths per 100,000 live births) between 2005 and 2015, it remains high by regional standards (Figure 3.6a). Geographically, maternal mortality is highest in the Northern/North Eastern parts of Kenya (Figure 3.6b). These areas of high maternal mortality also perform poorly in terms of the share of live births being delivered by a skilled provider or in a health facility (Muraguri 2015), suggesting that lack of access and/or poor affordability of reproductive care services play an important role (see chapter 7 on health).

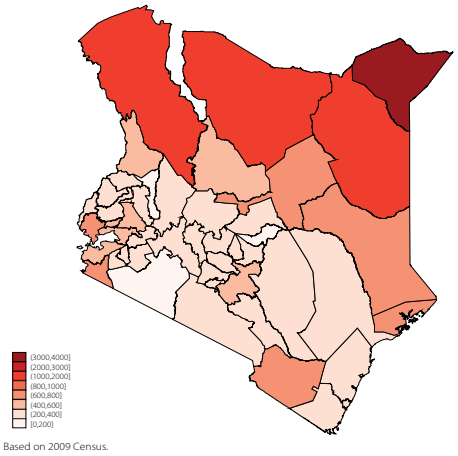
Women are disproportionately affected by the HIV/AIDS epidemic. While prevalence rates have declined from about 7 percent in 2006 to just over 5 percent in 2016 (of the total population aged 15-49 years), women make up more than 60 percent of the share of the population (15+) living with the disease (World Bank 2017b). Moreover, the 2008 Kenya Demographic and Health Survey (KDHS; the latest to include HIV/AIDS testing) shows that widows and divorced/separated women are at particularly high risk, with prevalence rates that at the time were more than five times (widows) or twice (divorced/separated women) as high as those of the total female population (KNBS et al. 2010). Similar demographic patterns have been observed for other countries in Africa (Djuikom and van de Walle 2018).

Figure 3.6: Maternal mortality

a) MMR - 2015 model estimates, Kenya and comparators



b) MMR - 2009 census estimates by county



Source: WHO et al. (2015) and KNBS (2012).
Note: The maternal mortality ratio (MMR) is defined as the number of maternal deaths per 100,000 live births.

Kenya entered the demographic transition earlier than most other African countries, but the fertility decline has somewhat slowed over the past two decades. Kenya's TFR fell from about 8 births per woman in the 1960s to just over 5 births in the late 1990s, a rate of decline that outpaced most other African countries at the time (Figure 3.7a). Fertility continued to decline throughout the 2000s to reach about 4 births per woman in 2015, albeit at a slower pace than observed, for example, in Ethiopia and Rwanda. From a geographic perspective there is huge variation in fertility across regions. In 2014, counties like Wajir or West Pokot still had a TFR above 7 births per woman, similar to Kenya's national average during the 1980s or present-day Niger, the country with the highest fertility in the world. At the other end of the spectrum, counties like Kiambu, Kirinyaga, Nairobi or Nyeri have a fertility rate of around 2.5 births per woman, only slightly higher than current-day Mexico (Figure 3.7b).

3.2.3 Time use

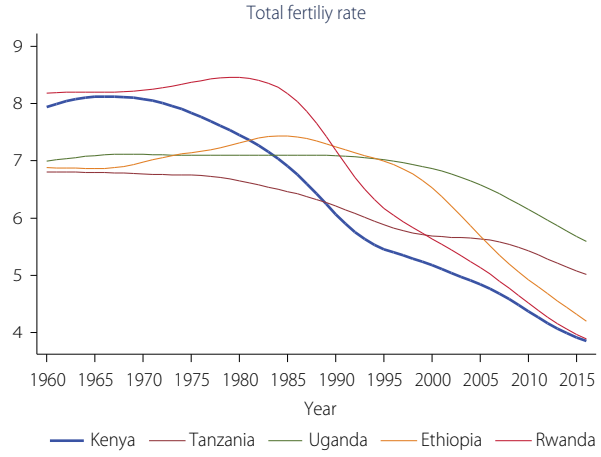
Gender differences in time use, related to social norms about the division of labor inside the family, are among the most pertinent factors that distinguish the lives of men and women in Africa (Blackden and Wodon 2006). In the 2005 PPA, almost every community noted that women and girls were disproportionately engaged in fetching water for the family and in care work – as illustrated below by quotations from two communities from Kilifi. The KIHBS 2015/6 confirms these intrahousehold differences in labor allocations (see Figure 3.8).

> "Water collection is a responsibility of women and girls but in times of water scarcity, men are also involved. Men are affected by lack of water in that it stops them from going to work. It is socially frowned on for a man to fetch water. Women have to wait in long queues and do not have enough time to attend to household chores and run their bossiness's [sic]. In severe water crisis children do not go to school so as to look for water. It also denies them an opportunity to play. Women usually carry water on their heads which they find tedious." *(Manjengo-Mariakani community, Kilifi)*

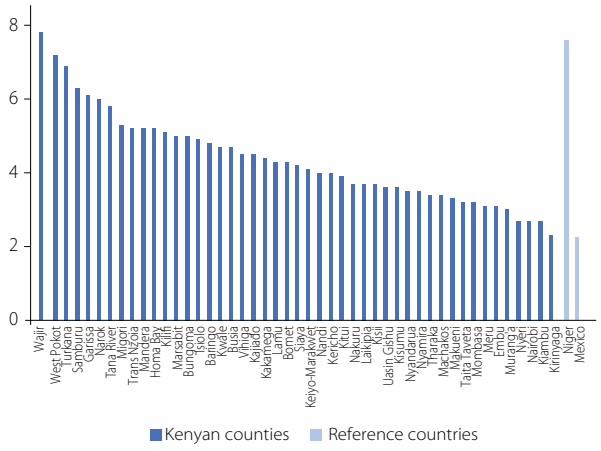
> "Men and women play different roles when family members get sick. The women nurse the patient by washing them, preparing their meals and feeding them. The men mostly provide money to cater for medical costs." *(Miyani community, Kilifi)*

Figure 3.7: Kenya's demographic transition

a) TFR, Kenya and comparators, 1960-2015

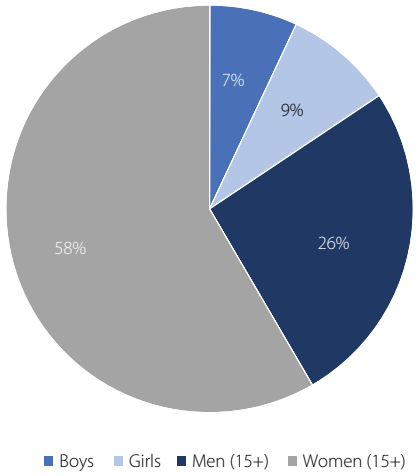


b) TFR by Kenyan county and comparators, 2014



Source: World Bank 2018c and DHS 2018 StatCompiler (data for 2014)

Figure 3.8: Household members fetching water, 2015/6



Source: KIHBS 2015/6.

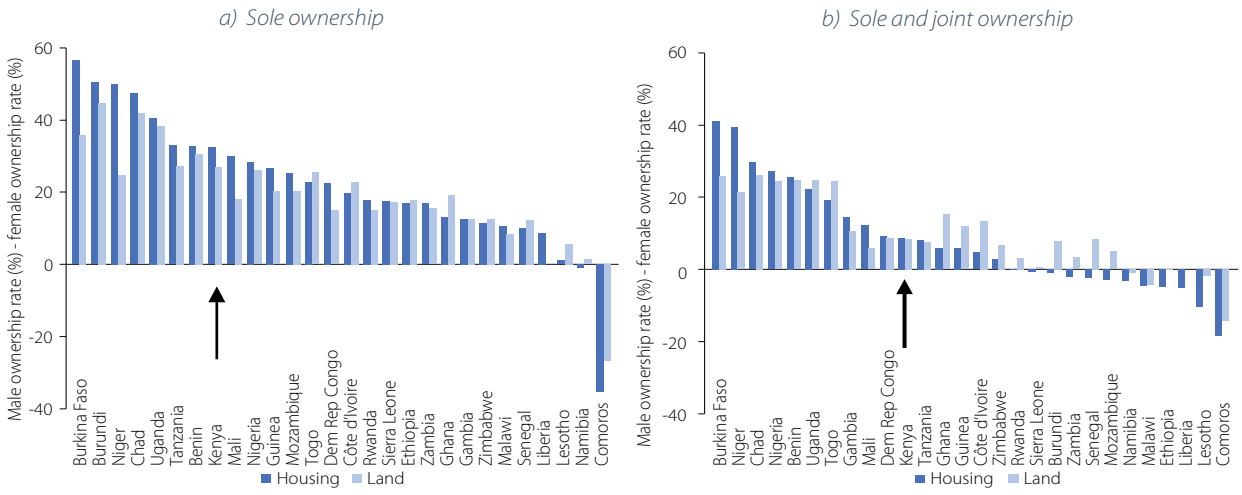
Though Kenya lacks nationally representative data to document these gender differences in time use, case studies confirm that women spend a significant amount of time on unpaid work. A report by Action Aid (2013) collected information on time use patterns (based on diaries) across three sites in Kenya. The study finds that (per day) women spend on average 99 minutes on collecting fuel or water, and 359 minutes on unpaid care work, together almost a full working day (7 hours and 38 minutes). Men, conversely, report spending only 38 minutes on collecting fuel or water, and 167 minutes on unpaid care work, together 3 hours and 25 minutes. While these data are based on a small sample and not nationally representative, they give a sense of the time scarcity of Kenyan women.

3.2.4 Physical and financial assets

Kenyan women are less likely than men to own land and housing property. 12 percent of women aged 20-49 years report owning any land on their own, compared with 39 percent of men – a gender gap of 27 percentage points. The gender gap in sole ownership is even larger for housing – 32 percentage points (Figure 3.9a). Since women are much more likely than men to report joint property ownership, gender gaps are much smaller if joint ownership is taken into consideration, but remain in favor of men (Figure 3.9b). Kenya's gender gaps in property ownership are similar in magnitude to those found in Tanzania, but significantly larger than, for example, in Ethiopia, where there has been an emphasis on joint land registration (Melesse, Dabissa, and Bulte 2018).

Kenya is among the few African countries with gender inequality in formal inheritance rights (World Bank 2015b). As in other African countries, property rights of women in Kenya are shaped by legal pluralism, which includes vestiges of colonial, modern constitutional, customary and religious laws (Deere and Doss 2006; Harrington and Chopra 2010). While Kenya's 2010 Constitution contains detailed articles in relation to equality and non-discrimination, gender biases linger in subordinate statutes. In particular, the Law of Succession Act distinguishes explicitly between male and female surviving spouses (Republic of Kenya 2015; World Bank 2015b).

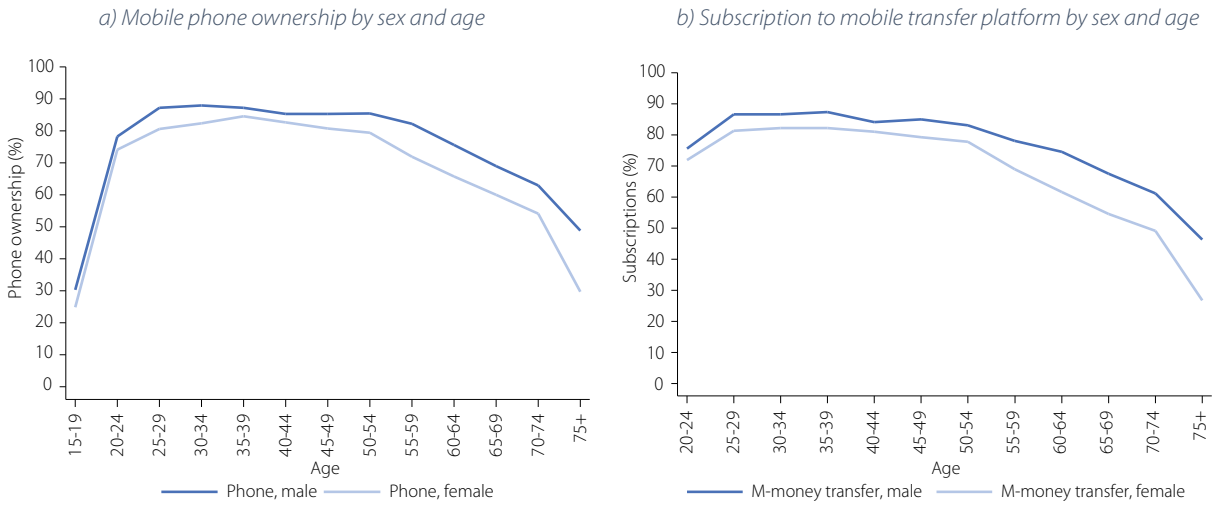
Figure 3.9: Kenya and comparators gender gaps in land and housing ownership



Source: KDHS 2014 and Gaddis, Lahoti, and Li 2018.
Note: Self-reported property ownership in population aged 20-49 years.

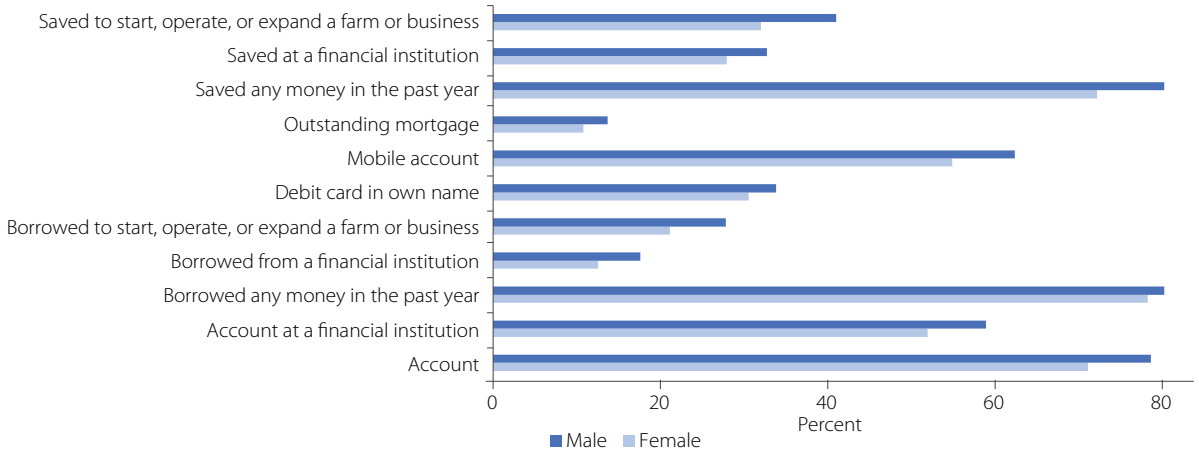
Gender gaps exist also in terms of access to ICT and financial services, though levels of access are high by regional standards. Women are less likely to own a phone or to have a subscription to a mobile money transfer platform than men, and the gender gaps increase with age (Figure 3.10). Similarly, women score lower on various indicators of financial inclusion (Figure 3.11) and are more likely to report difficulties in coming up with emergency funds (Figure 3.12). However, access to financial services is still higher in Kenya than in its comparator countries, apart from South Africa (Figure 3.13).

Figure 3.10: ICT access by sex and age, 2014, 2015/6



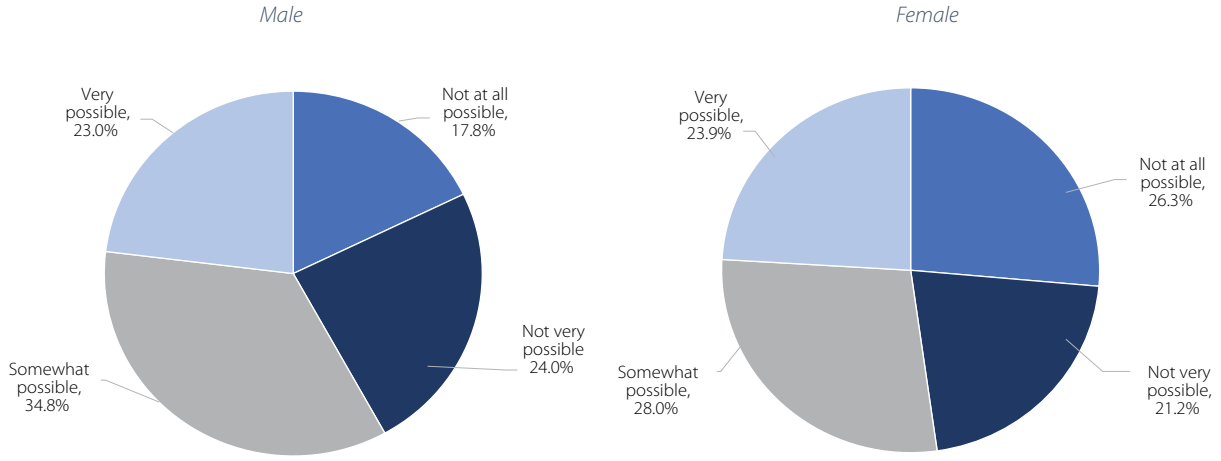
Source: KIHBS 2015/6.

Figure 3.11: Financial inclusion, male and female population (15+), 2014



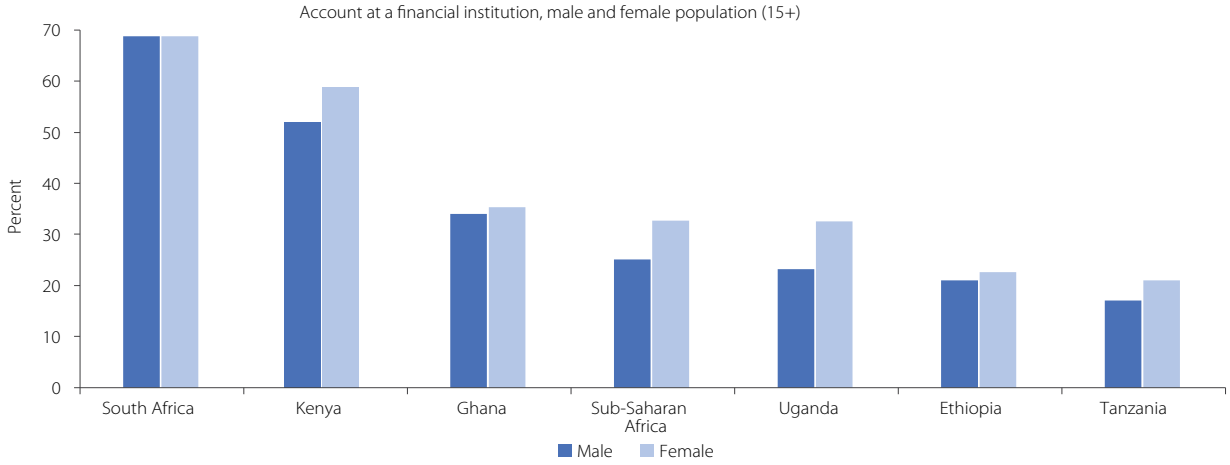
Source: Global Findex 2014 (Demirguc-Kunt et al. 2015).

Figure 3.12: Difficulty to come up with emergency funds, male and female population (15+), 2014



Source: Global Findex 2014 (Demirguc-Kunt et al. 2015).

Figure 3.13: Financial inclusion, Kenya and regional comparison, 2014



Source: Global Findex 2014 (Demirguc-Kunt et al. 2015).

3.2.5 Policies to reduce gender gaps in endowments

This section lays out possible policy levers to reduce gender gaps in endowments. Given the cross-sectoral nature of the analysis, this naturally cannot be exhaustive. Moreover, most gender gaps do not have instant solutions but require fundamental changes in social norms about women's and men's roles and abilities. The objective of the section is hence rather modest – to reflect on the previous analysis from a policy perspective and to bring in additional empirical evidence on what works to close gender gaps in endowments, especially from the growing impact evaluation literature.

In the education sector, recent data on enrollments and educational performance paint an uneven picture – with girls' and boys' advantages in different parts of the country. Further efforts to improve girls' school enrollment, retention and attainment are still needed in many parts of Kenya, where gender gaps in the education sector continue to favor boys. But at the same time, emerging boys' underachievement, especially in educational performance, also requires attention and should be further analyzed and addressed before the pattern becomes deeply entrenched (building, for example, on experiences in Caribbean countries, which have experienced similar patterns, see Plummer 2010; USAID 2016).

Several studies from Kenya suggest that programs subsidizing the direct or indirect cost of education can be effective in increasing enrollment and educational performance of boys and girls. Based on a randomized evaluation across 328 public primary schools in Western Kenya, Duflo, Dupas, and Kremer (2015a) show that a program that subsidized the cost of upper primary education by providing free school uniforms significantly reduced school drop outs for boys and girls. Similarly, Kremer, Miguel, and Thornton (2009) and Friedman et al. (2016) find that a merit-based scholarship program targeting adolescent girls in Western Kenya increased academic test scores among girls from treatment schools. The scholarships were awarded to the highest-scoring 15 percent of grade-6 girls in the program schools in each district and included financial grants to cover school fees and supplies and public recognition at an awards ceremony. Interestingly, the scholarship program had positive spillover effects on boys (who were ineligible for the scholarship) and on girls with low pretest scores (who were unlikely to win the scholarship).

Increased secondary school enrollment among adolescent girls may also delay fertility decisions. The education subsidy program highlighted above for its impact on reducing dropouts also reduced teenage pregnancies (Duflo, Dupas, and Kremer 2015a). Similarly, Ozier (2016), using a regression discontinuity approach, shows that secondary school enrolment lowers teenage pregnancies among women.

In health, further initiatives to increase access to and affordability of reproductive health care services are important to reduce maternal mortality, especially in Kenya's arid and semi-arid regions. Examples of such efforts are the recent government-supported "Linda Mama" program providing free maternity services. An evaluation of a pilot program in central Kenya further demonstrates that post-natal follow ups, where community health workers visited or called new mothers three days after delivery and administered a simple checklist, led to earlier utilization of postnatal care and better recognition of potential complications from pregnancy (McConnell et al. 2016). In terms of preventative health products, empirical evidence from multiple developing countries, including Kenya, shows that demand is highly price-sensitive. This suggests that subsidies are a policy option to boost adoption, especially if targeted to women (Meredith et al. 2013). In terms of HIV/AIDS, Duflo, Dupas, and Kremer (2015a) show that the government's HIV curriculum, which emphasizes abstinence until marriage, does not reduce sexually transmitted infections (STIs) (nor teenage pregnancy). A joint program, where the HIV curriculum is combined with the education subsidy highlighted earlier, reduced the prevalence of STIs among girls, but the education subsidy in isolation was more effective in lowering dropouts and teen pregnancies. These results highlight the complexities of individual decision-making around schooling and engagement in different forms of casual versus committed relationships, which each carry different propensities for STI and early pregnancy. Policies targeting any one of these issues should therefore be carefully evaluated for unintended consequences.

Public investments in services for care can reduce time constraints of women. Scaling up care services for children, however, requires innovative approaches, combining public and private sources of funding. IFC (2017) shows examples of employer-provided child care (including case studies of Safaricom and an agroprocessing company in Kenya), and discusses what policies and regulations the public sector can put in place to support private child care provision. Wattanga (2015) discusses an innovative initiative of the Nairobi City County to use social impact bonds to fund 97 new early childhood education centers in poor parts of the city.

Further empirical work would be needed to better understand how different types of public infrastructure provision affect time use and the intra-household allocation of labor. A desktop review from Asia (ADB 2015) argues that improved access to water reduces the time women spend fetching water, but that this often leads to an increase in time spend on other unpaid activities, such as caring for children. Investments in sanitation were found to reduce the

amount of time needed each day to find a place to defecate and reduce the burden of caring for family members who fell sick due to poor sanitation. Access to electricity was found to increase the number of hours women spend on paid work, partly due to an increase in the number of waking hours. Transportation infrastructure reduced travel time for women but also added new time demands. More research along these lines for Kenya and other African countries would be important to understand how infrastructure investments affect women's time constraints and intra-household labor allocation, particularly in rural areas.

A review of Kenya's legal landscape could help to ensure the consistency of various laws on property ownership and inheritance with the progressive principles of Kenya's 2010 constitution. Gender biased legislation, such as the differential treatment of male and female surviving spouses under the Law of Succession Act, should be eliminated. There is evidence from other African countries that land formalization programs promoting joint registration of both spouses can potentially improve outcomes for women and narrow gender gaps (O'Sullivan 2017). Rwanda's land tenure regularization program, for example, which registered married women as co-owners of land by default, significantly improved documentation of informal land rights among married women (Ali, Deininger, and Goldstein 2014). However, at the same time, women who are not legally married saw an erosion of rights, which highlights the complexities of these interventions.

Several recent studies from Western Kenya suggest that savings products with an element of illiquidity and soft commitment can increase women's savings (O'Sullivan 2017). Dupas and Robinson (2013) show that interest-free bank accounts with large withdrawal fees increased savings of female market vendors, while no such effects were observed for male bicycle-taxi drivers. A potential explanation for the high take-up rates of accounts by women – despite (de facto) negative interest rates – is that women face pressures to share their income with family members and friends and use their newly acquired bank accounts to protect their income from such demands. The notion that social pressure to share resources affects women's decisions to save and invest is further supported by two other studies. Jakiela and Ozier (2016) show in a lab experiment that Kenyan women adopt an investment strategy that aims to conceal their initial endowments from relatives, even though this strategy reduces their expected earnings. Schaner (2017) shows that offering ATM cards for newly-opened bank accounts (which increases the liquidity of savings) increased account use (especially the number of transactions) of male- and jointly-owned accounts, but not of female-owned accounts. This is consistent with the idea that women prefer savings instruments with lower levels of liquidity, as this protects their savings from the demands of spouses and other family members. In addition, Dizon, Gong, and Jones (2017) show that accounts with soft commitment can help to increase women's savings. Their study offered "labeled" mobile money (M-PESA) accounts to vulnerable women, who were existing users of M-PESA and already had an account. The initiative encouraged the women to use the "labeled" account for emergency purposes and specific saving goals (to help mental accounting), and sent weekly SMS reminders (nudges) related to their savings goals, but did not affect financial access (since all women already had an existing M-PESA account). The program was found to increase women's mobile money savings, without crowding out other types of savings. It also led to a substitution away from informal-risk sharing arrangements, but did not reduce the women's capacity to manage risks.

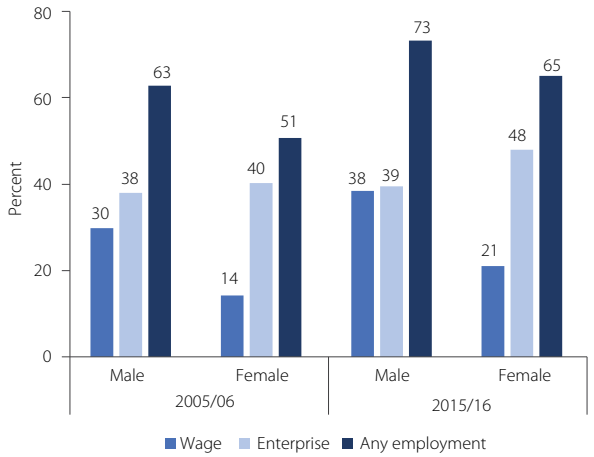
3.3 GENDER INEQUALITY IN ECONOMIC OPPORTUNITIES

This section turns to gender inequality in economic opportunities. It starts with a brief description of trends in male and female labor market indicators over the past decade, and a portrayal of the current situation based on the 2015/6 KIHBS data. The section then reviews gender gaps in three broad segments of the labor market: in wage employment, non-farm household enterprises and in agriculture.

3.3.1 Labor market trends and current situation

There has been a striking increase in male and, particularly, female employment over the past decade. Male employment increased from 63 percent in 2005/6 to 73 percent in 2015/6, while female employment increased from 51 percent to 65 percent over this period (Figure 3.14). For men, this increase was driven by a rise in wage employment, while for women it reflects both rising wage employment and also increasing employment in household enterprises, which here includes both farm and non-farm enterprises.[99]

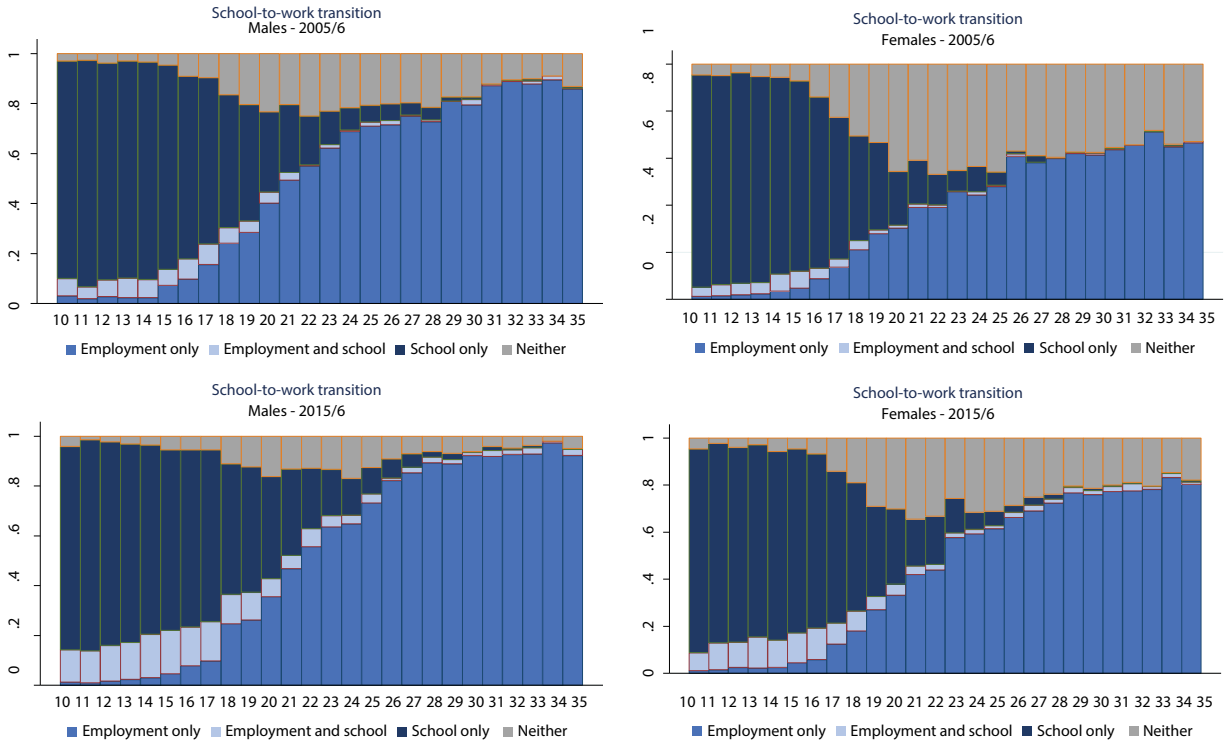
Figure 3.14: Percent of population employed by category, 2005/6 – 2015/6



Source: KIHBS 2005/6 and 2015/6.
Note: Working-age population (15-64 years). Comparable employment definition.

Rising employment has transformed the school-to-work transition of Kenyan youth. There is an increasing number of adolescents, male and female, who are working while still in school. Moreover, the share of the population below the age of 35 who are neither employed nor in school significantly declined between 2005/6 and 2015/6. Nonetheless, young women continue to be significantly more likely than young men to be neither employed nor in school (Figure 3.15).

Figure 3.15: Changes in school-to-work transition, 2005/6-2015/6



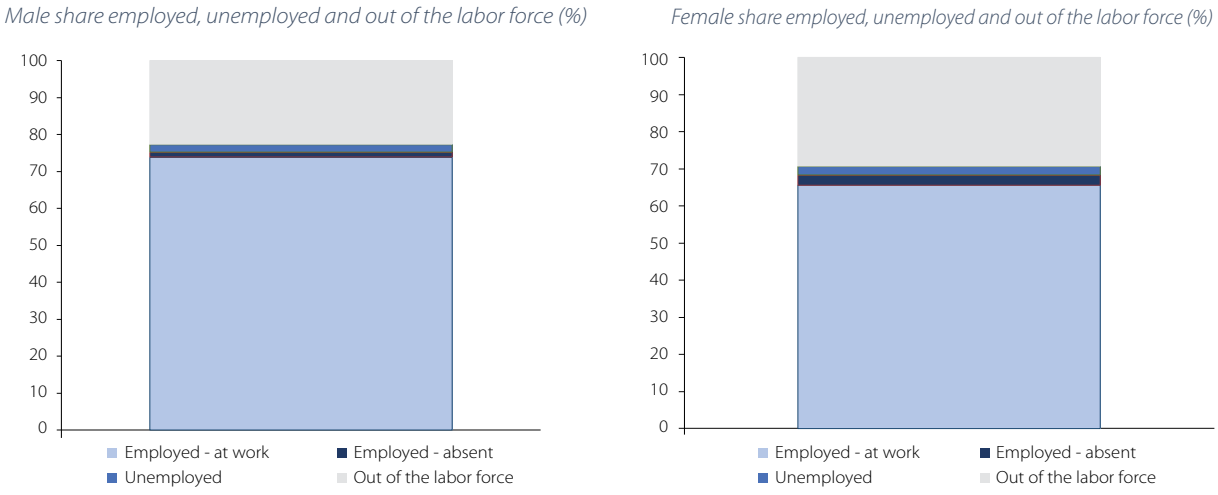
Source: KIHBS 2005/6 and 2015/6.
Note: Comparable employment definition.

[99] See Appendix C2 for a discussion of the comparability of the 2005/6 and 2015/6 KIHBS labor modules. This section uses a definition of employment and labor force participation that is broadly consistent with the labor statistics standards adopted by the 13th International Conference of Labor Statisticians (ICLS) in 1982. The changes adopted by the 19th ICLS in 2013, which reduce the definition of employment to work performed for pay or profit (thus excluding subsistence agriculture) are not yet incorporated in the KIHBS 2015/6 instrument and hence are not considered in this section.

In 2015/6, Kenya had a female labor force participation rate of 71 percent for the core working-age population (15-64 years), compared with a male labor force participation rate of 77 percent (Figure 3.16). The labor force comprises those who are (i) employed and at work, those who are (ii) employed but temporarily absent from work, and those who are (iii) unemployed.[100] In the case of Kenya, both unemployment and temporary absence only account for a small share of the labor force. In terms of regional comparisons, Kenya's female labor force participation rate is higher than the Sub-Saharan African average, but lower than in most other East African countries, except for Uganda (Figure 3.17).

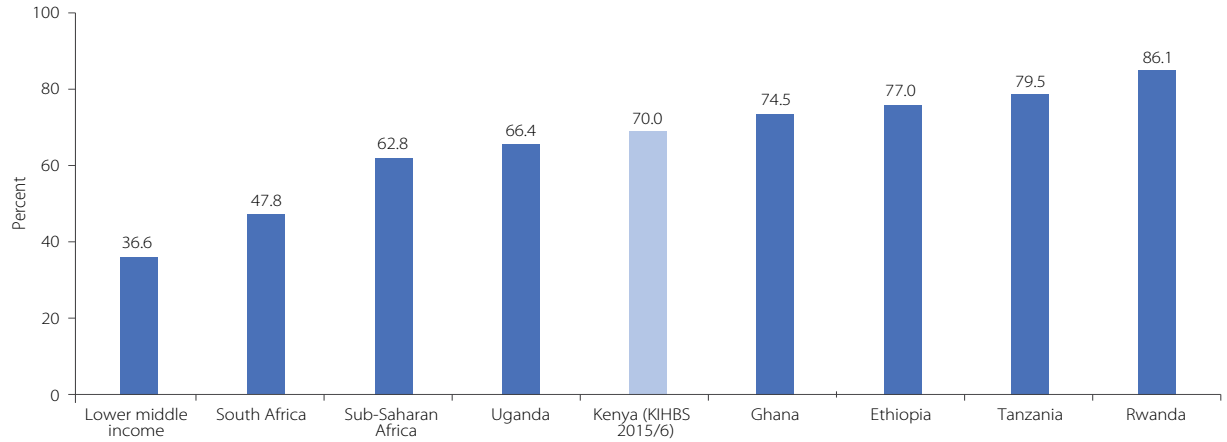
Within Kenya, there are significant regional differences – female labor force participation is high in central and Western Kenya, but much lower in the Northeast. Male labor force participation, though also somewhat lower in the Northeast, varies less. As a result, gender gaps in labor force participation (measured here as the absolute gap, in percentage points) are most pronounced in the Northeast, followed by the coast and the areas bordering Tanzania (Figure 3.18), where women are much less likely than men to participate in the labor force. These areas map closely with Kenya's arid and semi-arid lands, where livestock rearing, particularly of cattle, makes

Figure 3.16: Male and female labor force participation, 2015/6



Source: KIHBS 2015/6.
Note: Working-age population (15-64 years).

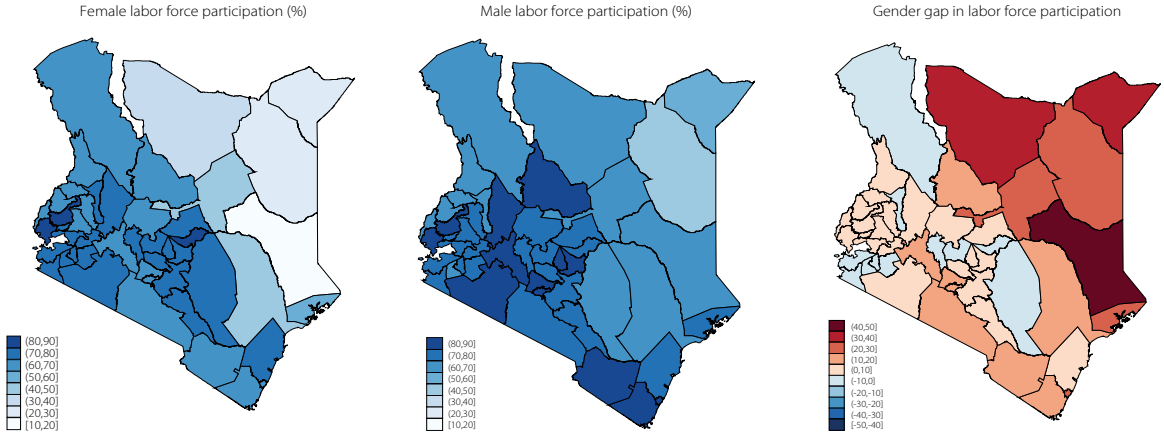
Figure 3.17: Female labor force participation, Kenya and comparators



Source: KIHBS 2015/6 and World Bank 2017b.
Note: Population aged 15+.

[100] To be counted as unemployed, a person must meet the following three criteria: (i) not be presently employed, (ii) available to work and (iii) actively looking for a job (see Appendix C2).

Figure 3.18: Geographic variation in male and female labor force participation, 2015/6

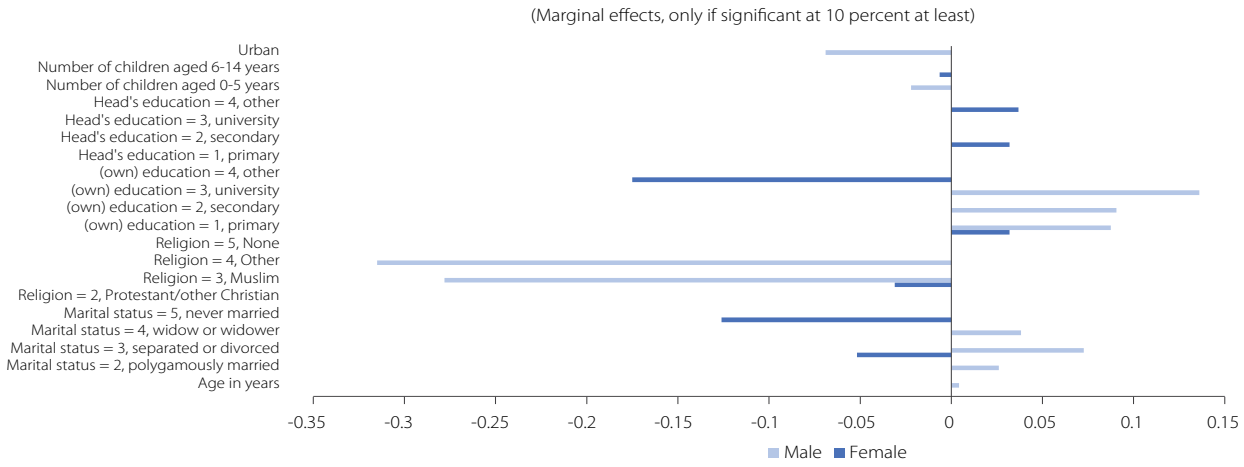


Source: KIHBS 2015/6.
Note: Population aged 15-64. The gender gap is defined as the absolute difference between male and female labor force participation rates, a value greater (lower) than zero indicates higher (lower) male labor force participation.

an important contribution to local livelihoods. On the other hand, male and female labor force participation rates are similar in most parts of Central and Western Kenya.

Multivariate analysis points to the salience of religious norms, education, marital status and the presence of young children for women's participation in the labor force. Following Klasen and Pieters (2015) we estimate the probability of being in the labor force for men and women conditional on different socio-demographic variables. The results are summarized in Figure 3.19 (marginal effects significant at 10 percent at least) – the complete set of coefficients is reported in Table C.1, Appendix C.4. Among women, being of Muslim or another non-Christian religion reduces the probability of participating in the labor force by about 30 percent (relative to being Catholic). Women who are widowed, separated/divorced or polygamously married are significantly more likely to participate in the labor force than women who are monogamously married (or living together). Every child aged 0-5 years reduces a woman's probability to be in the labor force by over 2 percent. Living in urban areas reduces a woman's likelihood to be in the labor force by another 7 percent, perhaps a reflection of greater difficulties in combining child care with labor market activity in urban areas, where most economic opportunities are outside of agriculture. On the other hand, education, even at the primary level, increases a woman's probability to participate in the

Figure 3.19: Correlates of male and female labor force participation, 2015/6

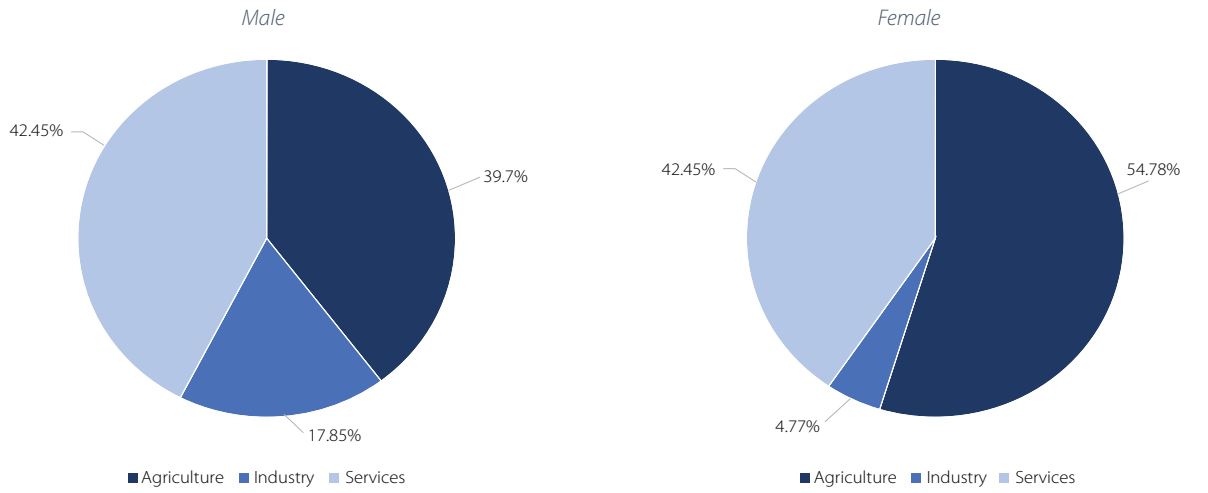


Source: KIHBS 2015/6.
Note: Marginal effects after probit estimation (see Table C.1, Appendix C.4). The figure only shows marginal effects significant at the 10 percent level at the minimum. Reference categories as follows: Head's/own education – no schooling; Religion – Catholic; Marital status – monogamously married.

labor force. Interestingly, we do not find any effects on women's labor force participation of the level of education of the household head, suggesting that income effects are not very important. Religious norms, education and the presence of children are much less important factors for labor force participation of men. Marital status plays a role, with men who are separated/divorced or have never been married being significantly less likely to participate in the labor force relative to monogamously married men (essentially the opposite pattern as was found for women). These results are consistent with traditional norms of married men being the main breadwinner for their families.

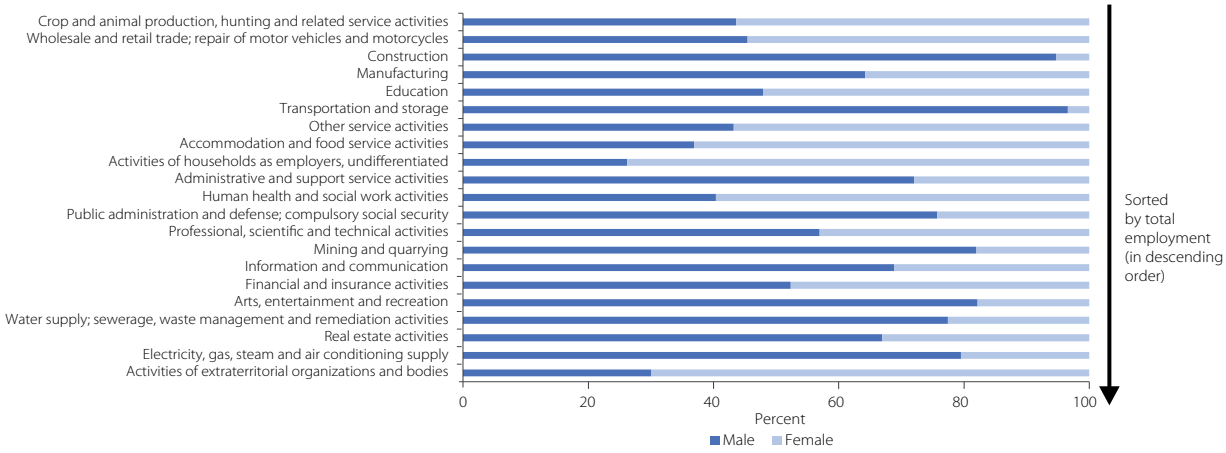
Male and female employment in Kenya shows the traditional patterns of sectoral segregation. Women are disproportionately employed in agriculture and services, while men have a higher share of employment in the industrial sector (Figure 3.20). Further analysis at the detailed industry level shows large differences across sectors in the female intensity of employment (Figure 3.21). The highest female intensities of employment are found in the sectors "activities of household as employers" (i.e. domestic personnel), "accommodation and food services" (i.e. the hotel and restaurant industry) and "human health and social work". On the other side of the spectrum, the lowest female intensities are found in "transportation and storage", "construction", and "mining and quarrying".

Figure 3.20: Male and female employment by broad sector, 2015/6



Source: KIHBS 2015/6.

Figure 3.21: Share of male/female employment by detailed sector, 2015/6



Source: KIHBS 2015/6.

3.3.2 Wage employment

Far fewer women than men are in wage employment. Of the total employed population, almost 50 percent of men are paid employees (denoted in this section as wage earners) in their primary job, compared with only 30 percent of women. On the other hand, more women than men work as own-account or contributing family workers (Table 3.2).[101]

There are large gender gaps in monthly earnings among wage earners, with mean wages/salaries being 30 percent higher for men than for women. These gender gaps are even larger at the bottom of the earnings distribution (and up to the median), where men earn about 50 percent more than women (Table 3.3).

Table 3.3: Male and female monthly earnings, in current Ksh, and male-to-female ratio, 2015/6

	Male	Female	Ratio male-to-female
Mean	18,276	14,075	1.30
10th percentile	3,000	2,000	1.50
Median	10,000	6,500	1.54
90th percentile	43,300	35,000	1.24

Source: KIHBS 2015/6.
Note: Unconditional earnings (cash and in-kind) of wage earners. Not normalized for working hours.

Differences in characteristics between male and female wage earners – in terms of age, education, usual number of working hours, industry, occupation and urban-rural location – explain about half of the gender gap in monthly earnings. We use the Oaxaca-Blinder decomposition to disaggregate the gender difference in average monthly earnings into an endowment effect (reflecting differences in characteristics between male and female wage workers), a coefficient effect (reflecting differences in returns to these characteristics) and an interaction between the endowment and coefficient effects.[102] As shown in Table C.2, Appendix C.4, the average difference between log earnings of male and female employees in the regression is 0.37, which corresponds to about 45 percent higher wages for male wage workers (consistent with Table 3.3 above).[103] The endowment effect explains about 43 percent of this difference, while 65 percent are explained by the coefficient effect. In addition, there is a negative interaction effect, of -8 percent.

Exploring the endowment effect in detail shows that the largest advantage of male wage workers is their overrepresentation in industries with relatively high wage premiums (Table C.3, Appendix C.4). In addition, males wage workers benefit from being, on average,

Table 3.2: Male and female wage employment by employment status, 2015/6

Population aged 15-64 years, primary job	Male	Female	Total
Paid employee (outside household)	47.7	27.4	37.9
Paid employee (within household)	2.2	2.3	2.2
Working employer	1.1	0.7	0.9
Own-account worker	35.9	51.7	43.5
Member of producer cooperative	0.1	0.1	0.1
Contributing family worker	11.3	16.1	13.6
Apprentice	0.7	0.9	0.8
Volunteer	0.4	0.3	0.3
Other (specify)	0.7	0.6	0.6
Total	100	100	100

Source: KIHBS 2015/6.
Note: Column percentages.

[101] While the KIHBS makes a distinction between own-account and contributing family workers, the criteria to distinguish between these types of workers in the context of small, family-run enterprises are often not clearly defined (Beegle and Gaddis 2017).

[102] The decomposition is implemented in Stata using the oaxaca command with survey settings and default options (see Jann 2008).

[103] Since the dependent variable is log-transformed, we follow Halvorsen and Palmquist (1980) in calculating the percentage difference in earnings as (exp(0.37)-1)*100=44.8

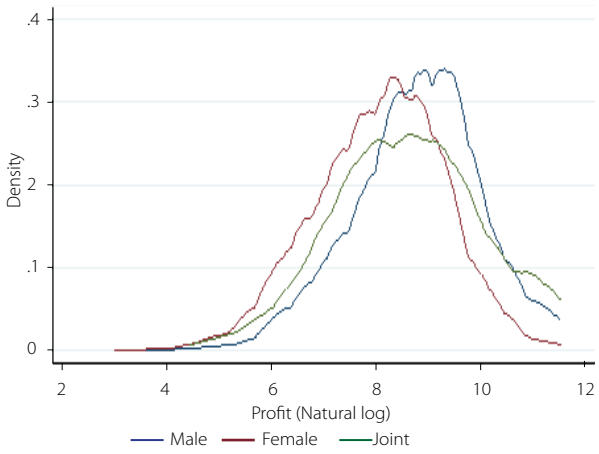
slightly older than female wage workers, (35 years vs. 33 years) and working longer hours per week (52 vs. 46 hours). Female wage workers, on the other hand, benefit from having slightly higher levels of education and being overrepresented in occupations with higher wage premiums. These two effects, however, are just at the margin of statistical significance and cannot compensate the other endowment advantages of male workers.

The sizable coefficient effect suggests that men also benefit from more favorable returns to characteristics – but further disaggregation of this effect does not yield additional insights. First, apart from age (where women benefit from greater returns to experience), none of the disaggregated coefficient effects is statistically significant in isolation. Second, most of the male advantage in the overall structural effect reflects differences in the regression intercept for male and female wage workers, which potentially captures gender-based discrimination in the labor market, but also unobservable factors, and is therefore difficult to interpret (Table C.4, Appendix C.4).

3.3.3 Non-farm household enterprises

Gender gaps in earnings carry over to the non-farm household enterprise sector, with average profits of male-run household enterprises being about twice as high as profits of female-run enterprises. Jointly run enterprises come out in-between (Figure 3.22).[104] The unconditional gender gap is similar in magnitude to what is reported in Hallward-Driemeier (2013) based on an analysis of household enterprise modules for 19 Sub-Saharan African countries.

Figure 3.22: Profits of male-, female- and jointly-run household enterprises, 2015/6



Source: KIHBS 2015/6.
Note: Monthly profits (winsorized) in current Ksh (figure shows natural log).

Compared with male-run enterprises, female-run household enterprises are less likely to be in industry, less likely to be formally registered and tend to employ fewer paid non-household workers. They are also less likely to be in urban areas and are more concentrated in poor households (Table 3.4).[105]

Table 3.4: Descriptive differences between male- and female-run household enterprises, 2015/6

	Male-run	Female-run
By sector (%)		
Agriculture	2.0	1.9
Industry	15.2	9.6
Services	82.8	88.5
Share registered (%)	15.3	9.2
Labor input		
Average number of household or unpaid workers	1.2	1.1
Average number of paid non-household workers	0.4	0.1
Share in urban areas (%)	51.5	45.4
Share in poor households (%)	15.2	20.0

Source: KIHBS 2015/6.

[104] See Appendix C3 for details on the classification of enterprises as male-female or jointly run.

[105] The KIHBS 2015/6 data only collect very limited information at the enterprise-level – i.e. its sector, whether the enterprise is registered with the Registrar of Companies, and male and female labor inputs. For this reason, we do not perform a full decomposition analysis in this section.

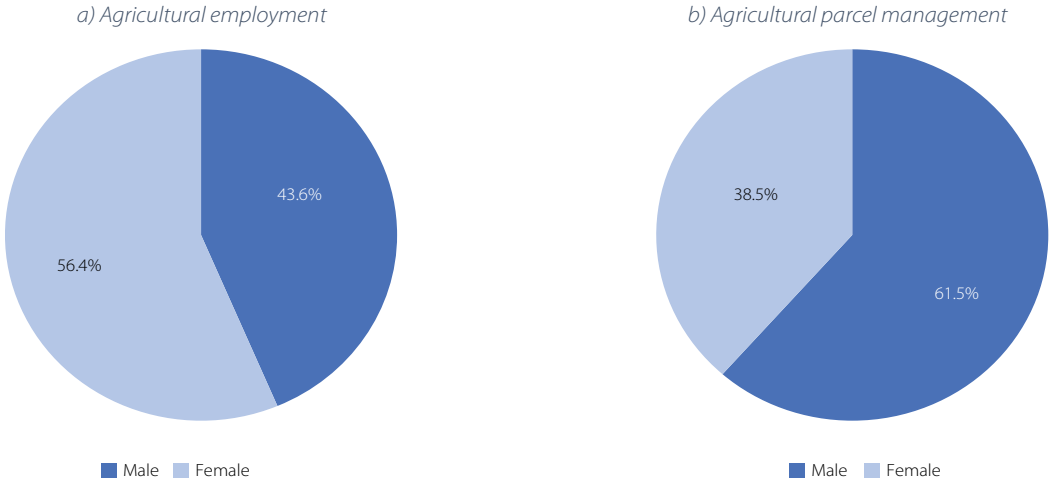
Differences in profits between male- and female-run household enterprises do not, however, primarily reflect differences in the distribution of enterprises across sectors, formal registration, labor input or urban-rural location. Regressing log profits on a dummy variable that captures whether the enterprise is female-run shows that profits of female-run enterprises are about 52 percent lower than those of male-run enterprises (i.e. a coefficient of -0.73, see Table C.5, column 1, Appendix C.4). Controlling for enterprise characteristics (sector, urban, registration and labor input) reduces this to 43 percent lower profits for female-run enterprises (i.e. a coefficient of -0.57, see Table C.5, column 3, Appendix C.4). In other words, even after controlling for these differences in characteristics, female-run enterprises achieve much lower profits than male-run enterprises.[106] Unfortunately, the KIHBS data do not make it possible to investigate the role of other key enterprise characteristics, such as capital intensity or access to finance, that are often found to contribute to performance gaps between male and female entrepreneurs (Hallward-Driemeier 2013).

3.3.4 Agriculture

Even though women make up 56 percent of the total population employed in agriculture, they are the primary decision maker on only 39 percent of agricultural plots (Figure 3.23). This reflects, to some degree, gender differences in land ownership documented in section 3.2.4, though land ownership and land use rights do not necessarily fall together (Slavchevska et al. 2017; Doss, Kieran, and Kilic 2017; Gaddis, Lahoti, and Li 2018).

There are significant differences in input use and cropping choices between male and female farmers (Table 3.5). Parcels managed by men are larger, more likely to be irrigated and more likely to use fertilizer than parcels managed by women. Likewise, households where the primary decision-maker in agriculture is male spend significantly more on labor and non-labor inputs than households where the primary decision-maker is female.[107] Interestingly, female primary decision-makers appear to be more diversified, cultivating a slightly larger number of crops. This is, however, entirely driven by a

Figure 3.23: Gender differences in agricultural employment vs. parcel management, 2015/6



Source: KIHBS 2015/6.
Note: Agricultural employment shows the male-female composition of the total population employed in agriculture. Parcel management shows the male-female composition of the primary decision-makers (regarding input use and cropping activities) on agricultural parcels.

[106] In this respect, the Kenyan results differ from those reported in Hallward-Driemeier (2013) for 19 Sub-Saharan African countries, where controlling for whether the enterprise is registered reduced the gender gap by about half.

[107] The KIHBS 2015/6 asks for each parcel which household member makes decision on input use and cropping activities and this is used to determine the primary-decision maker. However, many inputs are collected at the household- (e.g. labor and non-labor input cost) or crop-level (i.e. use of improved seeds). To analyze gender differences, we distinguish between household where the primary decision-maker is male vs. female based on the share of the household's agricultural land that is being managed by male vs female household members.

Table 3.5: Descriptive differences in input use between male and female decision-makers in agriculture, 2015/6

	Parcel-level			Household-level		
	Male decision-maker	Female decision-maker	Significance level of gender gap	Male decision-maker	Female decision-maker	Significance level of gender gap
Land size (ha)	0.58	0.49	***	0.80	0.66	***
Share irrigated	0.06	0.04	***	0.08	0.05	***
Share using inorganic fertilizer	0.62	0.58	***	0.65	0.60	***
Total input cost (KSh/year)		n.a.		9,337	6,291	***
Total labor cost (KSh/year)		n.a.		5,256	4,014	***
Number of cash crops		n.a.		0.43	0.33	***
Number of food crops		n.a.		1.95	2.23	***
Total number of crops		n.a.		2.39	2.55	***

Source: KIHBS 2015/6.
*Note: *** denotes p<0.01*

greater number of food crops, as households having a man as the primary decision-maker cultivate more cash crops. Overall, these results are consistent with World Bank (2013a), which provides a more in-depth analysis of gender differences in agriculture using data collected under the Kenya Agricultural Productivity and Agribusiness Project.

Households where the primary decision-maker in agriculture is female achieve, on average, yields that are 15 percent lower for maize and 8 percent lower for beans than households where the primary-decision maker is male. Maize and beans are the two most common food crops. Decomposing these gender differences in yields using the Oaxaca-Blinder decomposition method (as described in section 3.3.2) and a regression model similar to the one used in chapter 4 on agriculture, shows that gender differences in endowments (especially household size, as a proxy for household labor availability, use of certified seeds, and spending on non-labor inputs) explain more than 70 percent of the gap in maize yields, but only about 20 percent of the gap in beans yields.[108]

Gender differences also emerge with respect to trading channels, decision-making power over crop income and the use of agricultural extension services. As highlighted in World Bank (2013a), households where men are the primary farmers are more likely to trade through small/large traders and millers, while households where women are the primary farmers are more likely to sell through consumers, neighbors and cooperatives. Also, a greater proportion of women (22 percent) than men (7 percent) reported that their spouse kept the revenue from crop sales (dried maize), even in cases where women were managing the production of the crop. The study further showed that female farmers are less likely than male farmers to seek advice from extension service providers.

3.3.5 *Policies to reduce gender gaps in economic opportunities*

The preceding analysis has shown that Kenyan women's decision to participate in the labor force is strongly influenced by cultural and religious norms and there is some evidence that gender norms can be transformed through programs targeting young adolescents (e.g. Lundgren et al. 2013 for Nepal). However, more rigorous empirical evidence is needed to understand if such programs work in conservative, traditional societies, like Northeastern Kenya, where gender gaps in labor force participation are most prominent. An ongoing evaluation by the Africa Gender Innovation Lab of the CHOICES program in Somalia (P165258) will provide further insights in a culturally similar context.[109]

[108] The fact that the KIHBS data do not allow assigning household-level inputs to specific crops may also play role in explaining the difference in results for maize and beans.

[109] This is a program designed to transform attitudes and behaviors of very young adolescent girls and boys aged 10-14 years towards greater gender equality, which are perceived as markers of future labor market decisions.

Social protection programs need to pay attention to the specific vulnerabilities of women who went through a marital dissolution, especially if they are also caring for children. As shown in this section, female labor force participation is strongly linked to marital status and the number young of children living in the household. Moreover, section 3.1 showed that women who went through a marital dissolution (divorce, death of their spouse) are significantly poorer than their male counterparts. The results also reinforce the need to invest in care services to allow women with children to participate in the labor force.

While patterns of sectoral segregation are highly persistent, a few studies suggest that information interventions and, possibly, mentoring programs hold promise. Findings from an evaluation in Western Kenya of the national vocational training program show that information interventions, which emphasize the discrepancies in expected earnings for graduates of traditionally male-dominated trades (e.g. mechanic) vs. female dominated trades (e.g. seamstress) can encourage women to enroll in male-dominated professions (Hicks *et al.* 2016). A study from Uganda of female entrepreneurs who managed to succeed in male-dominated sectors highlights further the importance of mentoring relationships and role models (Campos *et al.* 2015).

Technological change has the potential to disrupt traditional patterns of sectoral segregation. New business models, such as Uber and other ride-hailing services, can open up opportunities for women in traditionally male-dominated sectors like transportation (IFC 2018). Ongoing World Bank activities explore options to increase women's participation in Science, Technology, Engineering and Mathematics (STEM) occupations and may provide additional guidance over the lifespan of this assessment. Specifically, the project "Women in STEM – Infrastructure" (P166990) seeks to collate practical strategies on the recruitment, retention and promotion of women in STEM occupations, specifically in infrastructure sectors, and to develop a compendium of good practices for project teams. Moreover, the Africa Gender Innovation Lab is evaluating the effectiveness of coding boot camps with a focus on gender under the Kenya Industry and Entrepreneurship Project (KIEP, P161317). A recent gender assessment of the oil and gas sector in Kenya provides additional recommendations tailored to extractive industries, where women's participation has traditionally been low (Cardno 2018).

Business training programs hold some promise to enhance the performance of female-run household enterprises, though more rigorous empirical evidence would be needed to support the effectiveness of a specific curriculum. Reviews of business training programs in developing countries have found that, in general, the effectiveness of trainings differs across study contexts and curriculums, and is often worse for women than for men (McKenzie and Woodruff 2014). However, a recent evaluation of the International Labour Organization's (ILO's) "Get Ahead" business training program, has found that the program significantly increased the sales and profits of female market vendors three years after the intervention (McKenzie and Puerto 2017). The study, which was conducted in four counties in Western and Eastern Kenya, also did not find any evidence of negative spillover effects on non-treated businesses, as markets as a whole appear to have grown in terms of customers and sales volumes as a result of the intervention.

Empirical evidence from across Africa suggests that providing access to formal savings products is a promising approach to improve labor market outcomes of women (Campos and Gassier 2017). In the Kenyan context, Suri and Jack (2016) show that the rollout of the country's mobile money system M-PESA induced women to move out of agriculture into the non-farm enterprise sector, thereby contributing to a reduction in poverty, which was more pronounced among female-headed households. In a similar vein, Dupas and Robinson (2013) find that better access to formal savings products increased productive investments of female entrepreneurs in Western Kenya.

More research is needed on how to reduce gender gaps in agricultural productivity. There is still a lack of empirical evidence on what interventions are effective in closing these gaps. A few studies suggest that programs that strengthen women's property rights over land and tenure security can increase investment and productivity among female farmers (Goldstein and Udry 2008; Ali, Deininger, and Goldstein 2014). In addition, an ongoing research project of the Africa Gender Innovation Lab on agricultural labor constraints of female farmers (P166082) might provide useful information, as studies from other Sub-Saharan African countries have shown consistently that female farmers' lack of access to labor is a key determinant of the gender gap in agricultural productivity (O'Sullivan *et al.* 2014).

3.4 VOICE AND AGENCY

Gender gaps in endowments and economic opportunities are in many cases a reflection of women's lack of agency. Agency is the ability to make decisions about one's own life and act on them to achieve desired outcomes (World Bank 2015a). Differences between men and women's ability to make these choices, usually to the detriment of women, exist in all countries and cultures. This section zooms in on two expressions of agency –women's mobility and their freedom from gender-based violence (Klugman et al. 2014).

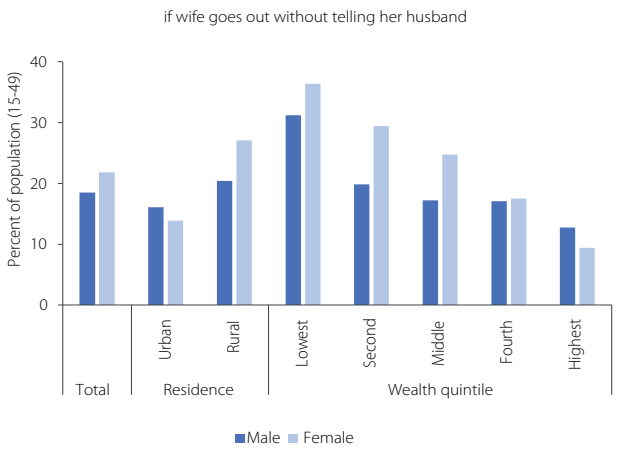
3.4.1 Women's mobility

Social norms for acceptable behavior often constrain women's physical mobility, i.e. their ability to move freely beyond the household. In 2014, 22 percent of Kenyan women and 19 percent of Kenyan men agreed with the statement that a husband is justified in hitting or beating his wife if she goes out without telling him. Acceptance of social norms that limit women's mobility is strongly linked to poverty, with 36 (31) percent of Kenyan women (men) in the poorest quintile agreeing with the above statement, compared with 9 (13) percent in the wealthiest quintile (Figure 3.24a). Yet, social norms are changing rapidly, as the share of the population who agreed with the above statement fell by about half between 2003 and 2014 (DHS 2018). Kenyans are also less likely to agree with the above statement than the population in most other African countries (Figure 3.24b).

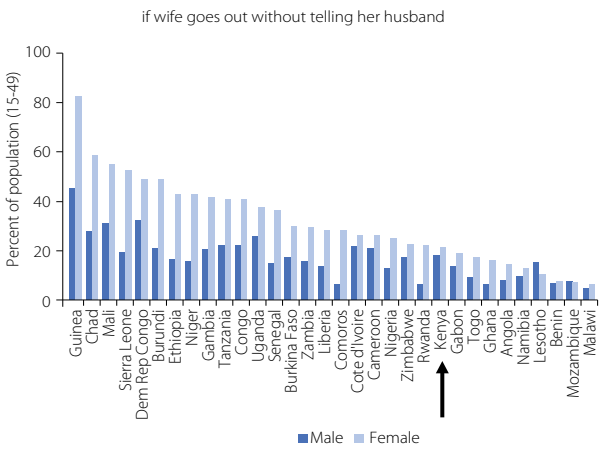
Constraints on women's physical mobility curb their labor market opportunities and life choices. They not only directly affect women's preferences for seeking employment outside the home, but also limit women's access to education, markets, banks and social networks and thus affect labor market behavior indirectly (Chakravarty, Das, and Vaillant 2017). Salon and Gulyani (2010), using data collected in informal settlements in Nairobi in 2004, show that working women are less

Figure 3.24: Acceptance of norms that constrain women's physical mobility

a) Share of women/men accepting wife beating by residence and quintile, 2014



b) Share of women/men accepting wife beating, Kenya and comparators



Source: KDHS 2014 (KNBS et al. 2015) and DHS STATcompiler (DHS 2018).
Note: Population aged 15-49 years.

likely to travel outside their home settlement for work and, if they do commute, they are less likely than men to use motorized transportation. Mobility constraints can also further increase the time women spend on domestic tasks and hence contribute to time poverty. For example, some communities visited for the 2005 PPA reported that it was "inappropriate" for women to use bicycles or wheelbarrows for fetching water.

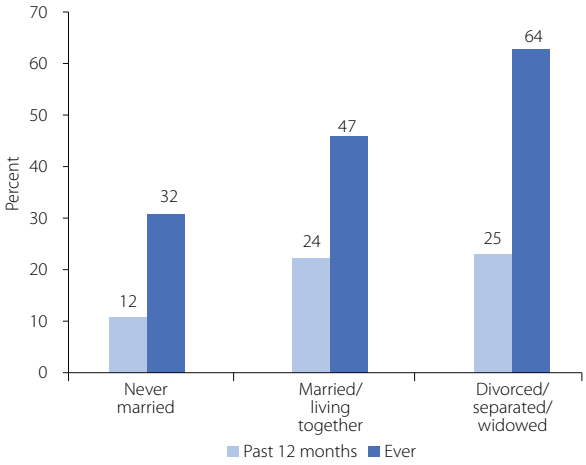
3.4.2 Gender-based violence

In 2014, 45 percent of women aged 15-49 years reported having (ever) experienced physical violence, while nearly half of all ever-married women experienced at least one form of intimate partner violence (IPV, i.e. emotional, physical, or sexual IPV).[110] Gender-based violence is a serious violation of women's voice and agency and can lead to reduced mobility, less access to economic opportunities and long-term physical and mental health issues – for the women themselves, but also their children.

Women who have ever been married, and especially those who have gone through a marital dissolution, are more likely to have experienced physical violence than women who have never been married – which reflects that violence is often perpetrated by current or former spouses (Figure 3.25). In addition, there is strong regional variation – with the highest rates of physical violence being reported in Nyanza, Nairobi and Western regions.

Multivariate analysis shows that the risk of a woman experiencing (physical) IPV is linked to her age at marriage, whether she remarried and her employment status – though her partner's characteristics play an important role as well. Women who marry older than 25 years are less likely to experience IPV, compared to those married younger than 15 years, which highlights the importance of eliminating child marriages. Women who have been in more than one union have about four times the odds of IPV compared with women who have been in just one union, which shows again the vulnerable position of women who underwent a marital dissolution. Women who are employed for cash are twice as likely to experience IPV than women who are not working. In terms of her partner's characteristics, the risk of a women experiencing IPV declines with the education level of her spouse, but increases if her spouse has a history of alcohol abuse. Perhaps surprisingly, women's education does not have a significant association with the experience of IPV. However, there is evidence from other studies that education may positively affect women's attitudes towards domestic violence. For example, the evaluation of a merit-based scholarship program targeting adolescent girls (discussed in section 3.2.1) found that the program led adolescent girls to reject the legitimacy of domestic violence (Friedman et al. 2016).

Figure 3.25: Share of women (15-49) who experienced physical violence by marital status, 2014



Source: Zumbyte 2018 based on KDHS 2014.

[110] This section draws on Zumbyte (2018). It reports standardized measure of gender-based violence (see KNBS *et al.* 2015 for details). The reported incidence of physical violence declined from 47 percent in 2003 to 39 percent in 2008/9, and then increased to 45 percent in 2014 (DHS 2018). This uneven trend, which may partly reflect reporting behavior, merits further investigation.

CHAPTER 4

AGRICULTURE AND RURAL POVERTY

SUMMARY

Rural Kenyan households experienced a remarkable decline in poverty over the last decade, independent of their source of income. The proportion of the rural population living below the national poverty line declined from 50.5 percent (14.3 million people) in 2005/06 to 38.8 percent (12.6 million) in 2015/16. Households with diversified income from both agricultural and non-agricultural sources accounted for most of the poverty reduction, followed by agriculture and non-agricultural households.

Improved infrastructure, including mobile network access, has raised the welfare of rural households, particularly of those with diversified income. In recent years, mobile network coverage improved substantially in rural areas, enhancing the efficiency of labor and agricultural markets. Improved coverage made it possible for mobile networks to not only serve as a communication tool but also constitute a platform for service delivery in rural areas. This has especially benefited households that rely on both agricultural and non-agricultural income, suggesting that off-farm diversification has been important for poverty alleviation efforts in Kenya over the last decade.

Although productivity growth in the production of many crops has been stagnant, increased agricultural productivity remains a potential pathway out of poverty for many households. Little progress has been made in terms of raising productivity in the agriculture sector, especially concerning the production of maize, Kenya's main food staple, and commercial crops such as coffee. Increased efficiency in the production of beans appears to be the only exception. As a result, agricultural productivity has not been contributing to poverty reduction in rural Kenya, a marked difference from the experience of other countries in the region such as Ethiopia. Nevertheless, more productive farmers are less likely to be poor in Kenya. This correlation between farm productivity and poverty constitutes promising evidence that an improvement in agricultural yields could lead to a reduction of poverty.

Agricultural commercialization has helped to improve the livelihoods of Kenya's farmers. Between 2005/06 and 2015/16, the country's level of agricultural commercialization increased, and agricultural households sold a higher share of their production. Given that agricultural yields have been stagnant, better access to markets, as a result of infrastructure investments and better access to information and communication technologies, is the likely cause for higher levels of commercialization in the sector. Since farmers that sell a higher share of their products exhibit a lower incidence of poverty, agricultural commercialization is likely having a positive contribution to poverty reduction in Kenya.

High commodity prices and increased productivity in the production of bean crops have also contributed to an improvement in the welfare of agricultural households. Many Kenyan farmers have shifted to bean production in recent years, as the country benefited from favorable bean and maize prices in 2011-16. Data suggest that farmers that shifted to bean production were less likely to be classified as poor. However, the increase in crop prices is generally beneficial for Kenya's net-selling farmers at the expense of the urban poor, as poor urban households spend a large share of their income on food and are therefore sensitive to rising food prices. This may have contributed to the large divergence in poverty reduction between urban and rural areas.

4.1 THE DECLINE IN RURAL POVERTY HAS BEEN THE MAIN DRIVER OF POVERTY REDUCTION NATIONALLY

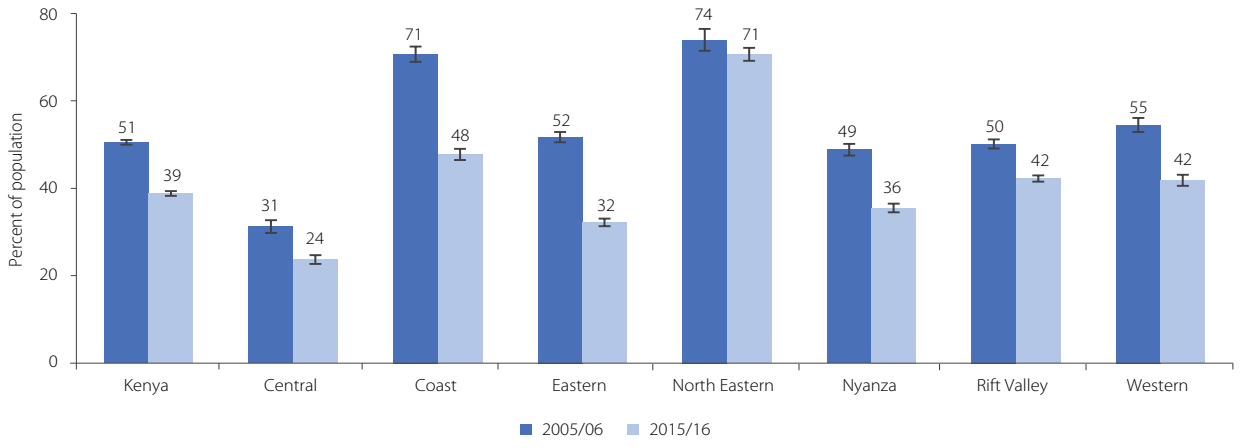
Rural poverty alleviation has been driving Kenya's overall progress in reducing poverty over the last decade. The country's national poverty rate declined from 46.6 percent in 2005/06 to 36.1 percent in 2015/16, driven by a substantial decline in rural poverty, from 50.5 percent to 38.8 percent in the same period (Figure 4.1). By contrast, urban poverty declined by only 2.7 percentage points, from 32.1 percent in 2005/06 to 29.4 percent in 2015/16.

While rural poverty has declined across Kenya, the rate of poverty reduction has varied significantly across provinces. Rural poverty headcount rates varied substantially across provinces in 2005/06, from 31 percent in Central to 74 percent in North Eastern (Figure 4.1). Between 2005/06 and 2015/16, the rate of poverty reduction ranged from 23 percentage points in Coast to statistically non-significant 3 percentage points in North Eastern, which remained the province with the highest rural poverty rate at 71 percent in 2015/16. By contrast, Central had the lowest poverty rate at 24 percent in the same period, followed by Eastern at 32 percent and Nyanza at 36 percent. Although Eastern and Nyanza still suffer from poverty levels above the 2005/06 average, they reduced their poverty rates by an impressive 20 percentage points and 13 percentage points, respectively, between 2005/06 and 2015/16.

The large drop in rural poverty along with a stagnating urban poverty rate cannot solely explained by rural-urban migration. The migration of large numbers of poor rural households to urban areas can lead to a decline in rural poverty without an actual improvement in livelihoods. Moreover, an inflow of poor households to urban areas can raise the urban poverty rate. However, while the share of Kenya's population living in rural areas declined by 8 percent between 2005/06 and 2015/16, households that migrated to urban areas were not from the bottom part of the distribution, as will be further explored in the Chapter 5. As a result, factors other than migration must explain the country's progress in reducing rural poverty.

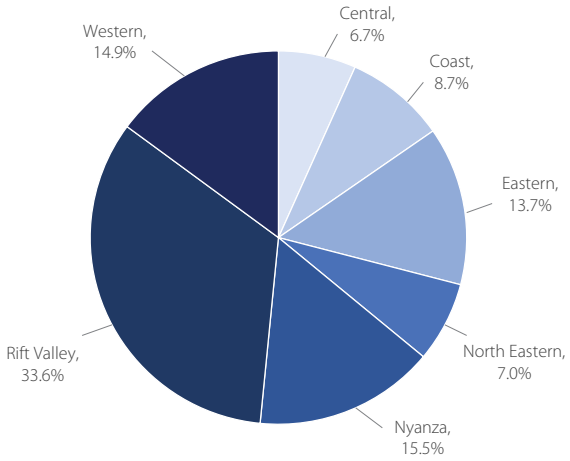
Some provinces with low rural poverty rates still constitute a large proportion of the rural poor population due to their large population size. For example, while the Rift Valley does not have the highest rate of rural poverty, due to its large land size and relatively dense population, the province accounts for a third of the rural poor population (Figure 4.2). Similarly, a considerable share of the rural poor reside in the Eastern, Western and Nyanza provinces. These three provinces, along with Rift Valley, account for almost 78 percent of the rural poor population in Kenya.

Figure 4.1: Rural poverty headcount and its decline by province



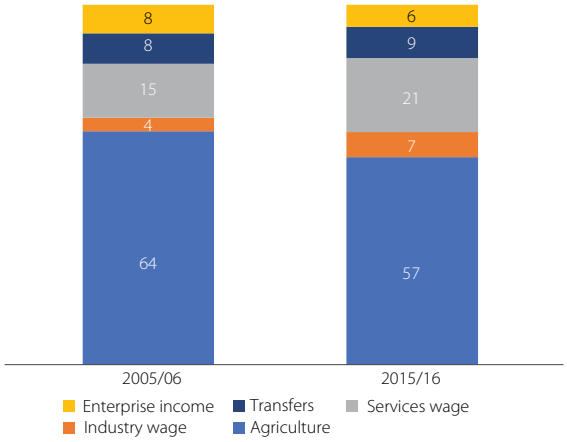
Source: Authors' calculation using KIHBS 2005/06 and KIHBS 2015/16.

Figure 4.2: Geographic distribution of the rural poor in Kenya



Source: Authors' calculation using KIHBS 2015/16.

Figure 4.3: Share of income from agriculture and non-agricultural sources in rural Kenya



Source: Authors' calculation using KIHBS 2005/06 and KIHBS 2015/16.
Note: Agriculture income includes return from crop, livestock, and agriculture wage incomes.

On the other hand, the Central and Northeastern provinces each account for only 7 percent of the total rural poor population. Despite the prevalence of a high poverty headcount in Northeastern, the province accounts for only a small share of the total rural poor in the county as it is sparsely populated (Figure 4.3). The Central and Coast provinces have small rural populations and the former also has a relatively lower poverty rate. As a result, they account for only a small fraction of Kenya's rural poor population.

4.2 DIVERSIFYING AWAY FROM AGRICULTURE IMPROVES LIVELIHOODS

While agriculture remains the main source of income for rural households, the share of income from non-agricultural employment has increased significantly in the last decade. As a share of agricultural household income in rural areas, income from crops and livestock as well as wages declined from 64 percent in 2005/06 to 57 percent in 2015/16 (Figure 4.3). Wage income from service employment is the second most important source of income in rural areas, increasing from 15 percent of rural household income in 2005/06 to 21 percent in 2015/16, whereas the share of wage income in industry increased by a mere 3 percentage points in the same period. The share of rural household income from non-farm enterprises and transfers has remained at basically the same level since 2005/06.

Although poverty declined among all rural households, independent of their income source, the rise in welfare among households with diversified incomes contributed the most to poverty reduction. Kenya's rural poverty reduction of 11.7 percentage points between 2005/06 and 2015/16 was mainly driven by households that continued to derive their income from just one source (either agriculture or non-agricultural activities), contributing 10.4 percentage points (Table 4.1). The poverty rate fell by a mere 0.8 percentage points for households that changed their source of income (e.g., from exclusively agricultural income to mixed or non-agricultural income) in the same period. While, the remainder 0.5 percentage point drop in the poverty rate was attributed to the interaction effect, i.e. resulting from, for instance, a population shift into a sector that is greatly contributing to poverty reduction. Among the different groups of income sources, households with diversified incomes—while only representing one-third of the rural population—contributed 40 percent of the 10.4 percentage point decrease in rural poverty in 2006.16, followed by solely agricultural households at 31.4 percent and exclusively non-agricultural households at 17.6 percent.

Table 4.1: Decomposition of poverty by income classification

Headcount rate	2006	50.48
	2016	38.76

Source of income	Pop. share in period 1	Absolute change	Percentage change
Non-agricultural income only	18.2	.2.1	17.6
Agriculture income only	48.0	.3.7	31.4
Mixed: agriculture and non-agriculture income	33.8	.4.7	40.0
Total intra-sectoral effect		.10.4	89.0
Population shift effect		.0.8	6.7
Interaction effect		.0.5	4.4
Change in headcount rate		.11.7	100.0

Note: Agricultural income includes income from wages from agricultural employment, inferred income from the value of crop sales plus the value of own crop consumption, and income from livestock. A household with only agricultural income is defined as having a share of income of more than 90 percent from agriculture. A household with only non-agricultural Income is defined as having a share of income of less than 10 percent from agriculture. Households with incomes in between are defined as mixed.

4.3 NON-AGRICULTURAL EMPLOYMENT IS BECOMING INCREASINGLY IMPORTANT FOR RURAL HOUSEHOLDS

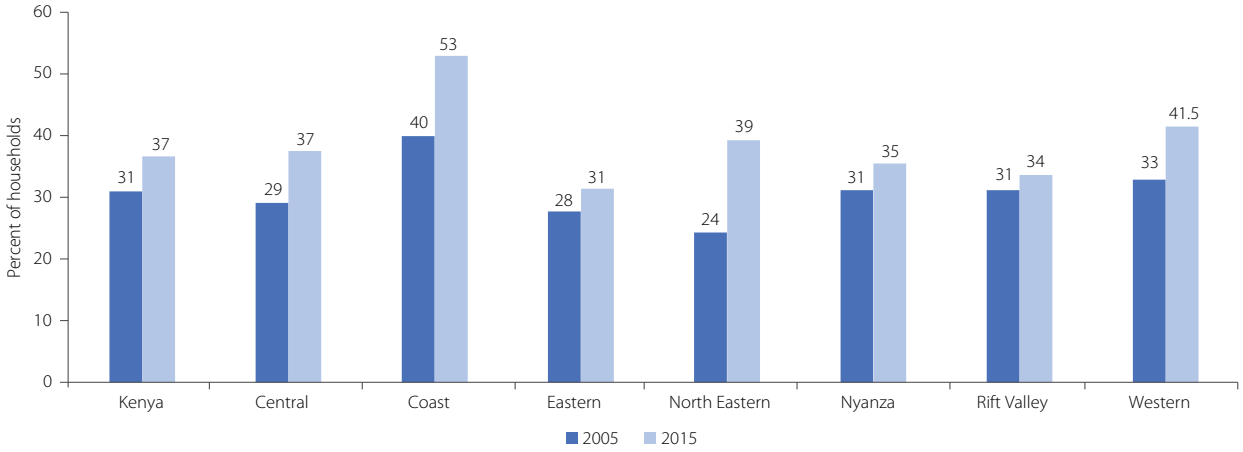
4.3.1 Households are allocating more time to non-agricultural activities

While agriculture remains the primary sector of employment for rural households, labor time allocated to non-agricultural activities increased between 2005/06 and 2015/16. Rural households in all provinces, except for Coast, spent an average of less than 45 percent of their labor time on non-agricultural activities in 2015/16, up from below 40 percent in 2005/06 (Figure 4.4). By contrast, rural households in the province of Coast allocated an average of only 52 percent of their time to non-agricultural activities in 2015/16, up from 40 percent in 2005/06. The increase in labor time spent on non-agricultural activities varied between provinces, from an increase of 4 percentage points in the province of Nyanza to 15 percentage points in the province of Northeastern. Also, there was virtually no change in the allocation of labor time to non-agricultural activities in Nyanza. Compared to 2005/06, fewer households are exclusively agricultural (allocating more than 75 percent of labor to agricultural activities). As a result, the share of rural households' income from non-agricultural sources increased from an average of 35 percent in 2005/06 to 42 percent in 2015/16, with the biggest gains in household income in the provinces of Western (39 percent) and Coast (12 percent).

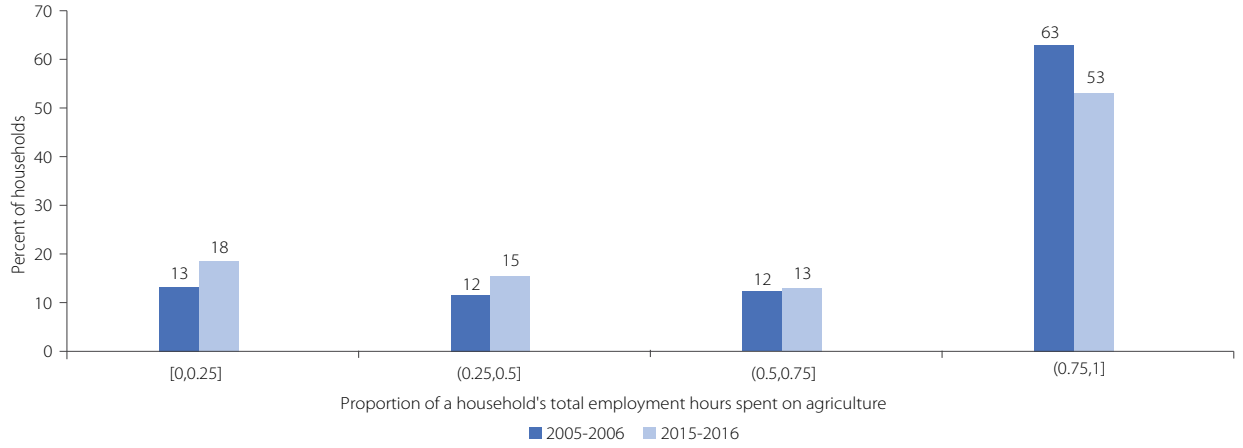
The poverty rate among households that depend solely on agricultural work is higher compared to those engaged in non-agricultural activities. Households engaged in non-agricultural activities on a full-time or part-time basis are less often poor compared to households that focus exclusively on agriculture, a trend that was already visible in 2005/06 but has strengthened since (Figure 4.6). While it is difficult to establish a causal relationship, the strong correlation between off-farm diversification and lower poverty rates is suggestive of the fact that households that complement agricultural income with non-agricultural activities are better prepared to face an adverse agricultural shock such as a drought or low prices, and smooth consumption. At the same time, households with higher levels of education are less likely to depend exclusively on agricultural employment.

Figure 4.4: Changes in rural non-agricultural economic activities

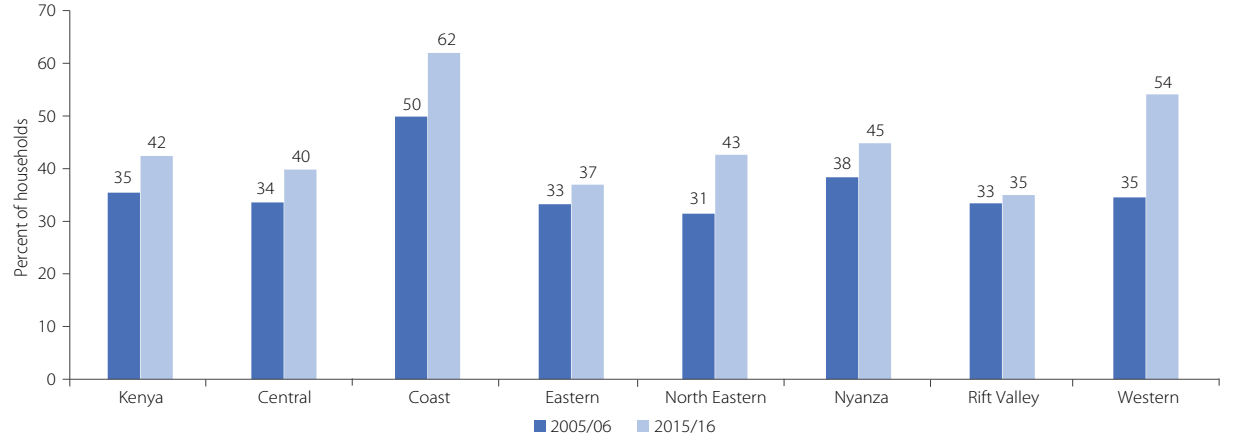
a) Non-agricultural labor allocation in rural Kenya



b) Distribution of employment by time spent on agricultural and non-agricultural activities

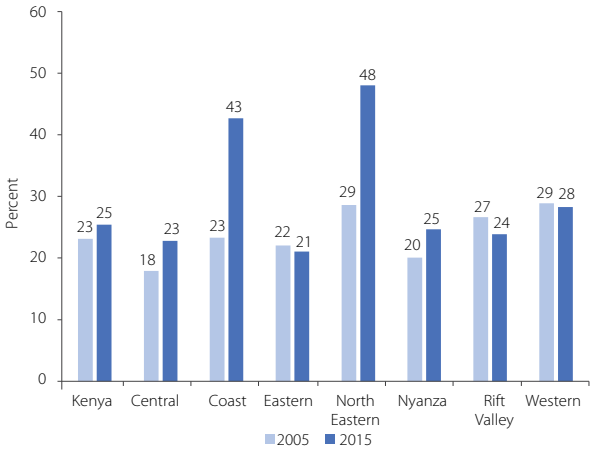


c) Proportion of income earned from non-agricultural sources



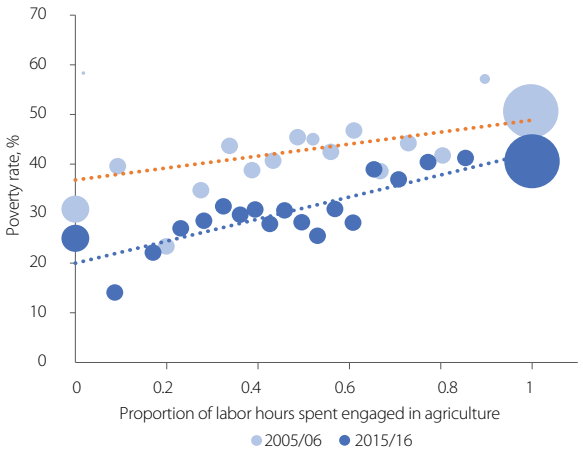
Source: Authors' calculation using KIHBS 2005/06 and KIHBS 2015/16.
Note: Female employment in non-agricultural activities as a share of total female employment has increased significantly in the Coast (by 20 percentage points) and North Eastern (by 19 percentage points) provinces (Figure 4.5). There has been little change in the remaining provinces since the previous survey was conducted in 2005/06, and the share of female employment in total non-agricultural employment even decreased in Rift Valley, Eastern, and Western. This suggests that most of the increase in non-farm employment has been concentrated among men in Kenya, which can potentially have adverse consequences for intra-household equality.

Figure 4.5: Female non-agricultural labor allocation



Source: Authors' calculation using KIHBS 2005/06 and KIHBS 2015/16.

Figure 4.6: Rural poverty rate by the proportion of total employment in agriculture



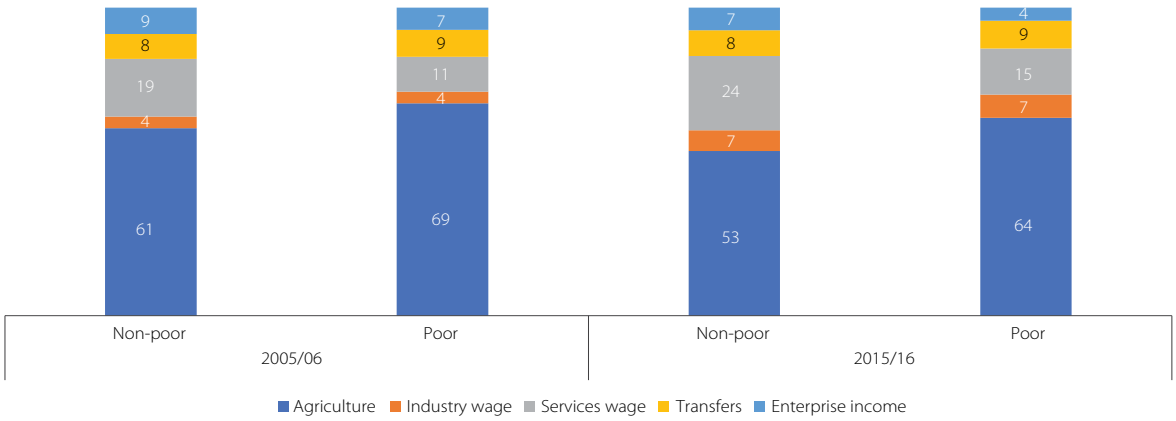
Source: Authors' calculation using KIHBS 2005/06 and KIHBS 2015/16.

4.3.2 *Wage employment within the service sector has increased significantly*

Income from wage employment in the services sector represents the largest share of non-farm household income in the Kenya (Figure 4.7). While it has increased for both poor and non-poor households since 2005/06, it constitutes a larger share of the income of non-poor households. In rural Kenya, the share of wage income from the services sector in total household income increased from 15 percent in 2005/06 to 21 percent in 2015/16, reducing the share of agricultural income. However, agricultural income still remains the most important income source for both poor (64 percent) and non-poor (53 percent) households.

Moreover, wholesale and retail trade is the most important non-agricultural industry in terms of employment (Figure 4.8). About 17 percent of rural Kenyan households had at least one family member who worked in wholesale and retail trade in 2015/16, a more than threefold increase compared to 2005/06. Similarly, employment in transport and communication also increased threefold, from 2 percent to 6 percent of rural households having one family member employed in the industry in the same period. However, there was only a slight increase in the employment rate in community, social, and personal services (which mainly includes public and private sector employment in education, health, and administration) between

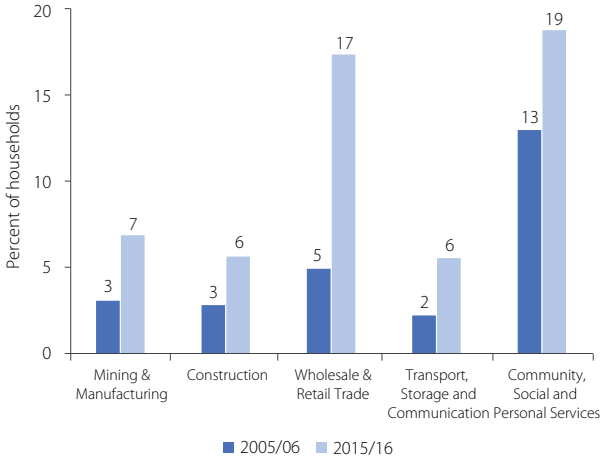
Figure 4.7: Share of income from different sources for poor and non-poor households



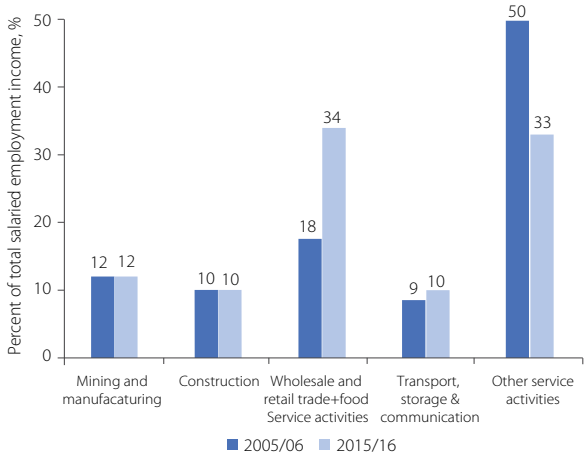
Source: Authors' calculation using KIHBS 2005/06 and KIHBS 2015/16.

Figure 4.8: Non-farm economic activity by ISIC classification

a) Participation of households in non-farm employment by industry



b) Proportion of salaried non-farm income by industry



Source: Authors' calculation using KIHBS 2005/06 and KIHBS 2015/16.

2005/06 and 2015/16. Also, employment rates rose in the mining and manufacturing, construction, trade, and transportation and communication industries during the same period, even though their individual shares have remained relatively low.[111]

4.4 FARM PRODUCTIVITY HAS STAGNATED WHILE COMMODITY PRICES HAVE INCREASED

4.4.1 *Higher productivity is associated with lower poverty rates*

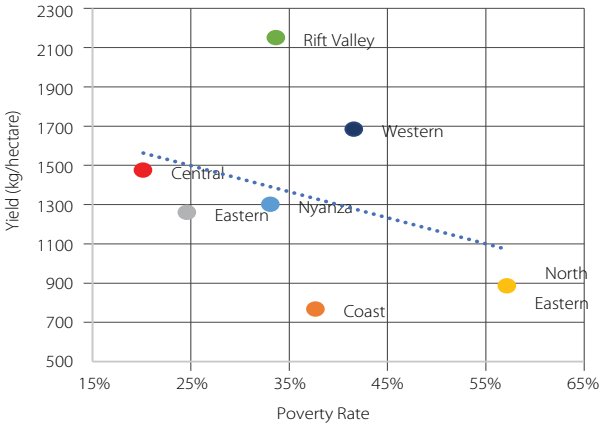
Several studies of African countries show a causal link between improved agricultural productivity and reduced poverty rates. A meso-level study of village-level data in Madagascar shows that communes that adopted agricultural technologies at a higher rate, and subsequently had higher crop yields, enjoyed lower food prices, had higher real wages for unskilled workers, and exhibited better welfare indicators (especially lower extreme poverty rates, Minten and Barrett 2008). This suggests that an increase in agricultural productivity can raise incomes for surplus farmers, reduce prices for consumers, and increase employment opportunities and wages for unskilled workers. Similarly, another study in Uganda found that adopting improved groundnut varieties increased household crop income by US$130.$254 and improved the chance of a household escaping poverty by 7.9 percentage points (Kassie, Shiferaw and Muricho, 2011).[112] Gains were greater for households with a relatively smaller farm size and for more educated households. Finally, a quasi-experimental study by Davis et al. (2012) demonstrated the importance of learning about improved farming practices among small-scale farmers in East Africa. It showed that farmer field schools contributed to increased crop productivity, resulting in higher household income and an improvement in farmer welfare. While the productivity and income of female-headed households increased significantly, they increased only marginally for male-headed households. Moreover, the effects were concentrated among households with little formal education, presumable because these households had the most to gain from such training programs. This section presents some indicative evidence that this causal relation between agricultural productivity and poverty reduction. However, it should be noted that they represent correlations, not necessarily causal, between higher crop yield and increased household welfare.

[111] KIHBS 2005/06 uses ISIC Revision 2 to classify employment by subsector, whereas KIHBS 2015/16 uses ISIC Revision 4. Appropriate steps have been taken to ensure correspondence of industrial classification.

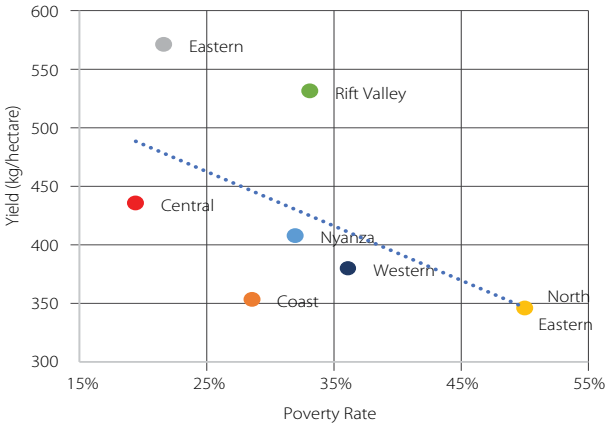
[112] The authors of the studies eliminated selection bias on observable differences between adopters and non-adopters.

Figure 4.9: Relationship between crop yield and poverty rates at the provincial level in rural Kenya, 2015/16

a) Maize yield and poverty



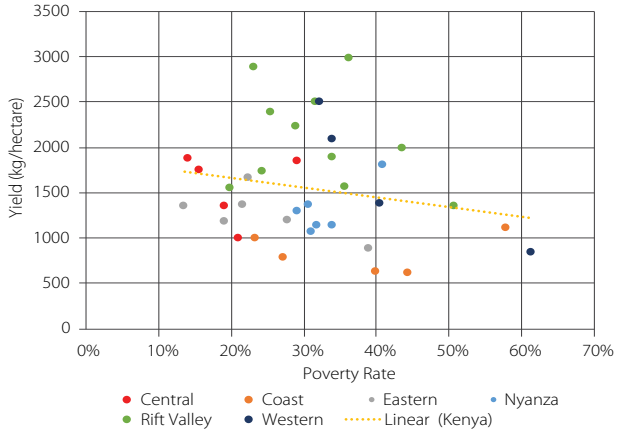
b) Bean yield and poverty



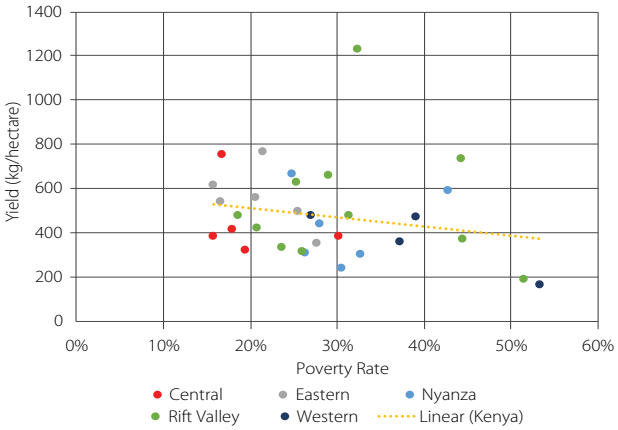
Source: Authors' calculation using KHIBS 2015/16.

Figure 4.10: Poverty and crop yield at the county level in rural Kenya, 2015/16

a) Maize yield and poverty



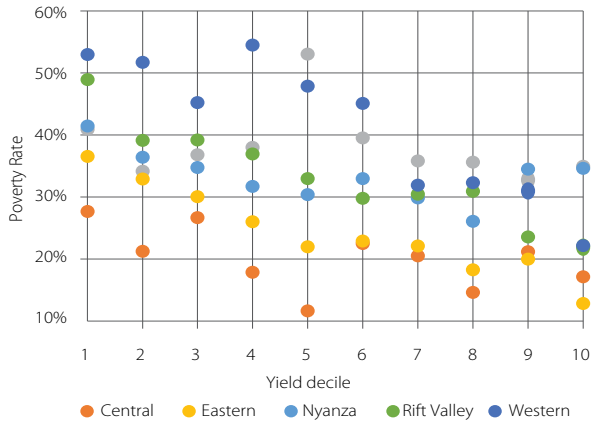
b) Bean yield and poverty



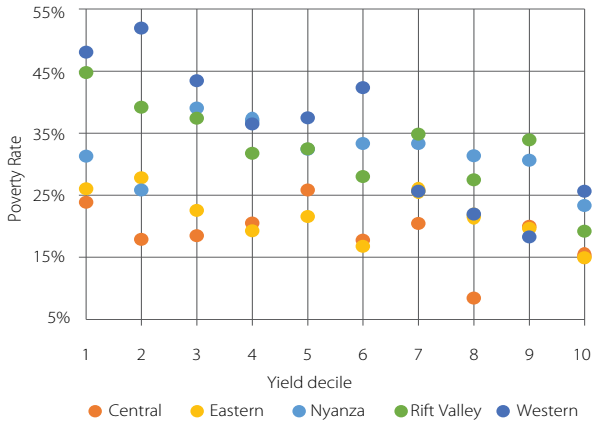
Source: Authors' calculation using KIHBS 2005/06 and KIHBS 2015/16.

Figure 4.11: Relationship between yield decile and poverty rates in rural Kenya, 2015/16

a) Maize



b) Beans



Source: Authors' calculation using KIHBS 2015/16.

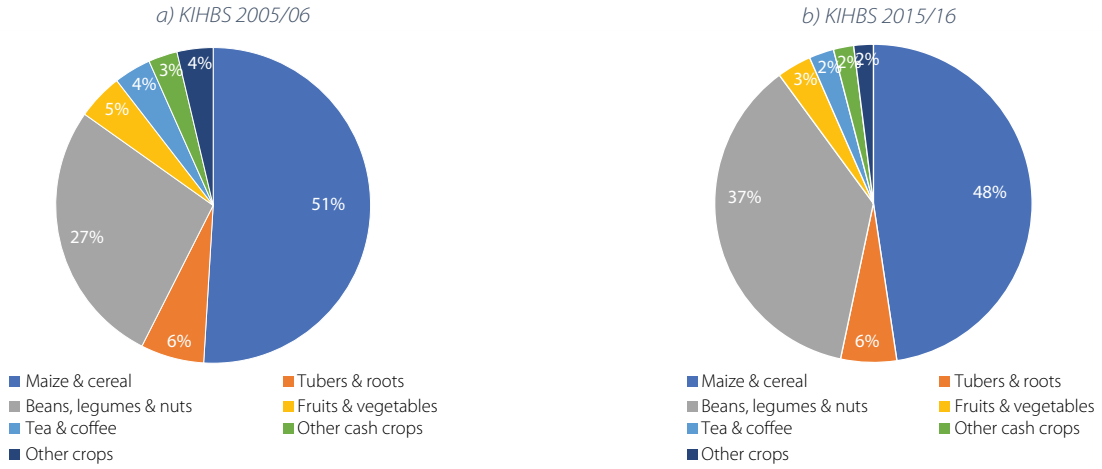
The evidence suggests that an improvement in farm productivity could potentially reduce poverty in Kenya. While agriculture was not the main driver of poverty reduction in rural Kenya between 2005/06 and 2015/16, an increase in crop yield could significantly reduce poverty, as agricultural productivity is strongly and negatively correlated with poverty rates at the provincial, county, and household level. Provinces with higher maize and bean yields have generally lower poverty rates (Figure 4.9). Similarly, a comparison of counties within a given province shows that counties with higher farm productivity have much lower poverty rates (Figure 4.10).

Most farm households with high crop yields appear to have escaped poverty in Kenya. In each Kenyan province, households in a higher yield decile tend to have lower poverty rates (Figure 4.11). In Rift Valley, for instance, the poverty rate among households in the lowest maize yield decile is 49 percent, compared to only 22 percent for those in the highest (10th).

4.4.2 Stagnating productivity means that there is an unmet potential for rural farmers

Almost 85 percent of Kenya's cultivated land was devoted to growing maize and beans in 2015/16. Bean production increased significantly in cultivated areas: from 27 percent of total crop areas in 2005/06 to 37 percent in 2015/16 (Figure 4.12). However, there were only minor changes in the share of land allocation for all other crop categories. Approximately half of Kenya's total crop area was devoted to maize production for both years. The remainder of this section will focus on maize and bean yields, the two most commonly grown staple crops in Kenya.

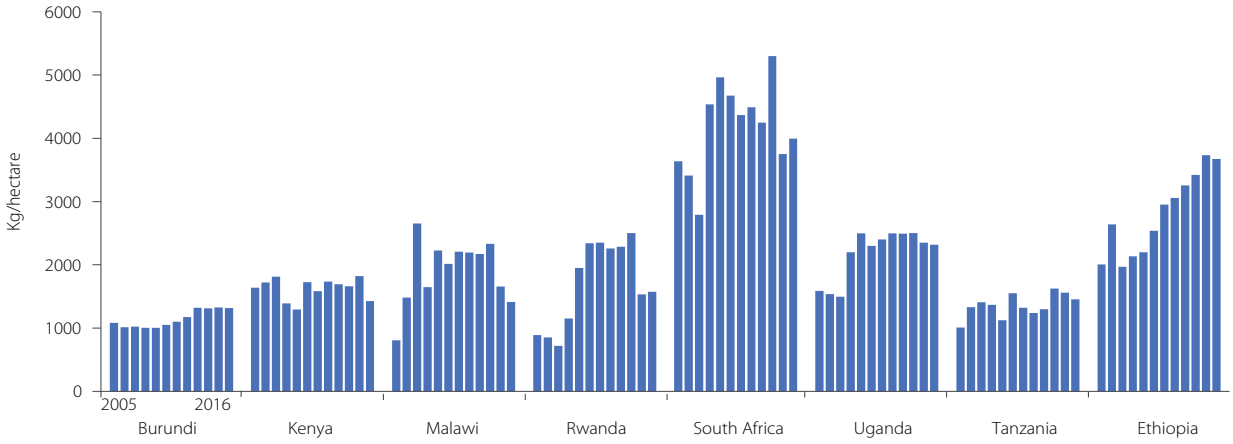
Figure 4.12: Proportion of cultivated area by crop category in rural Kenya



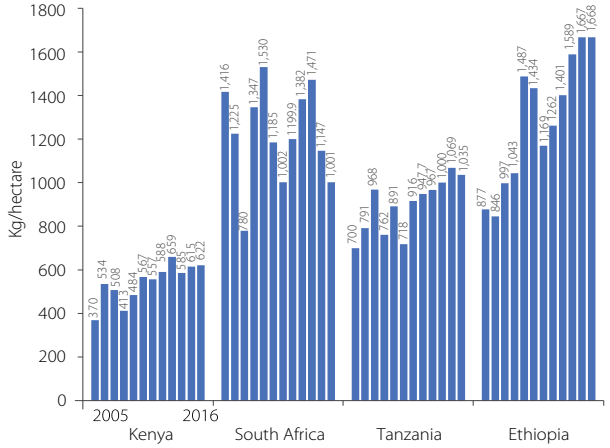
Source: Authors' calculation using KHIBS 2015/16.

Figure 4.13: Maize and bean yield in selected African countries

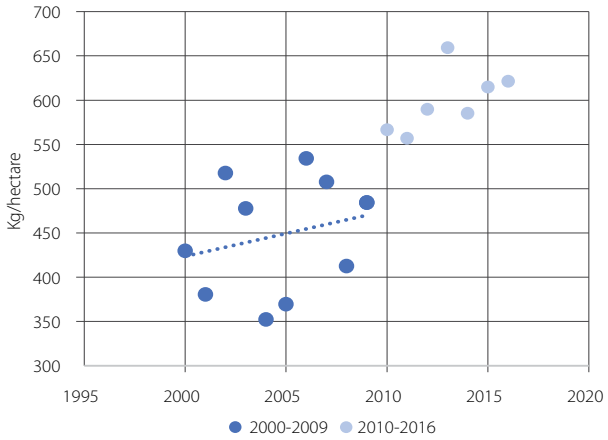
a) Maize yields in selected African countries, 2005–16



b) Bean yield in selected African countries (2005-2016)



c) Bean yield in Kenya since 2000



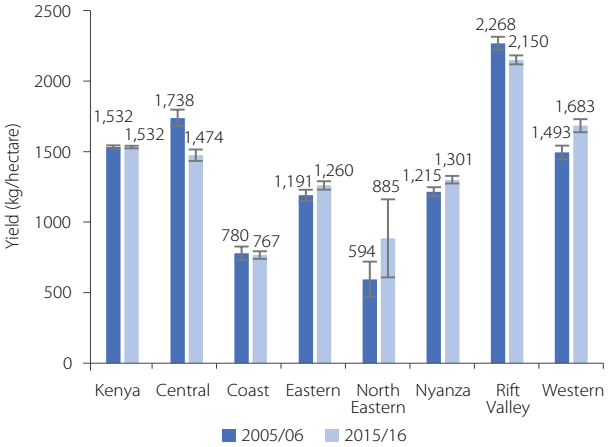
Source: Author's calculation based on FAO data.

In recent years, Kenya's agricultural productivity has been low and stagnant compared to that of neighboring countries, except for bean crops. Since 2005, maize yields in Kenya have been stagnant at a relatively low level compared to many of its neighbors, according to cross-country yield data from the Food and Agriculture Organization (FAO) (Figure 4.13). Other countries, such as Ethiopia, Malawi, Rwanda, and Uganda, have experienced varying levels of productivity growth. The level of maize yield in South Africa, which is indicative of capital- and input-intensive farms, illustrates the tremendous potential for Kenyan farmers to increase their crop productivity and raise their living standards. The stagnation in maize productivity over the period 2005-2016 seems to be confirmed by the Tegemeo panel household data survey, collected between 2000 and 2010,[113] and both waves of the KIHBS household data (Figure 4.14). In contrast, bean yield increased by approximately 50 percent between 2010 and 2016, according to the FAO (Figure 4.13).[114]

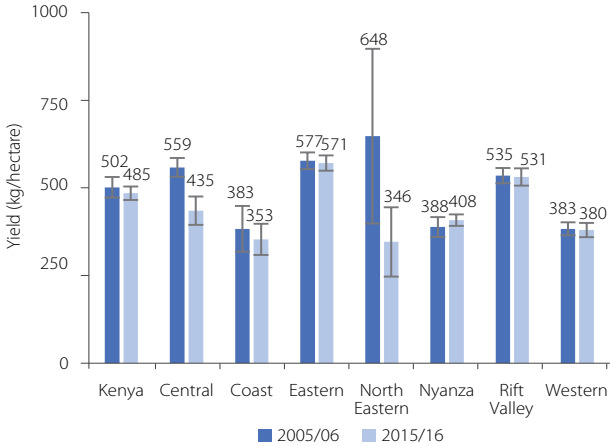
There are important differences in yield levels across provinces. Maize yield is multiple times higher in Rift Valley than in North Eastern, the latter which has a high and persistent poverty rate (Figure 4.14). Maize yield is also low in Coast, which is likely explained by the high share of non-agricultural employment in the province. By contrast, heterogeneity of bean yield is less pronounced, with Eastern and Rift Valley provinces having relatively higher yields than Kenya's other provinces.

Figure 4.14: Heterogeneity in crop productivity across provinces in rural Kenya

a) Maize



a) Beans



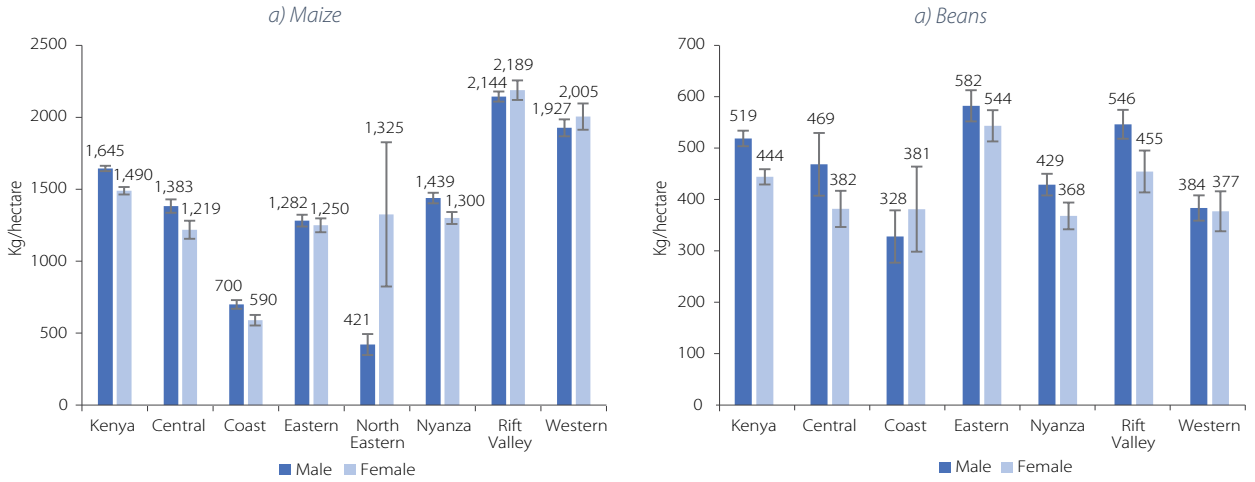
Source: Authors' calculation using KHIBS 2005/06 and KIHBS 2015/16.

[113] Tegemeo data are of households in some parts of Kenya and not in the entire country.

[114] This trend in however not observed in the KIHBS data.

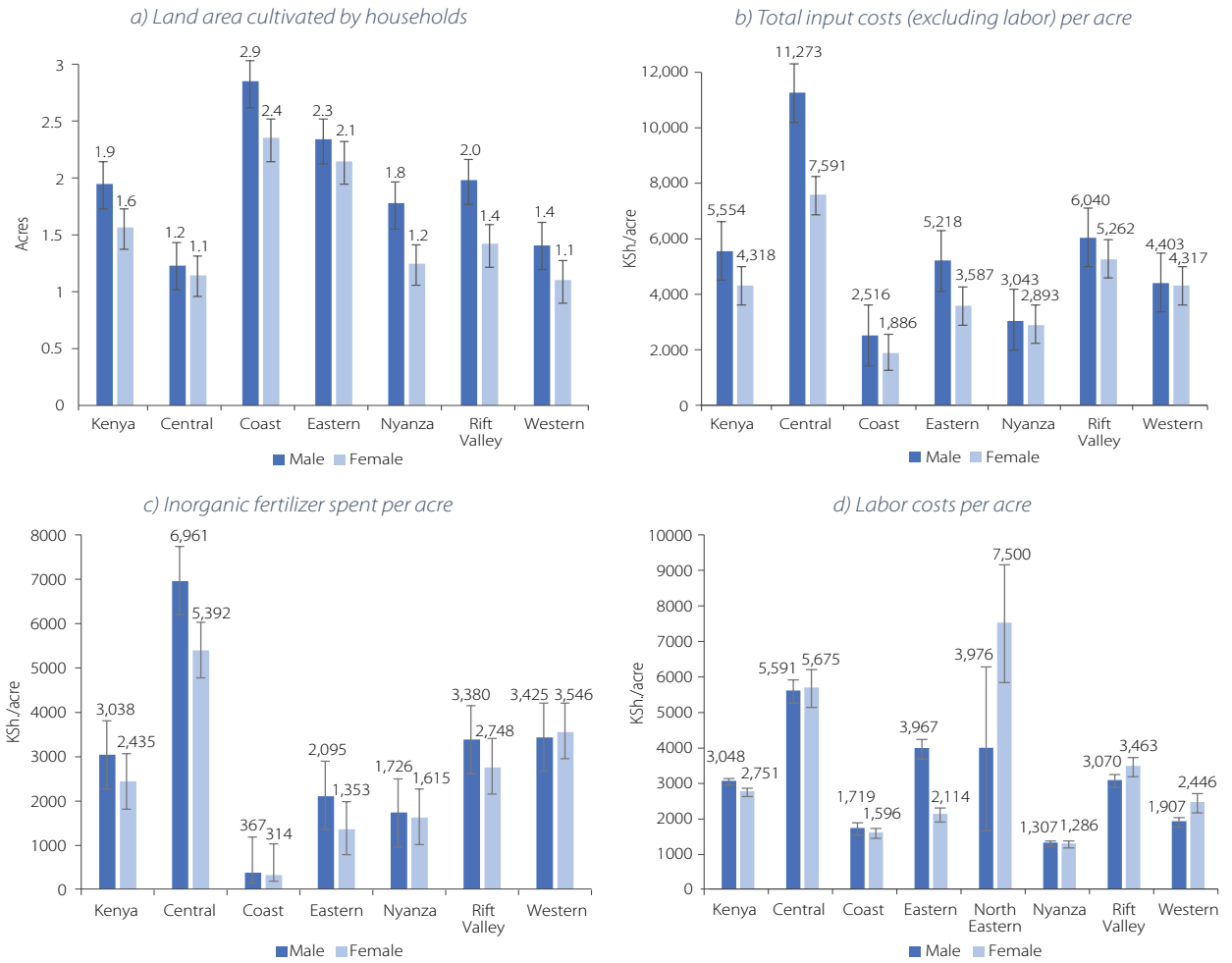
Nationally, female headed households have lower productivity in both beans and maize crops (Figure 4.15). Female headed households have 10 percent lower maize yields compared to male headed households, while in bean cultivation, this difference amounts to over 15 percent. However, there is heterogeneity across provinces, with statistically insignificant differences observed in maize cultivation in the Rift Valley, Eastern,

Figure 4.15 : Heterogeneity in crop productivity by gender of household head



Source: Authors' calculation using KHIBS 2005/06 and KIHBS 2015/16.

Figure 4.16: Gender differences in input use in rural Kenya



ource: Authors' calculation using KHIBS KIHBS 2015/16.

and Western provinces and in bean cultivation in Western and Eastern provinces. The differences in productivity are partly explained by differences in the use of yield enhancing inputs. Farm households headed by women use inputs less intensively than male-headed households, as they spend less on yield-enhancing inputs such as inorganic fertilizer (Figure 4.16). While these households also have slightly lower labor costs, reflecting lower labor inputs, differences are only statistically significant in Eastern.

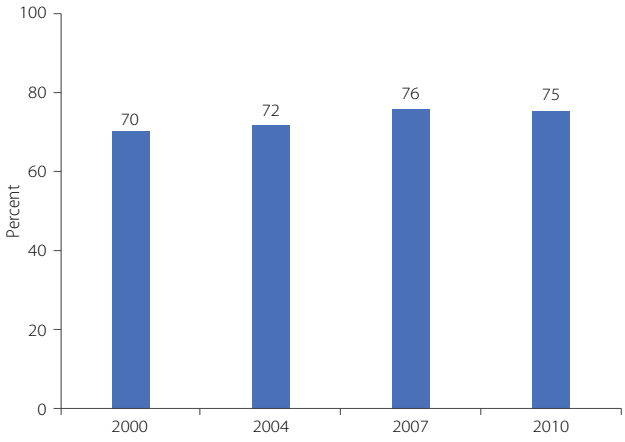
4.4.3 Improved technologies are the key drivers of agricultural productivity

The adoption of improved farming technologies and practices can increase agricultural productivity and reduce rural poverty among small farmers. This section examines what factor are associated with high crop productivity at the household level in Kenya using the Tegemeo panel dataset[115] for 2000-10 (see Appendix D). More specifically, to investigate the determinants of crop yield, we apply a fixed effects model. In this model, we start with a basic specification where logarithm of per acre yield is regressed on fixed effects of household and a vector of household characteristics.

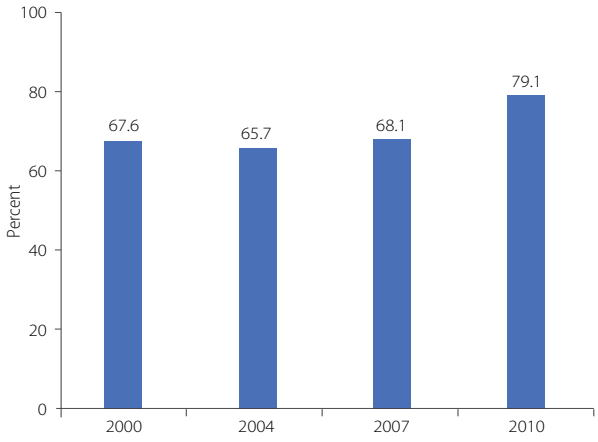
Technology adoption is the main factor associated with improvements in maize yield. Households that applied chemical fertilizer, for example, experienced a 20.25 percent increase in maize yield. Moreover, farmers who planted improved maize seeds experienced 26.32 percent higher productivity compared to those that used traditional low-yield seeds. However, farmers who used both chemical fertilizer and planted improved maize seeds did not appear to have higher maize yield relative to those who applied these inputs individually. While the application of chemical fertilizer is positively associated with higher bean yield, the yield increase is negligible.

Figure 4.17: Trends in input use by farmers (Tegemeo Panel)

a) While the share of farm households that apply chemical fertilizer is high, it has increased only moderately since 2000



b) The share of households that use improved seeds for maize increased in the most recent survey round



Source: Author's calculation based on Tegemeo Panel Household Survey (2000-2010).

[115] The Tegemeo Rural Household Panel Data cover the years 2000, 2004, 2007, and 2010. The data were collected in 22 rural districts across the country. Stratified simple random sampling was used to create the sample of households. After assigning agro-ecological zones (AEZ) to each rural division, 2-3 divisions were selected in each AEZ based on their population size. Villages within selected divisions and households within selected villages were picked through a blind equal chance ballot.

A total of 1,446 sampled households were interviewed in 2000, 1,397 in 2004, 1,342 in 2007, and 1,304 in 2010. The rate of household attrition was 9.8 percent between 2010 and 2000. Households that were overlooked during the interview process were not replaced and efforts were made to interview them in subsequent surveys.

Despite the yield-enhancing effects of fertilizer, the share of households that applied chemical fertilizer did not increase much between 2000 and 2010. In the Tegemeo panel, which only covers parts of Kenya, more than 70 percent of farmers apply fertilizer on their maize plots. However, the share of farmers that use fertilizer has not changed much since 2000 (Figure 4.17a). By contrast, the share of farmers that use improved seed varieties increased by more than 10 percent between 2000 and 2010, to almost 80 percent of maize farmers in 2010 (Figure 4.17b). It is worth noting however, there is very limited use of improved seeds for other crops.

There is a positive relationship between the adoption of improved seeds and maize yield. The application of certified seeds is strongly associated with maize productivity. However, the opposite is true for bean productivity, a result attributable to the small number of farmers that use certified seeds for beans (less than 10 percent) compared to maize (close to 70 percent).

An analysis of the relationship between crop yield and plot size shows that, even after controlling for technology adoption and other household characteristics, smallholder farmers are more productive than large farmers. Columns 2 and 3 of Table 4.2 show the relative productivity of maize

Table 4.2: Determinants of maize yield, FEs model, 2000–10

	(1)	(2)	(3)
Fertilizer adoption (Yes=1)	0.21***	0.20***	
	(3.77)	(4.16)	
Improved seed adoption (Yes=1)	0.26***	0.28***	
	(6.30)	(6.89)	
Distance to extension services	.0.00	0.00	0.00
	(.0.21)	(0.05)	(0.90)
Cooperative/Group membership (1=yes)	0.05	0.07*	0.06
	(1.32)	(1.89)	(1.63)
Cropped land quartile (the lowest quartile is the reference group):		**0.00**	**0.00**
2nd quartile		.0.17***	.0.19***
		(.3.80)	(.4.22)
3rd quartile		.0.38***	.0.41***
		(.9.62)	(.9.91)
4th quartile		.0.69***	.0.68***
		(.14.20)	(.12.93)
Effectiveness of fertilizer on improved seed			
No improved seed x Fertilizer used			0.00
			(0.83)
Improved seed x Fertilizer used			0.00***
			(3.25)
Constant	5.64***	5.79***	6.43***
	(18.07)	(19.08)	(18.44)
Observations	4897	4897	3996

Source: Author's calculation based on Tegemeo Panel Household Survey (2000-2010).
*Note: Standard errors in parentheses: * p < 0.1, ** p < 0.05, *** p < 0.01. Note that the dependent variable is logarithm of yield (kg/acre). A vector of household characteristics including: gender, age, age squared and education of household head, household size and dependency ratio.*

farmers with plot size in the upper three quartiles compared to those with plots in the lowest quartile. The production of large maize farmers in the highest landholding quartile is 69 percent lower per acre compared to those in the lowest quartile. This inverse relationship between plot size and maize yield is persistent, and the productivity gap increases from 17 percent to 38 percent and 69 percent as plot size quartile ranking increases from 2nd to 3rd and 4th quartile, respectively. Similarly, small bean farmers are more productive than large bean farmers (see Table D.1 in Appendix D).

The inverse relationship between plot size and maize yield is not unique to rural Kenya, as it has been observed in several developing countries and confirmed by various studies.[116] The relationship is contrary to economic theory, which states that factor productivity must be equal across farms, as land would be sold or leased from farmers with lower marginal productivity to farmers with higher marginal productivity.[117] Some of the most common and plausible explanations for this inverse relationship relate to market imperfections. First, smallholder farmers face an imperfect labor market and continue to excessively use labor on their small plots. Second, an imperfect insurance and crop market forces risk-averse small farmers to work more hours than optimal to secure enough food from their plots.[118]

4.4.4 Policies that promote investments in productivity-enhancing technologies are vital for farmers

Investment in productivity-enhancing technologies such as fertilizer, improved seeds, and agricultural extension services, as well as irrigation, is critical to increase the productivity and welfare of Kenya's farmers. There is a huge potential to facilitate poverty reduction through increase in agriculture income (crop and wage income). The fact that Kenya's current level of crop productivity is lower compared to that of its neighboring countries, signals that public investment and initiatives can help bridge the productivity gap. An increase in agricultural productivity, as demonstrated in the previous section, could significantly reduce poverty among farm households. That is why the announcement of having food security and agricultural productivity as one of the main four priorities (the Big 4) of the GoK is welcome news.

Policymakers may need to allocate more resources to enhance farmers' productivity and make sure that the current spending is efficient and providing the highest returns. The recently published Kenya Economic Updates noted that only 2 percent of total public expenditure was allocated to agriculture in 2016/17, even though the sector accounts for 25 percent and 60 percent of the country's GDP and employment, respectively. This prevents the country's from investing effectively in smallholder agriculture and provide services to improve basic crop yield such as extension services, improved seeds and seedlings, irrigation, etc. There is also a need to assets if the current spending is efficient, taking into account that spending on public goods in this context (e.g. research and development, extension services, etc.) has been proven to be more productive than spending on private goods (e.g. fertilizer subsidies). In addition there is space to reform the input subsidy program by ensuring that the program is targeting small farmers and facilitating technology adoption among them. Moreover, investment in irrigation schemes have a high rate of return[119] and could reduce dependence on rainfall. Currently, only 2 percent of Kenya's total arable land is irrigated, compared to 6 percent in Sub-Saharan Africa, and most of the country's crop production is rainfed.

4.4.5 An increase in grain prices since 2005 may have helped reduce rural poverty

In the absence of major crop-enhancing productivity investments, higher crop prices can reduce the poverty rate among farm households. Due to a lack of farmgate price data to analyze changes in crop prices, market price data are used as a proxy. An analysis of market price data reveals that crop prices had been increasing at a similar rate as general prices through the period 2005 to 2011. Figure 4.18 shows the nominal

[116] Barrett *et al.* (2010) summarizes a list of studies, including Chayanov (1926) and Sen (1962), that have noted this inverse relationship. In addition, a recent study by Ali and Deininger (2015) also found similar results in Rwanda.

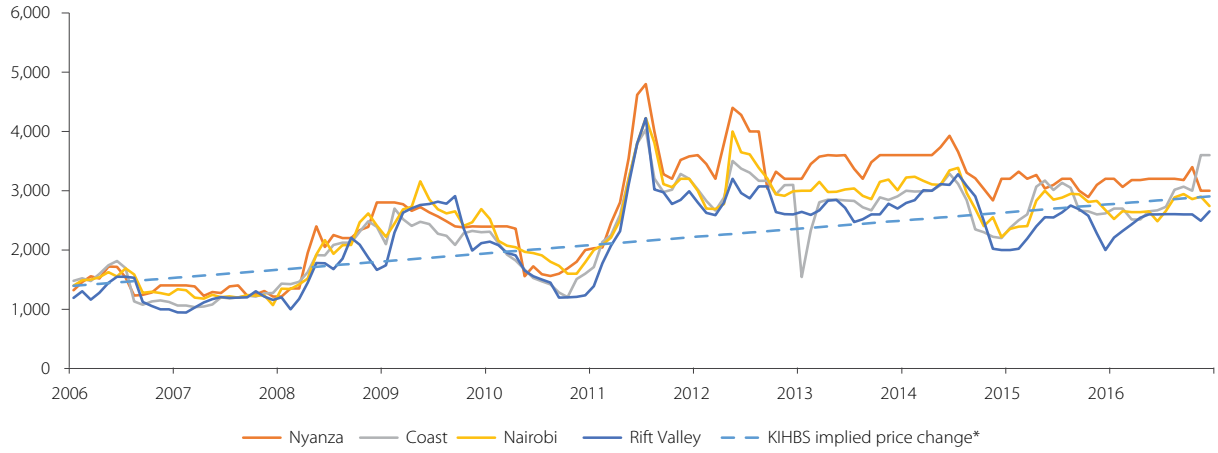
[117] Barrett *et al.* 2010.

[118] Barrett *et al.* 2010; Ali and Deininger 2015.

[119] World Bank 2018b.

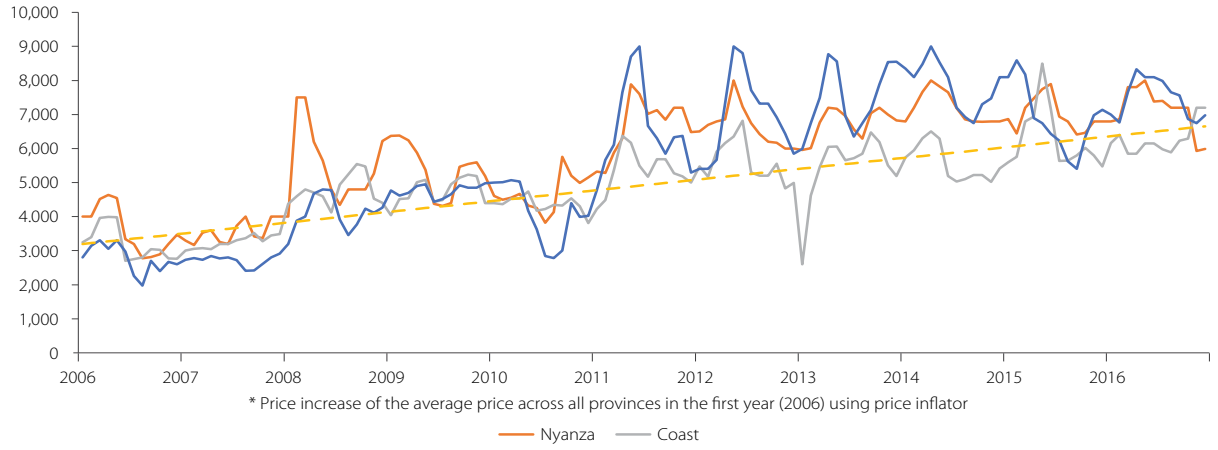
Figure 4.18: Trends of crop prices and overall prices

a) Maize prices, 2006–16



**Price increase of the average price across all provinces in the first year (2006) using price inflator implied by the numerical change in the poverty line in KIHBS between 2005 and 2015.*

b) Bean prices, 2006–16



** Price increase of the average price across all provinces in the first year (2006) using price inflator*
Source: Author's calculation using FEWS NET data.

price and the ***estimated trend*** if crop prices would have followed the overall inflation pattern.[120] Data show that maize and bean prices were significantly above their estimated trends in 2011-15, which coincides with the period directly prior to KIHBS 2015/16. As higher crop prices generally tend to benefit rural areas (which produce crops) at the expense of urban areas (which consume crops), these trends in crop prices may explain why rural poverty rates have declined more dramatically than poverty rates in urban areas. This assertion, however, is based on the strong assumption that increases in grain prices are passed onto farmers in the form of higher farmgate prices.

[120] This "average trend" is constructed by first calculating the average prices of maize and beans in 2006 and applying the general inflation (living cost adjustment in KHIBS) between 2005/06 and 2015/16 to reconstruct expected linear trend in average prices of maize and bean.

4.5 INCREASED MARKET PARTICIPATION CAN FURTHER REDUCE RURAL POVERTY

Improving access to markets for rural households has been a key policy goal for Kenyan policymakers. Easier access to markets allows rural households to improve their productivity by facilitating access to agricultural inputs (such as fertilizer and improved seeds), and by enabling them to sell their production more easily and at more competitive prices. The ***Kenya Vision 2030*** calls for investment in rural infrastructure to improve accessibility to all of the country's villages. This section explores the extent to which market participation among farm households and production for markets are associated with poverty.

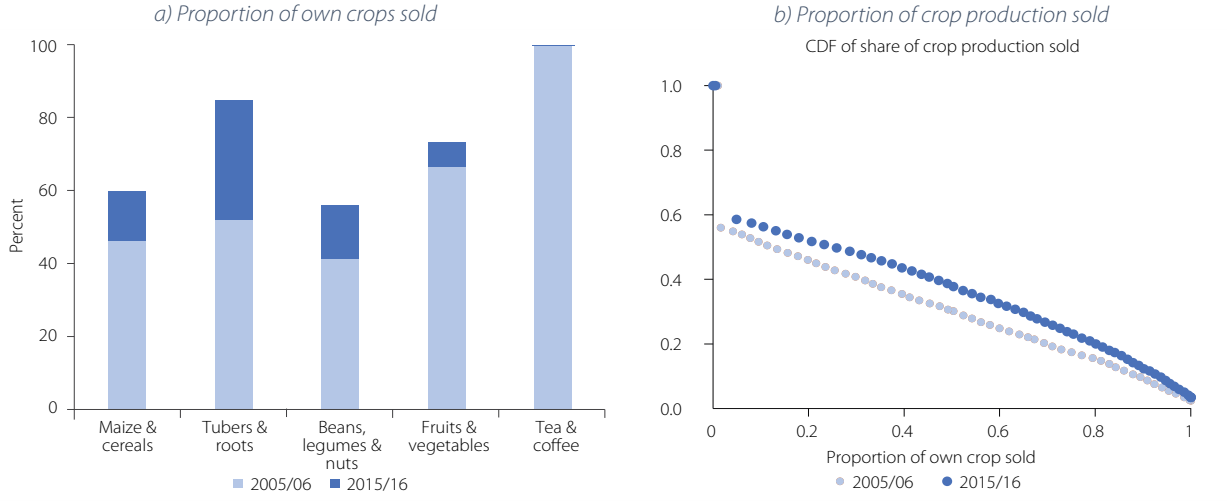
Previous studies show that commercialization has improved the welfare of households in rural Kenya. Rao and Qaim (2011) found that smallholder farmers that participated in supermarket supply channels witnessed a substantial gain in income and improved their welfare. However, institutional support is needed to realize the benefits of market orientation and connect farmers to consumers. Another study found that participation in farmer cooperative organizations also increased the income and welfare of Kenyan farmers. Cooperative membership increases income by facilitating access to better input and output prices as well as helping farmers adopt new technologies (Fischer and Qaim 2012).[121] Finally, Barrett (2008) underscores that reducing the costs of intermarket commerce and improving the access of poorer households to improved technologies and productive assets are central for smallholder farmers to participate in markets and escape poverty.

Kenyan rural households are less likely to produce major staple crops, such as maize and beans, to sell in the market. 40 percent of all maize produced in Kenya by small farmers is consumed by households themselves, an indication of a moderately high level of subsistence among small farmers. Similarly, around 45 percent of beans and legume is consumed, while 55 percent is sold in the market. As expected, most cash crops such as coffee, tea, fruits, and vegetables produced by smallholder farmers are sold in the market.

The low level of commercialization in Kenya's agricultural sector reflects the prevalence of subsistence farming instead of cultivating specialized crops for the market. In 2015/16, about 60 percent of households did not sell any of their produce in the market, while only 4 percent of households sold all their crop production and engaged is purely commercial agriculture (Figure 4.19). The low level of agricultural commercialization in Kenya may be due to limited access to land and/or markets.

Nonetheless, there has been a clear trend toward market orientation in Kenya's agricultural sector, as a higher share of farmers sells their own produce. This is demonstrated by the upward shift in the cumulative distribution function of the proportion of own crops consumed between 2005/06 and 2015/16 (Figure 4.19). Although the proportion of households that either consume or sell *all* their farm produce remained almost unchanged, there is an increase in the proportion of households that sell more of their production. For example, the proportion of households that consumed more than 50 percent of their produce decreased from 70 percent in 2005/06 to approximately 62 percent in 2015/16.

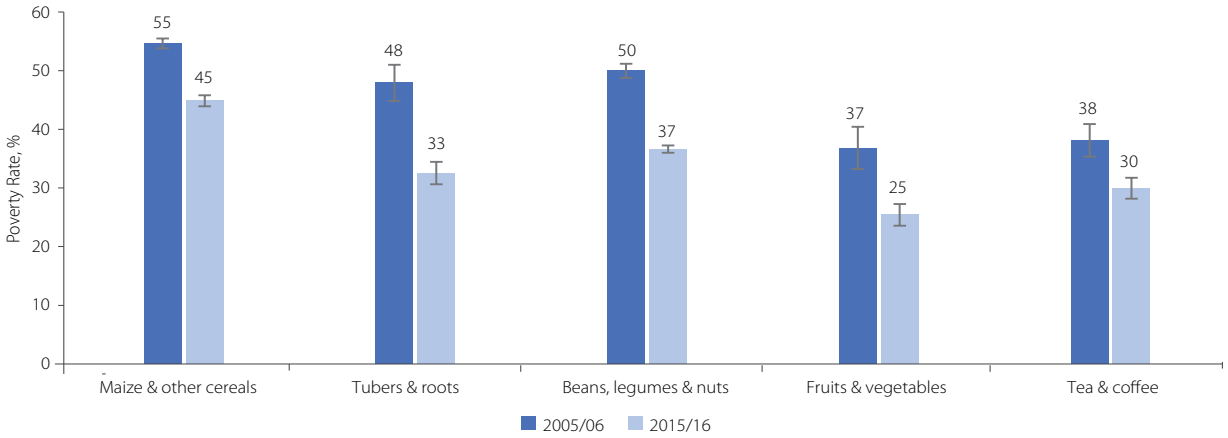
Figure 4.19: There was an observed reduction in subsistence agriculture in rural Kenya between 2005/06 and 2015/16



Source: Authors' calculation using KIHBS 2005/06 and KIHBS 2015/16.

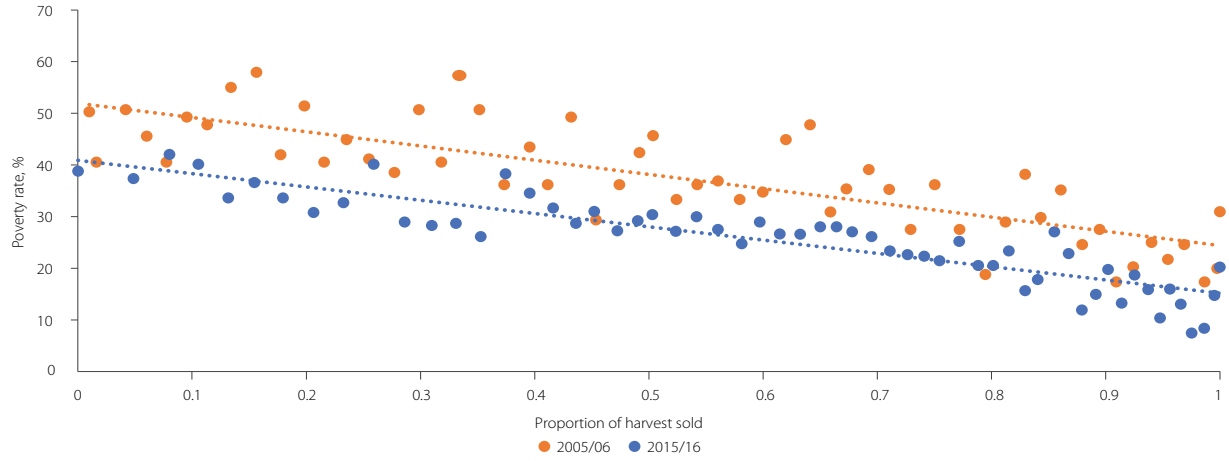
Figure 4.20: Relationship between poverty and market participation

a) Poverty headcount rate by crop category in rural Kenya



Note: Major crop grown by households, based on share of cropped land, is used to classify households into these groups.

b) Poverty and the sale of farm produce in rural Kenya



Source: Authors' calculation using KIHBS 2005/06 and KIHBS 2015/16.

The type of crop grown and the level of agricultural commercialization are highly associated with poverty outcomes. Poverty incidence is much higher among households that are predominantly engaged in the production of staple crops such as maize and beans (Figure 4.20).[122] Farmers that cultivate mainly cash crops such as fruits, vegetables and tea and coffee have lower poverty rates. The poverty rate is about 45 percent among maize and other cereal producers, compared to only 25 percent among fruit and vegetable producers and 30 percent among coffee and tea producers. Moreover, the poverty rate is much higher among households engaged in subsistence agriculture. About 56 percent of households that consume all of their produce are poor, much higher than the 27 percent among households engaged in purely commercial agriculture.

Farmers that produce beans and legumes have escaped poverty at a higher rate than those that produce maize and serials. Poverty among beans and leghum producers declined from 50 percent in 2005 to 36 percent in 2015. The arable area devoted to bean cultivation increased significantly in Kenya between 2005/06 and 2015/16. Bean prices also increased more than maize prices in the same period. Moreover, bean yields appear to have increased as well, according to FAO data, which suggests that bean farming is becoming increasingly popular and may have improved livelihoods of poor agrarian households.

[122] The major crop is defined based on the proportion of households' land dedicated to each crop.

Kenyan policymakers can reduce poverty by reducing the level of subsistence farming, increasing agricultural commercialization, and helping farmers access markets. Farm households that sell a larger share of their produce, tend to have lower poverty levels. In order to increase commercialization, access to markets where farmers can buy vital inputs to grow their crops and sell their output, both at competitive prices, should be priority for the sector.

4.6 CONCLUSIONS

While agriculture remains the main source of income for rural households in Kenya, the share of income from non-agricultural employment and non-agricultural employment has increased significantly in the last decade. Income from crops and livestock as well as wages in the agricultural sector, declined from 64.0 percent in 2005/06 to 57 percent in 2015/16. Wage income from service employment is the second most important source of income in rural areas, increasing from 15 percent of rural household income in 2005/06 to 21 percent in 2015/16. This diversification of income, in which households complement agricultural income with income derived from non-agricultural activities (particularly in services and trading activities) has been key to the reduction of rural poverty in Kenya. While agriculture remains the primary sector of employment for rural households, labor time allocated to non-agricultural activities increased between 2005/06 and 2015/16. It is important to support rural households in their effort to diversify their income. Investments in human capital, skills formation, as well as encouraging non-agricultural economic activities in rural areas, are key areas of actions in which the GoK should focus.

Although the productivity of many crops has been stagnant for the ten years, increased agricultural productivity remains a potential pathway out of poverty for many households. In Kenya, more productive farmers are less likely to be poor. This correlation between farm productivity and poverty constitutes promising evidence that an enhancing agricultural yields could lead to a reduction of poverty. However, little progress has been made in terms of raising agricultural productivity. This is especially true for the production of maize, Kenya's main food staple, and commercial crops such as coffee. Increased efficiency in the production of beans appears to be the only exception. As a result, agricultural productivity has not been contributing to poverty reduction in rural Kenya, a marked difference from the experience of other countries in the region such as Ethiopia.

Technology adoption is the main factor associated with higher productivity, according to analysis using farm level data. Farmers that applied chemical fertilizer, for example, experienced a 20-25 percent increase in maize yield. Moreover, farmers who planted improved maize seeds experienced 26-32 percent higher productivity compared to those that used traditional low-yield seeds. Despite the yield-enhancing effects of fertilizer and seeds, the share of farmers adopting these inputs has not changed much between 2000 and 2010. Policies aimed at increasing the adoption of improved agricultural inputs by small farmholders would help to increase their income and help to further reduce poverty. Extension services programs and educational campaigns, together with a competitive inputs markets, are some examples.

Similarly, agricultural commercialization is also associated with better living conditions in the case of Kenyan farmers. Between 2005/06 and 2015/16, the country's level of agricultural commercialization increased, and agricultural households sold a higher share of their production. Moreover, a higher degree of commercialization is associated with higher living standards. Thus, investments in infrastructure and access to information and communication technologies, are an important policy areas to further reduce poverty in Kenya.

CHAPTER 5

URBANIZATION

KEY MESSAGES

Poverty is increasingly becoming an urban phenomenon in Kenya, which will require poverty alleviation efforts that focus on urbanization and urban poverty. The rural poor population decreased by more than 1 million during the last decade, as the rural poverty rate fell from 50.5 percent in 2005/6 to 38.8 percent in 2015/16. By contrast, the poor population in urban areas increased by 1.5 million, with only a marginal decline in the urban poverty rate. As a result, the share of the urban poor increased from 13.8 percent of the total poor population in 2005/06 to 23.1 percent in 2015/16.

The share of the urban poor and the inadequate living standards of poor households have remained relatively constant during the last decade. Urban poverty rates have remained at roughly the same level in most provinces since 2005/06. Excluding Nairobi, Kenya's urban poverty rates have been similar to poverty rates in rural areas. While the share of the urban population with access to improved sanitation facilities and electricity has increased in all provinces, the share of households with access to improved water has dropped in some provinces, suggesting that the country's water infrastructure is struggling to cope with the pace of urbanization. Moreover, the gap in access to basic services between the poor and non-poor remains wide in urban areas.

Rising food and housing costs have constrained household finances in urban areas. While poor urban households allocate half or more of their budgets to food, food expenditures of non-poor households have also increased in urban areas—a likely result of the increase in the relative price of food. In addition, the share of private spending on housing has increased in medium- and small-sized towns, reflecting increased urbanization and a rise in the cost of living. These financial constraints have limited household spending on transport and other services, lowering households' access to economic opportunities and the ability to generate capital.

Urban unemployment has dropped dramatically in recent years, but many workers remain in insecure jobs. Unemployment rates have dropped throughout urban areas in tandem with increasing labor force participation rates. However, a large portion of the urban poor, women, and the youth are unemployed. In Nairobi, for example, more than a fifth of the poor are unemployed. There has been an increase in construction jobs in urban areas, which has raised the income of lower-income households. Nevertheless, a large portion of workers in Kenya are in insecure positions as casual workers. There is also a lack of manufacturing jobs in urban areas.

Poverty—both monetary and non-monetary—is still concentrated in Nairobi's informal settlement neighborhoods. In Nairobi, which is home to nearly two thirds of Kenya's population that lives in informal settlements, nearly one-third of residents in informal settlement neighborhoods are poor, while only 9.1 percent of residents in non-informal settlement areas are poor. The gap in living standards, such as housing quality, access to services, environmental challenges, and health, is wide between poor and non-poor households. Residents in informal settlement areas also live far away from jobs, which can further lower their economic performance, and they have limited opportunities to move out of informal settlement neighborhoods, creating spatial poverty traps.

Therefore, it is imperative for Kenyan authorities to leverage urbanization for poverty reduction while addressing urban-specific poverty challenges. First, the government needs to accelerate infrastructure projects and target the urban poor to accommodate an increasing urban population. Second, job creation in urban Kenya should be a priority, given the large number of unemployed and casual workers in the economy. Third, economic opportunities in cities need to be extended to the rural poor. This will require an in-depth analysis of internal migration patterns. Finally, informal settlement neighborhoods need to be economically integrated to ensure that they function as places of opportunities instead of poverty traps.

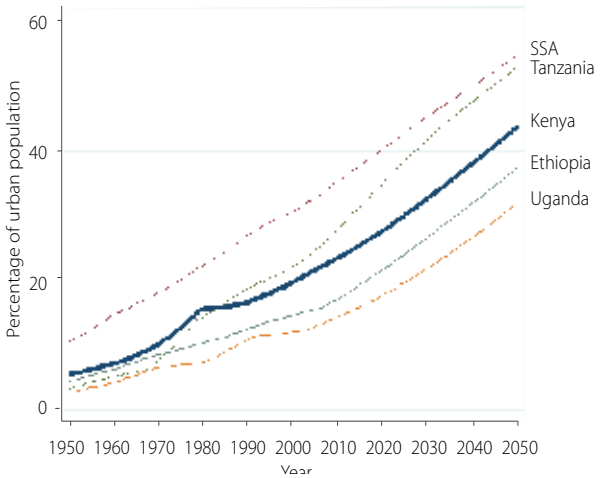
5.1 URBANIZATION AND POVERTY

Between 2005/06 and 2015/16, Kenya's population increased by about 10 million while the number of poor people in rural areas decreased by more than 1 million. By contrast, the number of poor people in urban areas increased by 1.5 million in the same period. The share of the urban poor in the country's poor population increased from 13.8 percent in 2005/06 to 23.1 percent in 2015/16. The number of poor urban households has not only been increasing in Nairobi, which accommodates 19.6 percent of the country's urban poor, but in all of Kenya's provinces. Nearly one in four of the country's poor people live in urban areas. While poverty rates in both urban and rural areas continue to decrease, the urban poor is benefitting the most from economic growth. However, urban poverty reduction has been marginal during the last decade. Moreover, poverty headcount ratios in urban areas are similar to those in rural areas when Nairobi is excluded. Therefore, it is not clear if the process of urbanization has been an engine for poverty reduction in Kenya in recent years.

5.1.1 Urbanization and poverty trends

About 28.0 percent of Kenya's population currently lives in urban areas, and the country's rate of urbanization is similar to that of other East African countries. Urbanization rates (i.e., the share of the population living in urban areas) increased from 20.1 percent in 2005/06 to 28.4 percent in 2015/16.[123] Kenya's urban population is projected to rise to 22 million by 2030, accounting for 33 percent of the total population.[124] While Kenya has been urbanizing at a similar pace to that of other East African countries, some countries, such as Tanzania, have had higher urbanization rates (Figure 5.1). Additionally, the level of urbanization in Kenya is much lower than the average of Sub-Saharan Africa, suggesting that Kenya is under-urbanized given its middle-income country.[125] Given its current GDP, about 40 percent of Kenyans should be living in urban areas, according to a correlation analysis of GDP per capita and urbanization rates across countries.

Figure 5.1: Urbanization rates in Kenya and other countries, 1950–2050



Source: United Nations, Department of Economic and Social Affairs, Population Division (2014).

While Nairobi's population has been rapidly growing, the number of people living in medium-sized cities has also dramatically increased. Nairobi accommodates more than 3 million people, or one-third of Kenya's urban population. The next biggest city, Mombasa, hosts about 10 percent of the country's urban population. Moreover, the number of people living in medium- or small-sized cities increased dramatically from 2.7 million in 1999 to 8.3 million in 2009. Of the 25 largest urban areas, 10 are within the Nairobi metropolitan area, accounting for about 40 percent of the urban population and more than one-third of Kenya's GDP. Given the different characteristics between Nairobi, Mombasa, and the rest of Kenya's cities, this chapter treats them separately in many analyses.

Despite a slight decline in the urban poverty headcount ratio, Kenya's urban poor population increased during the last decade. While the urban poverty rate declined from 32.1 percent to 29.4 percent between 2005/06 and 2015/16, it declined from 39.1 percent to 36.1 percent in the same period when Nairobi is excluded (Figure 5.2a).[126] As a result, the urban poverty rate without Nairobi (36.1 percent) was not statistically different from the rural poverty rate (38.8 percent) in 2015/16. Kenya's urban poor population

123 KIHBS.

124 United Nations, 2014.

125 World Bank 2016.

126 The difference in urban poverty rates (whether Nairobi is included or not) was not statistically significant between 2005/6 and 2015/16.

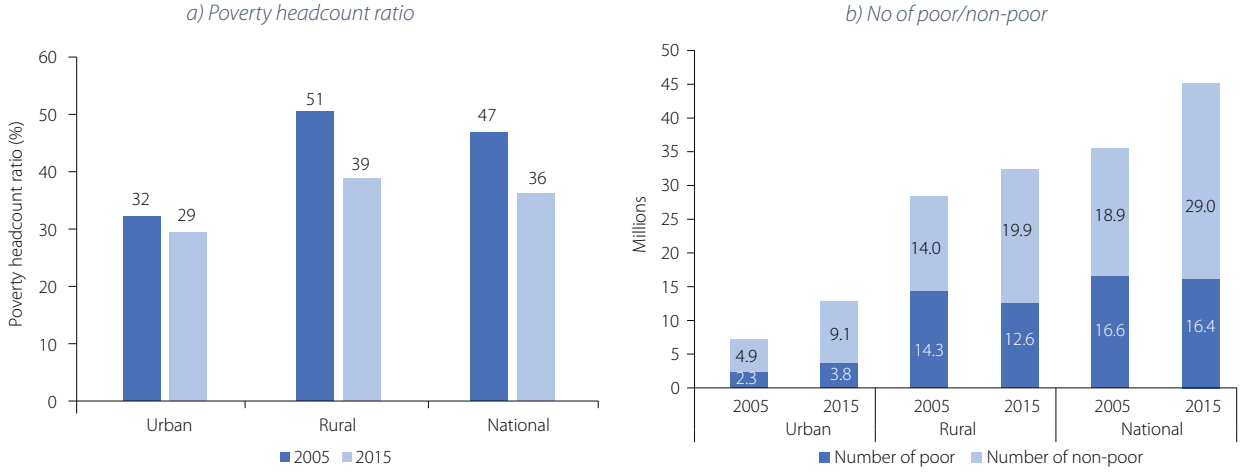
Box 5.1: Definition of urban areas

This report classifies the census term 'core urban' as urban areas and includes 'peri-urban' in rural areas. Kenya's census in 1999 and 2009 divided the country into core urban, peri-urban, and rural areas. According to the census definition,[127] an urban area refers to:

"a built-up and compact human settlement with a population of at least 2,000 people defined without regard to the local authority boundaries. It is normally a trading, market and service centre that provides goods and services to both the resident and surrounding population and is therefore sometimes referred to as an urban center."

The 2009 census further distinguishes core urban and peri-urban areas. A core urban area is defined as, "the central built-up area of an urban center with intense use of land and highest concentration of service functions and activities"; peri-urban is "the area beyond the central built-up area that forms the transition between urban and rural areas." This approach has also been adopted by the United Nations[128] and the World Bank.[129]

Figure 5.2: Poverty headcount ratio and number of poor, 2005/6 and 2015/16



Source: Staff calculation based on KIHBS 2005/6 and 2015/16.

increased by 1.5 million (about 65.0 percent) between 2005/06 and 2015/16, from 2.3 million to 3.8 million (Figure 5.2b). By contrast, the rural poor population fell from 14 million to 13 million in the same period.[130]

The decrease in the urban poverty rate, along with an increase in the urban poor population, is observed in most of the country's provinces. Except for in Nyanza, where the urban poverty rate increased from 37.7 percent to 44.1 percent, urban poverty headcount ratios fell in all provinces between 2005/06 and 2015/16 (Figure 5.3a). For example, Nairobi's urban poverty rate fell from 21.3 percent to 16.7 percent in the same period. Nevertheless, the number of poor urban households increased in all provinces between 2005/06 and 2015/16 due to population growth (Figure 5.3b). While there was a slight increase in the poor urban population in Nairobi in the same period, the city's non-poor population increased dramatically, from 2.2 million in 2005/6 to 3.7 million in 2015/16.

The populous counties surrounding Nairobi accommodate a larger number of the urban poor while having relatively low urban poverty rates. In 2015/16, county-level urban poverty rates varied widely, from 16.7 percent in Nairobi, which hosts one-fifth of the country's urban poor, to 76.2 percent in Turkana (Figure 5.4).[131] Counties with lower urban

127 KNBS 2012.

128 2014

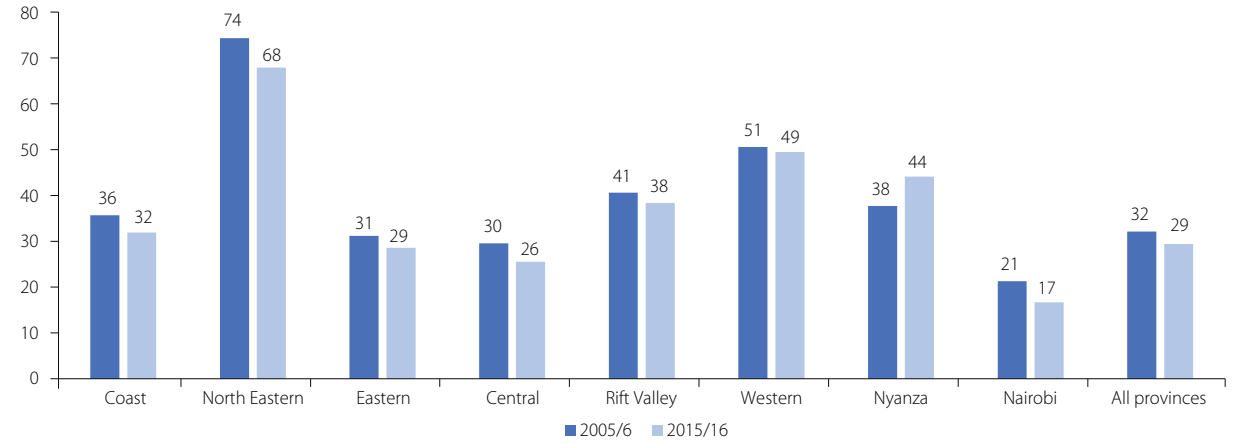
129 2016

130 Throughout this chapter, poverty is measured based on the absolute poverty line, unless otherwise noted.

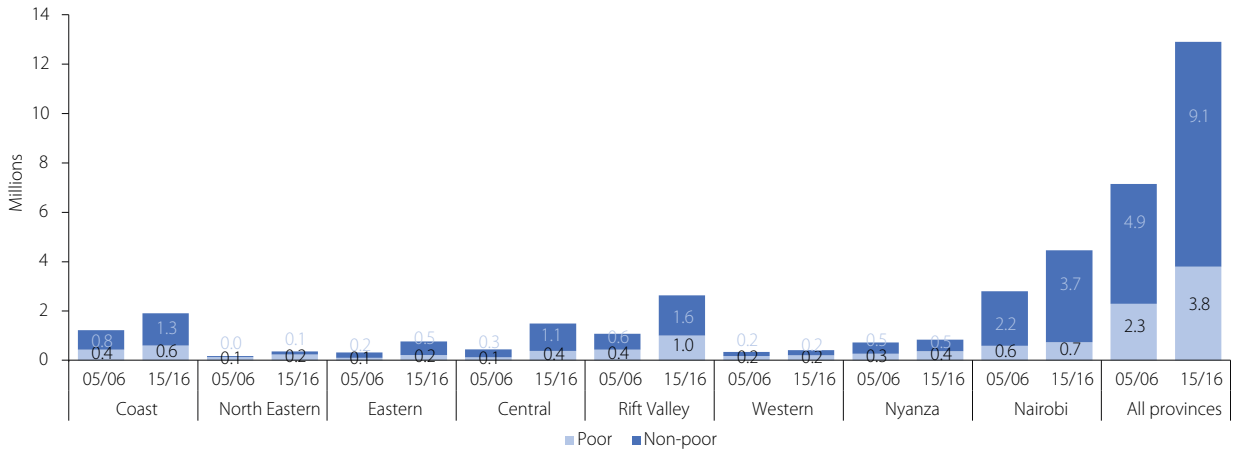
131 See Appendix E for more information on county-level poverty rates.

Figure 5.3: Poverty rates and number of poor in urban areas by province, 2005/6 and 2015/16

a) Poverty rate



b) Number of poor

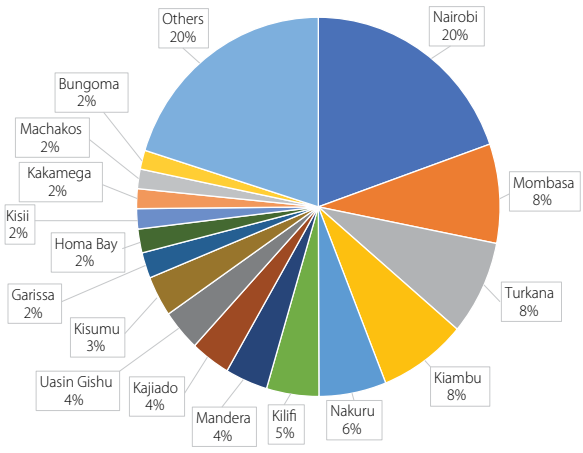


Source: Staff calculation based on KIHBS 2005/6 and 2015/16.

poverty rates are clustered around Nairobi, and a sizable number of the urban poor is concentrated in these counties because of their high density (Figure 5.5). By contrast, sparsely populated counties in the northern part of Kenya have higher urban poverty rates along with a smaller proportion of the country's urban poor population.

Most counties with lower urban poverty rates also have lower rural poverty rates (Figure 5.6). However, despite the clear linear correlation between urban and rural poverty rates, some counties deviate from the trend. The counties of Kitui, Bomet, and Samburu have much lower urban poverty rates relative to rural poverty rates. By contrast, some counties have higher urban poverty rates relative to rural poverty rates, including Meru, Nyeri, Homa Bay, Siaya, Isiolo, and Vihiga.[132]

Figure 5.4: Share of urban poor across counties, 2015/16

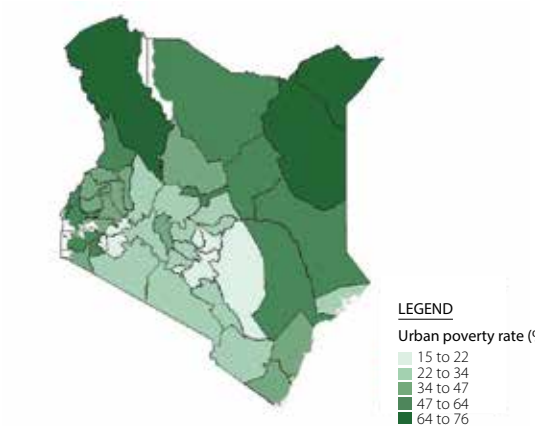


Source: Staff calculation based on KIHBS 2015/16.
Note: Counties are ordered based on their share of the urban poor in the total number of urban poor in Kenya.

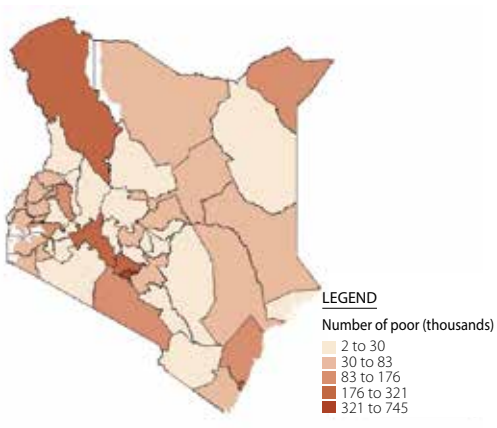
[132] No clear relationship is observed between urbanization and urban poverty rates and the size of urban population and urban poverty rates (not reported).

Figure 5.5: County-level urban poverty rates and number of urban poor, 2015/16

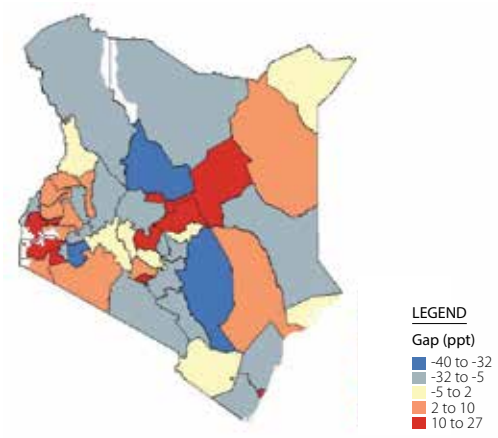
a) urban poverty rates



b) Number of urban poor

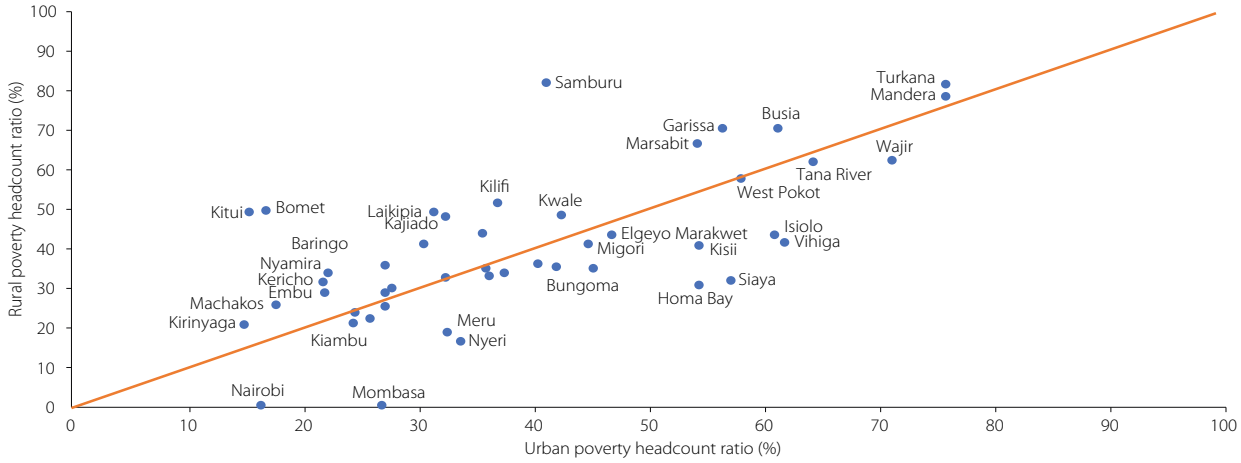


c) Gap between rural and urban poverty rates



Source: Staff calculation based on KIHBS 2015/16.
Note: Panel (A) shows urban poverty headcount ratios; Panel (B) shows the number of urban poor; and Panel (C) shows the difference in poverty rates between urban and rural areas.

Figure 5.6: County-level urban and rural poverty rates, 2015/16

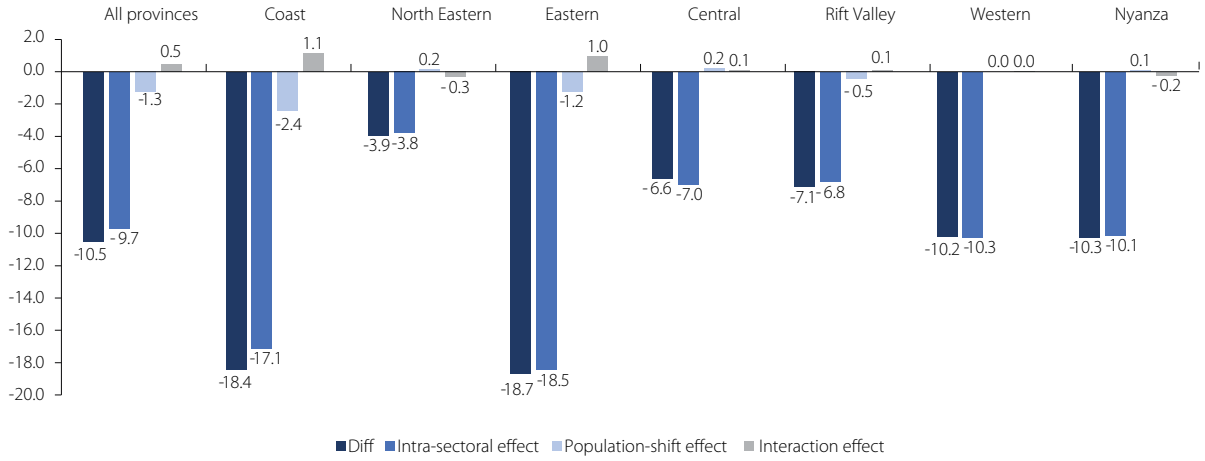


Source: Staff calculations based on KIHBS 2015/16.

The correlation between urban and rural poverty headcount ratios at the county-level implies that cities and towns are not realizing the full of their economic potential. On one hand, the narrow gap in urban and rural poverty headcount ratios may be due to the poverty-reducing function of cities and towns. The gap in economic opportunities and living standards between urban and rural areas have induced many in poor rural areas to migrate to urban areas, narrowing the gap. However, those with relatively good endowments often migrate from rural to urban areas. Rural poverty headcount ratios may also be due to spillover effects, as cities and towns often bring economic benefits to surrounding rural areas. On the other hand, the narrow gap in poverty headcount ratios between urban (except for Nairobi) and rural areas may also be an indication of the underperformance of poverty alleviation efforts in cities and towns, which is a cause for concern.

Population shifts from rural to urban areas contributed moderately to poverty reduction between 2005/06 and 2015/16. The results of a decomposition analysis suggest that the transition of people from rural to urban areas accounted for only 12.1 percent of the fall in poverty during the last decade (Figure 5.7). Instead, most poverty reduction was due to poverty alleviation efforts within rural areas, as there has been little progress in eliminating poverty within urban areas, including Nairobi.[133] Moreover, a province-level analysis of poverty in Kenya showed that urbanization has not substantially contributed to poverty reduction, except for in the province of Coast.

Figure 5.7: Sectoral decomposition of poverty reduction, 2005/6 and 2015/16



Source: Staff calculations based on KIHBS 2015/16.

Box 5.2: Decomposition analysis

The decomposition analysis estimates the poverty rate based on 1) the intra-sectoral effect, 2) the population shift effect, and 3) the remaining part as a residual, following Ravallion and Huppi (1991). First, the intra-sectoral effect estimates changes to the overall poverty rate if the urban/rural population share remained constant while the level of poverty within urban/rural areas changed. Second, the population shift effect estimates changes to the overall poverty rate if the poverty rate in rural/urban areas remained constant while there was a change in the share of the urban/rural population. However, the population shift neither considers the effect of migration (since rural residents with a high likelihood to be economically successful tend to migrate from rural to urban areas) nor spillover effects (i.e., that urban economies benefit nearby rural villages). Nevertheless, this still offers useful insight into understanding the linkages between urbanization and poverty reduction.

[133] Poverty reduction within urban areas accounted for only 6.0 percent (3.0 percent in Nairobi and 3.0 percent in other urban areas) of the intra-sectoral effect, while rural areas accounted for 94.0 percent.

5.1.2 Urban-rural linkages

Rural to urban migration accounted for 26 percent of the recent internal migration of Kenya's male population. About 20 percent of working-age men in Kenya moved to their residence within the last four years.[134] Among them, about 26 percent were migrants from rural to urban areas: 11 percent had moved to large cities (either Nairobi, Mombasa, or Kisumu) and another 15 percent had moved to other urban areas. As a result, a significant portion of men has recently moved into their current residence in urban areas. Among the current male urban population (between 15 and 54 years old), around 30 percent of men moved to their current residence within the last four years, and another 16.0 percent of men moved to their current residence between four and eight years ago (Appendix E). Internal migrants are concentrated in or near major cities (Figure 5.8).

Table 5.1: Recent male migration by origin and destination

		Destination		
		Nairobi / Mombasa / Kisumu	Other urban	Rural
Origin	Nairobi / Mombasa / Kisumu	15%	5%	6%
	Other urban	4%	14%	9%
	Rural	11%	15%	21%

Source: Staff calculation with DHS 2014.
Note: Numbers show the share of internal migration during the last four years (only men between 15 and 54 years old).

Meanwhile, a large portion of the population has also moved from urban to rural areas, partly offsetting rural-to-urban migration. Urban-to-rural migration accounted for about 15 percent of Kenya's internal migration during the last four years. The share of the country's working-age men who recently migrated from urban to rural areas was relatively high in Muranga, Taita Taveta, Turkana, and Vihiga. These provinces have accommodated many migrants from Nairobi, Mombasa, and Kisumu, while Nyandarua, Tana River, Lamu, Marsabit, Mandera, Nyamira, Samburu, and Kajiado have received migrants from other areas (Appendix E).[135]

The extent to which urbanization has contributed to poverty reduction depends to a large degree on who migrated to/from urban areas. The direct effect is unclear if urban areas attracted mostly non-poor migrants from rural areas. Moreover, the effect is not necessarily clear even if poor rural households migrated to urban areas and managed to escape poverty. The direct effect of internal migration on poverty reduction is only clear if households that migrated to urban areas would have remained poor had they stayed in rural areas. An understanding of the selection mechanism that determines whether or not a household migrates based on their current and prospected economic status is therefore crucial in gauging the impact of urbanization on poverty reduction.[136]

While recent rural migrants living in Nairobi and Mombasa are more well-off than rural residents, there is no clear difference observed in other urban areas. When male individuals are ranked based on the Composition of Wealth index, which measures the assets held by households, few recently settled migrants in Nairobi and Mombasa are ranked in the bottom 40 percent of the population based on wealth (Figure 5.9). This wealth gap between recently migrated rural households living in urban areas and rural residents could potentially be due to a better ability to generate assets while living in cities. However, the most likely explanation is migration selection—that rural residents with already high levels of human and physical capital have moved to Nairobi and Mombasa. Outside of Nairobi and Mombasa, the distribution of the wealth index does not differ much between rural-to-urban migrants and rural residents, which is consistent with the small gap in poverty rates between urban (excluding Nairobi) and rural areas.

[134] The analysis is based on the DHS 2014. The analysis focuses on the internal migration of male populations because of the lack of information about female migrants. Since men tend to be more mobile than women, actual migration rates of the total population would be lower than what is reported here.

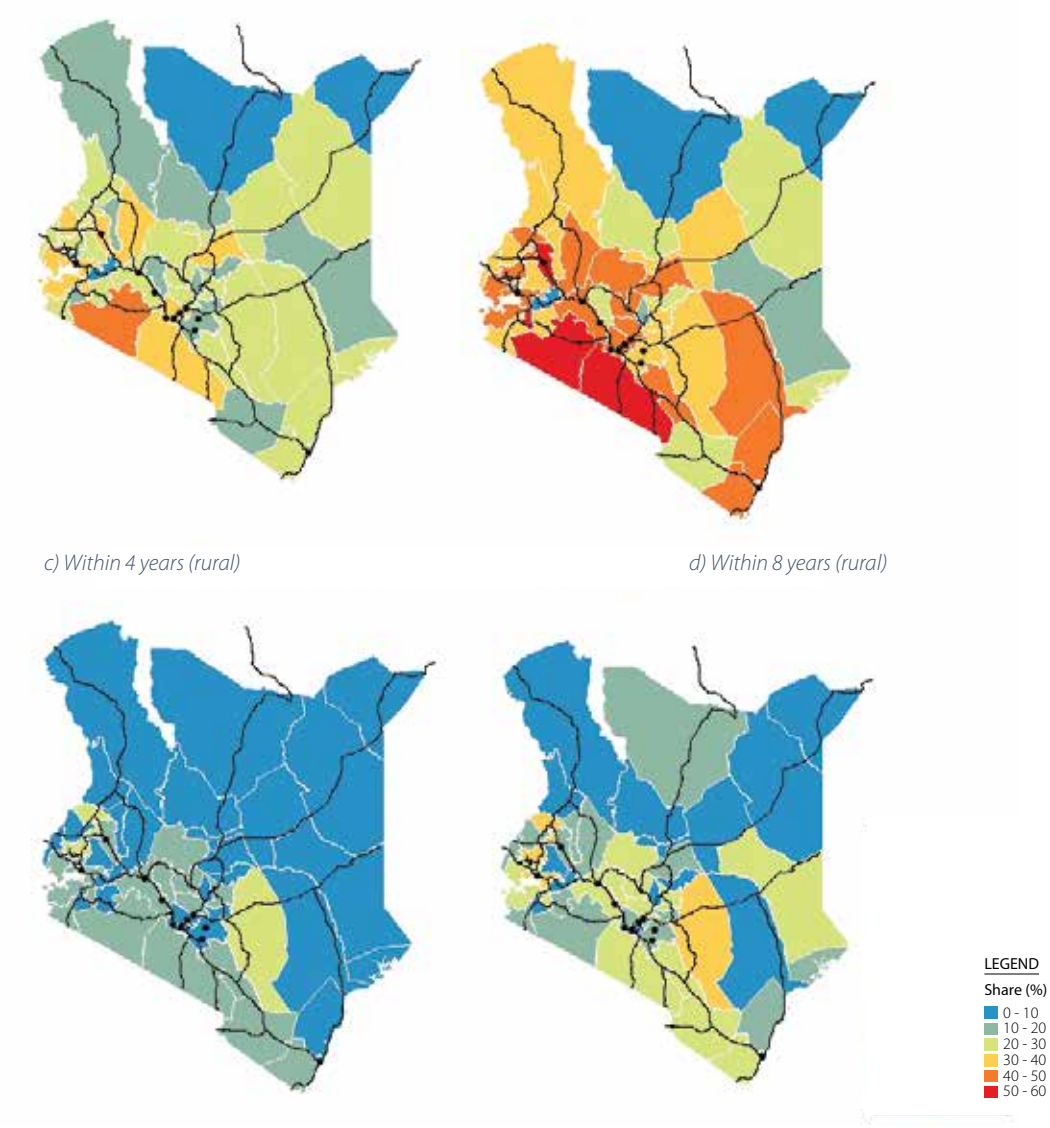
[135] The temporary nature of migration is also reflected in the 20 percent of urban households that own land outside of the city (probably agricultural land in rural areas). Also, around 20 percent of households in informal settlement areas (and 15 percent of households in non-informal settlement areas) also own a second home outside of the city.

[136] Unfortunately, the latest KIHBS does not contain any migration-related questions, which makes it difficult to assess the welfare impacts of internal migration. Therefore, the DHS 2014 and the Cities Baseline Survey 2013 are used for this analysis (see Appendix A for data descriptions).

Figure 5.8: Share of recent migrants in urban areas in 47 counties, 2014

a) Within 4 years (urban)

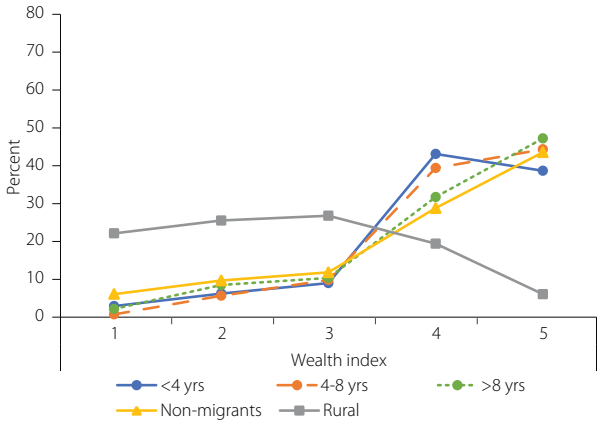
b) Within 8 years (urban)



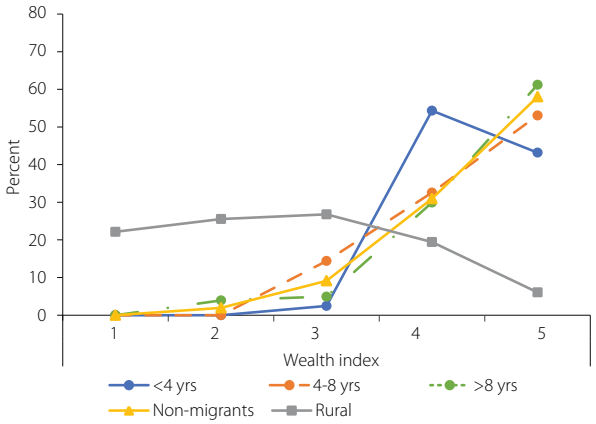
Source: Staff calculations based on the 2014 DHS.
Note: Share of men who moved to their current residence in urban (panels a and b) and rural areas (panels c and d) within a specific time period. Major cities and roads are also shown.

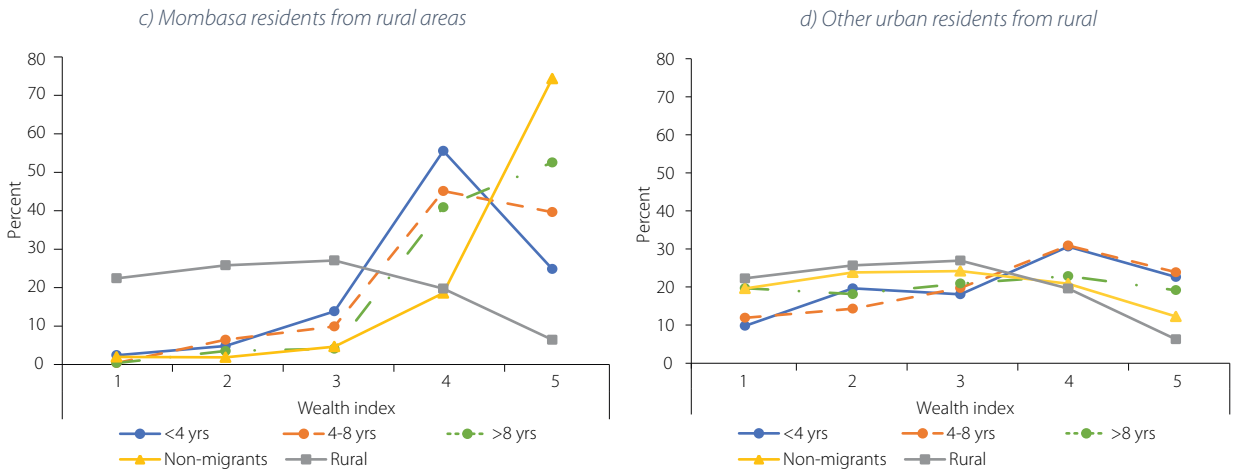
Figure 5.9: Wealth index by migration status, 2014

a) Urban residents from rural areas



b) Nairobi residents from rural areas





Source: Staff calculation based on the 2014 DHS.
Note: Graph shows the distributions of male migrants from rural areas by quintile in the Composition of Wealth index. Rural non-migrant males are also shown for comparison.

Domestic remittances are another aspect of urbanization that affect poverty reduction. A majority of urban residents sent cash to their family members (mostly in rural areas) during the last three months.[137] Despite the wide consumption gap between residents that live in informal settlement and non-informal settlement areas, households that live in informal settlement areas send remittances at a higher rate than households in non-informal settlement areas. This probably reflects the high proportion of migrants living in informal settlement areas, enduring inadequate living conditions to support rural family members or relatives. More than Ksh4,000 is on average sent from urban to rural areas every three months, which translates into a 10 percent increase in per capita consumption for receiving households.[138]

5.2 DIAGNOSTIC OF URBAN POVERTY

The share of non-poor households' budgets dedicated to food increased in the last decade. In addition, housing costs constrained household finances in medium- and small-sized towns, reflecting higher rates of urbanization and a rise in the cost of living. While access to basic services improved among urban households, including the urban poor, the gap in access between the poor and non-poor households remains wide.

5.2.1 Monetary dimension

Poor urban households spend a large portion of their income on food and housing, and consumption patterns have changed little during the last decade. In 2015/16, urban households spent an average of 46.6 percent of their monthly expenditure on food, 15.1 percent on housing, 6.3 percent on utilities, 7.7 percent on transport, 7.4 percent on education, and 16.9 percent on other goods and services (Figure 5.10a).[139] This expenditure pattern was similar between households in Nairobi (Figure 5.10b), Mombasa (Figure 5.10c), and other urban areas (Figure 5.10d). Moreover, poor households allocate a large share of their income to food (53.0 percent) and only a small fraction to transport (3.2 percent), which limits their job accessibility and potentially lowers their (and the city's) economic performance. Poor households also spend more on utilities (8.9 percent) than other households, probably because they are more likely to rely on services with higher unit costs.[140] Finally, poor households in Nairobi and Mombasa allocate a larger portion of their expenditure to education than non-poor households.

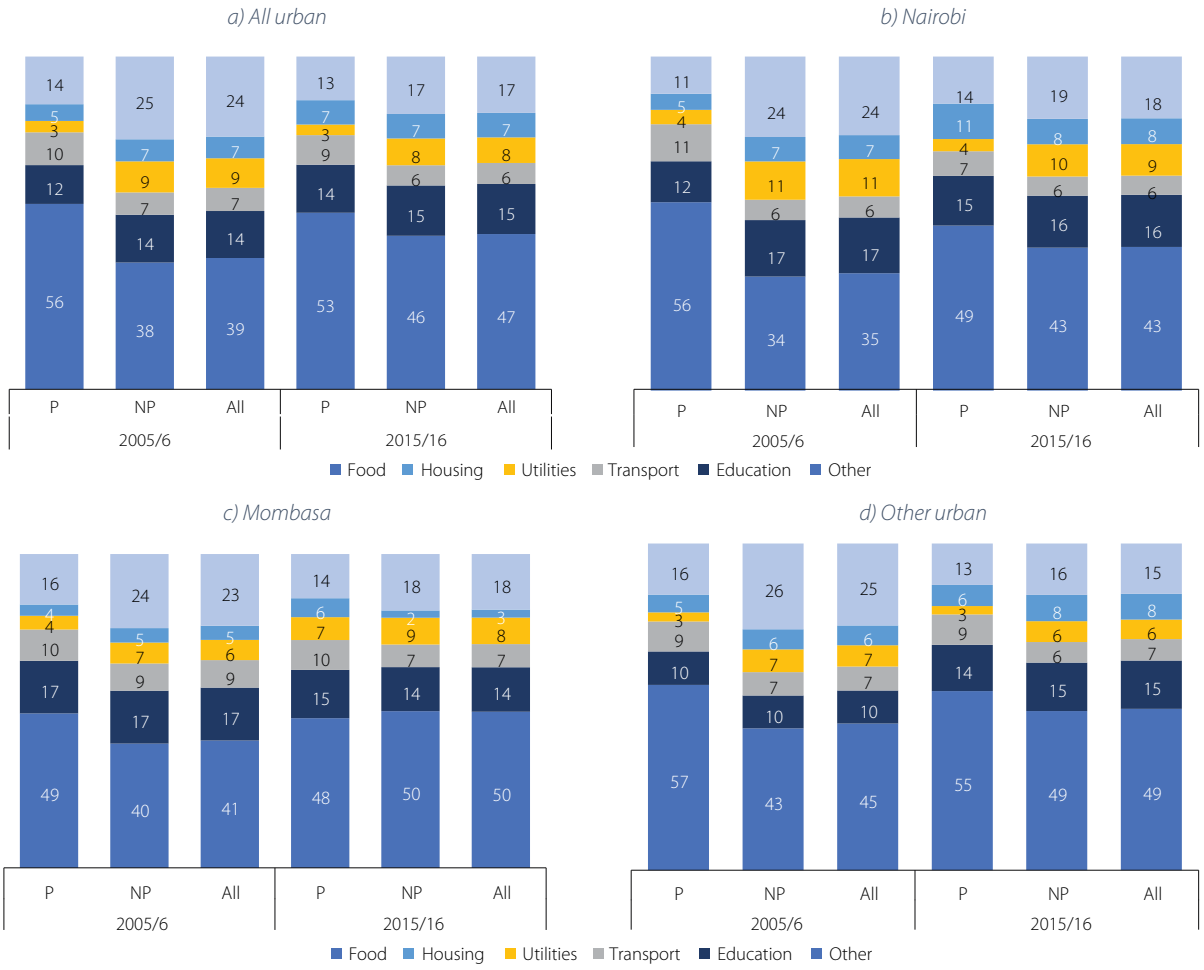
137 The analysis is based on the Cities Baseline Survey 2013.

138 Meanwhile, about 20 percent of urban households received cash from other family members during the last three months. Most cash transfers came from urban areas, though the average amount of money transferred was much smaller compared with urban-to-rural transfers.

139 Housing rents were imputed for owners.

140 The previous poverty assessment (World Bank 2009, p.57-58) mentions that toilet facilities were more expensive than food in Nairobi informal settlements: toilet facilities cost Ksh5 per visit per family member, regardless of the nature of the visit. It also mentions that informal dwellers pay approximately eight times more for water than their non-informal settlement counterparts in Nairobi, as the latter pay a standard rate of Ksh120 shillings for up to 10,000 liters of water.

Figure 5.10: Share of household expenditure in urban Kenya, 2005/06 and 2015/16



Source: Staff calculation based on KIHBS 2005/6 and 2015/16.
Note: Based on per adult equivalent monthly consumption (spatially deflated). P: poor based on absolute poverty line; NP: non-poor.

Urban households' food expenditure has been rising at a concerning rate. Household spending on food increased as a share of total spending in all urban areas, except for poor households who already allocate a large portion of their budgets to food. The rising share of food expenditure is probably due to the rise in food prices. Food prices, measured by the CPI, have increased more than the prices of non-food items in Kenya since 2005.[141]

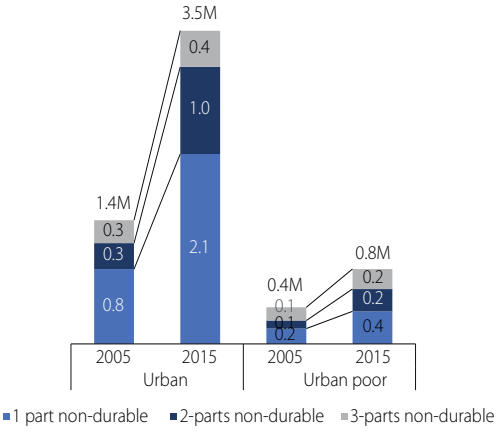
Urban households in populous counties allocate a larger share of their budgets to housing than households in less populous counties. While the share of the budget dedicated to housing remained at the same level in Nairobi between 2005/06 and 2015/16, the share increased from 10.1 percent to 14.8 percent in the other urban areas in the same period, reflecting urban growth in these areas. The share of housing expenditures in total household spending varied within and across counties. For example, the median expenditure share on housing was 7.0-8.0 percent in Baringo, Bungoma, and Wajir counties, whereas the median share reached nearly 20.0 percent in Kajiado. Urban households allocate a larger share of their budgets to housing in counties with a larger urban population. Poor households also spend a lot on housing in counties where non-poor households allocated a large share of their income to housing, although they often avoid paying high rents by living in informal settlement areas.

[141] Kenya's CPI is calculated based on price information collected in Nairobi and 13 other urban centers.

5.2.2 Non-monetary dimension

Despite the increase in housing costs, the majority of urban residents still live in housing of substandard quality. Most of the newly added housing units in urban areas between 2005/06 and 2015/16 were constructed with non-durable materials (Figure 5.11). The number of housing units with either walls, roofs, or floors—or all of these parts—made from non-durable materials increased by 2.1 million during the last ten years. The number of housing units made from durable material increased by only 150,000 units during the same period. Nearly 1 million non-durable housing units currently accommodate the country's urban poor. To increase the supply of affordable housing (one of the Big 4 policy priorities announced by the new administration), it is imperative for the government to address supply-side bottle necks—such as high land costs—and constraints to housing demand—such as the underdeveloped mortgage markets.[142]

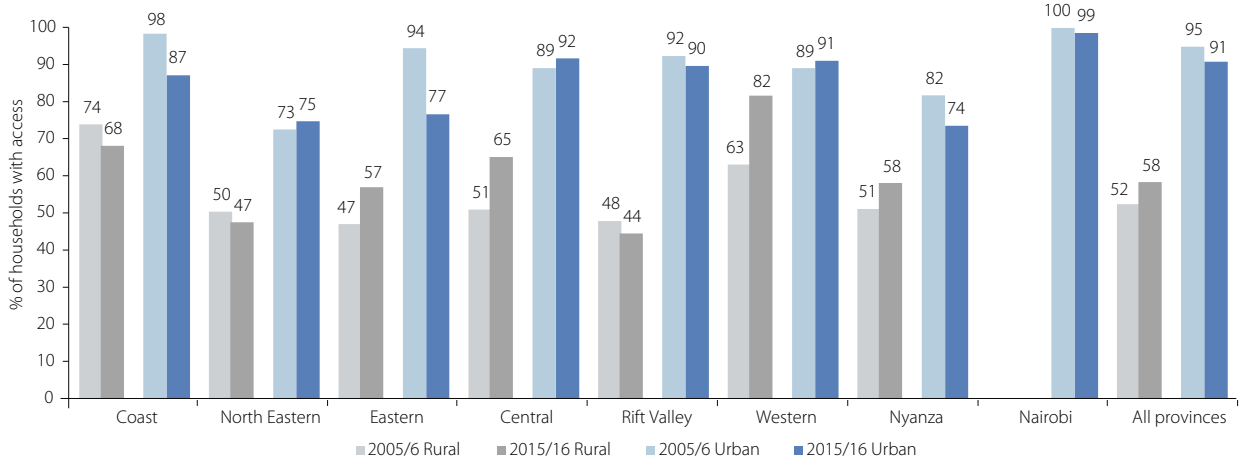
Figure 5.11: Housing units with non-durable structures in urban areas, 2005/06 and 2015/16



Source: Staff calculation based on KIHBS 2005/6 and 2015/16.
Note: Non-durable housing units contain one or more of walls, roof, and floors made of non-durable materials.

While the share of households with access to improved water remains high in urban areas, it has decreased in some provinces during the last decade.[143] Kenya's constitution guarantees access to basic services, such as water, sanitation, and a clean environment, as a basic right for all Kenyans. The share of the population with access to improved water increased in rural areas between 2005/06 and 2015/16. By contrast, the share of urban households with access to improved water slightly decreased from 94.8 percent to 90.8 percent in the same period (Figure 5.12).[144] Access to improved water fell significantly in Coast (98.3 percent to 87.1 percent) and Eastern (94.4 percent to 76.6 percent), an indication that water provision has not kept pace with urbanization in these provinces. While the urban

Figure 5.12: Access to improved water in provinces by urban/rural area, 2005/06 and 2015/16



Source: Staff calculation based on KIHBS 2005/6 and 2015/16.
Note: The main source of drinking water is classified as improved for piped water within a dwelling; piped water outside a dwelling; public tap or standpipes; tube well or borehole with pump; protected dug well; protected spring; tankers or vendor; and bottled water. There are no rural area in Nairobi.

142 World Bank 2018b.

143 The following types of main sources of drinking water are classified as 'improved': piped water within the dwelling; piped water outside the dwelling; public tap or standpipes; tube well or borehole with a pump; protected dug well; protected spring; tankers or vendor; and bottled water.

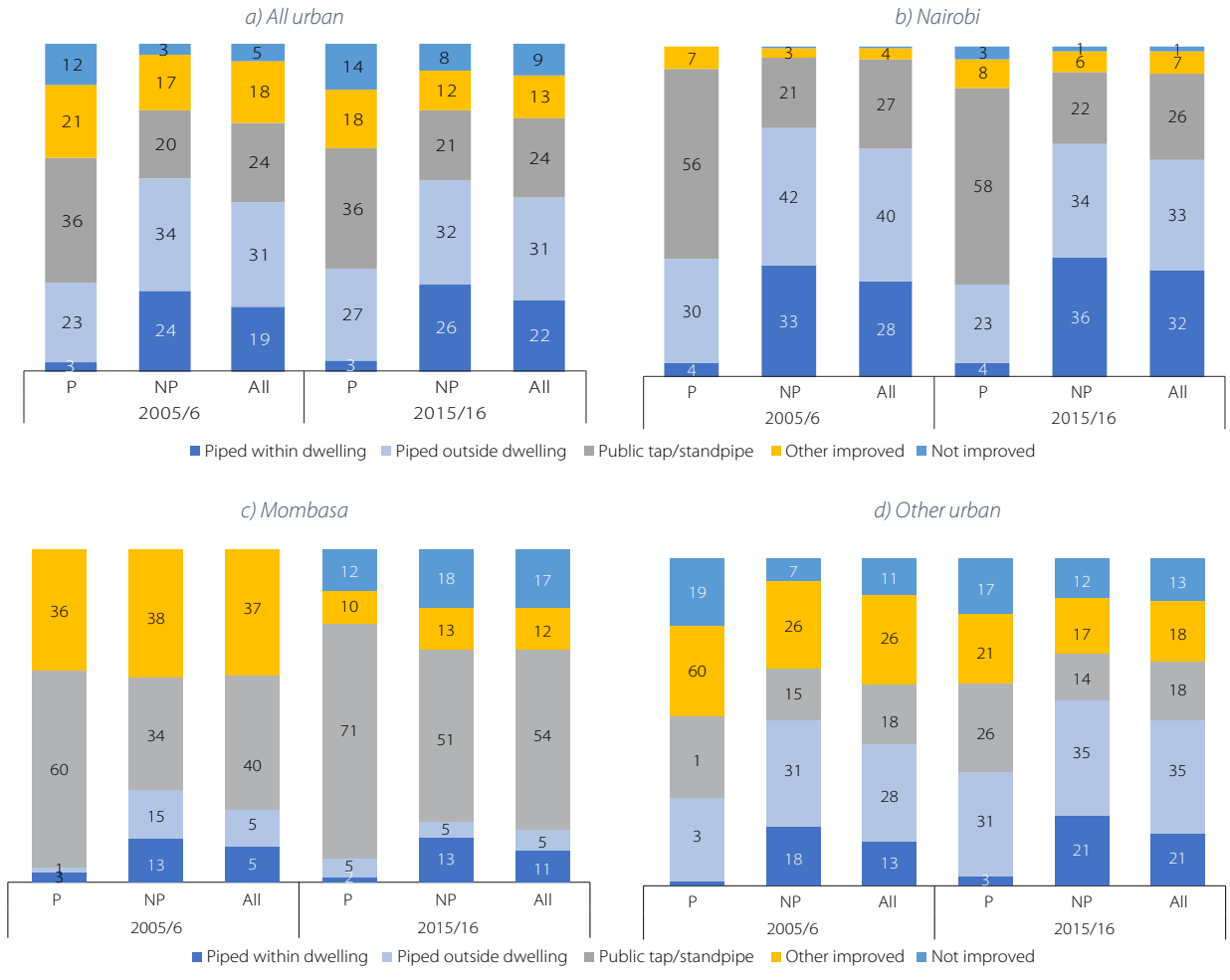
144 The difference is statistically significant at the 1.0 percent level.

population more than doubled between 2005/06 and 2015/16, its rural population remained roughly the same, and the share of rural households with access to improved water increased by 10 percentage points. The Joint Monitoring Program[145] by the WHO and the United Nations Children's Fund has confirmed this downward trend in the share of urban households with access to improved water since the 1990s.

The gap in access to improved water resources between poor and non-poor urban residents is wide and has not converged since 2005/06. While about 92 percent of non-poor households have access to improved drinking water, this figure is only 86 percent for poor households (Figure 5.13a). Moreover, only 3.4 percent of poor households have access to private taps within a dwelling. In Nairobi (Figure 5.13b) and Mombasa (Figure 5.13c), the majority of the poor rely on standpipes (58.2 percent and 71 percent, respectively). Access to improved water is worse in Mombasa than in Nairobi: only 16.6 percent of its residents have access to water taps, and the share of the population with unimproved water access increased among both poor and non-poor residents. It is important to extend access to basic services to poor households while maintaining affordability and cost recovery, as they spend a larger share of their income on utilities.

The share of households with access to improved sanitation facilities has profoundly increased in urban areas.[146] Between 2005/06 and 2015/16, the share of Kenyan households with access to improved sanitation increased from 66.2 percent to 90.9 percent in urban areas (Figure 5.14a). While all provinces

Figure 5.13: Access to water in urban Kenya, 2005/06 and 2015/16

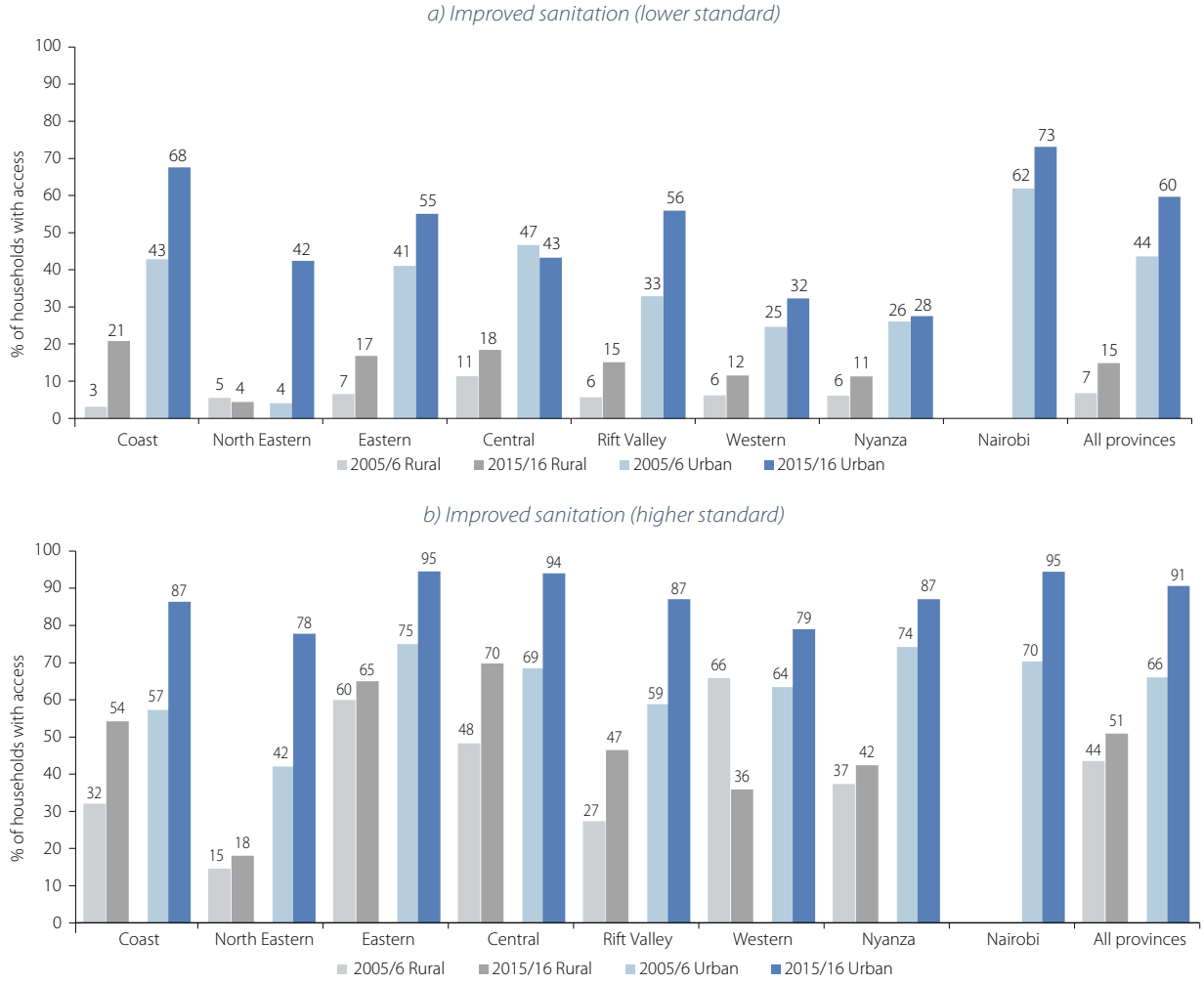


Source: Staff calculation based on KIHBS 2005/6 and 2015/16.
Note: P: poor based on absolute poverty line; NP: non-poor.

[145] WHO/UNICEF, 2014.

[146] Improved sanitation includes the use of flush toilets, VIP latrines, and covered pit latrines.

Figure 5.14: Access to improved sanitation in provinces by urban/rural area, 2005/06 and 2015/16

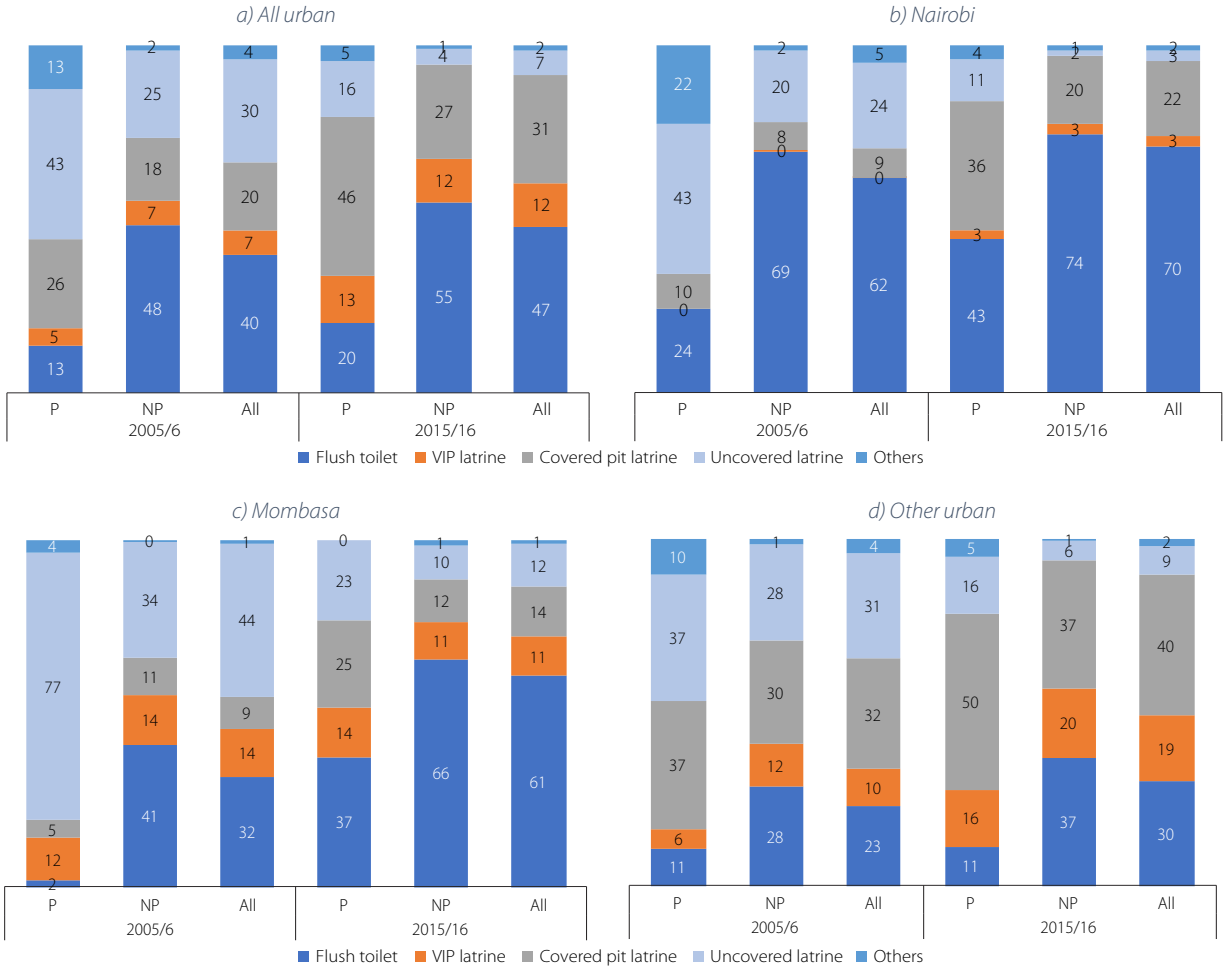


Source: Staff calculation based on KIHBS 2005/6 and 2015/16.
Note: Lower-standard improved sanitation includes flush toilets, VIP latrines, and covered pit latrines (Panel A), and higher-standard improved sanitation includes only flush toilets and VIP latrines (Panel B). There are no rural areas in Nairobi.

improved access to sanitation during this period, the provinces of Coast (57.4 percent to 86.6 percent), Rift Valley (58.9 percent to 87.3 percent), and North Eastern (42.1 percent to 78 percent) made remarkable efforts to catch up with other provinces. However, these achievements are less impressive if compared to a higher standard of improved sanitation, which includes flush toilets and VIP latrines but excludes covered pit latrines (Figure 5.14b). The share of urban households with access to higher-standard improved sanitation increased from 43.6 percent in 2005/06 to 59.7 percent in 2015/16. Yet, less than one-third of households in Western and Nyanza have access to this type of sanitation. Not surprisingly, Nairobi has the highest share of households with access to higher-standard improved sanitation (73 percent).

Similar to water access, the type of sanitation access in urban areas is linked to a household's level of consumption. 54.5 percent and 12.1 percent of non-poor residents used flush toilets and VIP latrines, respectively (Figure 5.15a) in 2015/16. By contrast, only 19.5 percent and 12.1 percent of poor households relied on the same sanitation facilities in the same period. Nevertheless, poor residents managed to catch up with their non-poor counterparts over the last decade. For example, the share of poor households with uncovered pits dramatically dropped between 2005/06 and 2015/16, from 43.3 percent to 11.5 percent in Nairobi, and from 77.3 percent to 23.3 percent in Mombasa. Still, only 29.7 percent of households (11.2 percent among poor households) in Kenya's other urban areas used flush toilets in 2015/16 (Figure 5.15d).

Figure 5.15: Access to improved sanitation in urban Kenya, 2005/06 and 2015/16



Source: Staff calculation based on KIHBS 2005/6 and 2015/16.
Note: 'others' include... P: poor based on absolute poverty line; NP: non-poor.

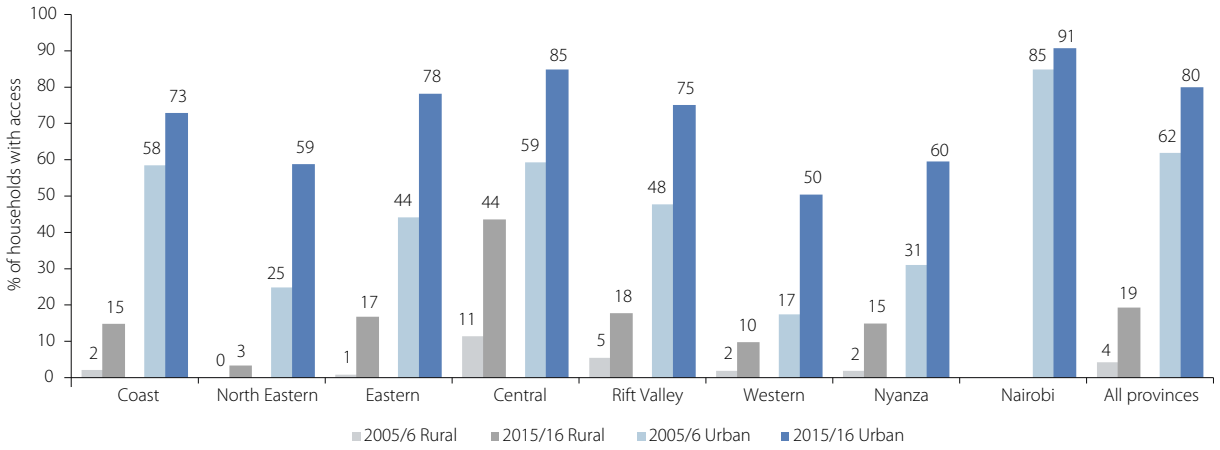
Access to electricity improved dramatically in urban Kenya over the last decade. The proportion of urban households that use electricity as their main source of lighting increased from 61.8 percent in 2005/06 to 80 percent in 2015/16 (Figure 5.16). There was a significant increase in electricity users in Eastern (44.2 percent to 78.2 percent), Central (59.3 percent to 84.8 percent), Rift Valley (47.7 percent to 75.1 percent), North Eastern (24.8 percent to 58.8 percent), Western (17.4 percent to 50.4 percent), and Nyanza (31 percent to 59.5 percent). Nairobi also increased its share of households that use electricity from 84.9 percent to 90.7 percent in the same period.

Yet, poorer households still have limited access to electricity in urban areas. Poorer households are more likely to rely on non-electric sources of lighting (Figure 5.17). While nearly 90.0 percent of non-poor urban households use electricity, only 54.2 percent of the urban poor are electricity users (Figure 5.17a). The situation in Nairobi is relatively better, as 77.2 percent of the city's poor households have electricity access (Figure 5.17b). Compared to Nairobi, poor residents are less likely to have access to electricity in Mombasa (Figure 5.17c) and other urban areas (Figure 5.17d).

Health conditions are not necessarily better in urban than in rural areas. This is especially true for living conditions in urban informal settlements. For example, households in urban informal settlement areas score lower than households in rural areas on health indicators covering early childhood mortality, child malnutrition, and the prevalence of childhood illness.[147] Nevertheless, the health gap between urban informal settlement areas and rural areas has been shrinking. Still, while Kenya's under-five mortality rate has dropped significantly since 2000 (from 151.0 in 2002 to 79.8 in

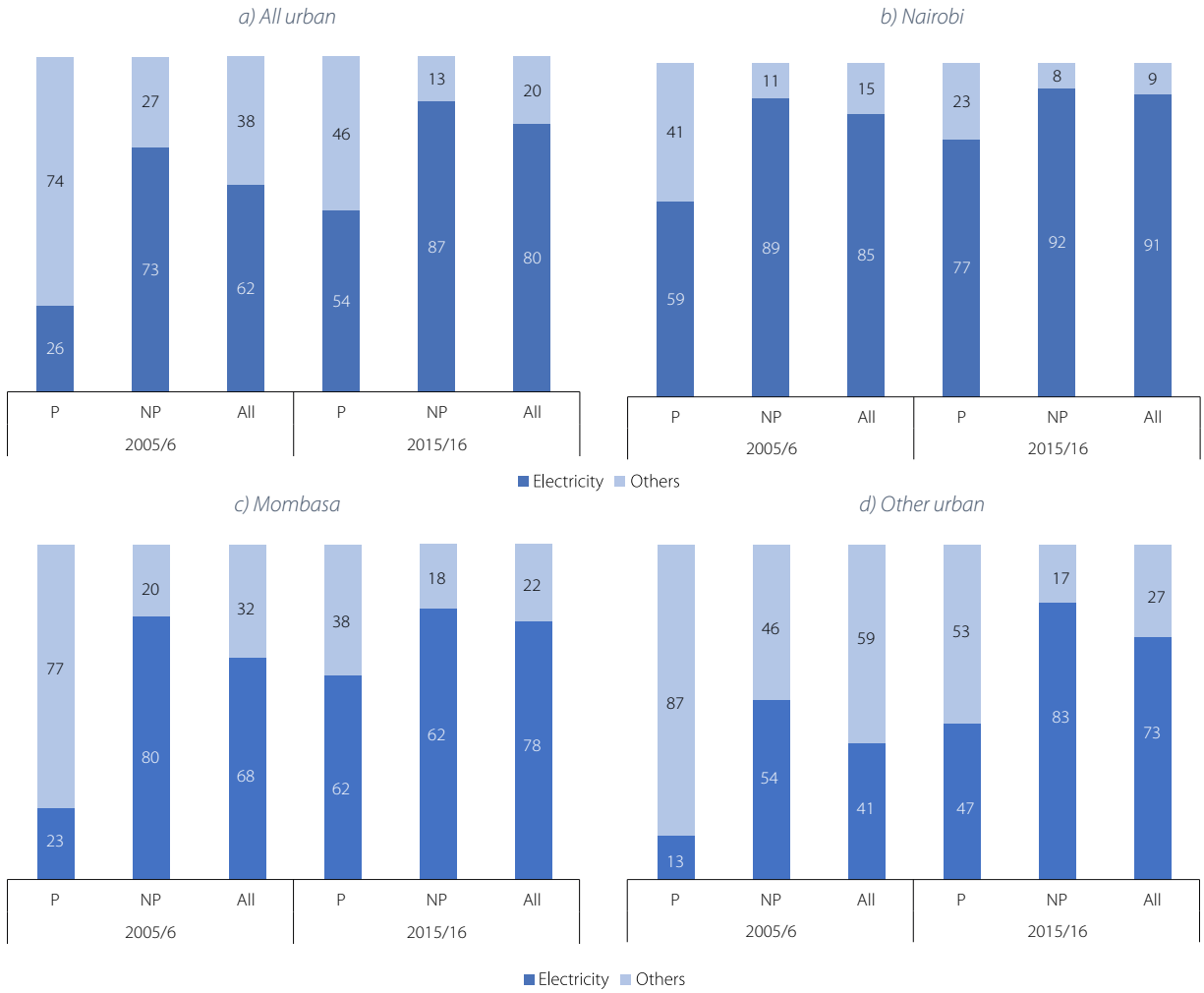
[147] Mberu *et al.* 2016.

Figure 5.16: Access to electricity in provinces by urban/rural area, 2005/06 and 2015/16



Source: Staff calculation based on KIHBS 2005/6 and 2015/16.
Note: There are no rural areas in Nairobi.

Figure 5.17: Access to electricity in urban Kenya, 2005/06 and 2015/16



Source: Staff calculation based on KIHBS 2005/6 and 2015/16.
Note: 'others' include... P: poor based on absolute poverty line; NP: non-poor.

2012), it is still higher in Nairobi's informal settlements than in any other areas of the country, including rural areas (56.0 in 2014). Moreover, although the prevalence of diarrhea in Nairobi's informal settlements dropped from 30.8 percent of the population in 2002 to 20.2 percent in 2012, it is still higher than in any other area, including rural areas (15.7 percent in 2014). The TFR in Nairobi's informal settlements (4.0 in 2000 and 3.5 in 2012) is lower than in rural areas, but it is still higher than in any other urban area. Kenya's high rate of natural population growth has contributed to the expansion of urban informal settlements.

5.3 URBAN LABOR MARKETS

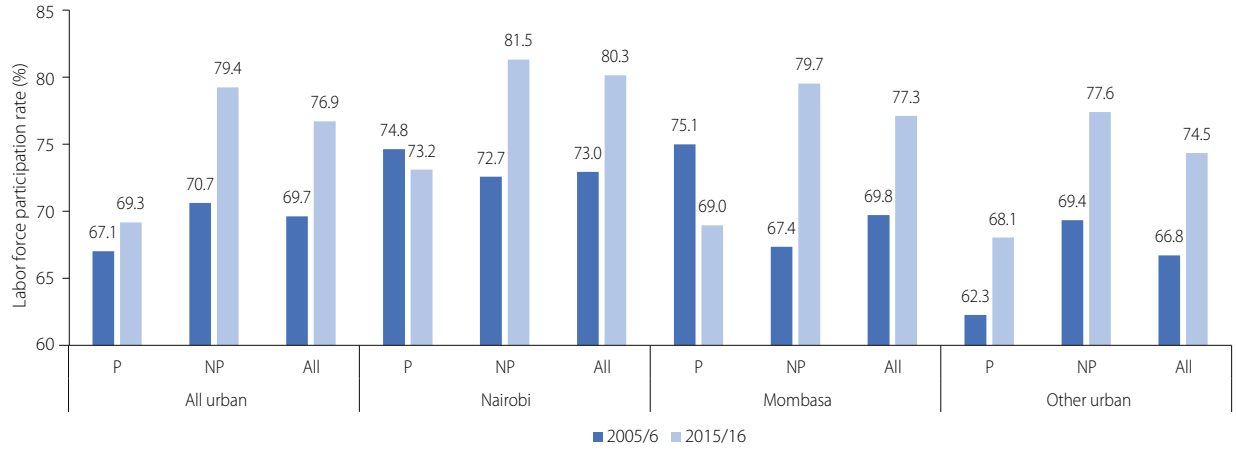
While the urban unemployment rate fell dramatically in the last decade, a large portion of women, the youth, and the urban poor—particularly in Nairobi—remains unemployed. An increase in urban construction jobs has provided job opportunities with relatively high earnings for the poor. However, these jobs are often unreliable. For example, nearly 90.0 percent of construction jobs in Nairobi are classified as casual work. As a result, about 40.0 percent of poor households in Nairobi are casual workers. Moreover, Nairobi's low job accessibility is likely imposing a severe burden on poor households and informal settlement residents in their search for well-paid and/or formal jobs, worsening inefficiencies in labor markets. Linkages need to be improved between workers and jobs in urban areas to improve employment conditions for Kenya's most vulnerable groups.

5.3.1 Employment status

Poor households are less likely to be active in the labor market despite an increase in labor force participation rates between 2005/06 and 2015/16. In urban Kenya, the labor force participation rate rose from 69.7 percent in 2005/06 to 76.9 percent in 2015/16 (Figure 5.18). However, this was mostly due to increased participation by the non-poor, as labor force participation rates among the poor dropped in Nairobi and Mombasa.

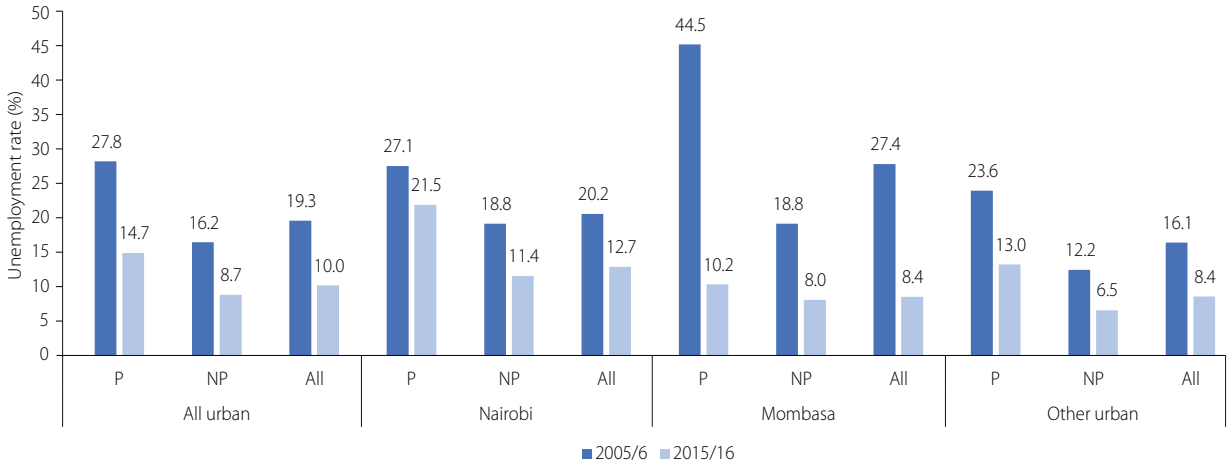
While Kenya's unemployment rate decreased significantly in the past decade, it remains relatively low in Nairobi and among women and the youth. The urban unemployment rate declined from 19.3 percent in 2005/06 to 10 percent in 2015/16 (Figure 5.19). In particular, the unemployment rate among the urban poor dropped by an impressive 13 percentage points in the same period—from 27.8 percent to 14.7 percent. Nairobi has a higher unemployment rate (12.7 percent) than other urban areas (8.4 percent). Despite the overall reduction in unemployment, more than a fifth of the poor in Nairobi remains unemployed. Unemployment rates vary widely across counties, with the highest rates in Nairobi. There were nearly 250,000 unemployed workers in Nairobi in 2015/16. The unemployment rate is also higher among women and the youth in many counties.

Figure 5.18: Labor force participation rates in urban Kenya, 2005/06 and 2015/16



Source: Staff calculation based on KIHBS 2005/6 and 2015/16
Note: P: poor based on absolute poverty line; NP: non-poor.

Figure 5.19: Unemployment rates in urban Kenya, 2005/6 and 2015/16

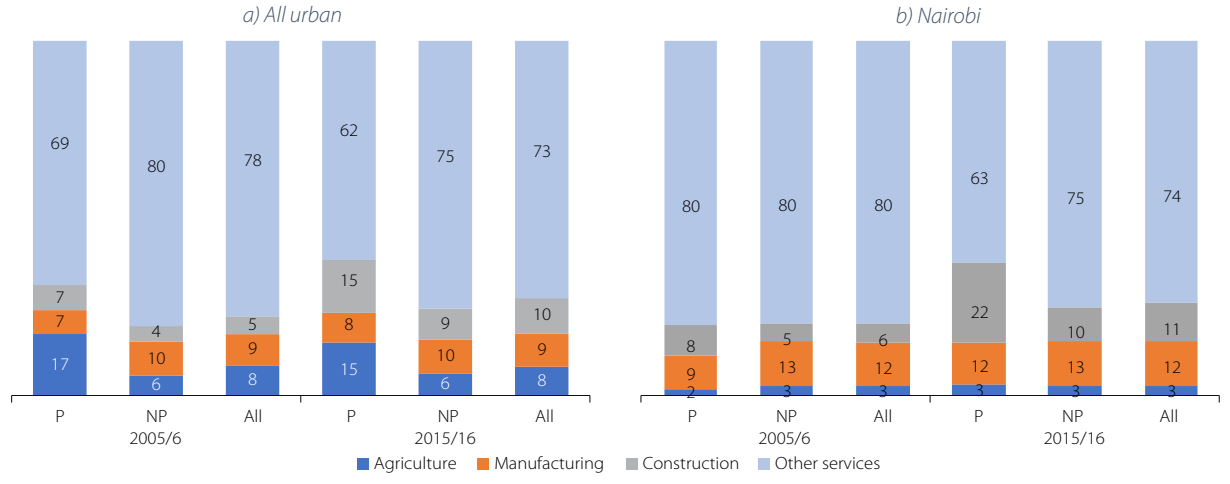


Source: Staff calculation based on KIHBS 2005/6 and 2015/16.
Note: P: poor based on absolute poverty line; NP: non-poor.

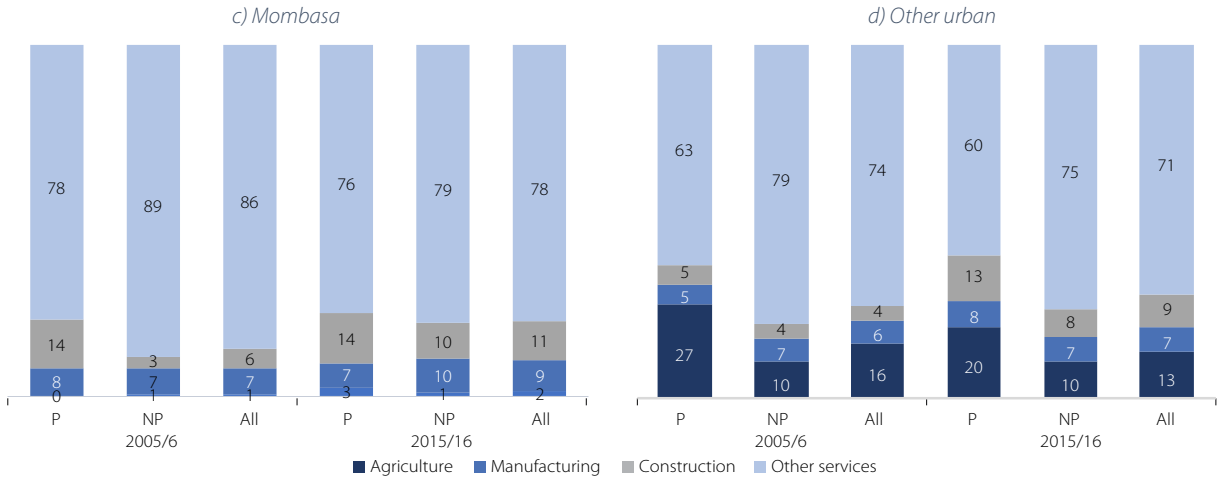
Although a majority of urban workers are in the service sector, there has been an impressive increase in the share of construction jobs among the poor in Nairobi. Service sector jobs are dominant in urban Kenya: 72.5 percent of urban residents worked in services in 2015/16 (Figure 5.20). By contrast, construction jobs only accounted for 10.1 percent of all urban jobs in the same period. However, the share of construction jobs among the urban poor in Nairobi increased from a mere 8.4 percent in 2005/06 to 22.4 percent in 2015/16 (Figure 5.20b). Poor workers also transitioned from agriculture to construction in other urban areas (Figure 5.20d). There are only a limited number of manufacturing jobs in urban Kenya, accounting for 9.3 percent of all jobs in 2015/16.[148] Compared with their male counterparts, female workers are more likely to work in the service sector (82.0 percent versus 64.0 percent) and less likely to engage in construction activities (1 percent versus 17 percent).

The composition of employment types has been stable in urban areas during the last decade. In 2015/16, around 62.0 percent of workers were paid employees, 1.0 percent were working employers, 33.0 percent were own-account workers, and the remaining 3.0 percent were classified as other employment types (Figure 5.21). This overall employment composition has changed little since 2005/06, except that the poor are no longer less likely to work as paid employees.

Figure 5.20: Economic sectors of workers in urban Kenya, 2005/6 and 2015/16

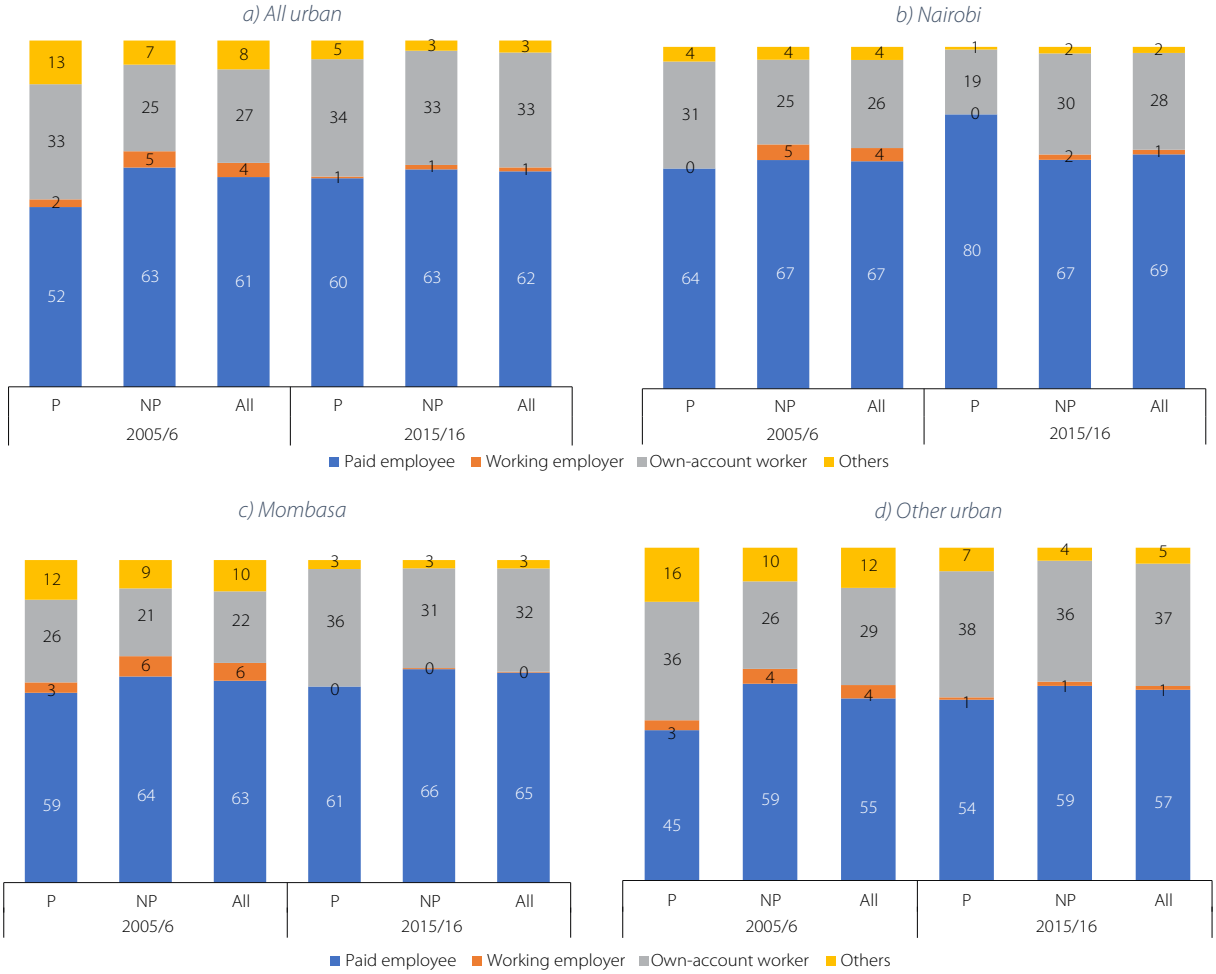


[148] Appendix E shows the distribution of economic sectors by county.



Source: Staff calculation based on KIHBS 2005/6 and 2015/16.
Note: P: poor based on absolute poverty line; NP: non-poor.

Figure 5.21: Employment in urban Kenya, 2005/06 and 2015/16



Source: Staff calculation based on KIHBS 2005/6 and 2015/16.
Note: P: poor based on absolute poverty line; NP: non-poor.

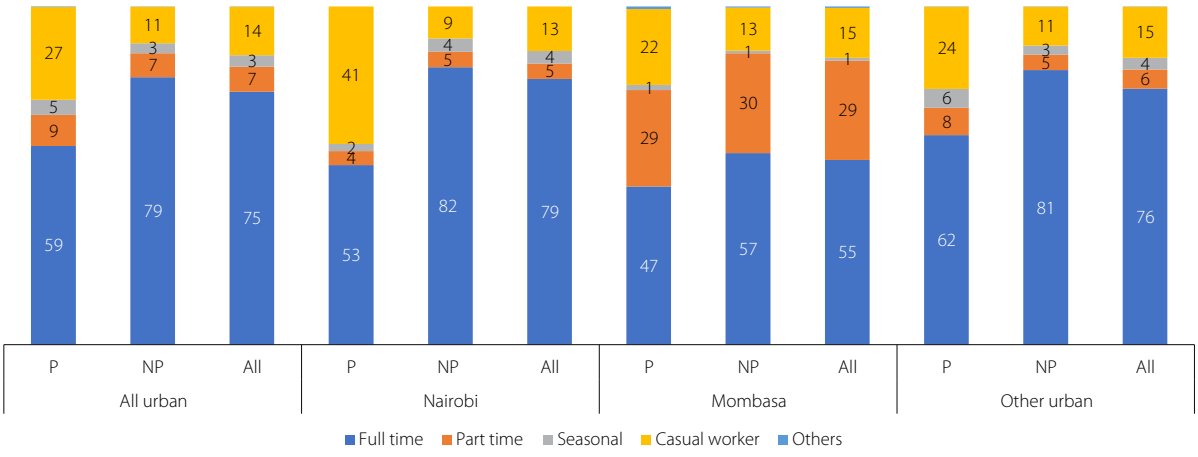
A large portion of the urban poor—particularly in Nairobi—is classified as casual workers. In 2015/16, 74.8 percent of urban workers had full-time jobs, while 7.4 percent and 14.3 percent were employed part-time or as casual workers, respectively (Figure 5.22). Poor workers are more likely to be insecure, as about 27 percent of them were casual workers in 2015/16. Additionally, around 40 percent of poor workers worked in construction in the same period. Since nearly 90 percent of construction jobs in Nairobi are considered casual, 40.6 percent of poor workers have casual jobs, much higher than 9.4 percent of non-poor workers.

5.3.2 Labor income

Labor incomes tend to be higher in urban areas for older workers, men, workers with more education, and laborers with written employment contracts. There is a wide gender pay gap in Kenya: female workers earn 44–54 percent less than men, even when age, education, the nature of work, and working hours are statistically controlled for.[149] The difference in income between men and women is even bigger in urban areas than at the national level (see Chapter 3). Moreover, workers that have completed secondary education earn on average 18–29 percent more than workers with primary or no education. Also, the average earnings of workers with higher education are more than double that of workers with primary or no education. Finally, workers with no written employment contract earn less than half that of workers with written contracts.

Women, workers with little or no education, and workers from poor households earn relatively well in the construction sector. The median monthly labor income for urban workers in the manufacturing sector (Ksh14,000) is higher than in services (Ksh12,000) and construction (Ksh12,000) (Table 5.2). Agriculture income (median of Ksh5,500 per month) is substantially lower than in either of these sectors. Poor workers who work in construction earn more than workers employed in the service sector (Ksh10,000 versus Ksh7,500 per month). Non-poor workers earn a similar wage across the manufacturing, services, and construction sectors (around Ksh15,000 per month). In addition, women and workers with little or no education earn relatively well with construction jobs compared to jobs in the service sector. However, only a tiny share of women works in construction.

Figure 5.22: Job types in urban Kenya, 2015/16



Source: Staff calculation based on KIHBS 2015/16.
Note: P: poor based on absolute poverty line; NP: non-poor.

[149] The description is based on a regression analysis with a natural logarithm of monthly labor income (with housing allowance). Appendix E summarizes the results for urban areas in Kenya. Excluding housing allowances and/or controlling for hours worked did not change the findings (not reported).

Table 5.2: Median nominal wage by economic sector in urban Kenya, 2015/16

		All urban	Nairobi	Mombasa	Other urban
All workers	Agriculture	5,500			4,200
	Manufacturing	14,000	15,000	15,000	10,800
	Services	12,000	12,000	13,000	11,600
	Construction	12,000	13,000	15,000	12,000
Poor workers	Agriculture	3,000			3,000
	Manufacturing	9,500	12,000	11,500	8,000
	Services	7,500	8,000	9,000	7,000
	Construction	10,000	10,500	16,000	9,000
Non-poor workers	Agriculture	6,000			6,000
	Manufacturing	15,000	15,000	15,000	14,250
	Services	14,400	15,000	15,000	14,000
	Construction	15,000	15,000	15,000	13,000

Source: Staff calculation with KIHBS 2015/16.

Although manufacturing jobs only account for 12.0 percent of all jobs in Nairobi, they offer relatively good salaries for workers with little or no education. Workers earn on average higher wages in the manufacturing sector than in services, and manufacturing jobs pay especially well for less educated workers.

5.3.3 Job accessibility

Urban households' mode of transportation remained largely unchanged between 2005/06 and 2015/16. There was only a slight decrease in the share of workers that commuted by foot and a small increase in the share of minibus commuters (Figure 5.23a). Workers from more well-off households tend to commute by minibus, while poorer workers are more likely to walk to work. Only households in the top 20 percent of the income distribution commute with their own cars. In Nairobi, 39.4 percent of workers walk to work; 38.5 percent use minibuses; 5.2 percent commute with their own cars; and the remaining 18.0 percent use other transport options (Figure 5.23b). About 75 percent of households in the bottom 20 percent of the income distribution walk to work. The share of workers that commute by minibus is much smaller in other urban areas than in Nairobi (Figure 5.23c). Women's mobility tends to be more restricted. For example, women in Nairobi's informal settlements are less likely to travel outside their settlements for work, and if they do, they are less likely to use motorized transport.[150]

Improving job accessibility will be key to achieving functioning labor markets in Kenyan cities. A worker's labor performance is dependent on job accessibility—the available number of job opportunities that can be accessed within a certain travel time (Box 5.3). Limited job accessibility imposes high job-search costs, hindering an efficient matching between workers and jobs, which lowers the benefits of agglomeration economies. In Kenya, job accessibility is especially low for workers in Nairobi.[151] Using a minibus, the main form of motorized transport in Nairobi, a worker can reach 4 percent (within 30 minutes), 10.8 percent (within 45 minutes), and 23.9 percent (within 60 minutes) of existing jobs (Table 5.3). This level of job accessibility is lower than that of comparable cities. For example, in the metropolitan area of Buenos Aires in Argentina, an urban area that has four times the population of Nairobi, accessibility figures using public transportation are 7.0 percent, 18 percent, and 34 percent for the same time thresholds.[152] In addition, in Greater Dakar in Senegal, an urban area roughly equivalent to the size of Nairobi with a population above 3 million, the share of accessible jobs within 1 hour is 52.0 percent—more than twice the level in Nairobi.[153]

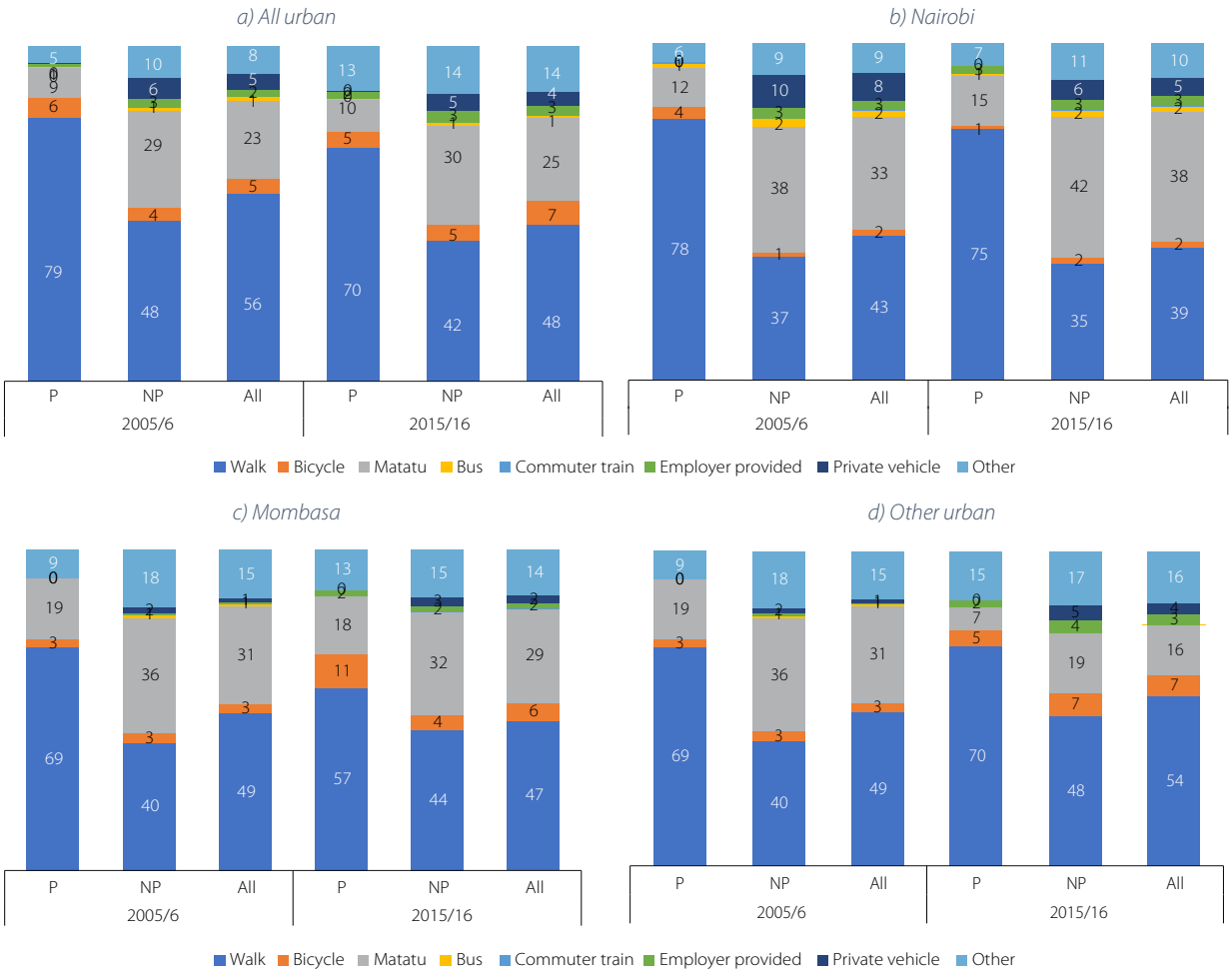
[150] Salon and Gulyani 2010.

[151] Nakamura and Avner (2018) measured job accessibility in Nairobi by combining various datasets. Table 5.3 shows a calculated job accessibility index at the 1km^2 grid cells: the share of accessible jobs by (A) foot, (B) minibus, or (C) car within 60 minutes in Nairobi.

[152] Quirós, 2015.

[153] Stokenberga, 2017.

Figure 5.23: Commuting modes in urban Kenya, 2005/6 and 2015/16



Source: Staff calculation based on KIHBS 2005/6 and 2015/16.
Note: P: poor based on absolute poverty line; NP: non-poor.

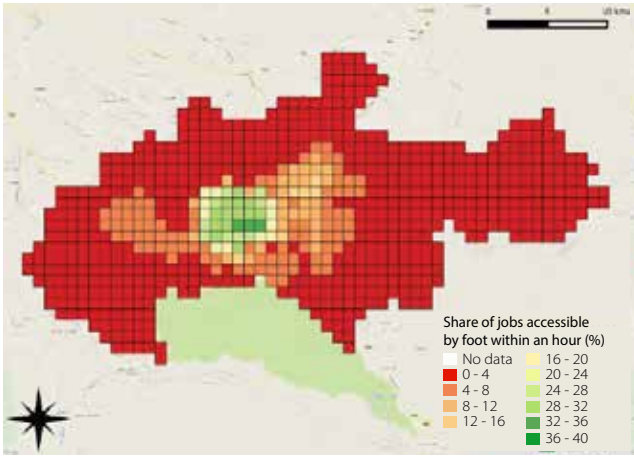
Box 5.3: Job accessibility

Economically dense cities can spur a country's economic growth through agglomeration economies—the economic benefits from a concentration of firms and people in cities. This requires an economy that can efficiently match workers and firms (Duration and Puga 2004, Bertaud 2014). Crowded, disconnected, and costly African cities, however, restrict economies of agglomeration by lowering workers' job accessibility (Lall, Henderson, and Venables 2017). Living farther away from potential employment opportunities increases the job search costs of workers, reducing their chances of finding well-paid and/or formal jobs. Disadvantaged workers may be disproportionally challenged by limited job accessibility, as demonstrated by the spatial mismatch hypothesis (Kain 1968, Gobillion and Selod 2014, Andersson et al. 2014; Aslund, Osth, and Zenou 2010). For example, an RCT recently conducted in Addis Ababa in Ethiopia found that providing a transport subsidy to disadvantaged job-seekers increased their chances of finding better jobs (Abebe et al. 2017).

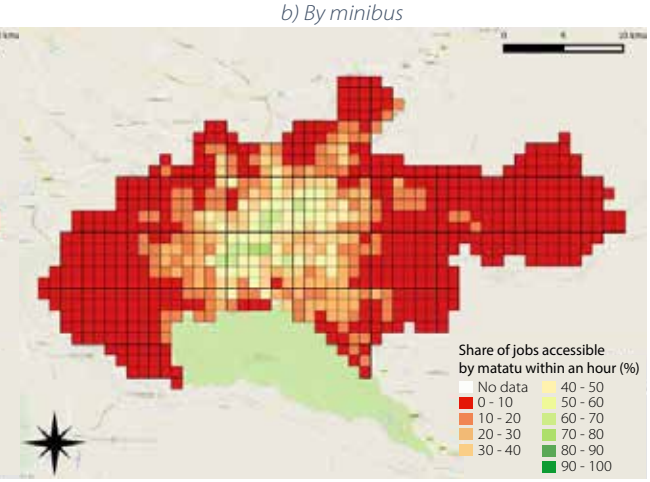
Job accessibility is commonly measured by the number of jobs a candidate can access within a certain travel time (Avner and Lall 2016, Quirós and Mehndiratta 2015). An accurate measurement of job accessibility in a city requires data on (i) the spatial distribution of jobs, (ii) the spatial distribution of households, and (iii) transport networks. Specifically, job accessibility in Nairobi is measured with data from the Nairobi Personal Travel Survey 2013 (JICA 2013), the Cities Baseline Survey (see Appendix B), and minibus network data compiled by the Digital Matatus Project (Willams et al. 2015; Nakamura and Avner 2018) (Figure 5.24).

Figure 5.24: Share of accessible jobs within 60 minutes in Nairobi

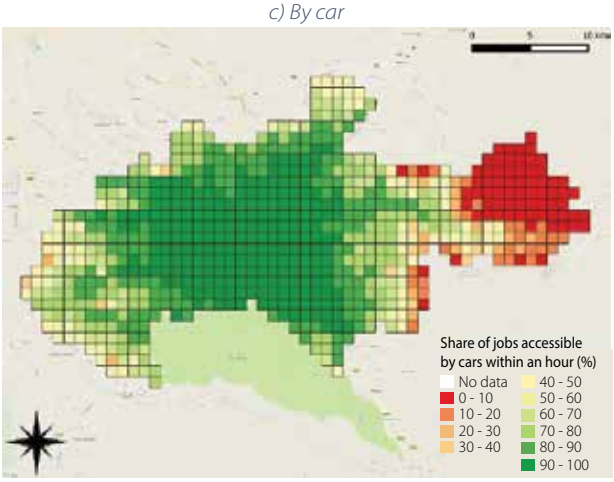
a) By foot



b) By minibus



c) By car



Source: Nakamura and Avner 2018.

Table 5.3: Average share of accessible jobs in Nairobi

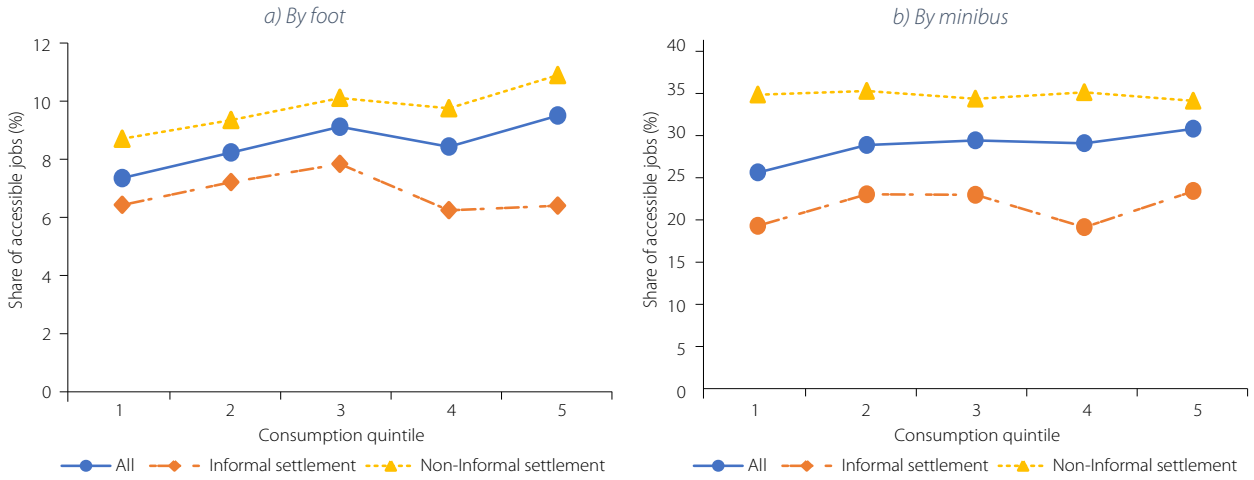
	Walking (1)	Minibus (2)	Cars (3)
Within 30 minutes	1.8%	3.9%	43.7%
Within 45 minutes	4.0%	10.8%	71.8%
Within 60 minutes	7.3%	23.9%	88.7%

Source: Nakamura and Avner 2018.
Note: Numbers are the average share of jobs that Nairobi residents can reach by foot (column 1), minibus (column 2), and car (column 3) within 30, 45, and 60 minutes.

Poor residents in informal settlement areas have a lower level of job accessibility in Nairobi than more well-off residents (Figure 5.25). For example, households in the bottom 20 percent of the consumption distribution can reach 7.4 percent and 25.6 percent of the city's jobs within 60 minutes by foot and by minibus, respectively. By contrast, these figures are 9.5 percent and 30.8 percent for households in the top 20 percent. This means that poorer households can access about 20 percent fewer number of jobs than more well-off households—even if they use the same method of transportation. This gap in job accessibility comes mainly from the fact that poorer households tend to live in informal settlement neighborhoods that lack efficient transport networks.

The labor behavior of workers in Nairobi is well correlated with their level of job accessibility. Households with low consumption levels and/or live in informal settlement neighborhoods tend to walk to work when their job accessibility level is high. For example, a 1.0 percentage point increase in the share of accessible jobs by foot in 60 minutes is associated with a 3.6 percent higher chance of commuting by foot by workers that live in informal settlements. People also tend to spend less time commuting in neighborhoods with good job accessibility. In addition, women are

Figure 5.25: Job accessibility and per capita household expenditure in Nairobi



Source: Nakamura and Avner 2018.
Note: Share of jobs in Nairobi that are accessible within 60 minutes by (A) foot and (B) minibus for households with different consumption quintiles and informal settlement neighborhood status.

more likely to participate in labor markets when they enjoy better job accessibility. A 1.0 percentage point increase in the share of accessible jobs by foot and by minibus in 30 minutes is associated with a 0.84 and 0.59 percent point higher chance of women joining the labor force, respectively.

5.4 URBAN INFORMAL SETTLEMENTS

According to the 2009 census, around 60 percent of urban households live in informal settlements, and 62 percent of Kenya's population that lives in informal settlements lives in Nairobi. The latest KIHBS estimates that 30 percent of households that live in informal settlements are poor. By contrast, only 9.1 percent of Nairobi's residents that live outside of informal settlement neighborhoods are classified as poor. Moreover, there is a stark difference in living standards between informal settlement and non-informal settlement urban areas. Nevertheless, living conditions are even worse in rural areas and informal settlements in other African countries. Data also show that there are limited options for most residents to move out of informal settlement neighborhoods.

Poor households are concentrated in Nairobi's informal settlements, where the cost of living is relatively low but housing conditions are substandard. More than half of Nairobi's residents live in informal settlement neighborhoods, which account for 62 percent of Kenya's total population that lives in informal settlements. There is a large difference in the consumption levels between households that live in Nairobi's informal settlement and non-informal settlement areas. Mean per capita monthly consumption of residents that live in informal settlement areas (Ksh 10,377) is nearly 40 percent lower than that of residents in non-informal settlement areas (Ksh16,688) (Figure 5.26). Moreover, nearly 30 percent of residents in informal settlement neighborhoods are poor, compared to 9.1 percent of residents in non-informal settlement areas (Table 5.4). A quarter of the labor force in informal settlements are also unemployed. Finally, mean monthly housing rents paid by residents in informal settlements (Ksh2,819) are only one-third of the rents paid by residents in non-informal settlement areas (Ksh8,524), reflecting the low standard of living in informal settlement neighborhoods.[154]

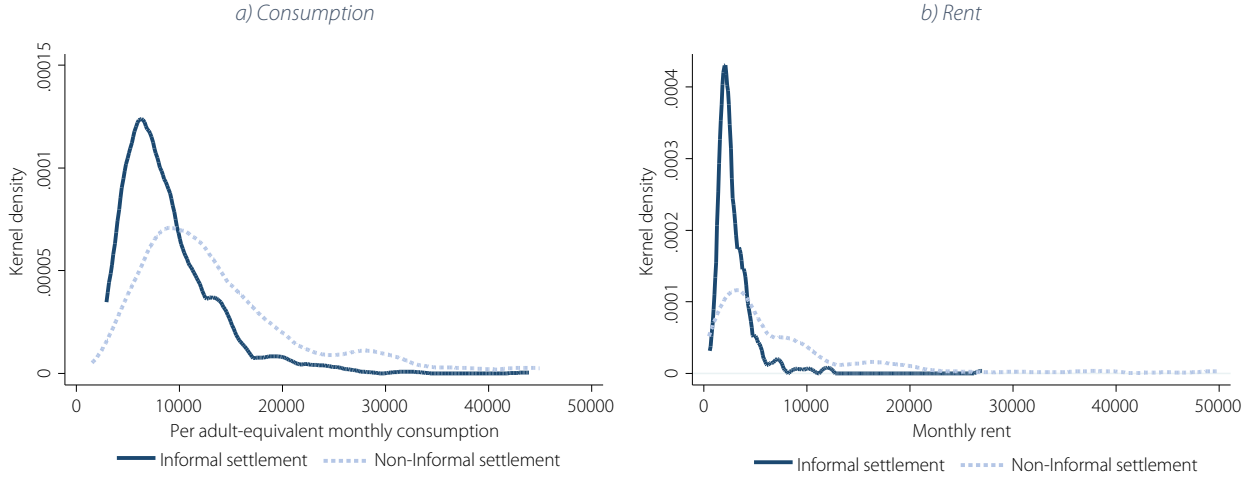
Table 5.4: Poverty rates in informal settlement and non-informal settlement areas, Nairobi 2015/16

	Percent	95% CI
Poverty headcount ratio in informal settlements	29.2	[23.2, 35.3]
Poverty headcount ratio in non-informal settlements	9.1	[6.0, 12.2]
Poverty headcount ratio in the city	16.7	[13.6, 19.8]

Source: Staff calculation with KIHBS 2015/16.
Note: 95.0 percent confidence intervals in square brackets.

[154] An inter-generational implication comes from a recent study by Abuya, Ciera, and Kimani-Murage (2012), finding that mother's education is a strong predictor of child nutrition status in Nairobi informal settlements. Becquer *et al.* (2010) find that child mortality rate is higher for recent migrants in Nairobi informal settlements. Mberu *et al.* (2014) analyze the panel data collected in two Nairobi informal settlements between 2006 and 2009. By measuring poverty based on a composite of various indicators, they find the transient nature of poverty. In particular, Muslim and Kikuyu people are found to be more likely to fall into poverty.

Figure 5.26: Household consumption and rents in Nairobi's informal settlement and non-informal settlement areas, 2015/16



Source: Staff calculation based on KIHBS 2015/16.

5.4.1 Living standards

There is a stark difference in living conditions between informal settlement and non-informal settlement areas. Most dwellings in Nairobi's informal settlements are made from non-durable materials, and 84 percent of houses have only one room (Table E.2). Houses in informal settlement areas also tend to be structured with walls of either corrugated iron sheets (54.3 percent) or stone, cement, or bricks (35.7 percent), roofs of corrugated iron sheets (87.7 percent), and cement floors (79 percent). Housing structures in non-informal settlement neighborhoods are of better quality, as 85.7 percent of dwellings have walls made of stone, cement, or bricks. Roofs of corrugated iron sheets are less common in non-informal settlement areas (47.5 percent).

Residents in informal settlement areas have less access to basic services than residents in non-informal settlement areas in Nairobi. In Nairobi's informal settlements, only 29.1 percent of households have private taps (in contrast to 88.2 percent of households in non-informal settlement areas), and 58.0 percent of households rely on either public taps or standpipes (Table E.3). Whereas 87.5 percent of households in non-informal settlement areas use flush toilets, this figure is only 43.9 percent in informal settlement areas. In informal settlement neighborhoods, about 17.0 percent of households have no access to electricity (compared to 3.7 percent of households in non-informal settlement areas), and only 47.4 percent of households have their garbage collected on a regular basis (in contrast to 85.5 percent in non-informal settlement areas).

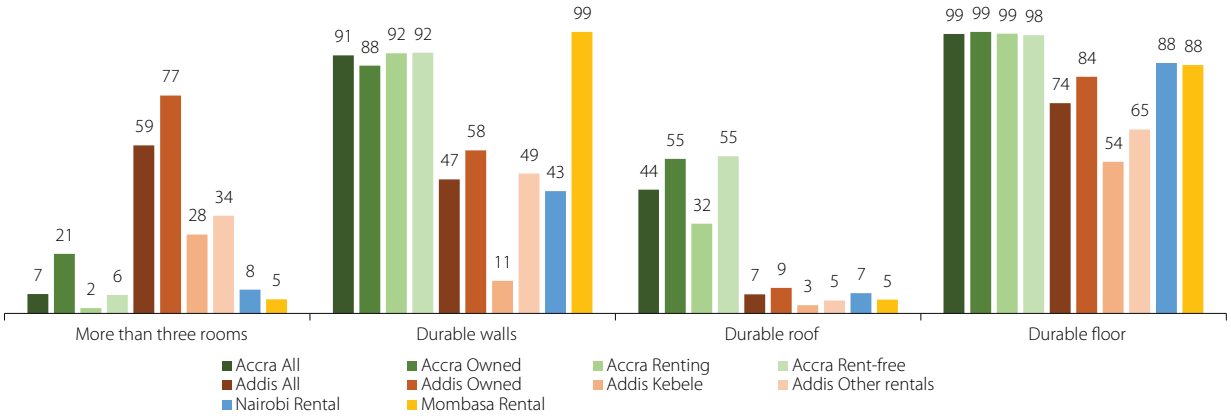
Residents in informal settlement areas are also more likely to face environmental challenges. In Nairobi, more than half of households in informal settlements (about 59 percent) report flooding and garbage dumps as problems.[155] By contrast, only 28.0 percent and 23.0 percent of residents in non-informal settlement areas report flooding and garbage dumps as problems, respectively.

Residents in Nairobi's and Mombasa's informal settlement neighborhoods live in worse housing conditions, have access to less services, and have less secure tenure than residents in other African countries' informal settlements. Compared with informal housing in Ghana's capital of Accra and Ethiopia's capital of Addis Ababa, houses in the informal settlements of Nairobi and Mombasa are more likely to have cement or tile floors but less likely to be made from permanent materials (Figure 5.27a). While almost all households have access to electricity in the informal settlements of Accra and Addis Ababa, many of their counterparts in Nairobi and Mombasa lack such access (Figure 5.27b). In addition, a large proportion of informal settlement residents feel tenure insecurity in Nairobi's informal settlements (Figure 5.28), reflecting the prevalence of forced evictions in that city.

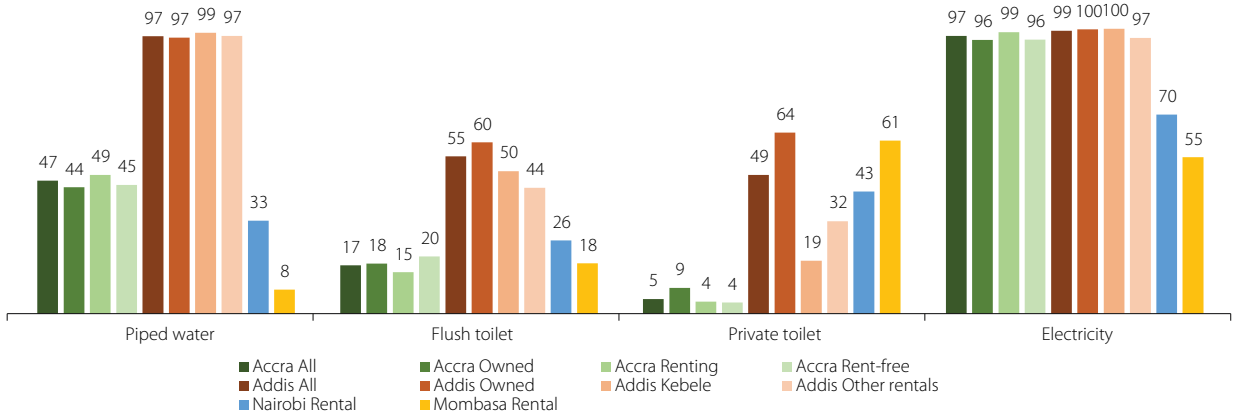
[155] The Cities Baseline Survey 2013.

Figure 5.27: Housing quality in African informal settlements

a) Dwelling structure

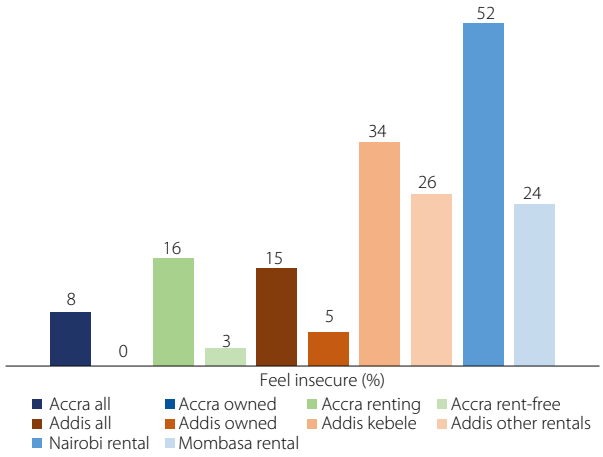


b) Access to basic services



Source: Nakamura and Yoshida 2018. Nairobi and Mombasa based on the Cities Baseline Survey 2013.

Figure 5.28: Perceived tenure security in African informal settlements



Source: Nakamura and Yoshida 2018. Data for Nairobi and Mombasa are based on the Cities Baseline Survey 2013.

Note: Bars for Accra and Addis indicate the share of households that answered yes to both of the following questions: 1) Do you think somebody will ask you to move out in the next 12 months?; and 2) Do you think you will be able to resist in the situation? Bars for Nairobi and Mombasa indicate the share of households that answered yes to the question "Do you feel you have secure tenure for your unit, structure, or dwelling? By "secure" I mean that no one could just come and force you to leave without an official legal process in which you would participate."

5.4.2 *Residential mobility to/from informal settlements*

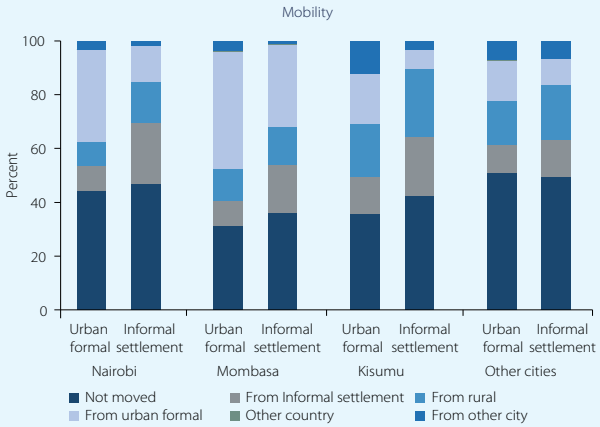
While residential mobility is quite high in Nairobi and Mombasa, a large share of households has been living in informal settlement neighborhoods for many years. About 47 percent of residents in informal settlement areas in Nairobi and 34 percent in Mombasa were born or are currently living in informal settlements. The average years of residence in the current informal settlement neighborhoods of the remaining households are four years in both Nairobi and Mombasa. The overall distribution of the duration of residence is similar between informal settlement and non-informal settlement areas in each city. A recent analysis of the census in 1999 and 2009 also suggests that moving from rural areas to urban informal settlements is not necessarily temporary.[156]

[156] Bird, Montebruno, and Regan 2017.

Box 5.5: Profile of residents moving to/from informal settlement neighborhoods

An analysis of the previous residence of households in non-informal settlement neighborhoods shows that there has been limited movement between informal settlement and non-informal settlement areas. Figure 5.29 describes the share of current residents in informal settlement and non-informal settlement areas who were born in their current neighborhoods or moved from informal settlement areas, non-informal settlement areas, other cities, rural areas, or abroad. More than 40 percent of Nairobi's residents were born in their current neighborhoods. Moreover, a majority of the city's residents in non-informal settlement areas who were not born in their current neighborhoods moved from other non-informal settlement areas in Nairobi.[157] Only a small portion of current residents in non-informal settlement areas had moved directly from informal settlements or rural neighborhoods. Many residents in informal settlement areas had previously lived in other informal settlement neighborhoods in Nairobi, and a portion of them had lived in non-informal settlement areas. Similar to Nairobi, residential movement from informal settlement to non-informal settlement areas has been very limited in Mombasa.

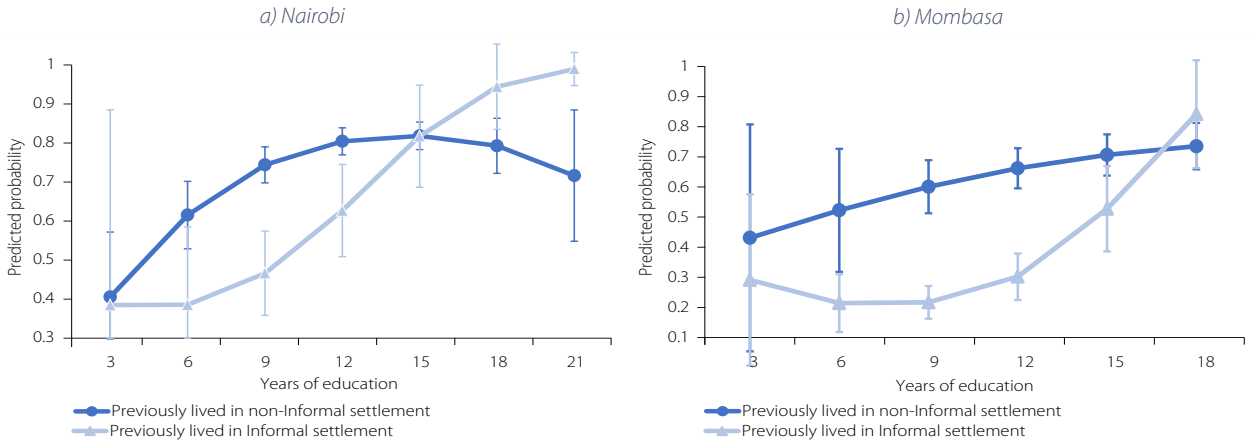
Figure 5.29: Previous residence of urban households



Source: Cities baseline survey 2013.
Note: Bars indicate the share of households from each type of previous residence.

While the likelihood of residents moving out of informal settlement neighborhoods is low, educated households have a better chance of moving from informal settlement to non-informal settlement areas. The location of a household's previous residence is a strong predictor of its future location (Nakamura and Karasawa 2018). Households are highly unlikely to move from informal settlement to non-informal settlement areas, and moving directly from rural to non-informal settlement areas is also rare (Figure 5.29). Yet, years of schooling is positively correlated with a household's chance of moving to non-informal settlement neighborhoods, and it is especially strong for female-headed households. (Figure 5.30).[158]

Figure 5.30: Probability of households moving to non-informal settlement areas in Nairobi and Mombasa



Source: Nakamura and Karasawa 2018 based on the Cities Baseline Survey 2013.
Note: Y-axis indicates predicted probability of a household moving from informal settlement to non-informal settlement areas. 90 percent confidence intervals are also shown.

156 Beguy, Bocquier, and Zulu (2010) analyzed data from Kibera between 2003 and 2007, and they found that a majority of in-migrants are young, 60 percent come from rural areas, and 40 percent come from other parts of Nairobi. Among out-migrants, 44 percent moved to rural areas, 32 percent moved to other informal settlements in Nairobi, and 19 percent moved to non-informal settlement areas in city. While households with access to electricity and home ownership were less likely to leave informal settlements, water access did not seem to influence decision-making.

158 The education level of the household head is clearly related to the chance of the household moving to non-informal settlement areas.

CHAPTER 6

EDUCATION AND POVERTY

SUMMARY

Education is central to achieving the goals of eliminating extreme poverty and boosting shared prosperity. Quality education is a key ingredient to sustainable social and economic development. High levels of education are often associated with improved economic opportunities, including improved access to jobs and higher lifetime income. At the country level, economic benefits include increased rates of economic growth through gains in productivity and a greater capacity to adopt new technologies. In addition, education is positively associated with healthier life choices and increased voice and agency, the ability to make decisions and act on them. Education is not only instrumental in promoting development. It is also by itself an end of development. This chapter assesses recent developments in Kenya's education sector and their relationship to poverty and equity. It takes stock of the recent trends in access to education services as well as their quality and explores their links to poverty and equity. It further examines the inputs into the education sector and the incentives in place for teachers to produce quality education for all.

Enrollment rates have increased since 2005/06, but geographic disparities remain, poor children are substantially less likely to attend post-primary education, and learning assessments suggest that Kenyan children often lag behind the curriculum. The GoK has in recent years invested substantial resources to increase enrollment rates, particularly at the primary level. As a result, enrollment rates at almost all levels show robust gains and primary education is nearly universal. However, enrollment in secondary and tertiary education remains substantially higher among the better-off and geographic disparities are pronounced. While learning outcomes for Kenyan children compare favorably to peer countries, Kenya children quickly fall behind the standards set by the national curriculum: only about half of the children in fourth grade master the basic tasks that second-graders should be able to accomplish (e.g., read and understand a paragraph). While well-paid and knowledgeable by regional standards, Kenya's teachers lack pedagogical skills and are absent from class too often, suggesting that teacher incentives are not always aligned with student learning.

The chapter identifies three, intertwined policy priorities: First, enrollment in post-primary education among poor children should be increased. Second, the trade-off between fiscal costs and the provision of quality inputs, most importantly teachers, needs to be addressed in a sustainable manner. Third, teacher incentives and school governance need to be strengthened.

6.1 KENYA'S EDUCATION SECTOR

The Kenyan education system currently follows an 8-4-4 structure (excluding pre-primary), with the use of nation-wide, standardized tests that determine student progression. Students are eligible to start first grade when they are at least six years of age at the start of the school year in January. A full course of primary education in Kenya comprises eight grades (also called "standards" in Kenya), followed by four years of secondary ("forms"), and four years of tertiary education.[159] To earn a primary school certificate, students must take the national primary school exit exam, the Kenya Certificate of Primary Education (KCPE), upon completion of grade eight. Almost all students who complete grade eight take the KCPE. Students are admitted to a government secondary school based on their scores on the KCPE, district-specific quotas, and school preferences that students express prior to taking the exam, with more prestigious national schools admitting only the top-scoring students from each district (Lucas and Mbiti 2014). At the end of the fourth year of secondary, students sit for the Kenya Certificate of Secondary Education (KCSE) examination, the entrance requirement for Kenyan universities.

Kenya's education system blends substantial centralization with parental school choice. The central government, through dedicated agencies, sets the curriculum and national standards, administers the KCPE and the KCSE, and oversees teacher training, recruitment, retention, and promotion. Central control over the education system has further increased in recent years. Kenya's new constitution, adopted in 2011, only devolved limited responsibilities to the newly-founded counties, notably pre-primary education and childcare facilities as well as certain parts of the vocational education system.[160] This contrasts with the experience of other sectors, such as the health sector, where counties assumed considerable responsibilities. The Kenya Institute of Curriculum Development (KICD) was put in charge of the curriculum and setting student standards. The new constitution also empowered the Teacher Service Commission (TSC), a central agency and now a constitutional commission (World Bank 2014c).[161] The TSC has far-reaching authority to govern teacher training, recruitment, placement, and promotion, as well as disciplinary control. Parents are in practice free to choose which school their children attend.

While public expenditure in education accounted for a large share of overall government expenditure in the past, its importance has declined recently. Real public education expenditure has more than doubled between 2000 and 2015, with most of the increase realized over the early 2000s and a smaller portion between 2010 and 2015 (Figure 6.1a). As a proportion of GDP, public education expenditure increased over the first half of the 2000s, from 5.2 percent to a peak of 7.2 percent by 2005 (Figure 6.1b), but was only 5.4 percent on average between 2010 and 2015, close to the regional average. Similarly, while education accounted for around one fourth of Kenya's overall government expenditure between 2000 and 2009 (compared to an average of 17 percent in the region), it has declined to around 16 percent in 2015, again, a level more typical for Sub-Saharan African countries (Figure 6.1c).

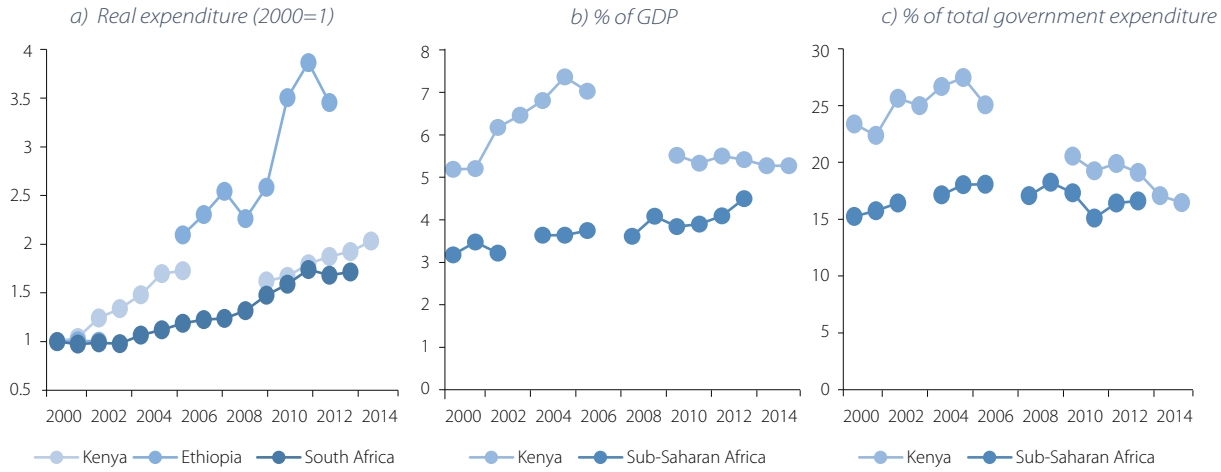
In the 2000s, Kenya successively abolished school fees for public primary and secondary education, resulting in a sharp increase in enrollment and a significant shift in demand towards private provision. In 2003 and 2008, respectively, the GoK introduced FPE and Free Tuition Secondary Education (FTSE). The former was associated with a substantial increase in enrollment, increasing student-to-teacher ratios, and a significant shift in demand towards private provision among better-off households (Lucas and Mbiti 2012b), presumably out of concern over a deterioration in the quality of education in public schools (Bold et al. 2014) (Box 6.1). Despite the introduction of FTSE, there are still substantial fees associated with public secondary education (Matata, 20015; see also p. 136).

159 The current curriculum is due to be replaced and the structure of the school system will likely be changed from an 8-4-4 into a 3-6-3-3-3, with two years of pre-primary, six years of primary, and six years of secondary education.

160 The Constitution of Kenya provides under its 2nd schedule that upon devolution, Technical and Vocational Education and Training (TVET) institutions shall be under the responsibility of the national government whereas the village polytechnics, craft centres and farmers training centres, and, by extension, similar institutions that train operators in vocational trades and skills shall be under the responsibility of the counties. See http://www.education.go.ke/index.php?catid=0&id=19, accessed 4/24/2018.

161 See http://www.klrc.go.ke/index.php/constitution-of-kenya/176-chapter-thirteen-the-public-service/part-3-teachers-service-commission/406-237-teachers-service-commission for some background, accessed 20/3/17.

Figure 6.1: Public expenditure in education, 2000–2015



Source: Own calculations based on WDI data.

Box 6.1: Free primary education and the quality of education

FPE is credited with expanding access to education, and there is no evidence that it adversely affected test scores. One study finds that the introduction of free education in 2003 significantly increased access for students from disadvantaged backgrounds (Lucas and Mbiti 2012b). Yet there is no evidence that it reduced KCPE test scores. A likely explanation is an increase in the share of students attending private primary education institutions. In particular, the authors find evidence for sorting across school types by socioeconomic status, with students from better-off backgrounds showing a higher propensity to attend private schools in the wake of the reform. A similar finding is reported by Bold et al. (2014).

6.2 ENROLLMENT

6.2.1 Overall trends in enrollment

Enrollment in primary is nearly universal and enrollment in pre-primary and secondary education has increased steadily since the early 2000s. Various data sources suggest a gradual increase in enrollment in pre-primary since 2000 (Figure 6.2a). As mentioned before, the removal of tuition fees in public primary schools in 2003 resulted in a significant increase in the Gross Enrollment Ratio (GER) at this level, from an already moderately high level (Figure 6.1b) (Lucas and Mbiti 2012b).[162] More recently, the ratio has declined but this is mainly due to a decrease in the number of students that are not of primary school age. This is reflected by the fact that Net Enrollment Rates (NERs) increased moderately (Figure 6.2a).[163] Gross enrollment in secondary school has increased substantially since the early 2000s, but remains at levels much lower than primary enrollment (Figure 6.1b).

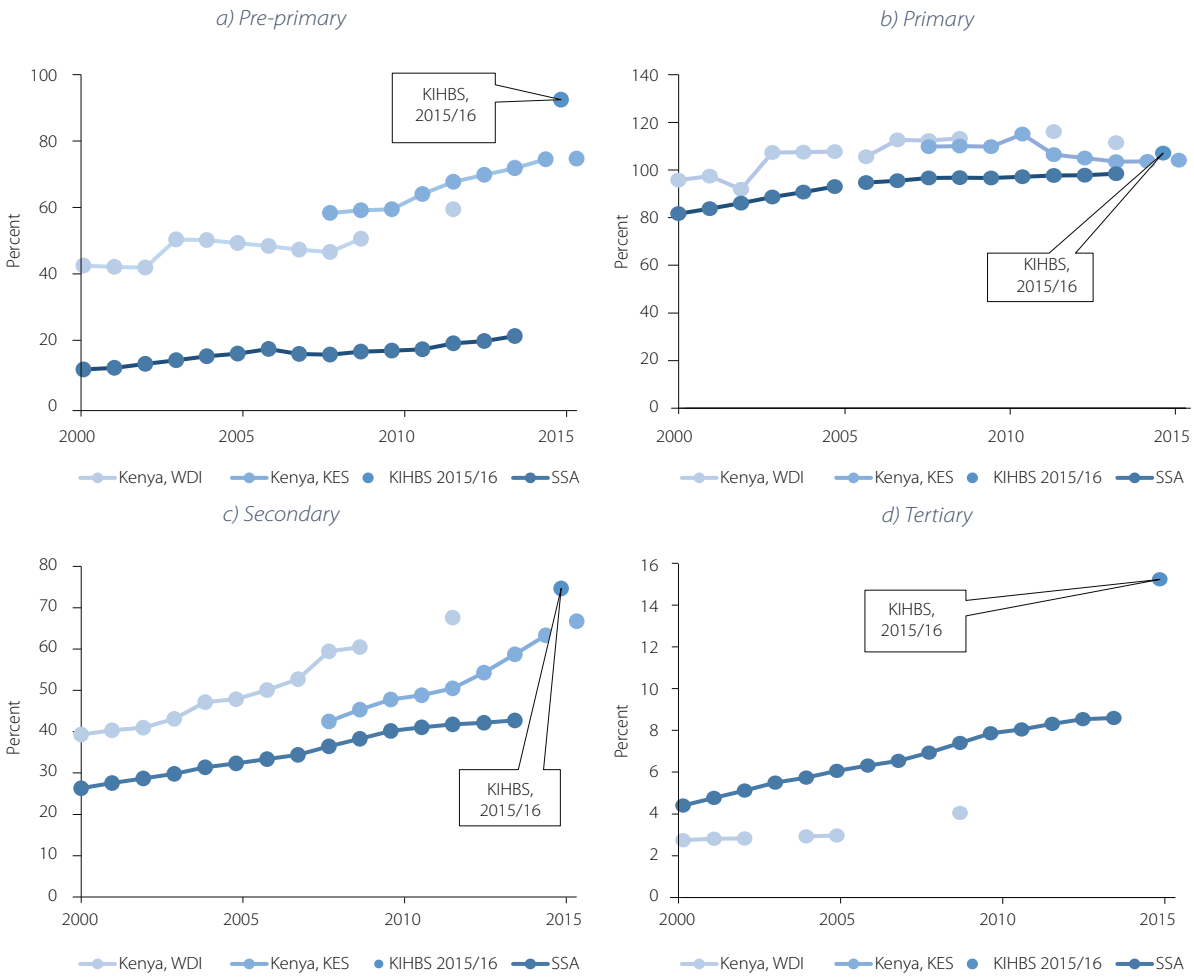
Kenya has made significant progress in closing gender gaps in enrollment. Between 2005/06 and 2015/16, gender parity in gross enrollment, defined as the ratio of female to male GERs, increased both in primary and secondary education, from 0.95 to 0.97 for the former and from 0.89 to 0.95 for the latter. However, regional variation in gender gaps is pronounced: while gross enrollment is higher for girls than for boys in parts of Central and Western Kenya, the reverse is true for the northeast and coastal areas. Chapter 3 provides details.

Comparison of 2015/16 KIHBS data and the WDI from the World Bank suggest that enrollment in tertiary education has been increasing rapidly after 2009. Comparison of the two series indicate an increase by more than ten percentage points, from around four percent in 2009 (WDI) to around 15 percent in 2015/16 (KIHBS, only counting undergraduate students in

[162] The GER is defined as the ratio of students enrolled in a specific level of education -regardless of age- expressed as a percentage of the population in the age group corresponding to this level of education.

[163] The NER is defined as the percentage of children in the age group that officially corresponds to primary schooling who attend primary school.

Figure 6.2: GERs in pre-primary, primary, secondary, and tertiary, 2000–2016



Source: Own calculations based on WDI, KES 2017 (2012-2016 data) and KES 2013 (2008-2012 data), and KIHBS 2015/16.
Note: Data on gross enrollment tabulated across different volumes of the KES were not always consistent. See also notes to Figure 6.3.

universities) (Figure 6.2d). Alternative series also point to a rapid increase in recent years. Not counting middle-level colleges, the 2017 KES suggests an increase in the number of university students by more than 50 percent between 2013/14 and 2016/17.

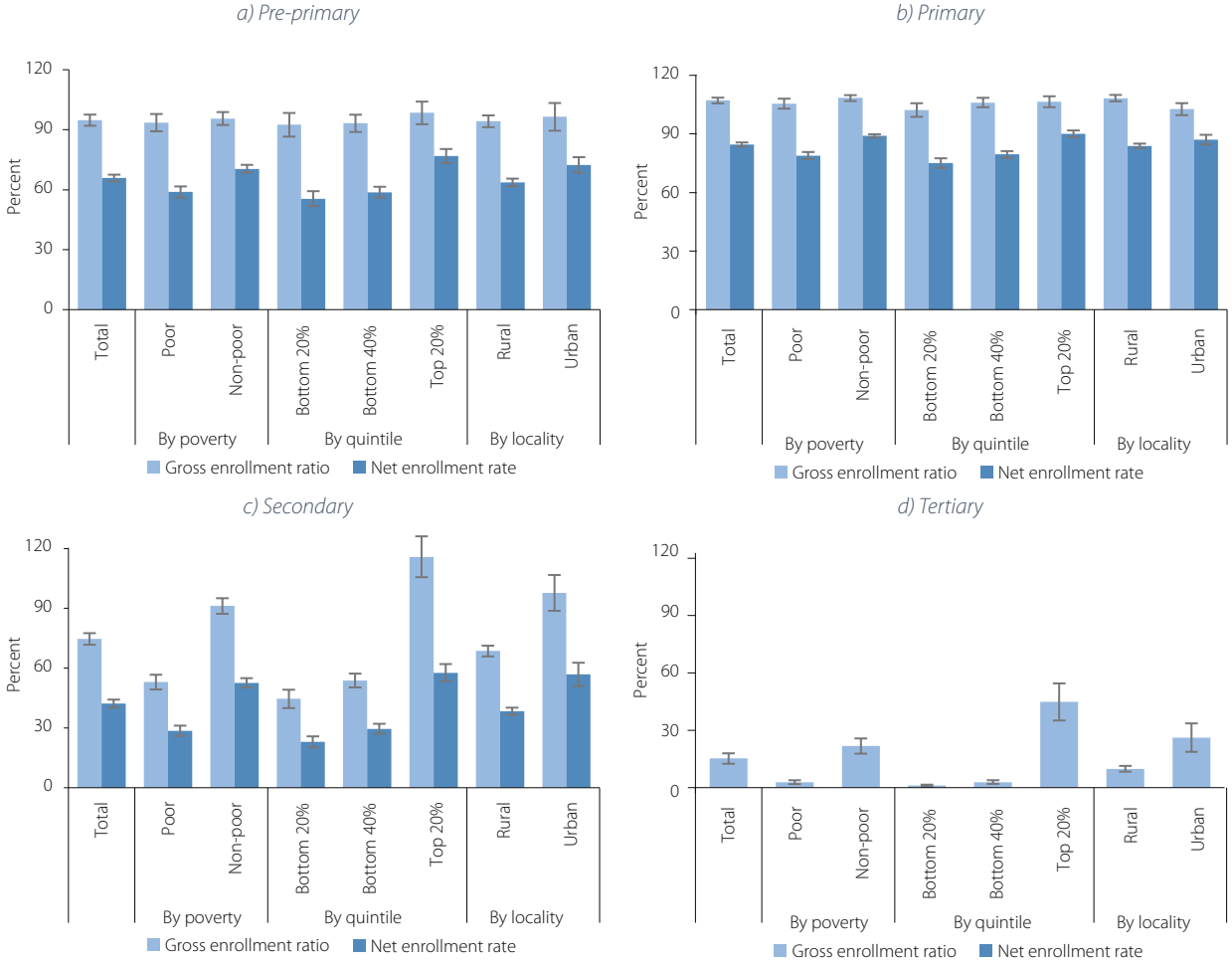
6.2.2 Enrollment by poverty status and locality

Differences in enrollment are pronounced at the secondary and tertiary level. Overall GERs in pre-primary, primary, secondary, and tertiary education as estimated from the 2015/16 KIHBS are 95, 107, 75, and 15 percent respectively (Figure 6.3). These estimates are substantially higher for pre-primary[164] and somewhat higher for primary and secondary, when compared to the administrative data reported in the KES. While nearly all children from the richest quintile of the population eventually enroll in secondary, gross enrollment is only 45 percent among children from the poorest quintile. Enrollment in tertiary education is negligible among young adults from households in the lower two quintiles but close to 45 percent in the top quintile.

NERs are substantially lower than GERs, and a larger socio-economic gradient - suggests a greater propensity to enroll late among the poor. Whereas the GER counts all students enrolled for a given level of education, the NER counts only those students who are in the usual age group for that level. Estimates of overall NERs are 66 and 85 percent for pre-primary and primary education, respectively, and 42 percent

[164] Authority over pre-primary education has been delegated to the counties with the implementation of the new constitution. Hence, one reason for larger discrepancies may be an undercounting of students in pre-primary in administrative data, as data producers differ and are more diverse.

Figure 6.3: NERs and GERs by level, poverty, quintile, and locality, 2015/16



Source: Own calculations based on KIHBS 2015/16.
Note: 95-percent confidence intervals are indicated. The relevant age brackets are 3-5 years of age at the beginning of the school year for pre-primary, 6-13 years for primary, 14-17 years for secondary, and 18-21 years for tertiary. 95-percent confidence intervals are indicated.

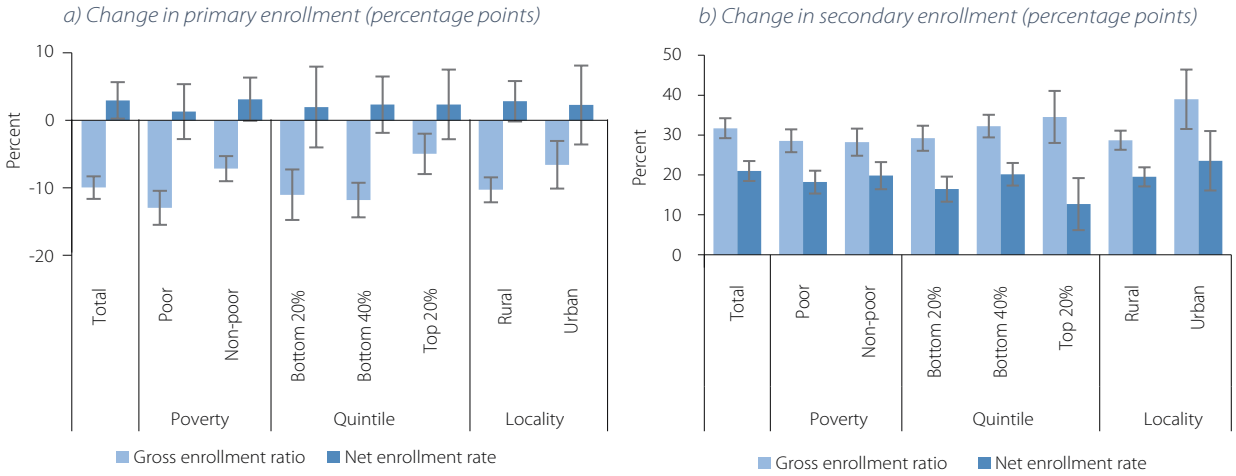
in secondary education.[165] As with the GERs, there are significant differences by poverty status, quintile, and locality that increase throughout the different levels of the education system. Larger discrepancies between GERs and NERs in pre-primary and primary education among the bottom quintiles suggest that a larger share of children enrolled in Kenya at these levels are over-age. Late enrollment will be further discussed below.

Net enrollment in primary has increased moderately between 2005/06 and 2015/16. KIHBS data suggest that the GER in primary has declined by ten percentage points between 2005/06 and 2015/16, from 117 percent to 107 percent. NERs increased over the same time yet only modestly, by three percentage points. The decrease in gross enrollment is most likely a result of a reversion to the long-term trend, as many over-age pupils enrolled or re-enrolled in primary school in the wake of the 2003 reform.

Over the same period, enrollment in secondary education increased significantly for most children. Both GERs and NERs show significant improvements in access to secondary education between 2005/06 and 2015/16. Gross enrollment increased by more than 30 percentage points while net enrollment increased by more than 20 percentage points. The increase was comparable for both children from poor and non-poor families but more pronounced in urban areas and among children from the top 20 percent of the expenditure distribution (Figure 6.4b).

[165] NERs are not well-defined for tertiary enrollment as it is not clear at what age students should be enrolled in universities.

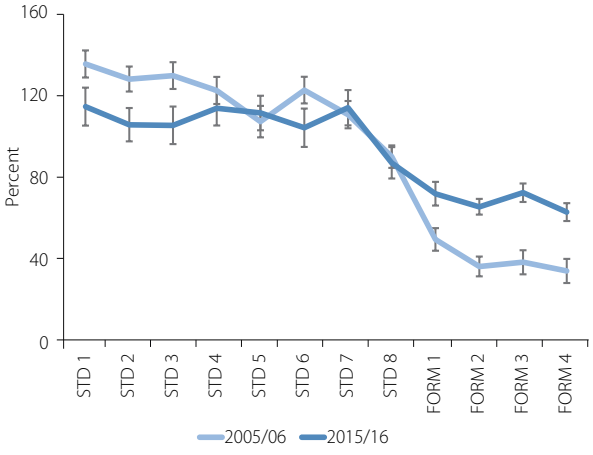
Figure 6.4: Changes in primary and secondary enrollment, between 2005/06 and 2015/16, by poverty, quintile, and locality



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.
Note: 95-percent confidence intervals are indicated.

GERs are high throughout the first seven standards of primary but drop significantly by the time students reach the final grade of primary (standard 8) and then on into secondary. GERs in Kenya are more than 100 percent for the first seven standards of primary (Figure 6.5). However, they drop to 70 percent in form one, the first grade of secondary, suggesting low rates of transition from primary into secondary (see next subsection). It is worth noting that the drop in gross enrollment in going from primary to secondary was significantly more pronounced in 2005/06 compared to 2015/16, i.e. transition rates have been increasing in recent years.

Figure 6.5: Gross enrollment rates by grade and year



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.
Note: 95-percent confidence intervals are indicated.

The drop in enrollment after grade seven is explained to a large extent by low transition rates among children from poor families. The drop in GERs between seventh and eighth grade of primary and the final grade of primary and the first of secondary is driven by lower transition rates among the poor: overall, the transition rate drops from 90.5 percent at the end of grade six to 83.6 percent at the end of grade seven and 73.6 percent at the end of grade eight as children transition into secondary education. But among children from families in the bottom 40 percent, transition rates at these last two transitions are only 81.1 and 65.1 percent, respectively. In contrast, the primary-to-secondary transition rate among children from families in the top 60 percent is still 78.6 percent.

Low transition rates into secondary among the poor mostly result from financial constraints. As will be shown below, secondary school attendance, even attendance of public secondary schools, often cost a significant fraction of the poverty-line consumption level while primary school attendance is nearly free. The high cost of school attendance is also cited by many dropouts as the main reason for not attending school. The important role of financial constraints in keeping children from poor families from attending secondary education are also confirmed in additional analyses of transitions; differences in the age at the time of the

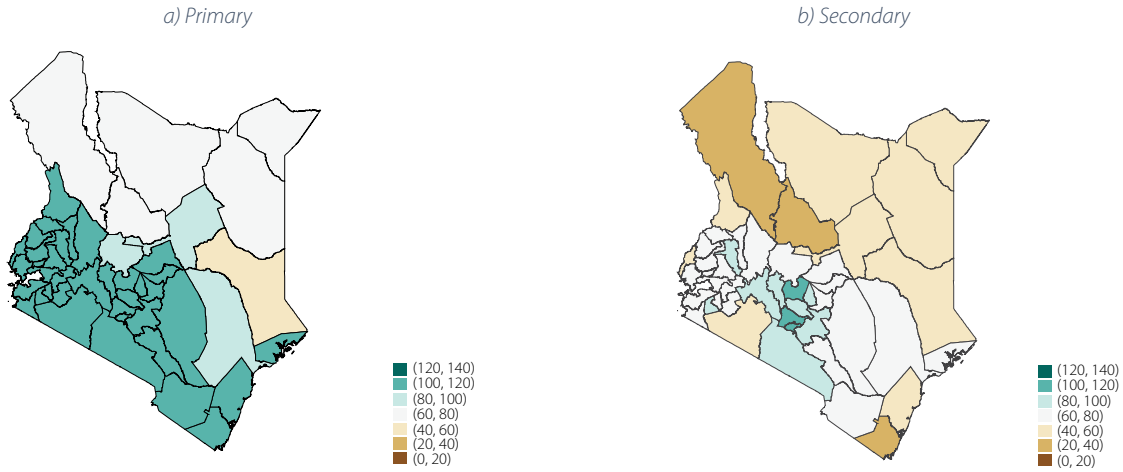
transition and in physical access to schools explain at most a minor fraction of the difference in transition rates into secondary between poor and non-poor students (Appendix F: Chapter 6 additional materials). However, it is less clear what causes the drop in transition rates between the seventh grade of primary and the first grade of secondary. And there is no evidence for an improvement in the transition rate between 2005/06 and 2015/16 at this stage of the education system. One possible explanation is that schools hold back or discourage students that are projected to perform poorly in the KCPE to boost their mean scores.[166] More evidence on this is needed to effectively tackle student drop-out and grade repetition at this stage.

Enrollment rates in primary and secondary education vary substantially across counties. Enrollment in primary education is nearly universal in the more densely populated counties around Nairobi and near Lake Victoria while most counties in the North and Northeast lag behind (Figure 6.6a). Overall, the GER varies from 60 percent in Garissa to close to 126 percent in Makueni. The secondary GER varies from 34 percent in Kwale to 111 percent in Nairobi. While the levels are generally much lower, GERs in secondary education exhibit a similar geographical pattern across counties as GERs in primary education (Figure 6.6b).[167]

6.2.3 Late enrollment and the transition into secondary education

Net intake into the first grade of primary remains low. As mentioned above, NERs in primary education in Kenya are significantly lower than gross enrollment rates, indicating that a significant fraction of children are not "on time" for their respective grade.[168] In 2015/16, the net intake rate, defined as the number of children that start first grade as a share of the number of children of official school entrance age, was only 31 percent (Figure 6.7a). It is significantly lower for children from families in the bottom 20 percent of the distribution (25.3 percent) and somewhat lower in rural areas (29.7 percent). There is no evidence of significant improvements between 2005/06 and 2015/16: none of the differences in the net intake rate between 2005/06 and 2015/16 are significantly different from zero.

Figure 6.6: GERs in primary and secondary education by county, 2015/16



Source: Own calculations based on KIHBS 2015/16.

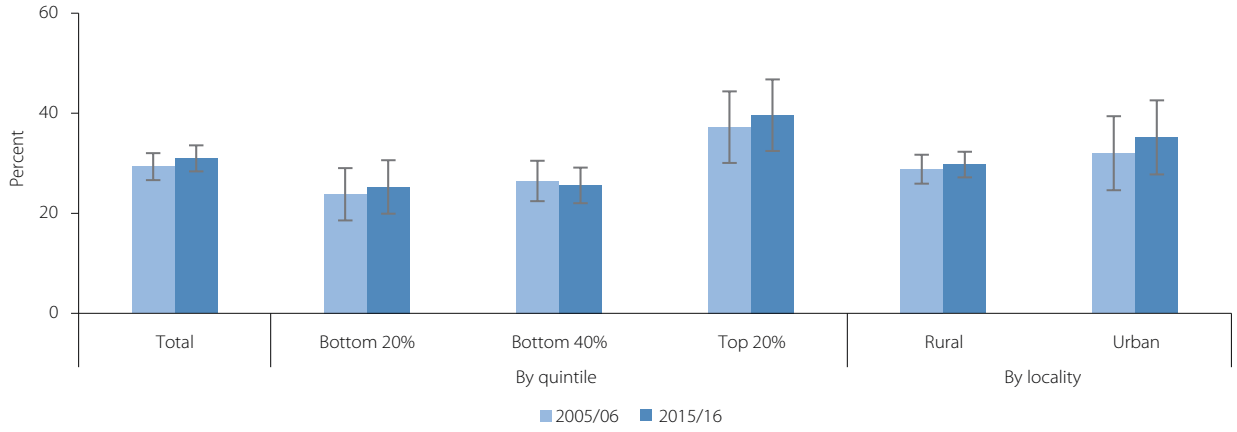
166 There is some indirect evidence that teachers in Kenya have incentives to "teach to the top" of the achievement distribution, disregarding weaker students (Duflo, Dupas and Kremer 2011). In brief, this is one of the few configurations under which tracking, the practice of separating students by academic ability, would raise achievement for all students – which is what one study finds in a randomized evaluation. Incentives to teach to the top could be instilled in teachers if their objective function is to maximize their school's average test score in national examinations.

167 Appendix F.1 provides Chapter 6 additional materials provides detailed results at the county-level.

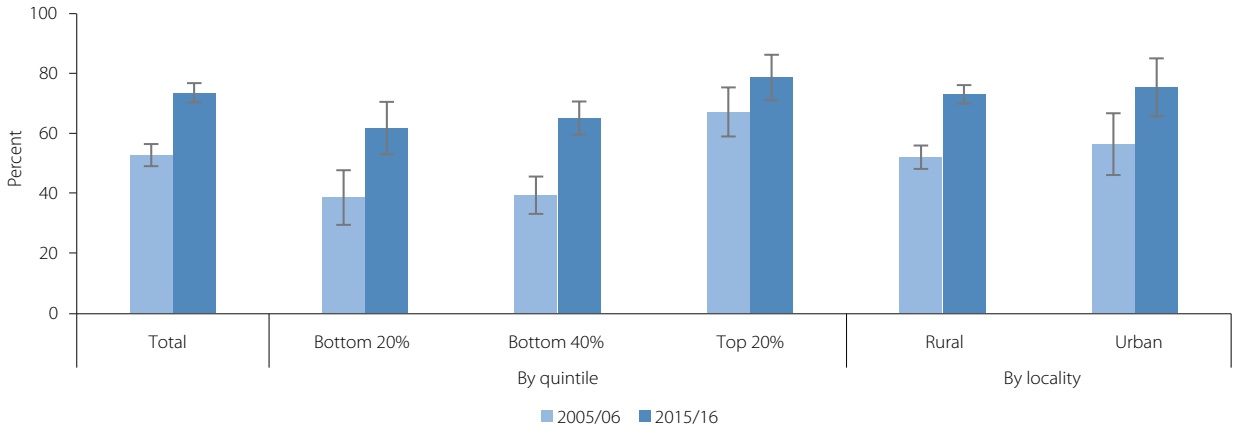
168 GERs in some official reports differ from those reported in the WDI. The 2017 KES (Kenya National Bureau of Statistics 2017) puts the GER in 2016 at 104.1, compared to an NER of 89.2, suggesting that approximately every sixth child enrolled in primary is not of primary-school age.

Figure 6.7: Net intake rate and transition by poverty, quintile, and locality, 2005/06 and 2015/16

a) Net intake rate into the first grade of primary



b) Transition rate from primary into secondary education



Source: Own calculations based on KIHBS 2015/16.
Note: 95-percent confidence intervals are indicated.

Late enrollment in primary education and grade repetition remains common in Kenya. Late enrollment, combined with a repetition rate of around nine percent in primary education, results in a share of over-age children in primary that rises from 50.8 percent in grade one to 64.7 percent in grade eight. Older children face higher opportunity costs when studying as they are more likely to find gainful employment. Hence, late enrollment will be expensive in terms of foregone income. Leading explanations for late enrollment include supply-side constraints, credit constraints, and insufficient "school-readiness" (e.g. poor health) (Glewwe and Jacoby 1995). A better understanding of the causes of late enrollment as well as the associated costs in the Kenyan context are necessary to tackle the issue.

While transition rates into secondary education have improved in line with higher enrollment rates in secondary, access remains rationed. The transition rate from the last grade of primary to the first of secondary improved substantially, from 53 percent in 2005/06 to 74 percent in 2015/16. The increase is pronounced in all subgroups, but it is particularly large for the urban poor (Figure 6.7b). On the other hand, there is still further room for improvement, particularly among the poor. Grade promotion throughout secondary education is high, suggesting that most students that start secondary education will also complete it.

6.2.4 Choice of provider

Enrollment in private primary education is increasing, particularly in urban areas and among the better-off. By 2015/16, more than one in five children enrolled in primary were enrolled in a private school – up from less than one in ten in 2005/06 (Figure 6.8). Private school enrollment has increased in both rural and urban areas and both among poor and non-poor students. To wit, gross enrollment among children in the bottom 40 percent of the population has more than doubled, from a GER of 5.1 percent in 2005/06 to 12.4 percent in 2015/16. However, the trend is particularly pronounced among children from urban, better-off families: while three in five enrolled children in this group attended private primary schools in 2005/06, four in five did so in 2015/16. These trends are well-documented elsewhere and have been linked to the introduction of free public primary education in 2003 (Lucas and Mbiti 2014; Bold et al. 2014).[169]

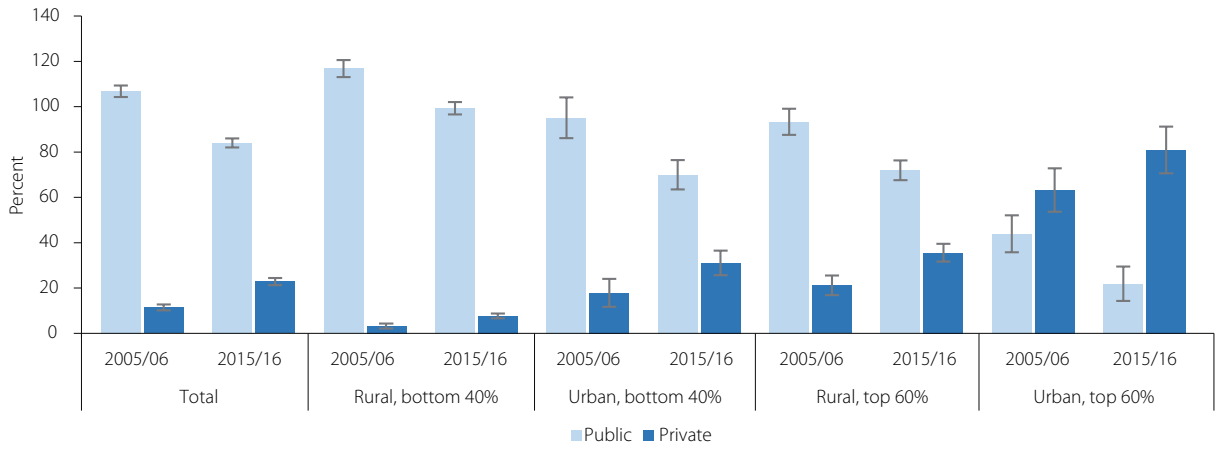
Differences between the poor and the non-poor in uptake of private education raise equity concerns. Private provision is the preferred option among better-off families in urban areas but plays a less important role among other population groups, particularly in rural areas. To the extent that private schools provide better-quality education, this finding raises equity concerns, including concerns about negative effects on economic mobility. There is evidence that private schools produce better learning outcomes (see Box 6.2).

6.2.5 Is education affordable?

Low incomes remain an impediment to enrollment, particularly at the secondary level. Evidence from Kenya's Cash Transfer for Orphans and Vulnerable Children (OVC) program, which provides flat transfers to the caregiver of an orphan or a vulnerable child below the age of 18 (Kenya CT-OVC Evaluation Team 2012), suggests that the transfer increases enrollment for children aged twelve and above by 7.8 percentage points, nine percent over the baseline mean.[170] Another (somewhat dated) study suggests that subsidizing school uniforms, often a significant cost factor associated with schooling, increases enrollment and learning outcomes (Evans, Kremer, and Ngatia 2008).

While primary education is universally affordable, secondary education often remains prohibitively expensive. Households are spending less than one tenth of the poverty line per student on items associated with primary enrollment (e.g., books, uniforms, and tuition), suggesting that primary education is affordable even for the poor (Figure 6.9a). Private education is more expensive, at around 20-25 percent of the poverty line

Figure 6.8: Primary gross enrollment by provider, location, and quintile, 2005/06 and 2015/16

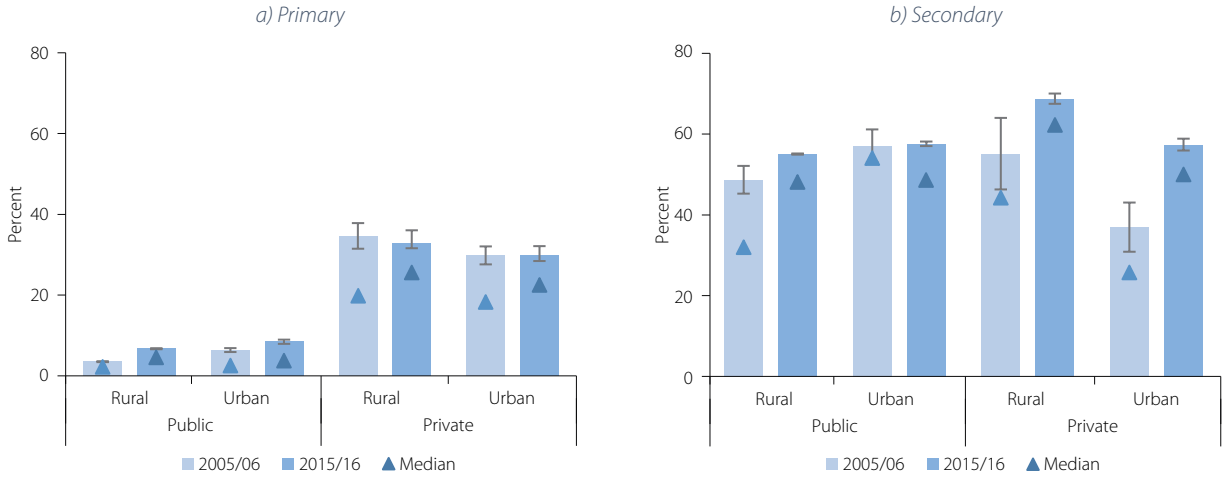


Source: Own calculations based on KIHBS 2005/06 and 2015/16.
Note: 95-percent confidence intervals are indicated.

[169] There is no comparable trend for secondary education: enrollment in private secondary schools is still moderately low, at only about ten percent. And while there is a strong increase in enrollment in public schools across all subgroups, enrollment in private schools has been almost stable.

[170] However, there was no evidence for the program's effect on learning outcomes and it should also be noted that the program targets disadvantaged groups. While enrollment was high at baseline, it is higher still in other population groups, limiting the potential for treatment effects in a scaled-up version.

Figure 6.9: Average and median household per-student expenditure on education by level, location, and provider, 2005/06 and 2015/16



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.
Note: 95-percent confidence intervals are indicated.

for the median child enrolled in an urban area and somewhat more in rural areas. Secondary education is much more expensive: median household expenditure per child enrolled in a public school is close to 50 percent of the poverty line.

High costs are also the leading reason respondents cite for non-attendance among drop-outs. When asked why children that are age-eligible are currently not enrolled, respondents for children that have never attended a school[171] tend to cite parental objection (34 percent), the need to work or help at home (21 percent), as well as children's age (18 percent).[172] Reasons differ for those that have attended school at some point but were not enrolled at the time of the interview: almost two in five respondents cite high costs associated with school.[173] Taken together, evidence on the reported costs of education, experimental evidence from interventions that address financial constraints, and reported reasons for drop-out all point to high costs of secondary education as a constraint to higher rates of enrollment.

6.3 LEARNING OUTCOMES

The knowledge and skills acquired by students are a key dimension of the education system. Assessments of education systems often focus on enrollment and attainment, which tend to be easier to measure than actual skills. However, what matters for long-run prosperity are a population's cognitive skills, not mere attainment (Hanushek and Woessmann 2015). In other words, what matters will be a combination of both enrollment and the quality of education children receive. This section provides an assessment of learning outcomes in Kenya.

Kenyan students lag substantially behind students in Europe, North America, and East Asia. While there are few international comparisons in which Kenya participated, some authors have tried to make different regional assessments comparable. For instance, one recent study uses various approaches to link results from student assessments conducted in Southern and Eastern Africa[174] to those from the Trends in International Mathematics and Science Study, which mostly covers developed countries. Findings suggest that learning outcomes for grade-six students in Kenya are comparable to grade-four students in New Zealand (Sandefur 2018). The average score of Kenyan sixth-graders in 2003 would likely place them in the bottom five percent of the international ranking.

171 The respondent in the KIHBS survey was the child if it was at least ten years old, and a guardian for those below the age of ten.

172 Respondents were allowed to state up to two reasons for being out of school at the time of the interview.

173 Pregnancy is a leading reason for girls that dropped out before completing secondary education. See Chapter 3.

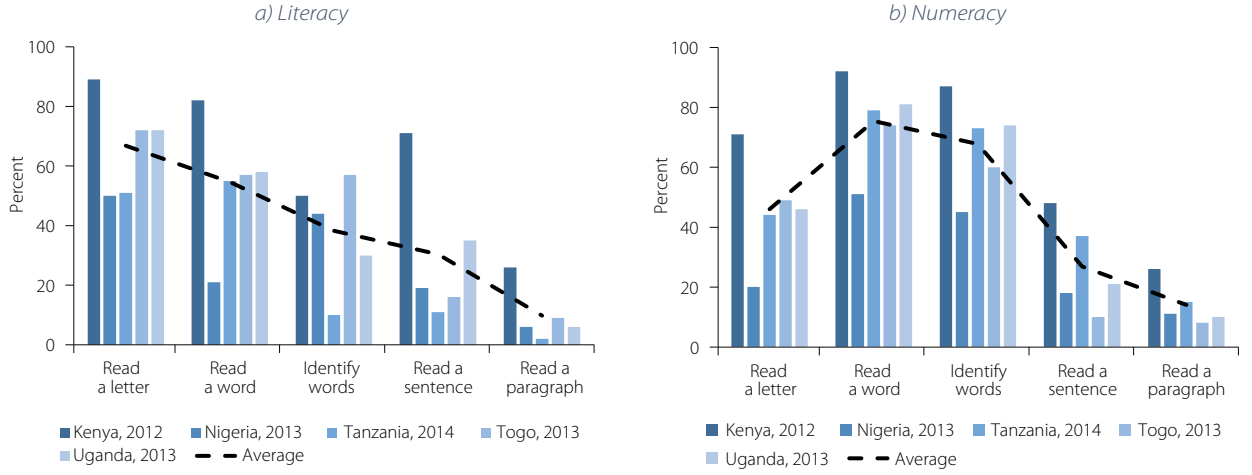
174 These assessments were carried out by the Southern and Eastern Africa Consortium for Monitoring Educational Quality. The data used in the study by Sandefur (2018) was collected in 2000 and 2007.

However, Kenyan fourth-graders are more knowledgeable than their peers in other Sub-Saharan African countries. Recent results from standardized tests conducted in seven Sub-Saharan African countries indicate that fourth-grade students in Kenya in primary schools perform better in literacy and numeracy tasks than in other countries in the region (Figure 6.10).

Kenyan fourth-graders lag substantially behind Kenya's official curriculum. Only one in two fourth-graders can identify words and only one in four can read a paragraph (Figure 6.10). Similarly, only seven out of ten are capable of ordering numbers and only one in four can complete a simple sequence. Based on the same data, one study shows that fourth-graders in Kenya after three and a half years of actual education have acquired on average only around two and a half years of *effective* education (Bold, Filmer, Molina, et al. 2017). These findings are broadly consistent with results from the Uwezo surveys, household-based assessments of children between the ages of six and 16 that have been conducted since 2009.

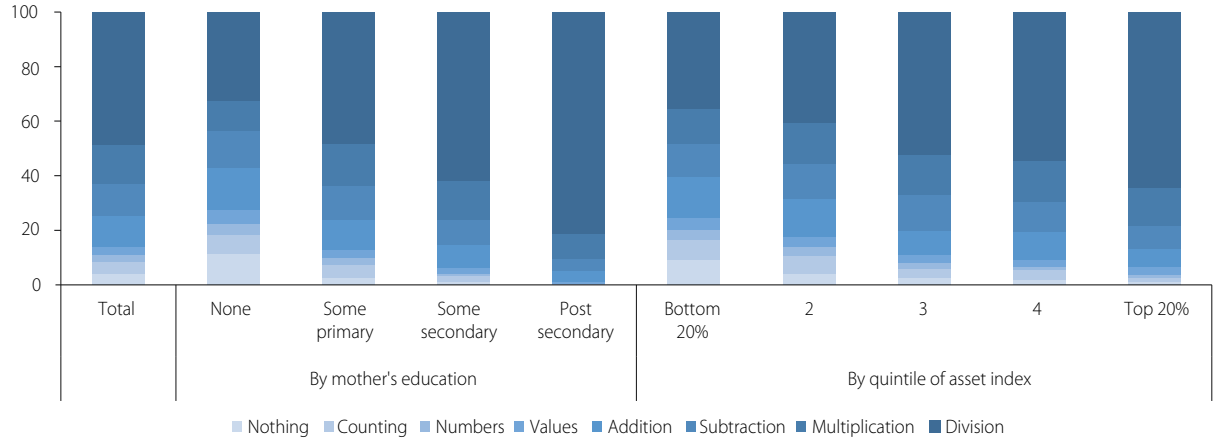
Learning outcomes vary substantially by socio-economic background. The Uwezo assessment is a rapid assessment administered at the household-level (i.e., including out-of-school children). Test items are based on the grade-two curriculum. In other words, eight-year-olds that were enrolled on time would be expected to answer all questions correctly by the standards of the Kenyan curriculum. However, the 2014-round data suggest that only half of all ten-year-olds are proficient in grade-two mathematics, in that only half were able to demonstrate comprehension of the most difficult topic (division) (Figure 6.11). Comparisons by household wealth reveal large

Figure 6.10: Knowledge of fourth-grade students across Sub-Saharan African countries, early 2010s



Source: Based on Bold, Filmer, Marin, et al. 2017 and their analysis of SDI data.

Figure 6.11: Learning outcomes in mathematics in ten-year-old children by socio-economic background, 2014



Source: Own calculations based on data from the 2014 Uwezo survey.

differences in learning outcomes: while almost two thirds of all children in households in the top quintile are proficient in mathematics, the proportion is only a little more than one third in the bottom quintile. Similarly, parental education is also highly correlated with learning outcomes in children. Only one in three children out of those whose mothers have no formal education are proficient with the standard-two math curriculum by age ten. In contrast, three out of five ten-year-olds whose mothers have some secondary education are proficient at that age and four out of five of those whose mothers have attended post-secondary education. Results for English and Swahili are similar both qualitatively and quantitatively.

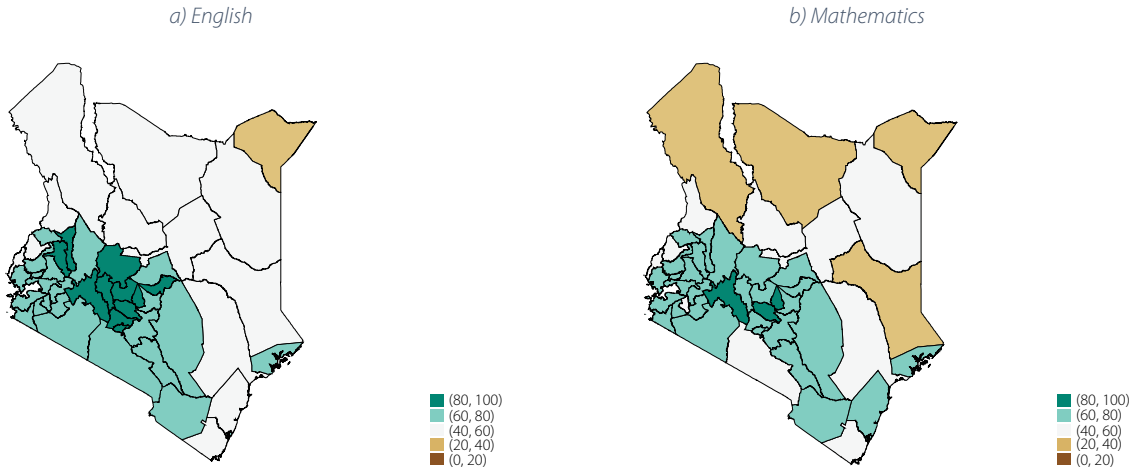
Learning outcomes vary substantially across counties, following the patterns observed for enrollment. Higher levels of proficiency are evident in more densely-populated counties in the center of Kenya while low levels of proficiency are observed in the northwest, the northeast and in large counties in the east (i.e., Garissa and Tana River) (Figure 6.12). As one would expect, proficiency is spatially highly correlated with enrollment.[175]

While gender gaps in learning outcomes often favor girls, there is considerable variation across counties. On average, girls perform better than boys in math, English, and Kiswahili, especially in earlier grades of primary. Female advantage in learning outcomes is more likely to be observed in Western and central Kenya. But the pattern in this case is not as clear-cut as for overall enrollment or learning outcomes (see chapter 3 for details).

Private schooling in Kenya is associated with more learning and lower operating costs. The empirical evidence for productivity differentials between public and private education providers is generally mixed and likely to be context-specific.[176] For Kenya, however, differences in learning outcomes between public and private schools are unlikely to be fully explained by selection of more able students into private schools (Box 6.2). One study also finds that most private providers operate at lower overall costs than public providers (Bold, Kimenyi, Mwabu, and Sandefur 2013), a result that is consistent with much lower wage levels for private school teachers (see next section).

Secondary education in Kenya is associated with large gains in skills and other desirable outcomes. A recent study exploits the fact that the probability of completing secondary education increases

Figure 6.12: Proportion of twelve-year-old children proficient in mathematics and english, percent, 2014



Source: Based on Bold, Filmer, Marin, et al. 2017 and their analysis of SDI data.

[175] The correlation coefficient between GERs in primary and secondary and proficiency in mathematics (English) is 0.76 (0.68) and 0.64 (0.78), respectively. All correlations are significant at the one-percent level.

[176] For instance, a study for Indonesia finds that public school graduates score higher on national exit exams than their privately schooled peers (Newhouse and Beegle 2006) while another study for Colombia finds that private schooling in Colombia was associated with higher scores on achievement tests (Angrist, *et al.* 2002).

Box 6.2: Are private schools more productive?

Greater productivity of private education providers, combined with greater uptake among the better-off in recent years, would raise equity concerns. Do Kenya's private schools offer better-quality education? The question is clearly of great relevance given that enrollment in private primary schools is significantly higher among non-poor children.

Estimating the causal effect of school type on learning outcomes is challenging. There is some indirect evidence (presented later in this chapter) that suggests that teacher incentives in the private sector are better aligned with student learning while teachers do not differ in terms of subject knowledge and knowledge of pedagogy. However, establishing the direct causal effect of private school attendance on learning outcomes is difficult because of self-selection of students from better-off families into private schools.

Two recent studies suggest that private primary education is more productive than public primary. One study aims to identify the causal effect of private school attendance on grade-eight test scores through aggregation at the district-gender-year level (Bold, Kimenyi, Mwabu, and Sandefur 2013): if changes in mean test scores over public and private school students in a district are correlated with changes in the share of students in private schools, this should reflect differences in the quality of schools, not selection. The authors argue that private provision is associated with a one-standard deviation increase in learning outcomes, a large effect by any standard. However, focusing on eighth-grade students may be problematic when their school trajectories are not observed. Another study employs a battery of controls and different econometric methods to estimate the causal effect of private school attendance in grade two to grade four (Wamalwa and Burns 2017). They find that the private-school premium ranges from 0.13 to 0.18 standard deviations in math and from 0.21 to 0.27 standard deviations in languages.

sharply around the admission cut-off[177] (Ozier 2016). Comparing students just below and just above the cut-off (i.e. of similar aptitude), the study finds that completing secondary education increases the adulthood performance on vocabulary and reasoning tests by around 0.6 standard deviations, a very large improvement.[178] Another study finds no evidence for differences in the productivity across secondary schools in Kenya (Lucas and Mbiti 2014). Taken together, these findings suggest that admitting more students to secondary schools would initially increase human capital. As enrollment rates are high among children from better-off families, increasing admission into secondary schools would also be equitable. However, as noted before, demand-side constraints, specifically the high costs of attending secondary, also play a major role in preventing children from poorer families from attending secondary.

[177] The general admission cut-off for secondary schools is set at a score of 250 points in the KCPE. However, elite secondary schools, including in the public sector, usually have higher admission cut-offs (Lucas and Mbiti 2014).

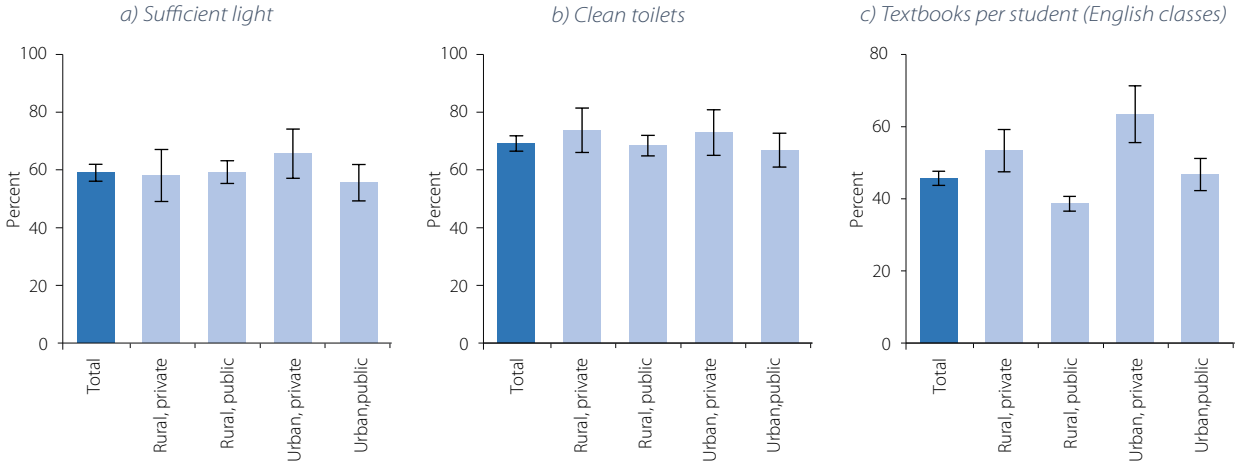
[178] In addition, men who completed secondary education were found to be less likely to be in low-skill self-employment while women were found to have a lower risk of becoming pregnant as teenagers.

6.4 THE SUPPLY-SIDE

6.4.1 Physical inputs

A significant fraction of schools in Kenya lack appropriate infrastructure; this is true for both urban and rural areas and for private and public institutions. To be effective, schools should provide environments conducive to learning, which includes basic infrastructure, appropriate sanitary facilities, furniture, and adequate learning materials. The 2012 SDI data contain information about classroom conditions, learning materials (e.g., pencils, books, and boards), and general school infrastructure. Results indicate that almost one third of the classrooms do not meet the minimum visibility requirement (where the cut-off is 300 lux), with little variation by location or type of provider (Figure 6.13). Similarly, more than one in four schools did not have a clean toilet. Differences between urban and rural public schools as well as private (for-profit, nongovernmental organization [NGO] run, or faith-based) and public schools were small and statistically insignificant.

Figure 6.13: Physical inputs at the school-level by location and type of provider, primary schools, 2012



Source: Own calculations based on 2012 SDI data.
Note: 95-percent confidence intervals are indicated. The private category includes for-profit and non-profit schools (i.e., NGO- and FBO-run schools).

Less than one half of all students had textbooks during English classes. Basic teaching equipment – such as blackboards and chalk – is usually available in Kenyan classrooms. In addition, almost all students were found to have pencils and exercise books. However, the same was not true for textbooks: only 47 and 39 percent of students in urban and rural public schools, respectively, had a textbook at the time of the visit. The proportion was significantly higher in private schools.

However, the lack of textbooks and other similar physical inputs is unlikely to be a major impediment to learning in the Kenyan context. Randomized experiments conducted in Kenya and elsewhere do not support the premise that more physical inputs such as textbooks or flipcharts improve learning outcomes in Kenya (Moulin, Kremer, and Glewwe 2009; Glewwe et al. 2004).[179] Another study finds that school infrastructure and the availability of teaching resources (such as blackboards) were uncorrelated with student learning outcomes (Martin and Pimhidzai 2013).

6.4.2 Teachers

Both public school teachers and locally hired teachers staff Kenya's schools. As pointed out before, the TSC, a central agency, hires graduates of teacher training colleges and universities as public school teachers. Once hired, promotions, transfers, and disciplinary measures are decided through the TSC and are based heavily on formal, objective criteria, such as educational qualifications and tenure. Reports about long queues for jobs in the public sector suggest that the overall employment conditions are attractive. In some cases, contract teachers are hired to work in public schools through a local Parent-Teacher Association (PTA), a local school committee. Teacher training requirements vary between primary and secondary school teachers, with more demanding training requirements for the latter (Teachers Service Commission 2007).

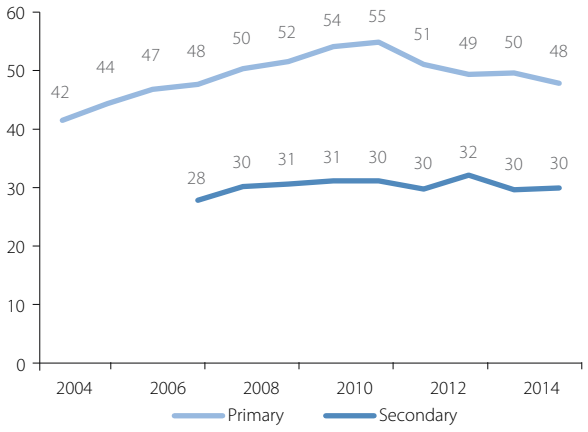
The average student-to-teacher ratio in public primary schools decreased slightly since 2011, albeit from a high level. As a result of increased enrollment and the hiring freeze established in the late 1990s, Kenya's student-to-teacher ratio in public primary schools increased between 2004 and 2011, from 42 to 55. With the end of the hiring freeze in 2010 and a shift in demand towards private provision, it has since decreased to a level of 48 students per teacher (Figure 6.14a) There are more teachers per student enrolled in public secondary schools, roughly one for every 30 students, with little change in recent years.

The number of students per classroom in fourth grade in public schools varies substantially across schools. The average number of students per teacher

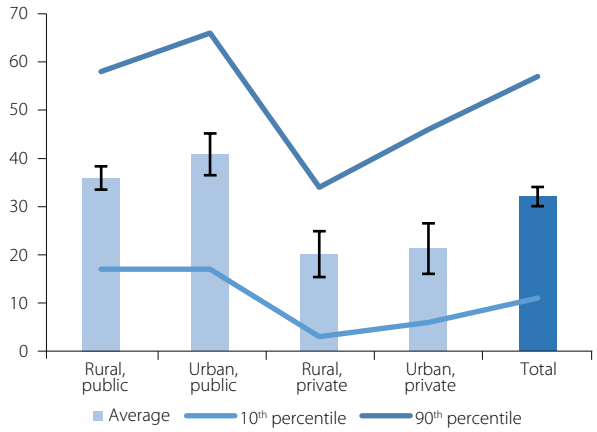
[179] However, the authors of one study point to the mismatch between the input provided and student needs: textbooks were written in English, the third language for most of the students in their study. Hence, most students were not able to use them effectively. Therefore, it cannot be ruled out that more appropriate inputs would have positive effects on student learning.

Figure 6.14: Student-teacher ratios in public schools, 2004-2015, and students per classroom in primary schools, 2012

a) Trend in student-to-teacher ratios in public schools



b) Fourth-grade students per classroom by location and provider, primary schools, 2012



Source: Own calculations based on KES, various instalments, (panel (a)) and 2012 SDI data (panel (b)).
Note: 95-percent confidence intervals are indicated in panel (b). The private category includes for-profit and non- profit schools (i.e., NGO- and FBO-run schools).

hides considerable variation across schools. Ten percent of schools have 57 students or more per classroom while another ten percent have no more than eleven students (Figure 6.14b). Only a minor fraction of the variation, around 17 percent, is explained by variation across counties. One reason private schools may have become more popular in recent years is that they offer lower number of students per classroom: while public primary schools on average have a ratio of 37 students per classroom, private school classrooms have on average only 20 students per classroom.

Students may benefit from additional teachers; yet careful attention must be paid to contextual factors. A recent study that assesses the effect of additional teachers[180] in Kenya shows that students' test scores only increased in classes taught by locally-hired contract teachers, not in classes taught by public school teachers (Duflo, Dupas, and Kremer 2015b). The authors show that contract teachers had lower absence rates and argue that public school teachers may have put in less effort in response to additional teachers provided. However, a governance program that empowered parents within school committees had attenuated those negative effects on public school teachers' behavior. This suggests that the incentives and supervision that teachers face play a key role in their performance.

Teachers in Kenya earn high wages by regional standards. Teacher salaries, in conjunction with job security and other benefits, determine the quality of prospective teachers in the long-run and may determine teacher effort in the short-run.[181] Teacher salaries, expressed as a ratio to per capita GDP, have been declining in Kenya between 2005/06 and 2015/16, from 3.9 to 2.0 in the case of primary teachers and from 7.8 to 3.6 for secondary teachers.[182] This places primary school teachers in Kenya in line with their colleagues in Uganda (2.1) but above their colleagues in Ghana and Nigeria (1.4 and 1.0, respectively) (Figure 6.15a1).[183] For reference, the OECD average is only 1.3 times GDP per capita for primary school teachers (with 15 years of experience). The comparison for teachers in secondary education is similar: with a ratio of 3.6 times GDP per

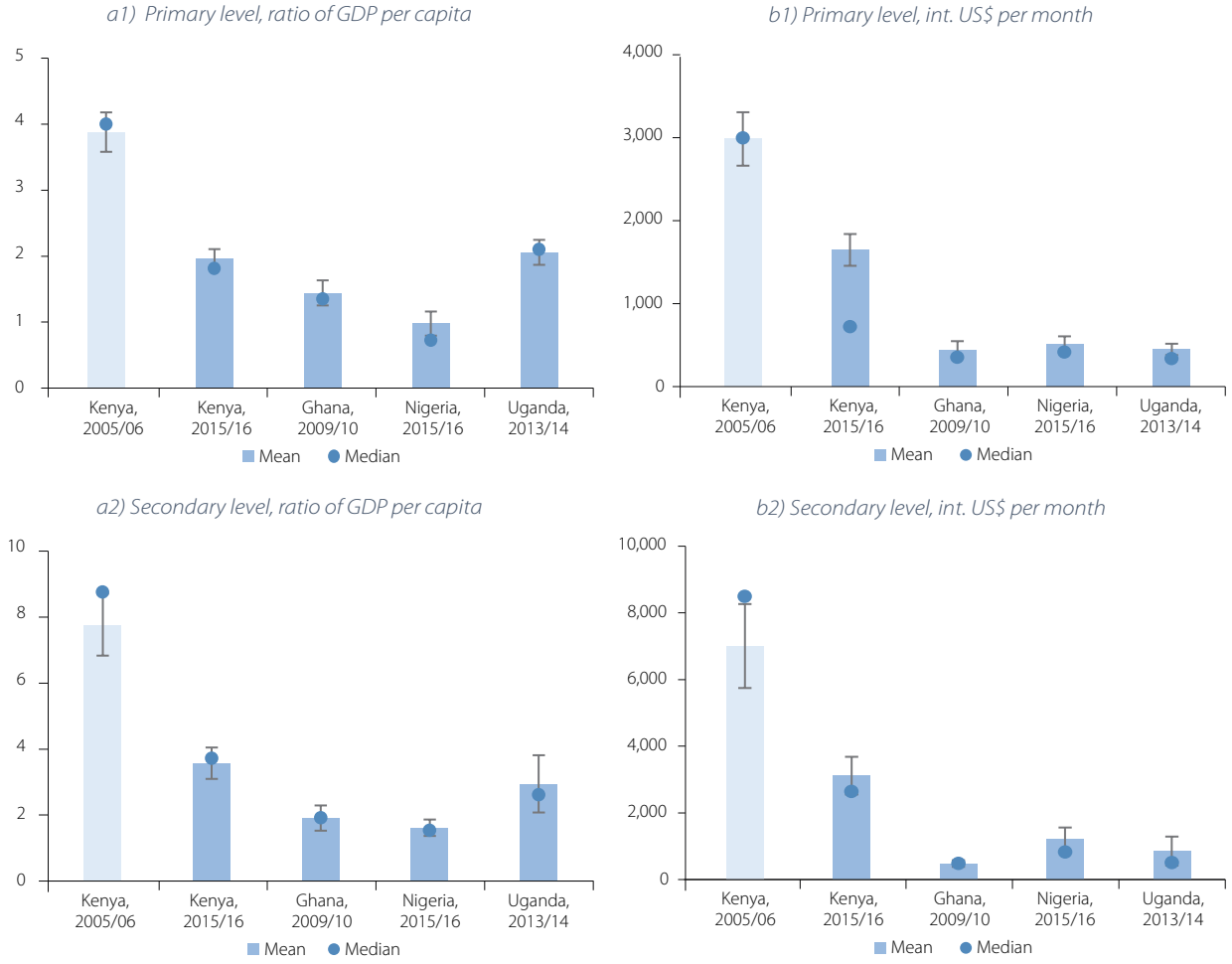
180 The study analyzes the Extra Teacher Program (ETP), which provided funds to randomly selected schools to hire an additional teacher.

181 Adequate wages, benefits and job security are necessary to attract talented and motivated teachers. Whether wages will have an immediate effect on teacher effort, however, will typically depend on the institutional framework (de Ree, *et al.* 2015).

182 Findings based on the KIHBS data are broadly in line with TSC pay scales. The collective bargaining agreement between the TSC and the Kenya National Union of Teachers (KNUT), signed in October 2016, suggests that teacher salaries are high compared to average incomes. Before tax, the ratio of annual earnings to GDP varies between 1.73, the minimum for entry grade primary school teachers, and 10.51, the maximum for chief principals, the highest pay grade (KNUT 2016). These figures are for rural areas that are not subject to hardship allowances. They include house and leave allowances (paid once a year to all teachers serviced by the TSC) but exclude other allowances that teachers may be eligible for (including responsibility allowance, commuter allowance, hardship allowance, transfer allowance, and special education allowance).

183 Surveys used differ in terms of how primary and secondary school teachers can be identified: the Kenyan surveys use the three-digit Kenyan National Occupation Classification Standard (KNOCS) (codes 370 and 252), the Nigerian and Ghana surveys use the four- and three-digit 1988 ISCO standard (codes 2331 and 2320, and 233 and 232, respectively), and the Ugandan survey uses the 2008 ISCO (codes 2341 and 2330, respectively).

Figure 6.15: Cross-country comparison of teacher salaries by level



Source: Own calculations based on WDI, KES 2017 (2012-2016 data) and KES 2013 (2008-2012 data), and KIHBS 2015/16.
Note: Data on gross enrollment tabulated across different volumes of the KES were not always consistent. See also notes to Figure 6.3

capita, teachers in Kenya earn similar relative salaries to those in Uganda (2.9) and considerably more than their counterparts in either Ghana (1.9) or Nigeria (1.6) (Figure 6.15a2).

As a consequence of slow nominal wage growth and changes in the composition of the workforce, teachers' average salaries have been declining in real terms. Estimates from the KIHBS suggest that average salaries for both primary and secondary school teachers have been declining by more than half in real terms, although they remain higher than in other countries in the region (Figure 6.15b1-b2). Inflation may be to blame for some of the decrease but not all of it. Decomposing the decrease suggests that about two thirds of the decline in real wages for primary and about one third of the decline for secondary teachers can be explained by a fall in the average age of teachers and in their probability of working in the public sector,[184] with the remainder is potentially accounted for by slow growth in nominal wages.

Subject knowledge of Kenyan primary school teachers is high by regional standards, but average scores suggest that teachers are often struggling with the curriculum they are supposed to teach. Teachers require a deep understanding of the subjects they teach as well as pedagogical skills in order for learning

[184] Based on OLS regressions of log salaries on age, gender, a public-sector dummy, and a dummy for 2015/16, it was found that real salaries for both primary and secondary teachers increased by about 2.4 percent with each year of age. The average age declined by 2.5 and 1.2 years, respectively, where only the former estimate was found to be statistically significant. The public-sector premium in these regression was very high, in excess of 100 percent for both primary and secondary, in line with recent results in the academic literature (Barton, Bold, and Sandefur 2017). In the KIHBS sample, employment in the public sector decreased by 25 percentage points for primary school teachers and by ten percent for secondary school teachers.

to take place. Compared to teachers in other Sub-Saharan African countries for which comparable data are available, Kenyan primary school teachers score high on subject knowledge tests (Figure 6.16). Still, the average fraction of correct answers on the English and mathematics tests, which were based on the fourth-grade curriculum, were only 64.6 and 80.6 percent, respectively. There is no evidence for differences in teacher subject knowledge by type of provider.

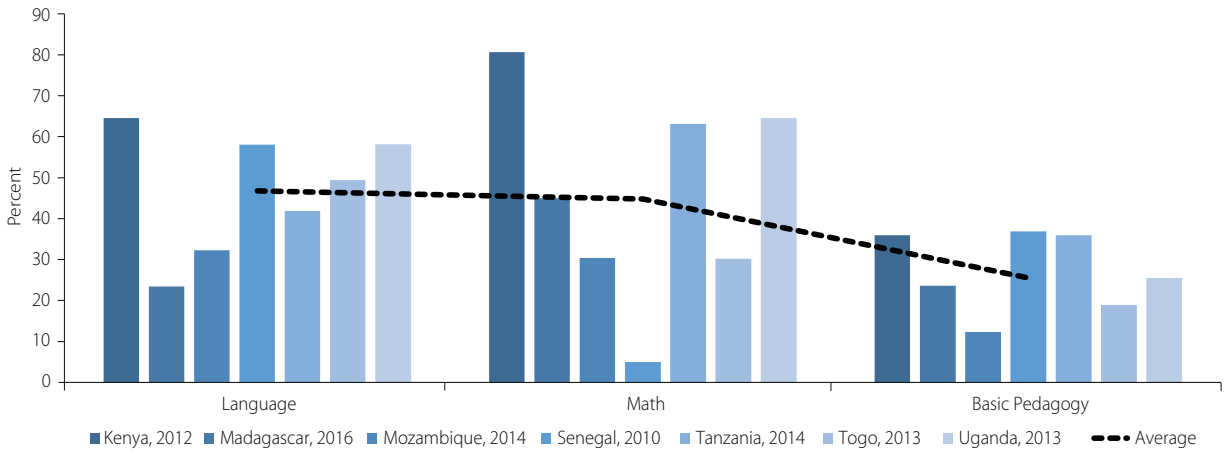
At the same time, most Kenyan teachers are unfamiliar with basic pedagogy. On average, teachers answered only 36 percent of the questions related to basic pedagogy correctly. In this domain, teachers in Kenya achieved scores similar to their colleagues in Tanzania and Senegal but still better than teachers in Madagascar, Mozambique, Togo, or Uganda. The lack of pedagogical skills among Kenyan teachers is also evident in observational studies of teacher-student interactions: individual seat work and purely teacher-centered activities (e.g. instructions, demonstrations, lesson reviews) take up most of the time of a typical lesson in Kenya (Ngaware, Oketch, and Mutisya 2014). Teacher-led recitations, including highly-ritualized choral responses by students, are often the dominant form of teacher-student interactions in Kenyan primary schools (Pontefract and Hardman 2005). Teachers rarely ask open questions that would require students to explain their reasoning or expand on a thought, and explicit feedback is rare.

6.5 TEACHER INCENTIVES AND SCHOOL GOVERNANCE

A gap exists between what teachers in Kenya are capable of doing and what they actually are doing in practice. An important factor for the effective delivery of education services is whether teachers' incentives are aligned with student learning. The previous section suggests that teachers in Kenya often have better subject knowledge than teachers in other countries in the region. They also tend to be better paid in real terms. However, this section argues that while teacher incentives are well-aligned with student learning, there is still a gap when it comes to teaching practice. In line with better learning outcomes in children that attend private institutions, this gap seems to be more pronounced in the public sector.

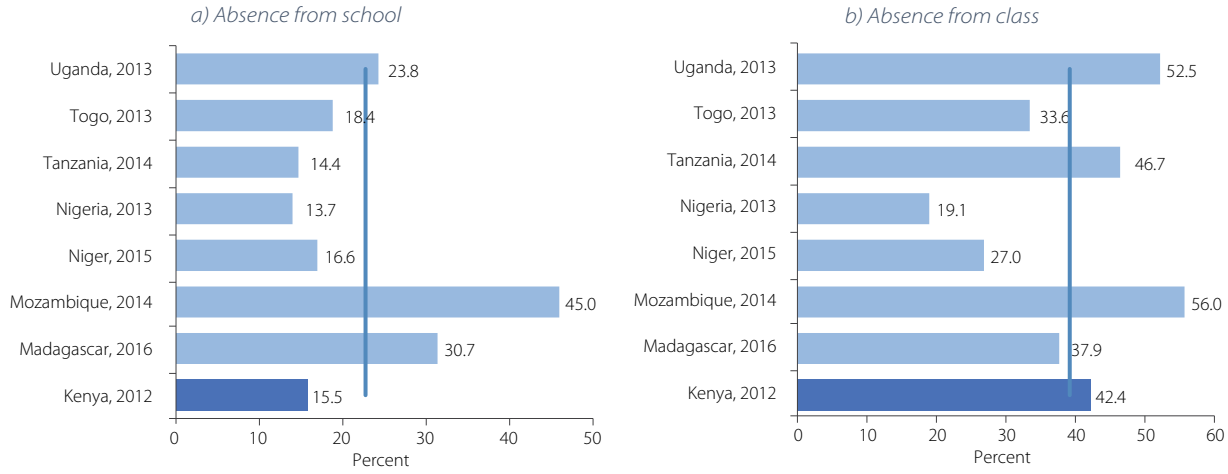
As in other countries of Sub-Saharan Africa, absenteeism among teachers in Kenya is rampant. High rates of teacher absenteeism and large discrepancies between time spent teaching and the scheduled teaching time are common across Sub-Saharan Africa and have been found to negatively affect student learning (Bold, Filmer, Marin, et al. 2017). While Kenyan teachers appear knowledgeable by regional standards, they are more likely to be absent from class than teachers in Madagascar, Niger, Nigeria and Togo (Figure 6.17). It is interesting to note that only around 16 percent of teachers were absent from school while more than 40 percent were absent from class.

Figure 6.16: Teachers' subject knowledge and pedagogical skills by country, early 2010s



Source: Own calculations based on SDI database.

Figure 6.17: Absence from school and absence from class by country

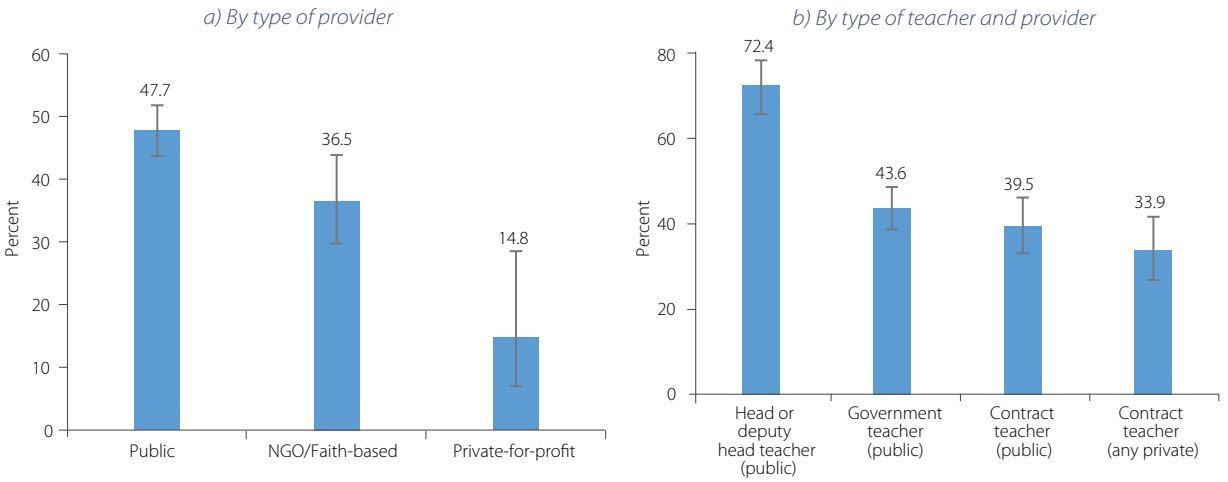


Source: Own calculations based on SDI database.
Note: The vertical line indicates the average.

This suggests that teachers are not so much involved in other income-generating activities outside of school but have poor incentives to actually teach while in school. High absenteeism rates are also consistent with earlier estimates for the Busia and Teso districts (Glewwe, Ilias, and Kremer 2010). Importantly, that study demonstrates that high average absenteeism is the result of many teachers being absent occasionally, not of few teachers being absent all the time.

Absenteeism rates are lower among teachers working for private providers and contract teachers. Absenteeism rates across all types of teachers are much higher for teachers working in the public sector than for either teachers working for nonprofits or private-for-profit schools (Figure 6.18a). While almost every second teacher in public schools was absent during an unannounced visit, the rate was ten percentage points lower in schools run by NGOs or faith-based organization. Teacher absenteeism is less pronounced among private-for-profit schools at only 14.8 percent. Head or deputy head teachers in public schools had the highest absenteeism rates at 72.4 percent, followed by public school teachers (43.6), contract teachers in public schools (39.5), and contract teachers in private schools (33.9) (Figure 6.18b). It should be noted that the difference between public school (government) teachers and contract teachers in private and public schools remains large after controlling for age, gender, and educational attainment. Together with evidence presented above on learning outcomes by type of provider and teacher salaries, this finding raises further

Figure 6.18: Absenteeism rates by type of provider and type of teacher, 2012



Source: Own calculations based on SDI 2012.
Note: 95-percent confidence intervals are indicated.

questions regarding the differences in educational production between private and public providers (Box 6.3).

A recent reform aims at improving teacher performance through closer monitoring by superiors. Until recently, the probability of being employed as a teacher and of being promoted depended largely on formal qualifications and grades in teacher training as well as time spent in the queue, i.e. years past since graduation from teacher training (Wanzala 2016; Bold, Kimenyi, and Sandefur 2013). In 2016, a performance evaluation system (Teacher Performance Appraisal Development tool or TPAD) was introduced by the TSC with the support from the Global Partnership for Education.[185] Teachers are now meant to be evaluated by their superiors, with criteria including the preparation of lesson plans, the extent to which the syllabus is followed, as well as attendance and observance of effective time use (Kiplang'at 2016).

While there is no evidence on the effects of this particular reform to date, studies suggest that monitoring by superiors within schools is often ineffective. While the TSC reports improvements, there is no evidence so far that the reform has improved teacher effort due to lack of adequate data. A new assessment of teacher presence and practice along the lines of the SDI survey would be needed to shed more light on this question and is currently scheduled for 2019/20. However, empirical studies of incentive schemes that relied on monitoring of teachers through headmasters suggest that they can be ineffective. An inputs-based incentive intervention in Kenyan preschools in which teachers were eligible for attendance bonuses had no effect on absenteeism or most measures of teacher pedagogy (Chen et al. 2001). The authors attribute this result largely to the fact that headmasters were administering the incentive scheme. In a similar fashion, another study finds no effect of prizes given for good teaching on teacher absence in an experiment in which the task of allocating prizes falls to school committees, some of which were controlled by headmasters (De Laat, Kremer, and Vermeersch 2008). Finally, one study for Uganda finds evidence that headteachers were less likely than other school-board members to hold teachers to account (Barr and Zeitlin 2011). It is also worth noting that headmasters and their deputies have had higher absenteeism rates in the 2012 SDI data (Figure 6.18b).

Box 6.3: Are higher public-sector wages efficient?

The analysis in this chapter suggests that public school teachers in Kenya earn significantly higher wages than their counterparts in private schools. In theory, a public-sector premium could be efficient if it reflects a compensating differential, if it results in positive selection, or if it succeeds in eliciting higher levels of motivation (i.e., if efficiency wages are offered). However, the evidence presented here is not consistent with a public-sector premium as an efficient reward for talent and effort. On average, public school teachers have similar knowledge in terms of subject content and pedagogy, yet were less likely to be teaching during unannounced visits. In addition, there is some evidence for a greater effectiveness of private provision in producing educational outcomes.

A recent study suggests that higher salaries earned by public school teachers in Kenya reflect inefficient rents. The hiring freeze on public school teachers ended in 2010 when the GoK recruited 18,000 new public school teachers. A recent quasi-experimental study exploits this natural experiment (Barton, Bold, and Sandefur 2017). The empirical strategy employed allows the authors to credibly rule out differences in observable and unobservable teacher characteristics (positive selection) as an explanation for the public-sector premium. The authors find that applicants that obtained jobs in the public-sector but had otherwise identical characteristics earned a wage premium of KSh 10,000, more than 100 percent. At the same time, the authors find no evidence for an effect of these jobs on motivation. Hence, both compensatory and efficiency wages are unlikely explanations for the observed wage premium, leaving pure rents as the only plausible explanation.

[185] See https://www.globalpartnership.org/blog/transforming-teaching-kenya.

Parents can play a key role in monitoring teachers. Academic studies provide insights of how enhancing school governance can overcome some of the most pressing constraints to effective learning in Kenya. Parents can play an important role in improving school governance and teacher incentives, including reductions in absenteeism rates, if their mandate and ability to monitor teachers is strengthened (Duflo, Dupas, and Kremer 2015b). Raising the stakes for parents in their children's academic performance, for instance, by providing financial support to successful students, can strengthen their incentives to monitor teachers (Friedman et al. 2016).

While the hiring of more contract teachers in public schools seems to be a promising idea to reduce costs without hurting the quality of education, the political economy of taking this idea to scale is challenging. Contract teachers were more efficient in a limited experimental study (Duflo, Dupas, and Kremer 2015b).[186] However, a scaled-up program implemented by the GoK that aimed at hiring 18,000 additional contract teachers – almost one per public primary school – faced several implementation constraints. The scaled-up version also altered the political economy in a way that lowered its effect on test scores: one study found that the program had similar effects on test scores as in the original study when it was run by an NGO. But no discernable effect was found when it was run by the government (Bold, Kimenyi, Mwabu, Ng'ang'a, et al. 2013).[187]

6.6 SUMMARY AND POLICY OPTIONS

Taken together, findings in this chapter suggest three, intertwined policy challenges. The analysis presented in this chapter identified three main policy issues in the education sector of Kenya: (1) improving access to quality education for the poor, particularly at the secondary level, (2) managing the trade-off between increasing costs and the provision of quality inputs, particularly teachers, and (3) strengthening teacher incentives and school governance.

Increasing secondary school enrollment among the poor requires demand-side interventions. Completion of secondary school is associated with a range of positive outcomes during adulthood. But while enrollment in secondary has increased among the poor, significant gaps persist. Further analysis presented in this chapter and academic research suggest that increasing enrollment in secondary education in Kenya requires primarily demand-side interventions. Cash transfers have already proven effective in increasing enrollment rates in Kenya.

In the medium term, greater reliance on contract teachers to initially fill vacant positions should be combined with close monitoring of the recent overhaul of teacher hiring and retention practices. Contract teachers earn lower salaries, have average levels of subject and pedagogical knowledge, and lower rates of absenteeism. Hence, greater reliance on contract teachers to initially fill vacant positions would seem to be a way to supply additional teachers at low cost. Moving to an 'up-or-out' promotion system in which the best-performing contract teachers are promoted to public school teachers may have large potential dynamic benefits (Duflo, Dupas, and Kremer 2015b). Ultimately, a system in which teachers start their careers as contract teachers and receive tenure conditional on performance puts in place incentives *and* improves the selection of teachers into tenured positions.[188] However, the threat of a discontinuation of employment would have to be credible. The effectiveness of recently introduced monitoring and evaluation systems should be closely followed. While they have the potential to improve teacher effort, it is not clear whether head masters and deputy head masters are best placed to monitor teacher presence and performance.

[186] Recent experimental evidence from India supports the notion: contract teachers improved learning outcomes substantially (Banerjee, *et al.* 2007, Muralidharan and Sundararaman 2013). See also Bruns, Filmer, & Patrinos (2011) for a review of non-experimental studies of the effect of contract teachers.

[187] The authors show that local capture in the form of a larger share of positions filled with relatives of individuals involved in the hiring process was more common in the government arm. In addition, there was a lack of top-down accountability: district-level employees of the MoE failed to conduct monitoring visits and to report back to the central government, resulting in higher rates of teacher absenteeism and delays in payments. Finally, the program also faced resistance from Kenya's teacher unions, which demanded that newly-hired contract teachers be eventually turned into civil servants. Contract teachers in the government arm seemed to have anticipated this outcome, which in turn changed their incentives and adversely affected their performance.

[188] Combining their empirical estimates with assumptions about the steady state-share of contract teachers, Duflo, Dupas, and Kremer (2015b) reckon that such a promotion system might increase test scores by 0.18 standard deviations.

School governance might benefit from greater involvement of local stakeholders, particularly parents. Empirical evidence suggests that the local knowledge of stakeholders, particularly parents, may play a key role in monitoring teachers at the school-level. Putting local stakeholders in charge of monitoring and evaluating teachers may help improve teacher attendance and, thus, students' test scores. Moreover, it is important to pay close attention to how incentives are structured so that stakeholders themselves have a strong interest in improving learning outcomes. Parents will likely need training and information to effectively undertake monitoring. It remains to be seen in this context whether the creation of Boards of Management in 2013 resulted in significant improvements.

Along with greater local oversight, schools could be given more resources and greater autonomy to use them. Under the current system, schools receive capitation grants, fixed per-student payments. But these have been pegged at very low levels and have never been adjusted for inflation. In addition, they cannot be used to pay for salaries. Increasing the capitation grant, along with greater autonomy to school committees to recruit, retain, and promote teachers, has the potential to improve teacher performance and to lower school dropout rates.

The potential of a greater involvement of private providers should be explored. In recent years, enrollment in private primary schools has been increasing. Evidence reviewed in this chapter suggests that private primary schools in Kenya are more productive and often operate at lower costs than public schools (Bold, Kimenyi, Mwabu, and Sandefur 2013). There is also some evidence that teachers in private schools have higher levels of motivation and that greater enrollment in private schools has freed up resources in the public sector. Given the growing importance of private provision of education in Kenya documented in this chapter, current oversight arrangements and regulations should be reviewed and strengthened. The government has a vital role to play in markets with both public and private providers, particularly in providing information to parents (Andrabi, Das, and Khwaja 2017). It also needs to have the capacity to craft contracts that ensure equitable access to private provision and to ensure minimum quality standards through monitoring (Romero, Sandefur, and Sandholtz 2017).

Recent events show that such policies are likely to be met with solid resistance from teachers' unions. While the above proposals, an overhaul of the hiring process, an increase in the mandate of local school committees, a shift of financial resources, and a more active approach to private involvement, have the potential to increase both access to and quality of education at modest costs, attention to the details of their implementation are of utmost importance. In addition, recent experience suggests that the political economy of reforms along those lines is difficult. Greater reliance on contract teachers and private provision has already been met with solid resistance on the part of teachers' unions (Bold, Kimenyi, Mwabu, Ng'ang'a, et al. 2013).

There are several areas that require further analysis, including late-enrollment in primary, the transition from primary into secondary education, and follow-up assessments of service delivery. Late enrollment, particularly among the poor, remains a concern. More research is required to inform policies aimed at increasing the net intake into the first grade of primary. And while the transition rate from primary into secondary has improved between 2005/06 and 2015/16, it is still comparatively low among the poor. High costs associated with secondary education still constitute a barrier to access but a more detailed understanding of this would shed some light on the formulation of policies aimed at boosting timely access to education among disadvantaged children. In addition, this report has heavily relied on data from the 2012 SDI, which has proved valuable in assessing different dimensions of the education system in Kenya. But these data are somewhat dated now. A new dataset would help to understand whether recent reforms and initiatives have made a difference. Finally, there are several areas of the education system whose link to poverty remains unexplored. These include early childhood development, technical education and tertiary education.

CHAPTER 7

HEALTH AND POVERTY

SUMMARY

Kenyans have experienced significant and equitable gains in a range of population health indicators over the past ten to 15 years. Driven by increased uptake of low-cost, high-impact technologies and declining fertility, under-five mortality has fallen by more than 50 percent between 2003 and 2014.[189] The proportion of children under five that are chronically malnourished has declined by almost ten percentage points over the same time period (DHS STATcompiler, 2018). While still high and estimated with considerable margins of error, maternal mortality, the number of maternal deaths per 100,000 livebirths, likely also declined over this time-period.[190] Improvements in uptake and outcomes were often more pronounced among the poor. For instance, while the children of the poorest 20 percent of Kenyans[191] were almost 50 percent more likely to die before their fifth birthday than the children of the richest 20 percent in 2003, the gap had declined to only a little more than ten percent by 2014.

New challenges for the Kenyan health sector are quickly emerging. While progress has been robust in many domains, this chapter will argue that there are still pronounced socioeconomic and geographic disparities in health access and outcomes that warrant action. At the same time, new challenges such as the increasing burden of non-communicable diseases, concerns about the sustainability of healthcare financing,[192] and disruptive labor disputes have added to the challenges Kenya's health sector is facing.

Recent reforms and policy initiatives have the potential to address some of these challenges. The devolution of health service delivery in 2013, the removal of user fees in public facilities for basic services and deliveries in the same year, and the more recent focus on UHC as one of the "Big Four" priorities demonstrate steps the GoK's commitment to equitable access to quality health services. However, implementation presents challenges, outcomes should be carefully monitored, and adjustments should be made as needed. For instance, early reports suggest that a lack of coordination between the central and county governments in the months following devolution had adverse effects on service delivery. Removal of user fees for deliveries has mainly led to a shift in demand from private provision to public provision among urban, better-off women, suggesting that supply-side policies are an important ingredient in the policy mix that will eventually allow the GoK to reach its goal of UHC.

189 One study suggests that the increase in uptake of ITNs alone accounts for close to 80 percent of the decrease in infant mortality between 2003 and 2008.

190 The maternal mortality ratio is based on sibling death histories and is estimated in the case of Kenya with high levels of uncertainty: the 95-percent confidence bands in this case range from 398 to 614 deaths in 2003 and from 254 to 471 deaths in 2014. Hence, the difference in the estimates is not significant at conventional levels of statistical significance.

191 As these rates are based on data from the KDHS, the variable used to construct quintiles is an asset index, not consumption expenditures.

192 A recent World Bank report on the financing of priority programs, including immunization campaigns and programs to address HIV/AIDS, malaria, tuberculosis, and reproductive health, shows that these programs face funding gaps despite being heavily reliant on resources provided by development partners. The report estimates that closing the combined funding gap for these programs would require the GoK to increase health spending by more than 50 percent (World Bank 2018a).

7.1 BACKGROUND

7.1.1 Kenya's health sector: key characteristics and recent developments

Improvements in the quality and efficiency in health service delivery can help the poor to move out of poverty and protect the non-poor from falling into poverty. Broad access to quality health services provides the foundation for healthy societies. Yet there is also a strong empirical relationship between health and equitable economic growth that operates at various levels, with causality running in both directions: improved living standards can often lead to better health, and better health also improves the material standard of living. In addition, an efficient health system, including adequate protection from catastrophic out-of-pocket health expenditure, secures livelihoods and thus protects individuals from falling into poverty.

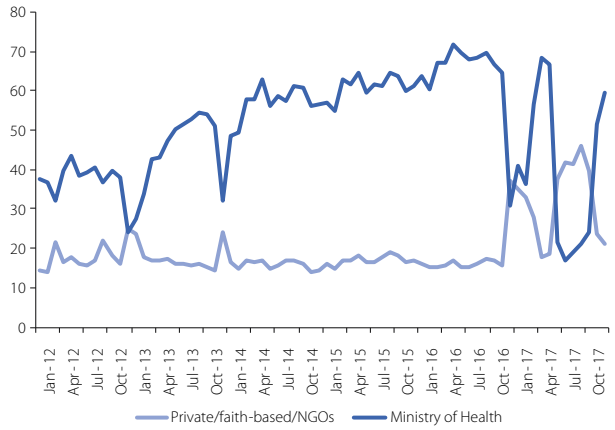
Kenya's health care system is currently organized around six levels of care that fit into four tiers of care, based on the scope and complexity of services offered. The basic unit is the community unit staffed by community health workers. These comprise the first tier. Primary care facilities, dispensaries and health centers, comprise the second and third level, both part of the second tier. They provide basic preventive and curative care including health services for childbirth. Health centers also provide basic inpatient services, including deliveries. The top three levels are hospitals that focus more on curative care and rehabilitation. The third tier consists of county referral hospitals. They are primary and secondary hospitals that provide both outpatient and inpatient care. The fourth tier, the national referral facilities that offer highly specialized care, is used for training and support research (Ministry of Health 2013).

Both public and private providers play an important role in Kenya's health system. A large and increasing part of the population — and especially among the poor — relies on public health services (Figure 7.1). For instance, seven out of ten episodes of outpatient care among the poorest 40 percent are provided by government facilities, compared to only five in ten among the richest 20 percent. The private sector, which includes both for-profit providers and non-profits (faith-based organizations and NGOs), still plays a significant role, particularly in urban areas and among better-off Kenyans (section 7.2.3).

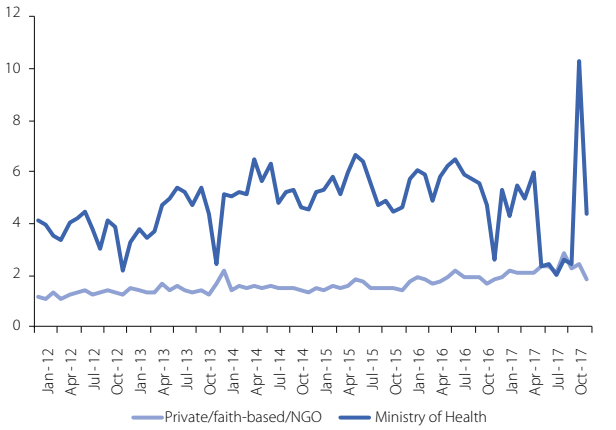
The GoK remains strongly committed to improving health care delivery. The GoK's *Vision 2030* stipulates a two-pronged approach to building an efficient and high-quality health care system: (i) the devolution of funds and management of health care from the central government to counties and (ii) a shift of expenditures from curative to preventive care services. It also recognizes the need for additional efforts to tackle HIV/AIDS, malaria, and tuberculosis as well as lowering infant and maternal mortality. More recently, the GoK's "Big Four" agenda includes UHC as one of four pillars.

Figure 7.1: Outpatient visits and institutional deliveries by provider, January 2012 to December 2017

a) Health facility attendance (outpatient visits, millions)

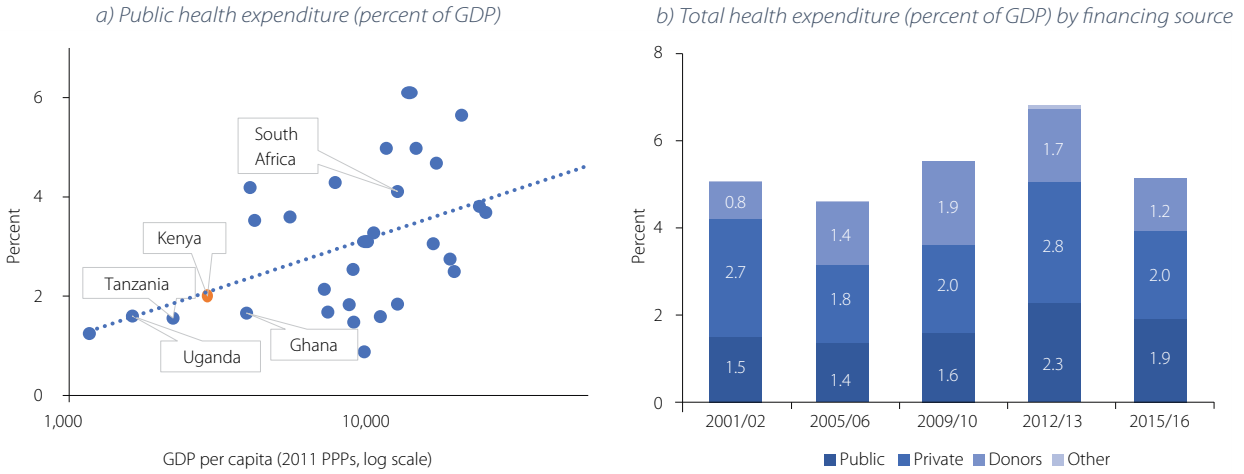


b) Institutional deliveries by month, thousands, Jan 2012 - Dec 2017



Source: Own calculations based on data from Kenya's District Health Information System (DHIS 2).

Figure 7.2: Levels and trends in health expenditure by source, 2004-2014



Source: Own calculations based on CEQ database (http://commitmentoequity.org/) and KNBS 2016 (panel (a)) and Ministry of Health 2017 (panel (b)).

Policies to prevent the transmission of communicable diseases, particularly malaria and HIV/AIDS, have been main priorities for the GoK in recent years. Kenya adopted several measures to fight malaria since the early 2000s. ITNs have been distributed free of charge to children under five and pregnant women since 2006 and to all age groups since 2010 (WHO 2018). Intermittent preventive treatment in pregnancy, a full therapeutic course of antimalarial medicine given to all pregnant women at routine antenatal care visits, was adopted in 2001, and residual spraying of insecticides was adopted in 2003.[193] In its National Malaria Strategy 2009-2017, the Kenyan Ministry of Public Health and Sanitation announced a new goal of universal coverage with long-lasting ITNs for populations at risk by 2013 (Ministry of Public Health and Sanitation, 2009). Similarly, the battle against HIV/AIDS has featured prominently in national strategies.[194]

At about two percent of GDP, the level of public health expenditure in 2015/16 is in line with countries at similar levels of economic development and is similar to Kenya's regional peers. Across countries, public health spending as a share of GDP tends to increase by a little less than a tenth of a percentage point for every ten-percent increase in GDP per capita (Figure 7.2a). In Kenya, it was around two percent of GDP per capita in 2015/16, only slightly higher than in neighboring Uganda and Tanzania and in line with Kenya's level of economic development.

While total health expenditure as a share of GDP increased moderately between 2005/06 and 2012/13, it declined more recently. Between 2012/13 and 2015/16, total health expenditure (including public health expenditure, private sources, and donor contributions) declined by about nine percent in real terms and by 1.7 percentage points of GDP (Figure 7.2b). This translated into a decline in per capita terms by almost one third, from KSh12,000 to less than KSh8,000 per person (in 2015 constant prices). Lower private funding accounts for around half of the decline in real per capita health expenditure.

While the ratio of donor financing to total health expenditure has decreased since 2009/10, Kenya's health sector is still highly reliant on donors. The government's share in total health expenditure was 37 percent in 2015/16, up from 29 percent in 2005/06. The share of private expenditure declined between 2001/02 and 2005/06 and then stagnated at around 40 percent over the subsequent ten years. Donors have more than doubled their share over the course of the 2000s, from

193 Both ITNs and residual spraying have been demonstrated to be highly effective against malaria, including in RCTs in Kenya (Guyatt, *et al.* 2002).

194 Kenya's Vision 2030 document identifies HIV and AIDS as "one of the greatest threats to socio-economic development in Kenya" and envisions a Kenya free of HIV infections, stigma, and AIDS-related deaths. The GoK, through the National AIDS Control Council, has developed the Kenya AIDS Strategic Framework 2014/2015 to 2018/2019 to provide guidance on the country's priorities in HIV programming and increase the effectiveness of the national response, which stipulates a reduction in new HIV infections by 75 percent by 2030. The framework will build on and succeed the Kenya National AIDS Strategic Plan 2010–2013 (KNASP III) and aims to contribute to achieving goals defined in the Vision 2030 (National AIDS Control Council 2015).

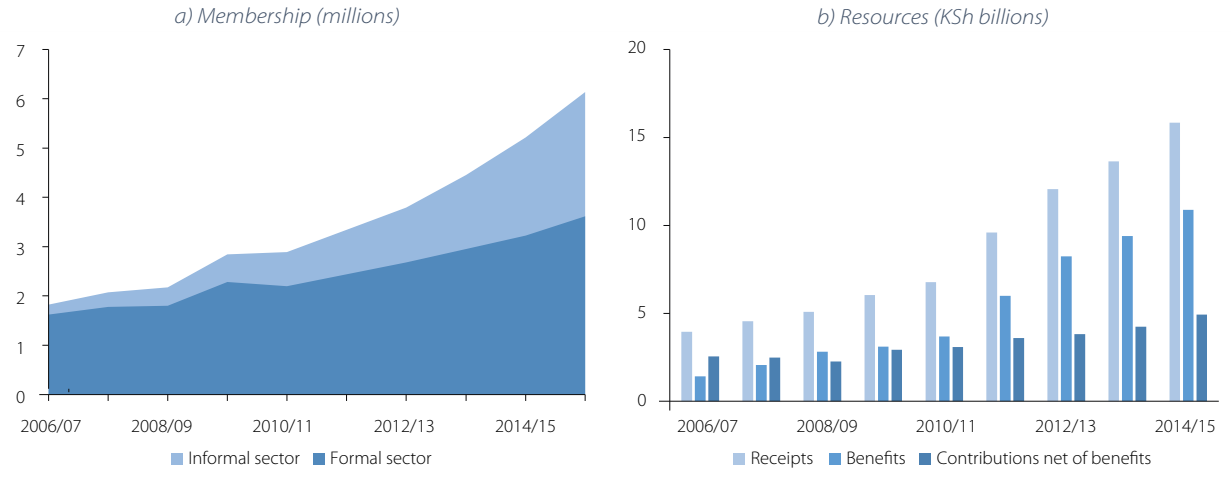
16 percent in 2001/02 to 35 percent in 2009/10. But their share has since declined to 23 percent in 2015/16. However, some priority programs still rely heavily on donor funds. For instance, almost three quarters of total expenditure on HIV/AIDS was financed by donors in fiscal year 2013/14 (World Bank 2018a).

Coverage through the NHIF has increased rapidly in recent years. Membership in Kenya's NHIF, a state entity with the mandate to provide social health insurance, is mandatory for all formal sector employees (public and private) and voluntary for those in the informal sector. Contributions are calculated on a graduated income scale for the formal sector and at a fixed rate for the informal sector. The benefits package, which has been expanded in 2016 (Healthy Nation 2017), includes medical consultation, lab work, drug administration and dispensing, dental health care, radiology examinations, nursing and midwifery services, surgical services, radiotherapy, and physiotherapy (NHIF 2015). According to the 2017 KES, membership has increased from less than two million in 2006/07 to more than six million in 2014/15 (Figure 7.3). Estimates based on the 2015/16 KIHBS data suggest that 8.1 million Kenyans were covered through the NHIF in 2015/16 while only 0.5 million had different health coverage (section 7.2.3).

The devolution of health service provision to the counties has the potential to improve accountability. An important provision of the new Constitution adopted in 2011 was the devolution of health services to the newly-created 47 counties. The health service delivery function was formally transferred to counties in August 2013.[195] One third of the total devolved budget in 2013/14 was earmarked for health and most health workers became employees of counties. However, health policy, the management of national referral hospitals, and capacity building remain the responsibility of the national government (GoK 2010). Nevertheless, this was a radical departure from the highly centralized form of governance that had been in place since independence and which was often seen as resulting in both political and economic disempowerment as well as an unequal distribution of resources (World Bank 2012) (Box 7.1).

The introduction of free basic health services in public facilities, including the free provision of deliveries, in June 2013, resulted in increased uptake and a shift in demand towards public provision of basic health services. In June 2013, the GoK moved to abolish all user fees in public dispensaries and health centers and made deliveries in all public facilities free of charge.[196] This policy, perhaps in conjunction with

Figure 7.3: Membership and resources of National Hospital Insurance Fund (NHIF), 2006/07-2014/15



Source: Own calculations based on KES 2017.

[195] Gazette Supplement No. 116, Legal Notice 137 of August 9, 2013.

[196] User fees, introduced in Kenya and in many other developing countries in the late 1980s, increasingly came to be seen as a barrier to access. In response, many African countries introduced partial or total elimination of user fees in the 2000s (Meessen *et al.* 2011).

Box 7.1: Promises and perils of the devolution of health services

Devolved government presents an opportunity to address the diversity of local public health challenges. Kenya is a diverse country with ten major and more than thirty minor ethnic groups and marked by large spatial disparities. Needs in terms of health services vary widely. For instance, many rural areas still need to catch-up in providing basic health services while more developed urban centers are facing a rapidly progressing epidemiological transition. With these stark differences, it makes little sense to provide the same mix of services across counties. Counties might be more accountable and provisions for increased transparency and participation might help to keep a lid on corruption.

On the other hand, massive changes in processes imply severe challenges. Capture of resources by local elites and low capacity to absorb resources in some counties were seen as major risks associated with devolution (World Bank 2012). In addition, a recent assessment suggests significant variation in the degree to which counties are ready to take on full responsibility for health service delivery, as measured by health care accessibility and counties' ability to generate revenue (Barker, et al. 2014). Nevertheless, political pressure from the newly elected county governments led to a bulk transfer of functions, irrespective of the counties' level of preparedness. More recently, an analysis based on data from national health accounts generated for twelve pilot counties still found high levels of out-of-pocket spending. The analysis also found large variation in both per capita spending on health in 2013/14 and 2014/15 and the share accounted for by county government health expenditure (Maina, Akumu and Muchiri 2016).

Early reports often pointed to disruptions in service provision due to a low level of preparation, but more empirical evidence is required to shed light on the effects of devolution on health outcomes and equity in access. A low level of preparedness to provide health services effectively on the part of some counties resulted in problems such as the disruptions in staff salary payments and delays in procurement of essential medicines and medical supplies (Tsofa, et al. 2017).

One area in which improvements should be monitored is the allocation of health professionals across counties. Section 7.3.2 takes a closer look at health professionals in Kenya. It documents both a general shortage as well as a maldistribution of nurses in the public sector across counties prior to devolution. However, a redistribution of resources and authority across counties has the potential to address at least the second problem. Outcomes in this regard should be closely monitored.

the devolution of responsibilities to the counties, has resulted in a relative shift in demand away from private provision and towards public provision that is evident for outpatient visits and institutional deliveries alike (Figure 7.1). However, the directive, which took effect immediately, reportedly took many health professionals in the public sector by surprise: for instance, there were several reports of overcrowding and stock-outs at public maternity hospitals (Cherondo 2013).

Labor disputes between the government and public-sector unions[197] have resulted in disruptions in the supply of health services. The frequency of labor strikes increased in recent years and walkouts of public-sector health workers have increasingly resulted in disruptions to service provision. For instance, strikes starting in late-2016 and mid-2017 paralyzed operations in public health facilities. Outpatient visits and deliveries in public facilities have both declined dramatically during these episodes. While the former seem to have been skipped altogether, an increase in deliveries in private facilities has partly compensated for the decrease of those in public facilities (Figure 7.1). Recent studies, including one for Kenya, find adverse effects of labor strikes of health workers on health outcomes, including higher rates of child mortality and reduced vaccination rates (Friedman and Keats 2017).

[197] The new constitution included a bill of rights that gave every Kenyan worker the freedom to join a trade union and compelled every employer to recognize employees' trade unions. This allowed medical doctors, who previously had no right to unionize, to form a union for the first time.

7.1.2 Population health and the demographic and epidemiological transitions

Except for maternal mortality, most indicators of population health are close to what would be expected given Kenya's level of economic development and are typically better than regional averages. In Kenya, mortality rates in children and adults are usually lower than in typical low-income countries yet higher than in typical middle-income countries (Figure 7.4). This also holds for the stunting rate, the percentage of children whose height-for-age falls at least two standard deviations below the average of a healthy reference population.[198] The one exception is the maternal mortality ratio, which, with an estimated 510 deaths for every 100,000 live births, is close to the average for low-income countries and only somewhat lower than the regional average.[199]

Child health outcomes have improved substantially since 2000. Exceptionally large reductions in under-five mortality have been observed in several countries in Sub-Saharan Africa. In Kenya, under-five mortality decreased by close to seven percent per year between 2003 and 2014. It is worth noting that this is rate of reduction is far higher than the rate implicit in the international MDG target, a two-thirds reduction and, hence, an annual rate of reduction of about 4.3 percent. As in other countries, reductions in child mortality (mortality between the ages of one and four) were larger than reductions in infant mortality (ages zero to one; Figure 7.5a and Figure 7.5b). The share of neonatal deaths, deaths that occur during the first month of life, in under-five deaths has increased, suggesting that further declines in under-five mortality will likely require a different mix of public health interventions. Stunting among children below the age of five and the incidence of underweight also decreased, although reductions were more in line with the (implicit) MDG target (Figure 7.5c and Figure 7.5d).

Total fertility fell more rapidly than expected given Kenya's growth in GDP per capita. The TFR, the average number of births per woman, has declined from 5.2 in 2000 to only 3.9 in 2015 (Figure 7.6a). While the former TFR was higher than expected based on Kenya's GDP per capita, the latter is well in line with other countries at comparable levels of GDP per capita. Similarly, under-five mortality was much higher than one would expect based on GDP per capita in 2000 but is now lower than expected (Figure 7.6b).

The fertility decline has resulted in more favorable conditions at birth. Birth outcomes depend on birth spacing, i.e. the length of time between a birth and a subsequent pregnancy, as well as the age of the mother at birth.[200] The lower number of births per woman in Kenya has been associated with an increase in the average birth-to-pregnancy interval, from 30.2 months in 2003 to 35.7 months in 2014,[201] and a small increase in the average age at birth from 26.3 years in 2003 to 26.5 years.

Kenya's counties differ markedly in terms of their position in the demographic transition. With a TFR of 6.1 births per woman and an under-five mortality rate of 77.8 deaths per 1,000 births, Garissa is at a similar stage of the demographic transition as Burundi (Figure 7.7). With a TFR of 2.7 births per woman and an under-five mortality rate of only 31.6 deaths, Kiambu, on the other hand, is at a similar stage as the Dominican Republic. It is also worth noting that a few counties, including West Pokot, Wajir, Turkana, and Samburu, seem to have high fertility rates given observed rates in under-five mortality. As falling mortality in children typically precedes falling fertility rates, a further drop in fertility in these counties may be imminent.

198 The indicator reflects a process of failure to reach linear growth potential resulting from suboptimal health and/or nutritional conditions. On a population basis, high levels of stunting are associated with poor socioeconomic conditions and increased risk of frequent and early exposure to adverse conditions such as illness and/or inappropriate feeding practices.

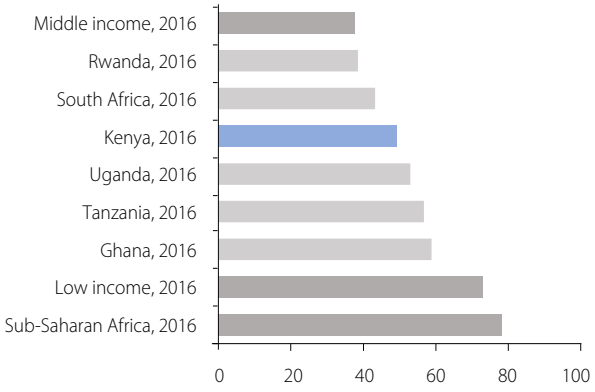
199 See also chapter 3 for a more detailed discussion of maternal mortality.

200 For Kenya, one study has found that "the length of the preceding birth interval is a major determinant of infant and early childhood mortality: in urban informal settlements in Nairobi between 2003 and 2009 (Fotso, *et al.* 2013).

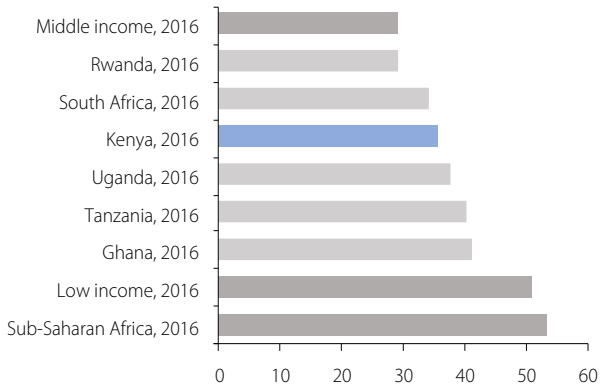
201 The share of pregnancies that started within 24, 18, and six months of the most recent birth declined by 7.4, 5.5, and 1.1 percentage points.

Figure 7.4: Health outcomes in Kenya vis-à-vis benchmark countries and aggregates, latest year available

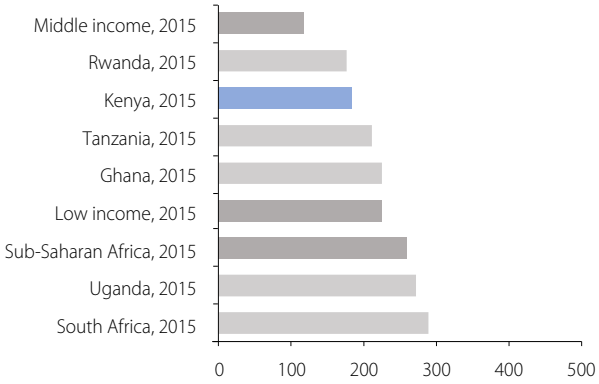
a) Under-five mortality rate (per 1,000 live births)



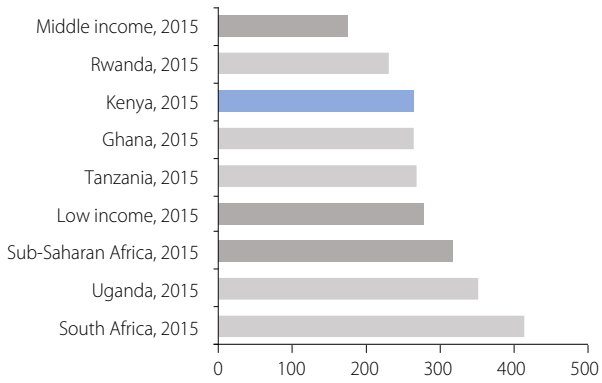
b) Infant mortality rate (per 1,000 live births)



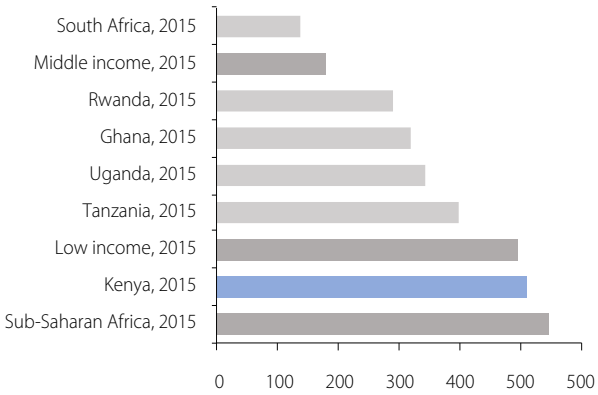
c) Adult mortality rate, women (per 1,000 women between the ages of 15 and 60)



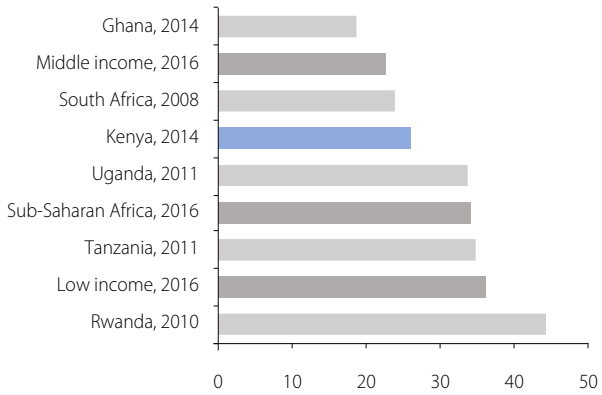
d) Adult mortality rate, men (per 1,000 men between the ages of 15 and 60)



e) Maternal mortality ratio (modeled estimates, per 100,000 live births)

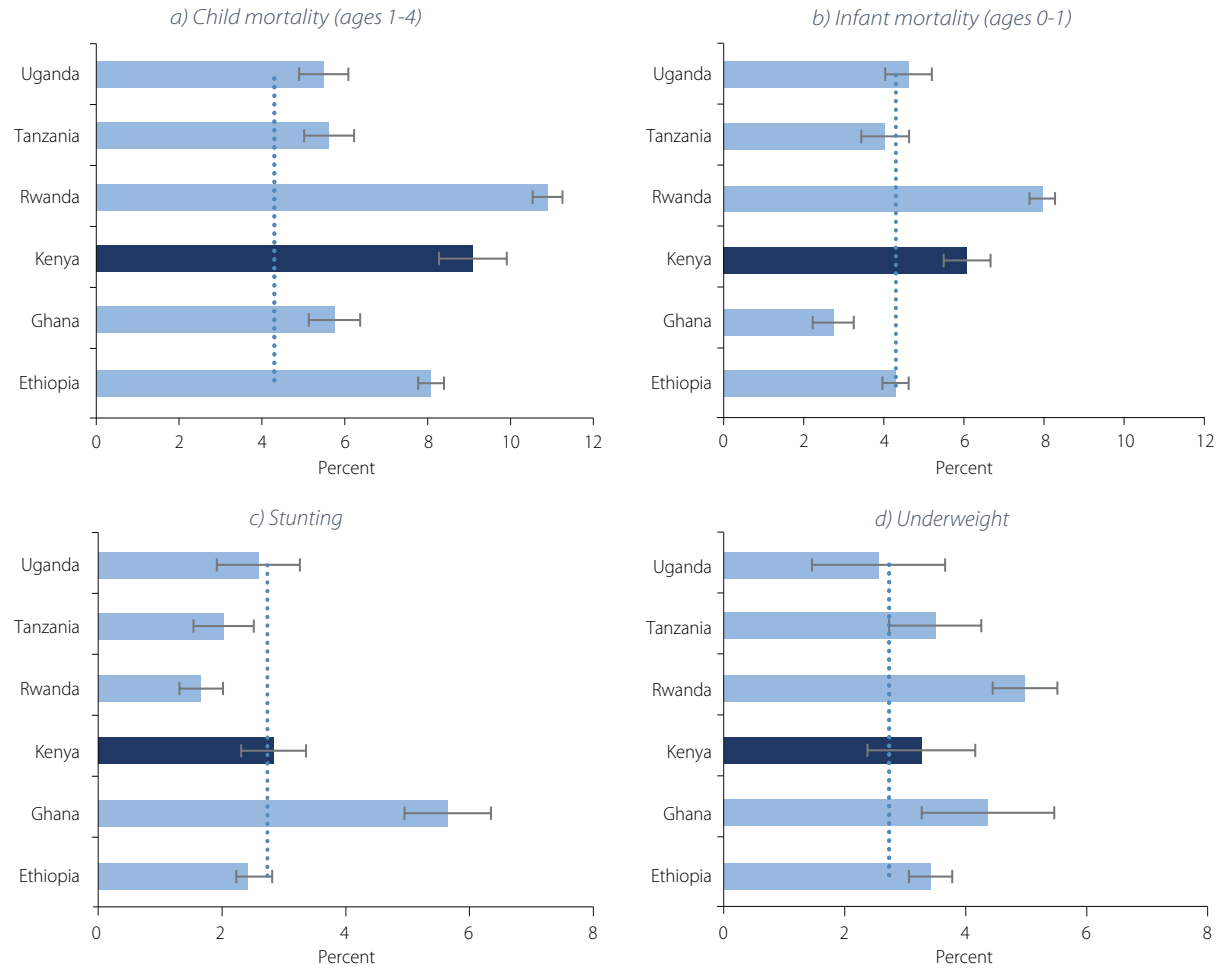


f) Low height-for-age (stunting), percent of children under five



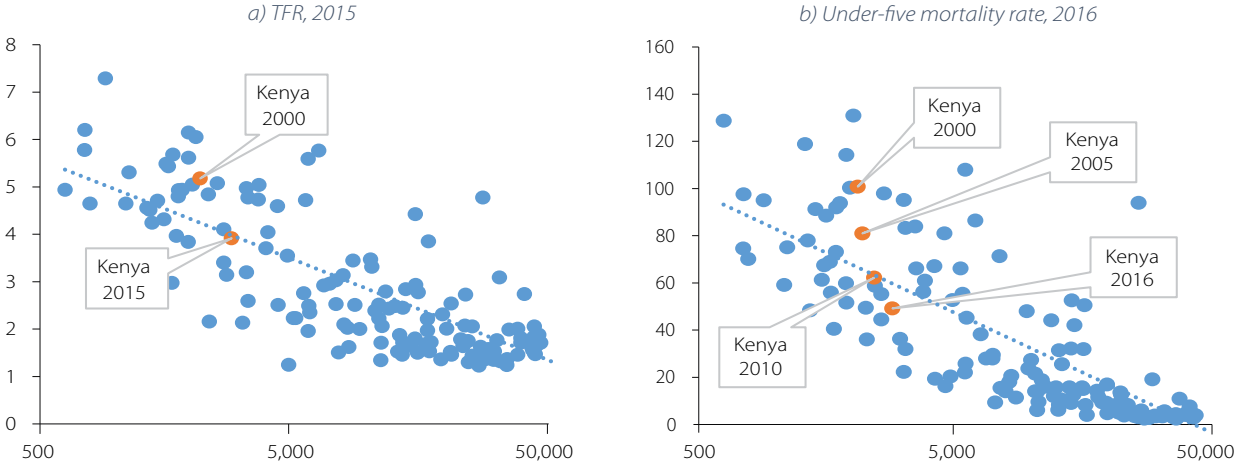
Source: Own calculations based on WDI data.

Figure 7.5: Annual rate of reduction in selected indicators of childhood health, percent, c. 2000 to 2015



Source: Own calculations based on DHS data (Ethiopia, 2000, 2016; Ghana, 2003, 2014; Kenya, 2003, 2014; Rwanda, 2000, 2014/15; Tanzania, 2004/05, 2015/16; Uganda, 2000/01, 2011).
Note: 95-percent confidence intervals are indicated. Moderate and extreme stunting is defined as a height-for-age z-score below two standard deviations against the WHO reference scale. Dotted lines indicate implicit MDG targets.[202]

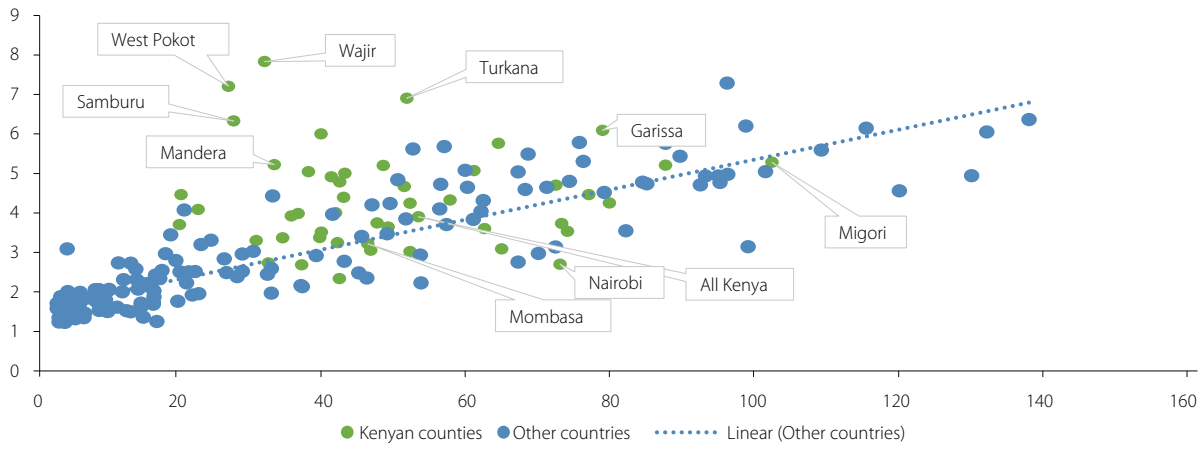
Figure 7.6: TFR (number of births per woman) and under-five mortality rate (deaths per 1,000 live births)



Source: Own calculations based on KDHS 2014 and WDI data.

[202] MDGs 1C and 4 called for reductions in the proportion of children below the age of five that are underweight and in under-five mortality one half and by two thirds, respectively, over the course of 25 years. These targets translate into reductions by 3.4 and 4.3 percent on an annual basis."

Figure 7.7: TFRs against under-five mortality, countries (2015) and Kenyan counties (2014)

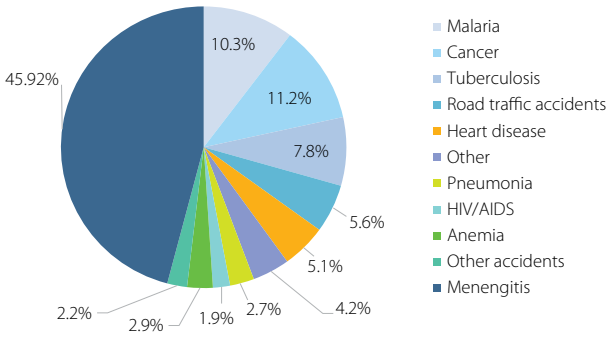


Source: Own calculations based on KDHS 2014 and WDI data.

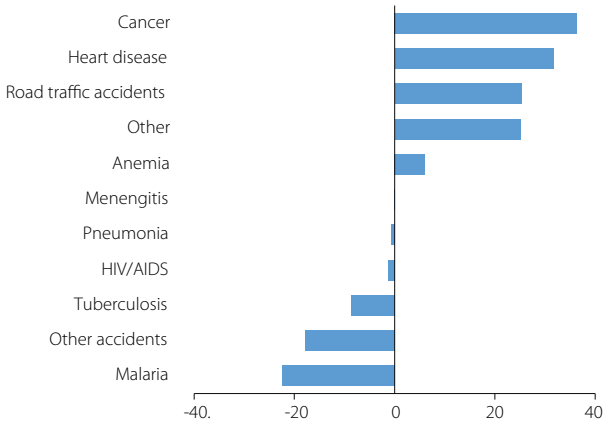
A large share of registered deaths in Kenya still stem from communicable diseases – malaria and pneumonia are the leading causes of death – but deaths from non-communicable diseases are on the rise. Malaria and pneumonia were the leading causes among registered deaths in Kenya in 2015,[203] followed by cancer, HIV/AIDS, and tuberculosis (Kenya National Bureau of Statistics, 2016). Malaria, pneumonia, HIV/AIDS, and tuberculosis combined – all of them communicable diseases – account for one third of non-accident, registered deaths (Figure 7.8a).[204] Nevertheless, the death rates for various communicable diseases have often been flat or decreasing, while the number of registered deaths from non-communicable diseases has been on the rise (Figure 7.8b): deaths caused by cancer and heart diseases are up 36 and 32 percent, respectively, while deaths from tuberculosis and malaria are down by nine and 22 percent. The pattern suggests that the epidemiological transition in Kenya is rapidly progressing, a process associated with newly emerging challenges in the realm of public health.

Figure 7.8: Levels in trends in registered deaths by cause, 2011–2015

a) Registered deaths by cause, 2015



b) Change between 2011-2015 (percent)



Source: Own calculations based on KES 2016.

[203] 2015 estimates are provisional.

[204] To the extent that deaths in remote areas are less likely to be registered, the share of deaths due to non-communicable diseases in administrative data is likely to be an underestimate.

7.2 HEALTH OUTCOMES AND UPTAKE THROUGH AN EQUITY LENS

The present section investigates the relationship between health outcomes, service uptake, health expenditures, and poverty. As noted above, health outcomes across a given population are usually strongly correlated with poverty. Causality, while usually difficult to establish in a specific context, typically runs in both directions: low incomes are both a result of and a cause of poor health. This section exploits the 2005/06 KIHBS and the recent 2015/16 KIHBS, as well as DHS data, to investigate links between poverty and levels and trends in health outcomes, uptake of services, and expenditures.

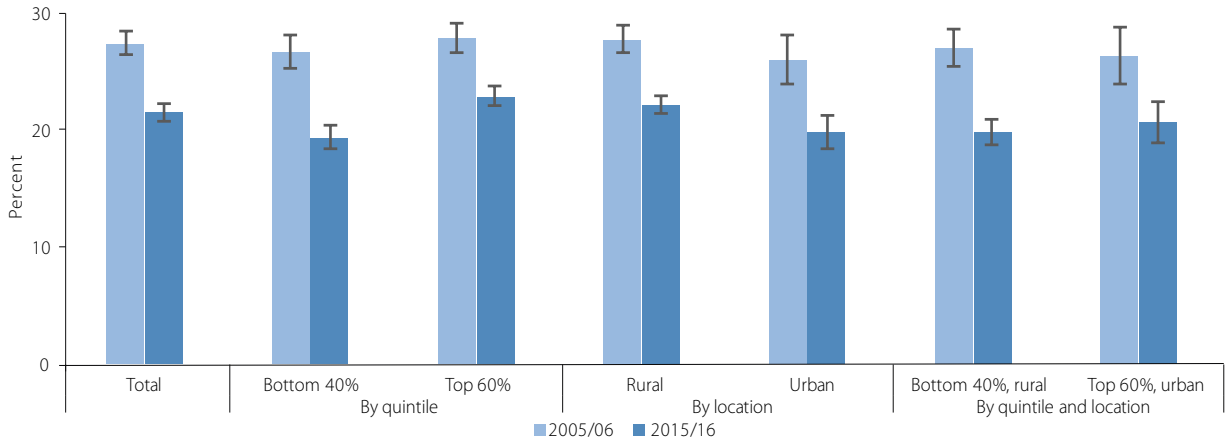
7.2.1 Health outcomes

Kenyans feel sick less often than a decade ago, especially the poor. While self-reported incidence of sickness or injury are likely unreliable, their evolution is still informative about broad patterns of change in disease burdens. The KIHBS data suggest that the number of individuals that reported having been sick or having been injured in the last four weeks has decreased from 27.4 to 21.5 percent between 2005/06 and 2015/16 (Figure 7.9). This pattern is statistically significant in all subpopulations, supporting the notion that health outcomes have significantly improved since 2005/06.

Gaps in under-five mortality have declined. Under-five mortality has declined among all sectors of the population (Figure 7.10). However, declines were more pronounced among the bottom 20 percent (as based on a wealth index constructed from household assets). In fact, the advantage in survival of children from the top 20 percent vis-à-vis children from the bottom 20 percent, which was still close to 50 percent in 2003, declined to about ten percent. Surprisingly, the under-five mortality rate in rural areas is now lower than in urban areas (although the difference is not statistically significant at conventional levels).[205]

There is still a considerable socioeconomic gradient in stunting rates. Overall, stunting rates among children below the age of five have been falling between 2008/09 and 2014: while more than one in three children were either moderately or extremely stunted in 2008/09, only one in every four fell into these categories in 2014 (Figure 7.11). Gains were driven as much by improvements among poor children as by

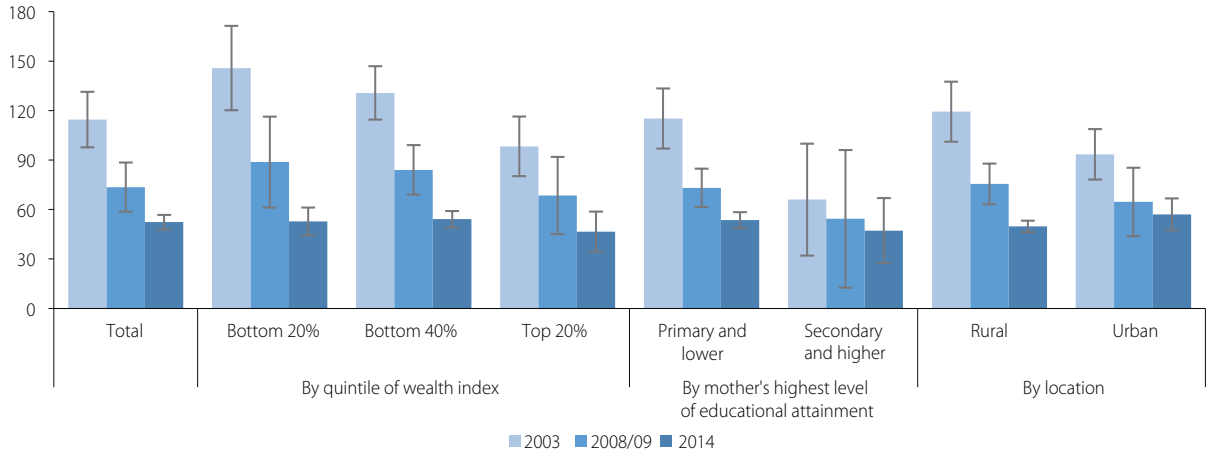
Figure 7.9: Self-reported instances of sickness or injury during last four weeks prior to the survey as percent of population



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.
Note: 95-percent confidence intervals indicated.

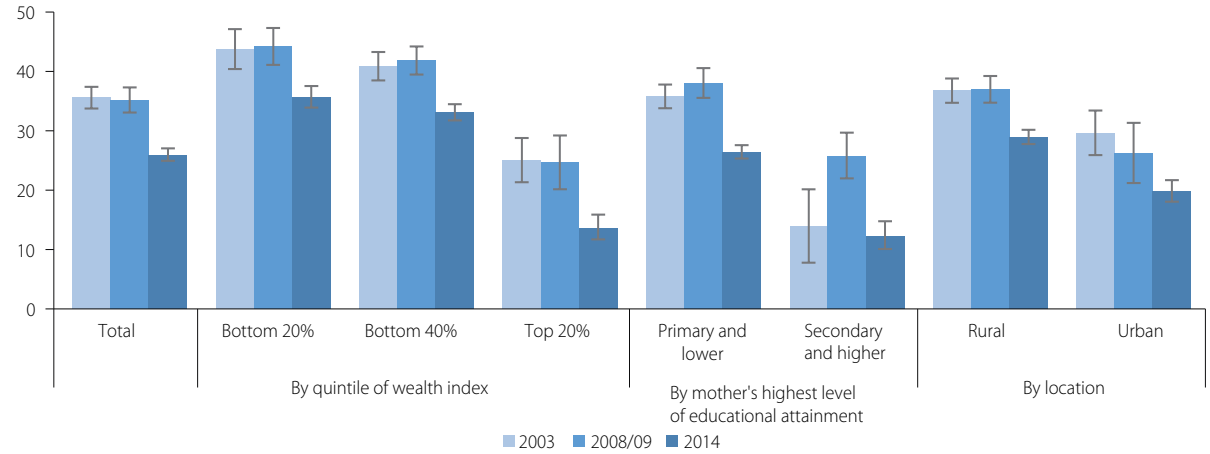
[205] One reason for the narrowing of the gap may be high levels of under-five mortality in urban informal settlements. While under-five mortality rates have also decreased in urban informal settlements, they remain high both compared to rural and urban, non-informal settlement areas (Kimani-Murange, *et al.* 2014).

Figure 7.10: Under-five mortality (deaths per 1,000 live births) by quintile, mother's educational attainment, and location



Source: Own calculations based on 2003, 2008/09, and 2014 KDHS.
Note: 95-percent confidence intervals indicated.

Figure 7.11: Stunting rate by quintile, mother's educational attainment, and location, 2003–2014



Source: Own calculations based on 2003, 2008/09, and 2014 KDHS. Note: 95-percent confidence intervals indicated.

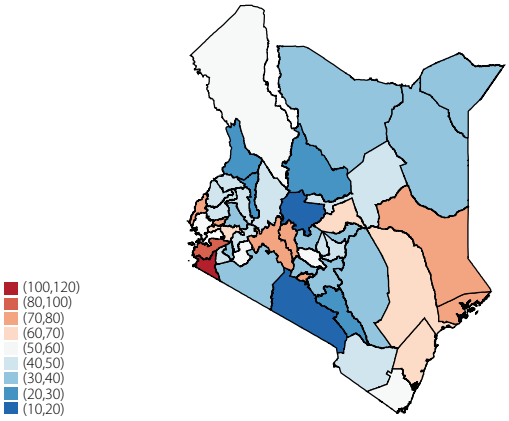
improvements among better-off children.[206] Overall, the marked difference in socioeconomic gradients betweeen under-five mortality and stunting rates suggests a closing of the gap in mortality but not in morbidity.

Child health outcomes vary substantially across counties and by domain, suggesting that counties they face different public health challenges. Under-five mortality rates are below ten deaths per 1,000 live births in the counties of Laikipia in the center and Kajiado in the South. But they are in excess of 100 deaths per 1,000 in the Southwestern county of Migori (Figure 7.12). The stunting rate reveals a very different pattern: it is particularly high in the Northwestern county of West Pokot (46.3 percent) and in Kitui (45.0) in the center. Stunting rates tend to be lower in the Lake Victoria region, an observation that has been noted elsewhere (Priebe and Gräb 2009). These disparities in outcomes suggest that counties face very different public health challenges.

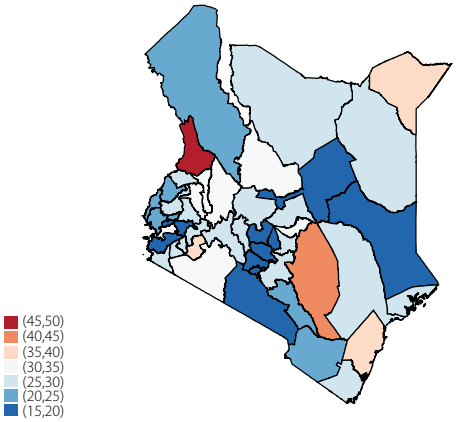
206 It is worth noting at this point that a recent government program, the Kenya's National School-based Deworming Programme (NSBDP), may well have addressed the problem of child malnutrition. Stunting reflects the accumulated effects of malnutrition and the program will not be in full effect until 2017. (Ministry of Education, Science and Technology and Ministry of Health 2015). Deworming of children, in turn, has been shown to result in weight gain (Croke, *et al.* 2016) and other short- and long-term benefits (Miguel and Kremer 2004, Baird, *et al.* 2016, Bleakley 2007).

Figure 7.12: Child health outcomes by county, 2014

a) Under-five mortality (deaths per 1,000 live births)

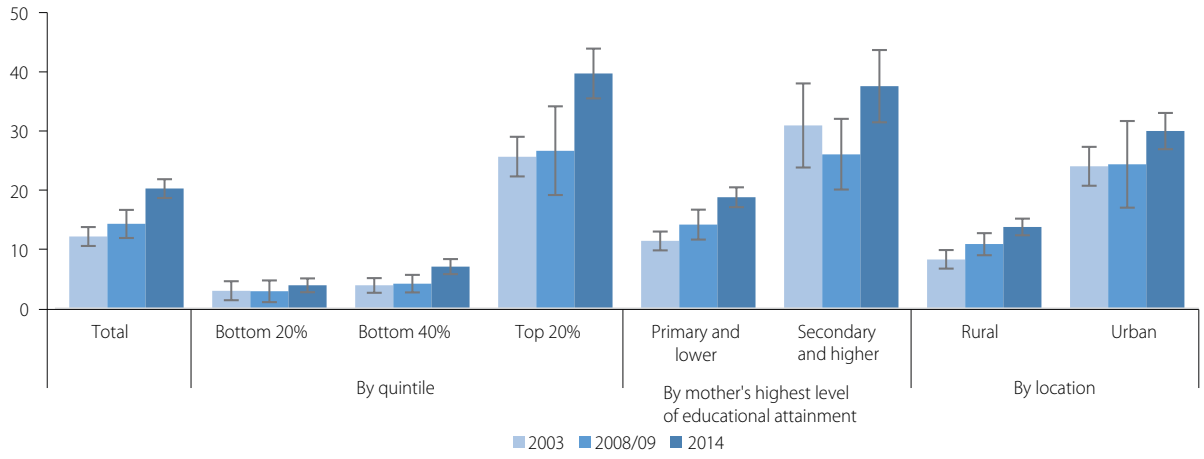


b) Incidence of low height-for-age (% of children below five)



Source: Own calculations based on 2014 KDHS.

Figure 7.13: Obesity rates (BMI > 30, share of women aged 15-49) by quintile, educational attainment, and locality, 2003–2014



Source: Own calculations based on 2003, 2008/09, and 2014 KDHS.
Note: 95-percent confidence intervals indicated.

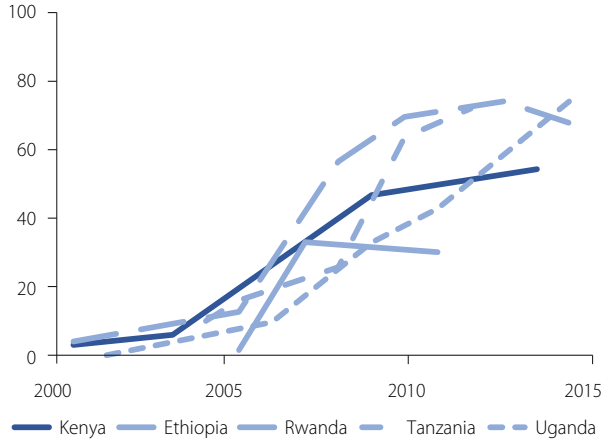
Obesity rates have increased dramatically among better-off Kenyans. In line with a shift of the disease burden towards non-communicable diseases, obesity rates have increased steadily between 2003 and 2014 (Figure 7.13). Among women between 15 and 49, for which detailed data are available from the DHS, the rate has increased from six percent to ten percent. But while the increase is notable across the entire population, it is particularly pronounced among better-off Kenyans: one in five women among the top 20 percent of the population (based on the DHS wealth index) were obese in 2014, up from only 13 percent in 2003.

7.2.2 Access and uptake

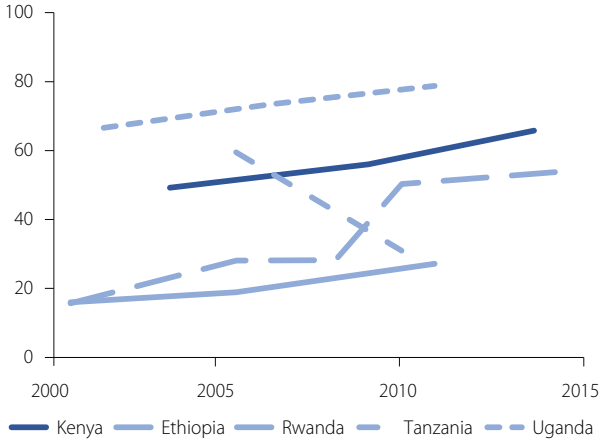
Most indicators of uptake of health services in Kenya show robust improvements since the early 2000s. The proportion of children sleeping under an ITN has increased from only six percent in 2003 to 54.3 percent in 2014 (Figure 7.14a). This is a significant achievement with important implications for health outcomes. A study finds that increased ownership of ITNs in endemic malaria zones explains 79 percent of the decline in infant mortality between 2003 and 2008 (Demobynes and Trommlerová 2016). There were marked increase in both the proportion of children with symptoms of ARI who were taken to a health provider and the proportion of births attended by

Figure 7.14: Selected indicators of health services uptake (%), 2000–2015

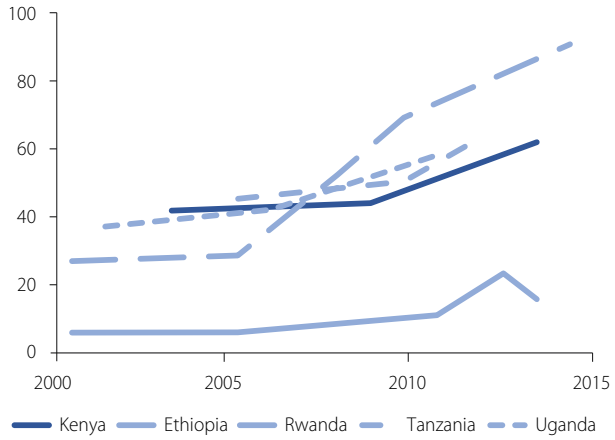
a) Share of children under five sleeping under an ITN



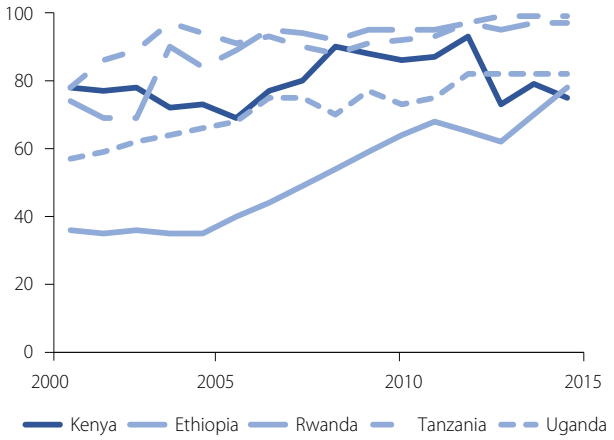
b) Share of children below five with symptoms of ARI taken to health provider



c) Percentage of births attended by skilled health staff



d) Percentage of children between 12- 23 months immunized against measles



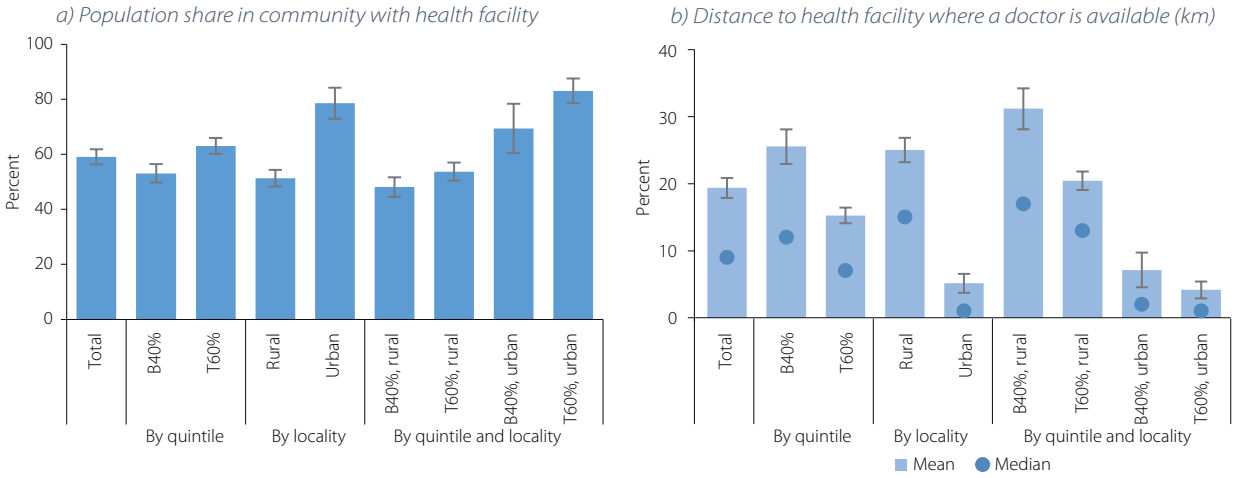
Source: Own calculations based on WDI.

skilled health staff, particularly between 2008/09 and 2014 (Figure 7.14b and Figure 7.14c). This suggests a greater uptake of services related to child and maternal health. However, there is clearly further room for improvement. For instance, close to two out of five births in Kenya in 2014 were not attended by qualified health professionals. Immunization rates have been high generally, although they have apparently registered a drop by 20 percentage points around the year 2012 (Figure 7.14d).[207] Immunization against diphtheria, pertussis, and tetanus (DPT) has also decreased, from 94 to 87 percent, between 2012 and 2013.

[207] While it is unclear what caused this drop, one issue that resurfaces sporadically is misinformation about the intended outcomes of immunization campaigns and the safety of vaccines (Larson 2015). Another candidate explanation is the influx of Somali refugees in 2011, among which the rate of immunizations was reportedly very low (Polonsky, *et al.* 2013). An outbreak of measles in the Dadaab refugee camp in Garissa was reported between June and November 2011 (Navarro-Colorado, *et al.* 2014). Finally, there were some reports pointing to stock-outs of vaccines and other medical supplies in the wake of devolution.

A major challenge in Kenya is to ensure equity in service delivery across space, which also includes delivery of basic health services to population groups that reside in sparsely populated areas. Geographic access is a necessary condition for uptake and thus for effective health service provision. The physical accessibility of health services is lower among the poor and the rural population. In 2015/16, 60 percent of the population lived in a community with a health facility. However, while this was the case for four out of five Kenyans in urban areas, only one in two in rural dwellers lived in such a community (Figure 7.15a). There are also pronounced differences in the distance to the nearest health facility by locality and expenditure quintile. The typical (median) Kenyan travels nine kilometers to the next health facility at which a doctor can be consulted. The distance is shorter for urban dwellers, at only one

Figure 7.15: Availability of health facilities and distance to nearest health facility in which a doctor would be on duty, 2015/16



Source: Own calculations based on KIHBS 2015/16
Note: 95-percent confidence intervals indicated. Items extracted from the community questionnaire.

kilometer, and greater among rural dwellers, at 15 kilometers (Figure 7.15b). More pronounced differences between urban and rural areas than among the bottom 40 percent and the top 60 percent suggest that the main challenge is remoteness, not low incomes.

Uptake of curative care is high and has increased between 2005/06 and 2015/16, particularly among the poor. 83.9 percent of Kenyans will consult with a health service provider when they become sick or suffer an injury, up from 70.3 percent in 2005/06 (Figure 7.16a).[208] These proportions are exceptionally high and suggest that an increasing share of Kenyans have both physical access to some type of provider and the means to obtain some treatment. Differences between the poor and the rich and between urban and rural areas are small and declining. 78 percent among the poorest 20 percent will consult with a health provider in case they have a medical concern, compared to 87 percent among the richest 20 percent.

The average number of curative visits per year has declined. The average number of curative visits has declined from 4.9 visits per person and year to 3.5 in 2015/16 (Figure 7.16b).[209] Kenyans frequent medical providers less often than Indians and at about the same rate as Americans (Das, Hammer, and Leonard 2008). The decrease in the number of visits is evident across different subgroups and is in line with improvements in the overall health outlook.

An increase in the uptake of preventive health services has been driven by an increase among the poor and the rural population. The propensity to seek preventive health services four weeks prior to the survey interview has increased from 2.5 to 4.2 percent (Figure 7.17). The increase is driven by a higher propensity among the poor and the rural population. There is no statistically significant change in the uptake of preventive health services among urban dwellers. With the exception of preventive care among children, differences between the poor and the non-poor are evident at each age and for each type of medical service. It is worth mentioning that the poor and the rural population rely more heavily on public health services. Government health services are sought in about three in every five (61.7 percent) outpatient visits in Kenya, with roughly similar shares for government hospitals (21.8), health centers (18.0), and dispensaries (21.9)

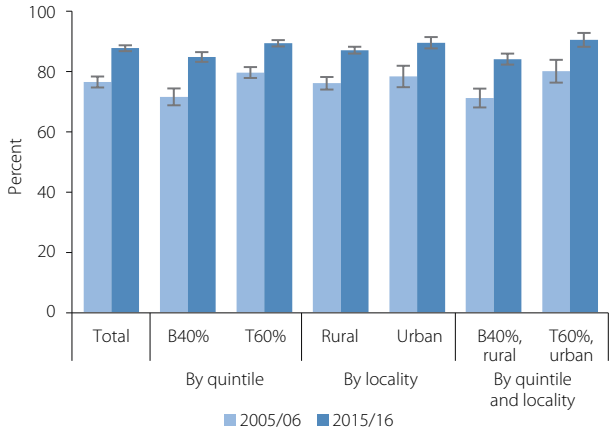
Poor households have a lower probability of owning a bed net, and are less likely to have been vaccinated against measles. Overall, almost three in four Kenyans (73.1 percent) live in a household that owns a bed net (Figure 7.18a). However, the share drops to only around two in three among the bottom 20 percent of the

[208] According to the Kenya Household Health Expenditure and Utilisation Surveys (KHHEUS), the rate at which Kenyans sought treatment in the case of sickness increased from 77.2 percent in 2003 to 83.3 percent in 2007 and 87.3 percent in 2013 (Ministry of Health 2014).

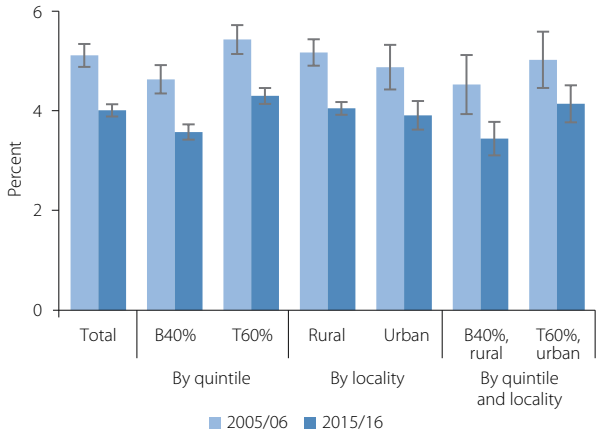
[209] Data from the KHHEUS are not consistent with this. According to that source, the number of visits per person and year increased from 1.9 visits in 2003 to 2.6 in 2007 and 3.1 in 2013 (Ministry of Health 2014).

Figure 7.16: Uptake of curative health services and number of curative visits by quintile and locality, 2005/06 and 2015/16

a) Uptake of curative health services (proportion of sick/injured during last four weeks seeking treatment)

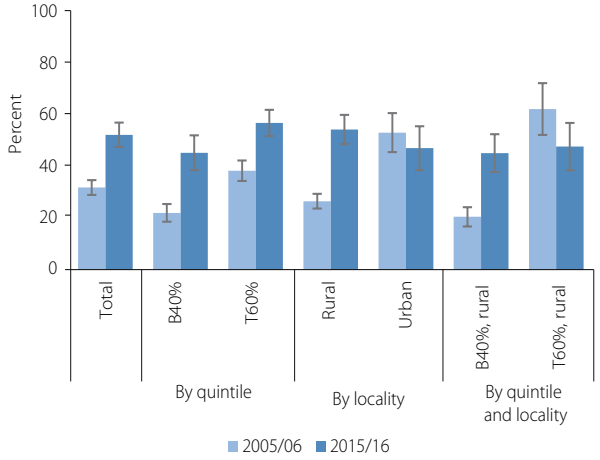


b) Average number of curative visits per person per year (total population)



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.
Note: 95-percent confidence intervals indicated.

Figure 7.17: Uptake of preventive health services during four weeks prior to interview



Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.
Note: 95-percent confidence intervals indicated.

population. Similarly, children from poor families are less likely to have been vaccinated against measles. Close to four in five children (78.7 percent) have received a measles vaccination at least once by the time they are between twelve and 23 months (Figure 7.18b). However, that share falls to only 64.3 percent among children in the bottom quintile.

Geographic disparities in access to health care and uptake are pronounced. Geospatial variation in access and uptake is often pronounced but depends on the domain. More than three in five children with fever are taken to a health provider on average. But the estimates range from little more than two in five in Garissa to more than four in five in Muranga (Figure 7.19a). Vaccination rates[210] fall sharply, from more than 90 percent in the Central region to about 44 percent in Mandera in the Northeast and only 36 percent in West Pokot (Figure 7.19b).

While the majority of pregnant women receive antenatal care at least once in almost all counties, a far smaller share delivers with the assistance of a skilled provider. The share of women that receive antenatal care prior to birth is higher than two thirds in all counties with the exception of Mandera (50.5 percent) and Wajir (57.6) (Figure 7.19c). However, the percentage of births attended by skilled health workers varies considerably across counties, with higher uptake in more densely populated counties in the center and lower uptake in less densely populated counties in the north and in the east (Figure 7.19d). Bringing high-quality assistance during deliveries to mothers should remain a main priority over the next years (Box 7.2).

Preventive health goods and services that address communicable diseases have been shown to be highly cost-effective. Kenya adopted several measures to fight infectious diseases over the last years, including the distribution of ITNs (WHO 2018) and deworming of school children in endemic zones. These programs are usually delivered free of charge and have been shown

[210] The indicator includes DPT (three shots), BCG, polio (four shots), and measles. A child is registered as having received the vaccination if the vaccination is marked on the child's health card and/or the mother recalls the vaccination.

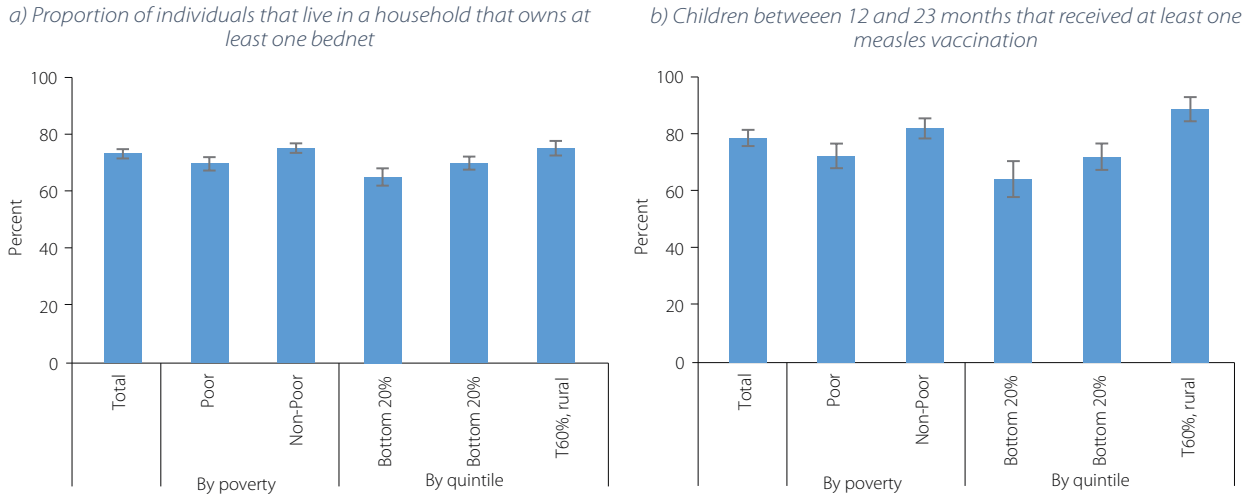
Box 7.2: What works to boost skilled birth assistance for safer childbirth?

Increasing the share of deliveries in health facilities will not automatically improve birth outcomes. Current global health policies often emphasize institutional deliveries as a pathway to achieving reductions in newborn mortality in developing countries, a priority also in Kenya. For instance, recent interventions to improve maternal and child health outcomes in countries like India and Rwanda were based on the assumption that increasing the share of institutional deliveries will have positive health effects. However, evaluations of these programs show that while they clearly increased uptake, they often had no effect on neonatal mortality (Okeke and Chari 2016). In Kenya, there are no statistically significant correlations between skilled assistance and institutional delivery and neonatal and infant mortality conditional on maternal and child background characteristics (Appendix G.2).[211]

Demand-side interventions that aim to incentivize uptake of institutional deliveries should be met with skepticism, both because of recent evidence for their lack of effectiveness and out of respect for the choices patients make. The quality of obstetric care may differ significantly across localities and facilities and a large part of this variation may be perfectly observable to prospective users.[212] It is also worth noting in this context that the removal of user fees in mid-2013 had no discernable effect on uptake in rural areas. This suggests that the options available to the poor and rural communities are simply not seen as bringing sufficient advantages.

Supply-side interventions hold some potential for greater uptake with improved birth outcomes. While the share of deliveries in tier-two facilities in Kenya has increased over recent years, two in three deliveries in the public sector still take place in hospitals (Figure 7.21). To boost skilled attendance, it is paramount to increase the share of deliveries in these lower-level facilities. But doing so requires an improvement in the quality of services these facilities currently offer. For instance, a 2012 study found that many of them lacked electricity, clean water, and basic medicines (Section 7.3.1), making them ill-equipped for deliveries. Devolution may have improved this state of affairs but this remains to be seen.

Figure 7.18: Uptake of preventive health goods, select indicators, by poverty and quintile, 2015/16



Source: Own calculations based on KIHBS 2015/16.
Note: 95-percent confidence intervals indicated.

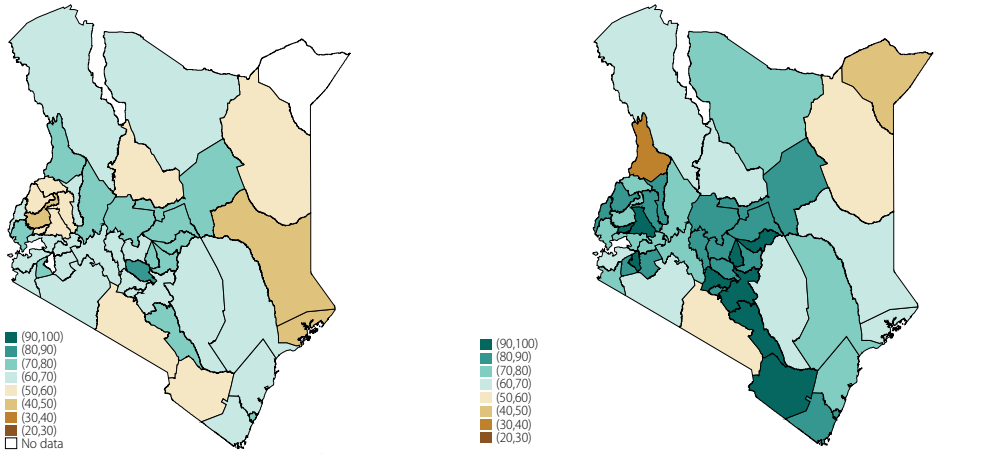
211 These estimates are merely correlations and thus only suggestive; the empirical identification of causal effects of institutional delivery requires a more elaborate strategy. Omitted variables are a concern. For instance, maternal characteristics that matter for both uptake and pregnancy outcomes may not be fully captured in the analysis. Another concern is that women who experience complications during pregnancy may be more likely to deliver in a health facility (Okeke and Chari 2016). Finally, causal effects may be very different across facilities that differ in the quality of maternal care they can provide. In Kenya, health worker strikes, which resulted in a lower proportion of institutional births, were associated with higher rates of neonatal and infant mortality (Friedman and Keats 2017), suggesting that those who opt for institutional deliveries do so because birth outcomes are usually better.

212 To wit, one 2009 study of 25 health facilities in informal settlement areas in Nairobi concludes that only two met the criteria for comprehensive emergency obstetric care and that "[t]he quality of emergency care services in Nairobi informal settlements is poor and needs improvement" (Ziraba, et al. 2009).

Figure 7.19: Access to health services and uptake by county, 2014, select indicators

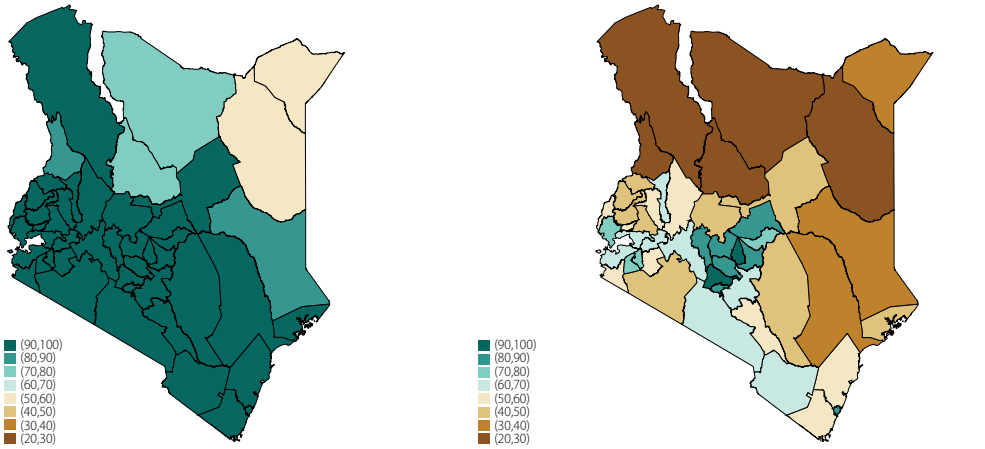
a) Percentage of children under age five with fever for whom advice or treatment was sought

b) Percentage of children age 12-23 months that received all basic vaccinations



c) Percentage of pregnant women receiving antenatal care from skilled provider

d) Percentage of live births delivered in health facility

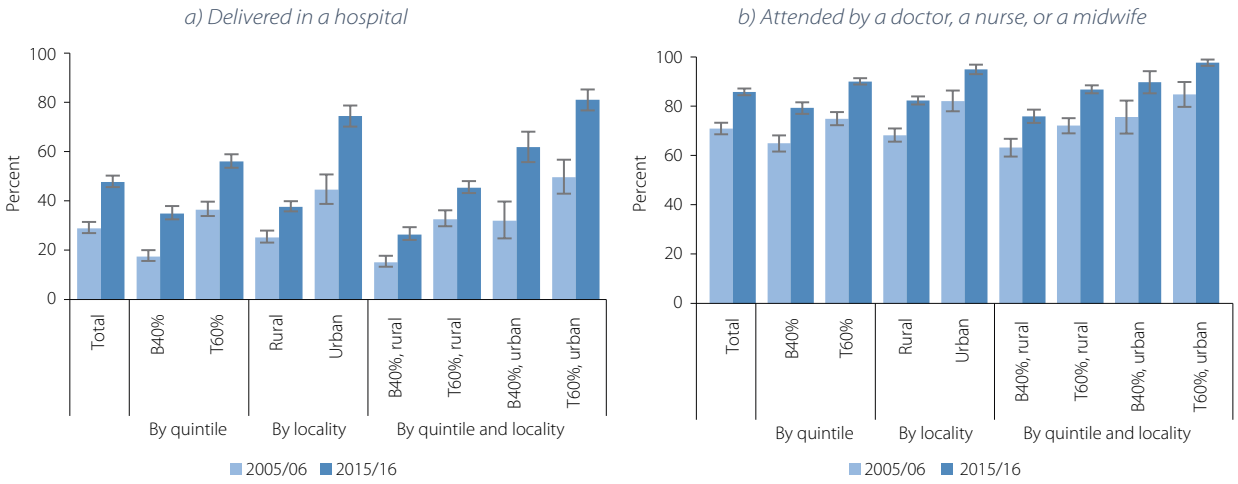


Source: Kenya Demographic and Health Survey (KDHS) report (KNBS and others 2015).
Note: Panel (a): Excludes pharmacies, shops, markets, and traditional practitioners. Estimates based on less than 25 cases not reported. Unweighted estimates reported if based on 25-49 cases. Panel (c): If more than one source of ANC was mentioned, only the provider with the highest qualifications was considered in the calculation.

to be highly cost-effective. Not only do they effectively prevent malaria and worm infections in beneficiaries, they also protect those around them from infections. Access to these health goods should remain free of charge**.** Evidence from several RCTs suggests that uptake is highly price-elastic (Abdul Latif Jameel Poverty Action Lab 2011). Even a highly subsidized price can have adverse effects on demand vis-à-vis free provision. In addition, there is no evidence that free distribution results in low rates of utilization (e.g., for ITNs). The general finding extends to other preventive health goods, such as slippers (which prevent worm infections in endemic zones) (Meredith et al. 2013) and water purification (Ashraf, Berry, and Shapiro 2010; Kremer et al. 2011), and have been found in a range of low- and middle-income settings.

The share of deliveries that occur in hospitals and the share attended by a doctor, a nurse, or a midwife have increased, but a significant socioeconomic gradient persists. Among surviving children below the age of five, the share of those that were born in a hospital increased from a little more than one in four to almost one in two (Figure 7.20a). The increase was particularly pronounced in urban areas, and there are gaps between the bottom 40 percent and the top 60 percent. The 2008 KDHS reckons that the most common reason for not delivering in a facility was distance or lack of transport (42 percent) (KNBS et al. 2010). High costs were a deterrent in only 16.9 percent of all deliveries, with limited variation across wealth quintiles.

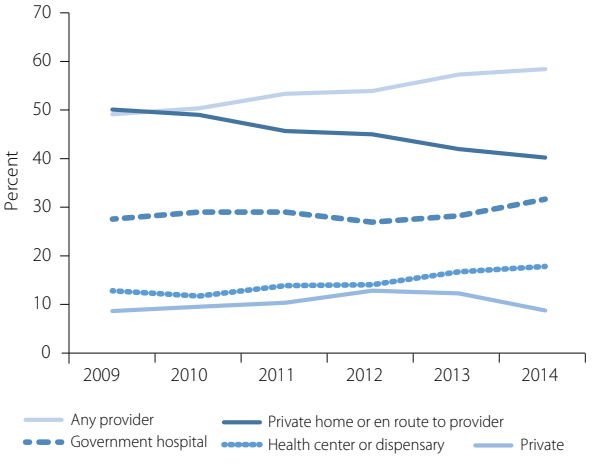
Figure 7.20: Share of births (of surviving children 60 months and younger) by circumstance, 2005/06 and 2015/16



Source: Own calculations based on KIHBS 2005/06 and 2015/16.
Note: 95-percent confidence intervals indicated.

Recent years have seen a shift from demand for private provision of health services to the public sector, particularly for deliveries. One would clearly expect greater uptake of public services vis-à-vis private services in the wake of the June-2013 decision to waive user fees for basic health services and, perhaps, an increase in overall uptake. Using administrative data (as in Figure 7.1), the ratio of public care visits to private care outpatient visits increased from an average of 2.7 between June 2012 and May 2013 to 3.2 in the subsequent twelve months. The ratio for deliveries, which were included by the policy, increased from 2.0 to 3.1 over the same time period.[211]

Figure 7.21: Share of deliveries by provider, 2009–2014



Source: Own calculations based on 2014 KDHS.

[211] Note that the responsibility for health service delivery was devolved at around the same time, August 2013, and that it is thus may be difficult to disentangle the effects these respective reforms have had on relative demand. However, given reports about the problems that some counties faced initially as well as the more pronounced shift observed for services included in the June 2013 policy, it seems more likely that the shift in demand is driven by abolition of user fees.

However, there is little evidence for an effect of the reform on the overall propensity to deliver in a formal health facility (Appendix G.1).

7.2.3 Health insurance uptake and out-of-pocket expenditure

While coverage is still low, membership in Kenya's NHIF has increased since 2006/07. 6.1 million Kenyans were registered members of the NHIF in 2015/16, up from 1.8 million in 2006/07 (Figure 7.3), representing an increase from four to 13 percent of the population. Among members, the share of informal workers increased from eleven to 41 percent in 2015/16. Coverage through NHIF accounts for the large majority of health insurance arrangements in Kenya. Estimates based on the 2015/16 KIHBS data suggest that 8.1 million Kenyans were covered through the NHIF in 2015/16 while only 0.5 million had different health coverage.[212] However, these estimates are substantially lower than the number of beneficiaries reported elsewhere, suggesting that underreporting may be an issue.[213]

Health insurance coverage is still low among the poor and among the rural population. According to the 2015/16 KIHBS, the coverage rate varies substantially by poverty and locality. While only 7.5

[212] Estimates based on the 2013 KHHEUS suggest that approximately one in five Kenyans had health insurance, with around 88.4 percent of insurance arrangements accounted for by the NHIF (Ministry of Health 2014).

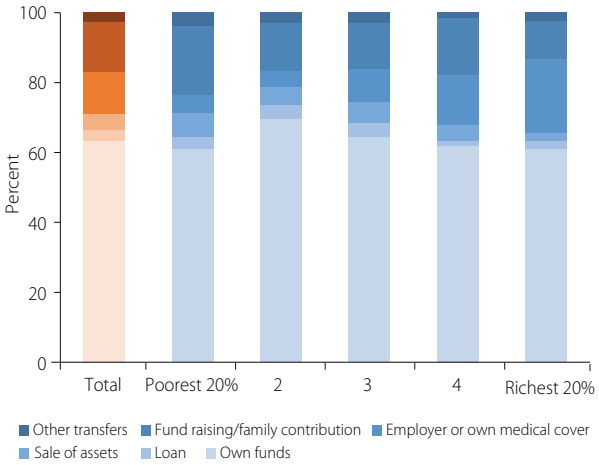
[213] According to one June 2017 report, for instance, the Chief Executive of the NHIF stated that the NHIF had 6.5 million contributing members and 24 million beneficiaries (Murumba 2017), three times the KIHBS estimate.

percent of the poor were covered by some form of health insurance, the corresponding share among the non-poor was 25.4 percent (Figure 7.22a). And while almost every third Kenyan in urban areas is covered, the share is only around 14 percent for rural residents.

The share of health expenditure in total household expenditures is moderately low across the population. Poor households spend around seven percent of their expenditure on in-patient or out-patient care but only around one third of a percent on health insurance premiums (Figure 7.22b). In contrast, households in the fifth quintile of the expenditure distribution spend only around six percent of their total income on health and around one percent on health insurance.

Only six percent of Kenyans that are hospitalized resort to asset sales, a coping strategy that is important in other developing countries. In Kenya, only about six percent of households resorted to asset sales and four percent resorted to borrowing (including loans without interest) to cope with a health shock that requires hospitalization. This is much lower than shares reported for other low- and middle-income countries (Kruk, Goldmann, and Galea 2009). While asset sales are more common among the poor and almost exclusively a rural phenomenon, even among the poorest 20 percent, asset sales account for only 6.7 percent of total in-patient expenditure on average and only 7.3 percent resorted to this strategy (Figure 7.23). Medical cover, either through one's employer or private arrangements, are moderately important only among the richest 40 percent.

Figure 7.23: Average shares of in-patient health expenditure by funding source (democratic shares per hospitalized individual)

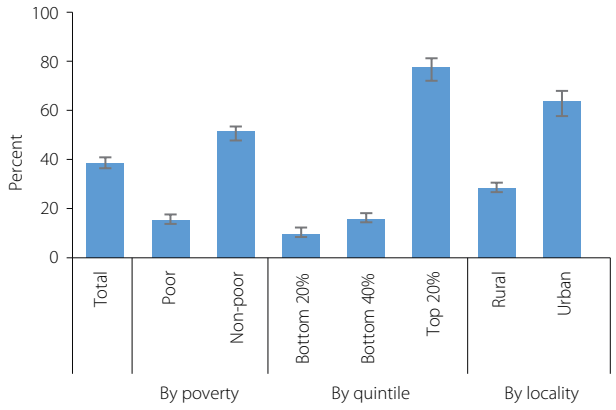


Source: Own calculations based on KIHBS 2015/16.
Note: 95-percent confidence intervals indicated in panel (a).

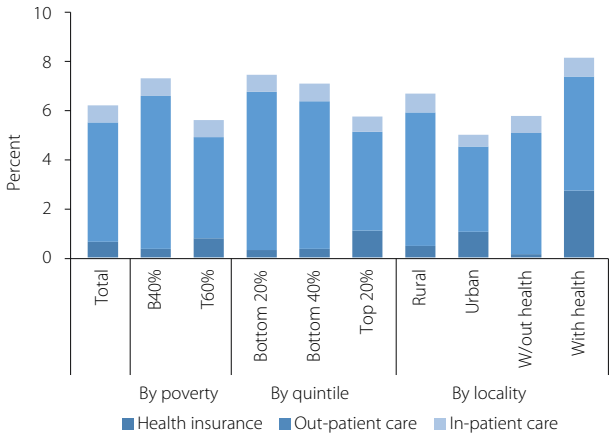
Estimates of the share of the population experiencing high or "catastrophic" health expenditures vary substantially across sources. According to data from the WHO's Global Health Observatory,[214] which are based on the 2005/06 KIHBS, less than six and two percent of the population experienced health

Figure 7.22: Health insurance coverage, health expenditure and incidence of asset sales in response to hospitalization

a) Health insurance coverage



b) Average health expenditure shares by type of service



Source: Own calculations based on KIHBS 2015/16.
Note: 95-percent confidence intervals indicated in panel (a).

[214] See http://www.who.int/gho/en/.

expenditures in excess of ten and 25 percent of their total household expenditure in 2005/06. This would still place Kenya into the 42nd and 61st percentile of the cross-country distribution, respectively. However, estimates based on the KHHEUS suggest that 15.5 percent of the population experienced health expenditures in excess of ten percent in 2007, a substantially larger fraction. It seems likely that this discrepancy is due to differences in survey design, including the items covered and, potentially, recall periods.

Despite notable differences in health insurance coverage across socioeconomic groups, the share of the population at risk of impoverishment will likely have declined. Joint analysis of the 2007 and 2013 KHHEUS suggests that the incidence of catastrophic health expenditures has declined. The share of households that spent more than ten percent of total expenditure or more than 40 percent of non-food expenditure on health was 15.5 and 11.4 percent in 2007 and 12.7 and 6.6 percent in 2013, respectively. Households rarely resort to adverse coping strategies to pay for inpatient care. Importantly, a decline in the risk of impoverishment through health expenditures is in line with significant improvements in population health in recent years and the removal of basic user fees in public health facilities.[215]

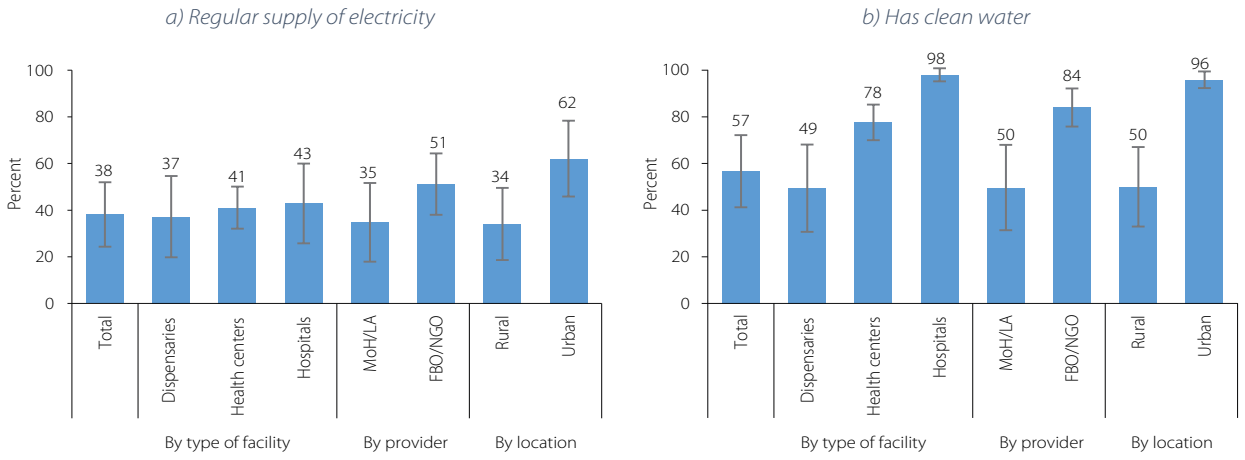
While these estimates should be interpreted carefully, they suggest that it may prove difficult to expand coverage to Kenya's poor and informal workers though voluntary health insurance. Out-of-pocket health expenditures and adverse coping mechanisms are rarely observed in Kenya likely because the poor are willing to forgo treatments they need. The analysis of uptake (section 7.2.2) suggests that this is part of the explanation. On the other hand, it may also reflect the success of recent measures to lower out-of-pocket expenditures, particularly through the removal of user fees in public facilities. This, in turn, would suggest that the poor may have only limited incentives to voluntarily seek coverage through the NHIF.

7.3 THE SUPPLY SIDE: PHYSICAL INPUTS, HEALTH PROFESSIONALS, AND INCENTIVES

7.3.1 Physical inputs

A 2012-study found that Kenyan health facilities often lacked access to a regular supply of electricity and clean water. Only around two out of five health facilities had reliable access to electricity in 2011, regardless of whether these were dispensaries, health centers, or hospitals (Figure 7.24a). While the share was higher for facilities run by faith-based

Figure 7.24: Infrastructure availability in public and private facilities by type of facility and location (select indicators)



Source: Own calculations based on 2012 SDI data.
Note: 95-percent confidence intervals indicated.

[215] Future work will analyze trends in catastrophic out-of-pocket health expenditures. While possible, this task is complicated by changes in the design of the KIHBS surveys.

organizations (FBOs) and NGOs vis-à-vis facilities run by the MoH or local authorities (LA), it was still only around one half. Clean water was available only in every other dispensary but in three out of four health centers and almost all hospitals (Figure 7.24b). MoH-run facilities and facilities in rural areas were less likely to have a regular supply of electricity and clean water.

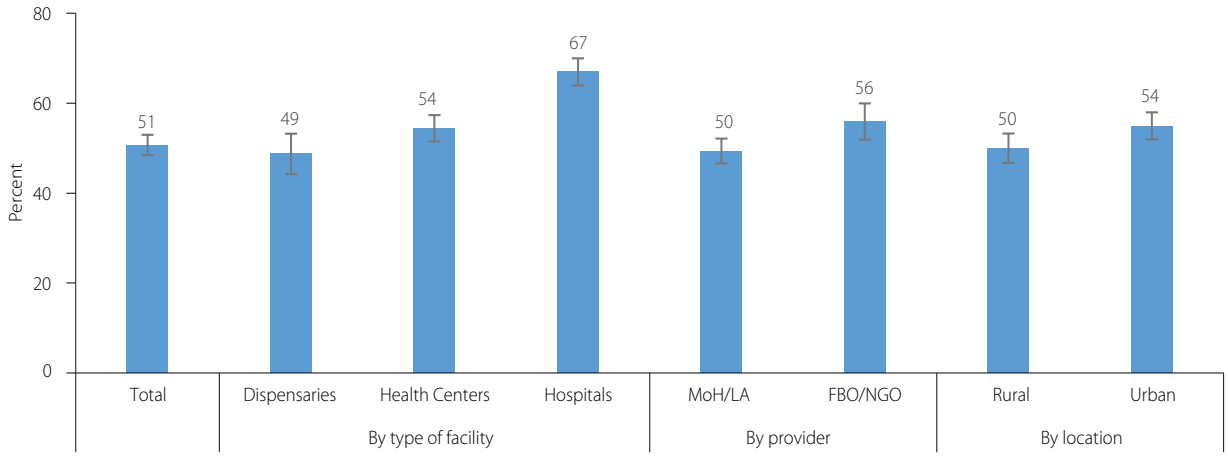
In 2012, almost half of all drugs on a basic list[216] were either not available or expired. Drug availability was particularly low in dispensaries but somewhat better in hospitals (Figure 7.25). Differences between public and private non-profits and between rural and urban areas were again discernable but not as pronounced as for access to services. This is in line with another study of drug safety in Nairobi, which finds no association between drug quality and ownership, size, or location of the facility from which the drug was obtained (Wafula et al. 2017).

7.3.2 Health professionals

The quality of health services depends on the number, training, and practice of personnel in the health sector, as well as on the motivation and incentives of health professionals. The effective delivery of health services relies crucially on a sufficient supply of well-trained and motivated professionals, including doctors, nurses, and midwives. To the extent that patients can observe the quality of care they are receiving, they will also be more likely to take up services if the quality is high. However, "boots on the ground" are only a necessary condition for the health services to be effective. Increasingly, research documents that motivation and incentives play a crucial role (Das and Hammer 2014). This subsection investigates levels and trends in the number of health workers, their remuneration, subject knowledge, and, to the extent that data is available, their actual performance. Given the greater reliance among the poor on public health services and recent shifts in demand away from private provision and towards public provision, the subsection will pay special attention to differences in these indicators across providers.

Kenya continues to suffer from a shortage of health professionals. A widely-used threshold for the number of doctors, nurses, and midwives combined is 22.8 per 10,000 population.[217] In 2013, Kenya had two physicians per 10,000 population and less than

Figure 7.25: Drug availability by type of facility, provider, and location

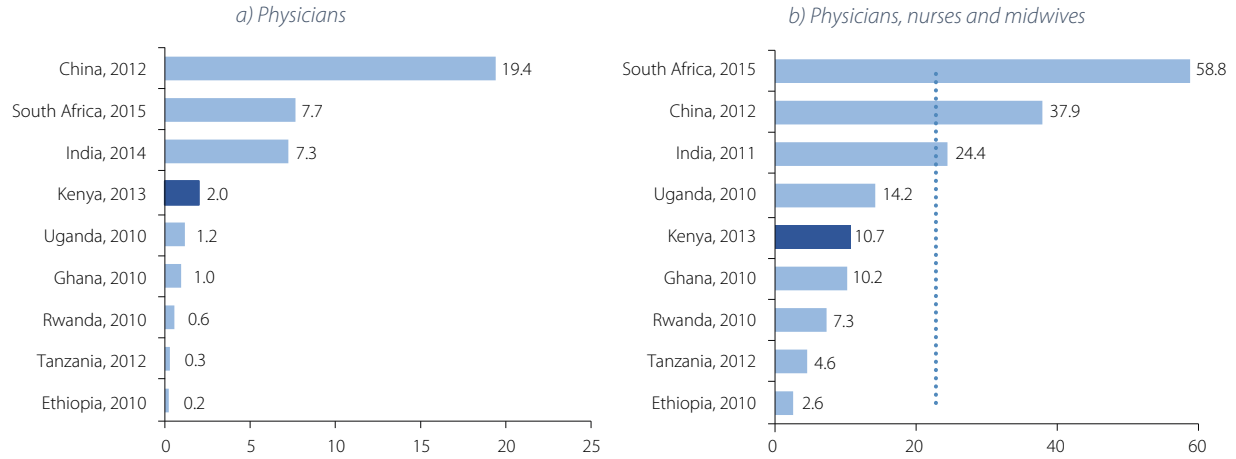


Source: Own calculations based on 2012 SDI data.
Note: 95-percent confidence intervals indicated.

[216] This indicator is defined as the number of drugs of which a facility has one as a proportion of all the drugs on the list. The drugs had to be unexpired and had to be observed by the enumerator. The drug list contains tracer medicines for children and mothers identified by the WHO following a global consultation on facility-based surveys. See Martin and Pimhidzai 2013.

[217] The ratio of 2.28 well-trained health workers per 1,000 population has been put forward by the WHO (WHO 2006). It is the density estimated to be necessary to achieve 80 percent coverage of deliveries by skilled birth attendants.

Figure 7.26: Number of health professionals per 10,000 population



Source: Own calculations based on WDI data.
Note: The dotted vertical line in the right panel indicates a widely-used threshold of 22.8 per 1,000 doctors, nurses, and midwives (see footnote 219).

nine nurses and midwives (Figure 7.26).[218] These estimates suggest that Kenya suffers from the type of severe shortage in health professionals typical of Sub-Saharan Africa. They also suggest that this shortage is particularly pronounced for nurses and midwives. They are in line with survey-based estimates,[219] but not with the number of registered health personnel tabulated in the 2017 KES.

The general shortage of health professionals is aggravated by an uneven distribution across counties. One study found that the number of nurses in the public sector (but excluding nurses deployed in national referral hospitals) just prior to the devolution of services varied across counties, from only 0.8 to twelve per 10,000 population (Wakaba et al. 2014). The same study also finds a positive correlation between nurse density and per capita health expenditure, as well as a positive correlation between nurse density and immunization rates. An important question that remains to be answered in this context is to what extent devolution resulted in a convergence in the density of health professionals across counties.

Remuneration of health workers is often argued to be important to increase retention, attract talent to the profession, and provide motivation. A major concern in Kenya and other Sub-Saharan African countries is the emigration of health workers, often referred to as "brain drain" and directly linked to the shortage of health professionals (Yonga, Muchiri, and Onyino 2012). One study finds that a ten-percent increase in pay in Ghana, a country with sizable outward migration of health workers, decreased attrition by about one percentage point (or 12.5 percent) (Antwi and Phillips 2013). While remuneration is also argued to be important for the motivation of the providers, there is little empirical evidence for this assertion. It seems plausible that how health workers are paid – whether through fixed salaries, fees-for-service, or capitation payments – matters as much or more for provider motivation and effort.

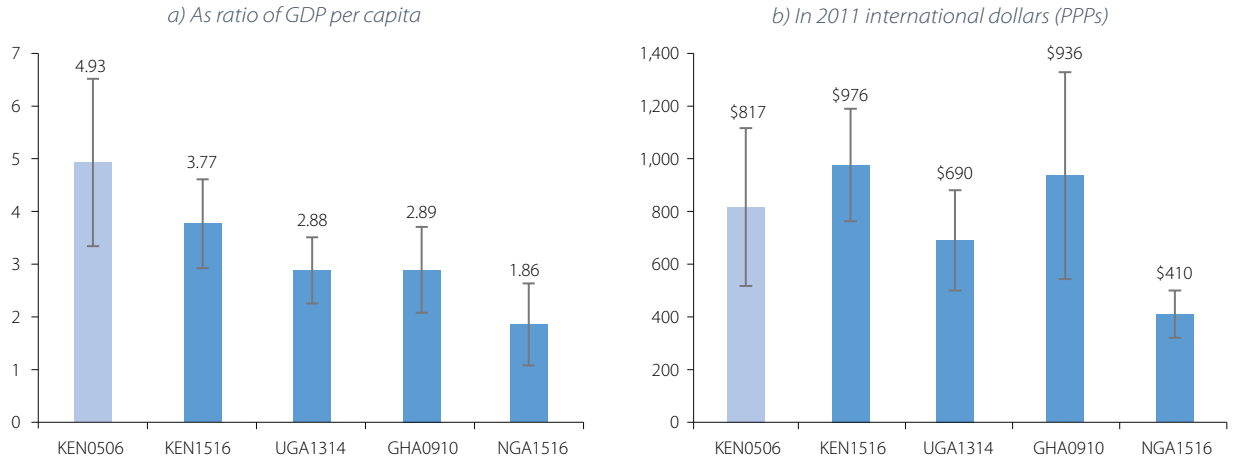
Real salaries of nurses and midwives in Kenya are similar to those in Ghana and higher than in Nigeria and Uganda.[220] In Kenya, nurses and midwives earn a monthly salary of about US$976 (in 2011 PPPs and including allowances) compared to US$936 in Ghana, US$690 in Nigeria, and only US$410 in Uganda (Figure 7.27b). Salaries relative to GDP per capita are an indicator of the relative earning opportunities within the economy for a given profession: Kenyan nurses and midwives earn on average 3.8 times GDP per capita in 2015/16, the highest among the comparison group (Figure 7.27a).

[218] Estimates are based on the WHO's Global Health Workforce Statistics and disseminated through the World Bank's WDI.

[219] Comparison between survey-based estimates for 2005/06 and 2015/16 also suggest that the relative number of health professionals of these occupations has increased over time: the number of auxiliary nurses, nurses and midwives, and medical and clinical officers increased from 2.3, 3.9, and 2.3 per 10,000 to 2.3, 7.5, and 4.3, respectively.

[220] The focus here is on nurses and midwives as the classifications used are comparable despite different systems of occupational classification.

Figure 7.27: Salaries of nurses and midwives by country, 2005/06-2015/16

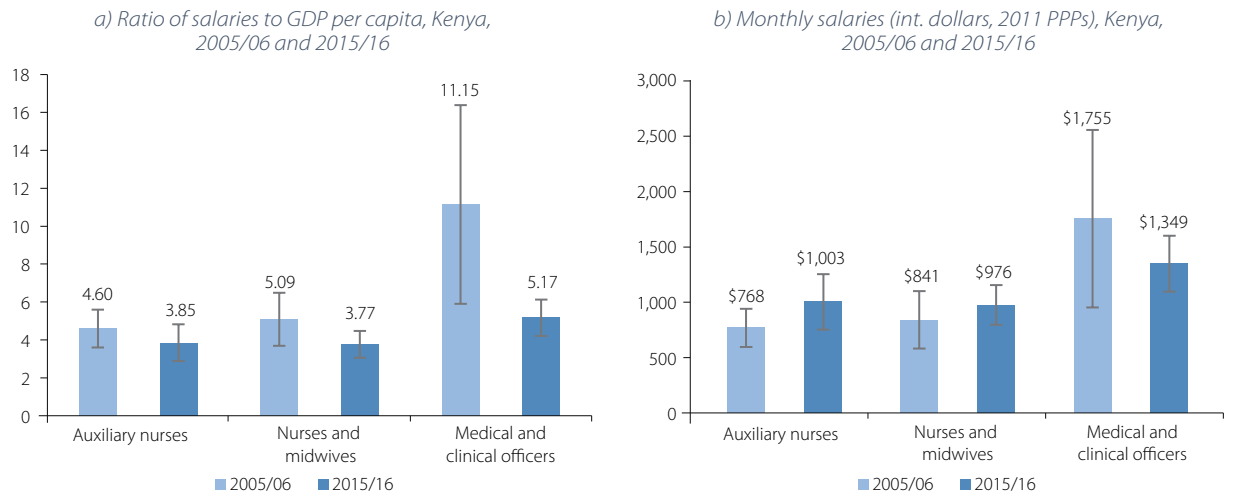


Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16, the 2009/10 Ghana Socioeconomic Panel Survey, the 2013/14 Uganda National Panel Survey, and the 2015/16 Nigeria General Household Survey.
Note: 95-percent confidence intervals are indicated.

Between 2005/06 and 2015/16, salaries of Kenya's health professionals have declined *in relative terms*. Salaries of auxiliary nurses declined from a ratio of 4.6 to 3.9 times GDP per capita while salaries of nurses and midwives declined from 5.1 to 3.8 times GDP per capita. Medical officers and clinical officers, who on average earned more than ten times GDP per capita in 2005/06, earned an average of 5.2 times GDP per capita in 2015/16. This would translate into a decline in real salaries by about 2.6 percent per year. However, due to the low number of observations, the difference is not statistically different from zero. Auxiliary nurses and nurses and midwives, on the contrary, have still experienced increases in real salaries, albeit only by a modest 2.7 and 1.5 percent per year, respectively (Figure 7.28b).

The public-sector premium for health workers has increased. In Kenya, there is evidence of a public sector premium in 2015/16 but not in 2005/06 (Table 7.1). This is in line with an increase in the demad for public provision, but also with an increase in the bargaining power of public-sector unions in recent years.[221] Public-sector premia may be efficient if they constitute

Figure 7.28: Salaries of select health workers in Kenya, 2005/06 and 2015/16



Source: Own calculations based on KIHBS 2005/06 and 2015/16.
Note: 95-percent confidence intervals are indicated.

[221] However, there might be an equity consideration. For instance, civil-servants in Kenya obtain hardship allowance if they are posted in remote areas. These may be necessary to attract qualified professionals into these areas and to thus ensure service availability in these places.

Table 7.1: OLS regression of log salary (incl. allowances) on binary indicator of employment in public sector for auxiliary nurses; nurses and midwives; and medical and clinical officers, 2005/06 and 2015/16

	2005/06			2015/16		
	(1)	(2)	(3)	(1)	(2)	(3)
	All	Rural	Urban	All	Rural	Urban
Public sector	0.162	0.386	0.088	0.816***	0.896***	0.745***
	(0.199)	(0.444)	(0.234)	(0.159)	(0.230)	(0.175)
Observations	82	18	64	128	43	85
R-squared	0.276	0.437	0.210	0.316	0.499	0.283

Source: Own calculations based on KIHBS 2005/06 and 2015/16 data.
Note: Significance level: 1% (***), 5% (**), and 10% (*).Robust standard errors reported in parentheses. Outliers (error terms of +/- 5.5 standard deviation) were removed. All regressions include controls for age, age squared, gender, locality (rural or urban), and type of worker (auxiliary nurse, nurse or midwife, and medical or clinical officer). Results are obtained from unweighted OLS regressions. Re-running the regressions with sample weights did not alter the results qualitatively.

compensating differentials (e.g. if public-sector health professionals have to be compensated for working in remote areas or for superior skills) or if they elicit greater effort and thus better outcomes for patients. However, they may also reflect taxpayer-funded rents. As health workers typically earn above-average wages, these would be regressive. They would also drive up the costs of an urgently-needed expansion of the public-sector workforce. More research is required to settle the question of whether these premia are efficient.

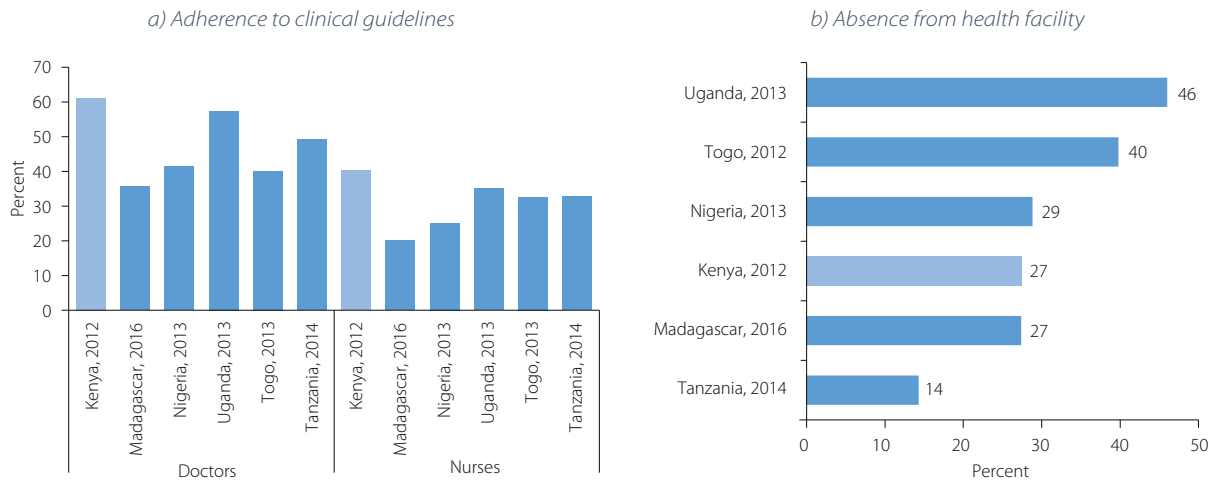
While Kenya's health workers are often more likely to adhere to clinical guidelines when presented with vignettes than health workers in other Sub-Saharan African countries, even medical doctors typically ask only three out of five relevant history and examination questions. The SDI surveys conducted in several countries in Sub-Saharan Africa over the last years include assessments of provider competence and knowledge.[222] These are administered through medical vignettes across common tracer conditions, acute diarrhea in children, pneumonia, diabetes mellitus, tuberculosis, and malaria. Compared to their counterparts in other countries in the region, Kenyan doctors and nurses are as likely or somewhat more likley to adhere to clinical guidelines in their hypothetical treatment of the cases presented to them. However, even doctors asked only three out of five relevant history and examination questions (Figure 7.29a). And while 70 percent of all diagnoses were correct, only around half of the recommended treatments were correct and complete. Moreover, there was significant variation across domains. Malaria, for instance, is diagnosed in only around 30 percent of the cases.

Case management of health providers in Nairobi compares favorably with middle income countries such as India and China. The use of standardized or "mystery" patients, which are individuals recruited from the local community and extensively trained to present the same clinical condition to multiple healthcare providers in a study sample, is gaining acceptance as a gold standard for the measurement of clinical practice. Only one such study has been conducted in Kenya and was limited to a sample of providers in Nairobi (Daniels et al. 2017), but it is possible to tentatively compare results with similar studies conducted in urban China and India. The results suggest that the quality of care patients receive in this setting depends on the condition they present: Indian and Chinese providers managed angina better but did not provide ORS for children with diarrhea (Table 7.2). In addition, Kenyan providers were significantly more expensive. Mystery patients also spent more time waiting to see the provider but also more time with the provider.

In Kenya's primary health care system, compliance with infection prevention and control (IPC) practices, which have been shown to effectively protect patients from infections, varies widely

[222] The evaluation of the medical providers is done using seven standardized cases. These cases are based upon common pathologies and are adjusted to the local context using national treatment guidelines. See http://siteresources.worldbank.org/AFRICAEXT/Resources/SDI_instruments_Kenya.pdf. The indicator "Adherence to clinical guidelines" is defined as the unweighted average of the share of relevant history taking questions and the share of relevant examinations performed for each of the following five case study patients: (i) malaria with anemia, (ii) diarrhea with severe dehydration, (iii) pneumonia, (iv) pulmonary tuberculosis, and (v) diabetes.

Figure 7.29: Adherence to clinical guidelines and absence from health facility by country



Source: SDI database.

Table 7.2: Outcomes for select standardized patient cases in Nairobi, urban China, and India

Case and location preferred case management		Time waiting in clinic (mins)	Time with provider (mins)	Common checklist	Total price (US$ equivalent PPP)	Antibiotics (never necessary)	N
Diarrhea (in an 18-month-old child)							
Nairobi	0.73	51.08	4.45	0.20	6.63	0.32	40
Urban China	0.00	1.03	1.13	0.17	2.73	0.43	42
India	0.18	9.97	1.57	0.14	1.22	0.63	389
Unstable angina (in an adult)							
Nairobi	0.10	53.59	8.12	0.25	12.51	0.60	42
Urban China	0.63	2.13	4.09	0.18	4.92	0.08	40
India	0.41	9.94	3.56	0.25	1.67	0.20	323

Source: Daniels et al. 2017.

across domains. A recent study[223] of compliance with IPC practices in primary health care in Kenya found that, out of more than 100,000 interactions, mean compliance was only around one third (Bedoya et al. 2017). It also varied widely across domains: health care workers followed IPC practices for injection and blood draw safety during 87.1 percent of the relevant interactions and waste segregation of needles during 81.9 percent; in contrast, for the segregation of medical waste (other than needles and syringes) IPC practices were followed only 5.4 percent of the time, and for proper hand hygiene only 2.3 percent. Patient safety is driven by behavioral norms rather than technical knowledge, training, or the availability of supplies (Das and Hammer 2014). Differences between private and public facilities were minor.

Absence rates were high prior to devolution. Absence rates, which are often interpreted as a proxy for provider effort, were high at the time of the SDI survey in 2012, with a national average of 27.5 percent of health workers absent from the facility (Figure 7.29b). Absence rates were higher for public providers compared to private and non-profit: 29.2 percent versus 20.9 percent (Martin and Pimhidzai 2013). Interestingly, among public providers the absenteeism rate was higher in urban facilities (37.6 percent) versus rural facilities (28.3 percent) even though the difference is not statistically

[223] Data collection in this study was conducted across 1,680 health workers during outpatient interactions with more than 14,000 patients at close to 1,000 facilities in 2015.

significant at conventional levels.[224] However, the SDI survey was conducted before delivery of health services was devolved to the counties, which may have resulted in changes in the staffing of facilities.

Private and public providers do not differ in terms of case management, but private provision is more expensive and patients spend less time waiting to see a provider. Data from the SDI suggest few differences in the ability of public and private providers to diagnose and treat common conditions. Similarly, Daniels et al. (2017) find that the main differences between public and private provision in Nairobi are in the time patients spend waiting, the time they spend with the provider, the checklist providers apply, and the total price patients pay for treatment (Table 7.3). In terms of case management, differences were not statistically significant except for tuberculosis, for which public providers had a higher likelihood of recommending the right course of treatment.

7.4 SUMMARY AND POLICY IMPLICATIONS

Kenya has experienced remarkable improvements in the health indicators of its population over the last fifteen years. The decline in under-five mortality and, to a somewhat lesser extent, in stunting rates, has been unprecedented. Also, progress in outcomes and uptake of health services has been mostly pro-poor. This chapter notes that these improvements are largely due to demographic trends, improved standards of living, and an increase in the uptake of low-cost, preventive goods with proven impact. A large body of evidence strongly suggests that these interventions should continue to be provided free of charge. Two cases in point are ITNs and deworming medicines.

At the same time, the poor and some remote regions still face challenges in accessing quality healthcare services. Children from poor families are less likely to be vaccinated and their mothers are less likely to give birth in the presence of a qualified health provider. In fact, in all domains – outpatient care, inpatient care, and preventive care – and across almost all age groups, the poor are less likely to use health services. They also often have to overcome greater distances to access health care. These gaps remain large and significant and are a major cause for concern. Addressing these gaps and maintaining the momentum achieved will require further strengthening of primary care.

Table 7.3: Primary outcomes for standardized patient cases by sector

	Public	Private	Significant at one-percent level?
Preferred management			
Asthma: inhaler or bronchodilator	0.79	0.82	
Child diarrhea: ORS	0.62	0.78	
Unstable angina: referral, ECG, or aspirin	0.14	0.07	
Tuberculosis: sputum test	0.79	0.36	Yes.
Basic statistics (selection)			
Time waiting in clinic (mins)	94.70	26.53	Yes.
Time with provider (mins)	4.21	8.64	Yes.
Checklist	0.25	0.44	Yes.
Total price (KSh)	141.54	563.05	Yes.
Medications (selection)			
Antibiotics (never necessary)	0.47	0.50	
Observations	**55**	**111**	

Source: Adopted from Daniels et al. 2017, table 4.

[224] In multivariate regressions, the only consistently significant pattern the authors find is a positive partial correlation between the number of staff and the absenteeism rate: controlling for location, type of cadre, available infrastructure, as well as ownership and type of facility, the absenteeism rate is at least 20 percentage points higher if the number of health workers increases (p. 50). This is consistent with a greater propensity to free-ride in larger groups.

While health insurance coverage is low, the incidence of catastrophic health expenditures has likely decreased recently. Only around 20 percent of the population are covered by health insurance, with large differences between the poor and the better-off and between rural and urban areas. Among those that are covered, a large majority are beneficiaries of the NHIF. At the same time, there is evidence that the incidence of catastrophic health expenditures has declined and that households rarely resort to adverse coping strategies to finance healthcare. This is in line with the removal of user fees in 2013 for a range of public health services, including deliveries, as well as improvements in living standards and overall population health. Poor Kenyans in the informal sector may therefore have little incentive to voluntarily insure, making it harder for the government to expand coverage.

Devolution has the potential to address some of the most pressing concerns, including a shortage of health workers in some localities. This chapter has documented wide geo-spatial variation in uptake of health services and outcomes as well as variation in inputs prior to devolution, particularly health professionals. For instance, a general shortage of health workers was aggravated prior to devolution by a maldistribution across counties. By making county governments accountable and providing the resources needed to address pressing concerns at their level, decentralization seems the right way to address these inequities. However, more analysis on its effects and challenges is required. So far, little data has been produced and counties also initially struggled with the increased responsibilities.

The recent removal of user fees for a number of services, including deliveries, has resulted in a shift in demand from private to public provision, but there is no evidence that it positively affected the share of deliveries in formal health facilities. While public health services account for the majority of healthcare provision in Kenya, the private sector has also played a significant role in the past. However, the removal of user fees in public facilities for some services, notably deliveries, has shifted demand away from private provision and towards public provision. But there is no evidence that this reform increased institutional deliveries overall. Rather, the share of deliveries increased at a similar rate as before the reform, while those that would have delivered in private facilities are now more likely to do so in public facilities.

Because the poor are more likely to depend on public health services than the rich, the recent disruptions caused by labor disputes between the government and public-sector unions affect the poor disproportionately. A string of recent health worker strikes in the public sector that culminated in major walk-outs in 2016 and 2017 have disrupted the public health service provision, affecting the poor disproportionately. While substituting private for public provision during strikes is an option for the better-off, the costs associated with private provision are likely prohibitive for the poor. This chapter finds that despite only sluggish growth in real terms, health workers' salaries in Kenya remain high by regional standards. One way of bringing more transparency to the public debate about adequate remuneration would be to simplify wage scales by scrapping at least some of these allowances that almost all public-sector workers are entitled to, while adjusting base salaries accordingly.

The sustainability of health financing, particularly the financing of priority programs, should also be a priority moving forward. A recent World Bank report has highlighted funding gaps in five priority health programs (Immunization, HIV/AIDS, Tuberculosis, Malaria and Reproductive Health) (World Bank 2018a). Healthcare financing in Kenya still relies significantly on donors, despite the fact that the ratio of donor financing to total health expenditure has been declining recently. One vehicle to increase revenues is through an expansion in the coverage of the NHIF, which would increase total member contributions. Also, the government could consider introducing "health taxes" on food and drinks that contain high amounts of saturated fat, sugar, salt, or other unhealthy ingredients. This would also address the problem of rising obesity among urban, better-off Kenyans.

CHAPTER 8

VULNERABILITY, SHOCKS, AND SOCIAL PROTECTION

SUMMARY

Although vulnerability and poverty rates fell over the last decade, just over half of Kenya's population is currently vulnerable to falling into poverty in the near future. Vulnerability rates fell faster in rural areas than they did in urban areas between 2005/06 and 2015/16, but the current urban-rural differences are still very large – 43 percent in urban areas, and 57 percent in rural areas. Poverty and vulnerability are highly correlated, but over one third of non-poor Kenyans are classified as vulnerable. Many of these non-poor-but-vulnerable households are clustered just above the poverty line, meaning that even a moderate shock could push them below the line.

Vulnerability rates vary widely by county, and are highest in the north and east of the country. The county vulnerability map looks similar to the county poverty map. The prevalence of vulnerability is highest in Mandera, Garissa, Samburu, and Turkana. Rates are significantly lower in the central counties, particularly in Nyeri, Kirinyaga and Nairobi.

Vulnerability is largely concentrated in certain groups of households, particularly those that are engaged primarily in agriculture, and those which have a head with low educational attainment. Fewer than half of Kenyan households had agriculture as the main sector of employment in 2015/16, yet this group contained 57 percent of the vulnerable population. Similarly, although the share of households headed by someone with a primary education or lower was 64 percent in 2015/16, this group made up nearly 80 percent of all vulnerable households.

The overall prevalence of both economic and agricultural shocks declined between 2005/06 and 2015/16. However, the incidences of certain kinds of shocks affecting agricultural households went up. Agricultural households were far more likely to report crop losses from preventable causes such as crop diseases or pests in 2015/16 than they were in 2005/06. The relative stabilization of food prices was evidenced by a significant decline in the share of households reporting an economic shock in the form of a large food price increase.

There has been a reduction in households resorting to coping strategies with adverse implications for future wellbeing. Nevertheless, the poor and those in rural areas were still more likely to resort to these mechanisms. The share of the poorest households that sold productive assets in response to experiencing a shock fell from almost one third to under one sixth. The most common response of the poorest households after experiencing a shock was to reduce consumption, while for the richest households the most common response was to use savings. Rural households were more likely to use multiple coping strategies for non-agricultural shocks than they were for agricultural shocks.

There has been an expansion of social protection programs in Kenya, but overall coverage remains low relative to existing needs. The effort that has been made to coordinate and harmonize social protection programs, combined with the creation of a registry of beneficiary households means that the country is well placed to expand assistance to vulnerable households.

An assessment of the KIHBS 2015/16 data shows that social protection programs have generally had positive impacts. Three main findings about the existing programs are that a) they are well-targeted; b) they have had positive effects on school enrolment, have reduced the probability of children working, and have reduced food insecurity; and c) poor non-beneficiaries would benefit greatly from expanding such programs.

8.1 INTRODUCTION

There is a close relationship between poverty and vulnerability in the developing world. Many households that are considered non-poor because they are just above the poverty line may experience a negative shock which could cause them to fall into poverty.[225] Similarly, poor households often find themselves in poverty traps in which they are both more likely to experience negative shocks and are less able to cope with these shocks. In Kenya in particular, a number of studies have documented how weather-related shocks negatively affect both the income from sales of crops and the welfare of rural households engaged in rain-fed agriculture (Wineman et al. 2016; Christiaensen and Subbarao 2005). These studies have found that droughts, rather than floods, are the predominant weather shock affecting welfare across the different regions of the country. In general, poor households in Kenya are 78 percent more likely to experience a negative shock than non-poor households (Government of Kenya 2012). The specific vulnerabilities that are faced by women, and by female-headed households are likely to mirror those that were described in relation to poverty in Chapter 3. In general, women who went through a marital dissolution, and who often need to take care of young children are more likely to be in poverty. In addition, women are disproportionately affected by HIV/AIDS in Kenya.

Social protection programs are an important policy tool that can be used to raise poor households above the poverty line, and to reduce the vulnerabilities faced by poor and non-poor households. Coverage of these programs in Kenya is relatively low, but there has been a concerted effort from government to increase efforts to improve social protection. This has been particularly evident in the expansion of cash transfers which are targeted at the poorest and most vulnerable people in the country. The National Safety Net Programme (NSNP) was established in 2013 in order to harmonize the four cash transfer programs in the country in an integrated system. These consist of the Older Persons Cash Transfer (OPCT), the Cash Transfer for OVC, the Hunger Safety Net Program (HSNP), and the Persons with Severe Disability Cash Transfer (PWSD). Resources allocated to these four programs has grown significantly, and coverage increased from around 240 000 households in 2013 to around 770 000 households in 2016. The Kenyan government spends around 0.7 percent of GDP on social protection in general, and around 0.3 percent of GDP on safety nets in particular (Álvarez and Van Nieuwenhuyzen 2016). This is substantially lower than the sub-Saharan African average of 1.4 percent of GDP spent on social safety nets, and a developing world average of 1.6 percent (World Bank 2015c). Overall coverage of the programs, at about 6 percent of households, is low compared to the existing need for social protection. Therefore, although the expansion of the programs is commendable, there is still a large scope for further coverage increases.

The Kenyan government is planning further expansions of the NSNP, as well as complimentary social interventions. Given this commitment, it is important to identify where poverty and vulnerability are concentrated, as well as what impact the existing cash transfer programs are having on household welfare and on reducing the risks faced by these households. It is also important to evaluate the prevalence and intensity of the shocks experienced by poor and vulnerable households, as well as which coping strategies are used to mitigate the negative welfare impacts of these shocks.

This chapter has three main aims, all of which fall under the overarching aim of understanding how to address vulnerability and make poverty reduction sustainable in the long run. First, it will construct and analyze changes in the vulnerability profiles for Kenya in 2005/06 and in 2015/16. Second, it will analyze and compare the welfare shocks that affected households in 2005/06 and 2015/16, as well as which coping strategies were adopted in the face of these shocks. Third, it will assess the coverage and effectiveness of Kenya's social safety net programs, while also measuring their impact on different measures of household welfare.

[225] These shocks can be idiosyncratic (for example the death of an employed member of the households), or they could be covariate (for example a drought).

Box 8.1: Concepts of risks, shocks and vulnerability

Risks:

Risks are potentially adverse events that could cause welfare losses. They are distinguished from shocks which are the actual realizations of these risks and losses. Risks can be major impediments to households escaping poverty over time (World Bank 2013c). Poor households may be more likely than non-poor households to be exposed to risks because of a relative lack of ex ante options such as insurance and income diversification (World Bank, 2007). There are also some risks which are commonly and widely distributed within Kenya across socio-economic groups, for example external shocks such as natural disasters, or conflicts (Carter et al. 2007).

Shocks:

Shocks are sudden adverse events that may cause material or human capital damages. The economic impacts of shocks can have devastating effects on household resources, and are important determinants of poverty dynamics (Dercon 2004). Households that are poorly-equipped to handle shocks are more likely to fall into poverty (or remain in chronic poverty) as a result of experiencing a shock. Shocks have been found to increase poverty rates by up to 4 percent in Mexico (Rodriguez-Oreggia et al. 2013), to be the main driver of a 9 percent increase in poverty in the Philippines (Datt and Hoogeveen 2003), while households in Ethiopia reported between 13 percent and 28 percent lower consumption levels several years after suffering a shock (Dercon, Hoddinott, and Woldehanna 2005). There is a wide range of natural and man- made shocks, which may affect one household at a time (idiosyncratic shocks) or many households at the same time, typically within close geographic proximity to one another (covariate shocks). While idiosyncratic shocks can be singularly devastating, covariate shocks can be even more difficult to cope with, as households may not be able to rely on the traditional networks formed by other households in the area (World Bank 2007).

Vulnerability:

Vulnerability combines the concepts of risk and poverty, and reflects the probability that a household will be poor in the future. It is a forward-looking measure that takes into account the risks of a household experiencing a shock that would push it into poverty in the future. Vulnerable households also include those that are expected to remain in poverty in the near future, even if they do not experience shocks. A non- poor household may be vulnerable to poverty if the household faces a high risk of suffering shocks in the future. Vulnerability can vary geographically and across households, depending on the structure of risks and the resources available to cope with shocks. Efficient risk management reduces the vulnerability to poverty. As noted in World Bank (2007), the ability of households to reduce or prevent vulnerability depends on three broad areas. The first is the severity and frequency of risks facing households. The second is the level of household resources which can include financial assets as well as physical capital such as land and livestock. The third is access to social networks (family, friends, neighbors, community associations, markets, etc.) and public social protection programs. The first requirement for efficient ex ante risk management is an accurate identification of risks. Based on this, households decide on their risk portfolio by adopting different forms of formal or informal insurance mechanisms. In cases where a risk is realized and a shock occurs, ex post risk management tools are required to compensate for losses. Efficient risk management leads to resilience to shocks and decreases the vulnerability to poverty. A clear understanding of the profiles and causes of vulnerability matters for the design of interventions that aim to prevent rather than alleviate poverty.

8.2 VULNERABILITY

8.2.1 Defining and measuring vulnerability

Households are typically exposed to a large range of potential idiosyncratic and covariate shocks that can cause substantial income fluctuations if realized. Households in risky environments have developed various *ex-ante* and *ex-post* risk-coping strategies to reduce income fluctuations, or to insure consumption against these income fluctuations. As many poor households have limited or no access to formal insurance and credit, they rely on informal coping strategies. Some of these mechanisms that allow households to mitigate the impacts of shocks include transfers and remittances, asset liquidation, income diversification and migration (Morduch 1999; Barnett, Barrett, and Skees 2008). However, these instruments are incomplete. Large covariate shocks such as natural disasters can overwhelm the capacity of these instruments, partly because households located within the area of incidence of the shock may be unable to support each other. If this occurs, then households may be forced to reduce consumption, and take other measures such as withdrawing children from school or selling productive assets. These actions can have long term, possibly irreversible, impacts on household members in general, and children in particular (Jacoby and Skoufias 1997; Carter and Maluccio 2003) in terms of human capital accumulation and future productivity.

Today's poor may not be tomorrow's poor, and efforts to reduce poverty in the future need to be targeted at the poor today but also at non-poor households that can be prevented from slipping into poverty. A lack of options to manage risks may mean that variance of household consumption over time remains high, particularly in risky environments (Günther and Harttgen 2009). In these cases, a household's current poverty status is not necessarily a good indicator of the poverty status in future years. Separating out the parts of poverty that are structural versus those that are the result of risks to shocks has important implications from a policy perspective. While social assistance programs may be more appropriate for poverty alleviation, insurance for vulnerable households might be a more efficient way of preventing households from becoming poor in the future.

Household welfare is not a static concept, and vulnerability to poverty acknowledges this by combining the concepts of poverty with risk exposure and risk management. The classification of vulnerability is driven by two components. The first is a household's expected level of welfare, for example consumption or income. The second is the expected level of variation of welfare in the future. Several types of vulnerability can be drawn from these two components. On the one hand, there are vulnerable households that are currently classified as poor and which are expected to remain poor in the future. These households are often categorized as being chronically poor. On the other hand, vulnerable households that are currently non-poor but face large income risks and are likely to drop into poverty at some point in the future may be classified as being in transitory poverty. For example, a small-scale farmer who cultivates cash crops may not be recorded as poor after a season with normal weather conditions. However, under less favorable weather conditions the following season, the farmer may enter poverty. Therefore, this farmer could be classified as non-poor today, but as vulnerable to being in poverty in the future.

Dynamic assessments of poverty are challenging from an empirical perspective. The ideal is to make use of longitudinal data that cover fluctuations of households in and out of poverty. These kinds of datasets are still not routinely available in many developing countries. In the absence of longitudinal data that track households over time, it becomes difficult to quantify the future risk of poverty. Several procedures have been proposed to overcome this challenge. This chapter follows the approach outlined in Chaudhuri, Jalan, and Suryahadi (2002) to classify vulnerability to poverty using cross-sectional data. The approach estimates the two components of vulnerability: the predicted level of consumption and the predicted level of variation of a household's consumption, and is outlined in Box 8.2.

Box 8.2: Measuring vulnerability using cross-sectional data

Vulnerability combines the concepts of poverty, exposure to risks, and risk management in order to predict the probability that a household or individual will be poor in the future. It can be analyzed at various levels, such as the country, household or individual level. In contrast to poverty, vulnerability is a forward-looking measure that reflects the probability of poverty in the future. Therefore, each vulnerability measure that uses consumption as the welfare indicator is very closely related to consumption smoothing and the capacity to cope with shocks (Klasen and Waibel 2015).

As the future is uncertain, measuring vulnerability is more complex than measuring cross-sectional poverty. Quantifying a household's vulnerability is subject to various challenges. Ideally, longitudinal data that capture welfare dynamics and exposure to shocks are used, which help to accurately determine welfare dynamics inherent to vulnerability concepts. However, if longitudinal data are not available, several methods have been proposed to estimate household's vulnerability to poverty (Chaudhuri, Jalan, and Suryahadi 2002; Günther and Harttgen 2009). This chapter follows the methodology outlined in Chaudhuri, Jalan, and Suryahadi (2002), which can be summarized in four steps:

1. In the first step, the main correlates of the household's consumption level are identified to assess the strength of the relationships between different characteristics and household welfare. That is, household consumption is regressed on a set of independent variables which include household composition and demographics, livelihoods, and regional and geographic control variables.
2. In the second step, the relationship between the household characteristics and the risk of welfare shocks is estimated. The variation in household consumption that is not explained by the estimation model in step 1 includes the household's risk of shocks. This variation is explored to test which characteristics are associated with the risk of welfare shocks.
3. Based on step 1 and 2 a household's future level of consumption and variation of consumption is predicted.
4. Households that are determined to have a probability of being in poverty at any stage over the next 2 years of over 50 percent are classified as vulnerable (following Günther and Harttgen 2009). Furthermore, poor households that are predicted to be poor may be classified as chronically poor, whereas non-poor households that face significant risks of welfare fluctuations are classified as transient poor.

It should be borne in mind that the approach is based on several assumptions about the distribution of risks, and that due to the data limitations these indicators of vulnerability need to be interpreted with caution. The main limitation is that in the presence of cross-sectional data that only covers one year, it has to be assumed that household's variation of consumption is constant over time. That is, the indicators are unable to account for large but rare shocks that do not occur in every year. Other important assumptions include the absence of measurement error in consumption reports, and assumptions on the distribution of risks and the validity of ordinary least square estimates (see Klasen and Povel 2013) for a more detailed discussion).

The vulnerability threshold is defined relative to the predicted probability that a household will be in poverty in the near future. This classification is complicated by the fact that there are no clear rules about what time period constitutes the "near future", and what the predicted probability should be. This chapter uses the methodology proposed by Günther and Harttgen (2009) and defines the "near future" as being within the next two years. Households are considered to be vulnerable if their predicted probability of being below the poverty line at any stage within these two years is greater than 50 percent.

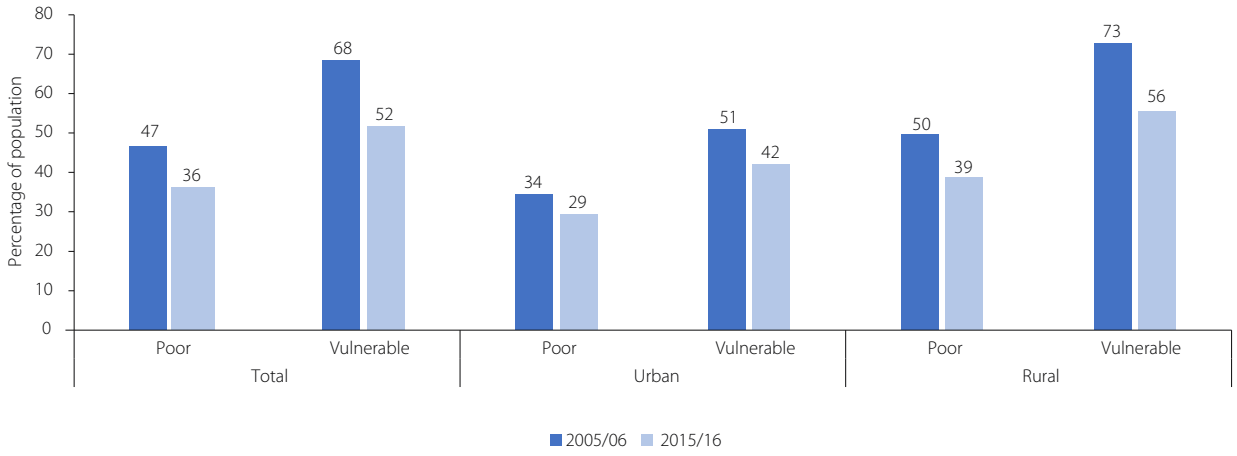
8.2.2 Profiles of vulnerability in Kenya 2005/06 and 2015/16

The fall in the vulnerability rate was larger than the fall in the poverty rate between 2005/06 and 2015/16, and this reduction was largely driven by rural areas. Vulnerability rates are higher than poverty rates because there are significant numbers of Kenyans who are non-poor but are vulnerable to falling into poverty in the near future. More than two thirds of Kenyans were classified as vulnerable in 2005/06, and this had reduced to just over half in 2015/16. As can be seen in Figure 8.1, poverty rates in urban areas fell from 34 percent to 29 percent, while poverty rates in rural areas fell from 50 percent to 39 percent. The vulnerability rate in urban areas fell by almost 9 percentage points, which represented a much smaller drop than the corresponding 17 percentage point decrease in rural areas.

Vulnerability rates vary widely by county, but are highest in the north and east of the country. The county with the highest vulnerability rate is Mandera, in which almost all households have a greater than 50 percent predicted probability of experiencing poverty within the next 2 years. Other counties with similarly high vulnerability rates are Garissa, Samburu, Turkana and Busia. Counties in the center of Kenya generally have the lowest vulnerability rates, with fewer than one fifth of the population in Nyeri, Kirinyaga and Nairobi expected to experience poverty within two years. The map of vulnerability reflects the same patterns that were seen in the poverty map in Chapter 2, though the rates of vulnerability are always higher than the rates of poverty. This has important policy implications, as the reduction in poverty may not be sustained if the sources and potentially damaging coping strategies of shocks are not addressed.

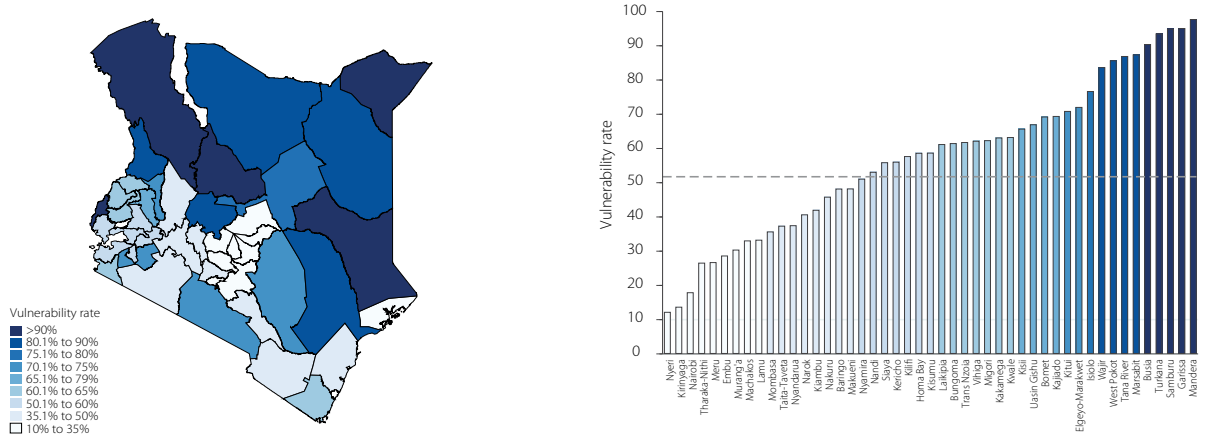
Although there is a strong link between poverty and vulnerability, not all poor are vulnerable, and not all non-poor are non-vulnerable. In 2015/16, close to 80 percent of the poor were also vulnerable. This means that about one fifth of the poor population in Kenya was expected to be consistently non-poor during the following two years. Conversely, 37 percent of the non-poor were classified as vulnerable. Figure 8.3 disaggregates the share of the poor and non-poor that are vulnerable by rural and urban location. The share of the poor that are vulnerable is not significantly different between the two groups – 79 percent in rural areas and 76 percent in urban areas. There is, however, a large difference in the share of the non-poor population that is likely to be poor in the near future. 41 percent of the rural non-poor are classified as vulnerable, compared to just over one quarter of the urban non-poor. Many of these non-poor-but-vulnerable households had consumption levels that were clustered just above the poverty line, as seen in Appendix H. As expected, the figure shows that the density of vulnerable households decreases as distance from the poverty line increases.

Figure 8.1: Poverty and vulnerability in Kenya: 2005/06 and 2015/16



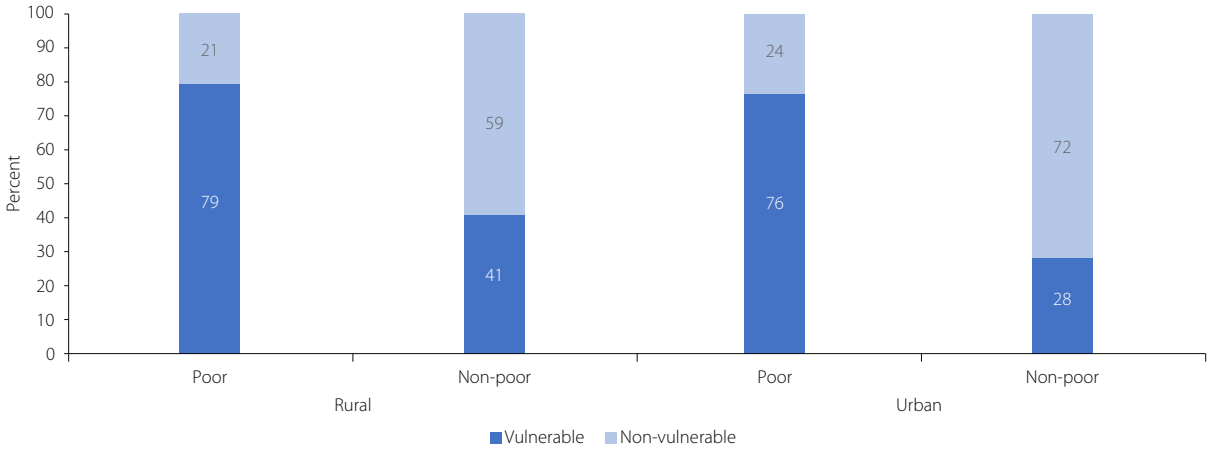
Source: Own calculations based on KIHBS 2005/06 and 2015/16.

Figure 8.2: Vulnerability rates by county: 2015/16



Source: Own calculations based on KIHBS 2015/16.

Figure 8.3: Vulnerability rates by poverty status: 2015/16



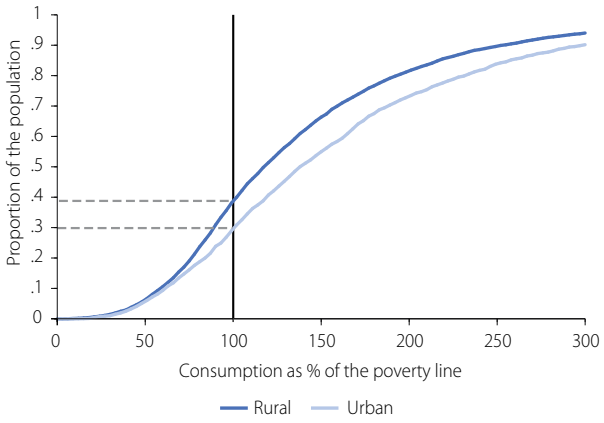
Source: Own calculations based on KIHBS 2015/16.

However, there are still a fair number of households that are classified as vulnerable even though their consumption levels are 2 to 3 times the poverty line. The fact that so many non-poor-but-vulnerable households are clustered just above the poverty line means that even a moderate idiosyncratic or covariate shock is likely to push these households into poverty.

Even though vulnerability rates fell faster in rural areas than in urban areas, the differences in 2015/16 were still very large. The cumulative density functions (CDFs) in Figure 8.4 show the cumulative proportion of the rural and urban populations against consumption levels relative to the poverty line. The vertical line on the x-axis corresponds to consumption exactly at the poverty line. The dashed horizontal lines correspond to the rural and urban poverty rates of 38.8 percent and 29.4 percent, respectively. The difference in vulnerability rates between the areas is greater than the difference in poverty rates. 56.5 percent of the rural population was classified as vulnerable, compared to 43.1 percent of the urban population. This 13.4 percentage point difference in vulnerability is larger than the 9.4 percentage point difference in poverty between the areas.

The share of households that had services as the main sector of employment increased, and the poverty rate for this group decreased. The first section of Table 8.1 shows different shares of the population, the poor, and the vulnerable by the main sector of employment

Figure 8.4: CDFs of the rural and urban population: 2015/16



Rural poverty rate: 38.8%. Rural vulnerability rate: 56.5%
Urban poverty rate: 29.4%. Urban vulnerability rate: 43.1%

Source: Own calculations based on KIHBS 2015/16.

of the household.[226] There was a decline in the overall share of households with agriculture as the main sector of employment – this proportion dropped to less than half in 2015/16. The relative decline in the share of agriculture was replaced by a combination of increases in services and construction. Even though the overall share of services grew by 5 percentage points, the share of all the poor who lived in households in which services was the main sector of employment dropped by 2 percentage points. The changes for employment in the construction sector went the opposite way, with 8 percent of the poor working in construction in 2015/16, compared to 3 percent in 2005/06.

Changes in the profile of vulnerability were close to changes in the overall composition of the employment sectors of households. Although the share of the poor in services declined between 2005/06, the share of the vulnerable in households with services as the main employment sector increased by almost 6 percentage points. There was little change in the vulnerability profile of agricultural households over the period. In both 2005/06 and 2015/16, the share of the vulnerable in agriculture was 9 percentage points higher than the share of agricultural households in the general population.

[226] In both 2005/06 and 2015/16 the main sector of employment was derived from the occupation codes of the head of the household.

The rapid pace of urbanization of close to 1 percentage point per year was reflected in the composition of the poor and vulnerable. 80 percent of Kenyans lived in rural areas in 2005/06, and this share dropped to 71.6 percent in 2015/16. The composition of and changes in the urban and rural poor and vulnerable populations over the time period tracked each other closely. The share of the poor and the vulnerable who lived in urban areas increased by about 8 percentage points. In 2015/16 almost one quarter of the poor and the vulnerable could be found in urban areas, compared to 15 percent in 2005/06. Therefore, the nature of poverty and vulnerability became increasingly urbanized, as the rise in the national share of the urban population was met by a similar rise in the share of the poor and vulnerable who lived in urban areas.

The fall in the share of the population who had no education was not fully reflected in changes in the composition of the poor and vulnerable. Overall there was a steep fall in the proportion of household heads with no education, with bulk of this difference being taken up by the secondary and tertiary education categories. Almost 80 percent of the vulnerable in 2015/16 had a primary education or less, a very similar figure to 2005/06, despite the fact that the overall share of no education fell from 22 percent to 16 percent. By 2015, more than a third of household heads had at least a secondary level of education. This proportion was significantly higher than the corresponding shares in the poor and vulnerable, which were around 20 percent.

There was a small increase in the share of female-headed households over the period, but these households were not more likely to be vulnerable than male-headed households in 2015/16. Interestingly, female-headed households were a little more likely to be in poverty than male-headed households, but the gender shares of vulnerability match the overall shares shown in the first two columns of the table. There was, however, a small change over time. In 2005/06 the share of vulnerable households that were female-headed was lower than the overall share of female-

Table 8.1: Profiles of the poor and the vulnerable: 2005/06 and 2015/16

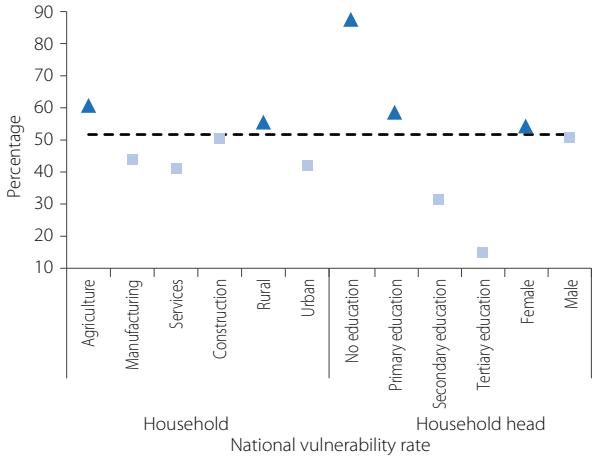
		Total		Poor		Vulnerable	
		2005/06	2015/16	2005/06	2015/16	2005/06	2015/16
Household	**Main employment sector**						
	Agriculture	56.5	48.4	62.5	59.1	65.5	57.2
	Manufacturing	5.1	5.6	4.3	5.1	5.2	4.8
	Services	35.0	39.0	30.2	28.1	25.3	31.0
	Construction	3.5	7.1	3.0	7.8	4.0	7.0
	Location						
	Rural	79.9	71.6	85.1	76.9	85.1	76.8
	Urban	20.1	28.4	14.9	23.1	14.9	23.3
Household head	**Education**						
	No education	22.4	15.8	32.0	27.7	26.3	23.1
	Primary education	47.2	47.7	51.7	53.4	54.1	55.4
	Secondary education	28.5	32.3	16.1	18.6	19.1	20.4
	Tertiary education	1.9	4.2	0.2	0.4	0.5	1.2
	Gender						
	Female	26.3	29.6	28.4	32.9	23.5	29.4
	Male	73.7	70.4	71.6	67.1	76.5	70.6
	All			**46.6**	**36.2**	**68.4**	**51.7**

Source: Own calculations based on KIHBS 2005/06 and 2015/16.

headed households (23.5 percent versus 26.3 percent). In 2015/16 the proportions were far closer to one another (29.4 percent versus 29.6 percent).

Unconditional vulnerability rates were significantly higher than the average for agricultural households, as well as those living in households in which the head had no education. Figure 8.5 shows the unconditional vulnerability rates associated with different characteristics, relative to the average national vulnerability rate of 51.7 percent. Triangles above the dashed line have higher-than-average vulnerability rates, while the squares below the dashed line represent lower-than-average vulnerability rates. There are some useful insights that can come from plotting these different correlates together, not least the fact that doing so can potentially uncover their ordering of importance. However, as noted in Dang, Lanjouw, and Swinkels (2017), the major caveat in presenting data this way is that is that there will be overlap between different groups (for example, those with lower education levels may be more likely to live in agricultural households).

Figure 8.5: Vulnerability rates relative to the average: 2015/16



Source: Own calculations based on KIHBS 2015/16.

There were no statistically significant differences in the vulnerability rates of households engaged in manufacturing and services. 61 percent of agricultural households[227] were classified as being vulnerable, compared to 41 percent of households that were primarily engaged in services. This is partly explained by the fact that regular weather and price shocks

[227] Agricultural households are defined as households in which the head's main sector of employment/activity is agriculture. These make up around 40 percent of households in Kenya.

make agricultural income highly variable. The stark differences in vulnerability rates according to the education level of the household head are evident in the figure. Nearly 90 percent of households with a head who had no education were vulnerable, compared to the national average of 51.7 percent. Less than one third of households with a head who had a secondary level of education were vulnerable in 2015/16. A separate analysis of agricultural households in the 23 arid and semi-arid counties (not shown) showed that these households are not statistically significantly more likely to be vulnerable than agricultural households in the other 24 counties.

Although the unconditional vulnerability rates for male and female-headed households were both close to the overall average, female-headed households were statistically significantly more likely to have been classified as vulnerable in 2015/16. The vulnerability rate for female-headed households was 54.2 percent, almost four percentage points higher than the corresponding rate for male-headed households of 50.6 percent. These differences for vulnerability reflect similar differences for poverty rates by the characteristics of the household head that were reported in Chapter 2.

In summary, the overall decrease in vulnerability was driven by changes in rural areas, but there is a wide geographic variation in vulnerability in Kenya. Households in the north and east of the country are far more likely to be vulnerable than households in other areas. Households in which the primary economic activity is agricultural-based are significantly more likely to be vulnerable than households engaged in other activities, as are households in which the head has a low level of educational attainment. A significant number of the non-poor are vulnerable to falling into poverty in the near future. One potential trigger for poverty entry is the experience of a shock. Profiling the prevalence, severity and coping strategies associated with different kinds of shocks is the focus of the next section of this chapter.

8.3 SHOCKS AND COPING STRATEGIES IN 2005/06 AND 2015/16

Understanding the kinds of shocks that households face, where different shocks are concentrated, and what strategies households employ to cope with shocks has important implications for tackling vulnerability and for guiding the design and expansion of social protection programs. KIHBS 2005/06 and KIHBS 2015/16 contain modules that ask respondents wide-ranging questions about the prevalence and welfare effects of shocks, and it is to these that the chapter now turns.

8.3.1 Incidence and types of shocks 2005/06 and 2015/16

The overall prevalence of both economic and agricultural shocks appears to have declined. Half of the poorest quintile of households experienced an economic shock as measured in 2005/06, with the corresponding proportion in 2015/16 being 30 percent. In fact, in 2015/16 the richest 20 percent of households were the most likely quintile to report having experienced an economic shock in the last 5 years.

The probability of a household reporting an agricultural shock did not vary over the 2015/16 consumption distribution. Interestingly, the decreasing prevalence of agricultural shocks shown by the blue bars in Figure 8.6 had become far flatter by 2015/16, mainly because of fewer shocks for the poorest households. The prevalence of "other shocks" was higher in 2015/16 than it was in 2005/06. This may be explained to a certain extent by the fact that illness shocks were not directly asked in the later survey and households inserted these shocks into the catch-all "other" category in the shocks module.

The urban-rural difference in the prevalence of economic shocks disappeared between surveys, while the difference in agricultural shocks remained large. As can be seen in Figure 8.7, more than 60 percent of urban households reported experiencing an economic shock in the 2005/06 KIHBS. This declined to 33 percent of urban households in the 2015/16

Box 8.3: Measuring the prevalence of and responses to shocks in KIHBS data

Questions about the prevalence, impact and responses to shocks were asked in similar ways in KIHBS 2005/06 and KIHBS 2015/16. There were, however, a number of differences that are worth highlighting if comparisons across the surveys are to be made.

The respondent answering the household questionnaire in both surveys was asked a series of questions about recent shocks to household welfare over the last 5 years. Although this is a fairly long time period, the respondent was also asked exactly how long ago the shock took place, so it is possible to get some finer details about the timing of each shock. Households were asked about 23 different kinds of shocks in 2005/06, and 27 different kinds of shocks in 2015/16.

The responding household member was asked to rank the three most severe shocks to have hit the household over the last 5 years, and was then asked to estimate the value lost due to the shock, whether the shock was idiosyncratic or covariate, and what strategies household members used to mitigate the negative effects of the shock. In both surveys, respondents were presented with 25 different kinds of responses to shocks, and were able to rank the response strategies in order of importance. One drawback is that we are not able to identify multiple experiences of the same shock over the last five years. For example, it is possible that a household may have experienced a drought more than once in the five years prior to being interviewed.

In order to simplify some of the analysis, shocks are grouped into categories in a similar way to what is done in a former Kenya poverty and inequality assessment by the World Bank (2008).

Economic shocks: Business failure (non-agricultural); loss of salaried employment or non-payment of salary; end of regular assistance, aid or remittances from outside the household; large rises in the price of food; a large rise in agricultural input prices; breakup of the household; dwelling unit was damaged or destroyed.

Agricultural shocks: Drought or flood; crop disease or crop pest; livestock died or were stolen; household experienced a severe water shortage.

Other shocks: Bread winner was jailed; robbery, burglary, or assault; eviction; ethnic clashes or conflict; other shocks not listed.

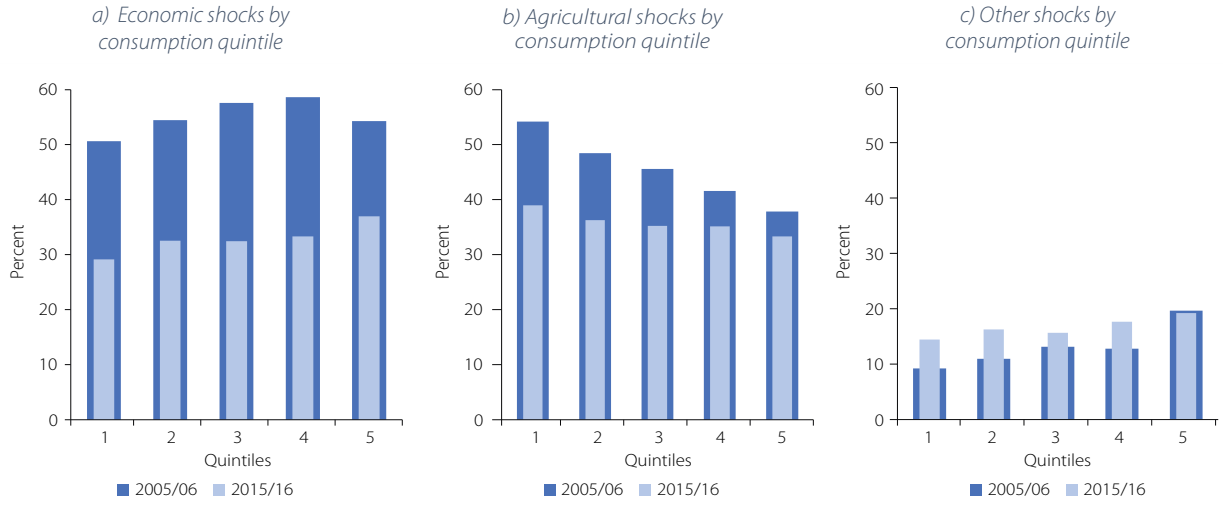
Health (2005/06 only): Chronic or severe illness or accident; deaths of economically active household members; household member diagnosed with HIV.

Chronic or severe illness was the second most prevalent shock in 2005/06 after drought/flood. Unfortunately, this question was not asked in KIHBS 2015/16, and so we do not include health-related shocks for these years, as the comparison to 2005/06 would not be valid.

KIHBS – a number that was not significantly different to that in rural areas. Unsurprisingly, rural households were far more likely to report having experienced an agricultural shock in 2005/06 and in 2015/16 compared to urban households. Nevertheless, the incidence of agricultural shocks in rural households fell from 53 percent in the first period to 46 percent in the second period.

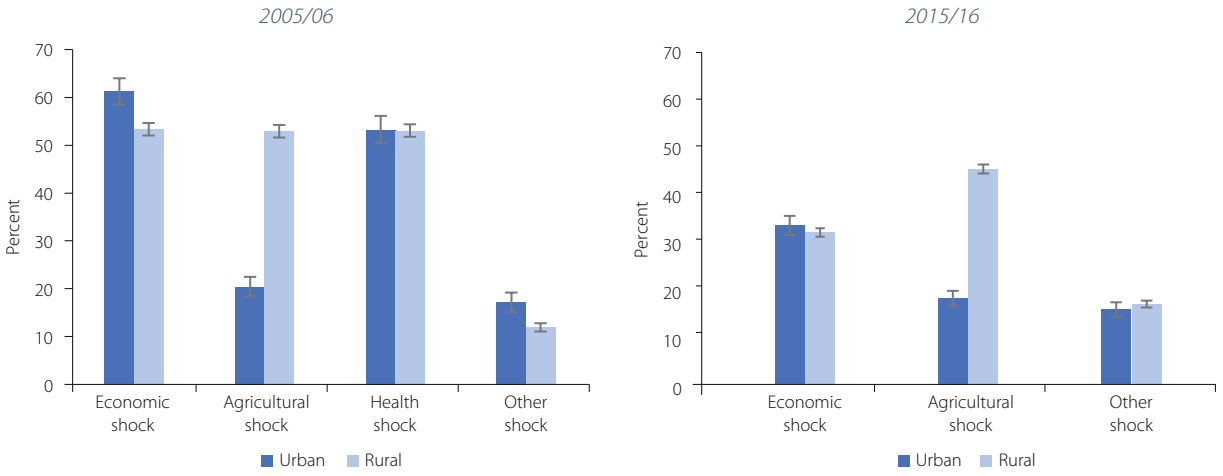
Separating the experiences of shocks into the poor and non-poor populations reveals that the only significant difference was in the prevalence of agricultural shocks. The higher poverty rate associated with agricultural households shown in Table 8.1 is consistent with this finding. There were no significant difference in the prevalence of economic or health

Figure 8.6: The prevalence of different shocks over consumption quintiles: 2005/06 and 2015/16



Source: Own calculations based on KIHBS 2005/06 and 2015/16.

Figure 8.7: Prevalence of shocks by urban-rural location: 2005/06 and 2015/16



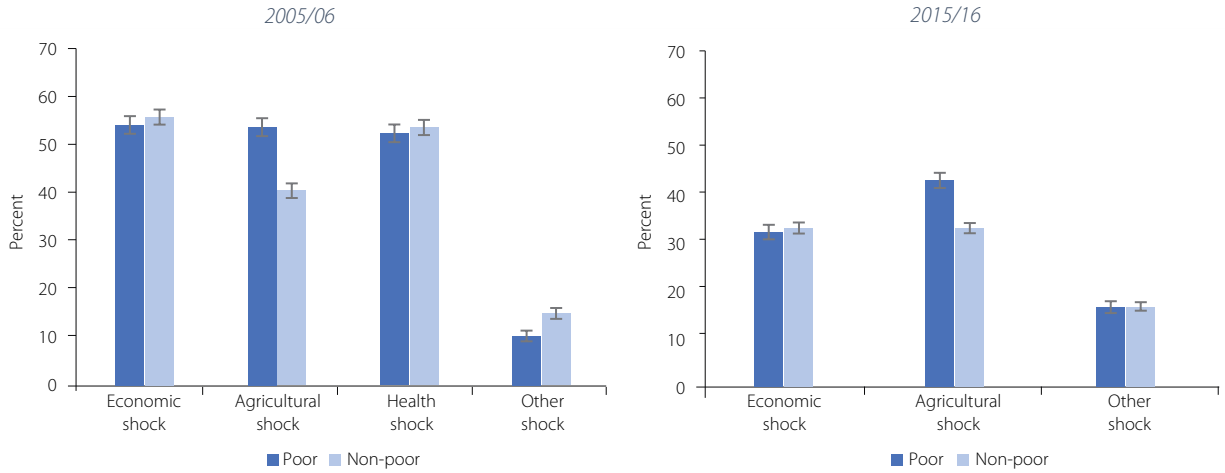
Source: Own calculations based on KIHBS 2005/06 and 2015/16.

shocks between the poor and the non-poor in 2005/06, and the proportion of poor and non-poor households experiencing economic shocks were almost identical in 2015/16. Figure H.2 in the appendix extends the poor and non-poor distinction to vulnerable households. The results show that vulnerable households were actually more likely to report having experienced an agricultural shock than poor households were. This brings into focus the importance of insuring against these kinds of events, as they could serve as a trigger for a household's entry into poverty in the near future.

Paying closer attention to agricultural households specifically reveals some interesting differences. While the previous figure was focused on the urban-rural grouping of households, Figure 8.8 restricts the lens to agricultural households only. The scale of the shock reduction for agricultural households between the two KIHBS surveys was not nearly as significant as the corresponding figures for non-agricultural households.

The share of agricultural households reporting having experienced a drought or flood, some form of crop failure, or livestock loss actually increased over the time period. This change is particularly pronounced for the prevalence of crop diseases and pests, which went from 7.5 percent of households to 25 percent of households. This has important policy implications, as

Figure 8.8: Incidence of shocks by poverty status, agricultural households only: 2005/06 and 2015/16



Source: Own calculations based on KIHBS 2005/06 and 2015/16.

the prevalence of crop pests can be prevented, while the effects of a drought can be countered through more extensive irrigation programs. The increase in the prevalence of experiencing a drought or flood was not statistically significant, though the increase in livestock loss was. The proportion of households reporting a severe water shortage was the same in both periods, at around 10 percent.

Greater price stability led to a reduction in the economic shocks experienced by agricultural households. One third of these households reported experiencing a large rise in the price of food in KIHBS 2005/06, and this fell to about one quarter of households in KIHBS 2015/16.[228] Likewise, there was a small fall in the prevalence of shocks reported as a large increase in agricultural input prices. The extent of other economic shocks in agricultural households was relatively small, though about 7 percent reported experiencing a business failure in both surveys.

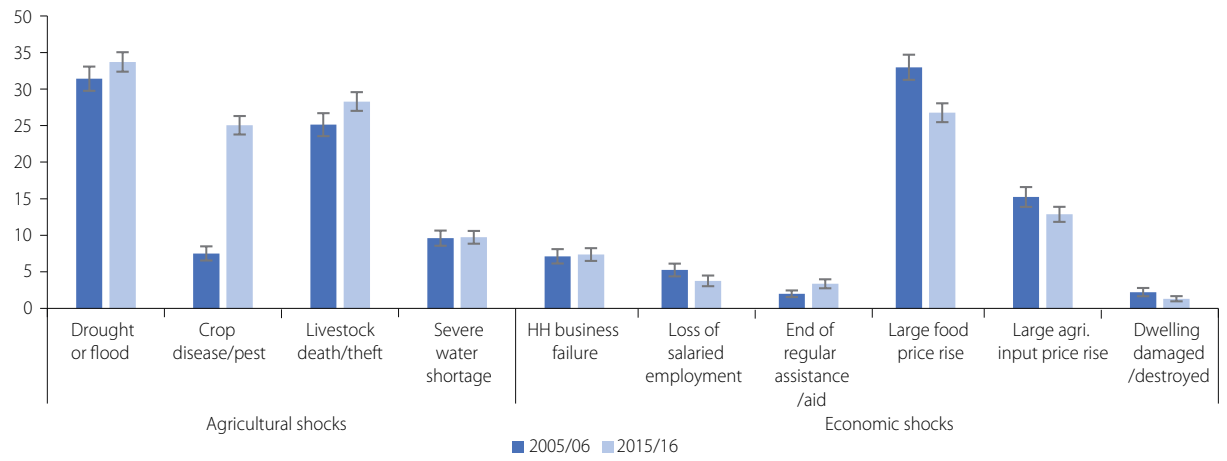
The prevalence of economic shocks as reported in KIHBS 2015/16 was concentrated in counties in the southern half of Kenya. In general, there was a very wide range in the reporting of economic shocks across counties. More than 70 percent of households reported having experienced an economic shock in Kisii, Kitui and Narok, while under 5 percent of households reported experiencing economic shocks in Wajir and Samburu.

There is a fairly high correlation between the extent of economic shocks and the extent of agricultural shocks at the county level. The counties of Kitui, Narok and Nyamira all have agricultural shock prevalence rates of over 80 percent. Households in Kitui and Narok appear to be particularly prone to experiencing shocks, as they are in the top three counties for both economic and agricultural shocks. They stand in stark contrast to Samburu which has an agricultural shock prevalence rate of 68 percent, but an economic shock prevalence rate of 4.7 percent.

The prevalence of "other" shocks is more evenly spread around the country, with much lower rates than economic and agricultural shocks. No county has more than 40 percent of households reporting having experienced "other" kinds of shocks, though rates are a little above 30 percent in Lamu, Mandera, West Pokot, Tharaka-Nithi and Bungoma. Fewer than 2 percent of households report experiencing other kinds of shocks in Bomet and Garissa. Both of these counties, in fact, have a very low prevalence of economic shocks (under 7 percent) and are also amongst the counties reporting the lowest rates of agricultural shocks.

[228] Food price inflation was in fact the most commonly reported shock experienced by households in 2005/06. This particular shock also had a consistent prevalence rate across the distribution of consumption, with the top quintile almost as likely to report large food price increases as the bottom quintile. This is in contrast to shocks like droughts or floods, which affected the bottom quintile about 4 times more than the top quintile according to KIHBS 2005/06.

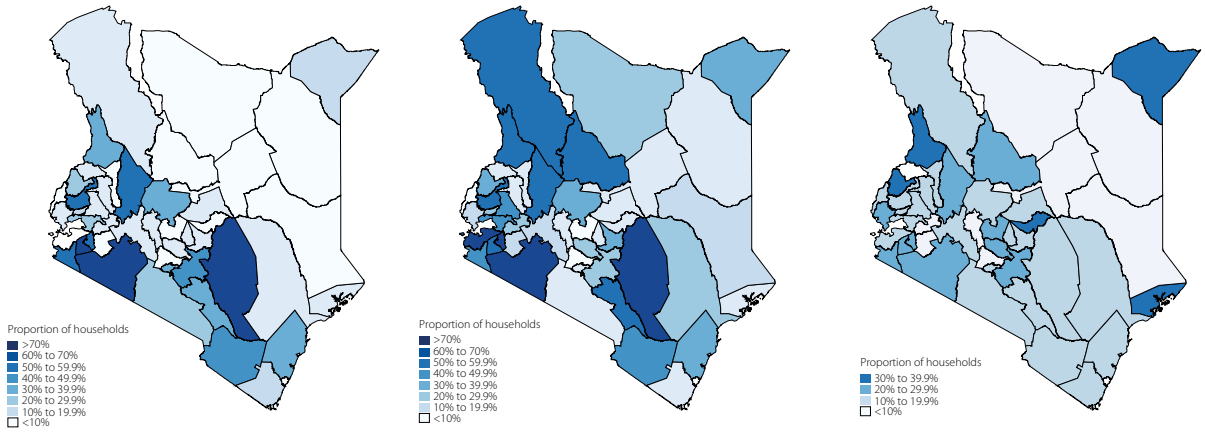
Figure 8.9: Shock prevalence for agricultural households only: 2005/06 and 2015/16



Source: Own calculations based on KIHBS 2005/06 and 2015/16.

Figure 8.10: Geographic distribution of different shocks: 2015/16

a) Economic shocks *b) Agricultural shocks* *c) Other shocks*



Source: Own calculations based on KIHBS 2015/16.

8.3.2 Severity of shocks in 2005/06 and 2015/16

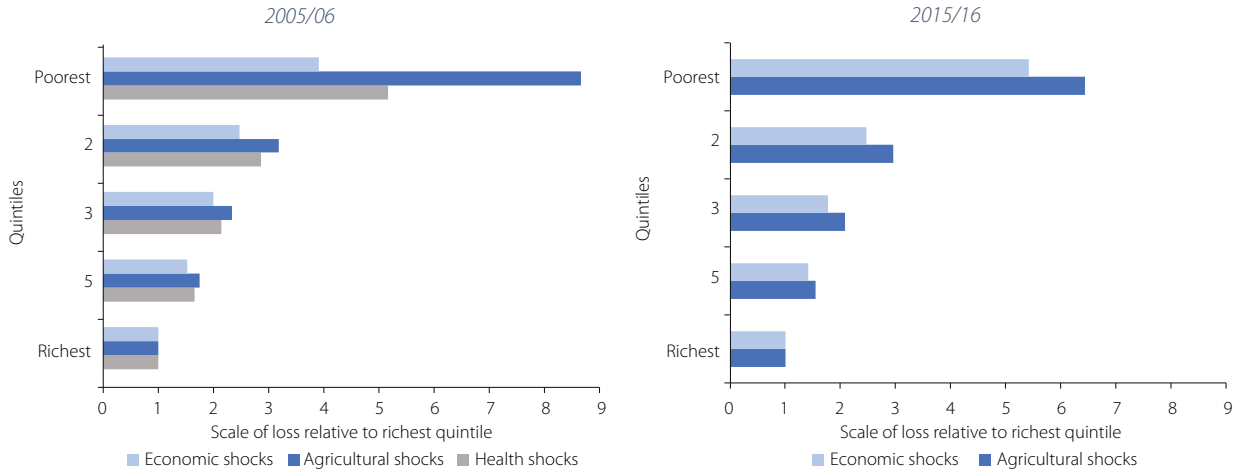
The respondent answering the household questionnaire was asked about how much value was lost as a result of different shocks. In this chapter we calculate the severity of the loss from a shock as the size of the loss in proportion to total household consumption. This amount is then benchmarked against the richest quintile. For example, a value of 5 for the poorest quintile should be interpreted as meaning that the severity of losses as a share of consumption was 5 times higher for the poorest quintile than for the richest quintile.[229]

Non-response rates about the extent of losses differ markedly between the datasets. This may result in some complications when comparing the loss data in KIHBS 2005/06 and KIHBS2015/16. The nature of this non-response is that a respondent said that the household experienced a particular shock but did not provide an amount for the value lost because of the shock. In 2005/06 this non-response rate was about 4 percent for economic and agricultural shocks, while in 2015/16 it was about 18 percent for economic shocks, and 27 percent for agricultural shocks. Understandably, it was difficult for respondent to put a value on losses from health shocks – the non-response rate for these was close to 50 percent in 2005/06.[230]

[229] Loss severity is only calculated for households that reported experiencing a shock. This means that although the number of households in each quintile will be equal, the number of households experiencing a shock will not be the same across quintiles.

[230] The severity of losses from "other" shocks is not included here, as many of these categories do not give the respondent the option of providing a value of the economic loss (examples include the death of the household head, or the jailing of a household member).

Figure 8.11: The severity of losses from shocks: 2005/06 and 2015/16



Source: Own calculations based on KIHBS 2005/06 and 2015/16.

The relative severity of agricultural shocks was very large for poor households according to both KIHBS 2005/06 and KIHBS 2015/16. The poorest quintile experienced losses that were almost 9 times greater than the richest quintile, relative to household consumption in 2005/06. This had reduced somewhat by 2015/16, but was still very high at about 6.5. The severity of losses from agricultural shocks for quintiles 2, 3 and 4 relative to quintile 5 were very similar in both datasets.

In contrast, the relative impact of economic shocks increased for the poorest quintile compared to the richest quintile. In 2005/06 losses for the bottom quintile were just under 4 times as severe as losses for the top quintile. This increased to almost 5.5 times in 2015/16. This result, combined with what was shown in Figure 8.6 suggests that even though poor households experienced fewer shocks in 2015/16 compared to ten years previously, the outcomes of the shocks that did occur were more severe in the later time period.

8.3.3 Coping strategies for dealing with shocks

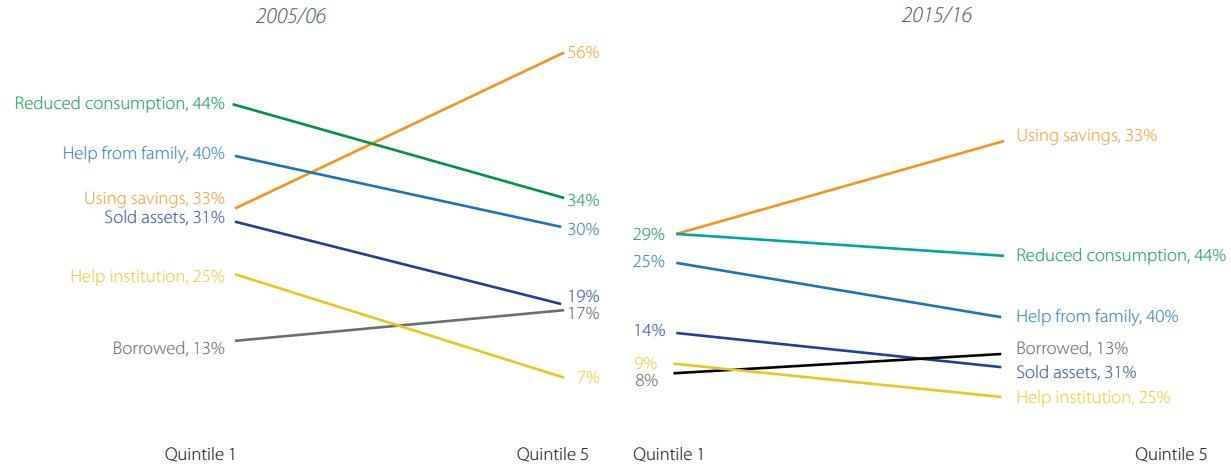
The ways that households respond to shocks may have implications for future wellbeing. For example, poor households may sell productive assets, reduce consumption, or withdraw children from school in response to a shock in order to meet immediate needs. This has important consequences for welfare dynamics in the future, and for whether a household becomes trapped in chronic poverty, or is able to transition out of poverty relatively quickly (Dercon 2004).

In both 2005/06 and 2015/16 the most common coping strategy used by the poorest quintile was to reduce consumption, while the most common coping strategy employed by the richest quintile was to use savings. Figure 8.12 shows that 44 percent of the poorest households reduced consumption as one way of coping with shocks, while 40 percent sought help from non-household family members in 2005/06.[231] Households in the richest quintile were far less likely to seek help from an institution in 2005/06 than households in the poorest quintile, though this difference had largely disappeared by 2015/16.

The proportion of households in the poorest quintile selling productive assets in response to shocks fell from 31 percent in KIHBS 2005/06 to 14 percent in KIHBS 2015/16. The richest households were far more likely to use savings as a coping mechanism than any other strategy. The proportion of households that borrowed money in order to help mitigate the negative effects of a shock was low in both time periods, with a small positive gradient over the consumption distribution.

[231] The figure shows all the strategies that households employed when faced with shocks. The patterns look very similar if only the main coping mechanism used by households is considered.

Figure 8.12: Coping mechanisms over the distribution of consumption: 2005/06 and 2015/16

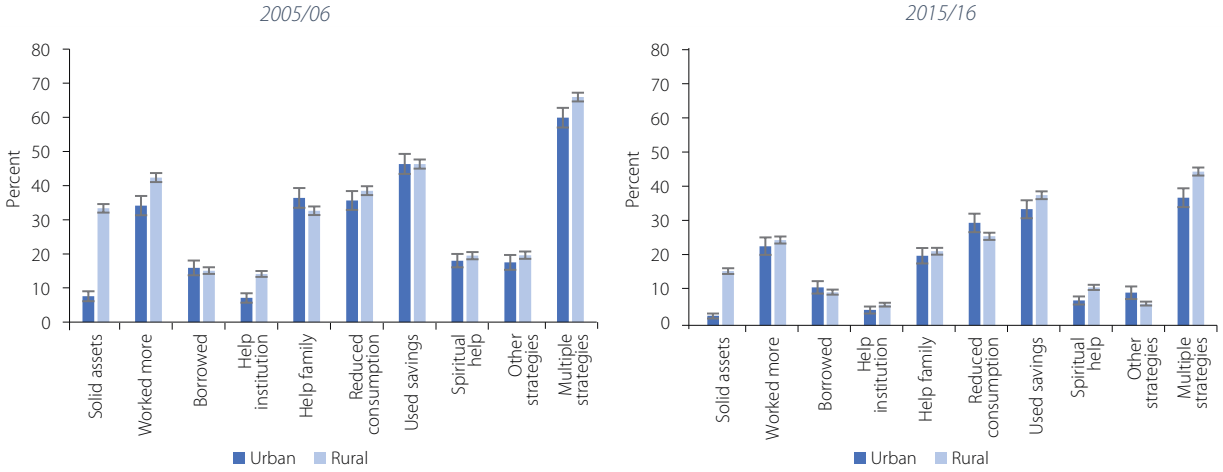


Source: Own calculations based on KIHBS 2005/06 and 2015/16.

Rural households were far more likely to sell assets in response to a shock than urban households were. As shown in Figure 8.13, this was the case in both surveys, though the overall use of the strategy was lower in 2015/16. This is in line with the previous figure showing that asset sales were more commonly used for the poorest households, given the relatively higher concentration of poverty in rural areas. Not only are rural households poorer and more vulnerable than urban households, but they are forced to deplete their assets more regularly as well. This suggests that there is possible scope for the introduction of some emergency cash programs which have the potential to offset some of the negative effects of shocks such as droughts and floods. Around one fifth of urban and rural households sought help from non-resident family members in 2015/16, while about one third used savings. In both 2005/06 and 2015/16 rural households were more likely to employ multiple coping strategies than urban households were.

The coping strategies used by rural households changed significantly between 2005/06 and 2015/16. Figure 8.14 restricts the analysis to rural households only, and shows how these households responded to agricultural shocks versus other shocks. There were some interesting changes between both KIHBS surveys. In 2005/06 rural households were more likely to take up additional work in response to an agricultural shock than to other kinds of shocks. In 2015/16 this situation had reversed. In contrast, in KIHBS 2005/06, about one third of rural households used savings to deal with

Figure 8.13: Coping strategies by urban-rural place of residence: 2005/06 and 2015/16



Source: Own calculations based on KIHBS 2005/06 and 2015/16.

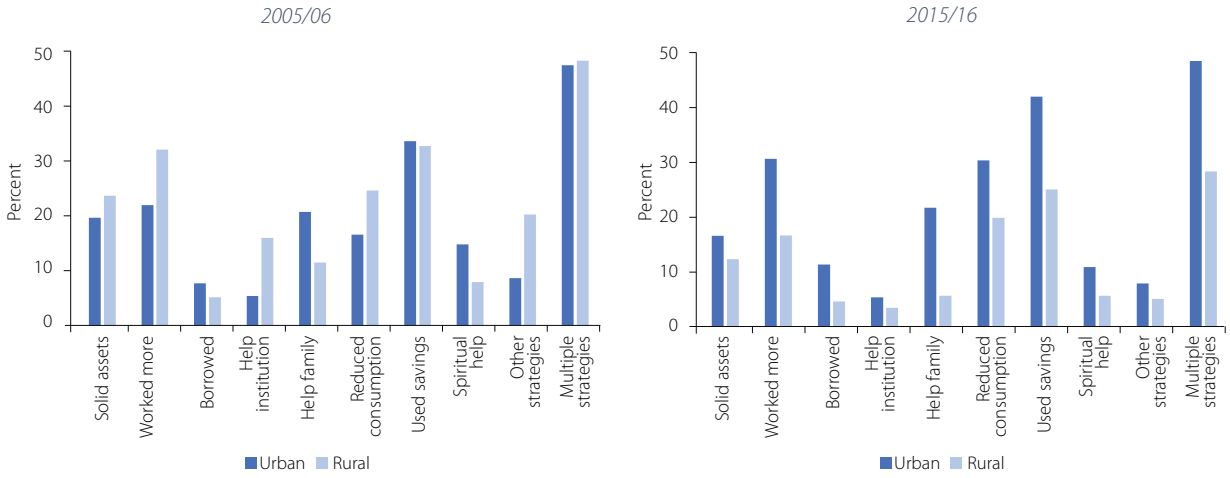
both agricultural and non-agricultural shocks. In KIHBS 2015/16 about 42 percent of rural households used savings as a mechanism to deal with non-agricultural shocks, but only about 26 percent responded to agricultural shocks with this strategy. Rural households were also far more likely to use multiple coping strategies to deal with non-agricultural shocks than they were to deal with agricultural shocks in 2015/16.

Poor households deplete productive assets more regularly than non-poor households in response to shocks. Table 8.2 shows a finer level of detail for the coping strategies employed by households than was the case in earlier figures. Differences between poor and non-poor households that are statistically significant at the 10 percent level and below are shown in bold. Consistent with the patterns in Figure 8.12, the non-poor were more likely to have used savings in an attempt to mitigate the negative effects of shocks. Non-poor households were also more likely to have started a business, and to have borrowed from a formal institution in response to shocks, but these two strategies were actually relatively rarely used in 2015/16. The most common kind of asset depletion for poor households came in the form of selling livestock. 13 percent of poor households used the sale of livestock as a coping strategy, compared to 9 percent of non-poor households. 20 percent of poor households reduced food consumption in response to the occurrence of a shock, compared to 16 percent of non-poor households.

The main form of borrowing in response to shocks was from relatives, and there was no difference in the probability of this strategy being used by poor versus non-poor households. There were very low levels of borrowing from formal institutions or from moneylenders, while around 7 percent of households borrowed from relatives. Around one fifth of both poor and non-poor households turned to non-resident family members for support following a shock. Table H.1 in the appendix presents coping strategies for agricultural shocks only, and shows that the non-poor were again more likely than the poor to use savings as a coping strategy. Selling animals was also still the main form of asset depletion for poor households. There were lower rates of borrowing in response to agricultural shocks compared to the non-agricultural shocks. Poor households reduced both food and non-food consumption with more regularity than non-poor households in response to agricultural shocks. Both the poor and the non-poor were quite a lot less likely to borrow from relatives after agricultural shocks compared to other shocks.

Although the percentage point differences between the kinds of coping mechanisms used by poor versus non-poor households are not particularly large, poor households are nevertheless more likely to use strategies that may have adverse dynamics implications for welfare. Social protection programs may reduce the use of these kinds of strategies, conditional on being well-targeted. The next section of this chapter investigates the coverage and impact of some of the main cash transfer programs in Kenya.

Figure 8.14: Coping strategies by shock type – Rural households only: 2005/06 and 2015/16



Source: Own calculations based on KIHBS 2005/06 and 2015/16.

Table 8.2: Coping strategies by poverty status: 2015/16

	All (%)	Poor (%)	Non-poor (%)	Difference
Used savings	36.5	32.2	38.3	***
Send children to relatives	0.9	1.1	0.9	
Sold assets	2.5	2.6	2.4	
Sold farmland	0.7	0.7	0.7	
Rented farmland	0.9	1.0	0.9	
Sold animals	10.5	13.4	9.3	***
Sold more crops	3.9	3.6	4.1	
Worked more	14.0	13.5	14.2	
HH member started work	1.0	1.5	0.9	**
Started business	4.7	2.4	5.6	***
Children worked	0.4	0.6	0.3	**
Migrated for work	4.4	3.8	4.6	
Borrowed from relative	7.2	7.4	7.1	
Borrowed from moneylender	1.9	1.6	2.0	
Borrowed from formal institution	1.5	0.5	1.9	***
Help from church	2.4	3.4	2.0	***
Help from local NGO	0.2	0.5	0.1	***
Help from Intl. NGO	1.0	1.9	0.7	***
Help from government	2.5	4.7	1.6	***
Help from family member	20.4	21.9	19.8	**
Reduced food consumption	17.4	20.3	16.1	***
Consumed less preferred food	11.2	10.7	11.4	
Reduced non-food consumption	16.3	16.8	16.0	
Spiritual help	9.9	9.6	10.0	
Other coping strategy	7.3	6.5	7.6	

Source: Own calculations based on KIHBS 2015/16.
*Note: *** p<0.01, ** p<0.05, * p<0.1.*

8.4 THE COVERAGE AND IMPACT OF SOCIAL PROTECTION PROGRAMS

8.4.1 Social protection systems in Kenya

Social protection systems help individuals and households cope with shocks, find jobs, improve productivity, invest in the health and education of their children, and protect the aging population. Social protection coverage is made up of several components which may include: social assistance through cash transfers to those who need them, especially children; benefits and support for people of working age in case of maternity, disability, work injury or for those without jobs; and pension coverage for the elderly. Assistance may be provided through contributory social insurance, tax-funded social benefits, social assistance services, public works programs and

other schemes guaranteeing basic income security (see, for example, World Bank 2015c). This section of the chapter has a narrower focus on social assistance programs that are defined as noncontributory benefits provided either in cash or in kind and intended to support the poor or vulnerable. Other components of social protection such as contributory social insurance (pensions and health insurance) are important pillars of social protection, but often play a less important role in the welfare of the poorest households in developing countries.

Social safety net programs may have transformational effects over time. Some programs are directly targeted towards mitigating the immediate negative impacts of shocks such as droughts, while others are aimed at changing structural characteristics (for example cash transfers that are conditional on children remaining in school). These programs help to increase the chances of households escaping poverty, and then remaining non-poor in the future. The pathways through which these programs affect outcomes include those at the individuals and household level, the local economy level, and the macro economy level (Alderman and Yemtsov 2012).

Unconditional cash transfer programs can be expected to reduce current and future poverty in at least two ways. First, the receipt of income transfers raises the disposable income of participant households and therefore alleviates consumption deficits. Second, under favorable conditions, regular and reliable transfers raise permanent household income leading to an increase in human capital investment thus raising the productivity of participant households (Barrientos 2013; Fiszbein and Schady 2009). These favorable conditions are inclusive growth and basic service provision.

Positive empirical evidence on the welfare effects of social protection programs has helped to spur strong support in these programs over the past decade. It is estimated that nearly one billion individuals in low- and middle-income countries are reached by antipoverty transfer programs (Barrientos 2013). In sub-Saharan Africa, 40 countries operated an unconditional cash transfer program in 2014, which is about twice as many as in 2010 (World Bank 2015c). Every African country has at least one social safety net program. The average number of programs per country on the continent is 16 – ranging from 2 in the Republic of Congo to 48 in Chad (World Bank, 2018).

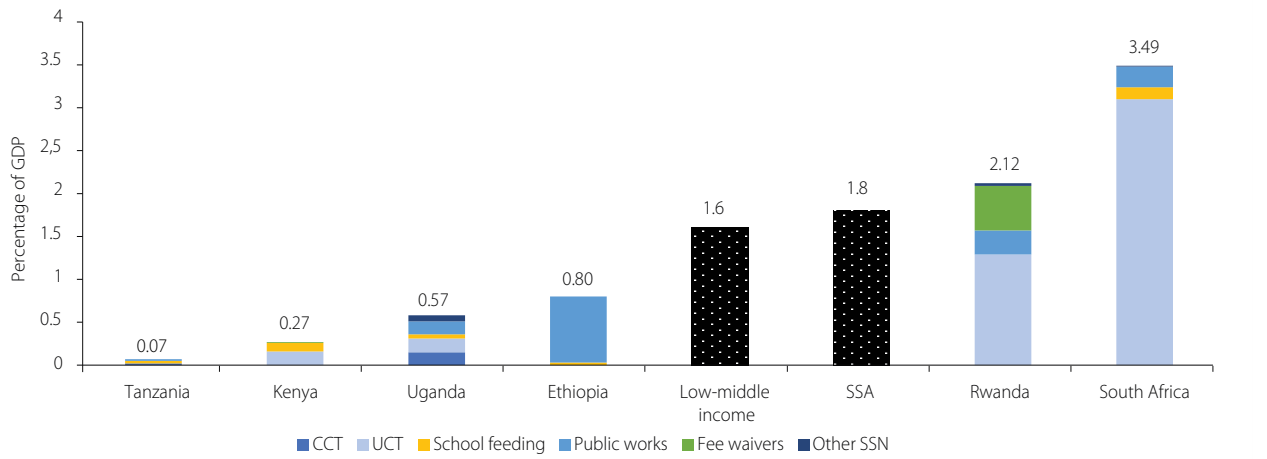
Even though the number of social safety net programs has increased significantly, their coverage is often limited and programs remain fragmented within countries. The combined coverage of programs in Africa is less than 10 percent of the population. As part of the effort to enhance the efficiency and coordination of safety net programs, many countries are strengthening coordination among programs, and are investing in shared systems to reduce the duplication of efforts and cost inefficiencies. Delivery platforms such as social registries, management information systems, and shared payment systems promote administrative cost savings and facilitate planning and coordination. Social registries are currently used in 23 countries and are being developed in an additional 13 countries on the continent (World Bank 2018c).

Kenya, like many other countries in sub-Saharan Africa, has expanded its social protection programs, but there is still a significant gap between coverage and needs. About 0.27 percent of the country's GDP was spent on social safety net programs in 2015.[232] This was well below the average of 1.6 percent of GDP in low- and middle-income countries, as shown in Figure 8.15. Of the benchmark countries shown in the figure, only Tanzania had a lower overall expenditure level in 2015. The majority of Kenya's spending on social safety nets was made up of unconditional cash transfers, with a smaller share going to school feeding schemes, and a very small amount being allocated to fee waiver programs.

There are currently four major public cash transfer programs in Kenya. These are detailed in Table 8.3 and include: Cash Transfer for OVC; OPCT Programme;

[232] This number excludes expenditure on unconditional food and in-kind assistance.

Figure 8.15: Expenditure on social safety nets: 2015



Source: The State of Social Safety Nets, World Bank 2015c.
Note: CCT=conditional cash transfer; UCT=unconditional cash transfer; SSN=social safety nets.

Table 8.3: Social Protection Programs in Kenya

	Core objectives	Amount	Targeting	Coverage
Cash Transfer for OVC	• Retention of OVC within families / communities • Human capital development • Civil registration	KSh 4,000 paid every two months	• PMT (Extremely poor; OVCs; HH not enrolled in another CT program)	National
OPCT Programme	• Poverty reduction among the elderly population	KSh 4,000 paid every two months	• 65 years and above • Poor and vulnerable • HH members not enrolled in other CT program, not receiving pension, not employed	National
Persons with Severe Disability Cash Transfer (PWSD)	• Strengthen capacities and livelihoods of households whose members have disabilities • Poverty reduction of households whose members have disabilities	KSh 4,000 paid every two months	• HH member with severe disability • Poor • HH members not enrolled in other CT program, not receiving pension, not employed	National
HSNP	• Reduce extreme hunger and vulnerability	KSh 5,400 paid every two months	• PMT (extremely poor) • Community-based targeting	Mandera, Marsabit, Turkana, Wajir.

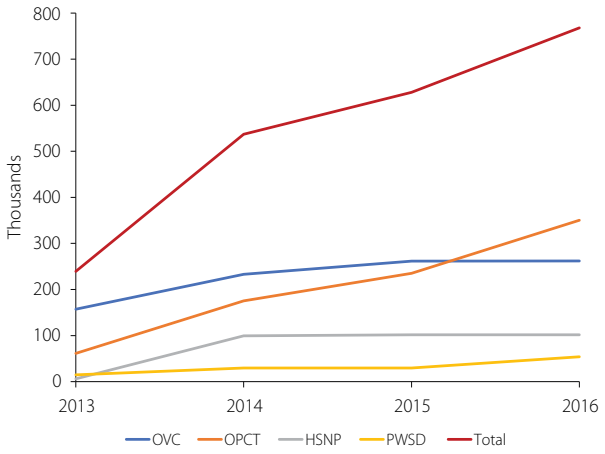
Persons with Severe Disability Cash Transfer; HSNP.[233] The fact that the programs were originally operated independently of one another by different departments and ministries led to a lack of coordination. In 2013, the Kenya NSNP was established as part of the government's initiatives to improve social protection delivery in the country. In particular, the NSNP was established to provide a common operating framework for the government's cash transfer programs. As part of efforts to develop a harmonized social safety net, the Social Protection Secretariat (SPS) unified the social assistance program information in a single registry. The objective of this single registry system is to consolidate information from the different cash transfer programs in a single platform.

[233] The Urban Food Subsidy program (UFS) is an additional public cash transfer program in the country, but is not included in this chapter. The program currently covers around 10 000 households in the Mombasa constituencies of Mvita, Likoni, Changamwe and Kisauni.

8.4.2 Coverage of the four main cash transfer programs

While the number of beneficiary households increased from about 240 000 in 2013 to almost 770 000 in 2016, coverage remains limited. This corresponds to a national coverage rate of these four programs of about 6.4 percent of households. The OPCT is currently the largest program in terms of household coverage, reaching approximately 350 000 households in 2016. This reflects significant growth from the coverage of about 50 000 households in 2013. Coverage of the OVC grew more slowly than the OPCT, and stood at around 260 000 households in 2016, making it the second largest program in terms of coverage. It is followed the HSNP and the PWSD which had 2016 coverage levels of 100 000 and 50 000 beneficiary households, respectively.

Figure 8.16: Number of households receiving cash transfers: 2013 to 2016



Source: Own calculations from Kenya's Single Registry for Social Protection.

If social assistance programs aim to alleviate poverty, then they should be targeted at poor households. An efficient program satisfactorily solves the trade-off between minimizing exclusion errors (poor households that are not beneficiaries) and inclusion errors (non-poor households that are beneficiaries). As discussed in the previous chapters, poverty is not evenly distributed within Kenya. Therefore, an efficient social safety net design would be expected to result in stronger program prevalence in regions with relatively higher poverty rates. This can be achieved by confining programs to regions with high levels of poverty, or by using eligibility criteria that disproportionally benefit poor household.

Households in counties in the Northern and Eastern parts of Kenya receive proportionally more assistance with respect to their population size. Figure 8.17 displays the spatial distribution of households benefitting from any of these programs in 2016. The map on the left shows the absolute number of beneficiary households per county, and the map on the right shows the relative share of households per county receiving transfers. Population shares for the second map were calculated using the county population numbers in KIHBS 2015/16.

The four counties in which the HSNP operates are also the four with the highest number of recipients of all assistance. According to the single registry dataset, over 57 000 households in Turkana were cash transfer beneficiaries. The corresponding numbers in Mandera, Wajir and Marsabit were 38 500, 30 300 and 29 800, respectively. The counties with the fewest absolute number of recipients were Lamu, Laikipia and Isiolo which all had coverage of under 7 000 households.

On average a little over 6 percent of Kenyan households received cash benefits from one of the four programs. However, the share of beneficiary households varies significantly across counties. Just under half of households in Marsabit were registered beneficiaries in 2016, 44 percent of households were beneficiaries in Wajir, 35 percent in Mandera, and just under one quarter in Turkana. Fewer than 3 percent of households in Nairobi and Mombasa were beneficiaries of one of the cash transfer programs. Almost 22 500 households in Nairobi were cash transfer beneficiaries, but its large population size meant that this translated into a very low coverage rate.[234] In general, as shown

[234] The share of female beneficiaries of the four cash transfer programs by county is shown in Figure H.3 in the appendix. Overall, 64 percent of registered beneficiaries in 2016 were female. This ranged from around three quarters of beneficiaries in Kwale, Vihiga, Kitui and Makueni, to 40 percent and 48 percent in Wajir and Marsabit, respectively. The average registered recipient was 57 years old, and this was driven up by the average age of OPCT recipients of 67 years old. The share of female-headed households receiving grants as measured in KIHBS 2015/16 is shown in the final row of Table 8.4.

in the second panel of Figure 8.17, the within-county coverage rates are highest in the north and east of the country, which is also where poverty rates are highest.

The distribution of OPCT beneficiary coverage is generally quite consistent at the county level, while OVC coverage rates are relatively higher in the eastern parts of Kenya. Figure 8.18 shows the disaggregated share of beneficiary households for each of the four transfer programs. OVC coverage is highest in Isiolo, at 9 percent of households, but is under 5 percent for 42 of the 47 counties. The variation in OPCT coverage rates is a little smaller than OVC coverage rates, though the difference in OPCT coverage between Samburu at 9.5 percent and Nairobi at 0.7 percent is considerable. The largest spatial variation is observed for the HSNP, which currently only operates in Turkana (16 percent), Marsabit (33 percent), Wajir (27 percent) and Mandera (20 percent).

Box 8.4: Findings from impact evaluations of the OVC and the HSNP programs

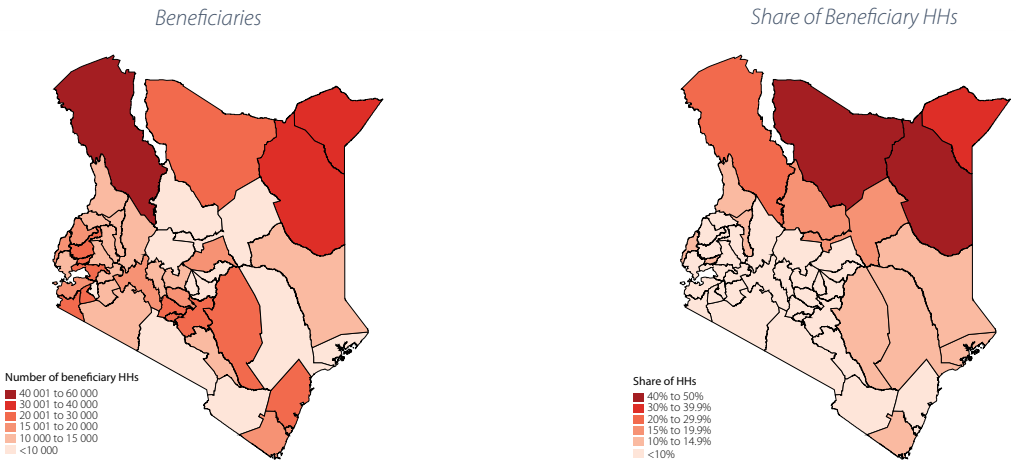
The utilization of RCTs for evaluation purposes has become a common feature in the implementation of cash transfer programs in Sub-Saharan Africa. If implemented appropriately, RCTs provide rigorous evaluation results with causal inference that can help to inform policy decisions. Yet, problems with the randomization of programs, changes in policy design, and attrition can contaminate the power of RCTs to produce reliable estimates. In Kenya, the OVC and the HSNP were quantitatively evaluated through RCTs, which has led to a substantial amount of empirical evidence on the effects of cash transfer programs.

The OVC was among the first public cash transfers in Sub-Saharan Africa that was formally approved after the evaluation of the pilot program between 2007 and 2009. In a baseline and a follow-up survey, 2 255 households were interviewed covering a broad range of welfare and human capital indicators. After two years of program implementation, the OVC transfer program was found to increase beneficiaries' consumption expenditures and to reduce poverty headcount levels by 13 percentage points. The program was also found to have increased food expenditure and food diversity, and to have had a positive impact on secondary school enrolment (Ward et al. 2010). In addition to the evaluation report, a number of academic research articles have used the OVC impact evaluation data to test program impacts on human capital (Kenya CT-OVC Evaluation Team 2012), health behavior (Handa et al. 2014), spill-over effects of cash transfers to non-beneficiaries (Thome et al. 2013), productive and labor market effects (Asfaw et al. 2014), and food security and coping strategies (Tiwari et al. 2016).

The HSNP was evaluated between 2009 and 2012 in three survey waves capturing the welfare and human capital developments of approximately 2 500 households (Merttens et al. 2013). The results indicate positive impacts of the program on reducing poverty and increasing consumption, particularly food consumption. There was also a positive impact on the number of livestock owned by recipient households. The program impacts were evaluated during an exceptionally severe drought, which suggests that transfers helped households to compensate for losses and prevented them from applying disruptive coping strategies in response to the drought such as sales of productive assets. The impacts on human capital were small (health expenditures) or absent (education and nutritional status of children). As both programs transferred a constant sum to all beneficiary households during the evaluation period, smaller and poorer households were found to experience more significant impacts in general.

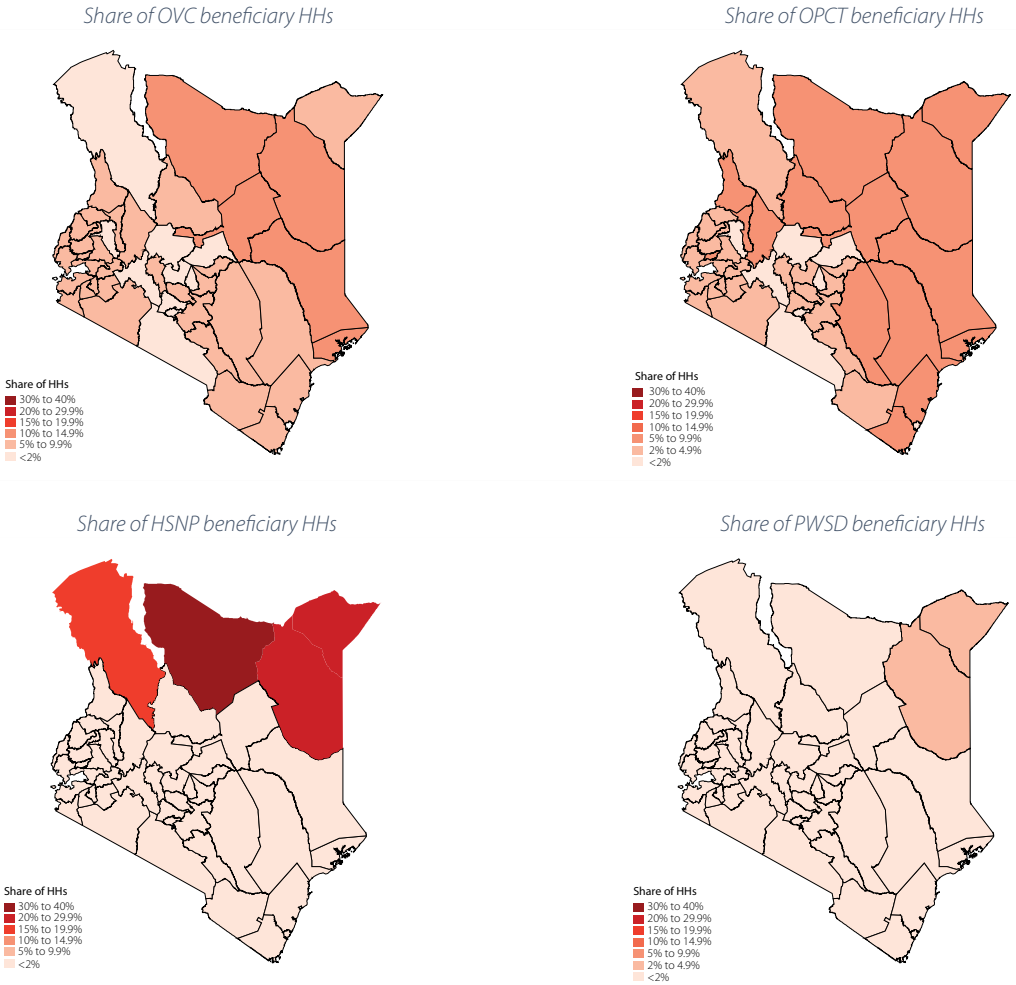
Despite these positive findings, it should be noted that the implementation of the evaluations was not problem-free, which could have implications for the validity of the findings. In both surveys, significant attrition rates may have affected the external validity of findings. In addition, program randomization was only implemented in a few districts (OVC), which leads to a lower power of estimates. In addition, the evaluation plan of the HSNP was not followed strictly, as eight sub-locations were excluded from the evaluation in the second follow up.

Figure 8.17: Coverage and share of beneficiaries by county: 2016



Source: Own calculations from Kenya's Single Registry for Social Protection and KIHBS 2015/16.

Figure 8.18: Share of beneficiary households by county and program: 2016

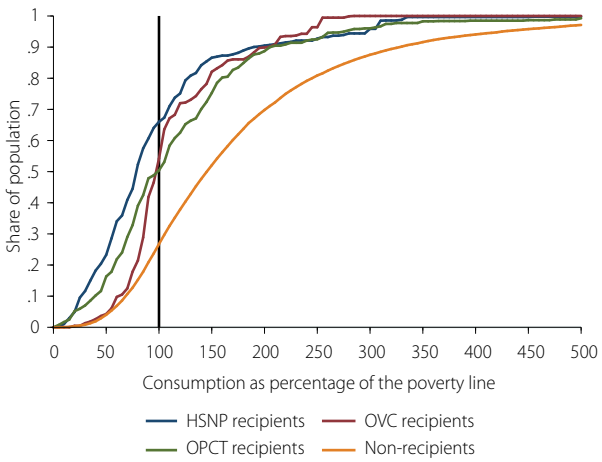


Source: Own calculations from Kenya's Single Registry for Social Protection and KIHBS 2015/16.
Note: the HSNP covers Turkana, Marsabit, Wajir and Mandera only.

8.4.3 A profile of cash transfer beneficiaries

Although coverage rates of the four main cash transfer programs are lower in KIHBS 2015/16 than in the single registry dataset, there is enough power to allow us to profile recipient households and to estimate the impacts of the transfers.[235] Figure 8.19 shows CDFs of consumption as a percentage of the poverty line for recipient households of the HSNP, OVC, OPCT, and non-recipients. Households receiving the HSNP are far poorer, on average than all other households in the figure. About 65 percent of HSNP-receiving households were below the poverty line, even after the cash transfer is taken into account. This is in contrast to a poverty rate of about 50 percent for households receiving the OPCT and households receiving the OVC transfer. The poverty rate for non-recipient households was about 25 percent, indicating that there are possibly large coverage gaps that could be addressed. The median recipient household has a consumption level that is at 88 percent of the poverty line, compared to the median poor household that is at 76 percent of the poverty line. This difference is largely driven by the fact that these welfare levels are inclusive of grant income.

Figure 8.19: CDFs of consumption by cash transfer program



Source: Own calculations from KIHBS 2015/16.

There are significant differences across a wide range of characteristics between beneficiary households, poor, non-beneficiary households, and non-poor non-beneficiary households. Simply comparing adult equivalent levels of consumption would give a somewhat misleading picture of the differences between these groups of households, in part, because as mentioned, this measure of welfare incorporates the receipt of the grant. Table 8.4 shows that there are striking differences in the kinds of activities these groups were engaged in, the levels of assets, and the educational attainment levels of household heads.

Households that received one of the four main cash transfers were more likely to be engaged primarily in agriculture than both poor and non-poor households that did not receive grants. 70 percent of beneficiary households were engaged in agriculture, while 22 percent were in services. This is less than half of the proportion of the non-poor, non-beneficiary households that were employed in services. Unsurprisingly, given the results that were presented previously in the chapter, the large majority of beneficiary households lived in rural areas (87 percent).

Beneficiary households have, on average, higher consumption expenditure levels than poor, non-beneficiary households, but have lower levels of asset accumulation. The difference in consumption levels is generated by the fact that household welfare is measured inclusive of grant receipt, and because 57 percent of beneficiary households are poor, whereas 100 percent of households in column 2 are poor. Focusing on adult equivalent consumption expenditure alone paints a misleading picture of the overall welfare of beneficiary households. One example of this is the fact that the asset index for beneficiary households is just over half of what it is for poor, non-beneficiary households, and less than a third of what it is for non-poor, non-beneficiary households.[236]

[235] Coverage of all four programs in the KIHBS 2015/16 dataset is about 2.2 percent of households in Kenya. This lower rate of coverage is unsurprising, given the geographic concentration of the programs compared to the sampling methodology of KIHBS, and given that the KIHBS weights are not stratified on grant receipt.

[236] The asset index used in this table is a share index which is calculated by first multiplying an indicator variable (for example: household owns a fridge) by the proportion of households that do not own the asset (for example: proportion of households that own a fridge). This ensures that less common assets receive a relatively higher weight in the index. These products are then summed over each component at the household level to generate the share index. The components of the index are: refrigerator, washing machine, microwave, kettle, computer, radio, bicycle, car, cellphone, television, sofa, and kerosene stove.

Table 8.4: Profile of beneficiary households versus non-beneficiary households (by poverty status)

		1 Beneficiary household	2 Poor, non-beneficiary household	3 Non-poor, non-beneficiary household	1 vs 2	1 vs 3
Household	**Employment Sector**					
	Agriculture	69.5%	56.4%	37.6%	***	***
	Manufacturing	6.4%	4.8%	6.7%		
	Services	22.1%	30.1%	48.5%	***	***
	Construction	2.0%	8.7%	7.2%	***	***
	Location					
	Rural	86.6%	72.1%	59.7%	***	***
	Welfare					
	Poor	57.3%	100%	0%	***	***
	AEQ consumption (KSh)	3 852	2 913	9 717	***	***
	Asset index	0.5	0.9	1.7	***	***
	Composition					
	Household size	4.9	5.2	3.5	***	***
	1 or more employed	22.6%	47.9%	53.9%	***	***
Household head	**Education**					
	No education	67.1%	25.5%	8.1%	***	***
	Primary education	26.0%	53.8%	42.6%	***	***
	Secondary education	6.2%	20.2%	42.1%	***	***
	Tertiary education	0.7%	0.4%	7.2%		***
	Gender					
	Female	54.5%	34.8%	30.9%	***	***

Source: Own calculations from KIHBS 2015/16.
*Note: *** p<0.01, ** p<0.05, * p<0.1.*

The limited connection to labor markets amongst beneficiary households is very clear. Only 23 percent of grant-receiving households had at least one resident member who was employed. This is in contrast to 48 percent in poor, non-beneficiary households, and 54 percent in non-poor, non-beneficiary households. Much of this difference is driven by the fact that households that receive the OPCT tend to be older, and contain more members who no longer work, or are unable to work. The average beneficiary household size was 4.9, and this was slightly lower than poor, non-beneficiary households. Both of these categories had significantly larger households than non-poor, non-beneficiary households (3.5 people, on average).

Another non-monetary dimension in which beneficiary households are far worse off than other households is in the educational attainment of the household head. More than two thirds of beneficiary households were headed by someone who reports not having completed any education. One quarter of these households have a head with primary education, and

Box 8.5: Evaluating the impacts of Kenya's cash transfer programs using cross-sectional data and propensity score matching

There is no experimental data contained in KIHBS 2015/16, and there are not repeated observations of the same individuals or households over time. As such, a suitable cross-sectional estimator needs to be found.

This chapter uses a propensity score matching (PSM) estimator to uncover the welfare effects of Kenya's cash transfer programs. There are three outcomes of interest: 1) Whether in households with school-aged members all of the children are enrolled in school, 2) Whether in households with school-aged members none of the children are working, 3) Whether a household is food secure. The two central assumptions that need to be met for this estimation strategy to be credible are the existence of unconfoundedness, given the propensity score (unobserved factors are not influencing selection), and that there is common support over the propensity scores for both beneficiary (treated) and non-beneficiary (control) households.

The average treatment effect on the treated (ATT) is defined using potential outcomes notation as follows:

$$ATT = E[(Y_{i1} - Y_{i0})|D_i = 1] = E[Y_{i1}|D_i = 1] - E[Y_{i0}|D_i = 1]$$

where D_i is the dummy variable indicating household beneficiary status, Y_{i1} is the outcome of interest for household i when $D_i = 1$, and Y_{i0} is the potential outcome of the same household had it not been a beneficiary of one of the grants.

The vector of observable characteristics contains a set of variables that influence both grant beneficiary status and household welfare, and are used to estimate an ATT in which $Y_{i0(D=1)}$ and $Y_{i1(D=1)}$ are equal, conditional on the propensity score $p(X_i)$:

$$ATT = E[Y_{i1}|D_i = 1, p(X_i)] - E[Y_{i0}|D_i = 0, p(X_i)]$$

In this chapter a lasso shooting algorithm is used to select the components of X_i by choosing the union of variables that are significant predictors of outcome and treatment. Once the propensity scores are obtained, the ATT is estimated using nearest neighbor matching, population weights, and robust Abadie- Imbens standard errors.

just 6 percent have a head who has a secondary level of education. Among poor, non-beneficiary households, one quarter have a head with no education, while a little over half have a head with a primary level of education. This is in stark contrast to non-poor, non-beneficiary households. Only 8 percent of these households have a head who reports having no education, while 43 percent have a primary education, 42 percent have a secondary education, and 7 percent have a tertiary education level.

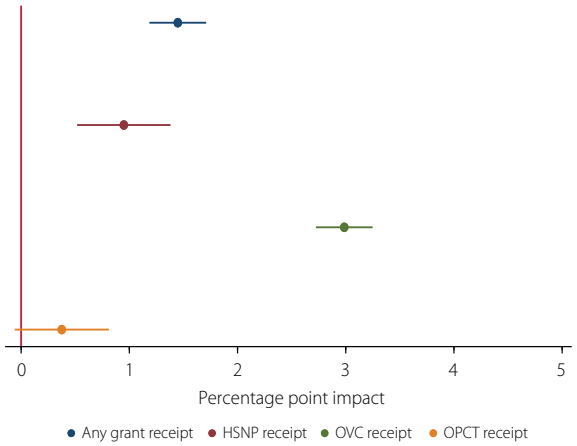
8.4.4 The impact of cash transfer receipt on household welfare

The next part of the chapter attempts to evaluate the impact of Kenya's cash transfer programs on a number of welfare outcomes. This exercise is not intended to be an exhaustive impact evaluation, given that the KIHBS 2015/16 is a single cross-section, and that assignment to grant beneficiary status is not random. As such, the results should be interpreted with care.

The cash transfer programs had a significant and positive impact on child enrolment, and this effect was particularly strong for the OVC grant. Figure 8.20 shows the PSM estimates of the effect that three of the four main cash transfer programs had on the probability that all school-aged children in the household were enrolled.[237] The sample used in the estimation of these results was restricted to households that contained children who were within the compulsory schooling age range of 6 to 14 years old.

[237] Effects of the PWSD cash transfer are not estimated due to the small number of households reporting having received this grant in the KIHBS 2015/16 data.

Figure 8.20: The impact of grant receipt on the probability that all school-aged children in the household are enrolled

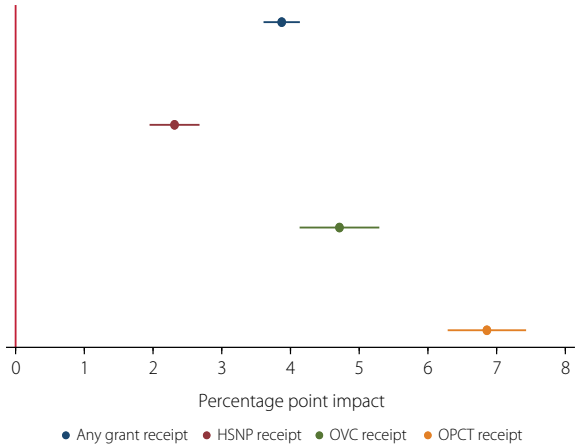


Source: Own calculations from KIHBS 2015/16.
Note: Households that were beneficiaries of one of the cash transfer programs were less likely to contain school- aged children who were working. The variable of interest in Figure 8.21 is the probability that no school-aged child in a household was reported to be working in the 2015/16 KIHBS. A positive effect in this framework corresponds to a higher likelihood that no child in the household is working.

93.5 percent of households containing school-aged children had all of those children enrolled in 2015/16. This enrolment rate is consistent with the findings that were presented in Chapter 6. Nevertheless, it appears that grant receipt was enough to increase these already high rates. The impact of a household being the beneficiary of any of the cash transfer programs was an increase in the probability of all children being enrolled of about 1.4 percentage points.[238] As expected, the program with the largest impact was the OVC cash transfer, which had a positive effect of 3 percentage points. The HSNP also had a small positive effect of around 1 percentage point, while the OPCT's effect was close to zero, with the 95 percent confidence interval including zero.

The unconditional proportion of households that did not contain a school-age child who was working was 87 percent. The positive impacts of the cash transfer programs in the figure therefore had a significant impact on increasing the probability that no child in the household was working. Once again, the overall impact of grant receipt lies in between the impacts of the individual programs, and stands at almost 4 percentage points. The other three cash transfer programs all had positive impacts that were statistically significant at the 1 percent level, with OPCT receipt having the largest effect on increasing the probability that no child in the household was working, or close to 7 percentage points.

Figure 8.21: The impact of grant receipt on the probability that no school-aged child in the household is working



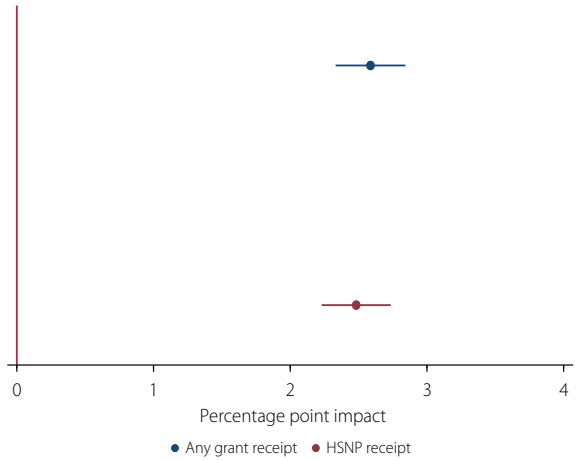
Source: Own calculations from KIHBS 2015/16.

The final outcome variable of interest is the probability that a household was food secure – with the HSNP reflecting a small but positive impact. The analysis underlying the results in Figure 8.22 is based only on data from the four counties in which the HSNP was operating.[239] The definition of food security used in this chapter is not based on caloric intake or on food expenditure, but is rather based on a number of self-reported food adequacy questions in the KIHBS 2015/16 household questionnaire. A household is defined as food insecure if, in the last 12 months before being interviewed, members missed meals because of a lack of money/resources, or the household ran out of food because of a lack of money/resources, or household members were hungry or did not eat at all because of a lack of money/resources, or any household members went without food for a whole day because of a lack of money/resources.

[238] The treated group in the "any grant receipt" results includes all households with school-aged children that received a cash transfer. The corresponding control group was all households with school-aged children that did not receive a cash transfer. For the program-specific effects (for example the OVC), the treated group was all households with school-aged children who received the OVC, and not any other cash transfer. The corresponding control group was all households with school-aged children that did not receive any cash transfer. Practically, this meant that households with school-aged children who received the HSNP, OPCT or PWSD cash transfers were excluded from the control group, in order to limit the confounding effects that these other programs may have had on the outcome variable. This logic was extended to the OPCT and HSNP effects as required.

[239] These are Turkana, Marsabit, Wajir and Mandera.

Figure 8.22: The impact of grant receipt on the probability that a household is food secure: HSNP counties only



Source: Own calculations from KIHBS 2015/16.

Households in the four HSNP-receiving counties have much lower rates of food security than the other 43 counties. In all of Kenya except for the four HSNP counties, 52 percent of households self-report that they are food secure, while the corresponding rate in the HSNP counties is only 14 percent. Given this extremely low level of food security, there is a moderately positive impact of the HSNP on food security in the four northern counties. On average, receipt of the HSNP increased the probability that a household would self-report as being food secure by about 2.5 percentage points.

Taken together, the results of this section of the chapter suggest that social assistance programs in Kenya are well targeted, and that they are having positive impacts on a number of measures. However, overall coverage remains low relative to existing needs. The effort that has been made to coordinate and harmonize social protection programs, combined with the creation of a registry of beneficiary households means that the country is well placed to expand assistance to vulnerable households, which would benefit greatly from this potential expansion.

APPENDICES

APPENDIX A: CHAPTER 1 ADDITIONAL MATERIALS

A.1. Tables

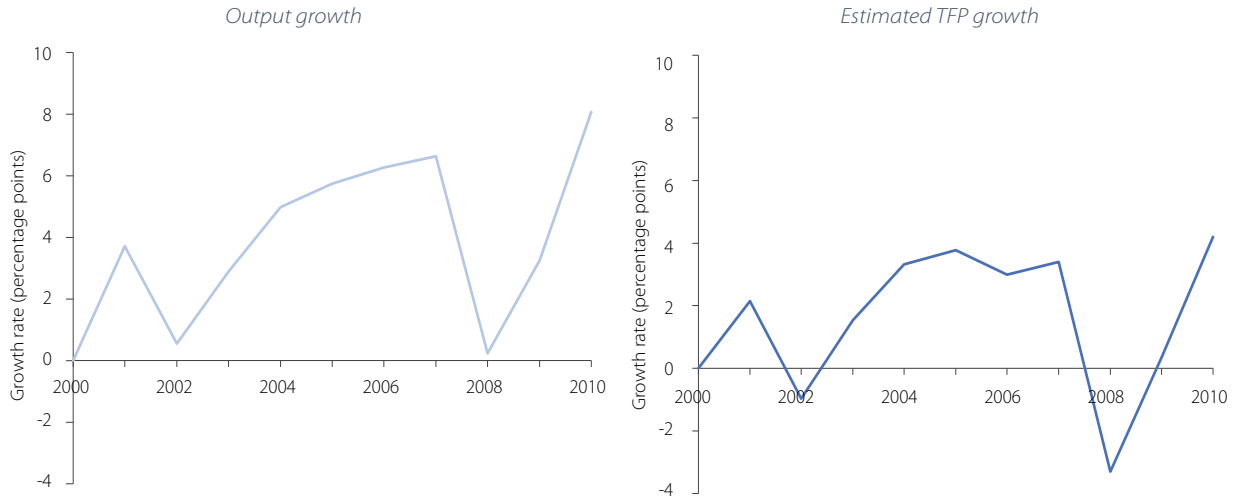
Table A.1: Poverty trajectory simulation, sectoral and non-sectoral growth

Year	GDP sectoral growth simulation			Overall GDP growth simulation		
	Poverty rate, US$1.20 a day	Poverty rate, US$1.90 a day	Poverty rate, US$3.20 a day	Poverty rate, US$1.20 a day	Poverty rate, US$1.90 a day	Poverty rate, US$3.20 a day
2005	21.0	43.7	69.2	21.0	43.7	69.2
2006	20.2	42.9	68.9	20.4	43.1	69.0
2007	18.9	41.8	68.5	19.0	42.1	68.6
2008	19.7	42.5	68.6	19.0	42.1	68.6
2009	20.0	42.7	68.5	18.7	41.6	68.4
2010	18.0	40.9	67.8	17.4	40.5	67.8
2011	17.2	40.3	67.4	16.5	39.6	67.3
2012	16.6	39.7	67.1	15.8	39.1	67.0
2013	15.5	38.8	66.7	14.9	38.4	66.7
2014	14.6	37.9	66.4	14.3	37.4	66.4
2015	13.6	36.9	65.9	13.6	36.7	66.1

Source: Author's calculations based on KIHBS.

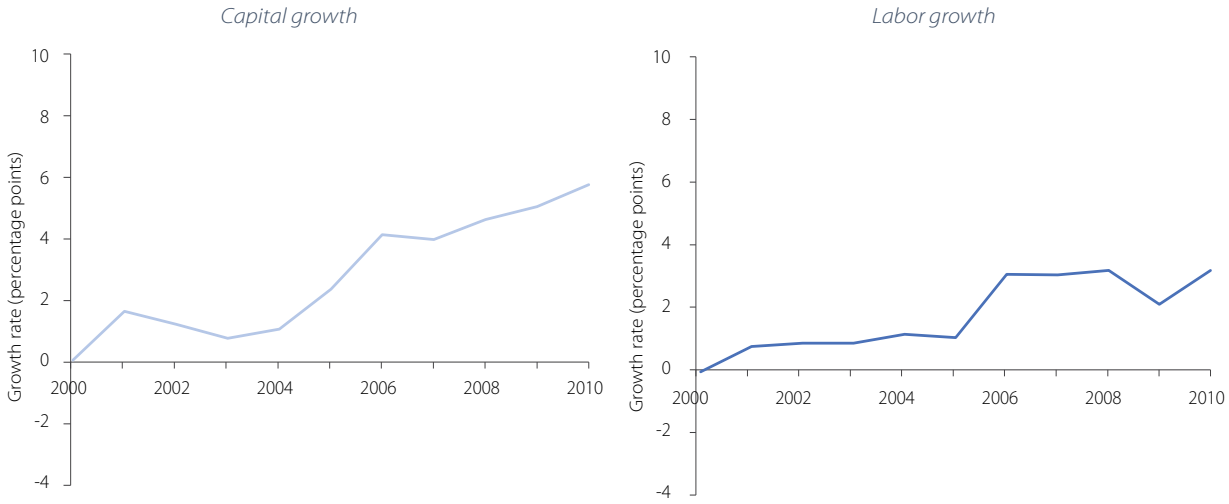
A.2. Drivers of growth – Diagnostic

Figure A.1: TFP growth was a key driver of GDP growth



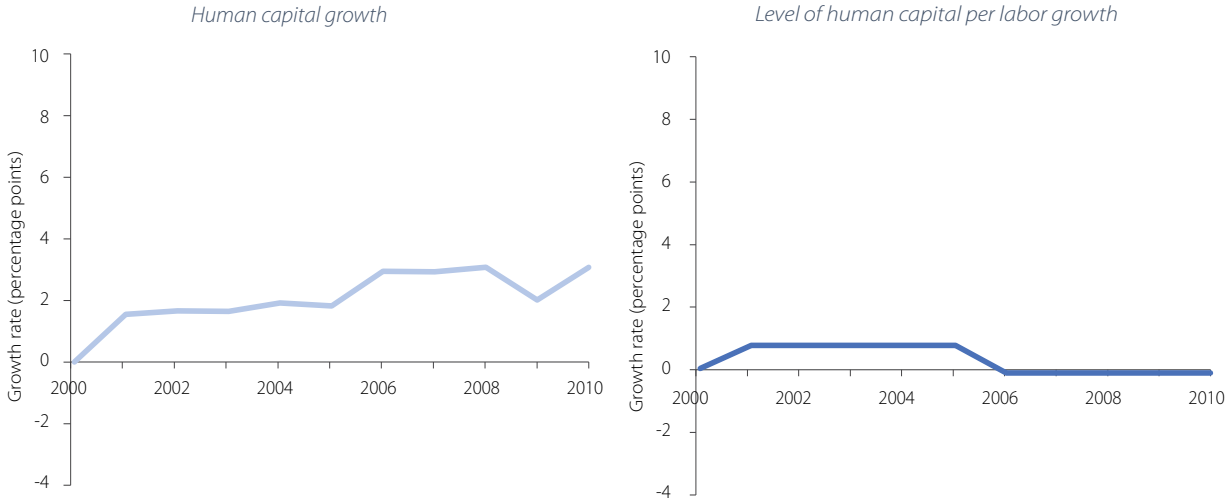
Source: KNBS and World Bank.

Figure A.2: As growth in capital accelerated, growth of labor moderated



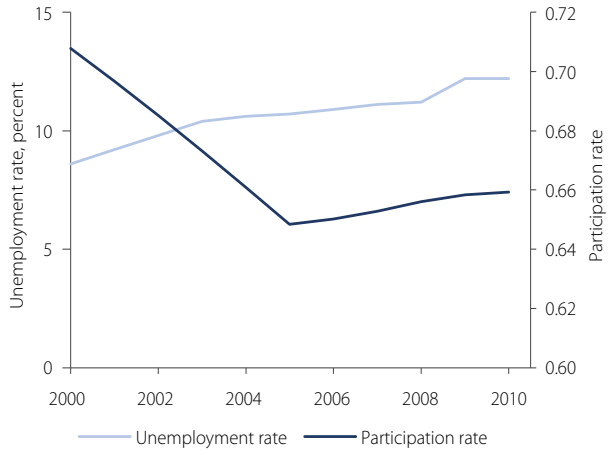
Source: KNBS and World Bank.

Figure A.3: Stagnating human capital growth resulted in a moderation of human capital per unit of labor



Source: KNBS and World Bank.

Figure A.4: The increase in labor force resulted in increasing unemployment and declining labor force participation



Source: KNBS and World Bank.

A.3. An analysis of devolution and fiscal transfers in Kenya

1. The context and legal framework of devolution

Kenya's transition to a devolved system of government began with the promulgation of the Constitution of Kenya (2010) on August 27, 2010. The Constitution created a new sub-national level of government including 47 counties, each with an elected governor, county executive, and county assembly. County governments are interdependent with the national government, which consists of the National Executive, Parliament, and Judiciary. Each county has a voice in the National Parliament through the Senate, an upper house that includes within its membership 47 directly elected county representatives, as well as within the National Assembly.

Powers granted by Chapter 11 of the Constitution give county governments the power to govern themselves, raise revenues, make local laws and elect local officials. The Constitution recognizes the right of communities to manage their own affairs, and gives powers of self-governance at a local level to enhance the participation of individuals in decision-making. County assemblies make laws necessary for the effective performance of the county government, and exercise oversight over the county executive. This constitutes a major reorganization of governance from the previous centrally-led government, giving counties significant autonomy over their local needs and service delivery priorities, while at the same time increasing local accountability. However, the national government continues to maintain a key policy and regulatory role.

The objectives of devolution are outlined in Article 174 of the Constitution. The key political objectives of the Constitution are the separation of power between national and county governments, and decentralization of state organs, while ensuring checks and balances for the accountable exercise of power. Further, the Constitution recognizes cultural diversity, and provides for the protection of minorities and marginalized groups. The economic objectives of the Constitution are autonomy and local participation in decision-making and public service delivery, while ensuring the equitable sharing of national resources.

Strong economic rationale underpins these objectives. Decentralization allows for improvement in service delivery through better preference matching, as local governments have an informational advantage over the national government in terms of local household preferences and demand for public services. As local governments internalize the costs and benefits of local public service provision, they improve the delivery of services. Additionally, citizens exercise better control over their locally elected representatives, whom they are better able to identify and hold accountable through elections.

Under Kenya's devolved government, key functions were transferred from the national to county governments through the fourth schedule of the constitution. Amongst the key functions transferred to county governments are agriculture, county health services, provision of county transport services, pre-primary education, water and sanitation, control of pollution and conservation of the environment, and development of trade. A transition authority was established to transfer functions from the national to county governments, with the transfer beginning in February 2013.

Under Article 187 of the Constitution, arrangements have been put in place to provide resources necessary for county governments to perform devolved functions. The Constitution provides that if a function or power is transferred from a government at one level to a government at another level, then arrangements shall be put in place to ensure that the resources necessary for the performance of the function or exercise of the power are transferred in line with the "finance follows function" principle. The Constitution provides for a minimum unconditional transfer of 15 percent of shareable revenues to counties, and the allocation of these revenues across counties is determined by a revenue allocation formula.

Additionally, regulatory and intergovernmental bodies have been established to ensure oversight over devolution. Amongst key bodies created is the CRA and the Office of the Controller of Budget (OCOB). The CRA is mandated to make recommendations on the basis for sharing of revenues between the national government and county governments, as well as the equitable sharing of revenues across county governments, while the OCOB is established to oversee and report on implementation of the budgets of both the national and county governments. Intergovernmental economic and technical committees are also established with key oversight roles across levels of government.

Despite its attractive features, devolution can worsen economic outcomes. The provision of public services may be dependent on economies of scale, whereas devolution to small-scale local governments can increase costs and lower efficiency. Further, functions that have externalities across multiple counties may result in inefficient allocation of resources when devolved, and therefore are better executed at the national level. In addition, devolution can obstruct the redistribution role of the central government.

II. Historical background of devolution

Elections in 2013 marked the official launch of devolution with the selection of county officials, and the national senate. This was a complex undertaking that included election of the president, national assembly, the senate, women's representatives, governors, and county assemblies. The transition to a devolved system of government was guided by the Taskforce on Devolved Government, which was established after promulgation of the Constitution and guided the formulation of devolution laws. Subsequently, key devolution laws were enacted, county government structures were operationalized, and functions and resources were allocated to county governments.

The devolution program timeline was accelerated faster than originally envisaged under intense bargaining amongst stakeholders. The first transfer of functions was performed in February 2013, where a suite of functions formerly performed by former local authorities were transferred to the counties. However, the originally envisaged three-year period of transfer, during which functions were to be transferred to counties in line with growth of capacity, was truncated. The first full year of the revenue- sharing cycle was completed in 2013/14.

The rapid pace of devolution brought with it implementation challenges due to capacity constraints and coordination difficulties amongst different levels of government. An insufficient policy and legal framework to guide the implementation of the constitution resulted in slow implementation. Additionally, an unclear unbundling of devolved functions resulted in gaps in service provision in some cases, and in duplication of efforts in other cases. Further, insufficient human capital was a major constraint in the provision of services, extenuated by the major transitional challenge in reorganization of the existing civil service to the new government structure. Citizens were also ill-informed about their ability to participate and contribute to local governance, and existing legislation was weak and ineffective in promoting public participation.

In their first full year of financing, county governments received funding from transfers and own-source revenues. In the first full year of funding, an equitable share of KSh 190 billion was transferred to county governments, in addition to an equalization fund allocation of KSh 4.3 billion.[1] This represented 21 percent of shareable government revenues during the year. An additional total of KSh 16.6 billion was also transferred in donor-funded conditional grants. Own-source revenues during the year were KSh 26 billion.

[1] The Equalization Fund was officially launched in March 2016, to allow establishment of the Fund's guidelines and administrative structures. Prior to this date there was no disbursement, and allocations were deposited in an account held with the Central Bank of Kenya.

Across counties, the horizontal sharing of revenues was guided by a formula that included parameters that were a proxy for the cost of service delivery (population and land area), fixed administrative costs (basic equal share), and poverty (the poverty gap). Nairobi received the highest horizontal allocation (KSh 9.5 billion), while Lamu received the lowest allocation (KSh 1.5 billion).

The formulae for the equitable allocation of resources amongst county governments, as well as the vertical division of revenues between the national and county governments, have subsequently been revised as mandated by the Constitution. The first revision of criteria for both horizontal and vertical sharing of revenues was mandated after three years, occurring in 2015. The revision of the horizontal criteria did not include major changes, with the inclusion of a development factor and adjustment of weights to existing parameters. Subsequent revisions are mandated every three years for the vertical criteria and every five years for the horizontal criteria.

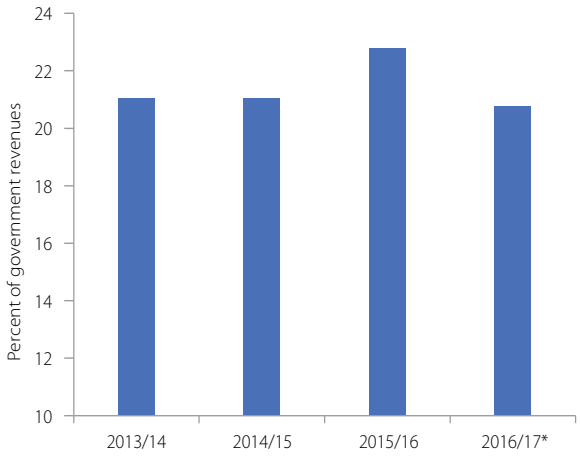
III. Performance of devolution in Kenya

Fiscal transfers to county governments have occurred more rapidly than envisaged under the Constitution. Transfers in 2013/14 amounted to 21 percent of ordinary government revenues, 6 percentage points higher than the mandated minimum of 15 percent of shareable government revenues. In subsequent years, transfers have all maintained a level above 20 percent of annual government revenues (Figure A.5).[2]

The equalization formula has had the intended effect, with under-developed regions of the country receiving significant allocations. Turkana, which has the highest poverty rate in Kenya (79.4 percent) had an equitable share allocation of KSh 11 billion in 2016/17, which is second only to the allocation to Nairobi.[3]Mandera, which has the second-highest poverty rate (77.6 percent) also has a significant allocation of KSh 9.7 billion, which ranked fourth in the country as of 2016/17. Allocation of these funds is expected to have a significant impact on service delivery and living standards.

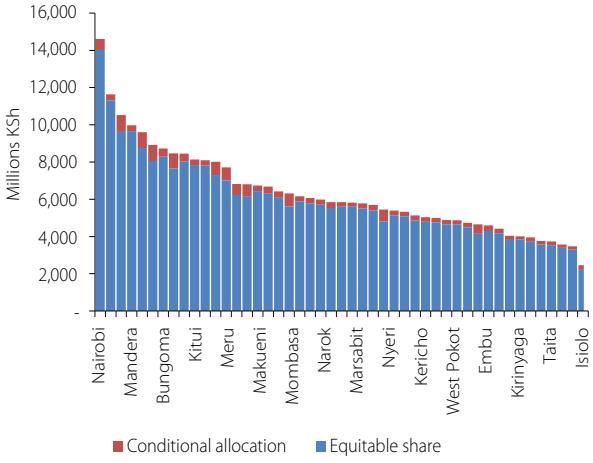
Further, the Equalization Fund has provided additional transfers to marginalized areas. The marginalization policy created a county development index, which was a composite index constructed from indicators measuring health care, education, infrastructure and poverty within a county.

Figure A.5: County allocation of ordinary government revenues



Source: National Treasury, CRA.

Figure A.6: Transfers to county governments, 2016–17

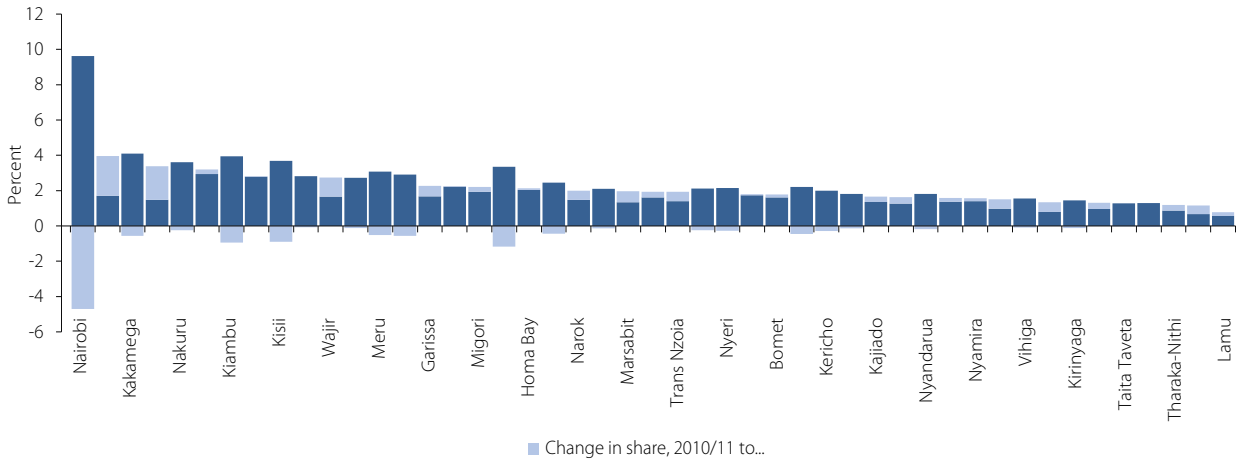


Source: OCOB.

[2] This calculation is based on current year ordinary government revenues. The Constitution mandates a base of last audited government revenues. As a percentage of audited government revenues, transfers have maintained a level above 30 percent of total government revenues.

[3] While Nairobi still as the highest allocation, its share decreased by 4.7 percentage points between 2010/11 and 2013/14.

Figure A.7: Share of transfers to counties



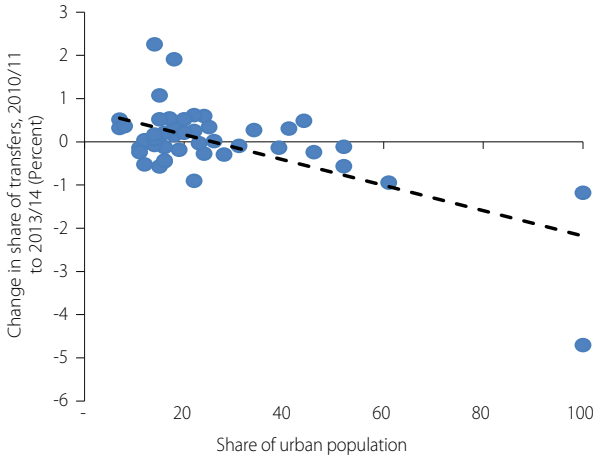
Source: CRA, OCOB.

Additionally, the index was complemented with an analysis on historical and legislative discrimination. Based on the index, fourteen counties were identified as marginalized, which were concentrated in northern and eastern parts of the country.

However, the redistribution of revenues has led to a relative shift in resources away from urban areas. Areas with high shares of rural population are receiving higher transfers (Figure A.8), and in turn are allocating a higher share of resources to development expenditure, which should stimulate regional growth and lead to economic convergence over time (Figure A.9). Lower transfers to highly urbanized areas are an incentive to grow own-source revenues from already established revenue bases, although the reallocation of transfers can have the adverse effect of lowering the quality of service delivery. For example, development expenditures in Nairobi and Nakuru are less than 20 percent of total expenditures, whereas development expenditures in Turkana and Mandera are above 50 percent of total expenditures.

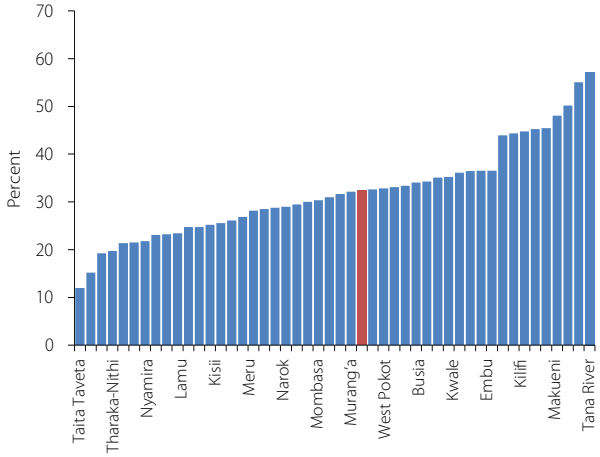
Moreover, absorption rates of transfers vary significantly across counties. Initially low absorption rates[4] of development budgets have shown a trend of improvement over time, while absorption rates of recurrent budgets have remained consistently high

Figure A.8: Change in allocation of transfers by share of urban population



Source: CRA, OCOB.

Figure A.9: Development expenditure share of total expenditure



Source: OCOB.

[4] Absorption rates are defined as the ratio of actual expenditures relative to approved budget amounts.

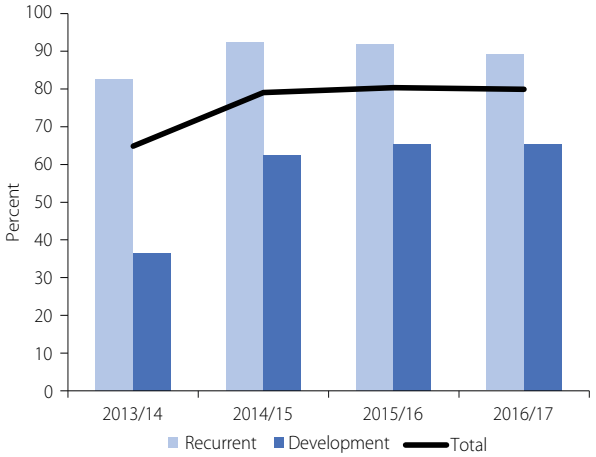
(Figure A.10) Low development budget absorption rates were the result of an array of factors, including low technical and implementation capacity, unrealistic budgeting and delays in the transfer of funds relative to expected schedules.

Additionally, recurrent expenditure accounts for over two-thirds of total expenditure, with the largest share of recurrent expenditure accounted for by personnel costs. Wages account on average for over 60 percent of recurrent expenditure in counties (Figure A.11) with some counties reaching levels as high as three-quarters of their recurrent spending on wages. Additionally, counties have grown their wage bills on average by 19 percent annually between 2013 and 2017, with Nyamira and Turkana growing wages by as much as 70 percent and 90 percent per annum over this period (Figure A.13) . While significant wage bill growth is indicative of increasing capacity, such rapid increases may lead to crowding out of development projects.

Own-source revenues have not increased substantially with devolution. County own-source revenues as a share of actual expenditures show a decreasing trend over time (Figure A.12), thereby indicating an increase in the dependence of counties on transfers to finance county activities. Own-source revenue collections vary significantly across counties, reflecting in part the priorities of the previous government structure: Nairobi finances 44 percent of its expenditures with own revenues, while West Pokot, Turkana, Garissa, Wajir, Tana River and Mandera are able to finance less than 2 percent of their expenditures with own-source revenues (Figure A.14). There is also a wide disparity in the capacity of counties to raise own revenues, with seven counties showing a decrease in average own revenue collections since 2013/14 (Figure A.15).

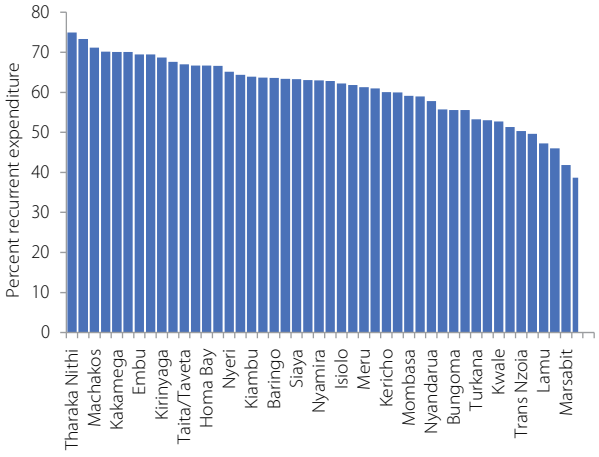
Devolution provides favorable conditions to improve public service delivery outcomes. Trends in public service delivery outcomes have improved over the last ten years, with access to better water and sanitation facilities, electricity and education and health facilities. Additionally, the overall poverty rate in the country has decreased by 9.8 percentage points, from 45.9 percent in 2005 to 36.1 percent in 2015. Local decision-making in a devolved government gives counties a foundation to better living standards of households across the country.

Figure A.10: Absorption rates of county budgets



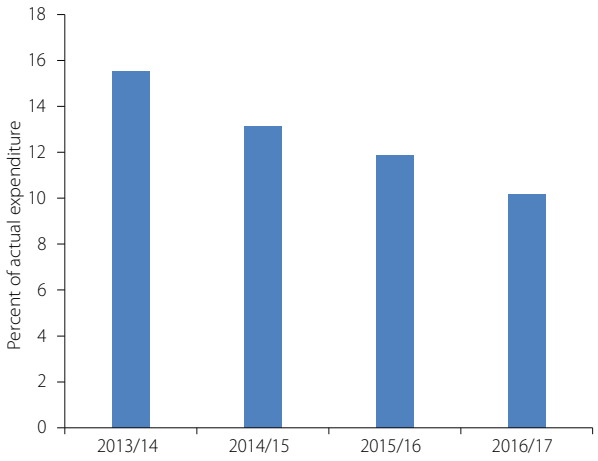
Source: OCOB.

Figure A.11: Personnel costs by county



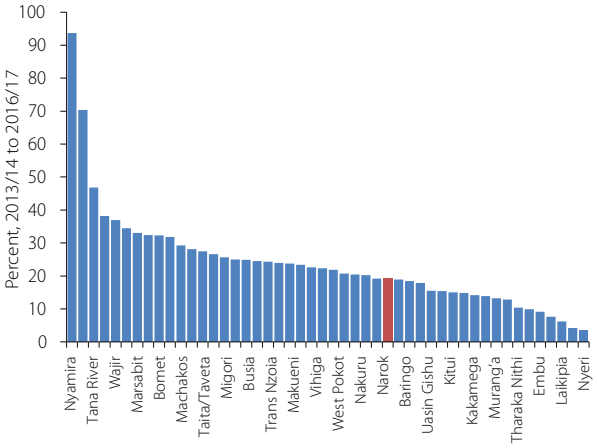
Source: OCOB.

Figure A.12: Share of county own revenues



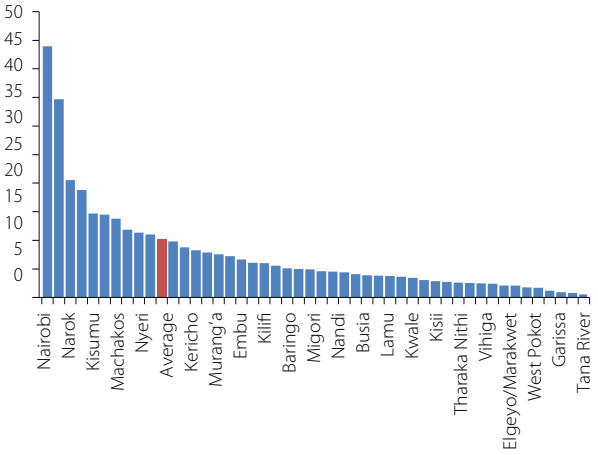
Source: OCOB.

Figure A.13: Cumulative annual growth rate of personnel costs



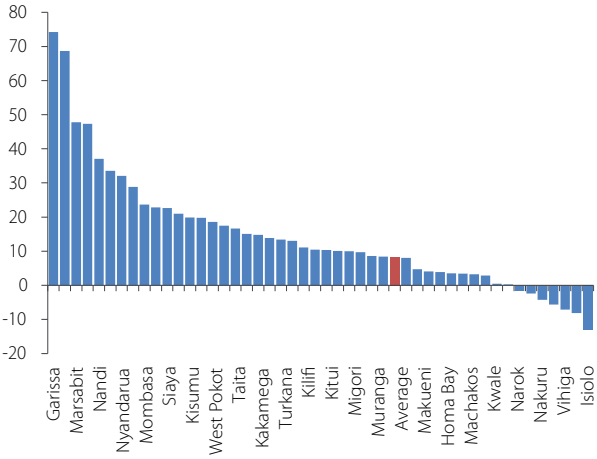
Source: OCOB.

Figure A.14: Own revenues as a share of actual county expenditure



Source: OCOB.

Figure A.15: Average annual increase in own-source revenues



Source: OCOB.

IV. International perspectives on fiscal transfers

International principles on fiscal transfers reflect fiscal need, capacity and effort. These principles support the view that needs vary across different segments of society, and that those with greater needs should receive greater support. Further, the provision of public services should be adjusted for the capacity of different parts of a country to generate their own revenues, either through their natural endowments of resources, or their ability to leverage existing infrastructure. Also importantly, rewarding subnational governments based on their efficiency creates incentives for better performance while reducing the potential for moral hazard problems.

Kenya's horizontal revenue sharing formula places an emphasis on fiscal need. The formula for the horizontal sharing of revenues includes six parameters: a basic share (26 percent), population (45 percent), land area (8 percent), poverty index (26 percent), fiscal responsibility (2 percent) and a development factor (1 percent). Population has the largest weight and is a proxy for the expenditure needs of a given county. Additionally, land area accounts for higher costs associated with delivering services to larger geographical areas. The basic share accounts for the fixed costs of running county governments, which are assumed to be similar to some extent across all county governments. The poverty gap and development factor reinforce the redistributive elements of the formula.

Similar to Kenya's approach, South Africa's revenue sharing formula also places an emphasis on fiscal need. South Africa's formula includes six components, namely: education (48 percent), health (27 percent), a basic component (16 percent), an institutional component (5 percent), poverty (3 percent) and economic output (1 percent). Analogous to Kenya, the basic component is distributed based on each province's share of the national population, while the institutional component is divided equally amongst provinces.

South Africa measurement of needs takes a sectoral approach. The education and health components account for 75 percent of total allocations, and implicitly reflect government priorities. Further, these components use parameters that measure the actual cost of delivering services in each respective sector: the education component uses the school-age population and school enrolment rate, while the health component uses a risk-adjusted capitation index and the number of visits to primary health care clinics.

However, Kenya's approach proxies fiscal need with population and land area. Taken together, population and land area account for 53 percent of horizontal transfers, a weight more than three times that assigned to South Africa's basic population-based component. The share of South Africa's equally distributed institutional component is also significantly smaller than Kenya's basic share.

India's revenue sharing formula places an emphasis on fiscal capacity, in contrast to Kenya which does not consider fiscal capacity. Parameters included in the India formula are population (17.5 percent), income distance (50 percent), land area (15 percent), demographic change (10 percent) and forest cover (7.5 percent). The highest weight is attributed to fiscal capacity in terms of income distance, which is measured by the shortfall between actual per capita income of a state compared with the state with the highest per capita income.

The emphasis of India's formula has changed over time. Population, land area and fiscal capacity have consistently been maintained in India's revenue-sharing formula, while other factors such as tax effort, infrastructure index, fiscal discipline, demographic change and forest cover have been implemented in different formulas based on the recommendations of India's Finance Commissions.

Fiscal effort is accounted for in Kenya with a fiscal responsibility factor. The fiscal responsibility parameter is meant to reward implementation of sound economic and budgetary practices. This is similar to the fiscal discipline factor in India's formula, which was implemented in recommendations between the Eleventh and Thirteenth Finance Commissions.

V. Looking forward: Opportunities and challenges

Devolution has been a complex endeavor, which has occurred at a rapid pace. While significant progress has been made, challenges to implementation remain. Key forward-looking opportunities include:

i) **Continued improvement of capacity within counties.** While counties have shown substantial progress in improving capacity, gaps remain in county human capital, infrastructure, processes (including budgeting and absorption) and coordination. Closing these gaps presents a significant opportunity for counties to improve efficiency and deliver higher quality public services to households.

ii) **Increasing own-source revenues and lowering dependence on transfers.** Own-source revenue collections remain low, and vary significantly across counties. Counties have an opportunity to increase revenues by widening local tax bases and increasing tax effort. Common and generally accepted sources of subnational revenues include property taxation, fees and charges, licenses, some types of business taxation, motor vehicle taxes and licenses and business or sales taxes.[5]

[5] See Smoke 2012.

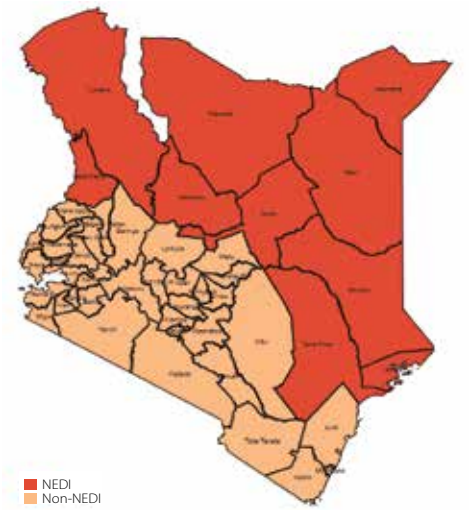
iii) **Review of criteria for the horizontal sharing of revenues.** International comparisons show that population and land area, which account for over half the share of horizontal transfers in Kenya and which proxy the costs of service delivery, are also used in other countries with varying weights. However, there are also key differences in approaches, such as the sectoral approach in South Africa where the costs of service delivery are measured more directly within priority decentralized sectors, or in India where priority is given to fiscal capacity.

Managing wage bills. Wage bills comprise a significant share of county recurrent costs, and are growing significantly. Managing rising wage costs prudently will lower the risks of increasing recurrent expenditures crowding out public investment.

APPENDIX B: CHAPTER 2 ADDITIONAL MATERIALS

B.1. Map of NEDI counties

Figure B.1: Map of NEDI counties



Source: World Bank.

B.2. Characteristics of peri-urban households

Peri-urban clusters have a population density much closer to that of rural clusters. The median population density of the clusters classified as peri-urban in the KIHBS 2015/16 survey in the 2009 Population Census was 537 individuals per square kilometer. This number is much closer to the median population density of the clusters classified as rural in the KIHBS 2015/16 (297 individuals per square kilometer) than to that of urban clusters, at 8,235 people per square kilometer. The distribution of the natural log of population densities also displays a similar trend (Figure B.2).

Moreover, for both peri-urban and rural households the most popular occupational sector of household heads is agriculture. Figure B.3 below shows the employment sector of the household head, 43.3 percent of peri-urban household heads are engaged in agriculture as are 64.1 percent of rural household heads, yet this number is only 6.0 percent for those living in core urban areas.

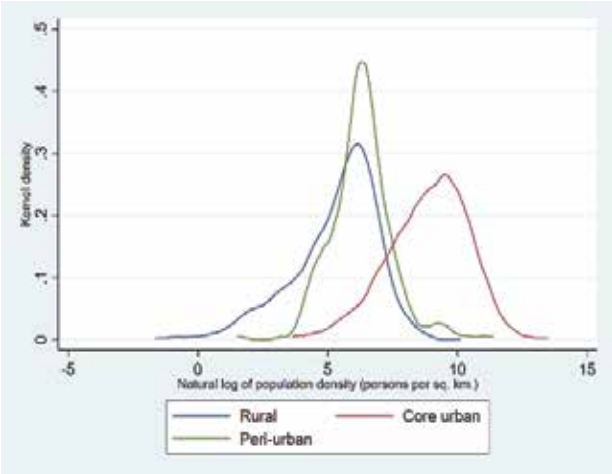
Moreover, the proportion of food consumption that comes from own production for peri-urban households resembles that of rural households. Given the high proportion of household heads working in agriculture for peri-urban households, it is not surprising that roughly one fifth of the value of food consumption comes from own production. For rural households, the same figure is around 27.8 percent, whereas only 2.5 percent of food consumption in core urban households is obtained through own production (Figure B.4).

Table B.1: Sampling framework

	Rural	Peri-urban	Core urban
Number of clusters	1,386	282	694
Mean population density (persons per sq. km.)	520	1,507	19,032
Median population density (persons per sq. km.)	297	537	8,235

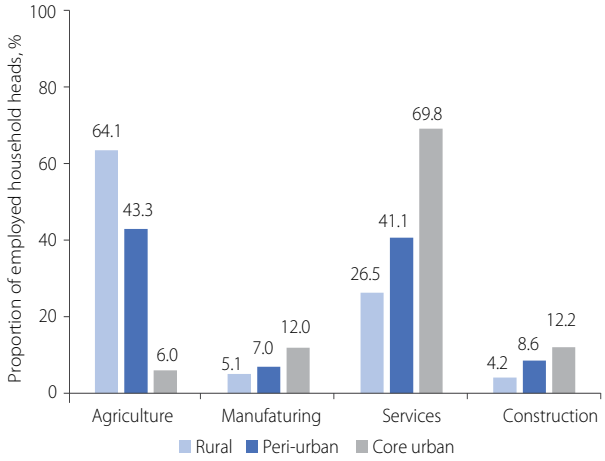
Source: Author's calculations based on KIHBS.

Figure B.2: Distribution of the log of population density by cluster type



Source: 2009 Kenya Population Census.

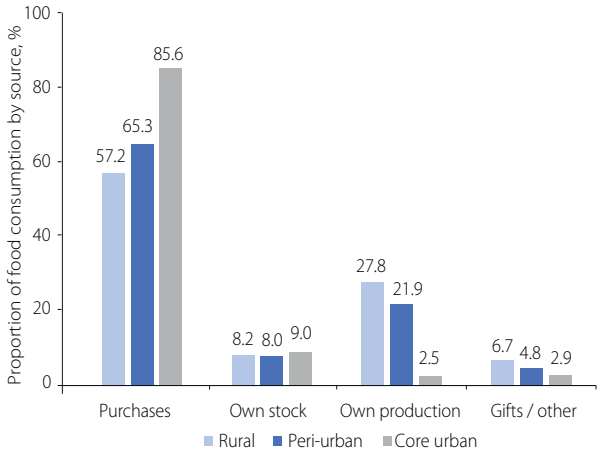
Figure B.3: Occupational sector of household head by area of residence



Source: Own calculations based on KIHBS 2015/16

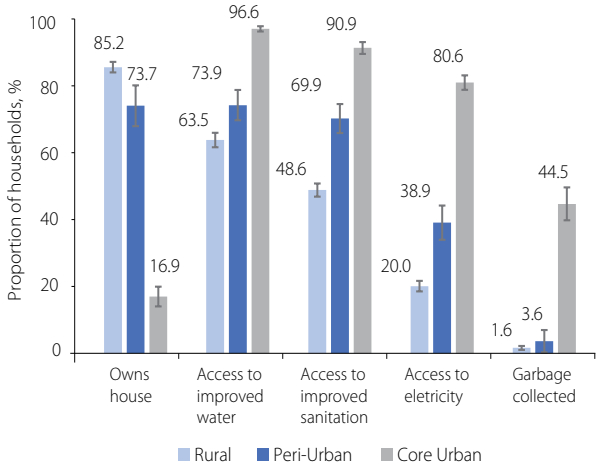
Peri-urban housing characteristics resemble those of rural households rather than those of core urban households. The vast majority of peri-urban and rural households own their dwellings, compared to only one in 6 core urban households. Similarly, core urban households have a significantly higher level of access to services and infrastructure (such as water, sanitation, and waste management) than their rural and peri-urban counterparts. More than 80 percent of core urban households have access to electricity, whereas this number is less 40 percent in peri-urban urban areas and 20 percent for households in rural areas (Figure B.5). As can be seen, the conditions of peri-urban households resemble those of rural households, particularly when compared to those of core urban households.

Figure B.4: Source of food consumption by area of residence



Source: Own calculations based on KIHBS 2015/16.

Figure B.5: Household characteristics by area of residence



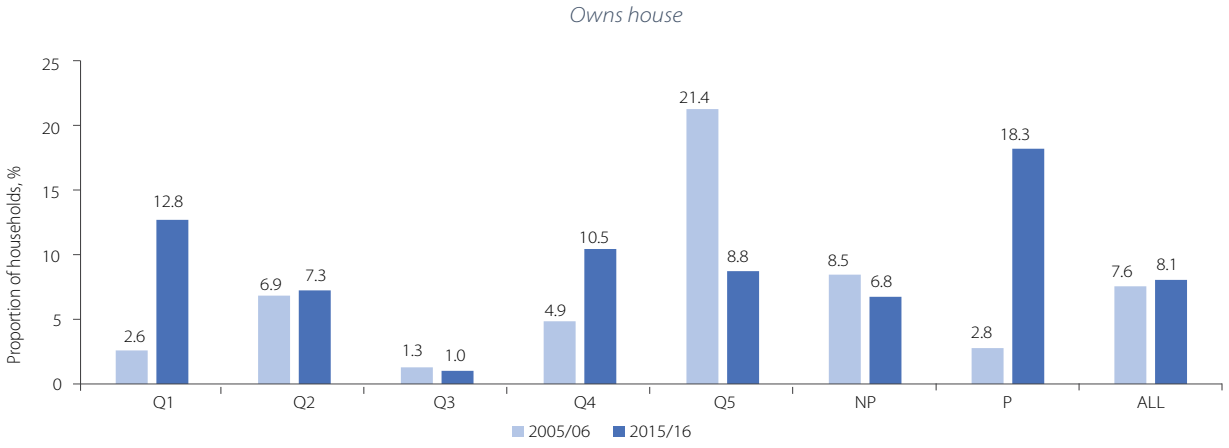
Source: Own calculations based on KIHBS 2015/16.

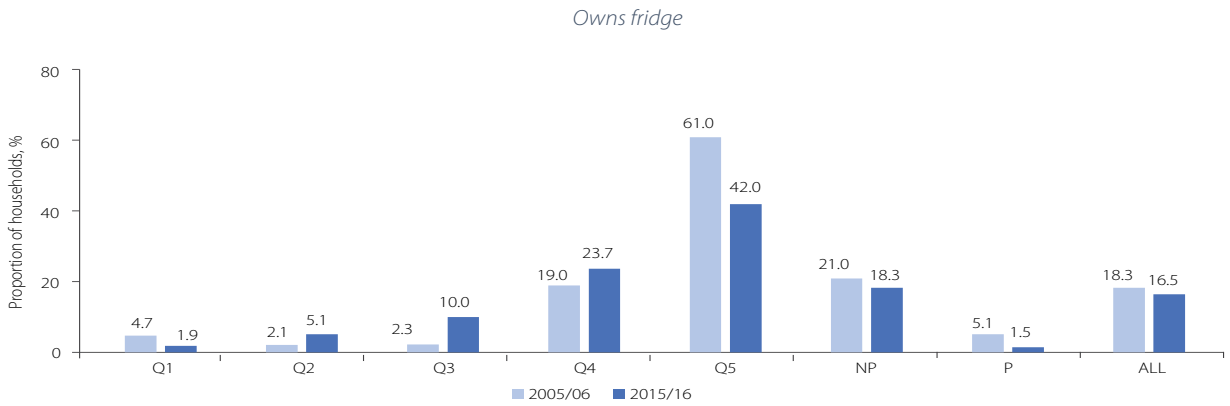
Table B.2: Response rates by county

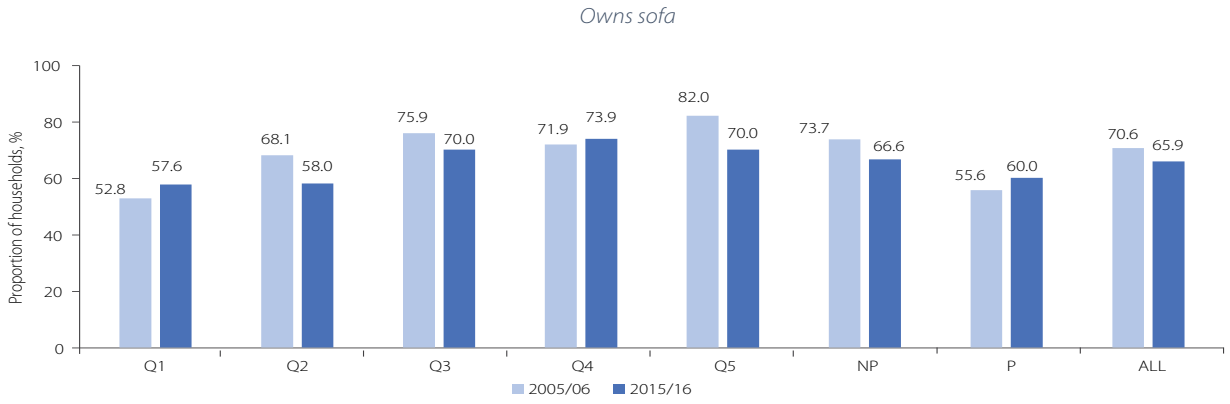
County	Response rate	Number of households (000s)	County	Response rate	Number of households (000s)
Mombasa	88.5%	397	West Pokot	90.8%	119
Kwale	89.6%	174	Samburu	95.7%	61
Kilifi	92.2%	326	Trans Nzoia	93.3%	210
Tana River	90.8%	56	Uasin Gishu	90.6%	270
Lamu	94.8%	30	Elgeyo Marakwet	92.6%	99
Taita Taveta	92.7%	102	Nandi	93.5%	202
Garissa	82.9%	78	Baringo	91.0%	152
Wajir	89.1%	69	Laikipia	90.6%	135
Mandera	91.5%	111	Nakuru	86.5%	578
Marsabit	80.5%	62	Narok	95.2%	223
Isiolo	95.0%	34	Kajiado	81.9%	250
Meru	95.4%	393	Kericho	91.0%	211
Tharaka Nithi	93.1%	107	Bomet	93.5%	179
Embu	94.6%	164	Kakamega	95.2%	392
Kitui	90.4%	236	Vihiga	95.2%	144
Machakos	92.9%	328	Bungoma	93.7%	321
Makueni	95.0%	233	Busia	90.8%	177
Nyandarua	93.3%	191	Siaya	93.3%	246
Nyeri	96.5%	271	Kisumu	93.0%	284
Kirinyaga	91.4%	198	Homa Bay	92.1%	224
Muranga	93.3%	323	Migori	91.0%	233
Kiambu	88.1%	600	Kisii	95.4%	291
Turkana	87.9%	246	Nyamira	94.0%	179
			Nairobi	76.9%	1.503

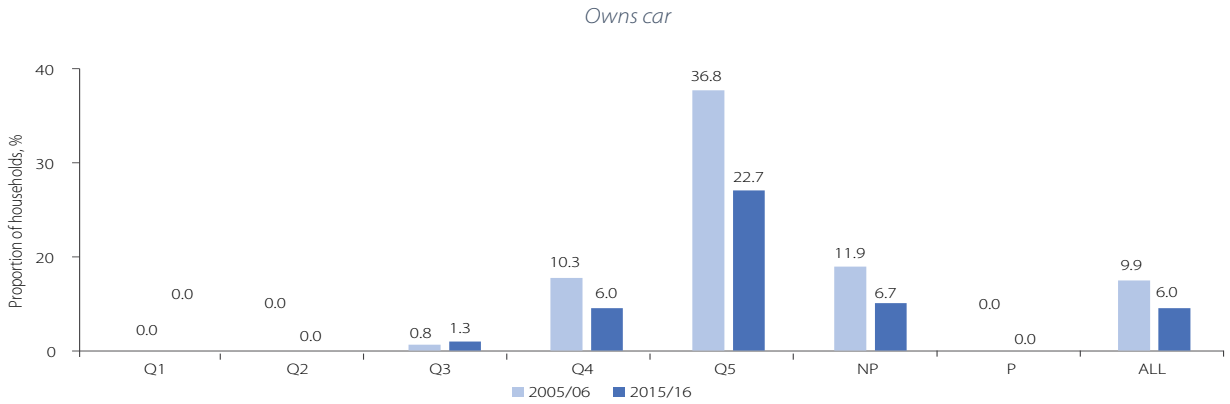
Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.

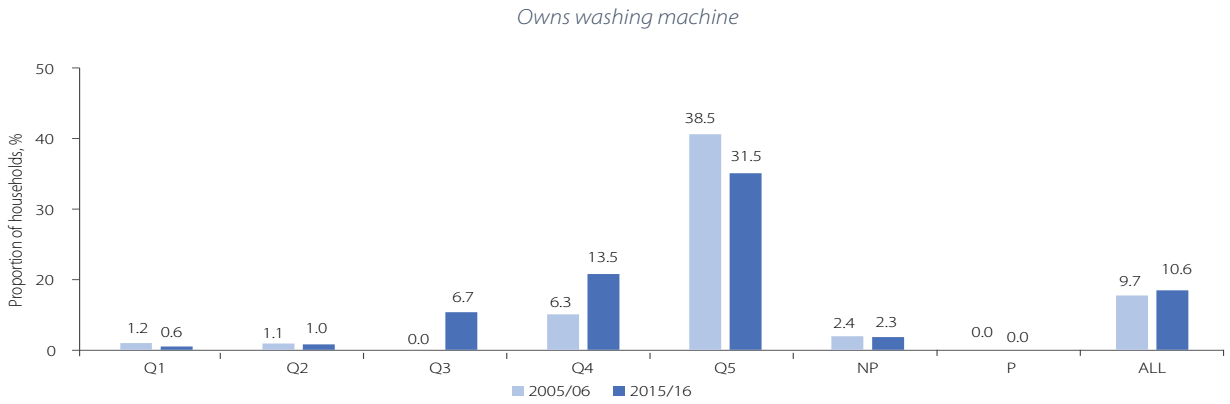
Figure B.6: Asset ownership by consumption quintile, Nairobi











Source: Own calculations based on KIHBS 2005/06 and KIHBS 2015/16.

APPENDIX C: CHAPTER 3 ADDITIONAL MATERIALS

C.1. Review of the KIHBS 2015/6 data

This chapter relies heavily on the analysis of the KIHBS 2015/6. Below is a list of possible tweaks to the KIHBS instrument that could potentially enhance the usefulness and quality of the data in the future, especially with respect to understanding gender gaps in economic opportunities.

- Questionnaire Q1A – Household Members Information – Section C (Education)
  - C09: Review skip pattern of response categories V (too old to attend school).
- Questionnaire Q1A – Household Members Information – Section D (Labor)
  - Incorporate new labor statistics definitions adopted by the 19th ICLS. See http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/normativeinstrument/wcms_230304.pdf
  - Review screening questions (D2_01-D2_06) for length. Examples/illustrations do not necessarily have to be included in the main question.
  - Harmonize reference periods used for questions on wages/salaries (D26, D27) and hours worked (D18-D20) in the primary job (to facilitate normalizing wages/salaries for hours worked).
- Questionnaire Q1B – Household Level Information – Section N (Household Enterprises)
  - Collect information on which household member(s) manage(s) the enterprise or is(are) most familiar with it (ask respondent to specify ID(s), potentially allowing for multiple managers).
  - Possibly: Collect information on which household member(s) own(s) the enterprise.
  - Collect enterprise-level information on access to finance, value of capital stock, business expenses, etc. to allow for more detailed analysis of enterprise productivity.
  - Review question N06 (e.g. distinction between paid and unpaid household members may be blurred; unpaid apprentices/volunteers are rare and may not require separate categories).
- Questionnaire Q1B – Household Level Information – Section K (Agricultural Holdings)
  - Collect information on which household member(s) own(s) the parcel (after K08).
  - Possibly: Collect information on which household member(s) provided labor on each parcel during the last 12 months (or last season, as per the reference period for agricultural production). Refer to upcoming guidelines on agricultural labor data of the Living Standards Measurement Study (LSMS) group.
- Questionnaire Q1B – Household Level Information – Section L (Agricultural Output)
  - Collecting agricultural output at the crop-parcel level would provide an opportunity to analyze gender differences in productivity (comparing male- and female managed plots within households) and improve the analysis of agricultural productivity (currently, inputs cannot be linked to crops). Data on the crop disposition and sales should remain at the crop-level.

C.2. Classifying household enterprises as male-, female- or jointly run

Household enterprises are classified as male-, female- or jointly-run based on question N06 of section N (household enterprise module) of the household questionnaire of the KIHBS 2015/6. Question N06 asks how many male and female (i) paid household members, (ii) unpaid household members, (iii) unpaid proprietors/directors, (iv) unpaid apprentices, (v) unpaid volunteers, and (vi) paid non-household members are engaged in the income generating activity (see below). Based on the respondent's answers to these questions, enterprises are classified as follows:

- If 1+ paid household member(s) are engaged in the income-generating activity, the enterprise is classified as female-, male- or jointly run based on the male-female composition of paid household members. Enterprises with male and female paid household members are always classified as jointly run, irrespectively of whether the number of male paid household members is greater, equal, or smaller than the number of female paid household members (and the same applies to steps (2), (3) and (4) below).
- If there are no paid household members engaged in the income generating activity but 1+ unpaid proprietor(s)/director(s), the enterprise is classified as female-, male- or jointly run based on the male-female composition of unpaid proprietors/directors.
- If there are neither any paid household members engaged in the income generating activity nor any unpaid proprietor(s)/director(s), but 1+ unpaid household member(s), the enterprise is classified as female-, male- or jointly run based on the male-female composition of unpaid household members.
- Enterprises engaging no household members (paid or unpaid) and no unpaid proprietor(s)/director(s) are not classified.

N06												
How many persons are engaged in this income generating activity? IF NONE, CODE 00												
Paid Household member		Unpaid Household member		Unpaid Proprietors/ Directors		Unpaid apprentices		Unpaid Volunteer		Paid Non-Household member		
Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	M

C.3. Additional tables and figures

Table C.1: Correlates of labor force participation, probit (coefficients)

	(1) all	(2) male	(3) female
Sex = 2, female	-0.671***		
	(0.0381)		
Age in years	0.152***	0.125***	0.133***
	(0.0126)	(0.0215)	(0.0161)
Age in years, squared	-0.00174***	-0.00160***	-0.00148***
	(0.000148)	(0.000247)	(0.000188)
Marital_status			
Marital status = 2, polygamously married	0.0532	-0.175*	0.142**
	(0.0627)	(0.0967)	(0.0711)
Marital status = 3, separated or divorced	0.125*	-0.606***	0.469***
	(0.0753)	(0.131)	(0.0796)
Marital status = 4, widow or widower	0.192***	0.117	0.216***
	(0.0713)	(0.221)	(0.0718)
Marital status = 5, never married	-0.440***	-1.039***	-0.0413
	(0.0478)	(0.0831)	(0.0679)
Religion			
Religion = 2, Protestant/other Christian	0.0530	0.0135	0.0698
	(0.0465)	(0.104)	(0.0499)
Religion = 3, Muslim	-0.761***	-0.318***	-0.987***
	(0.0571)	(0.122)	(0.0747)
Religion = 4, Other	-0.742***	-0.143	-1.088***
	(0.181)	(0.227)	(0.289)
Religion = 5, None	-0.207*	-0.163	-0.0820
	(0.118)	(0.149)	(0.221)
Own_education			
(Own) education = 1, primary or post-primary	0.404***	0.405***	0.400***
	(0.0600)	(0.116)	(0.0703)
(Own) education = 2, secondary or college	0.367***	0.0889	0.417***
	(0.0731)	(0.128)	(0.0890)
(Own) education = 3, university	0.242*	-0.520*	0.717***
	(0.124)	(0.267)	(0.165)
(Own) education = 4, other	-0.329*	-0.950***	-0.202
	(0.196)	(0.320)	(0.220)
Head's_education			
Head's education = 1, primary or post-primary	0.0945	0.109	0.114*
	(0.0576)	(0.0997)	(0.0678)
Head's education = 2, secondary or college	0.0903	0.369***	0.0623
	(0.0701)	(0.126)	(0.0801)
Head's education = 3, university	0.0580	0.472	-0.0242
	(0.158)	(0.386)	(0.150)
Head's education = 4, other	0.215	0.447	0.232
	(0.159)	(0.295)	(0.222)
Number of children aged 0-5 years	-0.0708***	-0.0243	-0.119***
	(0.0178)	(0.0311)	(0.0236)
Number of children aged 6-14 years	-0.0260*	-0.0791***	0.0162
	(0.0134)	(0.0209)	(0.0165)
Urban	-0.210***	0.0371	-0.372***
	(0.0440)	(0.0770)	(0.0550)
Constant	-1.406***	-0.424	-1.795***
	(0.251)	(0.450)	(0.327)
Observations	30,488	14,600	15,888

*Note: Probit estimation with survey settings. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1 Reference categories as follows: Head's/own education – no schooling; Religion – Catholic; Marital status – monogamously married.*

Table C.2: Oaxaca-Blinder decomposition of gender gaps in monthly earnings, summary

lnwage	coef.	
Overall		**% of total difference**
group_1 (male)	9.291	
group_2 (female)	8.920	
difference	0.372	
endowments	0.159	43%
coefficients	0.242	65%
interaction	-0.029	-8%
Endowments		**% of total endowment effect**
age	0.025	16%
hours	0.044	28%
education	-0.016	-10%
industry	0.160	101%
occupation	-0.046	-29%
location	-0.009	-6%
Coefficients		**% of total coefficient effect**
age	-0.037	-15%
hours	-0.053	-22%
education	-0.139	-57%
industry	0.069	28%
occupation	-0.004	-2%
location	-0.035	-15%
_cons	0.442	183%
interaction		**% of total interaction effect**
age	-0.002	6%
hours	-0.007	23%
education	0.001	-4%
industry	-0.061	211%
occupation	0.038	-131%
location	0.001	-4%

Source: KIHBS 2015/6.
Note: See Tables C.3 and C.4 for details.

Table C.3: Oaxaca-Blinder decomposition of gender gaps in monthly earnings, descriptive statistics

Variables	(1) Male	(2) Female
Dependent vaiable		
in (wage)	9.291	8.92
	(0.0240)	(0.0329)
Independent vairable		
Age		
Age in years	34.81	33.36
	(0.199)	(0.224)
Hours		
Usual working hours	51.67	46.01
	(0.369)	(0.544)
Education		
Primary or post-primary	0.439	0.412
	(0.0101)	(0.0143)
Secondary or college	0.458	0.462
	(0.103)	(0.0136)
University graduate or post graduate	0.0731	0.0886
	(0.00761)	(0.00976)
Other	0.00116	0.000789
	(0.000312)	(0.000680)
Idustry		
B - Mining	0.0145	0.00343
	(0.00413)	(0.00144)
C- - Manufacturing	0.0879	0.042
	(0.00731)	(0.00666)
D/E/F - Utilities, Construction	0.178	0.0199
	(0.00889)	(0.00428)
G - Trade	0.0882	0.0817
	(0.00570)	(0.00776)
H - Transport	0.113	0.00826
	(0.00586)	(0.00200)
I - ICT	0.0321	0.0691
	(0.00331)	(0.00680)
K/L - Finance, Real Estate	0.0104	0.00979
	(0.00282)	(0.00331)
M/N - Professional, Adminisrative Services	0.00808	0.0154
	(0.00235)	(0.00351)
O/Q - Education, Health, Social Security	0.0785	0.0612
	(0.00558)	(0.00632)
R/T - other Services	0.127	0.219
	(0.00642)	(0.0104)
	0.0601	0.204
	(0.00466)	(0.0121)
Occupation		
1. Legislators, admnistrators and managers	0.0221	0.0196
	(0.00349)	(0.00445)
2. Professionals	0.0592	0.0711
	(0.00435)	(0.00693)
3. Technicians and associated professionals	0.105	0.139
	(0.00613)	(0.00848)
4. Secretariat, clerical services and related workers	0.0309	0.0599
	(0.00394)	(0.00615)
5. Service workers, shop and market sales workers	0.0853	0.161
	(0.00514)	(0.0100)
6. Skilled farm, fishery, wildlife and related workers	0.0515	0.0642
	(0.00357)	(0.00576)
7. Craft and related trade workers	0.0879	(0.0352
	(0.00568)	(0.00645)
8. Plant and machine operators and assemblers	0.119	0.00829
	(0.00658)	(0.00219)
10. Armed forces	0.00337	0.000115
	(0.001331)	(7.10e-05
Location		
Urban	0.494	0.512
	(0.0151)	(0.0173)
Observations	7,562	4,088

Source: KIHBS 2015/6.
Note: Standard errors in parentheses. Only variables included in the regression - reference categories not shown (see Table C.4). Ln(wage) denotes log monthly earnings (winsorized).

Table C.4: Oaxaca-Blinder decomposition of gender gaps in monthly earnings, OLS (coefficients)

Variables	(1) Male	(2) Female
Age		
Age in years	0.0163***	0.0174***
	(0.00116)	(0.00153)
Hours		
Usual working hours	0.00658***	0.00774***
	(0.000937)	(0.00110)
Education		
Primary or post-primary	0.236**	0.373***
	(0.0687)	(0.0795)
Secondary	0.530***	0.660***
	(0.0699)	(0.0846)
University graduate or post graduate	1.231***	1.488***
	(0.0933)	(0.111)
Other	-0.0829	0.428***
	(0.195)	(0.122)
Industry		
B - Mining	0.166	0.825***
	(0.198)	(0.197)
C- Manufacturing	0.426***	0.380***
	(0.0596)	(0.144)
D/E/F - Utilities, Construction	0.490***	0.651***
	(0.0477)	(0.176)
G - Trade	0.342***	0.196**
	(0.0670)	(0.0806)
H - Transport	0.489***	0.451**
	(0.0559)	(0.190)
I - Accomodation	0.280***	0.106
	(0.0716)	(0.0916)
J - ICT	0.668***	0.472**
	(0.107)	(0.205)
K/L - Finance, Real Estate	0.675***	0.238
	(0.160)	(0.145)
M/N - Professional, Administrative Services	0.351***	0.458***
	(0.0545)	(0.0746)
O/Q - Education, Health, Social Security	0.383***	0.242***
	(0.0601)	(0.0738)
R/T Other Services	0.0577	-0.0159
	(0.0588)	(0.0535)
Occupation		
2. Professionals	0.970***	1.099***
	(0.0746)	(0.0917)
3. Technicians and associated professionals	0.811***	0.731***
	(0.0595)	(0.0753)
4. Secretarial, clerical services and related workers	0.663***	0.755***
	(0.0700)	(0.0710)
5. Service workers, shop and market sales workers	0.169***	0.208***
	(0.0521)	(0.0521)
6. Skilled farm, fishery, wildlife and related workers	0.0643	-0.0597
	(0.0547)	(0.0786)
7. Craft and related trades workers	0.238***	0.374**
	(0.0702)	(0.170)
8. Plant and machine operatins and assemblers	0.395***	0.00362
	(0.0450)	(0.240)
10. Armed forces	1.381***	1.798***
	(0.178)	(0.105)
1. Legislators, administrators and managers	1.132***	1.159***
	(0.101)	(0.137)
Location		
Urban	0.427***	0.496***
	(0.0328)	(0.0402)
Constant	7.144***	6.702***
	(0.0938)	(0.118)
Observations	7,562	4,088
R-squared	0.561	0.616

Source: KIHBS 2015/6.
*Note: OLS regression with survey settings. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Dependent variable is log monthly earnings (winsorized). Reference categories as follows: Education – no schooling; Industry – agriculture; Occupation – elementary occupations.*

Table C.5: Correlates of household enterprise profits, OLS (coefficients)

Variables	(1) raw gender gap	(2) with controls (except labor input)	(3) with all controls
Female-run enterprise	-0.732***	-0.623***	-0.567***
	(0.0565)	(0.0507)	(0.0487)
Industry			
A - Agriculture		-0.132	-0.170
		(0.178)	(0.179)
B - Mining		-0.265)	-0.312
		(0.196)	(0.202)
C - Manufacturing		-0.139	-0.165**
		(0.0866)	(0.0804)
D/E/F - Utilities, construction		0.511**	0.384*
		(0.212)	(0.210)
H - Transport		0.165	0.222**
		(0.109)	(0.104)
I - Accomodation		(0.188)	0.0256
		(0.118)	(0.117)
J - ICT		0.118	0.127
		(0.230)	(0.216)
K/L - Finance, real estate		0716***	0.738***
		(0.197)	(0.204)
M/N - Professional, administration services		0.649**	0.663**
		(0.299)	(0.298)
O/Q - Education, health, social security		0.631***	0.498**
		(0.188)	(0.184)
R/T - Other services		-0160*	-0.153*
		(0.0951)	(0.0924)
Urban		0.823***	0.782***
		(0.0658)	(0.0650)
Enterprise is registered		0.443***	0.298***
		(0.0905)	(0.0797)
Number of households and/or unpaid workers			0.0885*
			(0.0504)
Number of paid non-households workers			0.199***
			(0.0306)
Constant	8.929***	8.404***	8.262***
	(0.0460)	(0.0564)	(0.0821)
Observations	4,125	4,125	4,125
R-squared	0.080	0.255	0.255

Source: KIHBS 2015/6.
*Note: OLS regression with survey settings. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Dependent variables is log monthly profits (winsorized). Reference category for Industry is 'trade.' Jointly-run enterprises excluded from sample.*

C.4. Comparability of the 2005/6 and 2015/6 KIHBS labor modules

To compare wage and enterprise employment across the KIHBS 2005/6 and 2015/6, the following definitions are used:

KIHBS 2005/6	
Questionnaire	Categorized as
e05: During the past 7 days, how many hours was NAME employed for a wage, salary, commission or any payment in kind?	Employment - wage (if hrs>=1)
e06: During the past 7 days, how many hours did NAME work on any enterprise belonging to a member of household, including helping for no pay?	Employment - enterprise (if any hrs>=1)
e07: During the past 7 days, how many hours did NAME work on the household farm, in a field or herding livestock?	

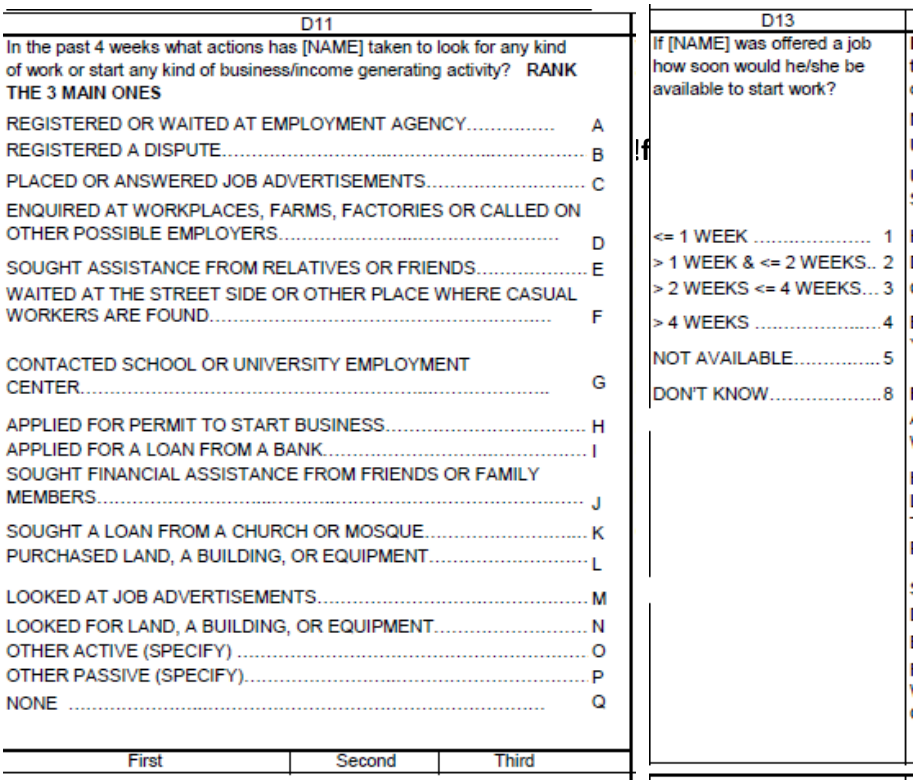
	KIHBS 2015/6	
	Questionnaire	Categorized as
In the last 7 days, has [NAME]	d02_1: worked (at least one hour) as an employee for wage, salary, commission or any payment in kind; including doing paid domestic work or farm work?	Employment - wage (if yes)
	d02_2: worked (at least one hour) on your own account or as an employer in a business enterprise, for example, as a trader, shopkeeper, barber, dressmaker, carpenter, taxi driver.	Employment - enterprise (if any yes)
	d02_3worked (at least one hour) on your own account or as an employer on a farm owned or rented, whether in cultivating crops or in other farm maintenance tasks, or have you cared for livestock belonging to you or a member of your household?	
	d02_4: helped (for at least one hour) in a business enterprise /agricultural activity or cared for livestock belonging or run by this household?	
	d02_5: worked (at least one hour) as an intern or an apprentice?	
	d02_6: worked (at least one hour) as a volunteer?	

For cross-sectional analysis using the 2015/6 (without comparison to 2005/6), a slightly wider definition of employment is used:

KIHBS 2015/6		
Questionnaire		Categorized as
In the last 7 days, has [NAME]	d02_1: worked (at least one hour) as an employee for wage, salary, commission or any payment in kind; including doing paid domestic work or farm work?	Employment - at work (if any yes)
	d02_2: worked (at least one hour) on your own account or as an employer in a business enterprise, for example, as a trader, shopkeeper, barber, dressmaker, carpenter, taxi driver.	
	d02_3worked (at least one hour) on your own account or as an employer on a farm owned or rented, whether in cultivating crops or in other farm maintenance tasks, or have you cared for livestock belonging to you or a member of your household?	
	d02_4: helped (for at least one hour) in a business enterprise /agricultural activity or cared for livestock belonging or run by this household?	
	d02_5: worked (at least one hour) as an intern or an apprentice?	
	d02_6: worked (at least one hour) as a volunteer?	
	d04: Even though [NAME] did not do any of these activities in the last 7 days, does he/she have ..... that he/she would definitely return to? MULTIPLE A paid job ..... A An own family/farming activity .....C Apprentice/intern .....E No Activity ..... G A business ..... B An unpaid job .....D Volunteer .....F	Employment - absent (if any A-F)
	d05: Why was [NAME] absent from work during the last 7 days? VACATION/HOLIDAYS .....01 ILLNESS, INJURY, TEMPORARY DIABILITY...03 TEMPORARY SLACK WORK .....05 OFF SEASON .....07 EDUCATION OR TRAINING .....09 TEMPORARY CLOSURE .....11 OTHER SPECIFY .....13 A business ..... B An unpaid job .....D Volunteer .....F	(not absent if d05==07)
	d06: Do you have an agreement or contract to return to the same job after this absence, or if it is your own/family business, is the business still operational ?	(not absent if d06==NO & d07>=3)
	d07: After how long will [NAME] return to work? LESS THAN 1 MONTH .....01 3 MONTHS AND ABOVE .....03 NOT RETURNING .....05 1 MONTH TO LESS THAN 3 MONTHS .....02 NOT SURE WHEN TO RETURN.....04	

Unemployment is computed as follows in 2015/6:

• *Unemployment =*
NOT employed
AND job search effort (except 'registering dispute', other passive, none – see d11) AND available (d13<=2)



D11		
In the past 4 weeks what actions has [NAME] taken to look for any kind of work or start any kind of business/income generating activity? **RANK THE 3 MAIN ONES**		
REGISTERED OR WAITED AT EMPLOYMENT AGENCY	A	
REGISTERED A DISPUTE	B	
PLACED OR ANSWERED JOB ADVERTISEMENTS	C	
ENQUIRED AT WORKPLACES, FARMS, FACTORIES OR CALLED ON OTHER POSSIBLE EMPLOYERS	D	
SOUGHT ASSISTANCE FROM RELATIVES OR FRIENDS	E	
WAITED AT THE STREET SIDE OR OTHER PLACE WHERE CASUAL WORKERS ARE FOUND	F	
CONTACTED SCHOOL OR UNIVERSITY EMPLOYMENT CENTER	G	
APPLIED FOR PERMIT TO START BUSINESS	H	
APPLIED FOR A LOAN FROM A BANK	I	
SOUGHT FINANCIAL ASSISTANCE FROM FRIENDS OR FAMILY MEMBERS	J	
SOUGHT A LOAN FROM A CHURCH OR MOSQUE	K	
PURCHASED LAND, A BUILDING, OR EQUIPMENT	L	
LOOKED AT JOB ADVERTISEMENTS	M	
LOOKED FOR LAND, A BUILDING, OR EQUIPMENT	N	
OTHER ACTIVE (SPECIFY)	O	
OTHER PASSIVE (SPECIFY)	P	
NONE	Q	
First	Second	Third

D13	
If [NAME] was offered a job how soon would he/she be available to start work?	
<= 1 WEEK	1
> 1 WEEK & <= 2 WEEKS	2
> 2 WEEKS <= 4 WEEKS	3
> 4 WEEKS	4
NOT AVAILABLE	5
DON'T KNOW	8

APPENDIX D: CHAPTER 4 ADDITIONAL MATERIALS

D.1. Empirical approach: Crop yield analysis

To rigorously investigate the determinants of crop yield, we apply a fixed effects model. In this model, we start with a basic specification where logarithm of per acre yield () is regressed on fixed effects of household i (γ_i), a vector of household $i's$ characteristics (X_{it}), human capital endowment of the household head (H_{it}), and technology adoption indicators (T_{it}) as follows:

$$Y_{it} = \gamma_i + \beta_1 X_{it} + \beta_2 H_{it} + \beta_2 T_{it} + \varepsilon_{it} \quad (1)$$

…where t stands for time of survey (2000, 2004, 2007 and 2010), and ε_{it} is the error term. X_{it} captures household size and dependence ratio; H_{it} includes the head's gender, age, age squared, and years of completed education; and T_{it} includes dummy for application of chemical fertilizer, improved maize seed, and membership to cooperative or group through which farmers access agricultural technologies. In some specifications interaction between dummies of fertilizer application and the use of improved seed is included to assess the join effects using both technologies. This analysis is conducted for maize, beans, tea and coffee.

Two addition specifications of Equation 1 are also implemented to investigate the 'inverse plot size productivity puzzle' and the differential impact of fertilizer application by farmers with different plot size. First, we add three dummies indicating the quartile of plot size (LQ_{it}) as in Equation 2 below. Reserving the lowest quartile as a reference group, this estimation provides the conditional difference in crop yield among farmers with larger plots (quartile 2.3) and those with smaller plots (the lowest quartile).

$$Y_{it} = \gamma_i + \beta_1 X_{it} + \beta_2 H_{it} + \beta_2 T_{it} + \sum_{j=2}^{4} \alpha_j I(LQ_{it} = j) + \varepsilon_{it} \quad (2)$$

…where $I(LQ_{it} = j)$ is an indicator function which is equal to one when land quartile, LQ_{it} is equal to j (=2, 3, 4) and zero otherwise.

The next specification (Equation 3) is intended to analyze the effectiveness of fertilizer application in enhancing productivity for smallholder and large farmers. By introducing interaction between a dummy for the application of fertilizer and four dummies for plot size quartiles, we capture the percentage improvement in yield (θ_j) for households in the four plot size quartiles.[249]

$$Y_{it} = \gamma_i + \beta_1 X_{it} + \beta_2 H_{it} + \beta_2 T_{it} + \sum_{j=2}^{4} \alpha_j I(LQ_{it} = j) + \sum_{j=1}^{4} \theta_j Fertilizer * I(LQ_{it} = j) + \varepsilon_{it} \quad (3)$$

[249] In this specification, fertilizer is not included by itself as an explanatory variable.

Table D.1: Determinants of beans yield, FEs Model

	(1)	(2)
Fertilizer used per plot	0.00***	0.00
	(2.60)	(1.31)
Distance to extension services	0.00	0.00
	(0.41)	(0.46)
Belong to Cooperative/Group membership	0.09	0.11**
	(1.56)	(1.97)
Cropped land quartile (the lowest quartile is the reference group):		0.00
2nd quartile		.0.41***
		(.7.34)
3rd quartile		.0.66***
		(.10.01)
4th quartile		.0.86***
		(.11.71)
Constant	4.20***	4.45***
	(8.57)	(9.34)
Number of Households		
Number of Observations	3784	3784

*Note: Standard errors in parentheses: * p < 0.1, ** p < 0.05, *** p < 0.01. Note that the dependent variable is logarithm of yield (kg/acre).*

APPENDIX E: CHAPTER 5 ADDITIONAL MATERIALS

Table E.1: Nominal monthly salary in urban Kenya

	(1)	(2)	(3)	(5)	(6)
Age	0.093*** (0.006)		0.114*** (0.006)	0.0893*** (0.006)	0.0804*** (0.006)
Age (squared)	-0.000*** (0.000)		-0.001*** (0.000)	-0.000*** (0.000)	-0.000*** (0.0000)
Female	-0.472*** (0.019)		-0.542*** (0.022)	-0.483*** (0.020)	-0.448*** (0.020)
Education: primary (base)					
Education: secondary	0.289*** (0.022)			0.259*** (0.022)	0.179*** (0.024)
Education: higher	1.176*** (0.025)			1.139*** (0.025)	0.860*** (0.027)
Economic sector: agriculture		-0.616*** (0.046)	-0.665*** (0.043)	-0.477*** (0.039)	-0.383*** (0.044)
Economic sector: manufacturing		0.056 (0.039)	-0.031 (0.037)	0.054 (0.033)	-0.049 (0.033)
Economic sector: services (base)					
Economic sector: construction		-0.027 (0.038)	-0.269*** (0.036)	-0.082** (0.032)	0.130*** (0.045)
Contract: written (base)					
Contract: verbal					-0.545*** (0.029)
Contract: implied					-0.699*** (0.103)
Contract: none					-0.509*** (0.024)
Constant	7.299*** (0.112)	9.508*** (0.013)	7.494*** (0.123)	7.426*** (0.112)	8.120*** (0.121)
County fixed effects	Yes	Yes	Yes	Yes	Yes
Adj-R2	0.361	0.054	0.180	0.375	0.424
Obs.	7081	7523	7523	7081	6125

Source: Staff calculation with KIHBS 2015/16.
*Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$*

Table E.2: Comparison of dwelling characteristics between informal settlement and non-informal settlement areas in Nairobi

	Informal settlement (1)	Non-informal settlement (2)	Diff (3)
Housing tenure: owned	0.117	0.060	0.057
Housing tenure: rent-paying tenant	0.846	0.883	-0.036
Housing tenure: rent-free tenant	0.037	0.057	-0.020
Number of rooms: 1	0.840	0.615	0.224***
Number of rooms: 2	0.084	0.166	-0.082***
Number of rooms: 3	0.059	0.123	-0.064**
Number of rooms: 4	0.012	0.062	-0.050***
Number of rooms: 5 or more	0.005	0.034	-0.029**
Wall: mud	0.088	0.000	0.088***
Wall: other non-durable	0.005	0.000	0.005
Wall: corrugated iron sheets	0.543	0.132	0.411***
Wall: wood	0.007	0.012	-0.005
Wall: stone, cement, bricks	0.357	0.857	-0.500***
Roof: grass, thatch, makuti, mud	0.004	0.000	0.004
Roof: corrugated iron sheets	0.877	0.475	0.401***
Roof: concrete	0.112	0.500	-0.388***
Roof: tiles	0.000	0.025	-0.025***
Roof: other	0.008	0.000	0.008
Floor: earth, sand, dung	0.126	0.008	0.118***
Floor: wood, bamboo	0.000	0.007	-0.007**
Floor: tiles	0.048	0.110	-0.062**
Floor: cement	0.790	0.775	0.016
Floor: other	0.036	0.100	-0.064***

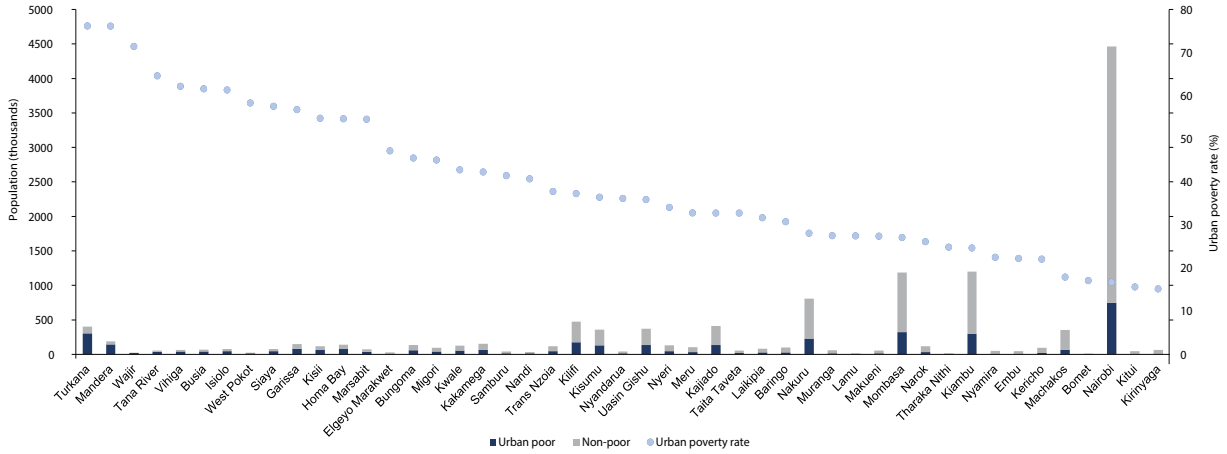
Source: Staff calculation with KIHBS 2015/16.
*Note: Standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$*

Table E.3: Comparison of access to services between informal settlement and non-informal settlement areas in Nairobi

	Informal settlement (1)	Non-informal settlement (2)	Diff (3)
Water: private tap within dwelling	0.105	0.459	-0.354***
Water: private tap outside dwelling	0.186	0.423	-0.237***
Water: public tap/standpipe	0.580	0.065	0.514***
Water: other improved water	0.104	0.044	0.061***
Water: non-improved	0.024	0.009	0.016
Toilet: flush toilet	0.439	0.875	-0.436***
Toilet: VIP latrine	0.058	0.008	0.049***
Toilet: covered pit latrine	0.382	0.116	0.266***
Toilet: uncovered pit latrine	0.074	0.000	0.074***
Toilet: other	0.046	0.000	0.046***
Electricity	0.833	0.963	-0.130***
Garbage collection	0.474	0.855	-0.381***

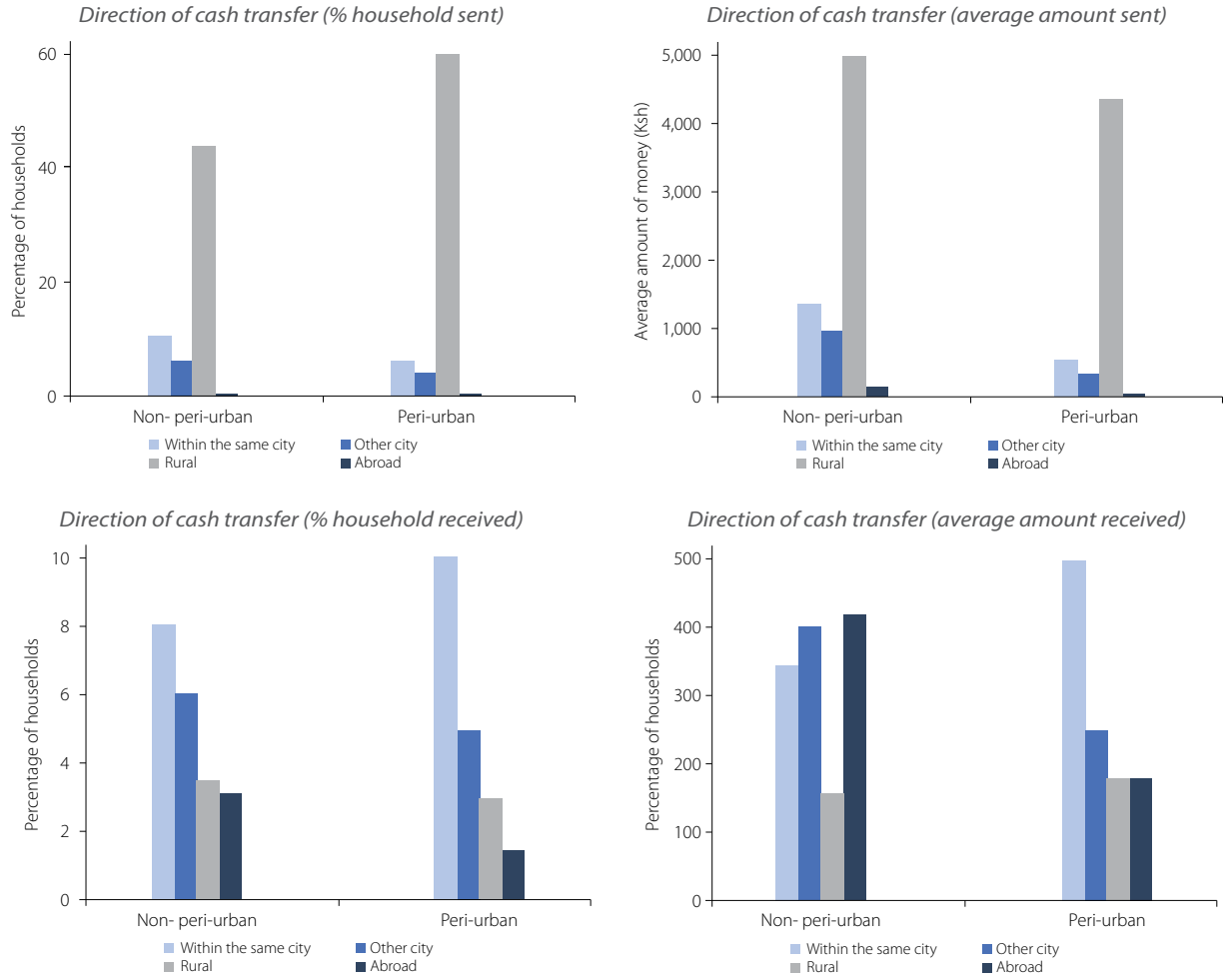
Source: Staff calculation with KIHBS 2015/16.
*Note: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$*

Figure E.1: Number of urban poor and urban poverty rate by county, 2015/16



Source: Staff calculation based on KIHBS 2015/16.
Note: Counties are ordered from the highest poverty rate (left) to the lowest poverty rate (right). Absolute poverty line is used.

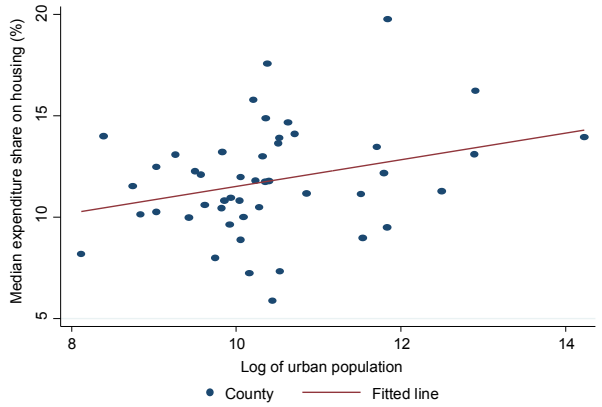
Figure E.2: Cash transfer during the last three months in 15 cities, 2013



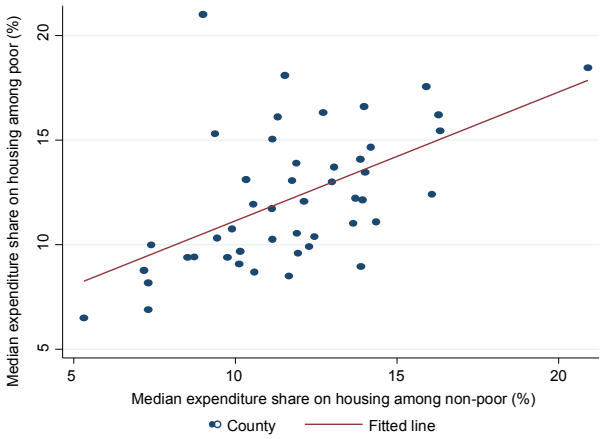
Source: Staff calculation based on the 2013 Cities Baseline Survey.

Figure E.3: Expenditure share on housing in urban Kenya

a) Urban households



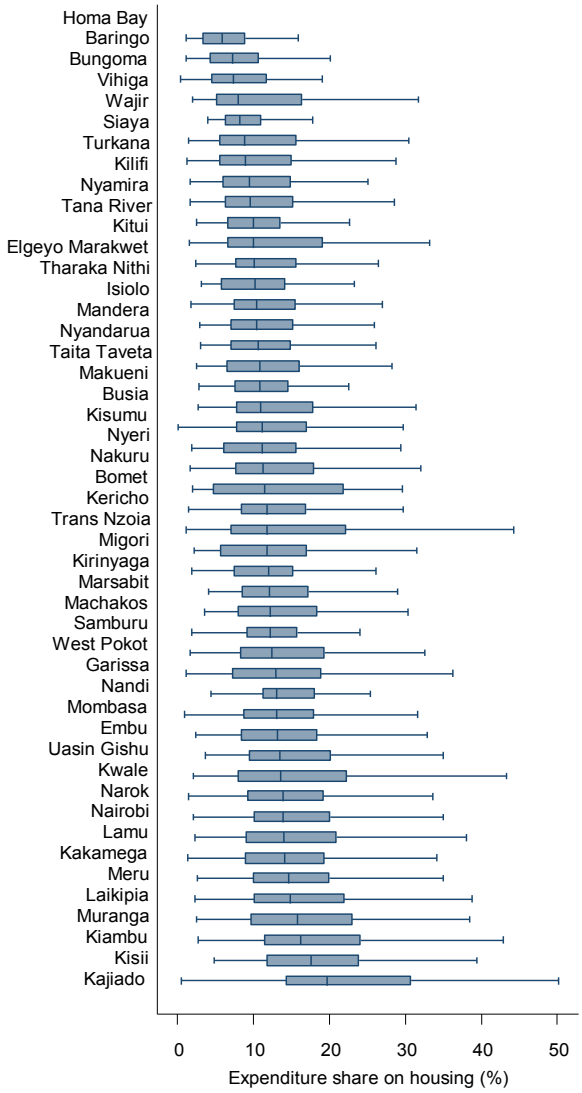
b) Poor and non-poor



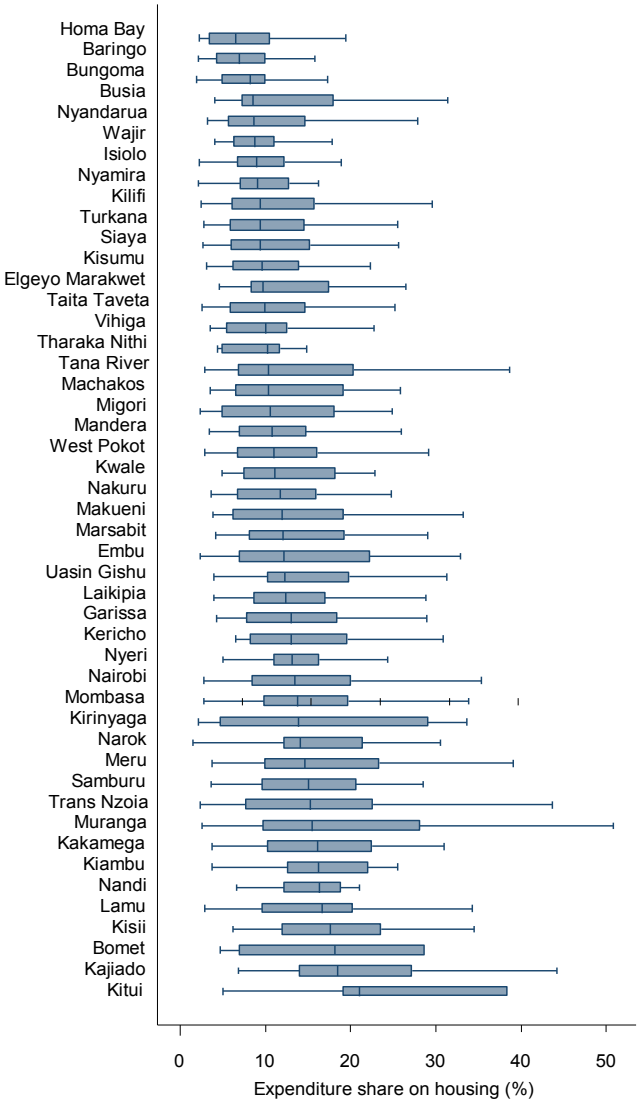
Source: Staff calculation based on KIHBS 2015/16.

Figure E.4: Expenditure share on housing in urban Kenya by county, 2015/16

a) Urban households



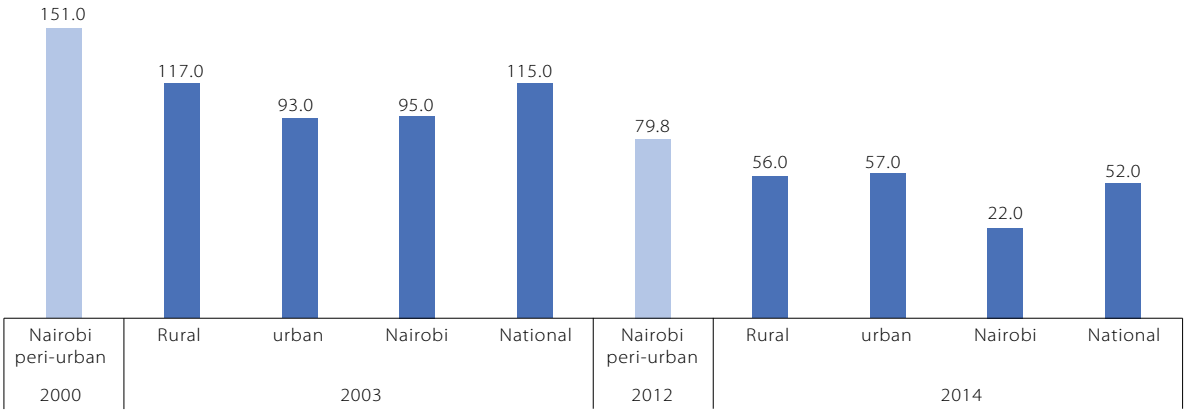
b) Urban poor households



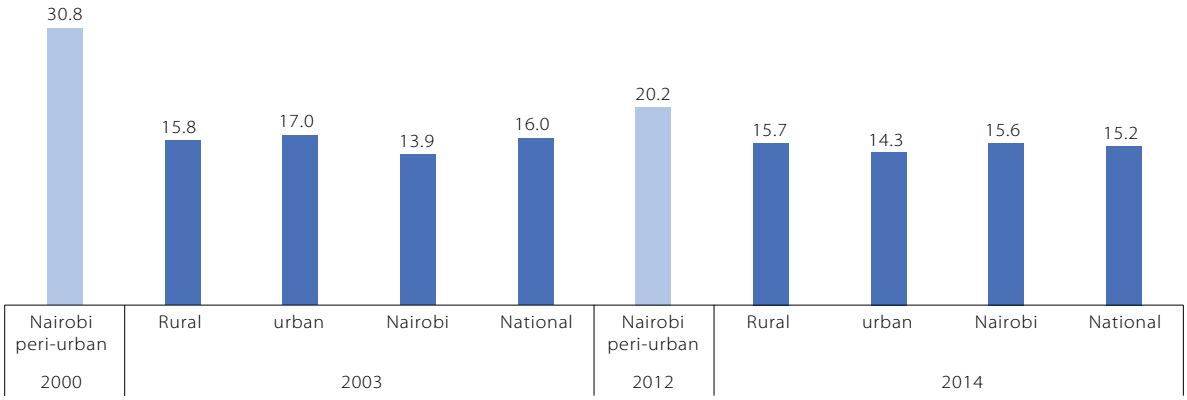
Source: Staff calculation based on KIHBS 2015/16.

Figure E.5: Comparison of health indicators in Kenya, 2000 to 2014

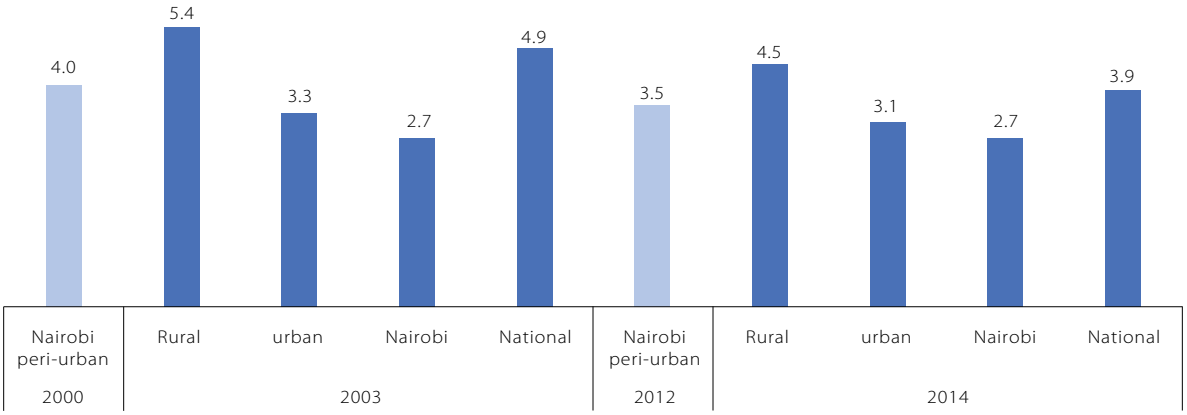
Under-five mortality rate



Prevalence of diarrhea

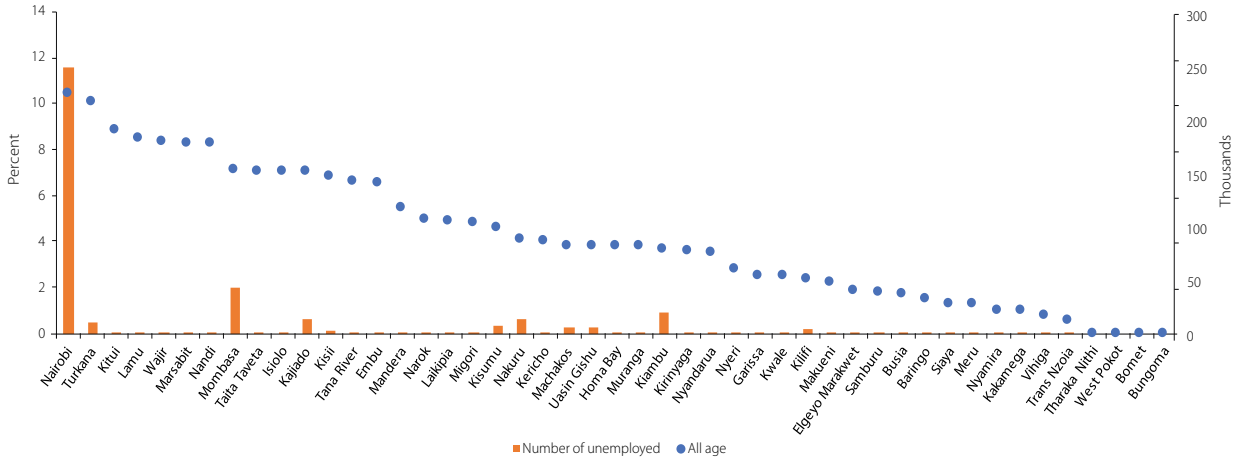


Total fertility rate



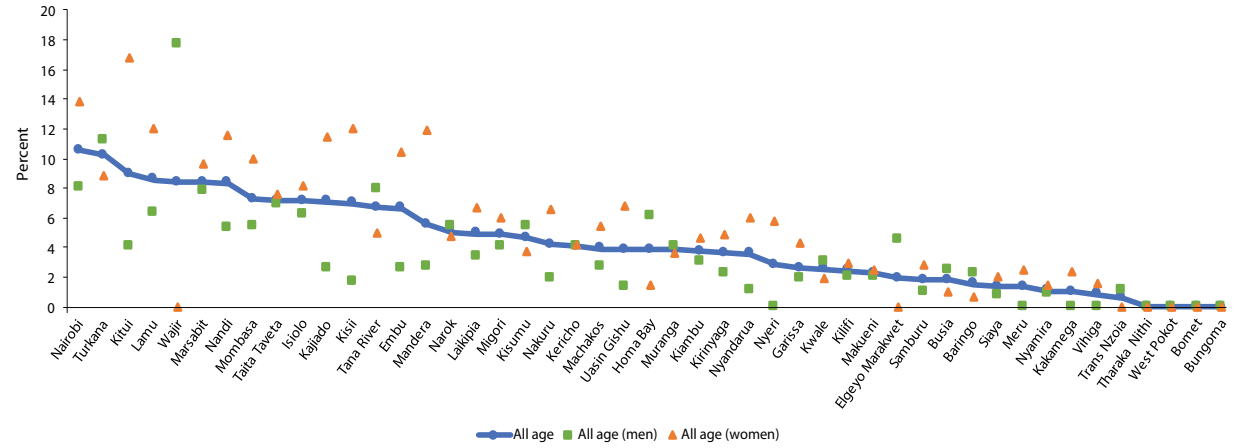
Source: Mberu et al. 2016.

Figure E.6: Number and share of unemployed population in urban area by county, 2015/16



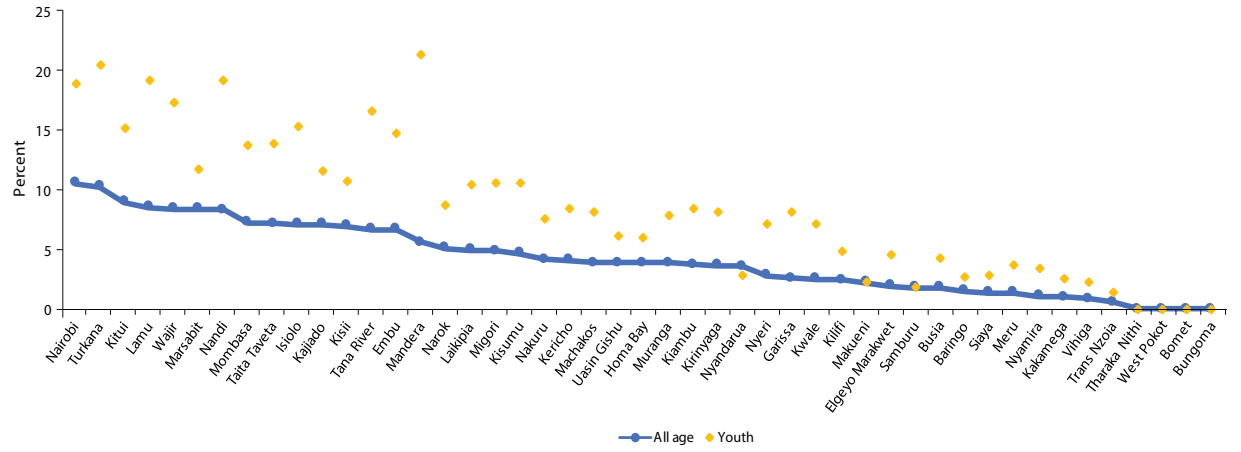
Source: Staff calculation based on KIHBS 2015/16.
Note: Counties are ordered from the highest unemployment (left) to the lowest (right).

Figure E.7: Unemployment rate in urban area by sex and county, 2015/16



Source: Staff calculation based on KIHBS 2015/16.
Note: Counties are ordered from the highest unemployment (left) to the lowest (right).

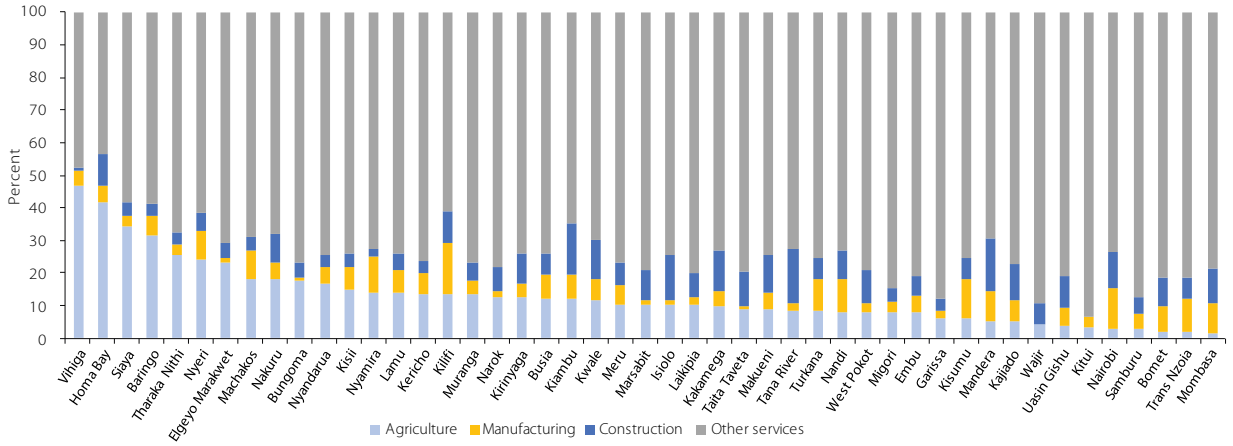
Figure E.8: Unemployment rate in urban area by the youth and county, 2015/16



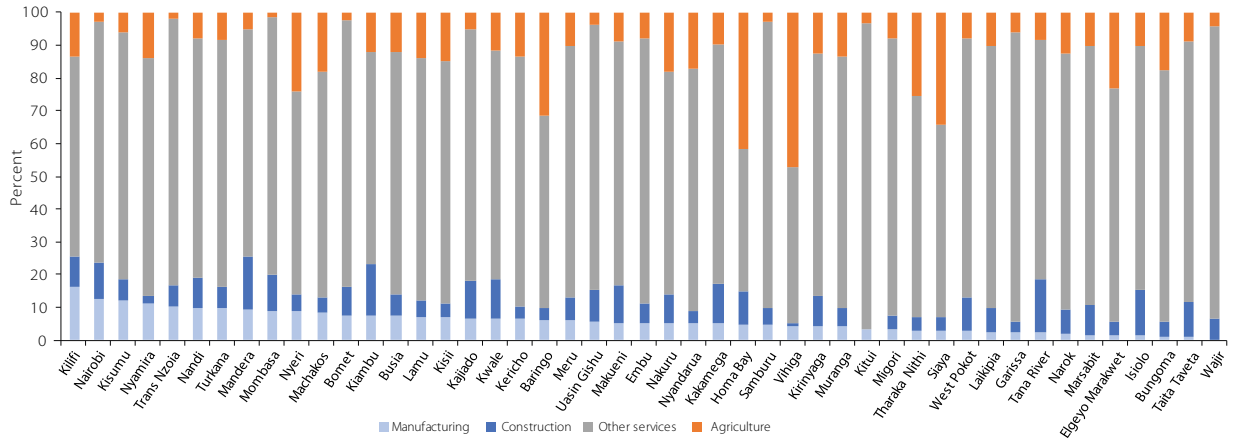
Source: Staff calculation based on KIHBS 2015/16.
Note: Counties are ordered from the highest unemployment (left) to the lowest (right).

Figure E.9: Comparison of economic sectors in urban Kenya by county, 2015/16

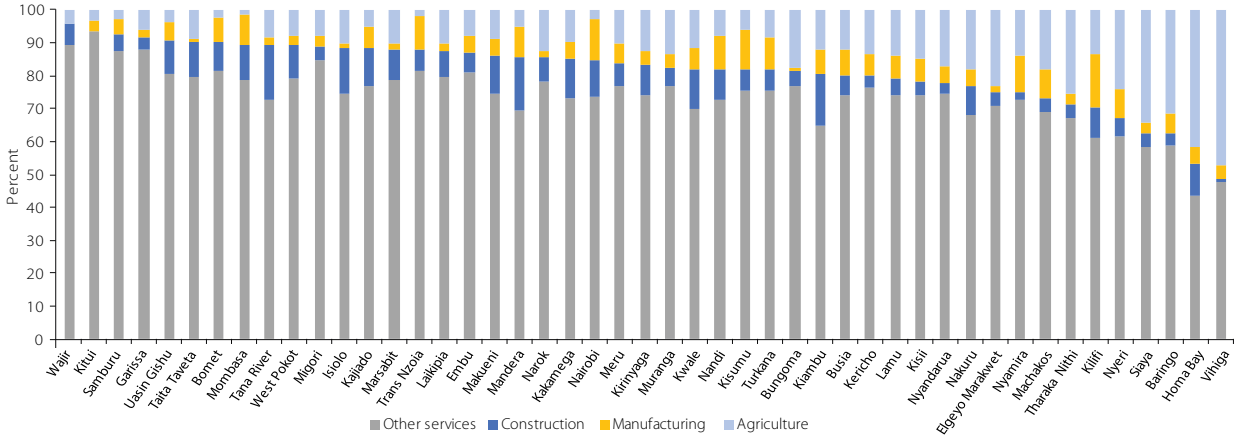
a) Ordered by agriculture



b) Ordered by manufacturing

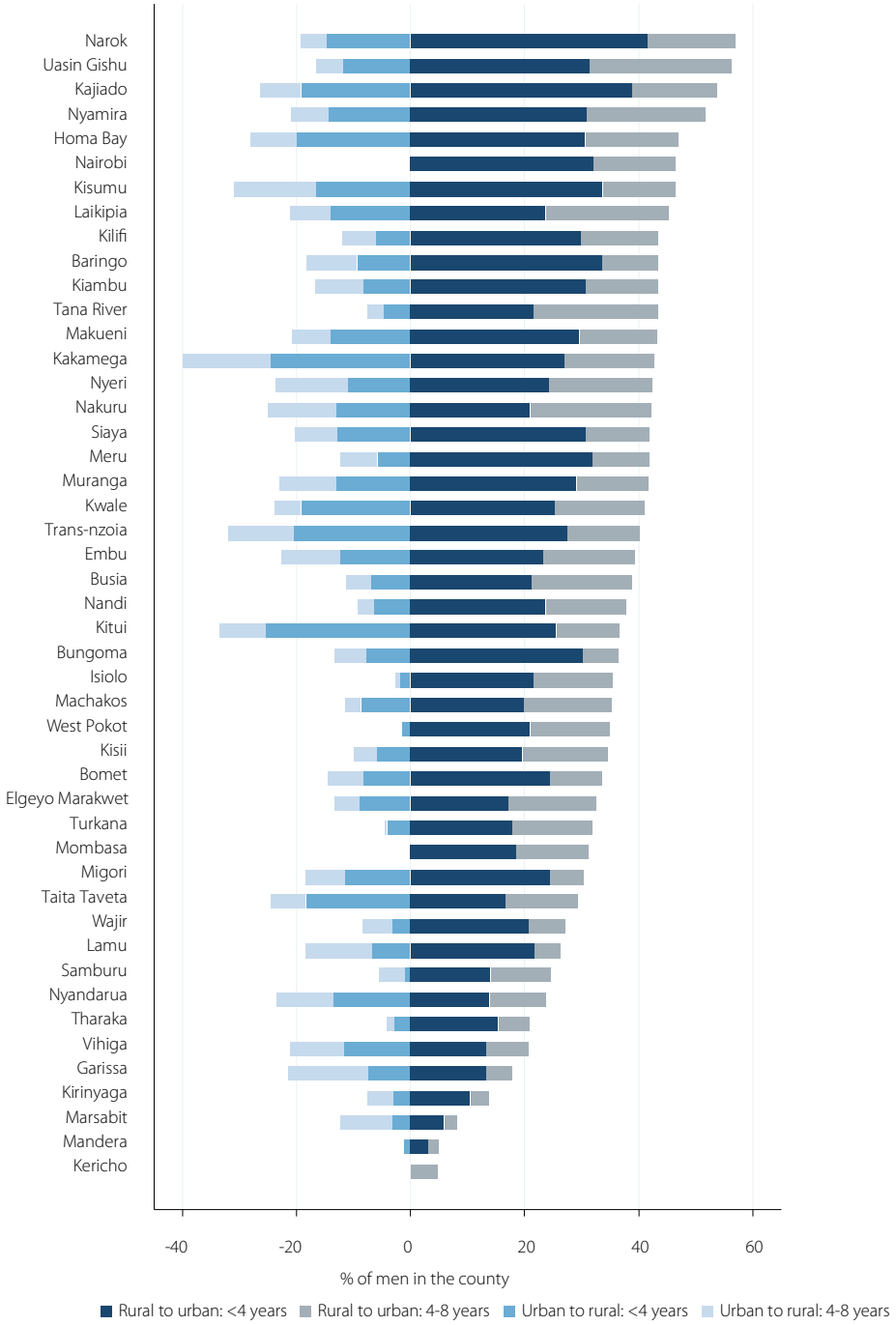


c) Ordered by services



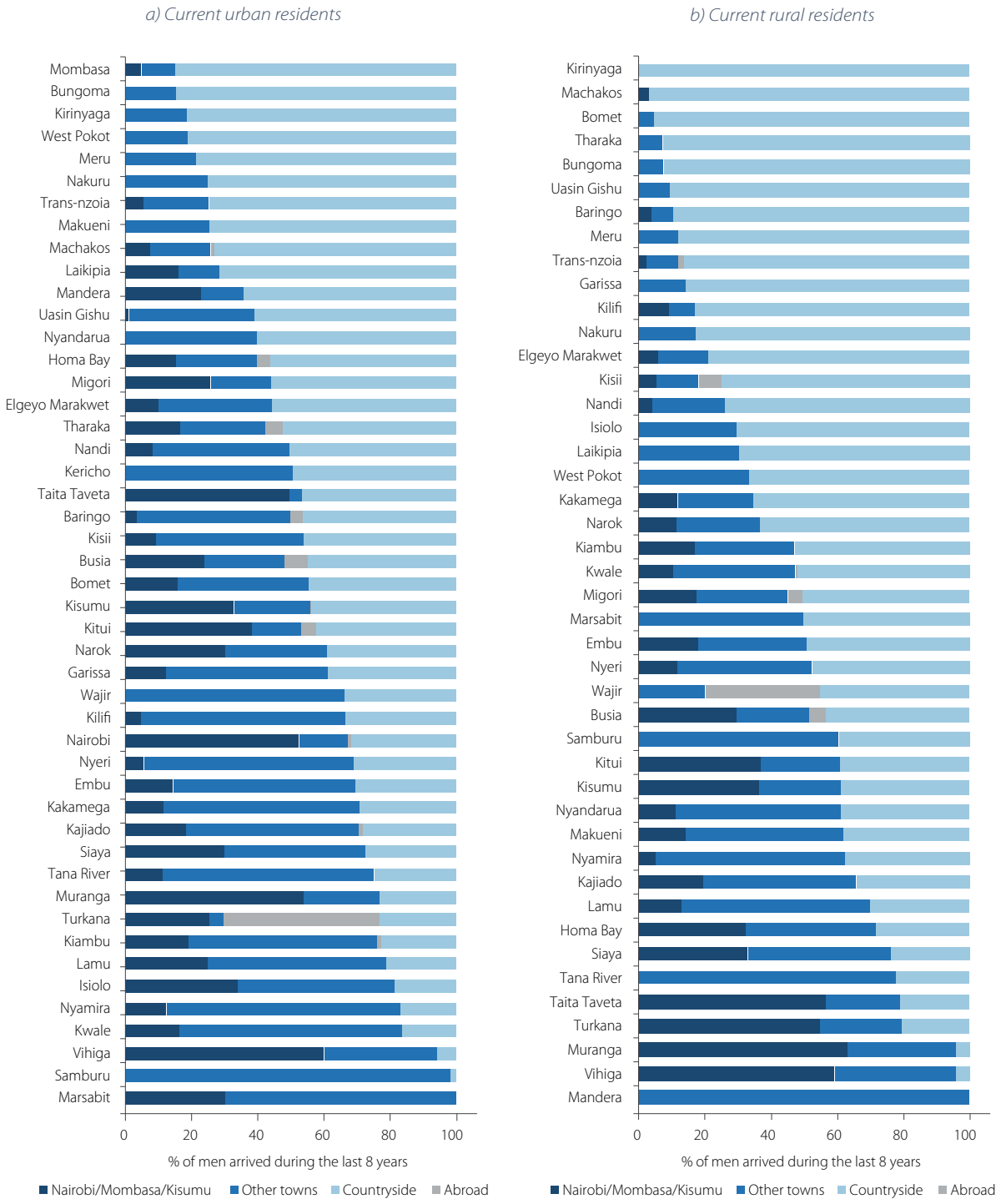
Source: Staff calculation based on KIHBS 2015/16.
Note: Counties are ordered from the highest share of (a) agriculture, (b) manufacturing, and (c) services.

Figure E.10: Duration of residence in 47 counties, 2014



Source: Staff calculation based on the 2014 DHS.
Note: Share of men who stay in the current residence less than 4 years or 8 years by previous residence (either urban or rural areas). Counties are ordered from the largest share of rural to urban migrants during the last 8 years (top) to the lowest share (bottom).

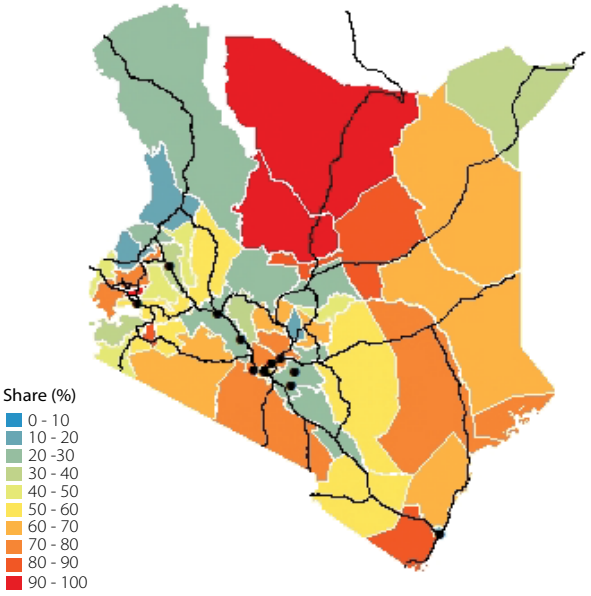
Figure E.11: Previous residence of recent migrants in 47 counties, 2014



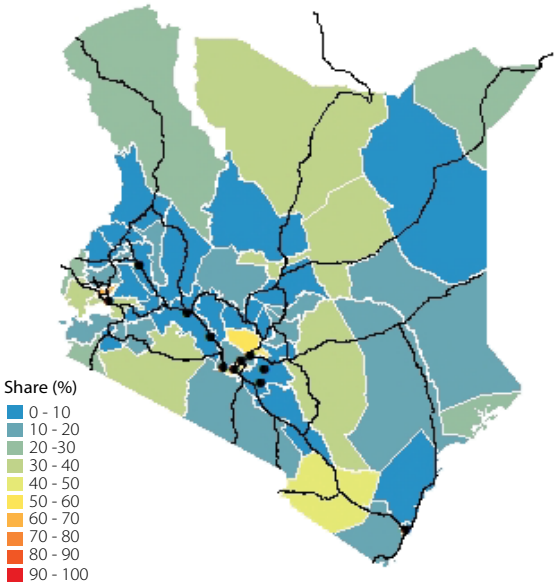
Source: Staff calculation based on the 2014 DHS.
Note: Share of previous residence among men who moved in the current residence during the last 8 years in urban areas (panel a) and rural areas (panel b). Counties are ordered from the largest share of countryside (top) to the lowest share (bottom).

Figure E.12: Previous residence of recent migrants in 47 countries, 2014

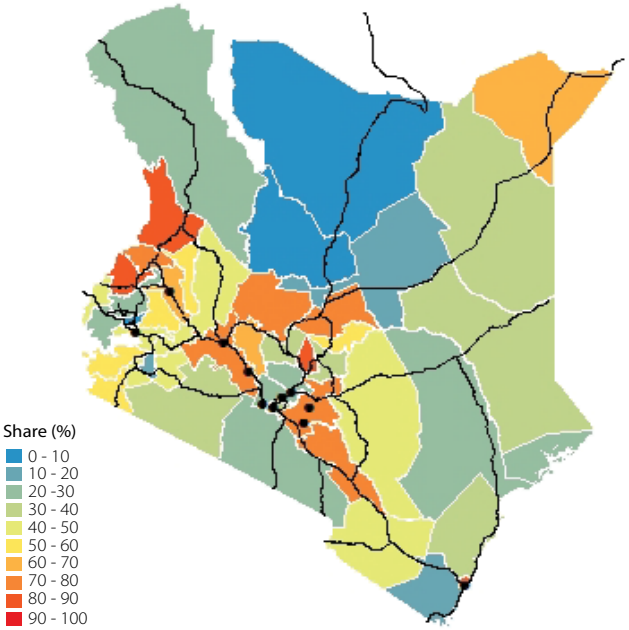
a) From urban



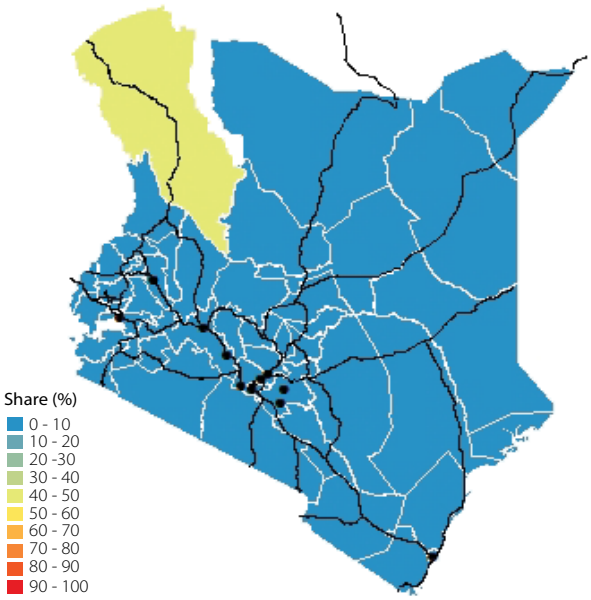
b) From NMK



a) From rural

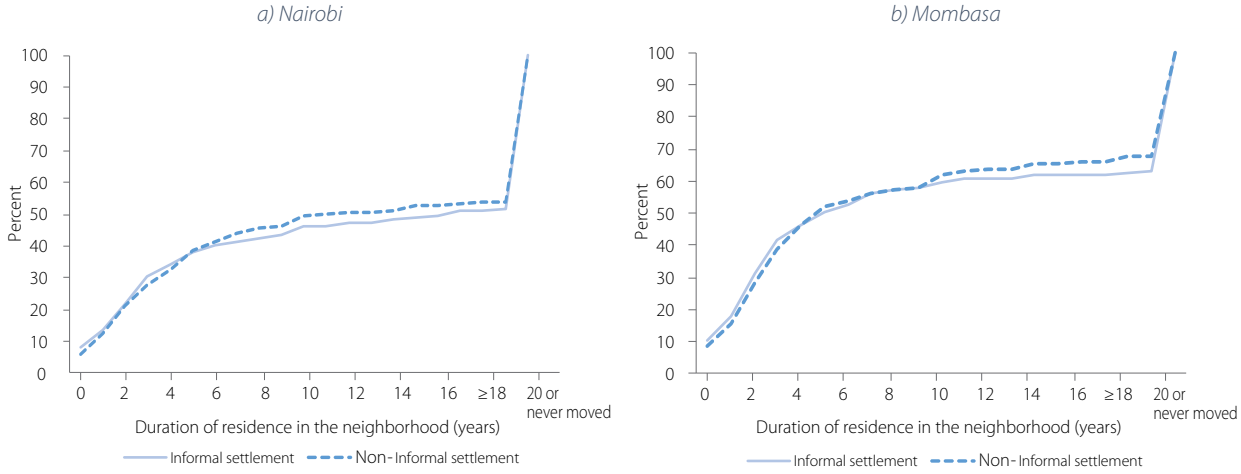


b) From abroad



Source: Staff calculation based on the 2014 DHS.
Note: Share of previous residence (a) from any urban area, (b) from either Nairobi, Mombasa, or Kisumu, (c) from rural area, and (d) from abroad, among men who moved in urban areas during the last 8 years

Figure E.13: Cumulative distribution of the duration of residence in Nairobi and Mombasa



Source: Cities baseline survey 2013.
Note: Households with duration of residence in the current neighborhood less than 30 years are shown for the purpose of presentation.

APPENDIX F: CHAPTER 6 ADDITIONAL MATERIALS

F.1. GERs and NERs in secondary and primary education by county

Table F.1: GERs and NERs in secondary and primary education by county

	Primary		Secondary	
	NER	GER	NER	GER
Mombasa	88.2%	102.4%	59.9%	95.4%
Kwale	71.0%	103.7%	16.8%	34.0%
Kilifi	76.5%	104.5%	25.7%	50.7%
Tana River	70.5%	93.9%	31.2%	62.7%
Lamu	80.0%	100.7%	31.4%	60.4%
Taita Taveta	90.4%	110.9%	49.3%	74.7%
Garissa	41.7%	59.8%	22.4%	52.5%
Wajir	56.1%	77.6%	22.2%	41.7%
Mandera	59.1%	79.3%	28.1%	59.5%
Marsabit	55.3%	69.3%	24.4%	40.6%
Isiolo	76.1%	95.7%	33.3%	56.8%
Meru	88.9%	114.2%	38.2%	73.1%
Tharaka Nithi	92.6%	122.6%	40.9%	72.0%
Embu	94.5%	119.2%	47.4%	68.8%
Kitui	92.1%	116.7%	37.8%	73.6%
Machakos	96.0%	117.6%	55.6%	99.9%
Makueni	95.4%	125.6%	45.2%	75.8%
Nyandarua	91.2%	108.1%	54.8%	87.4%
Nyeri	96.8%	116.6%	67.5%	102.3%
Kirinyaga	94.3%	111.9%	66.8%	92.5%
Muranga	93.7%	114.1%	56.8%	80.1%
Kiambu	90.8%	104.7%	67.8%	100.1%
Turkana	49.0%	71.7%	13.7%	36.9%
West Pokot	68.9%	100.3%	22.4%	57.8%
Samburu	60.7%	77.8%	17.9%	38.4%
Trans Nzoia	89.8%	114.8%	39.0%	77.6%
Uasin Gishu	89.7%	113.9%	44.0%	82.8%
Elgeyo Marakwet	89.8%	119.9%	32.4%	76.5%
Nandi	87.7%	118.7%	33.1%	71.8%
Baringo	84.9%	111.7%	30.2%	68.4%
Laikipia	77.0%	95.3%	45.2%	74.2%
Nakuru	92.5%	105.8%	45.7%	80.1%
Narok	77.0%	105.5%	22.4%	42.5%
Kajiado	81.3%	101.5%	44.9%	80.1%
Kericho	94.1%	118.2%	41.4%	73.3%

	Primary		Secondary	
	NER	GER	NER	GER
Bomet	93.1%	119.1%	35.8%	70.6%
Kakamega	89.8%	118.3%	41.3%	69.6%
Vihiga	90.4%	112.3%	48.1%	79.3%
Bungoma	85.9%	111.6%	46.3%	74.9%
Busia	83.4%	116.1%	25.9%	57.3%
Siaya	85.0%	109.1%	37.8%	60.6%
Kisumu	90.0%	110.5%	41.6%	76.3%
Homa Bay	85.0%	111.0%	35.4%	60.4%
Migori	80.1%	108.3%	37.0%	71.1%
Kisii	91.2%	111.7%	52.2%	92.8%
Nyamira	88.0%	106.8%	54.3%	98.3%
Nairobi	89.9%	100.9%	64.0%	111.0%

Source: Own calculations based on KIHBS 2015/16.

F.2. The transition from primary into secondary education

This appendix provides further evidence regarding the transition from primary into secondary. Gross enrolment ratios drop at the transition from standard seven to standard eight and, even more pronounced, at the transition from primary education into secondary education. This drop in GERs is more pronounced for children from families in the bottom 40 percent of the consumption distribution, which are on average 13.5 percentage points less likely to transition from primary into secondary education than children from families in the top 60 percent. This appendix presents further analysis of this phenomenon based on the 2015/16 KIHBS.

Several non-exclusive hypotheses can be tested with the data at hand. Affordability is an obvious candidate explanation for this large gap. However, the gap may also be explained by factors that are correlated both with household consumption expenditure and the transition such as the age at the time of the transition or geographical remoteness. With the data at hand, the following hypotheses can be tested empirically:

i. Secondary education is more expensive than primary (which is free for all practical purposes) and unaffordable for poorer households.

ii. Poorer households live in areas in which access to secondary schools is limited (e.g. children would have to travel larger distances).

iii. Poorer children are initially enrolled when they are already older than their richer peers. At the time they complete primary school, their opportunity costs of attending secondary exceeds the expected benefits.

The analysis is based on LPMs. Simple linear regression models were estimated with an indicator variable of a successful transition (from grade seven to grade eight of primary and from grade eight of primary into secondary). Explanatory variables include age of the child, a binary indicator for girls, a binary indicator for rural location, log per capita expenditure, the number of children in the household that attend primary and secondary, respectively, and a binary indicator for attending grade eight of primary in the previous school year. More sophisticated models include cluster-fixed effects in order to control for the physical accessibility of schools.

Physical access plays a minor role in explaining lower transition rates among the poor. On average over the pooled sample, a ten-percent increase in the per capita expenditure is initially associated with a one-percentage point increase in the probability

of transitioning into the next grade (column (1)). Controlling for age, gender, and rural locality and then including PSU-level fixed effects, the estimated coefficient drops to 0.8 and 0.7 percentage points, respectively, but remains statistically significant at the one- percent level (columns (2) and (3)). This suggests that locality and, thus, physical access, plays a minor role in explaining lower transition rates among the poor. Splitting the sample into children that attended seventh grade of primary in the previous school year and those that attended the final year of primary, it is found that a ten-percent increase in per capita expenditure is associated with an increase in the probability of transitioning from seventh into eighth and from eight grade of primary into the first grade of secondary by about 0.6 and 1.4 percentage points, respectively (columns (5) and (6)). However, only the later estimate is significant at conventional levels.

One additional year in age lowers the probability of a successful transition in secondary by about three percentage points. Older children at the time of transition may be able to earn higher wages in the labor market because of greater physical readiness. Hence, continuing their education may be associated with greater opportunity costs. It is found that one additional year in age is associated with a 2.4-3.0 percentage point decline in the probability of transitioning. It is also worth noting that among children enrolled in the eighth grade of primary, those in the bottom 40 percent of the consumption distribution are on average 0.84 years older than children in the top 60 percent. This suggests that only around one fifth of the gap between the bottom 40 percent and the top 60 percent can be explained by differences in age at the time they reach the final grade of primary.

Further support for the notion that costs associated with secondary play a major role comes from the estimated effects of the number of other children in the household that attend primary and secondary, respectively. While primary school attendance of other household members has no statistically significant effect on the probability of transitioning from primary into secondary, secondary school attendance of one additional household member lowers the probability of a successful transition by almost 20 percentage points (column (6)).

Table F.2: Determinants of transition from seventh into eighth grade of primary and from primary into secondary

	(1)	(2)	(3)	(5)	(6)	(6)
		Pooled			7th primary to 8th primary	8th primary to 1st secondary
Age		-0.024***	-0.030***	-0.030***	-0.014	-0.029*
		(0.005)	(0.008)	(0.008)	(0.013)	(0.015)
Girl		0.008	-0.011	-0.011	-0.052	0.011
		(0.015)	(0.024)	(0.024)	(0.045)	(0.050)
Rural		0.001				
		(0.034)				
Log p.c. expenditure	0.101***	0.079***	0.069**	0.069**	0.060	0.139*
	(0.013)	(0.016)	(0.033)	(0.033)	(0.056)	(0.072)
# of HH members in secondary education				-0.075**	-0.007	-0.196**
				(0.037)	(0.064)	(0.099)
# of HH members in primary education				-0.009	-0.010	0.099
				(0.034)	(0.063)	(0.069)
Grade 8 in previous year	-0.113***	-0.083***				
	(0.018)	(0.018)				
Cluster-fixed effects?			Yes.	Yes.	Yes.	Yes.
Observations	4,328	4,328	4,328	4,328	2,456	1,872
R-squared	0.038	0.054	0.506	0.508	0.585	0.800
Transition rate	0.792	0.792	0.792	0.792	0.836	0.736

Source: Own calculations based on KIHBS 2015/16.
Note: Significance level: 1% (***), 5% (**), and 10% (*). Standard errors clustered at the PSU-level reported in parentheses.

APPENDIX G: CHAPTER 7 ADDITIONAL MATERIALS

G.1. Did the provision of free maternity services increase deliveries in health facilities?

On June 1, 2013, the GoK initiated a policy of free provision of maternity services in all public facilities. The directive would take effect immediately and reportedly took many health professionals in the public sector by surprise: there were several reports of overcrowding and stock-outs at public maternity hospitals (Cherondo 2013). Prior to the reform, uninsured mothers were required to pay at least KSh 3,000 (about US$ 35 at 2013 exchange rates) for a normal birth and often considerably more.

The 2014 KDHS were employed to analyze the effect of the reform on private vs. public uptake as well as the share of deliveries in any type of formal health facility.[250] The timing of birth was exploited jointly with observations on birth by provider (if any) before and after June 2013. Both LPMs and logit models were used to model the choice of provider (public, private, or either). The LPMs were estimated with county-fixed effects, controlling for mother's age at birth and its square, locality (rural or urban), and mother's level of education in some specifications. It was found that a model that includes the interaction between month of birth (centered on the month in which the policy took effect) and a binary indicator for the reform was more appropriate than the alternative of either only the binary indicator for the reform or both variables. Table G.1 and Table G.2 report results from weighted estimations (using sample weights) but are robust to unweighted regression. In the preferred specification, the sample was restricted to two births that took place up to two years prior to the policy change and up to 18 months after the change.

Overall, results suggest that the June-2013 decision resulted in a shift in demand from private to public provision; the overall effect on the proportion of births taking place in either private of public facilities is small. Table G.1 reports main regression results from LPMs for the three different outcome variables in columns (1) through (3). Logit results were qualitatively similar and for brevity they are not reported here. The estimated coefficient on the main variable of interest, the interaction between treatment and month of birth, in column (1) suggests a positive effect on uptake of public provision: each month post-reform is associated with an increase in the share of deliveries in public facilities by about eight tenths of a percentage point. Column (2) suggests that the reform lowered the propensity to deliver in the private sector by around four tenths of a percentage point per month. Both effects are significant at the one- percent level. Finally, column (3) indicates that the combined effect on the share of deliveries in either public or private facilities is small and statistically significant only at the ten-percent level. This suggests that the largest effect of the policy change was a shift in demand from private to public provision *among those that would have given birth in a facility anyways*.

[250] The authors are aware of only one study that investigates the effect of this policy change in Kenya, Njuguna, Kamau, & Muruka (2017), and which finds a positive effect on the overall number of institutional deliveries. The study also finds a shift from private to public provision. However, the study lacks a clear identification strategy with regard to the first finding.

Table G.1: Regression results from LPMs – effect of free deliveries in public facilities on uptake by provider (N = 28,154)

	(1)	(2)	(3)	(4)	(5)	(6)
	Public	Private	Any	Public	Private	Any
Reform X month (centered)	0.008***	-0.005***	0.003*	-0.001	-0.000	-0.001
	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)	(0.003)
Reform X month X primary				0.009**	-0.002	0.006
				(0.004)	(0.003)	(0.004)
Reform X month X secondary or higher				0.014***	-0.012***	0.002
				(0.005)	(0.004)	(0.004)
	0.093	0.148	0.248	0.094	0.149	0.249

Source: Own calculations based on 2014 KDHS data.
Note: Significance level: 1% (***), 5% (**), and 10% (*). Standard errors clustered at the PSU-level reported in parentheses. All regressions include further controls (see text). Regressions in columns (4)-(6) include separate linear time trends for individuals with different levels of education.

More educated mothers in urban areas were the most likely to switch from private to public provision. Who are those that switch? Columns (4) through (6) present results from models in which the treatment-month-interaction was further interacted with educational attainment, a proxy for poverty. This shows that better educated mothers switched from private to public provision. There is no evidence for an effect on the propensity to deliver in any formal facility in column (6).

Table G.2: Regression results from LPMs – effect of free deliveries in public facilities on uptake by provider, urban and rural (N = 28,154)

	Urban			Rural		
	(1)	(2)	(3)	(4)	(5)	(6)
Reform X month (centered)	-0.019*	0.013	-0.006	0.002	-0.002	-0.001
	(0.009)	(0.008)	(0.008)	(0.003)	(0.002)	(0.004)
Reform X month X primary	0.030**	-0.017	0.013	0.005	0.001	0.005
	(0.011)	(0.009)	(0.009)	(0.005)	(0.002)	(0.005)
Reform X month X secondary or higher	0.037**	-0.031**	0.006	0.005	-0.004	0.002
	(0.011)	(0.010)	(0.008)	(0.006)	(0.004)	(0.005)
R-squared	0.057	0.125	0.124	0.127	0.078	0.207

Source: Own calculations based on 2014 KDHS data.
Note: Significance level: 1% (***), 5% (**), and 10% (*). Standard errors clustered at the PSU-level reported in parentheses. All regressions include further controls (see text). Regressions in columns (4)-(6) include separate linear time trends for individuals with different levels of education.

There is no effect in rural areas – the observed changes in the characteristics of mother across providers is driven entirely by urban residents – suggesting that cost is not a binding constraint to institutional delivery in Kenya. Splitting the sample by urban and rural dwellers, one finds that the change in the characteristics of mother across providers is only observed among mothers living in urban areas (Table G.2). This suggests that it is physical access or transport costs that are keeping prospective mothers from seeking deliveries in formal health facilities, not provider fees.

The results may have additional implications that should be explored further: distributional consequences and the potential for improved oversight. First, while the policy change did not increase uptake overall and not among the poor, it may still be pro-poor insofar as the transfer also benefits poor households that would have delivered in a public facility even in the absence of the policy change. However, a fraction of the transfer is also captured by better-off mothers that would have delivered in private facilities in the absence of the policy

change. How the benefits are distributed and, thus, whether the policy change was pro-poor has not been explored but could potentially be calculated based on assumptions about the costs of deliveries in the private and the public sector prior to the reform. Second, greater use of public services by better educated individuals is sometimes argued to be associated with increasing demand for quality, improved oversight, and monitoring. Better educated individuals may be more empowered to demand quality services. Since this oversight would constitute a public good, the poor may stand to benefit from this increased demand.

G.2. Effect of institutional delivery and skilled assistance on infant and neonatal mortality

The share of neonatal deaths, i.e., death within the first month of life, accounts for an increasing share of all child deaths. While infant and child mortality rates decreased in recent years, the increase was more pronounced for the latter (Figure 7.5). The share of neonatal deaths in total under-five deaths increased from three in ten to four in ten between 2003 and 2014. Progress in reducing under-five mortality in Kenya further will thus depend on finding ways to effectively address neonatal mortality. While it is often assumed that births that are assisted by skilled health professionals, doctors, nurses, or midwifes, and deliveries in formal health facilities are safer, there is at best very mixed evidence to support this claim (Box 7.2).

The DHS data provide information on deaths by age and circumstances around birth that can be exploited to estimate the effect of institutionalized delivery and assistance on mortality. Data from the 2014 KDHS was used to investigate the link between mortality and assistance at the time of birth. Logit models were estimated that relate child deaths within the first month of life (neonatal mortality) and the first twelve months of life (infant mortality) to binary indicators for assistance through a doctor, a nurse, or a midwife (vis-à-vis no assistance or assistance by somebody else) as well as the place of delivery (government hospital, public health center, public dispensary, mission hospital, or private hospital as opposed to private home).[251] The sample was restricted to births that took place within the last five years but at least one month or twelve months ago for neonatal and infant mortality respectively. Births of multiples were excluded. Controls are the gender of the child, dummies for the month of birth and the order of birth, as well as dummies for educational attainment of the mother, household wealth quintile (based on the DHS asset index), age of the mother and age squared, urban/rural locality and county fixed effects.

Table G.3: Effect of institutional delivery and assistance on neonatal mortality (odds ratios/t-values) (N = 19,080)

	(1)	(2)
Assisted by doctor, nurse, or midwife	0.91	
	(-0.48)	
Delivery in formal health facility		1.03
		(0.14)

Source: Own calculations based on 2014 KDHS data.
Note: Significance level: 1% (***), 5% (**), and 10% (*). Standard errors clustered at the PSU-level reported in parentheses. All regressions include further controls (see text).

An analysis based on observational data and retrospective reports is also subject to important limitations. Major concerns include selection of better-off mothers into formal health facilities or into deliveries assisted by skilled professionals and adverse selection into assistance by health professionals with higher levels of formal qualifications and higher-level facilities (Okeke and Chari 2016). The former problem may potentially be addressed by including controls such as household wealth, maternal education, etc. But there is no obvious way to address the latter problem with the data at hand. Note that the two will have opposite effects on estimates.

[251] Other categories, such as "en route to provider" were discarded.

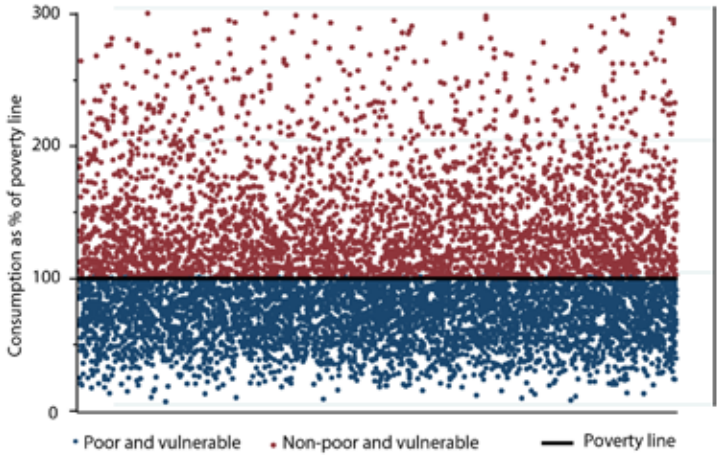
Another concern in the Kenyan context is to differentiate between the effects of assistance and the effects of institutionalized birth. Both indicators are highly correlated in Kenya, that is, assisted births typically only take place in formal facilities.[252] This makes it impossible to disentangle their effects. Both variables were used in separate estimations.

The null hypotheses of no effect of assistance by a doctor, a nurse, or a midwife and no effect of delivering in formal health facility could not be rejected at the 95-percent level of confidence. Results from logit estimates for neonatal mortality are reported in Table G.3. Results for infant mortality were similar qualitatively and were thus omitted for brevity. Neither assistance during delivery by a doctor, or midwife, nor delivery in a formal health facility was associated with a lower risk of neonatal mortality.

[252] Only around two percent of the births in the dataset were either assisted but did not take place in a facility or were delivered in a facility without the assistance of a doctor, a nurse, or a midwife.

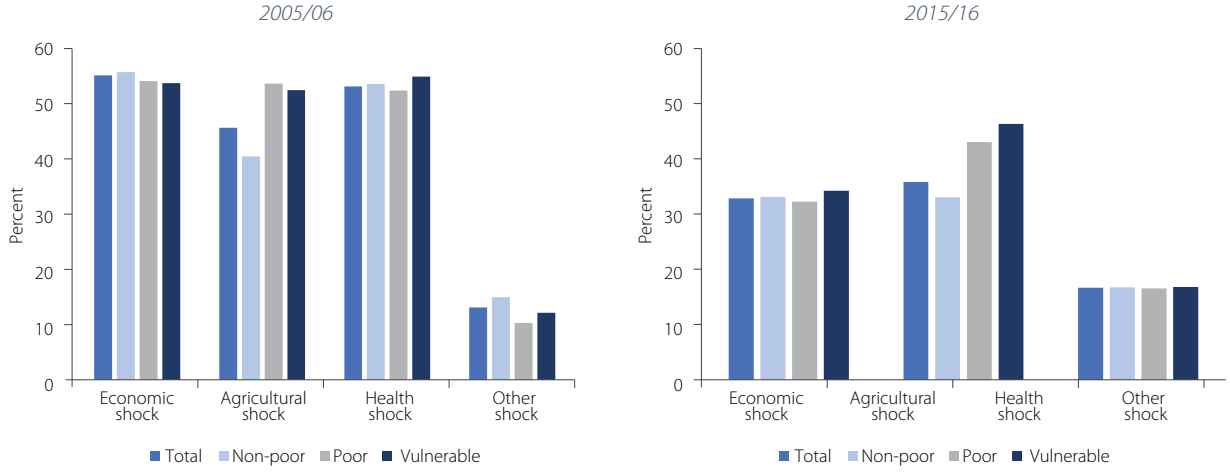
APPENDIX H: CHAPTER 8 ADDITIONAL MATERIALS

Figure H.1: Consumption levels of vulnerable households, relative to the poverty line: 2015/16



Source: Own calculations from KIHBS 2015/16.

Figure H.2: The prevalence of shocks by poverty and vulnerability status: 2005/06 and 2015/16



Source: Own calculations from KIHBS 2005/06 and KIHBS 2015/16.

Table H.1: Coping strategies by poverty status for agricultural households only: 2015/16 (%)

			(1)	(2)
Used savings	24.5	21.0	26.2	***
Send children to relatives	0.4	0.8	0.2	***
Sold assets	0.9	0.8	0.9	
Sold farmland	0.4	0.4	0.4	
Rented farmland	0.7	0.7	0.7	
Sold animals	10.5	12.2	9.7	***
Sold more crops	2.7	1.9	3.1	***
Worked more	10.7	10.7	10.7	
HH member started work	0.4	0.7	0.3	*
Started business	2.1	1.4	2.4	**
Children worked	0.3	0.6	0.1	**
Migrated for work	1.7	1.8	1.6	
Borrowed from relative	3.4	4.5	2.8	***
Borrowed from moneylender	0.6	0.7	0.5	
Borrowed from formal institution	0.6	0.1	0.9	***
Help from church	0.6	1.3	0.2	***
Help from local NGO	0.1	0.2	0.0	*
Help from Intl. NGO	0.9	1.7	0.5	***
Help from government	2.2	4.7	1.0	***
Help from family member	5.1	6.9	4.1	***
Reduced food consumption	13.7	17.9	11.6	***
Consumed less	6.3	6.8	6.1	
Reduced non-food consumption	9.3	12.4	7.9	***
Spiritual help	5.3	4.8	5.5	
Other coping strategy	4.8	4.5	5.0	

Source: Own calculations from KIHBS 2015/16.

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