

Union of Comoros

Comoros Poverty Assessment



April, 2017

GPV01

AFRICA



Acknowledgement

This report has been prepared by Nadia Belhaj Hassine Belghith (GPV01 and TTL). Additional research and writing support was provided by Pierre de Boissezon (GPV01); Shinya Takamatsu (GPV01); Faniry Nantenaina Razafimanantsoa Harivelo (GMF13); Natasha Sharma (GMF13); and Shireen Mahdi (GMF13). Data preparation benefitted from support by Agnès Zabsorné (African School of Economics, Benin) and Maria A. Lopera (University of Munich LMU).

The analysis on the labor market and informality was prepared by Muthoni Ngatia (AFRCE), Julia Rachel Ravelosoa (GSP01) and Pierre de Boissezon (GPV01) with the supervision of Andrea Vermehren (GSP01). The fiscal incidence analysis was prepared by Jon Jellema (University of California Berkley) and benefitted from additional support by Shireen Mahdi (GMF13), Ruth Hill (GPV01) and Gabriela Inchauste (GPV03). The analysis of remittances was conducted by Mireia Duran Mate (Georgetown University). The team worked closely with the researchers to ensure the consistency of the analytical methods, findings, and main messages. Support from Sylvaine Cussac (Consultant) for the editing of the report is gratefully acknowledged.

The team would like to extend its sincere thanks to the National Institute of Statistics, Economic and Demographic Studies (INSEED) and the Ministry of Finance and Budget of Comoros for the important support and critical feedback provided throughout the preparation of the report.

The team would also like to thank constructive comments and suggestions from Rose Mungai (GPV07), Clarence Tsimpo (GPV01), Victor Sulla (GPV07), and Carolin Geginat (AFCS2). The team expresses its sincere gratitude to Said Ali Antoissi (AFMMG) for his tremendous support in organizing the meetings with the Government of Comoros and facilitating the access to the information required for the preparation of this report.

The team gratefully acknowledges guidance from Pablo Fajnzylber (Practice Manager GPV01), Pierella Paci (acting Practice Manager GPV01), Coralie Gevers (Country Manager AFMMG), and Mark Lundell (Country Director AFCS2).

Finally, the team offers its sincere thanks to Martin Buchara (GPV01), Senait Yifru (GPV01), and Arlette Sourou (GPV01) for their valuable assistance during the preparation of the report.

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Acronyms and Abbreviations

AfDB	African Development Bank
AFRISTAT	L'Observatoire économique et statistique d'Afrique subsaharienne - <i>The Economic and Statistical Observatory of Sub-Saharan Africa</i>
BCC	Central Bank of Comoros (Banque Centrale des Comores)
CBN	Cost of Basic Needs
CE	Cereal equivalent
DHS	Demographic and Health Survey
EESIC	Enquête sur l'Emploi, le Secteur Informel et la Consommation
EIM	Enquête Intégrale auprès des Ménages
FDI	Foreign Direct Investment
GDP	Gross domestic product
GNI	Gross National Income
GOC	Government of Comoros
INSEED	National Institute of Statistics, Economic and Demographic Studies
KMF	Comorian franc
LIC	Low Income Countries
MDG	Millennium Development Goal
MPI	Multidimensional Poverty/Deprivation Indicator
NGO	Non-Governmental Organization
PIT	Personal -Income Tax
SCA2D	Accelerating Growth and Sustainable Development
SCRP	Poverty Reduction Strategy Paper
SSA	Sub-Saharan Africa
WB	The World Bank
WDI	World Development Indicators

Glossary

Poverty headcount or *monetary basic needs poverty rates*: measures the proportion of the population whose monthly (price-adjusted) total household consumption per person is below the national basic needs poverty line.

Extreme poverty headcount: proportion of the population whose monthly (price-adjusted) total household consumption per person is below the food poverty line. The extreme poor are unable to meet the minimum nutritional requirements of 2,200 kilocalories (Kcal) per person per day.

Poverty gap or *depth of poverty*: measures the distance between the average consumption of the poor and the poverty line.

Severity of poverty: estimates the inequality among the poor.

International poverty: proportion of the population whose daily total household consumption per person is below the international poverty line of US\$ 1.9 per person per day (in 2011 Purchasing Power Parity exchange rate).

Dimension-specific deprivation: proportion of households (or individuals) who suffer from a deprivation or a shortfall from a threshold on a specific dimension of well-being such as education, access to basic services, consumption and so forth. For example, water deprivation is measured by the proportion of households who lack access to safe (or improved) drinking water.

Multidimensional poverty or *Multidimensional Poverty Indicator (MPI)*: assesses the different deprivations that a person faces at the same time. A person is considered as multidimensionally poor if she/he suffers from deficiencies or deprivations in at least 30 percent of the indicators covering five dimensions of well-being, namely: education, housing conditions, access to basic services (water, electricity, sanitation), assets ownership and consumption.

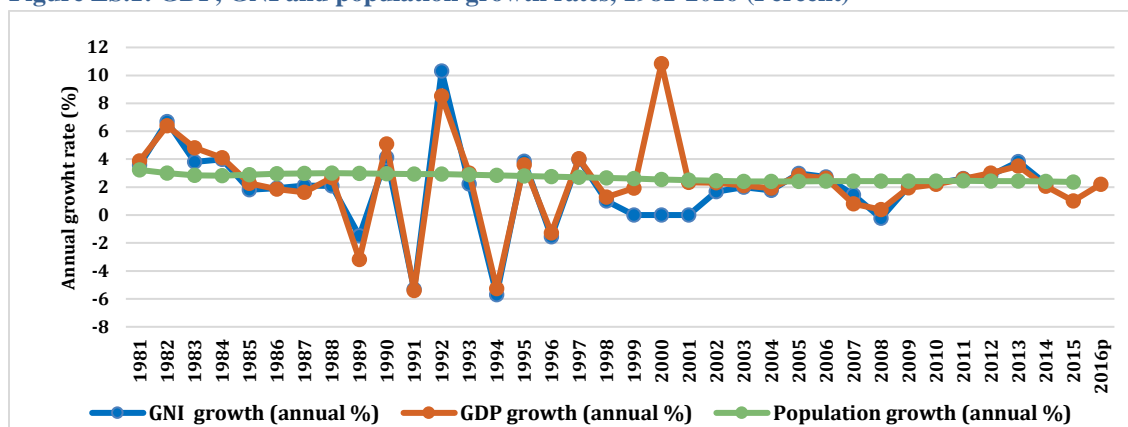
Severe deprivation: indicates deprivation in more than 50 percent of the indicators covering the five dimensions of well-being.

Vulnerability to multidimensional poverty: proportion of households (or individuals) who are deprived in between 10 and 30 percent of the indicators of well-being.

Executive Summary

Since its independence in 1975, Comoros underwent periods of repetitive socio-political tensions, leading to the categorization of the country as a fragile State. The adoption of a new constitution in early 2000s has resulted in political stability and more steady economic growth. Figure ES.1 shows the evolution of Gross Domestic Product (GDP) and Gross National Income (GNI) growth since 1980. Economic growth, as measured by both GDP and GNI, was on average relatively stronger, but also more volatile, in the 1980s and 1990s than during the last 15 years. The pace of growth was too slow and has been outpaced by population growth, resulting in the stagnation of the GDP as well as GNI per capita. For instance, Comoros' GDP per capita in 2014 was lower than its mid-1980s' level. While sub-Saharan Africa has experienced an acceleration of growth since early 2000s, Comoros' economy kept struggling to take off.

Figure ES.1: GDP, GNI and population growth rates, 1981-2016 (Percent)



Source: World Development Indicators 2016.

Notes: GNI growth rate is not available for 1999, 2000 and 2001.

GNI is defined as gross domestic product, plus net receipts from abroad of wages and salaries and of property income, plus net taxes and subsidies receivable from abroad. Given the importance of remittances in Comoros, GNI may be a more appropriate measure of economic growth than GDP.

The low performance in terms of per capita GDP and GNI growth does not match figures from household surveys.¹ The available household surveys for 2004 and 2014 show an important increase in household per capita consumption during the last decade, which contrasts with the picture of an underperforming economy, growing at a slow and often negative rate since early 2000s. The existence of such sizeable discrepancies in the consumption patterns picked up by national accounts and household surveys might be explained by a number of factors. Besides the conceptual differences between national accounts and surveys, these discrepancies can be driven by various causes, including the importance of the informal sector in the economy, the heavy reliance on remittances, which flow in large part through informal channels, and the

¹ While differences between household surveys and national accounts are quite common in developing countries, they appear to be much larger in the case of Comoros, where the signs of the growth rates from National Accounts and household surveys are different in some years.

limited quality and coverage of both national accounts and household survey data. The investigation of these causes requires a thorough analysis that is beyond the scope of this report.

Despite progress towards economic recovery, the country continues to bear out the consequences of fragility. A narrow resource base, a small domestic market and a weak business environment have made it challenging for Comoros to diversify its economy. These problems are further compounded by important infrastructure deficits, particularly in terms of access to electricity, and a weak international connectivity. The economy is widely characterized by informality and offers few opportunities for the poor to have more productive jobs and better living standards. Fertility levels remain fairly high, at around 4.2 children per woman, resulting in a population growth of about 2.4 percent per year that dilutes economic growth. Agriculture, which represents the main source of livelihood and jobs for around half of the poor, remains dominated by small-scale subsistence and rainfall farming and is highly vulnerable to shocks. The country heavily depends on remittances and the scarce resources available are mostly channeled to consumption; only a small proportion that is primarily financed from external funding is directed towards investments.

The national development strategies focus on the acceleration of growth and vulnerability reduction. The Poverty Reduction and Growth Strategy Paper (SCRIP) and the new strategy for Accelerating Growth and Sustainable Development (SCA2D) focus on the acceleration, diversification, and sustainability of economic growth; and the promotion of human resilience with the expansion of access to social services and the strengthening of governance, thus accelerating poverty and vulnerability reduction. Both strategies have the potential of helping speed up progress towards the Twin Goals of eliminating extreme poverty and promoting shared prosperity. The available household survey EIM 2004 represented the main source of primary data for the analysis of poverty and inequality as well as for framing antipoverty programs. However, besides being outdated, this survey suffered from serious quality issues.² The recently completed Household Budget Survey (EESIC) for 2014 overcomes part of these limitations and can, hence, provide a better basis for a comprehensive analysis of poverty and inequality and their underlying causes.

The Poverty Assessment for Comoros aims to respond to this need and presents the first analysis using the new household survey data from 2014. The present report draws on the availability of the EESIC 2014 to provide a robust diagnostic of poverty and inequality in Comoros and to bring new evidence to better inform policies aimed at poverty alleviation and equity. The analysis is complemented with data from various sources, including the previous household survey EIM 2004 and the Demographic and Health Survey (DHS) for 2012. Through a pro-active consultation and dissemination approach, the empirical insights generated by this report are expected to turn into key findings and recommendations for local public policy debates.

² Quality problems include the limited coverage of consumption items, under-reporting and recall errors, limited availability of conversion factors for local units and so forth.

The first chapter of the report will provide an overview on the country’s context, assessing the macroeconomic performance and governance environment. The remaining chapters are organized as follows: the second chapter examines the incidence and structure of consumption poverty and inequality using the most recent survey, EESIC 2014. The third chapter assesses the evolution of poverty and living conditions since 2004, and investigates the extent and changes of multidimensional poverty. The fourth chapter analyzes the labor market situation and investigates the specific case of informal employment. The fifth chapter focuses on immigration and remittances, while the last chapter assesses the fiscal incidence.

Fairly high poverty incidence at the national level, but relatively low compared to SSA countries

Around four out of ten Comorians live below the national poverty line and nearly one fourth of the population is in a state of extreme poverty. In 2014, 42.4 percent of the population (around 316,000 people) lived below the basic needs poverty line of KMF 25,341 per capita per month. About 23.5 percent of the population is in extreme poverty, and hence cannot afford to buy enough food to meet the minimum nutritional requirements of 2,200 kilocalories (Kcal) per person per day (Figure ES.2). However, using the international poverty line of US\$1.9 per capita per day (at the 2011 Purchasing Power Parity exchange rate), only two out of ten Comorians would be classified as poor, a rate that puts Comoros ahead of other Low Income (LIC) and Sub-Saharan African (SSA) countries by up to 30 percentage points (Figure ES.3). However, compared to some of the richer Island Nations in the region, such as Mauritius or Seychelles, Comoros’ poverty rate is significantly higher.

Figure ES.2: Poverty and Extreme Poverty Incidence (in percentage)

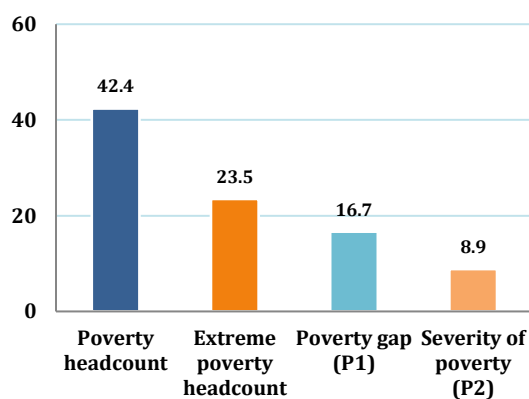
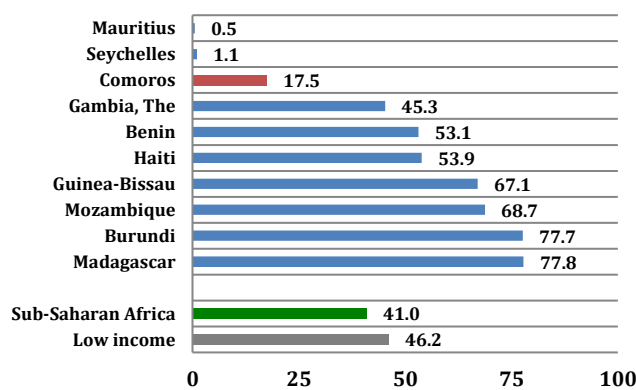


Figure ES.3: International Poverty Estimates in Comoros and Other Developing Countries (in percentage)



Sources: EESIC 2014 and World Development Indicators (WDI, 2016).

An important proportion of the poor population is fairly close to the poverty line, likely to escape from poverty. The average consumption level of a poor Comorian is around 83 percent of the national poverty line and about one fourth of the poor population stagnates right below the poverty line and can move out of poverty if their income would increase by around KMF 167 per capita per day (US\$ 0.7, 2011 PPP). At the same time around 10 percent of the population currently find themselves at a consumption level right above the poverty line (within a range of

KMF 210 per person per day), and are therefore prone to falling back into poverty in case of unexpected economic shocks.

The geographic distribution of poverty is uneven, and is more pervasive in rural areas as well as outside the island of Ngazidja. About 70 percent of the poor live in rural areas where the incidence of poverty is estimated at 49.9 percent against 31 percent in urban areas (Figure ES.4). Poverty is also less prevalent in Ngazidja (*Grande Comore*), particularly in the capital city Moroni where the poverty rate is estimated at 36.5 percent, compared to poverty levels of more than 45 percent in Ndzouani and Mwali (Figure ES.5).

Figure ES.4: Poverty Incidence by Area (in percentage)

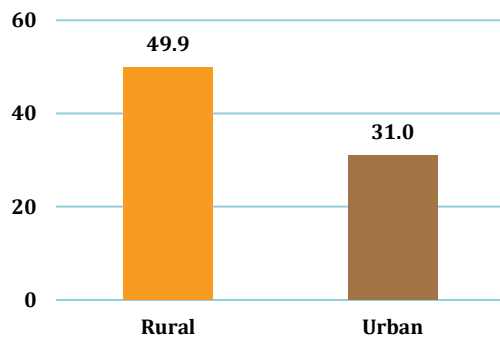
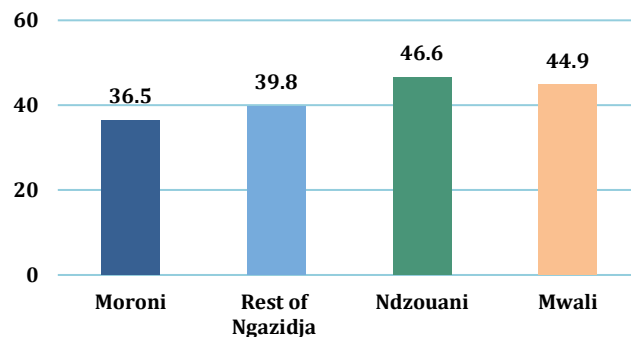


Figure ES.5: Poverty Incidence by Island (in percentage)

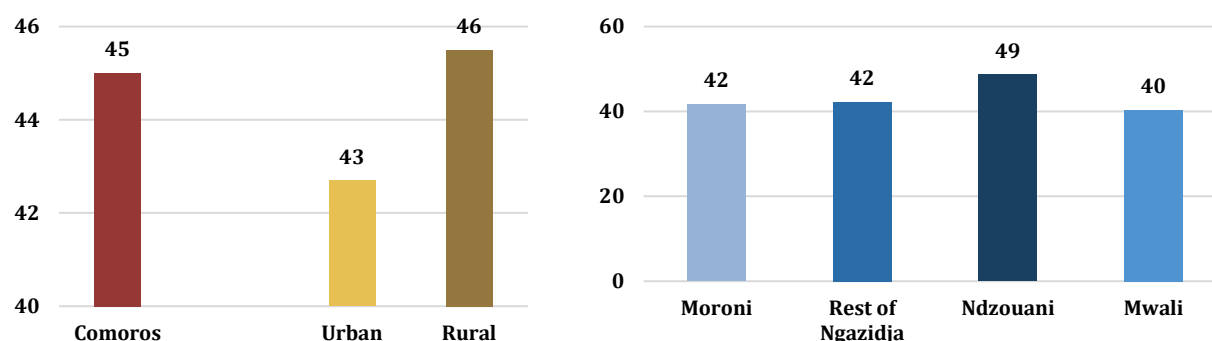


Source: EESIC 2014.

Inequality is quite pervasive in Comoros, mainly driven by differences between education and employment groups as well as conditions in local communities

Consumption inequality is significant in Comoros, with disparities being most pronounced in rural areas and Ndzouani. The Gini coefficient of real per capita monthly consumption indicates that the overall level of inequality for Comoros is approximately 45 (Figure ES.6), on par with the SSA average of 45.1, but significantly higher than the LIC average of 40. Inequality is mainly resulting from disparities in living standards within population groups, but important welfare differences between education and sector of employment groups are found to also significantly contribute to the overall welfare disparity. Differences between employment groups appear to be meaningful in Ndzouani, probably driven by the high prevalence of self-employment, the high rates of underemployment in the island, and the presence of the archipelago’s largest port.

Figure ES.6: Inequality in Comoros by Gini Coefficient



Source: EESIC 2014.

Rural households fall behind urban ones mostly because they receive smaller returns on their endowments. Urban households tend to be better endowed than rural ones: they have smaller family sizes, more assets, particularly communication means and electricity generators, better access to employment in commerce and manufacturing or industry, as well as public administration, and higher access to basic services and infrastructure, mainly electricity, safe drinking water, markets and schools. However, rural-urban inequality is mainly explained by the higher returns that the same endowments generate in the urban sector. In particular, differences in returns to assets and access to basic infrastructure are the most important factors explaining the inequality gaps between rural and urban poor households. Returns to geographic and community characteristics also seem to diverge significantly, probably reflecting disparities regarding access to financial services and the quality of basic services.

The characteristics of poor households contribute to the intergenerational persistence of poverty and inequality. Around one-fifth of total inequality in consumption is due to unequal opportunities associated with observed Comoros households' circumstances. This is quite a sizeable share compared to other SSA countries. Inequalities of opportunities are significantly higher in rural areas and are essentially driven by the individual's region of birth, indicating the large role played by birthplaces in shaping opportunities. The importance of local community's characteristics in explaining the disparities in terms of the distribution of returns and inequalities of opportunity may reflect the past historical political instability and the effects of the past concentration of political power and economic resources.

Large family sizes, lower education, and engagement in agriculture contribute to poverty, while internal migration seems to be related to lower poverty

Poor households tend to have larger families and more dependents with lower education levels and less mobility. Poor households are more likely to be larger and comprise six members on average compared to an average of four members for non-poor families. They also tend to have more dependents, with on average three children under the age of 15. Poverty consistently increases with the number of children, reaching 70 percent among households with five or more

children, compared to less than 20 percent among households with no children. The interaction between family size and poverty is bidirectional. On the one hand, the large number of dependents affects the ability of the poor to cover their basic consumption needs. On the other hand, the poor tend to have more children to compensate their inability to invest in the human capital and as an insurance strategy against infant mortality. Although primary education continues to be of crucial importance for fighting poverty, it alone seems no longer sufficient to increase poor people's opportunities for moving out of poverty. There is a considerable poverty gap between households whose head has secondary or upper education and households whose head has no or only primary education. Finally, households that do not have a history of internal migration seem more prone to be poor.

Wage employees and workers in non-farming businesses are less likely to be poor, whereas access to public infrastructure is associated with lower poverty incidence. Nearly 75 percent of the poor are self-employed/own-account workers and over half of them depend on agriculture for their livelihoods. Poverty seems to be much less prevalent among households whose heads operate in the service sector and to a lesser extent industry and trade. Poverty is also significantly lower among wage employees and less than 10 percent of the poor work in government and public administrations. In terms of infrastructures, poor households tend to have much lower access to piped water, electricity, and markets. The existence of obstacles to access basic infrastructure and services seems to seriously limit the possibilities of the poor to improve their living standards.

Poverty has declined since 2004, but little progress was achieved towards shared prosperity

Poverty declined by over 10 percentage points since 2004. The analysis of the poverty trend is challenged by changes in the household surveys design between 2004 and 2014. The comparability issues were addressed using two different methods: the reevaluation of the consumption aggregates for EIM 2004 using the same approach as in 2014, and the small area imputation method. The different adjustment approaches support the decline of poverty and extreme poverty, and show that poverty has dropped by approximately 1.2 percentage points per year between 2004 and 2014. The reduction in poverty was achieved in both rural and urban areas, but poverty remains significantly lower in urban zones (Figure ES.7).

Figure ES.7: Poverty trends, 2004-2014 (in percentage)

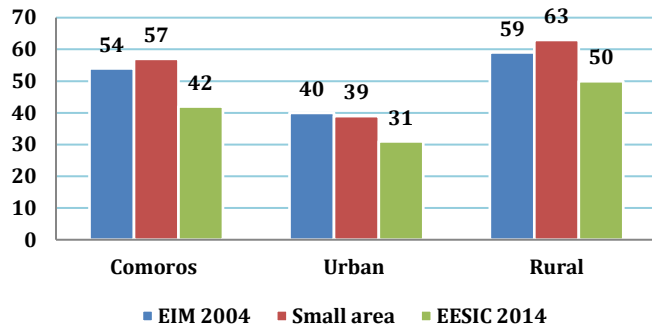
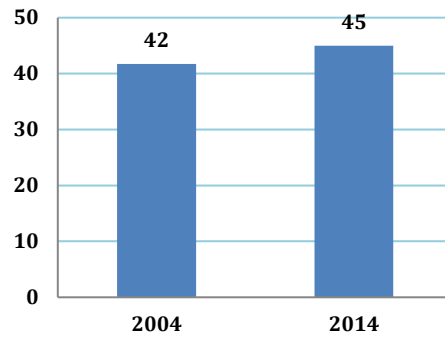


Figure ES.8: Inequality trends 2004-2014 (Gini coefficient)



Sources: EIM 2004 and EESIC 2014.

The positive changes in poverty are driven by the rise of mean household consumption, while consumption distribution deteriorated. The decline in poverty contrasts with the pattern of economic growth measured as changes in GDP per capita. However, when using survey-based consumption growth, poverty reduction appears to be more responsive to growth than suggested by National Accounts data. Yet the results indicate a sluggish response of poverty to economic changes with a growth elasticity of poverty estimated at -0.7, that is a 1 percent increase in the survey mean will reduce poverty headcount by only 0.7 percent. The relationship between consumption growth and poverty involves changes both in mean consumption and changes in the distribution of consumption across households. The reduction in the poverty headcount was entirely driven by the increase in mean household consumption (growth effect) with no redistribution effects, as inequality seems to have increased (Figures ES.8 and ES.9). The same pattern was observed at the national as well as rural-urban and Islands levels.

Figure ES.9: Growth and Redistribution Effects of Poverty Reduction (in percentage points)

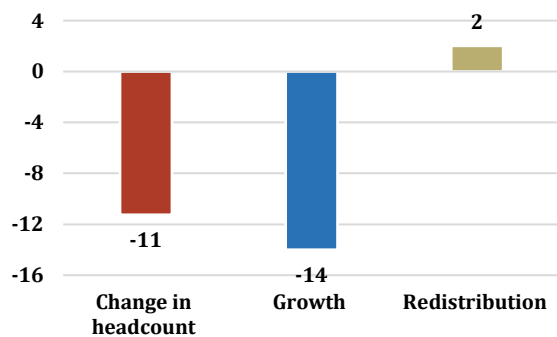
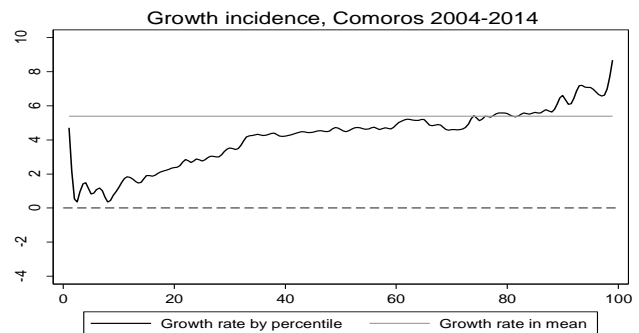


Figure ES.10: Growth Incidence Curve



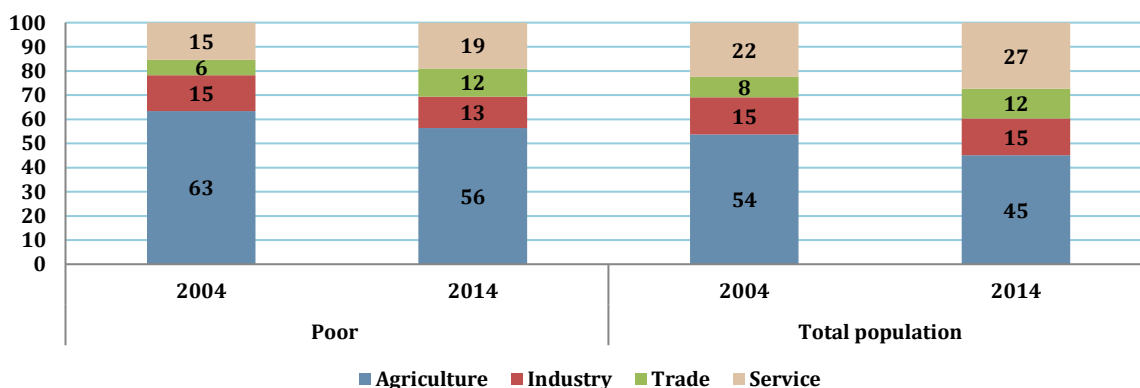
Sources: EIM 2004 and EESIC 2014.

Comoros has made little progress towards shared prosperity. The growth incidence curve for 2004–2014, which shows the percentage change in average consumption for each percentile of the distribution, is upwardly sloped, indicating higher growth amongst the richer and better off

population groups in Comoros (Figure ES.10). While the average per capita consumption increased by about 30 percent between 2004 and 2014, the average consumption of the poor and the bottom 40 percent of the population only grew by about 4 percent and 15.5 percent respectively. Therefore, despite the improvements witnessed in poverty levels, the poor and vulnerable groups benefitted less than proportionately from growth and the increase in living standards.

The welfare gains observed between 2004 and 2014 stemmed to a large degree from improved endowments for poor households, followed by increase of returns to employment in manufacturing and trade sectors. The increase of endowments was more marked for the poorest groups of the population and appears to be resulting from the relative expansion of assets ownership, mainly communication and transportation means, and higher educational attainment of household’s heads and members. Increase of the returns to employment in industry (or manufacturing) and trade further contributed to poverty reduction. There has been a movement of labor out of agriculture towards trade and services between 2004 and 2014 (Figure ES. 11). This shift has been coupled with an increase in returns to employment in industry, followed by better returns in the trade sector, though from a low base.

Figure ES.11: Shares by Major Employment Sectors of the Household’s Head (in Percentage)



Sources: EIM 2004 and EESIC 2014.

The reduction in poverty was coupled with improvements in living conditions and multidimensional poverty, but important deprivations remain in terms of access to social services and assets

Human development outcomes and living conditions also improved between 2004 and 2014. All households saw improvements in their housing conditions and modern amenities, such as television sets and communication means. Ownership of transportation means and livestock improved as well, but possession of modern transportation means and big livestock is still limited. Access to piped water and improved sanitation also increased, though the use of unimproved water and sanitation remains highly prevalent. The lack of access to electricity and efficient energy sources for cooking is even more acute. Significant achievements were made on

the human development fronts, with the remarkable expansion in education enrollment, particularly enrollment in upper secondary and tertiary levels. Indicators on health outcomes show that Comoros performs better than SSA countries in terms of maternal and infant mortality, but the stunting level remains high, indicating potential chronic malnutrition in the country.

Multidimensional poverty significantly declined in conjunction with the improvements of living conditions, but the population remains vulnerable to deprivation and poverty. The proportion of the population suffering from deprivations in around a third of relevant dimensions of well-being, such as consumption, access to basic services, assets, and housing conditions declined from 85 percent in 2004 to 75 percent in 2014. The share of deprivations experienced by the poor relative to the maximum range of deprivations among the whole population also declined, indicating a reduction of the breadth of the multiple deprivations encountered by the poor. A more significant decline was observed in the proportion of the population groups suffering from severe deprivations in over half of the welfare dimensions. However, the vulnerability rates markedly increased, indicating that those who were able to move out of (multidimensional) poverty remain near the deprivation thresholds and are therefore vulnerable to fall back into poverty (Figure ES.12).

Figure ES.12: Proportion of multidimensionally poor and vulnerable people in 2014 (percentage)

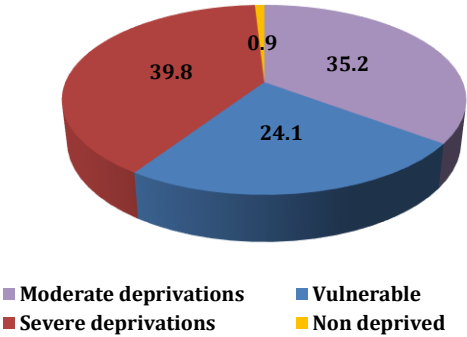
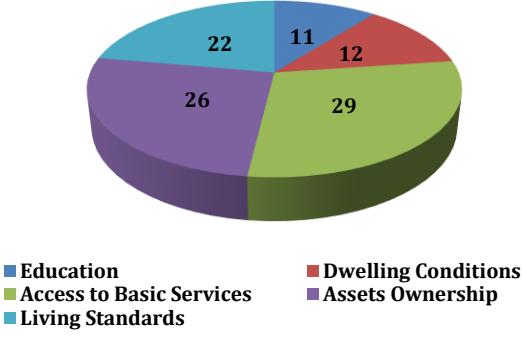


Figure ES.13: Contribution of the different dimensions to the MPI in 2014 (percentage)



Sources: EIM 2004 and EESIC 2014.

Despite these improvements, the population continues to suffer from serious deprivations in different dimensions of well-being, particularly in the rural sector. Access to basic services and assets, followed by consumption, appear among the most important dimensions of well-being for which the population faces important deprivations (Figure ES.13). The deprivation levels are particularly striking among the poor and rural households, with over three quarters of these population groups being deprived in access to electricity, efficient cooking fuels and improved sanitation, and more than half of them are deprived in assets and basic needs consumption. In spite of improvements in children school enrollments, close to 40 percent of rural poor households continue to be deprived of school attendance, meaning that many of their members aged 6 to 15 years are out of school.

Informal and low productive employment dominates the labor market but there are some positive signs of labor mobility

The participation rate in the labor market is low and underemployment is quite high. In 2014, only 45 percent of the working age population was actively engaged economically, leaving Comoros with the lowest participation rate among its SSA peers. The low participation rate in the labor market is largely due to engagement in education. While nearly two third of the country’s labor force have no education or only achieved primary schooling, about one fifth reached superior education levels, a significantly higher level compared to SSA averages. Despite the relatively good and improving education of the labor force, demand for labor remains more oriented towards unskilled workers and unemployment is quite widespread, particularly among the youth. Moreover, about one fourth of the workforce suffers from income-related underemployment, earning less than the official minimum hourly wage.

The active labor force is mainly employed in agriculture and services. About 38 percent of the working-age adults have their main job in agriculture and 29 percent are employed in the service sector, while employment in industry or manufacturing and trade is relatively low (Figure ES.14). Less-educated workers are generally concentrated in agricultural employment, and to a lesser extent trade, while those with superior education are engaged in the service sector (Figure ES.15). Middle skilled workers are more engaged in industry. Higher educated workers are more involved in wage employment, mainly government and public administrations. In 2014, over 70 percent of university graduates were wage employees. Conversely, less-educated workers are essentially in self-employment. In 2014, about 90 percent of Comoros’ self-employed workers had never attended school or only had primary education.

Figure ES.14: Sector of Employment

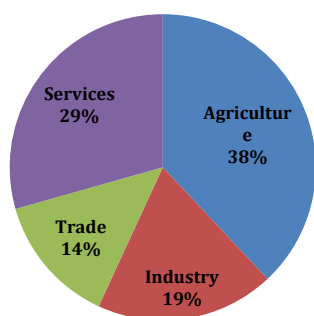
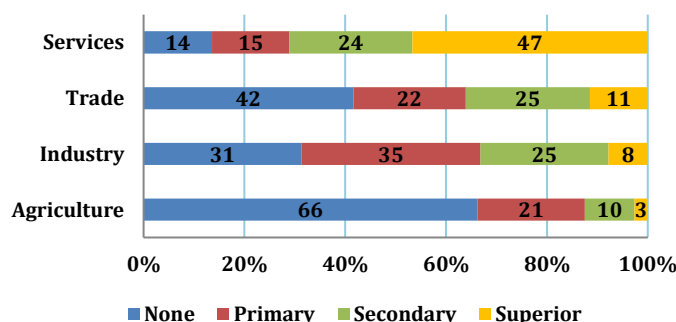


Figure ES.15: Sector of Employment by Education (percentage)



Source: EESIC 2014.

Informal enterprises are small and operate with low skilled workers in low productivity sectors. Informal units of production (UPI) represent about 73 percent of all units of production. An overwhelming majority of UPIs are found in the rural sector, essentially concentrated on the islands of Ngazidja (except Moroni) and Ndzouani, and operate mainly in agriculture followed by industry and trade (Figure ES.16). Agricultural and trade (wholesale and retail) units of

production are almost entirely informal and a vast majority of industrial units of production are also informal (Figure ES.17). Conversely, informality is relatively low in the service sector, which includes a heterogeneous range of businesses such as financial, banking and insurance, legal services and other public services, but also accommodation, restaurants, shopping and so forth. About 80 percent of Comoros' UPIs consist of a single own-account worker, and nearly 95 percent operate with two employees or less. More than half of workers in the informal sector have not completed basic education and less than 7 percent have been able to go beyond primary education. Moreover, informal activity is subject to seasonality, with important slowdown during the first quarter of the year. Yet, the informal sector seems to offer, on average, higher revenues than the formal private sector.

Figure ES.16: UPI by Geographic Area and Sector (percentage of units of production)

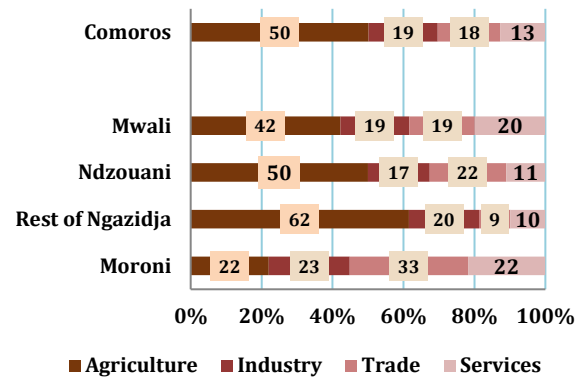
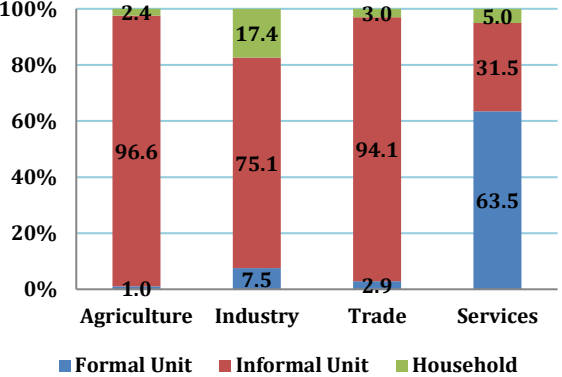


Figure ES.17: Type of unit of production by Sector (percentage of units of production)



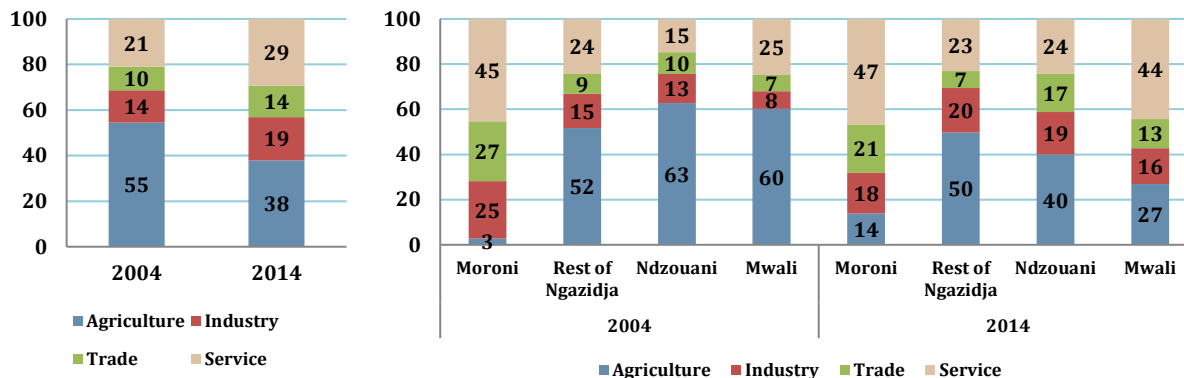
Source: EESIC 2014.

Despite the precariousness of informal employment, workers move voluntarily to this sector attracted by prospects of independency and better revenues. A large part of the informal workforce operates under the form of self-contracts or verbal agreements, and do not perceive any leave protection or social benefits. Yet informal employment and entrepreneurship appears to be a choice motivated by the prospect of independence and better-paid work, and to a lesser extent family tradition. A large proportion of the heads of UPIs prefer to remain in the informal sector because fiscal registration is not compulsory, and many of them lack knowledge regarding the registration procedure. Conversely, the cost of fiscal registration does not seem to significantly affect the choice of staying in informality.

There are signs of structural transformation with the transition of labor towards non-farming sectors, mainly services. Farming employment declined by about 20 percentage points since 2004, with most of the decline occurring in Mwali and Ndzouani, whereas the employment shares of all other sectors increased, with a disproportionately high increase in the service sector (Figure ES.18). The employment transition was coupled with an increase, albeit limited, in wage employment, particularly in Mwali and Moroni. Labor mobility is partly explained by the

improvement of the education level of the workforce and the higher engagement of young generations in non-farming activities, essentially services.

Figure ES.18: Employment share variations between 2004 and 2014 (percentage)



Sources: EIM 2004 and EESIC 2014.

There is some positive intergenerational mobility. Young workers (15-30) tend to be engaged in different occupations than older workers (30+), and there seems to be signs of intergenerational occupational mobility. Only 30 percent of young men work in the same sector as their father and about one third of young women are doing the same occupation as their mother (Figures ES.19 and ES.20). The intergenerational shift is essentially driven by a significantly lower engagement of farmer’s sons and daughters in agriculture. There are also signs of higher engagement of sons and daughters in industry, followed by services. Yet these positive changes in the labor market are overshadowed by the important unemployment among young and higher-educated workers.

Figure ES.19: Father-Son occupational mobility (in percentage)

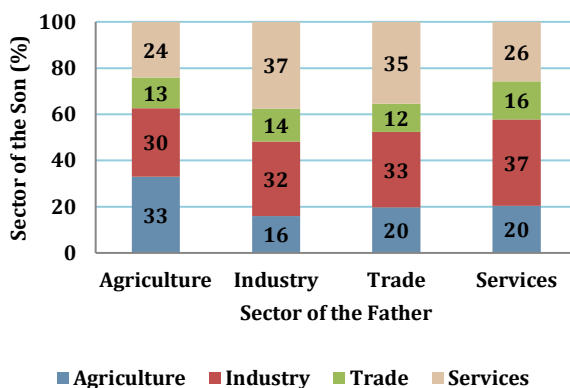
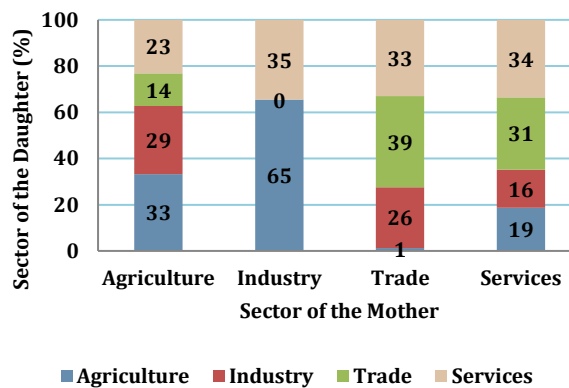


Figure ES.20: Mother-Daughter occupational mobility (in percentage)



Source: EESIC 2014.

The participation in the labor market and the nature of employment is characterized by some gender discrepancies. Only one-third of women are part of the workforce, compared to a participation rate of 57 percent for men. There is also a relatively large gender-related gap in

education since 47 percent of women in the labor force have no education compared to only 36 percent of men. However, the proportion of men and women in the workforce with secondary and higher education are similar. Women also seem to be overrepresented in self-employment and informal trade activities compared to men, while the latter seem to benefit more from wage employment.

Comorians are among the largest African diaspora and the country is one of the top three recipients of remittances in SSA

The number of emigrants living outside Comoros has more than doubled during the last two decades, with more intensive emigration among women with tertiary education. There are about 120,000 Comorian emigrants in the world in 2015, compared to 40,000 in 1990. Until 2005, men accounted for the majority of the migrants, but this pattern has been reversed in recent years with women, particularly tertiary-educated ones, emigrating more intensively. The main destination countries of migrants are France (Mayotte and metropolitan France), followed by Madagascar. Despite the marked increase of educated migrants, the diaspora remains largely composed of women with primary education that are mostly employed in low-skilled jobs. However, Comorian emigrants seem to be shifting towards more skilled occupations in recent years, though at a very slow pace.

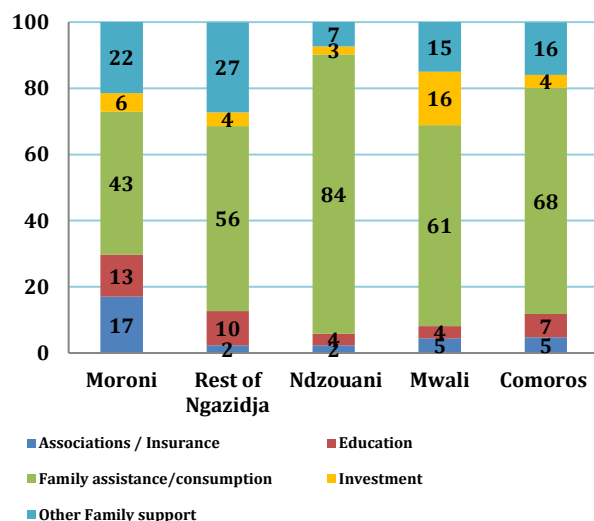
Remittances account for a large share of the GDP and represent the main source of revenues and foreign exchange for the country. Remittances account for around 25 percent of GDP, and foreign exchange receipts exceed those from exports thanks to remittances. Remittances also have significantly grown over the last decade, both in absolute terms and relative to GDP. However, according to IMF projections, the contribution of remittances to GDP is expected to significantly decline in the coming years. However, remittances are used mostly to finance imports, and inflows are almost entirely spent on consumption, with only a small portion directed towards productive activities. Remittances mainly flow through informal channels, although formal channels are increasingly being used. In early 2000s, around 85 percent of transfers were done through family members and friends entering the country, but this share declined to 55 percent in 2014.

Remittances also contribute significantly to household's living standards. The average annual amount of remittances received by a household member in 2014 is KMF 234,028 (about US\$ 501 in current exchange rate), which represents an increase by around 17 percent compared to 2004. The proportion of households benefitting from remittances also increased from 21 percent in 2004 to 38 percent in 2014. The island of Ngazidja, mainly its rural part, benefits the most from remittance inflows. Remittances account for about 22 percent of households' average revenues, with this share exceeding 35 percent in the rest of Ngazidja, and are mainly destined for basic family subsistence (Figure ES.21).

In the last decade, the profile of those receiving remittances has changed. Since 2014, the proportion of economically active members benefitting from remittances has been increasing and

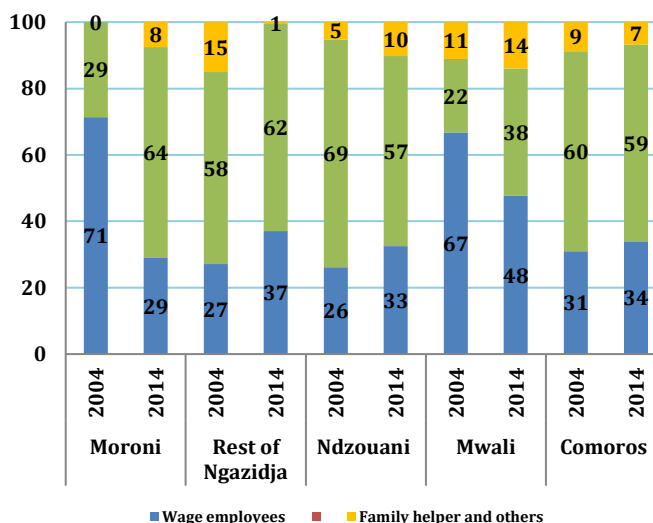
is up from around 30 percent in 2004 to 50 percent in 2014, with self-employed being the largest recipient group (Figure ES.22). The proportion of women receiving remittances has also increased significantly. Women have become the main remittance recipients in households, with over 60 percent of recipient household members being women.

Figure ES.21: Main purposes for remitting (in percentage)



Source: EESIC 2014.

Figure ES.22: Occupational categories of household members receiving foreign remittances (in percentage)



Sources: EIM 2004 and EESIC 2014.

Comoro's fiscal policy, particularly social spending on education, contributes to the reduction of inequality, while the taxation system negatively affects the poor

Public social spending on education, particularly at the tertiary level, followed by spending on health, contribute the most to inequality reduction. Social spending in Comoros is mainly delivered in the form of in-kind transfers for education, followed by health. Overall, inequality in Comoros would have been higher if these positive elements of fiscal policy were eliminated. Education and health expenditures account for over 90 percent of total inequality reduction from fiscal activity, and approximately 4/5th of inequality reduction is stemming from education spending. Contrary to evidence from other countries, public spending on tertiary education has reduced inequality in Comoros. This result is probably due to the importance of utilization of public tertiary education services by poorer households, essentially in Ngazidja. However, within the current country's decentralized service-delivery framework, the island governments have prioritized salary and personnel spending while neglecting non-salary operational expenses and facility maintenance. This pattern has led facilities to charge users (students) access fees, which negatively affects the net benefit of public services to users and reduces the pro-poor effects.

The taxation system has a progressive marginal rate structure, but is adversely affecting poverty. Total indirect tax collections appear to slightly contribute to inequality reduction, even though the rice and tobacco excises alone seem to negatively affect the welfare distribution.

Poorer households benefit from lower implicit tax rates from the indirect tax schedules and statutory and non-statutory exemptions; and they pay less in personal income tax (PIT) than the better off due to the progressive structure of the PIT. They are also less exposed to indirect taxation because of their high engagement in informal activities and employment. However, direct and indirect taxes still burden the poor. The indirect taxes that have the largest negative impact on the poor are the domestic consumption tax and the rice excise. In a fiscal system where the tax burden is not balanced by direct benefits or compensatory transfers, the entirety of the poor are net payers and the tax system contributes to impoverish an important share of the population.

Concluding remarks: some policy insights and implications for research

The analysis in this report attempts to shed light on the extent and evolution of poverty and inequality in Comoros, and to examine their underlying causes. Based on analysis of two recent waves of household survey data, the results show improvements in households' living conditions and poverty since 2004. Non-monetary dimensions of well-being seem to have increased faster than household consumption, particularly in rural areas and in Mwali, resulting in a faster decline of multidimensional poverty than monetary poverty headcount.

There are emerging signs of structural transformation of the economy. The services sector is increasingly contributing to GDP, and a progressive transition of labor from agriculture to other sectors is taking place. Overall, employment appears to have shifted to the services sector and to a lesser extent to manufacturing. While agriculture continues to be the mainstay for the majority of the poor, even poor households' heads are increasingly engaged in trade and service activities, though essentially informal activities. The poor working in manufacturing also seem to have become more productive and have experienced improvements in their returns.

There are also positive signs of intergenerational labor mobility. Young men and women are increasingly moving to more productive sectors than the sectors in which their parents used to be employed. As a result, there has been an improvement in households living conditions and endowments, mainly by means of higher educational attainments and ownership of communication and transportation means. Greater economic returns from employment in industry and trade have helped to further reduce poverty.

Yet, little progress has been made towards shared prosperity and the response of poverty to growth has been sluggish. The growth elasticity of poverty in Comoros is relatively low and (survey-based) economic growth seems to have accrued disproportionately to Comoros' richest groups. High and rising inequality is the result of important disparities between education and occupational distributions, as well as a rural-urban divide. The poor seem to continue bearing the burden of the local conditions of their community of birth, which significantly affects their opportunities for better living standards and further compounds inequality. A large part of the population continues to suffer from important deprivations in different dimensions of well-being,

particularly access to basic services and ownership of productive assets. These deprivations are particularly pervasive in rural areas.

Development policies in Comoros seem to have contributed to the improvement of living conditions and human development in the country, and to the reduction of poverty. The national strategy for promoting education and social spending on education and health not only led to marked improvements in human capital, but also contributed to contain further increases in inequality. The large and expanding support provided by the diaspora through remittances to their families and the economy as a whole, may have further contributed to improvements of households' living standards and a reduction in poverty. However, the sustainability of these gains remains uncertain.

The progress made in the last years risk to be reversed. Comoros faces many macroeconomic and fiscal challenges, which may increase budget pressures and compromise the government's ability to deliver social services. Limited fiscal resources and the unpredictability of non-fiscal revenues, as well as the importance of public spending, are creating important budget pressures. Moreover, the decline of international aid flows, the projected decrease in remittances coupled with the increasingly restrictive immigration policies, and the fluctuations in world commodity prices combined with the heavy dependence on imports, may lead to an intensification of these pressures. The fiscal space available for public investment and spending on social services would be further reduced, deteriorating the access to basic service and infrastructure, and increasing vulnerability. Additional pressures on the expenditure side result from the important unemployment among the youth and the scarcity of jobs in the private sector. The labor market remains dominated by informality, and to a lesser extent public sector employment, whereas the private sector is completely absent. The educated labor force is generally employed in the public sector and the unskilled workforce is in informal self-employment. With the expansion of education and the absence of productive employment opportunities in the private sector, the educated workforce might be left with very limited choices. Comoros' public sector is saturated and the government already faces difficulties to contain the wage bill and to pay wage's arrears. Moreover, the informal sector is not able to generate jobs commensurate with the aspirations and education of the growing young workforce. The economic benefits of a growing labor force and expanding human capital can only materialize if the economy can absorb the additional workers productively.

Unemployment and discouragement among the educated youth is increasing and will certainly worsen if economic growth and diversification do not increase. The acceleration of growth and the sustainability of poverty reduction require the development of a strong private sector able to create more productive jobs and value added. Such an aspiration hinges on the improvement of the business environment and governance structure, the reduction of the large infrastructure deficits, particularly regarding electricity supply, and the development of the capabilities of the public sector to improve the investment climate. Nevertheless, promoting private sector development to enhance job creation and reinvigorate the national economy may benefit the

various population groups in different ways, based on their endowments, and could therefore translate into larger disparities in returns and higher inequality. To offset those potential risks, economic growth and diversification need to be coupled with policies that promote more inclusion.

The analysis in this report provides policy pointers to accelerate economic growth and poverty reduction. While poverty requires a cohesive multisectorial strategy, the findings may help prioritize policy interventions tailored to enhance poverty reduction. The basic tenets of conventional poverty reduction strategies, such as investment in human capital and infrastructure, income and employment generation, and control over fertility and family sizes largely remain, but the design of priority interventions should take into account the diverse nature of poverty.

For the extreme poor who lack basic necessities and assets, priority should be given to safety nets programs that enhance their livelihoods and would promote social inclusion. Such programs increase the levels and quality of consumption of the poor, offer some security against unforeseen shocks, facilitate access to basic goods and services, and advance the inclusiveness of the most vulnerable population groups in the growth process.

Moderate poor and vulnerable non-poor households should benefit from a combination of prevention and promotion strategies that enable them to diversify their activity into higher-return and more productive businesses. The following could be particularly beneficial in promoting growth and inclusion, and ensuring sustainability of poverty reduction.

- *Leveraging Comoro's assets and capturing latent comparative advantage to create more productive jobs.* There are some positive signs of economic transformation and labor transition from less productive agriculture to more productive services and industry. Yet labor has mainly shifted to informal activities and low productivity continues to be a challenge. A strategy for economic diversification and job creation can be driven by promoting the activities that best build on the country's comparative advantages—both existing and latent—supported by effective policies to facilitate the process. The strategy can be adopted in steps. The priority is to identify industries or sectors with high growth and job creation potentials, given the existing resource endowments and production structures. The second step is to assess the country's relative performance in the promising sectors and to explore unused potential and latent comparative advantages, as well as future potential that can be enhanced. Comparative advantages can be realized in the agricultural and tourism sectors. Comoros has potential to add value to its agricultural products, through strengthening agricultural production and promoting commercialization. Encouraging farmers to be integrated into value chains and to become commercialized would promote the growth of agricultural productivity. There is also considerable scope for generating value-addition by developing the agro-processing and deepening the supply value chain. Comoros can further enhance the development of the service sector, particularly the tourism sector, where important potential exists for job creation through the multiplier (direct and indirect) effect associated with its development.

- *Promote diversification, competitiveness and formality.* The acceleration of growth and diversification critically hinges on the three essential factors. First, boost the private sector and enhance its competitiveness. Given the predominance of informality and entrepreneurship in the economy, it is crucial to incentivize transition away from informality and to counter entry barriers into the formal sector, for example, by easing fiscal registration and facilitating access to information on formal registration. The expansion of formality may contribute to the improvement of productivity and employment conditions, and would help to increase fiscal revenues, allowing more space for public spending on social services. But, more work is needed to better understand the structure of the informal market and incentives to decrease informal activities. Second, fill the large infrastructure gaps, particularly in power and transport, and ensure better connectivity both within and between islands. Third, improve the business environment and governance as a whole to create a more conducive environment for private and foreign investment.
- *Enhance opportunities to better capitalize on the gains from migration and remittances.* Remittances have strong potential to promote development along various dimensions, including poverty, growth, human capital (education and infant mortality), entrepreneurship, as well as financial and credit market developments. Policies can focus on enhancing the channels through which remittances can foster poverty and inequality reduction and create opportunities to better capitalize on migration and remittances.

The road towards shared prosperity is yet to be paved and the work is challenged by the widening inequalities. Policy actions should focus on developing poor people's endowments to enable them to take up the opportunities generated by economic growth and diversification, and enhance their earnings' possibilities. There have been commendable efforts to promote education. These efforts need to spread more widely and more evenly, and need to be oriented toward the provision of secondary and higher education in less favored areas, with improving the quality of education. The report points to important deprivations in access to basic services and assets, as well as to the significant role of endowments in assets and local community characteristics, such as access to finance, connectivity, and social services in driving poverty and inequality reduction and in shaping individual's opportunities. More efforts should be made to ensure broader coverage and better quality of social service delivery and to promote access to assets. This will not only help to enhance living standards and human development, but also would likely contribute to equalizing opportunities and breaking the cycle of intergenerational persistence of poverty. Policies to improve endowments and their disparities need to be coupled with strategies to enable households to find the appropriate returns to their improved attributes in the local markets by supporting increased labor and assets productivity.

On the basis of the analysis in the report, the following areas call for further research and investigation:

- Strengthening statistical and analytical capacities. Updating and improving the quality of national accounts data is key for understanding the structure of the economy, as well as the level and drivers of economic growth. Access to timely and quality survey data is of high importance for monitoring appropriately the evolution of poverty and household living conditions. More frequent household surveys (mainly household budget surveys and labor force surveys) will enable better analysis on poverty, employment, and growth, and would promote evidence-based and effective policymaking. Timely agricultural surveys would also be of tremendous importance for understanding the obstacles to better productivity in this sector. Surveys on informal sector are of crucial importance for a better understanding of the structure of this sector and obstacles to formal activities. The recently approved project for statistical capacity building will help to address part of the data limitation, but further support will be needed for the implementation of full-fledged labor force, informal and agricultural surveys;
- Further analysis is needed for a deeper understanding of the structure of the informal sector. It remains to be established whether informal employment in Comoros is the result of market segmentation or competitive market forces. In other words, whether the informal sector is voluntarily chosen as an employment opportunity or if it is a strategy of last resort for those pushed away from informal employment because of entry barriers, or if both groups (those who see informality as an opportunity and those who use it as a last resort strategy) cohabit in the sector. Such an analysis will help to better understand the strategies to incentivize formality and counter informal employment. It would also allow to better understand the impact of the transition to formality on economic growth and poverty;
- Further analysis, including simulation modeling, is needed to examine the strategies for capitalizing on migration and remittances to foster economic growth and poverty reduction;
- The absence of information on land ownership and land use in the household survey is quite limiting. Understanding how land ownership affects poverty, particularly in a country suffering from limited fertile land resources and high population density is very important;
- Climate variability and soil fertility would have significant effects on livelihoods in rural regions. Exploring their effects on farmers' productivity and poverty would help to better inform the design of strategies to strengthen resources management sustainability and household's resilience;
- A better understanding of the underlying drivers of diversification to non-farming activities and how they can be enhanced and promoted. In particular, the critical development of new labor-intensive sectors could be addressed through the understanding of the existing obstacles and potential benefits of a large local tourism industry as well as agro-processing industry.

Chapter I – Country Context: Macroeconomic Performance and Governance Environment

Key Messages

- Economic growth has followed a positive trend since the restoration of political stability, but at a slow pace, and GDP growth was lower than the Sub-Saharan African average and that of many regional peers;
- Economic growth is driven by services, followed by agriculture on the supply side, and consumption on the demand side. The development of the industry was held back by structural constraints;
- Despite some progress in governance, Comoros continues to trail behind its sub-Saharan and international peers, particularly in terms of transparency and accountability of the public sector.

The Union of Comoros is a small island state located in the Indian Ocean. The country is located between northeastern Mozambique and northwestern Madagascar and is made up of three islands: Ngazidja (Grande Comore), Ndzouani (Anjouan), and Mwali (Mohéli). Comoros has about 1,800 square kilometers of land, with an estimated population of 800,000.³ Characteristics of the Union of Comoros include a small domestic market and workforce, limited resources, and vulnerability to natural disasters.⁴

The Union of Comoros is characterized as a fragile state, although constitutional amendments have resulted in greater political stability. The Union of Comoros experienced more than 20 coups or attempted coups during the 25 years following its independence from France in 1975. Struggle for political power between the islands resulted in protracted instability, and compromised political and economic governance. A new constitution was adopted in 2001, and later amended in 2009. The constitution calls for the presidency to be rotated between the three islands, and outlines the roles of the national and islands governments. These developments have contributed to a relatively stable political environment, with democratically elected political leaders governing the country in 2006, 2011, and since mid-2016.

³ United Nations Statistics Division, 2016.

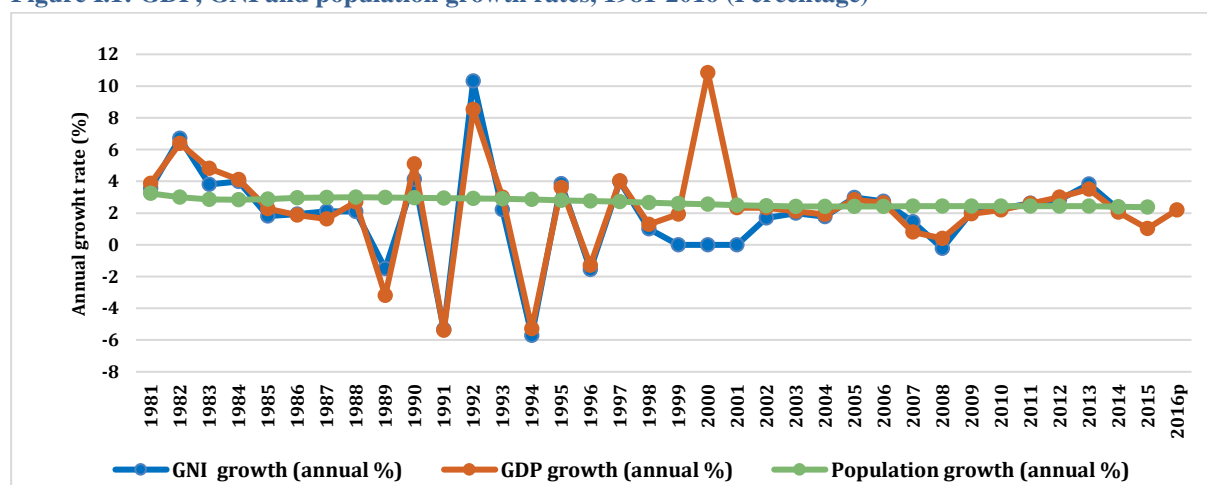
⁴ The Union of Comoros suffers from most of the “constraints to smallness” cited in: Operations Policy and Country Services, The World Bank, 2016. “World Bank Group Engagement with Small States: Taking Stock.”

I. Macroeconomic performance: trends since the 2000s

Slow economic growth, mainly driven by consumption on the demand side, and services on the supply side

The reinforcement of political stability has been accompanied by less volatility in economic growth rates.⁵ Periods of political instability have been associated with economic recessions, as were the cases for example in 1989, 1995, 1999, and 2007. As the number of political crises reduced in the 2000s, economic growth followed a largely positive trend, which was reinforced by constitutional amendments (Figure I.1). Since 2014, growth has been adversely affected by a crisis affecting the electricity sector, where shortages and blackouts are common, as well as slower than expected implementation of the public investment program. Given the importance of remittances in Comoros, Gross National Income (GNI) may be a more appropriate measure of economic growth than Gross Domestic Product (GDP). Figure I.1 shows therefore economic growth based on both GDP and GNI growth, which seem to have the same patterns and levels.

Figure I.1: GDP, GNI and population growth rates, 1981-2016 (Percentage)



Source: World Development Indicators (WDI) 2016.

However, the population growth rate has outstripped economic growth since the 2000s. Over the last 15 years, GDP growth averaged 2.7 percent against an average population growth of 2.4 percent (Figures I.2 and I.3). During this period, GDP growth exceeded population growth for only three years (2005, 2013 and 2014). As a result, GDP per capita has stagnated or declined, and remains below its highest level recorded in the mid-1980s. When compared with countries from the same region, average GDP growth rates were at the lower end in the Union of Comoros (see Table I.1). Even peer countries such as Burundi and Guinea-Bissau, which experienced

⁵ As measured by standard variation of GDP growth rate.

weaker political stability over the 1996- 2015 period⁶, could achieve a slightly higher pace of economic growth than Comoros. Comparator countries used to benchmark Comoros' performance have been selected based on the similarity of their structural features with Comoros or successful growth histories to which Comoros can aspire.

Figure I.2: GDP per capita, 1980-2014 (in KMF)

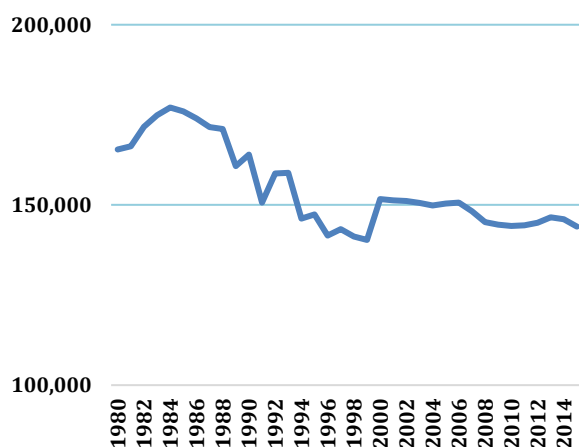
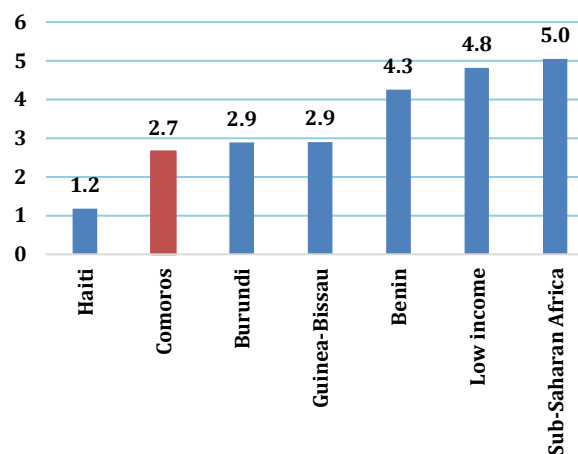


Figure I.3: GDP growth compared to peer countries (Percentage average 2000–2015)



Source: WDI (2016)

Table I.1: Selected Fiscal and Economic Indicators, 2000-2015 (percentage of GDP – unless otherwise indicated)

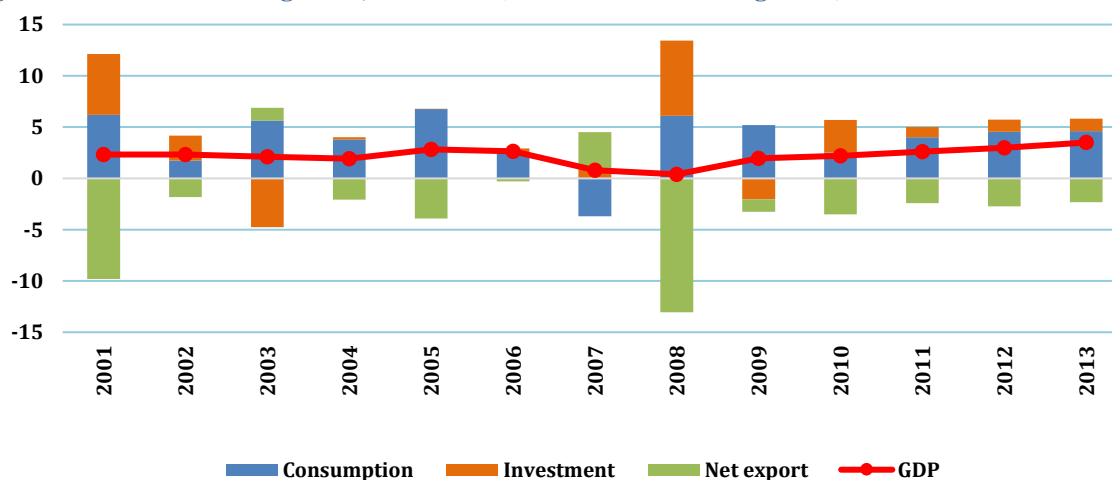
	GDP growth (annual growth)	Agri. (value added)	Indust. (value added)	Services (value added)	Gross fixed capital formation	Dom. credit to private sector	Gross dom. savings	Exports of goods and services	Imports of goods and services	Net Direct Investment
Comoros	2.7	39.4	11.5	48.0	12.6	14.7	-11.7	16.5	42.9	1.0
Benchmarking countries	2.8	34.8	18.6	46.6	19.6	13.2	1.0	17.7	36.4	2.1
Gambia	3.5	25.8	15.1	59.2	21.0	12.2	4.9	23.3	39.7	5.9
Guinea-Biss.	2.9	44.5	14.5	41.0	6.3	5.3	-3.6	20.0	30.0	1.6
Bénin	4.3	26.2	27.5	46.3	23.0	16.0	11.5	22.6	34.3	1.1
Haiti	1.2	-	-	-	28.5	15.8	-2.8	15.3	46.6	1.1
Burundi	2.9	42.7	17.2	40.2	19.2	16.5	-4.9	7.3	31.4	0.7
Neighboring countries	4.6	15.0	29.7	61.3	24.0	32.8	18.0	51.1	64.2	8.9
Madagascar	2.8	27.8	15.7	56.5	21.7	10.5	6.5	27.8	42.8	5.6
Mozambique	7.4	26.4	20.7	52.9	21.2	18.2	4.3	28.5	53.3	14.0
Seychelles	3.2	2.6	18.3	67.5	31.1	22.6	20.4	87.6	98.7	13.4
Mauritius	4.4	3.4	26.5	68.4	22.3	79.9	16.6	55.1	61.9	2.5
Global benchmarking										
Small states	5.1	3.4	64.2	53.1	-	60.0	41.2	60.6	47.6	8.2
SSA	5.0	20.0	29.5	50.3	17.9	54.2	19.2	33.1	32.5	2.8
LICs	4.8	32.5	20.8	46.4	21.6	14.8	7.4	22.1	37.3	3.3

Source: WDI (2016).

⁶ As measured by the political stability index, which measures perceptions of the likelihood that a government will be destabilized or overthrown by unconstitutional or violent means, including politically motivated violence and terrorism. Source: Worldwide Governance Indicator.

Between 2009 and 2013, the economy experienced the longest period of positive growth in its history. In order to raise public resources, the government implemented the Economic Citizenship Program (ECP) between 2008 and 2013, which allowed foreign investors from partner countries to receive Comorian citizenship in return for fees and a commitment to invest. The program increased non-tax revenues in 2011 and 2012, and more than doubled domestically-financed public investment from 1.2 to 3.4 percent of GDP between 2010 and 2013. In addition, generous external financing further spurred public investment. Stimulated by the ECP, FDI increased from an average of 0.4 percent of GDP for the 2002 - 2007 period to 1.9 percent between 2008 and 2013. Private consumption was supported by larger remittances and increased access to credit. Economic activities regained, especially in the area of construction, and agricultural performance was helped by favorable climatic conditions. Changes to GDP have largely been driven by consumption.

Figure I.4: Drivers of GDP growth, 2001-2013 (Contribution to GDP growth)

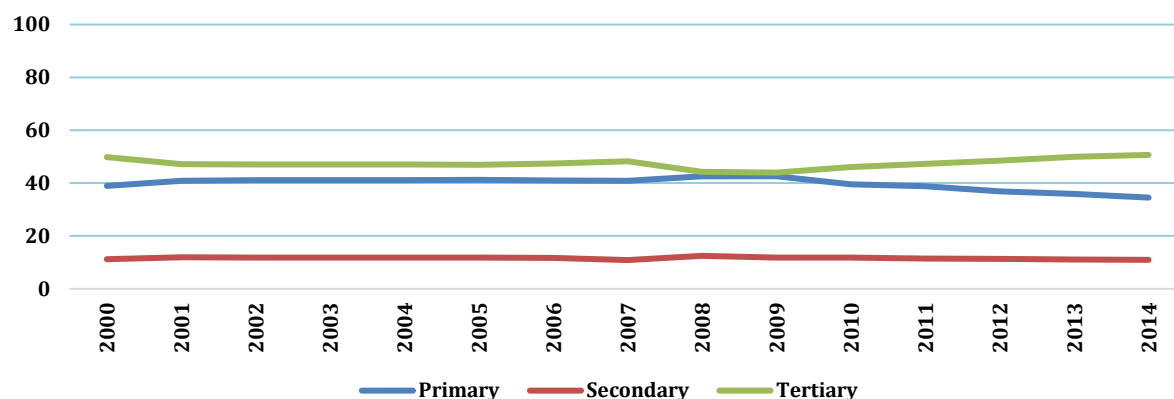


Sources: INSEED and World Bank staff calculations

Economic growth has increasingly been driven by the services sector. Main activities are focused on trade, restaurants and hotels, and public sector services, which contributed to over half of the economy’s GDP in 2014. The services sector presents great potential to further contribute to the growth of the economy through the development of the tourism sector. Travel and tourism only contributed to 4.3 percent of GDP in 2015 and 3.6 percent of total employment, which is low compared to neighboring Indian Ocean countries with similar natural endowments, such as the Seychelles which has prioritized the development of the tourism sector as one of the main economic drivers, including investments in the related infrastructure since the 80’s, and where the tourism sector contributed directly to 24.1 percent of GDP in 2015 and 26.2 percent of total employment.⁷

⁷ Travel and Tourism – Economic Impact 2016- Comoros.

Figure I.5: Value added by sector, 2000-2015 (Percent of GDP)



Source: WDI (2016).

The agricultural sector (including fisheries) represents the second largest component of GDP and the source of income for the majority of the population. Agricultural activities are dominated by cash crops, comprising mainly cloves, vanilla, and ylang-ylang. These products represent on average 90 percent of export revenues since 2000.⁸ This proportion has been steadily declining since 2009 due to lower export unit prices for these products, and thus contributed to the decline of agricultural value added to GDP. Small family-owned farms, producing food crops for own consumption, are widespread. Agricultural activities occupy more than 50 percent of Comorian labor force, reflecting a largely rural population. The development of agriculture is constrained by weak infrastructures and outdated technologies. In addition, agricultural productions are highly exposed to international prices fluctuation and natural disasters.

A combination of structural constraints holds back the development of the industrial sector. The secondary sector's contribution to GDP has stagnated at around 11 percent since the 1990s. The development of the secondary sector is held back by the high costs of electricity⁹ (Figure I.6), water and transport, and the lack of skilled labor, which reduces the incentives for private operators to enter the sector. While progress has been made in easing the process for starting a business, as indicated by the related Doing Business Indicator, industrial entrepreneurship has not been effectively stimulated. In fact, the advancement on the overall Doing Business indicator has been slow and Comoros is placed at 153rd over 190 countries in the 2017 DB ranking.

⁸ Calculation based on compilation of BOP statistics.

⁹ Average tariff in Comoros is among the highest in SSA.

Figure I.6: Cost of electricity service (in US\$ per kWh billed)

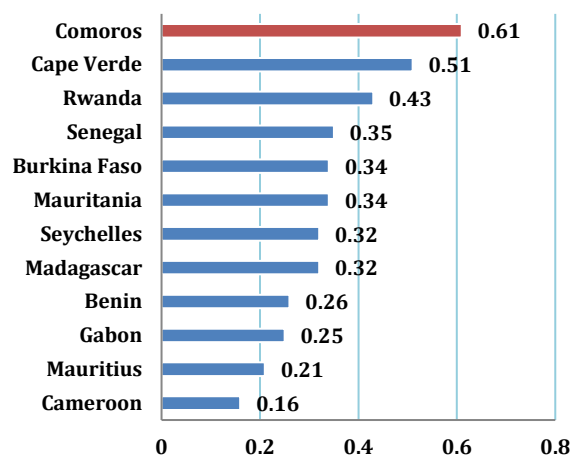
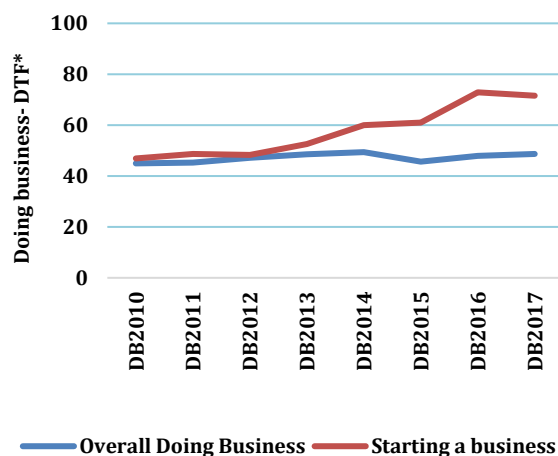


Figure I.7: Ease of starting a new business



Source: Making Power Affordable for Africa and Source: Doing Business 2017.
 Viable for Its Utilities, World Bank (2016).

Notes: DTF or Distance To Frontiers measures the distance of each economy to the “frontier”, which represents the best performance observed on each of the indicators across all economies in the *Doing Business* sample since 2005. An economy’s distance to frontier is reflected on a scale from 0 to 100, where 0 represents the lowest performance and 100 represents the frontier.

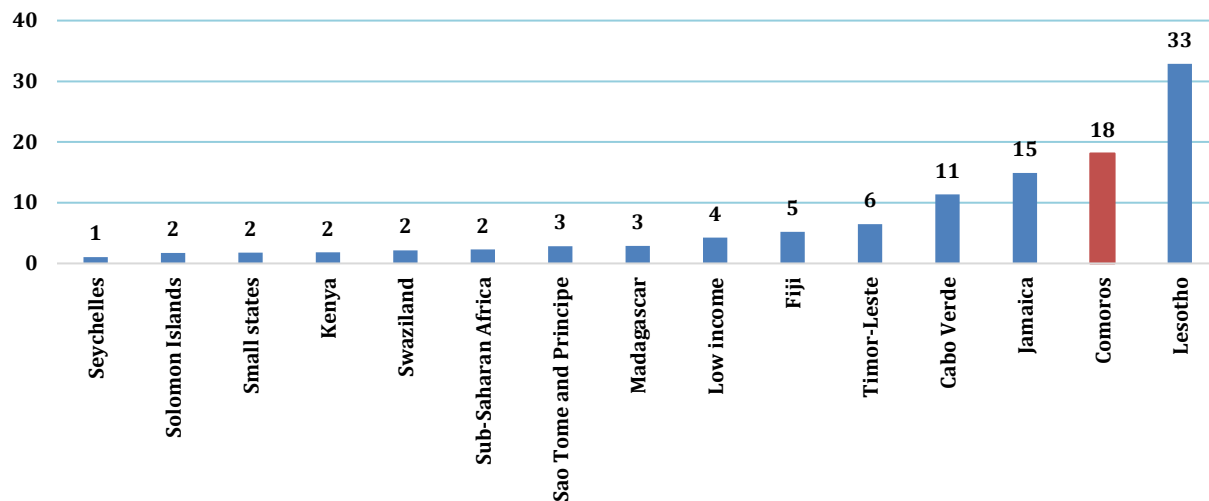
The economy is highly reliant on remittances. Private transfers from abroad constitute one of the main sources of revenue for Comoros, reflecting the large diaspora. The inflow of remittances has been continuously increasing to reach the equivalent of 26 percent of GDP in 2014¹⁰, which is very high when compared to the region’s average and other small states (Figure I.8). Remittances support household consumption¹¹ and act as a safety net to variances in income for recipients. Remittances play an important role in maintaining the country’s external balances.¹²

¹⁰ IMF. Article IV consultation in 2015

¹¹ IMF. Article IV consultation in December 2016.

¹² World Bank. Policy notes for the Comoros (2016)

Figure I.8: Personal remittances received (Percentage of GDP)



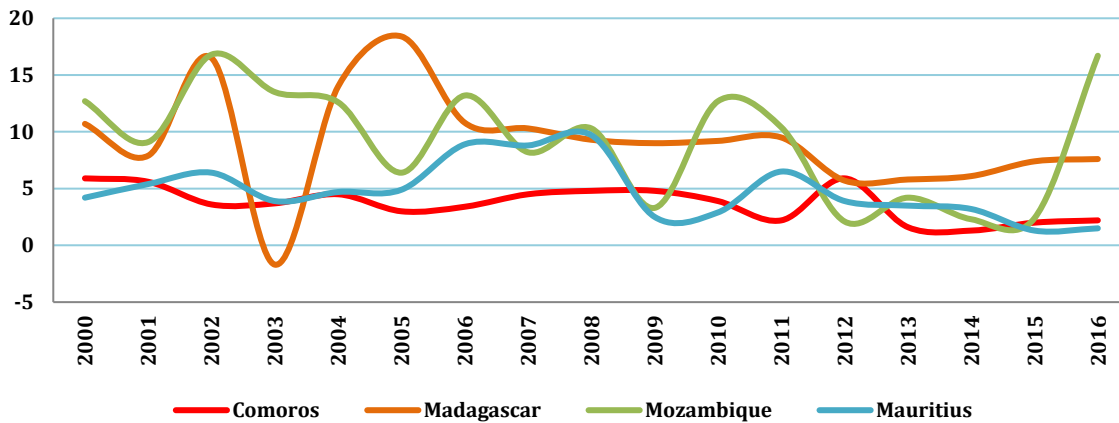
Source: WDI (2016).

Monetary policy is anchored in an historic agreement between the Central Bank of Comoros and France. The Comorian Franc has been pegged to the French Franc, and then the Euro since 1994 (at KMF 490 per Euro). Its currency is guaranteed by the French treasury and can then be converted to other currencies. While the agreement exposes the Comorian currency to fluctuations of the Euro against the Dollar, the general conditions under this agreement has helped the Central Bank in maintaining relatively low levels of inflation and an adequate level of international reserves¹³.

Inflation is relatively stable and low compared with peer countries, which contributes to preserving the purchasing power of the poor. During the period 2000-2016, inflation averaged 3.7 percent, compared with an average of 9.5 percent in other low-income countries, and 11.7 percent for the Sub-Saharan Africa region. Average inflation rates in neighboring countries were notably higher at 4.8 percent (Mauritius) to 9.2 percent (Madagascar and Mozambique). Variances in inflation rates are generally driven by international food and fuel prices, reflecting that Comoros is a net importer of petroleum products and imports a substantial part of their foods for consumption. For example, the spike in inflation from 1.7 percent in 2009 to 4.3 percent in 2009 was driven by the global increase in oil and foods prices.

¹³ Main conditions include the pegging of the Comorian Franc (KMF) to the Euro with a fixed rate of KMF 490 per Euro, the central bank is required to maintain international reserves equal to at least 20 percent of base money, and the level of statutory advances are limited to 20% of the average of domestic revenues in the three precedent years.

Figure I.9: Inflation rates by countries (Annual Percentage Changes)

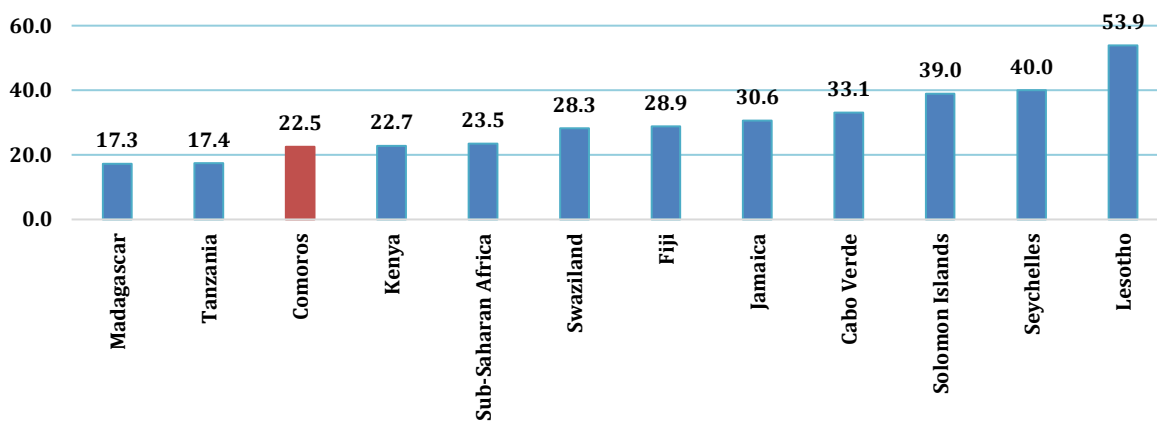


Source: WDI (2016).

Public spending are directed to current expenditures and service delivery performance remains weak

Fiscal policy is following an increasingly expansionary trend although the overall deficit remains restrained at an average of 1 percent between 2000 and 2015. Expenditures increased from 16.3 percent to 27.3 percent of GDP over this period. However, this growth was uneven and was mainly explained by a strong increase by 8 percentage points in the first three years for the wage bill. This was followed by a period of relative stability between 2003 and 2011, when expenditures averaged 22 percent of GDP. From 2012, the level of expenditures rose again to average 26.6 percent. Over the analyzed period, the level of public expenditures is generally in line with the average for SSA (Figure I.10).

Figure I.10: Average ratio of total government expenditures to GDP, 2000 – 2015

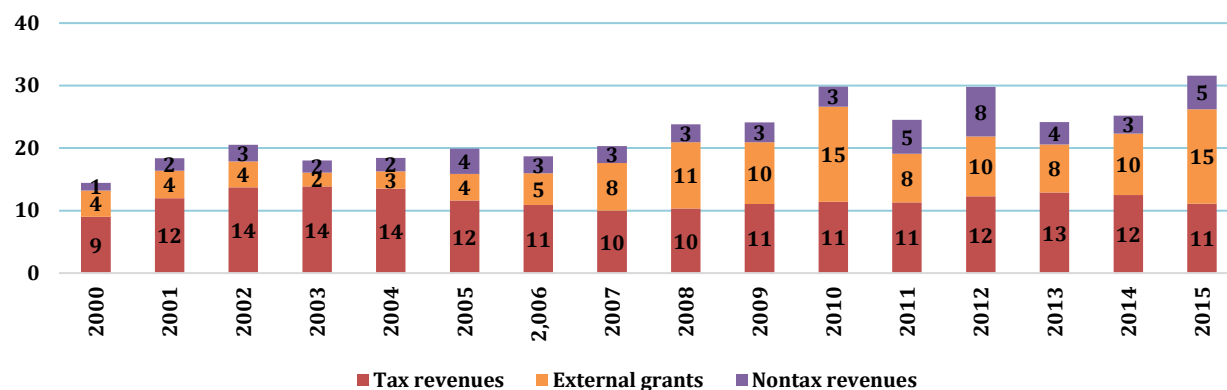


Source: WDI (2016).

External financing provides increasing resources to the government and compensates weak domestic revenue mobilization. At an average of 11.8 percent during the 2000- 2014 period, the

ratio of tax revenue to GDP in Comoros is low and is below the average for low-income countries and those in SSA. Stagnant performance in tax revenue collection is attributable to a narrow tax base and generous exemption regimes. The distribution between the sources of revenues has changed compared to the beginning of the 2000s. The financing from external grants rose from 29 percent of total revenues in 2000 to 48 percent in 2015, reaching a peak in 2013 with the achievement of the completion point under the Heavily Indebted Poor Countries (HIPC) initiative.¹⁴ Non-tax revenues benefitted from receipts from the ECP and the license on telecommunication in 2015 (Figure I.11).

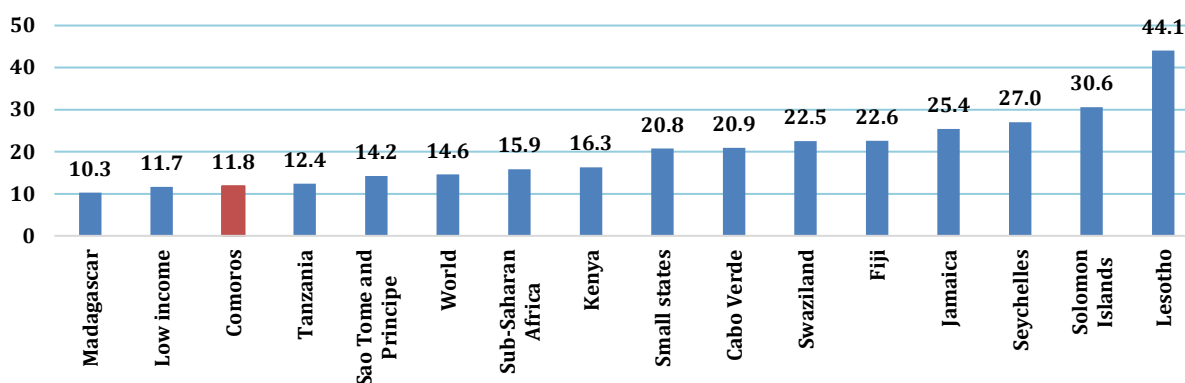
Figure I.11: Public revenue by sources, 2000 – 2015 (percent of GDP)



Sources: Data compiled from different documents, including IMF statistical appendix (2009) for 2000 to 2007; database used for the KM Expenditure review in 2014 for 2008 to 2014; and IMF art IV December 2016 for 2015.

¹⁴ In 1996, the World Bank and IMF launched the HIPC Initiative to create a framework in which all creditors, including multilateral creditors, can provide debt relief to the world's poorest and most heavily indebted countries to ensure debt sustainability, and thereby reduce the constraints on economic growth and poverty reduction imposed by the unsustainable debt-service burdens in these countries. The Union of the Comoros has fulfilled the requirements to reach the completion point under the (HIPC) Initiative, the stage at which the HIPC debt relief becomes irrevocable and the country will benefit from the Multilateral Debt Relief Initiative (MDRI). Through the initiative, the IMF and the World Bank decided to support US\$176 million in debt relief for the Comoros, representing a 59 percent reduction of its future external debt service over a period of 40 years.

Figure I.12: Average tax-GDP ratio by countries, 2000 – 2015 (Percent of GDP)

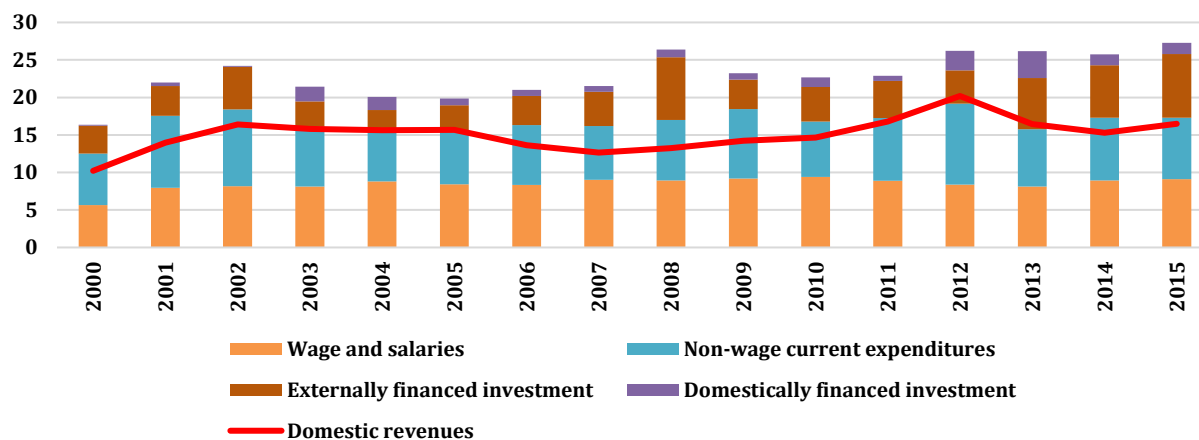


Sources: WDI (2016) and IMF.

Note: Averages for 2000-15 subject to data availability during this period.

Public expenditures are dominated by current spending, with investments being highly dependent on external financing. Current expenditures represent on average more than 75 percent of total revenues, and 70 percent of total expenditures over the 2000-2015 period, half of which is allocated to the wage bill. While the size of the wage bill is deemed to be in line with the region¹⁵, the wage bill is a source of fiscal pressure. In recent years, subsidies to the electricity utility have represented a considerable drain on public resources, reaching 9 percent of tax revenues in 2015. Given the relatively weak domestic revenue performance, arrears have been accumulating and public investment was mostly financed by external funds.¹⁶

Figure I.13: Total expenditures by type of expenditures, 2000-2015 (Percent of GDP)

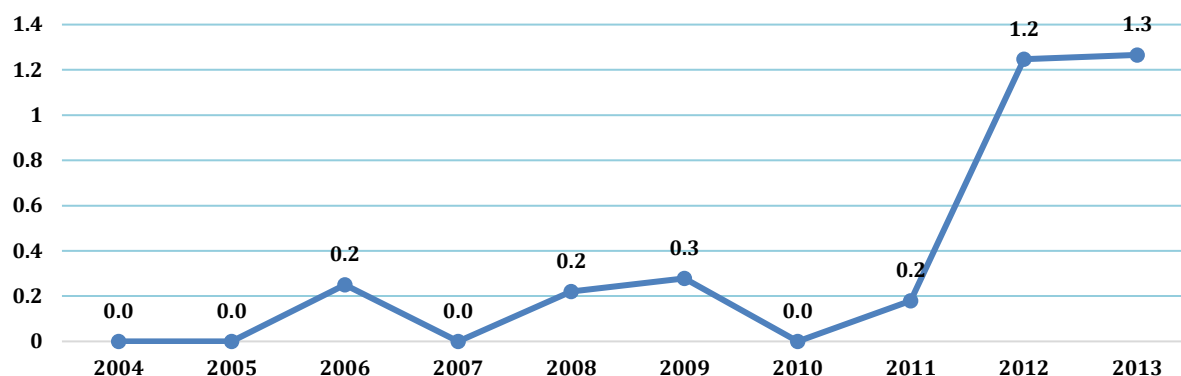


Source: IMF.

¹⁵ World Bank. Revenue management and public expenditure review (2014).

¹⁶ Annual arrears accumulation averaged 1.1 percent of GDP between 2000- 2009.

Figure I.14: Fuel subsidies, 2000-2013 (Percent of GDP)



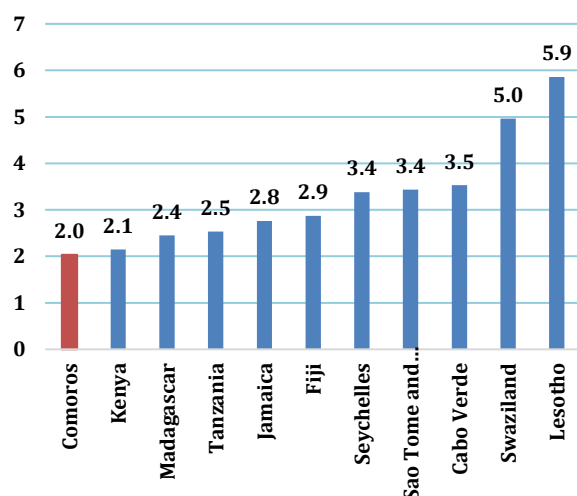
Source: WDI (2016).

Public spending has not effectively delivered public services for the population. There are deficiencies in road infrastructures and investment in electricity and telecommunication,¹⁷ which are compounded by geographical fragmentation, and Comoros' small state status, thereby increasing costs. Indeed, the public capital stock is far behind peer countries (Figure I.16). In addition, budgetary constraints due to low tax collection and spending on the wage bill contribute to crowding out other non-wage spending. For example, the government's spending in the health sector is absorbed by the wage bill, where figure I.15 shows that health expenditures are below peer countries. Thus, costs for services are absorbed through out-of-pocket expenditures at the household level, resulting in low access to health services by the poor.¹⁸

¹⁷ Until end-2016, supply of electricity and telecommunications were monopolies of public enterprises. The second firm in telecommunication started to operate in December 2016.

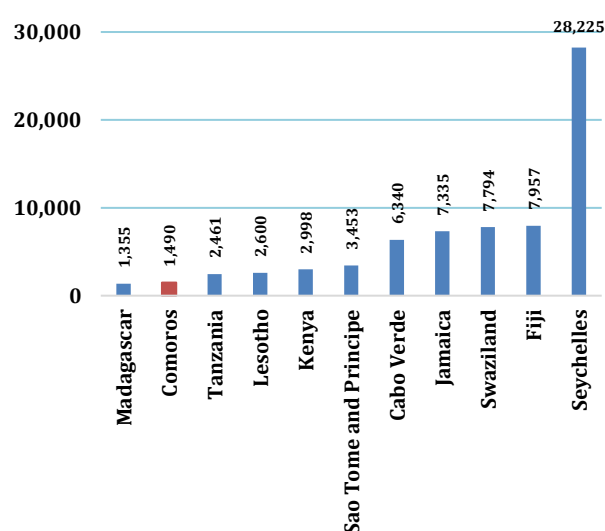
¹⁸ World Bank. Assistance technique sur demande pour l'amélioration de la prestation de services (2016).

Figure I.15: Average health expenditures by countries, 2000-2015 (Percent of GDP)



Source: WDI (2016).

Figure I.16: Public capital stock by countries (Constant 2011 International Dollars)



Source: IMF, Investment and capital stock database, 2017.

The financial sector has been expanding in Comoros. Financial services in Comoros are provided by commercial banks, microfinance institutions (established since 2010) and financial intermediaries. Credit to the economy by commercial banks progressively moved from 17 percent to 25.6 percent of GDP between 2010 and 2015, placing Comoros among the best performers in terms of financial depth in 2015, compared to low-income countries in SSA.

However, access to financial services is unequal across income levels and gender, with the poor largely excluded. Less than 10 percent of adults in the poorest quintile had access to a formal financial account, compared with 40 percent for the richest quintile in 2011.¹⁹ Access to banking services by the poor is constrained by the dominance of the informal sector, limited employment opportunities and elevated costs of financial services. The influence of financial services on economic development is somewhat limited by the fact that lending finances mainly private consumption – up to 70 to 90 percent - and not investment.²⁰

Outlook for higher economic growth perspectives is subject to continued structural reforms

Recent economic progress has been prejudiced by the crisis in the electricity sector. The lack of maintenance and investment in electricity generator infrastructures has intensified power outages since 2014. Combined with under execution of public investment, economic activities have decelerated. With the reforms introduced in the second half of 2016, economic growth is estimated to have marginally recuperated to 2.2 percent against a low of 1 percent in 2015.

¹⁹ IMF. Selected issues (2016) from Global Index 2011

²⁰ IMF. Art IV consultation (2015)

Economic performance over the medium term is conditioned by continued structural reforms. Electricity shortages have been alleviated since the purchase in Q4 2016 of 9 remanufactured generators with a total generation capacity of about 12.5 MW. However, its functioning risks to be suspended by the inability of public finances to cover the operating costs linked to the purchase of diesel.²¹ The electricity sector is under reform, and is being supported by the World Bank and the African Development Bank (AfDB). Much needed improvements to the country's infrastructure will help to stimulate growth and economic prospects, which must be underpinned by an expansion of fiscal space. The financing extended by the AfDB and the European Union for road improvement presents a buffer to public finances in the short term.

The business environment requires additional improvement to attract investment. The business environment is cited by the diaspora as the main obstacle to investment in Comoros. Perceived weaknesses in the Judiciary and high cost of remittances transfers are deterring private investment²². By improving the business environment, remittances could be shifted to more growth-oriented activities, and FDI flows could be encouraged to tap the potential of key sectors, such as tourism, fishing, agriculture, and renewable energy production (geothermic ones).

Assuming that the political situation remains stable and reforms progress, growth is expected to pick up in the medium term to an average of 4 percent. Only sustained growth will have a significant impact on poverty reduction and an improvement in living conditions. The main risk to this outlook is linked to the difficulty in maintaining the traction for reforms related to the mobilization of domestic revenues, the control of the wage bill and the fiscal risks from state-owned enterprises.

II. Governance environment

Important progress in political stability, but many governance challenges remain particularly regarding corruption

In 2009, Comoros adopted a major Constitutional reform that represented a turning point in the development of Comoros. The Constitutional reforms of 2009 transformed relations between the islands, significantly reduced tensions, and improved the prospects for greater stability. The amendments adjusted the autonomy of the islands, converted the island presidents into governors, and reaffirmed the unity of the state and the role of the federal government. In 2010, presidential elections were held, with President Ikililou Dhoinine taking office in May 2011. Following these elections, the country has enjoyed relative political stability and the

²¹ Improvement in the capacity of the power utility (MAMWE) to recovery revenues will partially mitigate the risk but it will likely take time to materialize.

²² IMF Art IV consultation (2015).

government has initiated a series of economic reforms that have progressed steadily though slowly.

In 2016, Comoros entered a new electoral cycle with all the uncertainties it entails. Elections for Union Deputies, Island Advisors, and Local Mayors were held in February 2015; the first round of presidential elections took place in February 2016, and the second round was held on April 10, 2016. International observers monitoring the second round of legislative elections in the Indian Ocean island nation of Comoros declared the vote free and transparent. Samuel Azu'u Fonkam, head of the observer mission sent by the International Francophonie Organization, declared that voting took place in an atmosphere of “transparency, freedom and serenity”. Azali Assoumani was declared by the Constitutional Court to have won the 2016 presidential election to succeed President Ikililou Dhoinine. International organizations and observers commended the running of the elections.

While Comoros has achieved important progress regarding political stability, important challenges remain in the fields of government effectiveness and control of corruption. The government has taken steps to improve the effectiveness of public administration, notably through the hiring of more civil servants. However, as pointed out by the Country Partnership Strategy for the Union of Comoros 2014-17, obstacles to reform include the overlapping and often disjointed responsibilities between the Union and Island authorities, the role of political patronage in civil service recruitment, and the lack of alternative employment opportunities, all of which create strong vested interests in the status quo and opposition to reform. Corruption remains endemic and the existing culture of impunity and weaknesses of the justice system undermine the ability of the government to take action. Not much progress has been realized as in 2016, Comoros ranked 153th out of 176 countries on the Transparency International Perception of Corruption Index, similar to its ranking of 154th out of 178 countries in 2010.

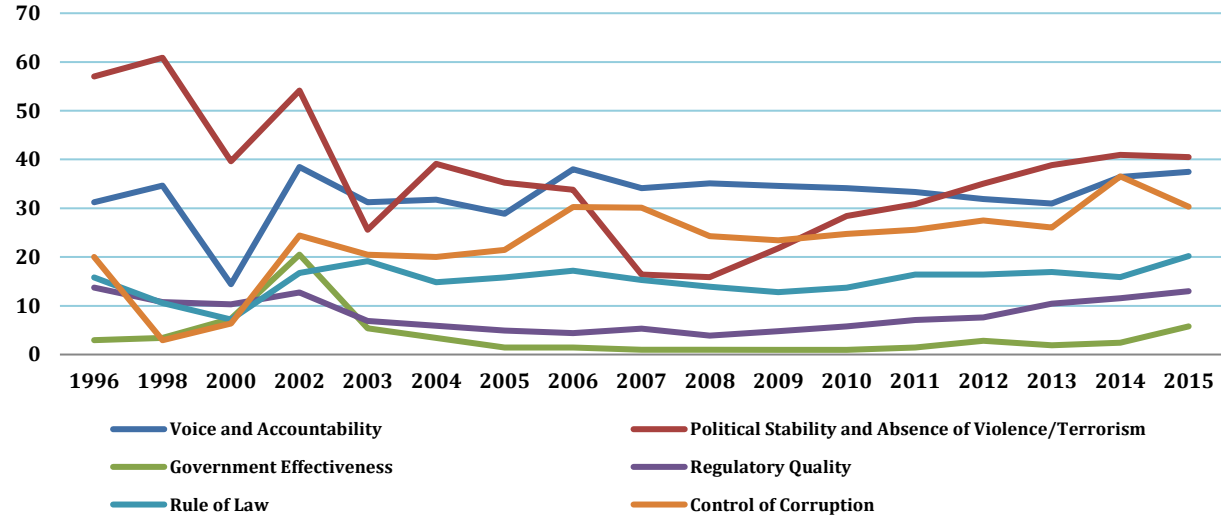
Key governance indicators

Comoros' governance is a mixed picture, public sector governance in Comoros having made some slight progress over the last seven years, as measured by major indicators that tracks governance and accountability. The World Governance Indicators (WGI)²³, which tracks six key dimensions of governance, shows that Comoros' performance has generally improved across all indicators over the last couple of years. Comoros ranks beyond the 30th percentile in “Control of Corruption”, “Voice and Accountability”, as well as “Political Stability” (Figure I.17). In the latest category, the country even reaches the 40th percentile. More importantly, the country's indicators display a positive trend over the last seven years, which indicates a general improvement of governance in Comoros. The same positive trend is observed for “Government Effectiveness”, “Regulatory Quality”, and “Rule of Law”. However, in those categories, Comoros still ranks below the 20th percentile. In particular, “Government

²³ WGI are not absolute measures of governance. They measure a country's relative rank with respect to that indicator.

Effectiveness” scores very low (6th percentile in 2015), though it has slightly improved compared to the previous ten years, when it scored around the 2nd percentile.

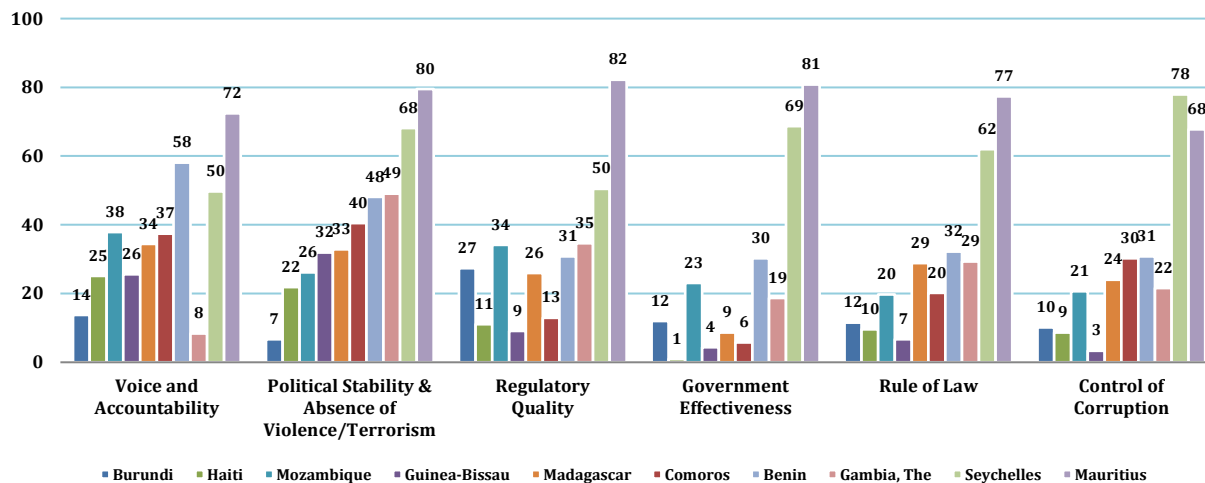
Figure I.17: World Governance Indicators for Comoros (Percentile Rank)



Source: World Governance Indicators.

In terms of international comparison, although Comoros is located within the sub-Saharan average, the country still trails behind its African and international peers that share similar characteristics. The picture is particularly concerning regarding certain indicators. Currently, the country still ranks in the lowest 20 percent in “Rule of Law”, “Regulatory Quality”, and “Government Effectiveness” (Figure I.18). To allow for international comparison, we defined a group of nine comparators – Benin, Burundi, The Gambia, Guinea-Bissau, Haiti, Madagascar, Mauritius, Mozambique, and Seychelles—that share geographical and/or socio-economic characteristics with Comoros. The results show that Comoros severely trails behind its sub-Saharan and international counterparts in the aforementioned categories (figure I.18). For instance, in 2015, Comoros ranked in the 7th percentile in “Rule of Law”, compared to the 20th percentile for Mozambique, the 29th percentile for Madagascar, and 62nd and 77th percentile respectively for Comoros’ island neighbors Seychelles and Mauritius.

Figure I.18: WGI International Comparison, 2015 (Percentile Rank)



Source: World Governance Indicators.

Comoros’ biggest concerns lie in the transparency and accountability of Comoros’ public sector. While Comoros displays good levels in terms of voice and accountability as well as political rights and liberties, the corruption perception has worsened over the last few years to become one of the country’s most pressing issues. While in 2013, Comoros ranked 127th in the Transparency International Corruption Perceptions Index, its ranking consistently worsened since then to reach 142nd in 2014 and 153rd out of 176 countries in 2016. The issue is of great concern as international and non-governmental organizations underline the presence of signs of corruption at all levels of the judiciary, civil service, and security forces. Comoros’ vulnerability to corruption of public officials and lack of transparency of the public sector have been the main factors pointed out by international organizations when it comes to the picture of accountability in the country. In 2011, an independent anti-corruption commission was created. The commission is responsible for implementing the national strategy to combat corruption. In 2012, the government adopted an overall strategy for the fight against corruption, and a decree on asset and income declaration. However, scarce qualified legal and judicial personnel, poor infrastructure, cumbersome procedures and limited access to judicial and legal information undermine government’s ability to really tackle corruption. The fight against corruption is currently at the core of Comoros’ relationship with its donors, as the country tries to showcase its efforts to address the issue in order to secure additional support and to comply with international donor-receiver regulations.

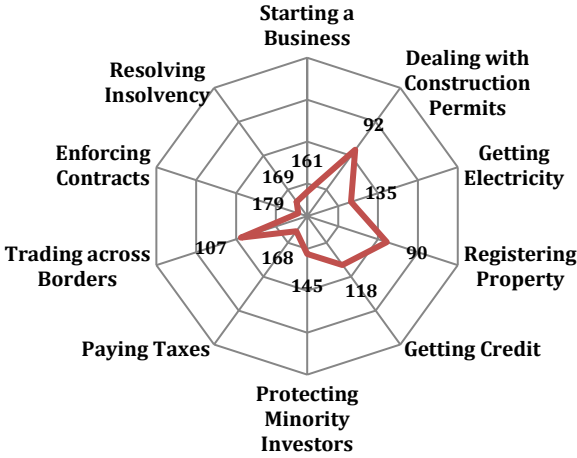
Meanwhile, government effectiveness has improved over the last recent years but remains dramatically low, underlining concerns of existing vested interests and opposition to reforms. Comoros ranked at the 6th percentile in 2015 for “Government Effectiveness”, an improvement from its historically low scores, but still a very poor performance. Between 2005 and 2011, the country repeatedly ranked in the 1st percentile and has only slightly improved since then. Comoros mainly suffers from a difficult repartition of responsibilities, within its federal

political and administrative system, between the Union and Island authorities. The 2001 constitution tried to remedy those issues by granting each island a greater autonomy. However, the bureaucracy created led to the creation of a complex and overlapping governance system that cost Comoros about 80 percent of its GDP at that time. A new referendum aimed at cutting down the government's bureaucracy and streamlining the country's top-heavy government was organized in 2009. At a large majority, the country voted to cause each island's president to become a governor, and the ministers to become councilors. The situation is still concerning as disjointed responsibilities between the Union and Island authorities remain. For instance, the Islands' Governments maintain the right to recruit employees, while the Union's Government pays for them, giving the Islands little incentive to contain recruitment.

Likewise, despite some small improvements since 2009 in terms of regulatory quality, the existing poor environment that hampers private sector development remains weak and resilient. Regulatory quality is defined as the ability of the government to formulate and implement policies to promote private sector development. From 2009, when it ranked in the 4th percentile, Comoros slightly improved to reach the 13 percentile in 2015. However, according to the 2016 World Bank Doing Business report, in the last seven years Comoros has made very little progress to improve its business and investment environment.

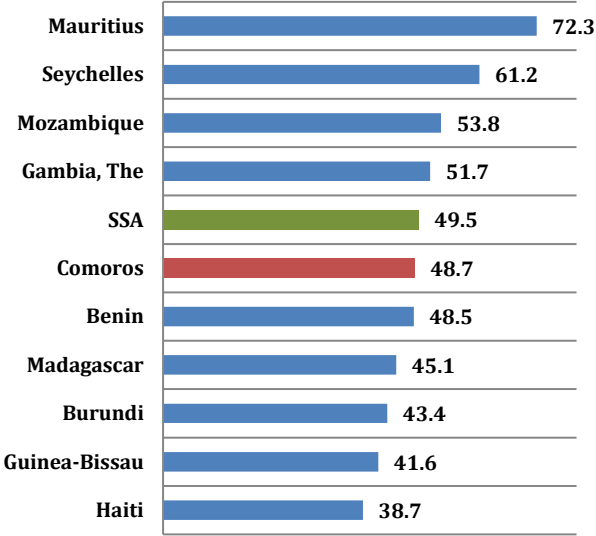
At the international level, Comoros trails slightly below the sub-Saharan average but compares favorably with other similar countries from continental Africa. Despite its relatively low overall scores in regulatory quality, Comoros is almost on par with sub-Saharan Africa's average (Figure I.20). Compared to nine other countries that share similar political and socio-economic characteristics, while Comoros clearly does better than countries such as Burundi or Guinea-Bissau, it remains far from achieving the scores of neighboring island countries, such as Mauritius and Seychelles.

Figure I.19: Regulatory quality by disaggregated indicators, 2017 (Percentile Rank)



Source: Doing Business Report, 2017.

Figure I.20: Regulatory quality international comparison (Percentile Rank)



Source: Doing Business Report, 2017.

Chapter II – The Extent of Poverty and Inequality

Key Messages

- **High incidence of poverty at the national level, particularly in rural areas, but the international poverty level compares favorably with Sub-Sahara African peers;**
- **Poverty is more prevalent among large households, as well as households with low education, employed in agriculture and those who lack access to infrastructure and assets. Internal migration seems to be associated with lower poverty;**
- **Overall consumption inequality is fairly high, and there is a large rural-urban welfare gap, essentially driven by low opportunities for households' productivity in the rural sector;**
- **An important share of Comoros inequality is stemming from opportunity differentials, essentially related to the individual's region of birth.**

The “Enquête sur l'Emploi, le Secteur Informel et la Consommation” (EESIC) for 2014 is the most recent available household survey in Comoros, and allows an updated and relatively detailed analysis of the poverty situation. Details on the survey methodology and quality can be found in Appendix 1.A. This chapter will draw on this data to provide a snapshot with detailed information on the prevalence and incidence of poverty and inequality in 2014.

More than four out of ten Comorians live in poverty, while the extreme poor account for over 20 percent of the population. Comoros' poor are not a homogeneous group and poverty is not a single problem that can be solved with a stand-alone or uniform package of policy measures. In order for the government and other stakeholders to instigate appropriate pro-poor measures, it is necessary to understand the characteristics and profiles of the most disadvantaged groups and the different constraints they face.

The first section of this chapter provides a snapshot of the consumption poverty in 2014, suggesting a picture of a country where poverty is lower than regional averages, although welfare disparities remain between the different geographic regions of the archipelago. In particular, the data allows us to run some sensitivity tests and to underline the clustering of a large share of the population right below and above the poverty line. Comoros poor people are identified as those facing consumption shortfalls, but poverty is not a single economic condition and it goes beyond consumption deficits. Thus, the second section focuses on the core socio-economic characteristics of the poor, comparing them with Comoros' population that is non-poor. The third section investigates the evolution and structure of inequality. The section draws on the analysis of the differences in households' characteristics and returns to those characteristics to understand the sources of inequality between geographic regions. It also examines inequality of opportunity and

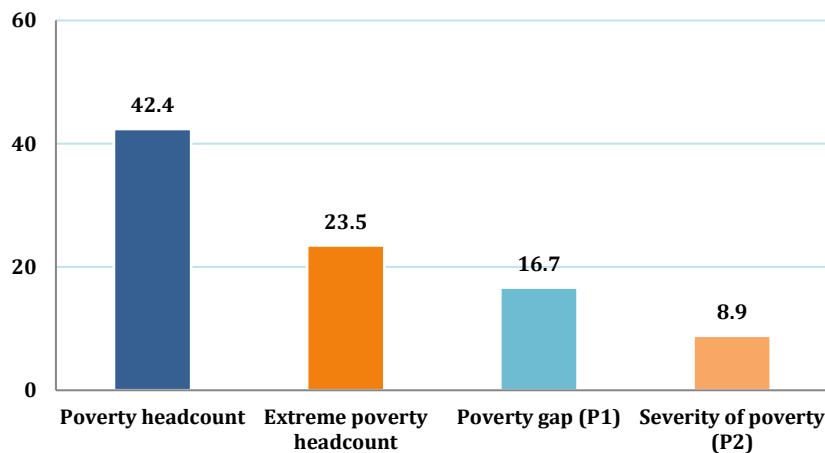
explores the effects of family background and individual’s circumstances on the persistence of poverty and inequality.

I. Snapshot of consumption poverty in 2014

Prevalence of poverty at the national level with important spatial disparities

In 2014, 42.4 percent of the population still lived below the national poverty line and 23.5 percent was in extreme poverty. According to the EESIC 2014, 42.4 percent of the population (around 316,000 people) is poor, with monthly consumption per capita below the basic needs poverty line (Figure II.1). The extreme poverty headcount ratio stood at 23.5 percent, meaning that about 175,000 Comorians lived in extreme poverty as of 2014, and hence cannot afford to buy enough food to meet the minimum nutritional requirements of 2,200 kilocalories (Kcal) per person per day (see Box II.1 for details).

Figure II.1: Poverty indicators in Comoros, 2014 (Percentage of Population)



Source: EESIC 2014.

Comoros’ poverty is moderately deep. The *poverty gap* (or depth of poverty), which measures the mean shortfall of the total population from the poverty line, stood at 16.7 percent in 2014. This indicates that the average consumption level of a poor Comorian is around 83 percent of the national poverty line, suggesting that many of the poor are relatively close to the poverty line, and that moderate income transfers would help a significant decline in poverty. Comoros’ poverty gap compares favorably with SSA peers. While it is higher than in Benin and Seychelles, where the poverty gap is respectively 9.8 and 12.6 percent, it is also lower than in Mozambique, Haiti, Guinea-Bissau, Burundi and Madagascar, where the poverty gap varies from the low of 21.2 percent in Mozambique, to the high of 34 percent in Madagascar. The severity of poverty (or squared poverty gap) is estimated at 9 percent reflecting moderate inequality among the poor.

As it is typically the case in Sub-Saharan Africa (SSA), the EESIC 2014 uses consumption as the key welfare measure to analyze poverty. This consumption aggregate comprises food consumption, including food produced by households themselves, as well as expenditures on a range of nonfood goods and services (e.g., clothing, utilities, transportation, communication, health, education, housing-related expenditures and imputed rent, etc.). However, the consumption aggregate does not include expenditures on larger consumer durable items (such as cars, TVs, computers, etc.), nor does it include expenditures on ceremonies (marriage, funerals, etc.). To the extent that better off households devote a larger proportion of their total consumption to durable goods, this omission creates certain biases and underestimates real consumption among wealthier families. This is less important for poverty analysis, where the focus lies on the bottom-end of the distribution, but it can have a significant impact on estimated inequality.

The EESIC 2014, as most household surveys, collects consumption data at household level. For the purpose of poverty and welfare analysis, total household consumption needs to be adjusted for differences in household size and composition. This is to account for the fact that, for instance, a single-person household requires less consumption than a family of five. One possible approach is to compute consumption per capita, which implicitly assumes that all members of the household require the same level of consumption. Another approach is to compute consumption per “adult equivalent”. While this approach is quite widespread in the context of SSA, Comoros EESIC 2014 poverty analysis uses consumption per capita as the key welfare measure. Price deflators are used to adjust consumption per person for price differences across the main geographic domains.

The poverty lines are based on the cost-of-basic-needs approach. The EESIC 2014 food poverty line (KMF 16,711 per capita per month) is based on the cost of a food basket that delivers 2,200 calories per person per day (given consumption patterns in a reference population). The basic needs poverty line (KMF 25,341 per capita per month) adds an allowance for basic non-food necessities to the food poverty line. Further technical details on the construction of the EESIC 2014 consumption aggregate, price deflators, and poverty line can be found in Appendix 1.B.

The basic needs headcount poverty rate (or as used in the text, poverty rate) measures the proportion of the population whose monthly (price-adjusted) total household consumption per person is below the basic needs poverty line. The extreme headcount poverty rate (used in the text as extreme poverty rate) measures the proportion of the population whose monthly (price-adjusted) total household consumption per person is below the food poverty line.

Geographic location matters—poverty is overwhelmingly rural, with more than 70 percent of the poor and extreme poor Comorians living in rural areas. About 60 percent of Comoros’ population continues to live in rural areas, relying on subsistence agriculture and low productivity jobs. Consequently, both poverty and extreme poverty rates are much higher in rural areas than in urban sectors. The incidence of poverty in rural areas is estimated at 49.9 percent, against 31 percent in urban areas (Figure II.2). Overall, it means that nearly 224,000 people of the rural population are in poverty, compared to less than 100,000 individuals who live in poverty and extreme poverty in the urban sector. The depth of poverty is also more important in rural areas, with a poverty gap of about 20 percent, compared to 11 percent in urban centers. It underlines that not only more poor live in rural areas, but they are also worst off than their urban counterparts. The regression presented in Tables 1.C-1 and 1.C-2 in Appendix 1.C shows that when controlling for other factors, households living in rural areas have lower standards of living than their urban counterparts, and are also significantly more prone to be poor.

Figure II.2: Poverty incidence by geographic location (Percentage of Population)

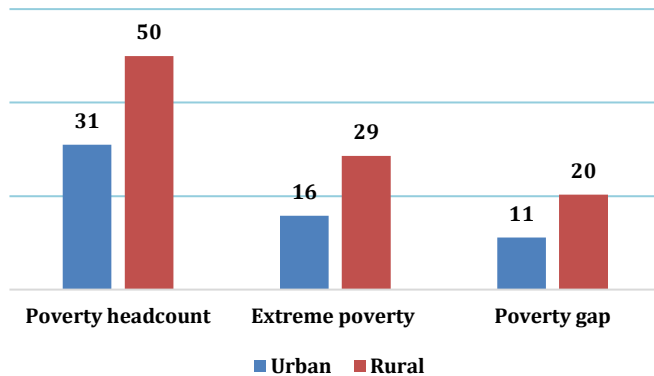
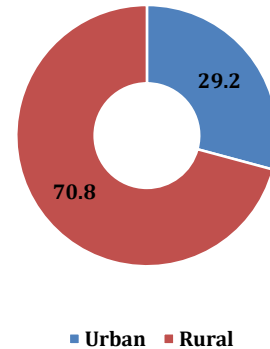


Figure II.3: Proportion of the poor by geographic location (Percentage of the Poor)



Source: EESIC 2014.

There are significant variations of poverty incidence across the different islands. The major part of Comoros’ population is concentrated in Ngazidja (Grande Comores, which includes Moroni and the rest of Ngazidja), where over half of the population live, compared to 41 percent in Ndzhouani (Anjouan) and less than 7 percent in Mwali (Moheli). This resulted in a high concentration of the poor populations in Ngazidja (where 47 percent of the country’s poor live, with close to 15 percent in Moroni and 33 percent in the rest of Ngazidja) and in Ndzhouani (with 45 percent of the country’s poor). In comparison, the island of Mwali is only host to about 7 percent of the Comorian poor (Figure II.5). Important disparities are also found in the poverty incidence across the Islands, with poverty being more prevalent in Ndzhouani and Mwali, where the headcount is estimated at 47 percent and 45 percent respectively, compared to a poverty level of 37 percent in Moroni and 40 percent in the rest of Ngazidja (Figure II.4). Poverty seems to be also deeper in Ndzhouani, where the average consumption level of the poor is less than 80 percent of the national poverty line. While these results point to higher living standards and welfare in Moroni and the rest of Ngazidja, the regression results show that controlling for other factors, households living in other areas than Moroni are more likely to have higher standards of living (Table 1.C-1). In particular, households in the rest of Ngazidja, are significantly less likely to be poor. The same is true in a lesser extent for households living on the islands of Ndzhouani and Mwali (Table 1.C-2)

Figure II.4: Poverty incidence by Islands (Percentage of Population)

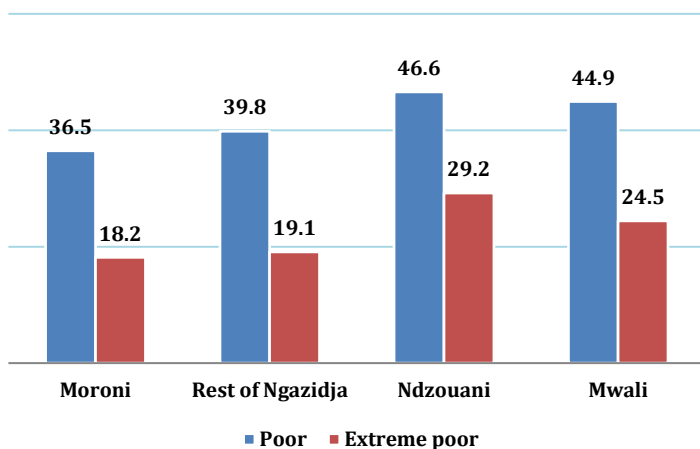
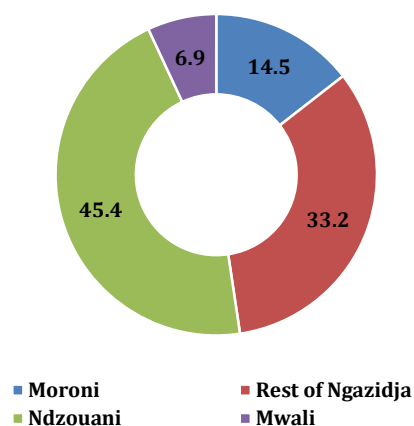


Figure II.5: Proportion of the poor by Islands (Percentage of the Poor)



Source: EESIC 2014.

There is a large clustering of the population around the poverty line, translating, among other things, into a significantly lower level of international poverty incidence

A large share of Comoros’ population is clustered around the poverty line, likely to escape from poverty. The poverty depth indicator shows that a large share of the poor is close to the poverty line, likely to escape poverty through slight improvements of their living standards. For instance, a decrease of the poverty line by 15 percent yields a reduction of the poverty rate of 21 percent. Similarly, a decrease of 25 percent leads to a reduction of the poverty incidence of 32 percent, underlining the fact that a large proportion of the poor is clustered right below the existing poverty line and might be in line to escape poverty if their income would only slightly increase (Table II.1 and Figure II.6). The opposite is less pronounced, but still reveals that around one fourth of the non-poor population stagnates at a consumption level right above the poverty line within a range of KMF 250 per person per day, and is therefore prone to fall back into poverty in case of unexpected economic shocks.

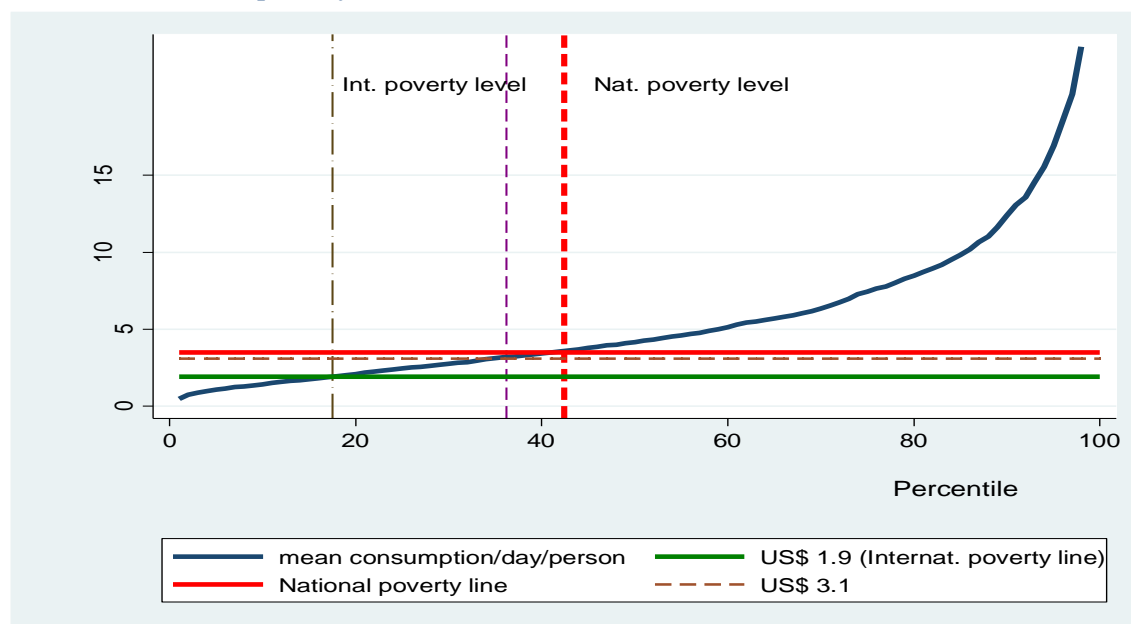
Table II.1: Poverty Headcount for Alternative Poverty Lines

Increase in poverty line	Poverty line (KMF)	Poverty headcount (%)	Δ (%)	Decrease in poverty line	Poverty line (KMF)	Poverty headcount (%)	Δ (%)
0%	25,341	42.4	0%	0%	25,341	42.4	0%
5%	26,608	44.7	+5%	-5%	24,074	39.9	-6%
10%	27,875	47.0	+11%	-10%	22,807	36.7	-13%
15%	29,142	49.2	+16%	-15%	21,540	33.6	-21%
20%	30,409	51.6	+22%	-20%	20,273	32.0	-25%
25%	31,676	53.3	+26%	-25%	19,006	28.8	-32%

Sources: EESIC 2014 and World Bank staff calculations.

The clustering of the population around the poverty line translates, among other things, into a significantly lower level of international poverty incidence. Comoros national poverty line is higher than the international poverty line of US\$ 1.90 per person per day (in 2011 Purchasing Power Parity-PPP, exchange rate), which is often used to evaluate a country’s poverty record vis-à-vis other low-income countries or developing regions.²⁴ Based on the US\$ 1.90 line, the international poverty rate in Comoros is 17.5 percent, which is around 25 percentage points lower than the national poverty rate of 42.4 percent. This is due to the clustering of people around the poverty line, and in particular, right below the national poverty line, as can be seen in Figure II.6, which plots average consumption (per capita per day) for each percentile of the consumption distribution. The solid red line, which represents the national poverty line, crosses the consumption distribution close to the 42nd percentile. Since the consumption curve is relatively flat at the bottom end of the distribution, the solid green line, which represents the international poverty line, crosses the consumption distribution close to the 17th percentile, indicating a quite significant decrease of the poverty rate yielded by a relatively moderate change in the poverty line. The discrepancy between the national and international poverty levels is also the consequence of the absence of accurate and updated data on consumption prices, inflation indicators, and national accounts, as well as probably also the underestimation of the PPP indicator.

Figure II.6: Mean Consumption by Percentile (US\$ 2011 PPP)



Sources: EESIC 2014 and World Bank staff calculations.

²⁴ The KMF 25,341 basic needs poverty line translates into approximately US\$ 3.5 per capita per day at 2011 PPP (based on 2011–14 CPI inflation in the World Development Indicators), which translates in local currency to a higher level of around KMF 452.5 per capita per day than the international poverty line.

Comoros’ international poverty rate compares favorably with other Sub-Sahara African (SSA) countries with similar income levels. Poverty in Comoros appears to be considerably lower than the SSA average of 41 percent, as well as the low-income countries’ average of 46.2 percent. As seen in Figure II.7, Comoros has consistently lower poverty rates than countries that share similar characteristics – small state, low population size, low income, fragile state— such as The Gambia, Bénin, Guinea-Bissau, Haiti, and Burundi. Similarly, Comoros performs better compared with large regional neighbors such as Madagascar (poverty rate of 77.8 percent) and Mozambique (poverty rate of 68.7 percent). However, Comoros is still short of the levels of Seychelles and Mauritius, two small neighbor islands that have virtually eradicated poverty with poverty rates of 1.1 percent and 0.5 percent respectively.

Figure II.7: Poverty estimates in Comoros and other developing countries (Percentage)

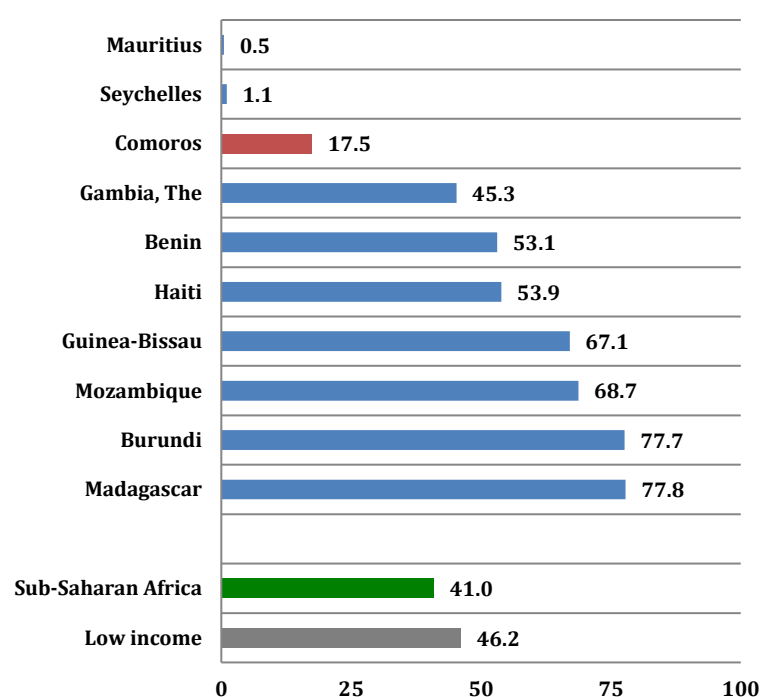


Table II.2: Poverty incidence (Percentage)

Country Name	Poverty headcount ratio	Poverty depth
Benin	53.1	19.0
Burundi	77.7	32.9
Comoros	17.5	6.0
Gambia, The	45.3	17.7
Guinea-Bissau	67.1	30.5
Haiti	53.9	28.9
Madagascar	77.8	39.2
Mauritius	0.5	0.1
Mozambique	68.7	31.4
Seychelles	1.1	0.4
Sub-Saharan Africa	41.0	16.0
Low income	46.2	18.4

Sources: EESIC 2014 and PovcalNet estimates for the period 2010–2016.

II. The Characteristics of the poor

Large family sizes, lower education, and engagement in agriculture contribute to poverty

Households with a large number of dependents and more children under the age of 14 are poorer. Poverty incidence is much higher among large families and those with children. In 2014, single or couple households with children exhibited poverty rates close to 50 percent (Figure II.8). Conversely, households without children, whether they are single or as a couple, exhibited

much lower poverty rates, at 16 and 18 percent respectively. Extreme poverty is also much more prevalent among households with children. In 2014, extreme poverty rates for single parents without children stood at less than 1 percent, while it attained about 33 percent for those with children. Elderly households seem to be exposed to higher poverty, but to a lesser extent than families with kids, probably due to the fact that these families seem to benefit from transfers and remittances from abroad.

Households with children are more prone to fall into poverty than families composed of adults only. Poor households are more likely to be larger in size, with an average of 6 members compared to an average of 4 members for non-poor families. They also tend to have more dependents, with on average three children under the age of 15, while the average number of children among non-poor households is less than two. In return, larger households, with a large number of dependents and more children under the age of 14, have lower consumption levels and are more prone to fall into poverty. Poverty consistently increases as the number of children increases. While the poverty rates among households with no or one child stand at 17.2 percent and 25.9 percent respectively, it attains a level close to 70 percent among households with five or more children (Figure II.9). The negative effect of family size and number of children on poverty is strong and highly significant even after controlling for various other factors related to household well-being (Tables 1.C-1 and 1.C-2). The interaction between family size and poverty is bidirectional. On one hand, the large number of children and dependents affects the ability of the poor to cover basic food needs and move out of poverty. On the other hand, poor households tend to have more children to compensate their inability to invest in the human capital of their kids and as an insurance strategy against infant mortality, trapping them in a vicious circle of poverty.

Figure II.8: Poverty and extreme poverty incidence by family type (Percentage of Households)

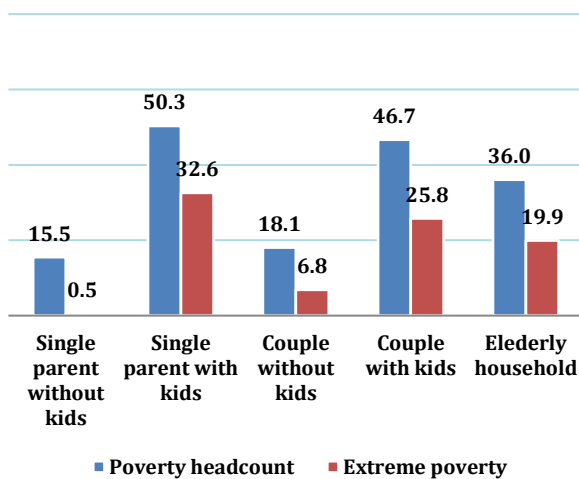
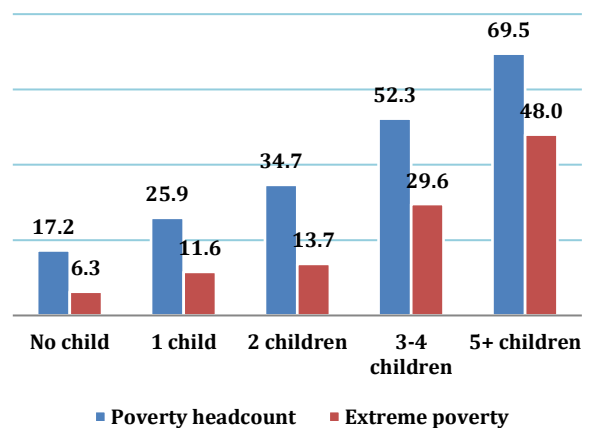


Figure II.9: Poverty incidence by number of children (Percentage of Households)



Source: EESIC 2014.

There is no significant relationship between the gender of the household’s head and economic welfare of the household. The proportion of households headed by women seems to be slightly larger among the poor and extreme poor, attaining respectively 27 percent and 29 percent, compared with a share of 24 percent among the non-poor. While one can think that women-headed households fare worse than male headed ones, this effect could not be detected in a multiple regression analysis of the determinants of poverty. This may be explained by the fact that there are two main categories of women-headed households: (i) widows running their own household business and relying mostly on farming; and (ii) single women working in the commerce and service sectors. The former suffer from much higher levels of poverty than the other groups.

Heads of poor households exhibit significant lower levels of education than their non-poor counterparts. The head’s level of schooling seems to be closely related to lower poverty incidence, suggesting that education is strongly linked to income-generating opportunities. The poverty headcount consistently declines as the education level of the household’s head increases (Figure II.10). In 2014, the incidence of poverty among heads of households with no education was 50 percent, compared to 25 percent for households’ heads with upper secondary education, and 17 percent for those with superior or university-level education. Similar patterns can be observed regarding extreme poverty with higher rates for uneducated heads of households. Even after controlling for other households’ characteristics, education appears to significantly affect the chances of enjoying higher living standards. In particular, secondary education and superior education seem to be associated with higher living of standards and lower risks of being poor. Although primary education continues to be of crucial importance for fighting poverty, it alone seems no longer sufficient to increase poor people’s opportunities for moving out of poverty, as revealed by its low and non-significant impact on living standards in Tables 1.C-1 and 1.C-2.

Figure II.10: Poverty incidence by education level of the household’s head (Percentage of Households)

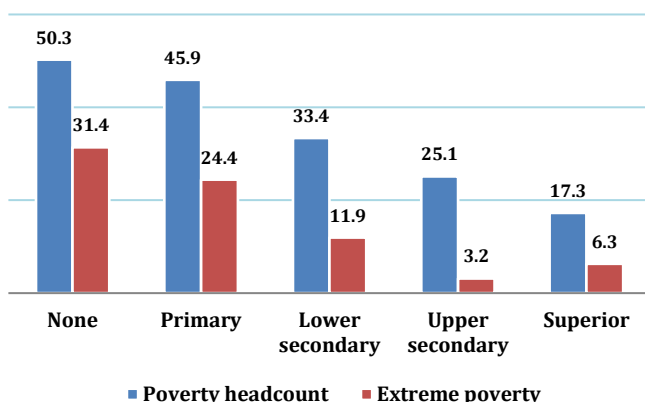
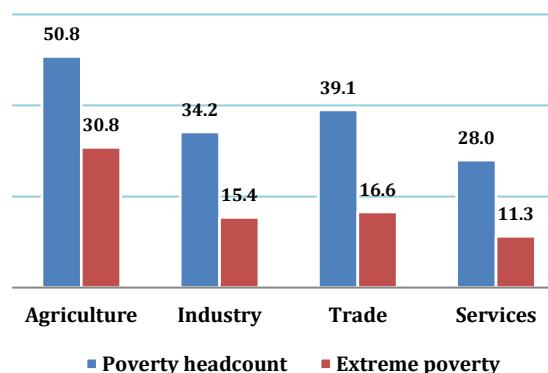


Figure II.11: Poverty headcount by sector of employment (Percentage of Households)



Source: EESIC 2014.

Households whose heads work in the agricultural sector are much more exposed to poverty than households whose heads operate in other sectors of activity. The sector of employment of the household’s head significantly affects living standards and poverty reduction. About 45 percent of Comorians households depend on agriculture for their livelihoods and more than half of them live in poverty (Figure II.11). In comparison, less than a third of households whose heads work in the nonfarm sector are poor, with poverty being particularly low among households engaged in the service sector. Moreover, industrial and trade employments are positively correlated with the probability of achieving much higher standards of living, particularly in rural areas, as well as being less poor (Tables 1.C-1 and 1.C-2). Agricultural households are also highly exposed to extreme poverty with an extreme poverty incidence rate of about 31 percent, around twice as much as households whose heads work in other sectors. This effect remains strong and highly significant even after controlling for various other households’ characteristics.

Wage and government employees are less likely to be poor. Approximately 75 percent of the poor are self-employed, with close to 50 percent being own-account workers. In contrast, poverty rates are the lowest among households headed by wage or government employees, standing at less than 22 percent, whereas it attains 40 percent for households engaged in the private nonfarm sector and 45 percent for own-accountants (Figure II.12). The results in figure II.12 are in line with those in figure II.13, showing that family helpers and those working in association groups are experiencing severe hardships and over half of them live in poverty.

Figure II.12: Poverty incidence by type of employment (Percentage of Households)

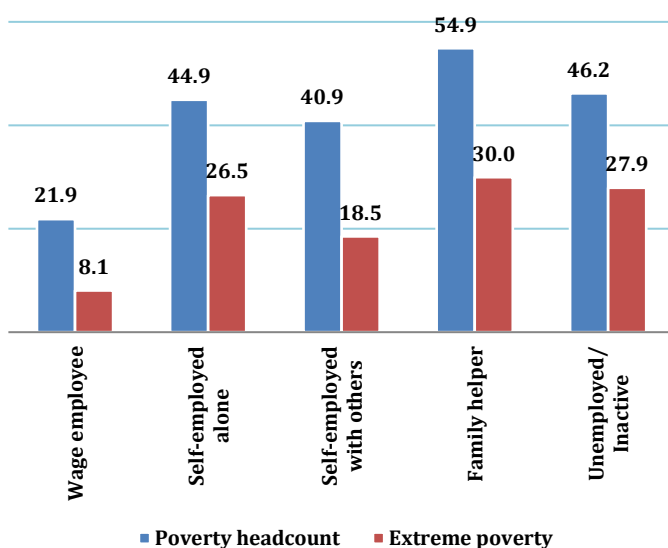
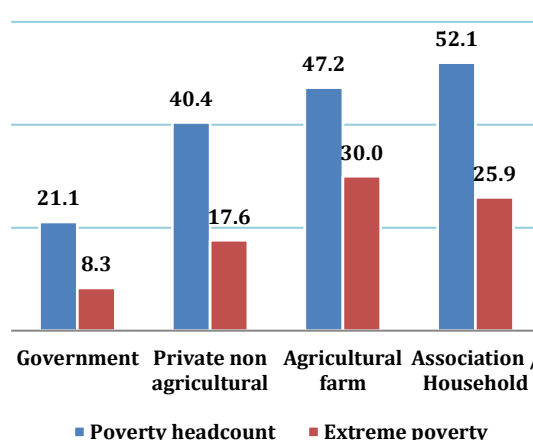


Figure II.13: Poverty headcount by type of company (Percentage of Households)



Source: EESIC 2014.

Poor households tend to have much lower access to infrastructure than non-poor ones. Figure II.14 shows the share of the poor and the non-poor population that has access to a various set of public infrastructure – piped water, electricity, and markets. It reveals that poor households

tend to have much lower access to private piped water, electricity and markets. For instance, in 2014, 43 percent of poor households had access to electricity against 60 percent of the non-poor households. Similarly, access to markets is more prevalent among non-poor households, with 58 percent having access to markets compared to only 44 percent for poor households. The obstacles to infrastructure and services, particularly electricity and markets, seriously limit the possibilities of the poor to improve their living standards.

Connectivity to those infrastructures is also found to significantly increase consumption and reduce the risk of poverty. The presence in the household’s community of piped water facilities, access to electricity, access to health center, and access to markets yields a significant positive impact on the consumption levels and reduces the probability of poverty (Tables 1.C-1 and 1.C-2). Access to these services is still quite limited in rural areas, hampering local opportunities to reduce poverty.

Figure II.14: Access to public infrastructures (Percentage of Poor and Non-Poor)

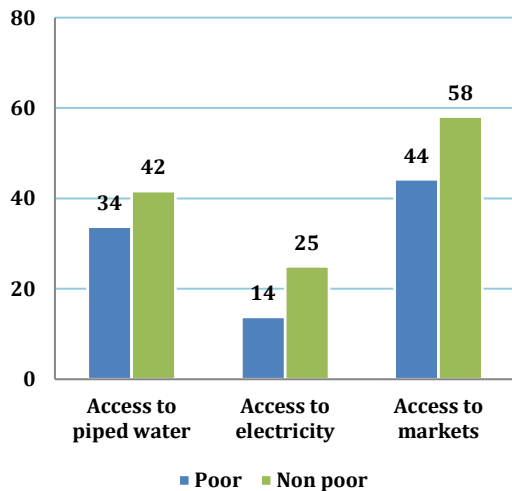
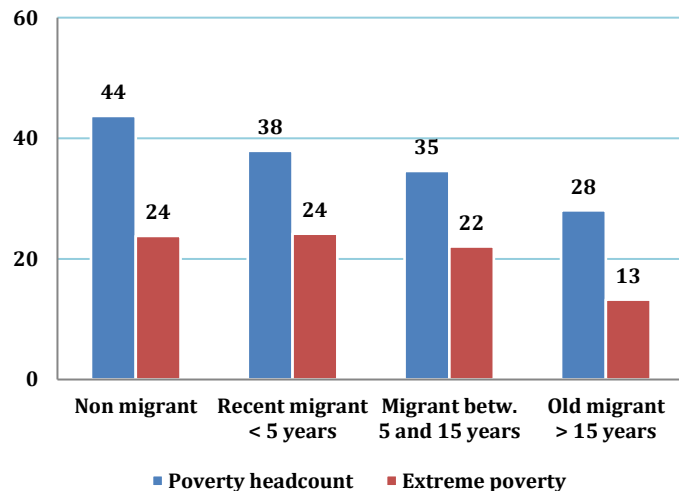


Figure II.15: Poverty incidence by migration status (Percentage of Households)



Source: EESIC 2014.

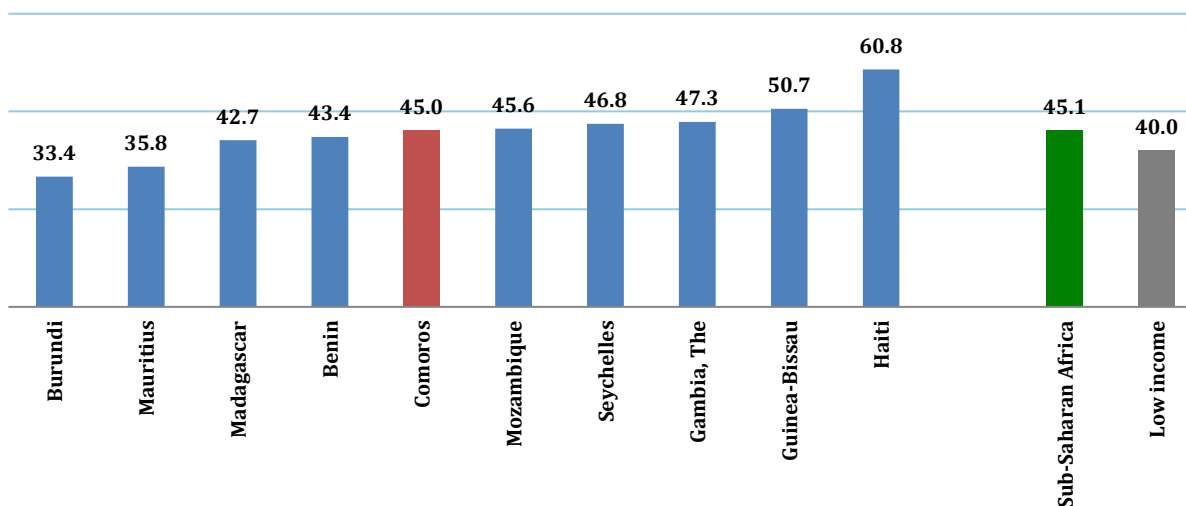
Internal migrants seem less likely to be poor than non-migrants, with households that migrated a long time ago being better off than recent ones. It appears from Figure II.15 that poverty is much more prevalent among non-migrant households compared to households whose head migrated to another island or district in Comoros. The time when migration occurred also matters. In particular, the earlier migration took place, the less poor are households. Heads of households that are considered old migrants – that is they migrated more than 15 years ago— exhibit a poverty rate of 28.1 percent compared to 37.9 percent for recent migrants – less than 5 years ago— and 43.7 percent for households that have never migrated (Figure II.15). This pattern is particularly significant in rural areas where migration’s status is found to have a significant positive impact on households’ consumption level (Tables 1.C-1).

III. The Level and Structure of Inequality

Fairly high consumption inequality, particularly prevalent in rural areas and Ndzouani

Comoros' levels of inequality remain high, although the country compares similarly to its international peers. With a Gini coefficient estimated at 45 in 2014, consumption inequality is moderately high by international standards, and on par with Comoros' international and sub-Saharan peers (Figure II.16). Comoros' Gini coefficient is similar to the sub-Saharan level that stands at 45.1 and higher than the low-income countries' Gini coefficient, estimated at 40. Overall, Comoros' level of inequality is similar to those of Madagascar, Benin, Mozambique, Seychelles, and The Gambia, which are all within the same range. Comoros' Gini coefficient is much higher than Burundi's and Mauritius' whose levels of inequality are 10 points lower, standing at 33.4 and 35.8 respectively. Conversely, Comoros performs much better than Haiti, which exhibits a high Gini coefficient of 60.8.

Figure II.16: Gini coefficients by international comparators



Sources: EESIC 2014 and WDI (2016) -estimates for the period 2010–2016.

The consumption distribution is more unequal on the island of Ndzouani as well as in rural areas. The picture of inequality varies greatly across the different islands of Comoros, with Ndzouani standing alone as much more unequal than the other zones of Comoros. While the Gini coefficient of Moroni, the rest of Ngazidja, and Mwali varies from 40 to 42 in 2014, the Gini coefficient of Ndzouani is at least 6 points higher, standing at 48.7 in 2014. It is also the only island where the consumption share of the poorest quintile is below 5 percent of the total consumption, as well as the only island where the average consumption of the top decile is more than 10 times superior to the average consumption of the bottom decile. The Lorenz curve by stratum, which plots the consumption distribution, highlights the specificity of Ndzouani, as the solid orange curve representing the island is located below all the other islands' consumption curves (Figure II.19). Likewise, the consumption inequality is higher in rural areas (Gini of 45.5)

than in urban ones (Gini of 42.7). As shown by Figure II.18, the rural consumption distribution curve is located below the urban one.

Figure II.17: Lorenz curve for Comoros, 2014

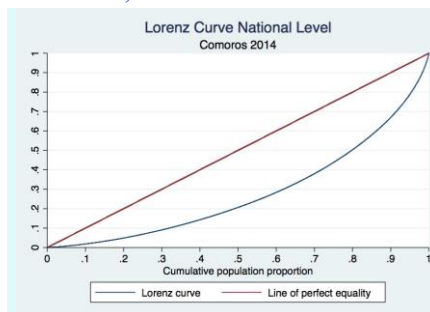


Figure II.18: Lorenz curve by geographic area, 2014

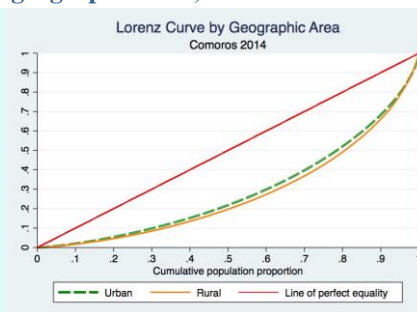
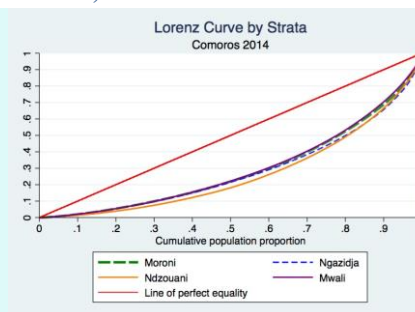


Figure II.19: Lorenz curve by islands, 2014



	Income shares			
	Gini	p90/p10	Low quintile	Top quintile
Comoros	45,0	8,8	4,7	50,4
<i>By Geographical Area</i>				
Urban	42,7	7,6	5,1	48,1
Rural	45,5	8,1	4,8	51,0
<i>By Islands</i>				
Moroni	41,7	7,2	5,3	47,6
Rest of Ngazidja	42,2	6,2	5,6	48,3
Ndzouani	48,7	10,9	3,9	53,2
Mwali	40,4	6,3	5,7	46,9

Sources: EESIC 2014 and World Bank staff calculations.

Note: Lowest and top quintiles are respectively the bottom and highest 20 percent in the distribution of consumption.

Inequality between population groups is primarily driven by differences in education level and sector of employment, as well as households' demographic characteristics

Given the observed high level of inequality, it is important to examine its structure and understand how the differences in households' characteristics contribute to welfare disparity. This investigation can be carried out through the decomposition of inequality by population subgroups, which consists of separating the overall inequality in the distribution of consumption into inequality within population subgroups on the one hand, and inequality between them on the other hand. The group partitions of inequality help to better understand the underlying structure and causes of per capita consumption distribution in Comoros. The decomposition is done at the national level as well as for the rural sector and Ndzouani, where inequality is particularly pervasive. Table II.3 provides the summary results of the shares of inequality explained by the between-group differences across eight household attributes (gender, age, educational level, activity status and sector of employment of the household head, regional

location, urban/rural status, and demographic composition of the household).²⁵ Technical details on the decomposition procedure can be found in Box II.2.

Box II.2 Inequality Decomposition

The static decomposition of inequality enables to explore how the differences in households' characteristics affect the level of inequality and provides important clues for understanding the underlying structure of real per capita consumption distribution in Comoros.

The decomposition follows the approach of Cowell and Jenkins (1995) and consists of separating total inequality in the distribution of consumption into inequality between the different household groups in each partition, I_{Betw} , and the remaining within-group inequality, I_{Within} . As the most commonly decomposed measures in the inequality literature come from the General Entropy class, mean log deviation (Theil_L) and the Theil_T indices in real per capita monthly consumption expenditure are used to identify the contribution of between-group differentials to total inequality. The General Entropy inequality measures allow total inequality to be equal to $I_{Betw} + I_{Within}$ and the amount of inequality explained by households attributes (or group of attributes) is measured by I_{Betw}/I_{total} , where between and within group inequalities are defined, respectively, for Theil_L and Theil_T indices as

$$I_{Betw} = \left[\sum_{j=1}^k f_j \log \left(\frac{\mu}{\mu_j} \right) \right] \quad I_{Within} = \sum_{j=1}^k f_j GE_0^j$$

$$I_{Betw} = \left[\sum_{j=1}^k f_j \left(\frac{\mu_j}{\mu} \right) \log \left(\frac{\mu_j}{\mu} \right) \right] \quad I_{Within} = \sum_{j=1}^k v_j GE_1^j$$

with f_j the population share, v_j the consumption share, and μ_j the mean consumption of subgroup j ; μ total mean consumption, GE_0^k Theil_L index, and GE_1^k Theil_T index of subgroup j .

with: $Theil_L = 1/n \sum_{i=1}^n \log \left(\frac{\bar{y}}{y_i} \right)$ and $Theil_T = 1/n \sum_{i=1}^n \left(\frac{y_i}{\bar{y}} \right) \log \left(\frac{y_i}{\bar{y}} \right)$

y_i : is real monthly per capita consumption expenditure for household i and \bar{y} is mean real monthly per capita consumption expenditure.

The educational level of the household head, followed by the family type and employment sector of the head, are the most important determinants of consumption inequality. About 7 percent of total per capita consumption inequality at the national level can be accounted for by inequality between four groups of households sorted by the educational attainment of the head. Mean consumption levels of the different educational groups increase as the education level of the household head improves, and is almost twice as high for households headed by university graduates than for those with heads that have no or primary education. Inequality between education groups seems to be even more important in Ndzhouani, where its contribution to the overall variation of consumption in the island is about 10 percent. However, disparities between education groups do not seem to have a significant contribution to rural inequality, probably due

²⁵ Age is split into five categories: (i) under 30, (ii) 30-39, (iii) 40-49, (iv) 50-59, and (v) 60+ years. Education is classified into four categories: (i) no education & illiterate; (ii) primary; (iii) secondary cycle 1 & 2; and (iv) tertiary. Three groups are considered for the activity status: (i) employed; (ii) unemployed; and (iii) inactive, disabled or retired. The employment sector comprises four categories: (i) Government and public sector employees, (ii) Employees in private nonfarm sector, (iii) Farmers and workers in agriculture, and (iv) Family helpers, associations & others. The regional locations are: (i) Moroni, (ii) Rest of Ngazidja, (iii) Ndzhouani, and (iv) Mwali. Households family types are: (i) "single parent with no kids", (ii) "single parent with kids", (iii) "couple with no kids"; (iv) "couple with kids", and (v) "families of elderly whose head is aged 65 years old or above".

to the widespread low education level in rural areas, where about 80 percent of the households have heads with no education or primary only.

Table II.3: Decomposition of Inequality by Household Attributes

	National		Rural		Ndzouani	
	Share of inequality explained by (%)		Share of inequality explained by (%)		Share of inequality explained by (%)	
	<i>Theil-L</i>	<i>Theil-T</i>	<i>Theil-L</i>	<i>Theil-T</i>	<i>Theil-L</i>	<i>Theil-T</i>
Education of head	6.52***	7.11***	6.29*	7.1	8.60***	9.82***
	(0.01)	(0.02)	(0.03)	(0.04)	(0.02)	(0.02)
Gender of head	0.02	0.02	0.31	0.29	0.4	0.4
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Age of head	1.04	1.03	1.51	1.46	1.86	1.93
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)
Activity stat. of head	2.04*	1.84**	4.66**	3.85**	5.27*	4.94**
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)
Empl. sector of head	4.65***	4.83***	5.41*	5.78	14.60***	15.80***
	(0.01)	(0.01)	(0.03)	(0.03)	(0.03)	(0.03)
Family type	5.06***	5.59***	4.38**	4.80**	4.29*	4.97*
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Urban/rural status	3.33**	3.33**			12.60***	13.60***
	(0.01)	(0.01)			(0.03)	(0.03)
Regional location	0.28	0.27	1.76	1.67		
	(0.00)	(0.00)	(0.01)	(0.01)		

* Significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level. Numbers in parentheses are bootstrap standard deviations based on 100 replications.

Sources: EESIC 2014 and World Bank staff calculations.

Differences in households' demographic composition are the second most important contributor to inequality, accounting for more than 5 percent. Households comprised of only adults – individuals older than 14 years old—, whether single or in couples, are much better off than the remaining household groups. Single parents with kids seem to face severe hardships and have the lowest consumption levels, with their mean per capita consumption being about half of the one for households without kids. Elderly households, whose head is 65 years old or over, are slightly better off than families with children. This may be due to the important support these households receive from their family members and relatives abroad, since over 50 percent of these households seem to benefit from important transfers. Disparities between family types appear to yield a significant contribution to inequality in rural areas and in Ndzouani.

The share of total inequality attributable to disparities between sectors of employment groups is around 5 percent. Households headed by government and public sector employees, followed by those headed by employees of the private non-farm sector, are much better off than households whose heads are employed in agriculture. Inequalities between employment groups seem to be driving most of the inequality in Ndzouani, contributing to more than 15 percent of the welfare variation in the island. Around 30 percent of the household heads of Ndzouani are farmers and family helpers. These households seem to face difficult living conditions and their mean consumption level is about 2.5 times lower than that of households headed by government

and private sector employees. It is also 20 percent lower than the average consumption level of farming households at the national level.

Inequalities between urban and rural locations contribute to around 3 percent of the overall inequality, while disparities between Comoros' islands only have a marginal contribution.

The contribution of rural-urban inequality to total inequality seems to be quite low. However, the differences in poverty and average levels of consumption between the two areas suggest the existence of a quite important urban-rural welfare gap. Also, the marginal contribution of inequalities between geographic locations to overall inequality is quite unexpected given the differences in poverty levels between the different islands of Comoros.

The activity status of the household head contributes to rural inequality and disparities in Ndzouani, while the gender and age have marginal explanatory powers, barely exceeding 1 percent.

The low proportion of woman-headed households in the sample, amounting to about 28 percent, can explain the low share of gender in these decompositions. Similarly, the particular status of women who head their own households, as many are running their own agricultural or informal business, are widowed or married to unemployed husband, and are often benefitting from remittances from family abroad, also contributes to the low share of gender in the decomposition.

Despite some evident disparities in the distribution of welfare between socio-demographic groups and geographic regions, most of the existing inequalities in Comoros are within groups.

Beyond the reasons related to the poor quality of the data, this might be the result of existing social and fiscal policies, the structure of labor market and its requirements, and the heavy dependency on transfers and remittances.

Differences in terms of returns to households' characteristics are the main driver of the rural-urban welfare gap

The geographic disparity in poverty is worrisome as it can undermine inclusive growth and shared prosperity prospects.

While the decomposition of inequality discussed above reveals a fairly low contribution of the rural-urban gap to overall inequality, significant differences in the levels of poverty and living standards between the two areas remain and need to be further understood. This section attempts to examine the importance and sources of the rural-urban welfare gap by analyzing the difference in the distribution of consumption expenditures between the two areas, and by investigating the contribution of households' characteristics to the gap across the various quintiles of the welfare distribution.

The analysis uses the unconditional quintile regression method, proposed by Firpo, Fortin, and Lemieux (2009), to decompose inequality between rural and urban areas into a component that is due to geographic differences in the distributions of household characteristics or *endowments* (such as education, demographic structure, ownership of assets, and so forth), and a component explained by differences in the *returns* to these characteristics (such as differences in the returns to education, assets, and so forth). More specifically, it decomposes the consumption gap between

the two areas into (i) a component that is due to differences in household characteristics only (endowment effects), considering for example, the gap in consumption that is due to the fact that urban dwellers have higher education levels than rural ones, but assuming that people with same education levels receive the same remunerations across different locations; and (ii) a component that is due to differences in returns to those characteristics only (returns effect), considering for example, the gap in consumption that is due to the fact that a secondary school graduate in urban areas receives a higher remuneration than a secondary school graduate in rural areas. The endowment and return components are then further decomposed to identify the specific attributes that contribute to the rural-urban gap. The decomposition is applied at each decile group of the consumption distribution to understand the pattern of the welfare gap across the different groups. More technical details can be found in Appendix 2.A.

The rural-urban welfare gap is mainly resulting from the fact that the rural sector is not generating enough opportunities for households' productivity compared to the urban sector. Figure II.20 shows that the returns effects dominate the endowments effects across the entire welfare distribution, suggesting that inequality between urban and rural areas is essentially due to higher returns and productivity levels in urban areas than in rural ones. Even though urban households have superior endowments than their rural counterparts, the welfare gap is caused primarily by the differences between urban and rural rewards for households' characteristics. This suggests that the rural sector is not generating enough opportunities that would improve households' productivity and returns, and would help rural households to catch up with their urban counterparts.

Inequality between poor urban and rural households is larger than inequality between better off ones. The difference in real per capita consumption between urban and rural households is declining across the different quintiles, indicating higher welfare gap between poor urban and rural groups than between better off ones (see Figure II.20).²⁶ This is driven by larger rural-urban differences in terms of returns to household characteristics among poor households than among well-off ones.

Differences in the distribution of household demographic structure and the sector of employment of the head, followed by ownership of assets and access to basic services, matter the most to inequality between urban and rural households. Even though rural-urban inequality is mainly due to disparities in returns, important differences in households' characteristics and endowments remain between the two sectors, which significantly contribute to the welfare gap. Large differences in family structure existing between the two sectors seem to be explaining a large share of the rural-urban gap, indicating that urban households are better off than their rural counterparts because they have smaller family sizes and less dependents. The

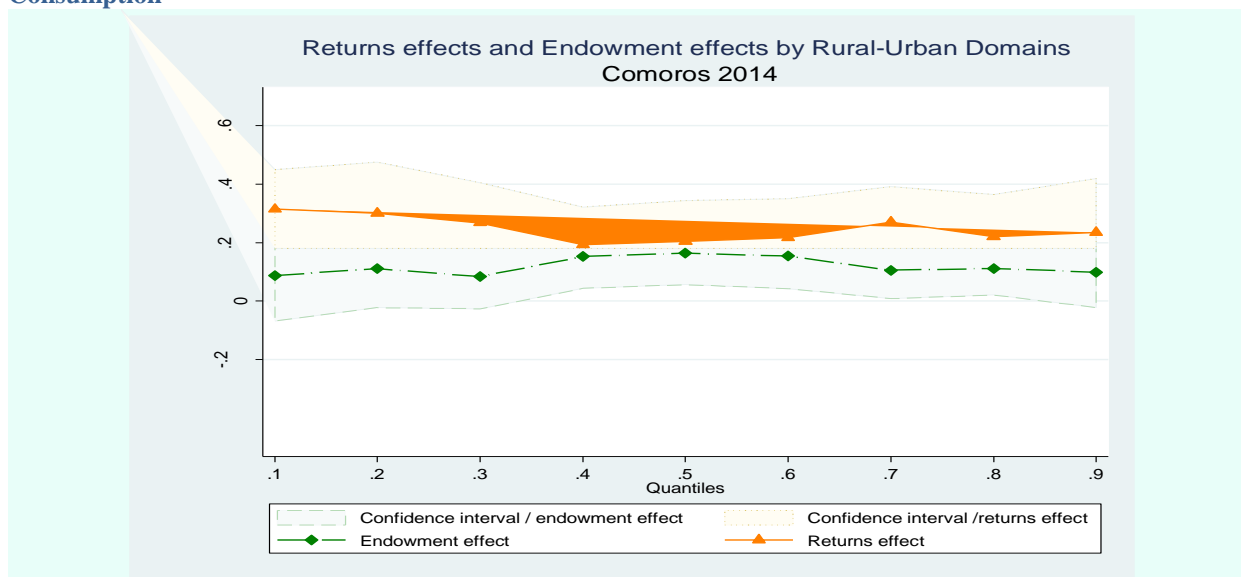
²⁶ Quantiles are values taken at regular intervals from the inverse of the cumulative distribution function of per capita real monthly consumption. If there are 5 quantiles then each quantile will correspond to a *quintile* (20 percent of the population), and if there are 10 quantiles then each quantile will correspond to a *decile* (10 percent of the population), and so forth.

findings also reveal important differences in ownership of assets, particularly communication means and possession of generator, which contribute significantly to the welfare gap between urban and rural households. These differences are particularly important for poor and less well-off segments of the population. There is evidence of important disparities in the sectors of employments of the households' heads, indicating that urban households are better off than their rural counterparts because they have better access to employment in commerce and industries, as well as public administration, than their rural counterparts. Differences in access to job opportunities in commerce seem to particularly matter for less well-off population groups. Disparities in access to basic services and infrastructure, mainly electricity, safe drinking water, and proximity to markets and schools, are found to significantly contribute to the welfare gap between urban and rural households, particularly for middle and upper quintiles. The effect of differentials in households' human capital on rural-urban inequality is significantly high for middle-class and richest households.²⁷

Differences in returns to community characteristics, assets ownership, and basic infrastructure are among the dominant factors explaining the rural-urban gap in terms of returns to household characteristics. Quite important differences in returns to geographic and community characteristics seem to be driving most of the inequality between the urban and rural sectors. Such differences in terms of returns probably reflect differences in accessibility to financial services, quality of services, availability of local non-farm employment, access to wireless and social networks, and so forth. These differences matter for all welfare groups but have a higher effect at the upper quintile levels. Regarding lower quintiles, differences in returns to assets seem to matter the most for urban-rural inequality, while at the middle quintile level, access to basic infrastructure appears to matter the most. This may be explained by the type of activities and access to facilities available in urban areas that offer households better opportunities to improve their productivity and the returns to their assets. However, the structure of the labor market and the heavy dominance of informality seem to hamper opportunities for higher returns to employment and education in both the rural and urban sectors, leading to low levels and differences in these returns in both areas.

²⁷ Middle-class households are those at the median of the per capita consumption distribution.

Figure II.20: Unconditional Quintile Decomposition of Urban-Rural Inequality of Real Monthly per Capita Consumption



	Lowest percentile	Middle percentile	Top percentile
Total Gap	0.402***	0.367***	0.333***
	[0.046]	[0.038]	[0.064]
Total Endowments	0.088*	0.163***	0.099**
	[0.047]	[0.037]	[0.050]
Human capital	0.021	0.056***	0.048***
	[0.019]	[0.014]	[0.015]
Demographic composition	0.129***	0.151***	0.094***
	[0.021]	[0.018]	[0.015]
Sector of employment	0.031*	0.044***	0.039*
	[0.018]	[0.014]	[0.020]
Assets ownership	0.064***	0.033*	0.001
	[0.025]	[0.018]	[0.019]
Access basic Services	0.007	0.070***	0.088***
	[0.030]	[0.022]	[0.033]
Geographic characteristics	-0.147***	-0.173***	-0.126***
	[0.033]	[0.025]	[0.027]
Total Returns	0.314***	0.204***	0.235***
	[0.061]	[0.045]	[0.077]
Human capital	-0.008	-0.057	-0.071
	[0.058]	[0.043]	[0.061]
Demographic composition	-0.363**	-0.481***	0.464***
	[0.161]	[0.118]	[0.166]
Sector of employment	-0.123**	-0.138***	-0.128
	[0.061]	[0.045]	[0.084]
Assets ownership	0.185**	0.017	-0.072
	[0.078]	[0.058]	[0.079]
Access basic Services	-0.794**	0.163	-0.249
	[0.372]	[0.273]	[0.566]
Geographic characteristics	0.335***	0.588***	0.523***
	[0.106]	[0.078]	[0.109]

Sources: EESIC 2014 and World Bank staff calculations.

Note: Numbers in brackets are bootstrap standard deviations based on 100 replications. * Significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level.

Consumption inequality is, to a certain extent, the result of circumstances beyond individuals' control

Inequality of outcomes, such as in income or consumption, reflects differences in effort and circumstances. Inequality of opportunity, defined as the part of inequality stemming from circumstances, such as gender, family background, and place of birth, is widely considered unfair and deserving of attention from policymakers (Roemer 1998; Peragine 2004). These inequalities that are beyond an individual's control perpetuate the lack of capabilities in the population and the waste of productive potential, and contribute to the persistence of poverty and inequality. Hence, development policies focusing on promoting shared prosperity and equity need to address inequality in both outcomes and opportunity.

The following analysis assesses the degree of opportunity inequality in consumption inequality in Comoros, drawing on data from ESSIC 2014, which includes information on father's and mother's education, employment and occupation status, as well as data on the region of birth. The analysis uses the parametric model proposed by Bourguignon, Ferreira, and Menéndez (2007) and estimates inequality of opportunity as the difference between observed total inequality and the inequality that would prevail if there were no differences in circumstances. Unlike the previous section, where all households' endowments were considered, this section focuses only on endowments or characteristics inherited and independent of their choices. Consequently, the circumstances included are gender, age, mother and father's education, fathers' socio-professional category, father's sector of employment, and commune of birth.²⁸ Details related to the variables used and underlying methodology can be found in Appendix 2.B.

The degree of inequality of opportunity for household consumption is estimated at 0.067 in 2014, a level relatively high by international standards. The estimated level of inequality of opportunity, reported in Figure III.22, is on par with Tanzania's level of inequality of opportunity, estimated at 0.068 in 2012, but is two times higher than in Egypt and greater than inequality of opportunity levels in many SSA countries such as Ghana, Guinea, Rwanda and Madagascar.²⁹ The degree of inequality of opportunity, estimated using the mean log deviation (Theil_L) index, should be considered as a lower-bound estimate of the true level of inequality of opportunity.³⁰ Despite the relative richness of the circumstance variables in the datasets, many relevant circumstances, such as family wealth, quality of parents' education, access to resources and basic services in the community of birth and so forth, remain unobserved. Adding more circumstance variables would increase the magnitude of inequality of opportunity.

²⁸ Mothers' socio-professional category and sector of employment include too many missing observations and were disregarded.

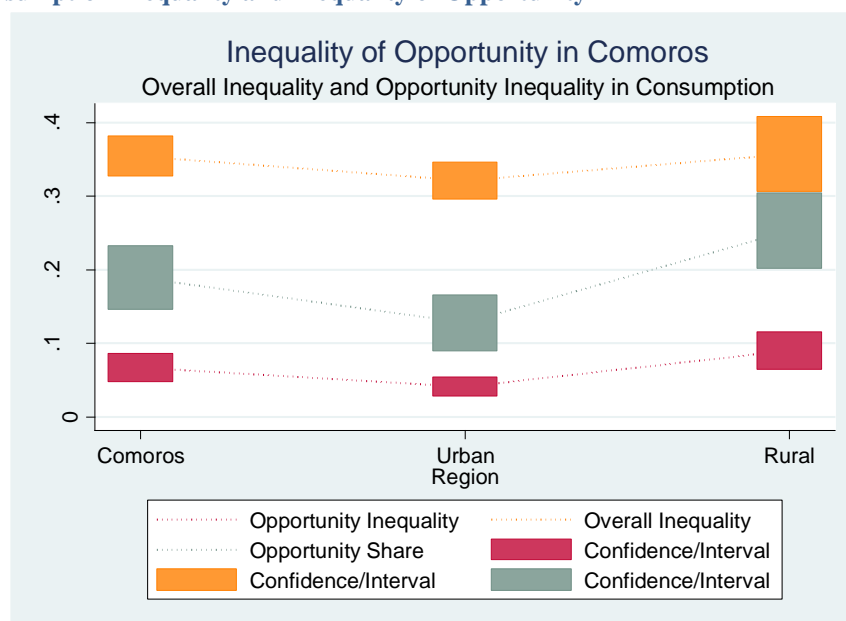
²⁹ See Brunori et al. (2016) for an analysis of inequality of opportunity in Sub-Saharan Africa, and Belhaj Hassine (2011) for inequality of opportunity in labor earnings in Egypt.

³⁰ Theil_L is the only inequality measure with a path-independent decomposition, see Appendix 5 for more details.

Nearly one fifth of inequality can be attributed to unequal opportunities associated with only observed Comorian households' circumstances. As shown in Figure III.22, almost 19 percent of consumption inequality can be attributed to unequal opportunities. Such a share is quite significant compared with SSA standards, where inequality of opportunity's share is estimated at 12 percent in Ghana, 15 percent in Ivory Coast, 19 percent in Tanzania and 21 percent in Madagascar. However, the share of Comoros unequal opportunities within the consumption inequality remains lower than the levels observed in Latin America, where the opportunity shares of consumption inequality have been found to range between 24 percent in Colombia to 39 percent in Panama.

The discrepancy between rural and urban households in terms of inequality of opportunity is very high. The incidence of inequality of opportunity is over two times lower in urban sectors than in rural areas (Figure III.22). The impact of these discrepancies on the share of inequality attributable to opportunities is significant. Inequality of opportunity accounts for 12.8 percent of consumption inequality in the case of urban households, while it represents more than 25 percent of the consumption inequality faced by rural households. This may reflect two facts. First, family background variables and circumstances at birth have greater influence on the outcomes of rural households and individuals than urban ones. Second, to the extent that some unobserved circumstances (such as parents' financial and asset situation, quality of basic services and resources, and so forth) shape the opportunity sets for urban Comorians, the estimates of inequality of opportunity excluding these circumstances are significantly biased downward.

Figure II.21: Consumption Inequality and Inequality of Opportunity



	<i>Theil-L (GE0)</i>			<i>Theil-T (GE1)</i>		
	Overall inequality	IOP	Opportunity share	Overall inequality	IOP	Opportunity share
Comoros	0.354*** (0.014)	0.067*** (0.010)	0.189*** (0.022)	0.358*** (0.016)	0.0646*** (0.011)	0.180*** (0.026)
Urban	0.321*** (0.013)	0.0410*** (0.007)	0.128*** (0.019)	0.315*** (0.013)	0.0354*** (0.007)	0.112*** (0.022)
Rural	0.357*** (0.026)	0.0902*** (0.013)	0.253*** (0.026)	0.374*** (0.032)	0.0953*** (0.015)	0.255*** (0.027)

Sources: EESIC 2014 and World Bank staff calculations.

The following material turns to the partial contributions of individual circumstances, and groups of circumstances, to inequality. Being able to distinguish between these sources of inequality of opportunity is important for formulating policies that reduce it. The parametric approach allows the estimation of the partial effects of individual circumstances on outcomes, by fixing one or a group of circumstances at their mean values, while allowing others to vary. The five circumstances, or group of circumstances, considered are the gender of the household’s head; the educational level of the mother; the educational level of the father; the professional background of the father which groups his sector of employment and his socio-professional status; and the commune of birth.

Table II.4: Contributions of Circumstances to Overall Inequality

	<i>Theil-L (GE0)</i>					<i>Theil-T (GE1)</i>				
	Gender	Moth. Educ.	Fath. Educ.	Birth Place	Fath. Empl.	Gender	Moth. Educ.	Fath. Educ.	Birth Place	Fath. Empl.
Comoros	0.0	0.003	0.003	0.176***	0.018*	0.000	0.003	0.001	0.170***	0.017
	(0.001)	(0.005)	(0.005)	(0.022)	(0.008)	(0.002)	(0.007)	(0.006)	(0.024)	(0.009)
Urban	0.0	0.002	0.001	0.117***	0.013	0.000	0.005	0.001	0.107***	0.010
	(0.001)	(0.003)	(0.006)	(0.020)	(0.009)	(0.002)	(0.005)	(0.008)	(0.021)	(0.010)
Rural	0.002	0.009	0.011	0.219***	0.020	0.001	0.012	0.010	0.219***	0.023
	(0.005)	(0.018)	(0.009)	(0.030)	(0.017)	(0.004)	(0.028)	(0.011)	(0.028)	(0.022)

Sources: EESIC 2014 and World Bank staff calculations.

Note: ** significant at the 5 percent level; *** significant at the 1 percent level. Coefficient between brackets are standard errors.

At the national level, of all observed circumstance variables, the commune of birth is associated with the largest shares of consumption inequality. The analysis of the contribution of individual circumstances, reported in Table II.4, shows that inequality of opportunity related to the commune of birth accounts for 17.6 percent of the total inequality for the entire population, indicating that inequality is shaped essentially by the region of birth.³¹ Such an observation reveals significant opportunities' gaps across the different regions and islands of Comoros, and indicates a wide disparity of welfare between people who were born in other communes and the natives. Second to the place of birth, the professional background of the father only yields a limited contribution to the overall consumption inequality, although significant. As shown by Table II.4, 1.8 percent of the consumption inequality can be attributed to the father's socio-professional background. The remaining circumstances, that are gender and the educational level of the mother and the father, make a limited and non-significant contribution to inequality.

The analysis of the urban-rural divide confirms the significant higher weight of geographic origins on rural households opportunities. As shown previously by Table II.3, inequality of opportunity is much more important in the case of rural households than urban ones. The partial contributions of individual circumstances presented in Table II.4 underline that inequality of opportunity related to the commune of birth accounted for 21.9 percent of the total inequality experienced by rural households. It is significantly higher than for urban households, whose share of total consumption inequality explained by the commune of birth is only of 11.7 percent. Overall, the results of Table II.4 reveal the important impact that birthplaces can have on individuals' and households' welfare in Comoros. It also underlines the significance of birthplaces to explain the inequality faced by rural households and individuals, who are less likely to overcome the consequences in terms of welfare and income of this inherited factor compared to urban households. Two effects may drive the importance of birthplaces in shaping opportunities. On the one hand, the historical political instability and concentration of political power and economic resources in Ngazidja; on the other hand the port of Ndzouani (the largest one of the archipelago) which favored economic development in the Island (IMF, 2006 and

³¹ This effect remains consistent even after reducing the number of dummies for the communes of birth and aggregating the birthplaces into prefectures. The results presented here are for the aggregated birthplaces.

Brunori et al., 2016). Birthplace correlates with a number of unobserved circumstance variables such as family assets and wealth, social services and infrastructure. Therefore, birthplace captures the inequality caused by the omitted or unobserved circumstances that correlates with it.

Chapter III – The Evolution of Poverty and Living Conditions

Key Messages

- Poverty declined by over 10 percentage points between 2004 and 2014 but there has been little progress towards shared prosperity, with inequality increasing particularly in rural areas;
- The reduction in poverty was coupled with improvements in living conditions and human development outcomes, but, except for education, levels remain low;
- There have been significant improvements in multidimensional poverty, though Comorian’s households continue to face important deprivations in access to basic services and ownership of assets.

This chapter examines the evolution of poverty and household’s living conditions between 2004 and 2014. The analysis is performed at the national level, as well as geographical sub-levels (urban/rural and across Comoros’ islands). Overall, analyzing changes in poverty over time in Comoros is challenged by comparability problems between the available household surveys. The first section examines the evolution of monetary poverty drawing on EIM (2004) and EESIC (2014). It uses prediction methods to attempt to address the comparability issues and assess the evolution of poverty over the past decade. The second section examines the evolution of nonmonetary dimensions of welfare and explores how these factors have evolved over time for both the whole population and the most disadvantaged groups. The analysis is based on EIM (2004), DHS (2012), and EESIC (2014).³² The third section examines the incidence and evolution of multidimensional poverty and investigates the areas where households are facing important deprivations.

I. Trends in poverty and inequality since 2004

Decline in Poverty and Extreme Poverty since 2004

Comparability issues impede a proper comparison of poverty trends and require to estimate 2004 poverty levels through two different methods. The official national (basic needs) poverty rate is estimated at 44.8 percent in 2004, but cannot be compared to the new headcount rate for 2014 due to significant changes in the survey design as well as improvements in the methodology for the measurement of consumption aggregate and poverty line. The

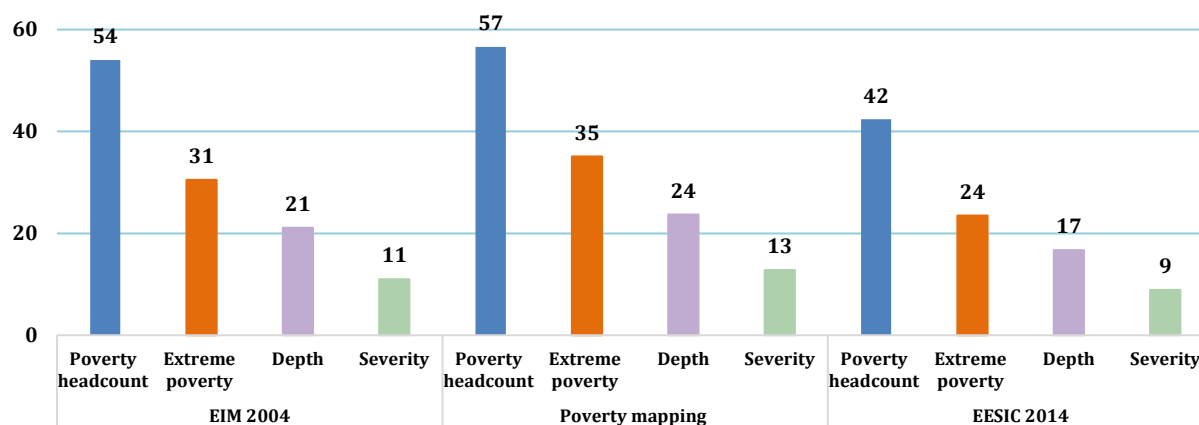
³² Caution is required when comparing statistics over time, due to differences in survey questions and data availability. Technical footnotes in each subsection highlight some of the factors that may lead to outcome differences across surveys.

following analysis draws on two separate methods for estimating the 2004 poverty level. The first approach consists in re-estimating the consumption aggregates for EIM 2004, using the same methodology as in 2014 and adjusting the current poverty line by the changes in Consumer Price Index (CPI) between 2004 and 2014. This method allows to address the comparability problems related to the differences in the methodology for estimating poverty, but cannot correct for variations in the survey's design that occurred between 2004 and 2014, such as the changes in the reference period for which consumption is reported and the changes in the degree of commodity detail (see Appendix 1.A for more details on these differences). The remaining comparability problems are addressed using the Small area estimation poverty mapping method. This approach is based on Elbers et al. (2003) and Christiaensen et al. (2012). It replaces per-capita consumption data in EIM 2004 by predicted consumption, using both available information on household characteristics (socio-demographic attributes and assets ownership) in 2004 as well as the parameter estimates obtained from a model of consumption estimated using 2014 survey data.³³

Both methods suggest a significant decline in poverty and extreme poverty since 2004. The first method yields a poverty estimate of 53.7 percent for 2004, compared to 42.4 percent in 2014, suggesting a poverty reduction at the national level by around 11 percentage points. Similarly, the Small area estimation poverty mapping method predicts a poverty rate of 56.6 percent in 2004, showing a poverty reduction of more than 14 percentage points (Figure III.1). Extreme poverty also declined, but by a lower degree. The proportion of the population with consumption below the food poverty line declined from 30.5 percent in 2004 to 23.5 percent in 2014. The Small area approach shows an even stronger decline with extreme poverty decreasing by about 12 percentage points. The results also indicate a decline of the depth of poverty, suggesting that many of the poor are getting closer to the poverty line, while the severity of poverty or inequality among the poor does not seem to have significantly changed.

³³ The explanatory variables used in the model are restricted to those that are comparable across the two surveys, and the relationship between consumption and its correlates is assumed to be stable over time in order to ensure the perfect comparability of consumption across the two surveys. This approach circumvents the need for using price deflators and uses the poverty line for 2014 to measure the predicted poverty for 2004.

Figure III.1 Adjusted Poverty Rates for 2004



Sources: EIM 2004 and EESIC 2014.

Note: EIM 2004 estimates are based on the re-estimation of the consumption aggregate following the 2014 method and adjustment of the 2014 poverty line using the CPI.

Poverty reduction was achieved both in rural and urban areas, but urban zones remain better off. Between 2004 and 2014, the poverty headcount ratio declined in rural areas by 9 percentage points, down from 58.9 percent to 49.9 percent (Figure III.2). Similarly, the poverty rate decreased in urban zones from 39.7 percent in 2004 to 31 percent in 2014. Overall, poverty incidence remains much lower in urban areas with a differential of almost 20 percentage points, similar to the one observed in 2004. Most of the decline in extreme poverty seems to have occurred in rural areas where the extreme poverty rate decreased by more than 6 percentage points, compared to a decline of about 3 percentage points in urban zones.

The decline in poverty was uneven across the different islands. Both adjustment methods show that most of the decline in poverty occurred in the region of Ngazidja, except for Moroni, where the proportion of the poor seems to have been reduced by more than 14 percentage points (Figure III.3). Moroni and the island of Ndzouani also experienced an important decrease of their poverty headcount ratio between 2004 and 2014, which declined by over 7 percentage points in both regions. The figures on the poverty trend in Mwali are puzzling: while the re-estimation of the poverty figures using EIM 2004 shows a slight decrease of poverty of less than 2 percentage points, the poverty mapping method reveals a substantial reduction of poverty in the island, attaining more than 17 percentage points (Figure III.3).

Figure III.2: Poverty headcount ratio by urban-rural geographic location, 2004-2014 (percentage of population)

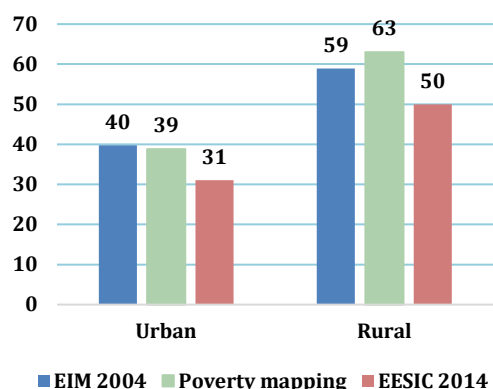
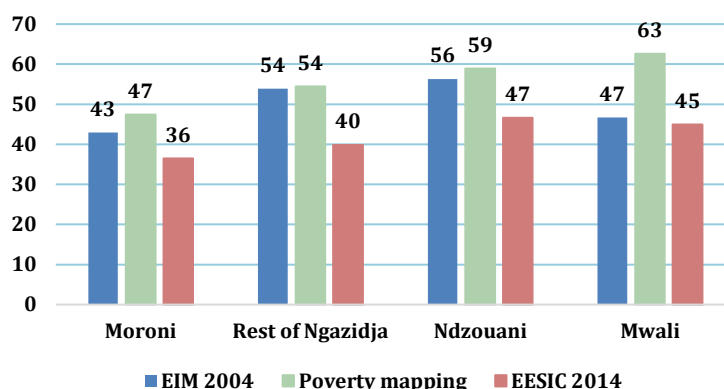


Figure III.3: Poverty headcount ratio by islands, 2004-2014 (percentage of population)



Sources: EIM 2004 and EESIC 2014.

Despite the observed reduction in poverty, Comoros has made no progress towards inclusion and shared prosperity

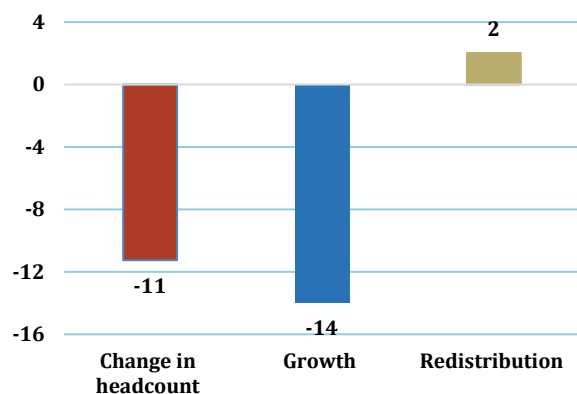
The decline in poverty contrasts with the slow economic growth. The pattern of poverty reduction seems to be delinked from the pattern of economic growth, when growth is measured as changes in GDP per capita in the national accounts. However, when economic growth is defined using changes in mean consumption per capita calculated from the household survey, poverty appears to be more responsive to growth. Economic growth measured by changes in household consumption per capita appears much higher than growth in real GDP per capita, with the latter growing at a negative rate of about -0.3 percent per year over the period between 2004 and 2014; while the former increased at an average annual rate of 3 percent during the same period. With the deterioration of GDP per capita, the decline of poverty would not be expected, but the positive growth of survey-based household consumption points to large inconsistencies between national accounts and household surveys data in Comoros. While there is no clear consensus on which of these measures of economic growth is more accurate, it seems that growth measured from survey data is more closely related with changes in households' living standards and better reflects the spending behavior of the poor.³⁴ Using survey-based consumption growth, poverty reduction appears to be more responsive to growth, but the results indicate a sluggish response of

³⁴ The discrepancy between national accounts and household surveys data is quite common in developing countries, though the discrepancy appears to be much larger in Comoros. These inconsistencies have been widely discussed in the literature, for developing countries in general (Ravallion 2001; Adams 2004) and for SSA in particular (Deaton 2005; Christiaensen and Devarajan 2013), and strengths and weaknesses have been shown to both. The discrepancies can be related to variations in the definition of consumption in national accounts versus household survey data, inflation adjustment, omission and measurement errors, and so forth.

poverty to economic changes with a growth elasticity of poverty estimated at -0.7, that is a 1 percent increase in the survey mean will reduce poverty headcount by only 0.7 percent.³⁵

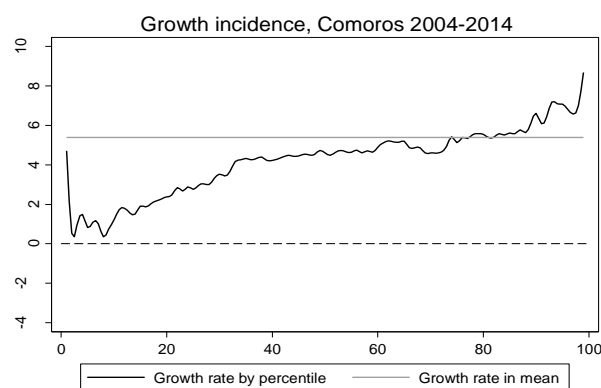
The positive changes in poverty are driven by the increase in mean household consumption. The relationship between growth and poverty involves changes both in mean consumption and changes in the distribution of consumption across households. Using household consumption for the measurement of economic growth, the analysis applies the decomposition method proposed by Datt and Ravallion (1992) to determine the growth and redistribution components of the decline of poverty. As is apparent from Figure III.4, the reduction in the poverty headcount was entirely driven by the increase in mean household consumption (growth effect) with no redistribution effects, as inequality seems to have deteriorated.

Figure III.4: Growth and Redistribution Effects of Poverty Reduction (in Percentage Points)



Source: EESIC 2014.

Figure III.5: Growth Incidence Curve



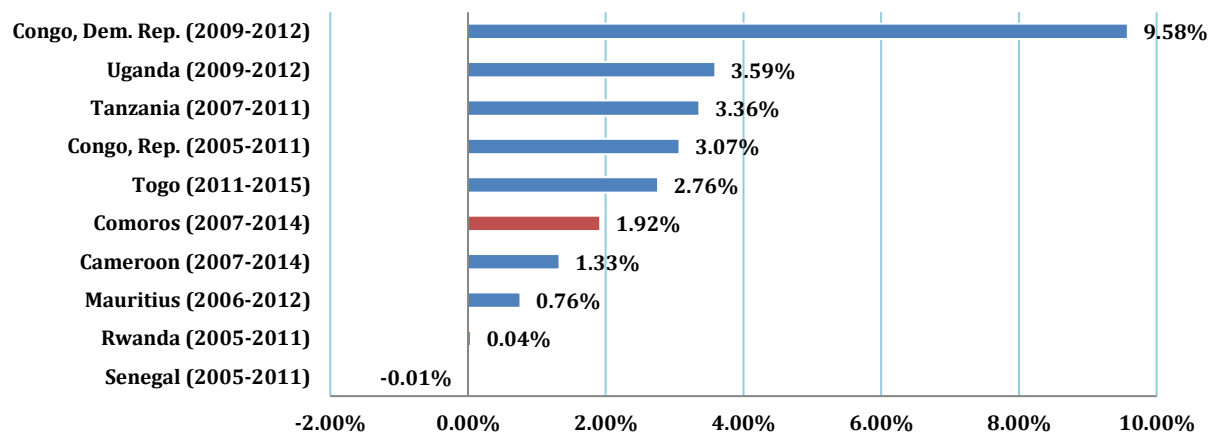
Source: EESIC 2014.

However, consumption growth appears to be higher among the better off groups and little progress was made towards shared prosperity. The growth incidence curve for 2004–2014, which shows the percent change in average consumption for each percentile of the distribution, are upwardly sloped, indicating higher growth amongst the richer and better off population groups in Comoros (Figure III.5). While the average per capita consumption increased by about 30 percent between 2004 and 2014, the average consumption of the poor and the bottom 40 percent of the population grew by about 4 percent and 15.5 percent, respectively. This indicates that despite the improvements in poverty levels, the poor and vulnerable groups benefitted less than proportionately from the increase in living standards and growth. Comoros also made little progress in terms of shared prosperity compared to its international peers (Figure III.6). While Comoros’ progress stood at 1.92 percent over the period 2004-2014, it was lower than Togo

³⁵ The Comoros growth elasticity of poverty is significantly lower than the available estimates of about -3.0 suggested by previous studies (using survey mean figures) on developing countries.

(2011-2015), Congo (2005-2011), Tanzania (2007-2011), Uganda (2009-2012), and DRC (2009-2012).

Figure III.6: Progress towards shared prosperity (Percentage)



Source: World Bank.

In fact, inequality increased between 2004 and 2014 in the whole country and particularly the rural areas. As can be seen from Figure III.7, Gini coefficient increased from around 42 to 45 between 2004 and 2014. The deterioration of the distribution of welfare is mainly driven by a decline of the consumption share accruing to the poorest 20 percent of the population by about 16 percent, against an increase of the consumption share of wealthiest quintile by more than 5 percent. At the regional level, the increase of inequality was faster in rural areas and Mwali, compared to the rest of the country (Figure III.8).

Figure III.7 Gini coefficient in Comoros, 2004-2014

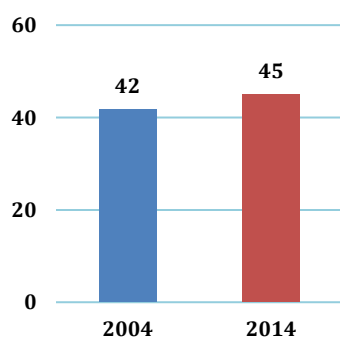
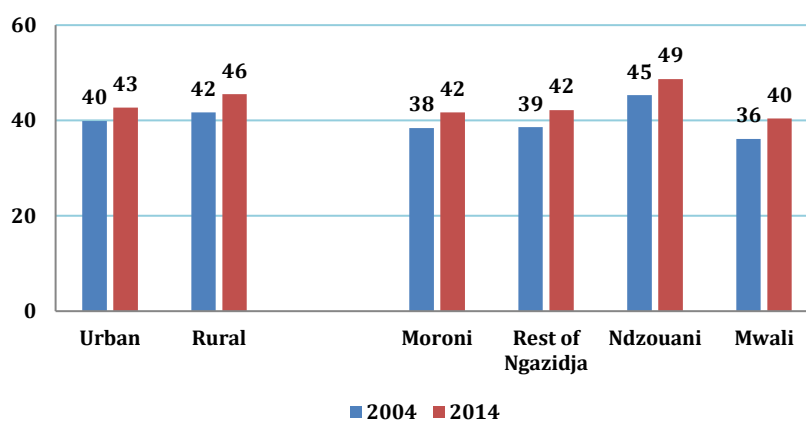


Figure III.8: Gini coefficients by geographical areas and islands, 2004-2014



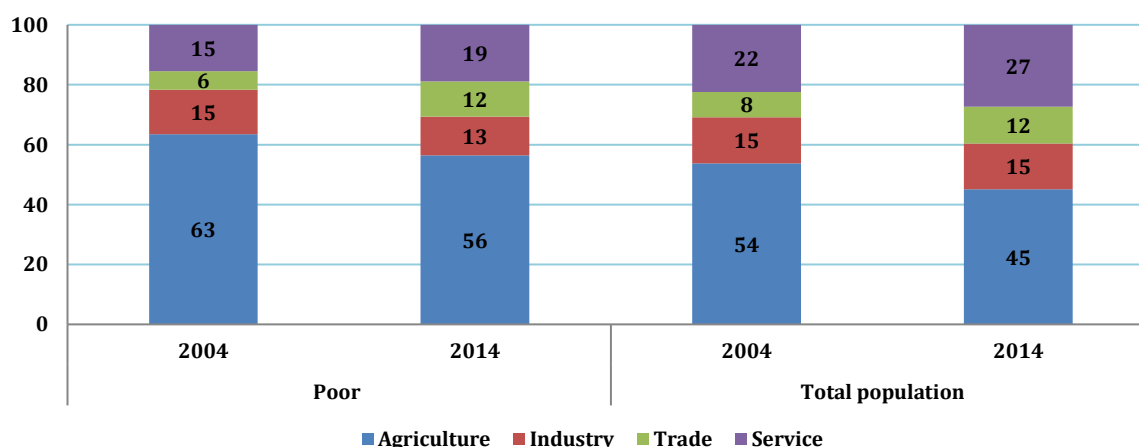
Sources: EIM 2004 and EESIC 2014.

The decline in poverty has been driven by improvements in households' endowments and in returns to employment in manufacturing and commerce

A further investigation of the drivers of poverty reduction indicates that the welfare gains stemmed to a large degree from improved endowments for poor households. The increase of household consumption was mainly driven by the improvement of their endowments. The increase of endowments was more marked for the poorest groups of the population and appears to be resulting from the expansion of assets ownership, mainly communication and transportation, and higher educational attainment of household's heads and members (Box III.1). There has been also some progress in access to local infrastructure, but this seems to have benefitted the moderate poor and middle class only. The demographic structure of households seems to have improved, resulting from the reduction of their sizes and numbers of children, but these appear to be a continuing constraint on household well-being as their negative impact on households' returns appear to have increased. The returns to households' characteristics appear to have declined over time, but this decline masks divergent trends across the different attributes and welfare groups. As indicated in Box III.1, the improvements of endowments in assets for the less well off groups were coupled with an increase of the returns to those assets, while the increase of access to basic infrastructure was coupled with an increase of their returns, particularly water and sanitation, for the middle class and better off groups.

Increase of the returns to employment in manufacturing and commerce further contributed to poverty reduction. There has been a movement of labor out of agriculture towards commerce and, to a lesser extent, services among the poor between 2004 and 2014 (Figure III.9). This shift has been coupled with an increase in returns to employment in manufacturing followed by better returns in the commerce sector, but only for the poorest decile groups (Box III.1). These positive results are tempered by the limited absolute gains accruing to the poor, as most of the poor continue to mainly operate in informal and low-skilled jobs, and the increase in returns is from a low base.

Figure III.9: Shares by Major Employment Sectors (in percentage)



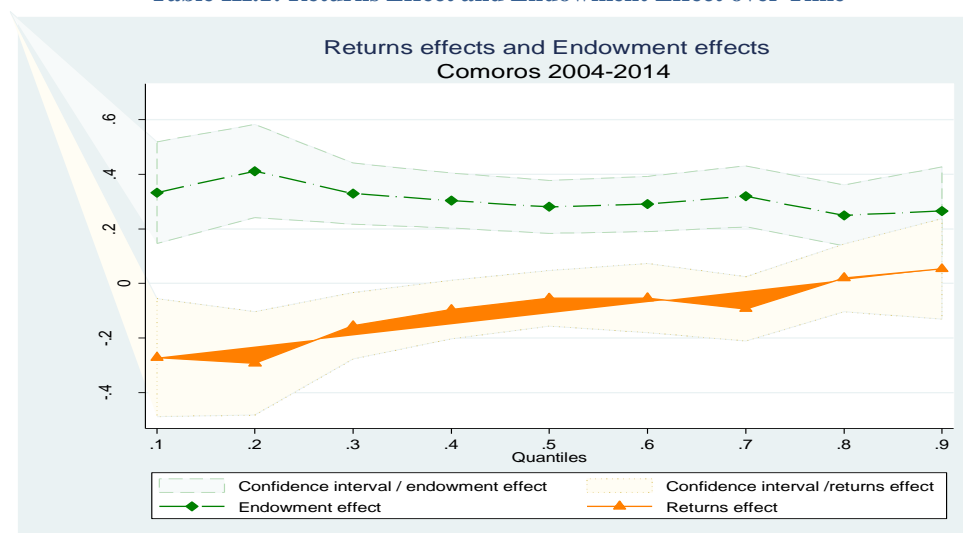
Sources: EIM 2004 and EESIC 2014.

Box III.1 Decomposition of consumption growth

To explore the basic factors behind the observed decline in poverty, changes in consumption have been decomposed into two components. One component is due to improvements in personal characteristics or endowments (for example, increased education levels, ownership of assets, and access to employment opportunities and basic services), and the other component that is attributable to changes in the returns to those characteristics (for example, the returns to education, land productivity, returns to business, and so forth).

These two components are further decomposed to identify the specific attributes that contribute to the changes in consumption. The decomposition is applied at each decile of the consumption distribution to understand the patterns of the changes for the different welfare groups.

Table III.1: Returns Effect and Endowment Effect over Time



	Poor	Middle class	Richest
Total	0.118***	0.226***	0.269***
Endowments	0.412***	0.280***	0.249***
Demographic. Structure	0.082***	0.156***	0.146***
Human capital	-0.293***	0.071***	0.057**
Employment sector	0.031*	0.004	0.005
Assets	0.115***	0.039***	0.051***
Access basic services	0.013	0.029*	0.022
Returns	-0.293***	-0.055	0.020
Demographic. Structure	-0.775***	-0.260*	-0.286*
Human capital	-0.242***	-0.157***	-0.083*
Employment sector	0.056*	0.023	0.039
Assets	0.119**	0.034	-0.006
Access basic services	-0.059	0.090*	0.102*

Sources: EIM 2004 and EESIC 2014.

Note: The poor are in the lowest two deciles; middle class individuals are in the fifth decile, and the richest ones are in the top decile.

II. Households' Living Conditions and Human Development Outcomes

As poverty is not solely about consumption deficits, this section examines how the nonmonetary dimensions of well-being such as housing conditions, assets, and human capital have changed over time. The section first provides a descriptive analysis of the evolution of households' living conditions and human development indicators in Comoros at the national, urban and rural levels, and when possible, for the bottom 40 percent and 30 percent better off population groups.³⁶ The section also examines the different dimensions and forms of deprivation experienced by the households, and investigates the breadth and evolution of multidimensional poverty.

The reduction in poverty was coupled with improvements in housing conditions and ownership of assets, as well as some improvements in access to services, though from low levels

Housing and dwelling conditions have improved since 2004, especially roof and floor materials. At the national level, the share of households with improved roof materials went up by 18 percentage points, from 76.6 percent in 2004 to 94.6 percent in 2014 (Figure III.10). Likewise, improved wall material increased by 9 percentage points at the national level to reach 49.7 percent in 2014, and improved floor material by 8 percentage points, reaching 72.8 percent in 2014. Although urban areas' households are still better off than their rural counterparts, the rise in improved housing and dwelling conditions seems to have occurred mainly in the rural areas and in the poorest households. Between 2004 and 2014, improved roof materials went up by 18 percentage points for rural households against 15 percentage points for urban ones, and improved wall materials went up by 11 percentage points for rural households against only 2 percentage points for urban ones. Similarly, dwelling conditions increased faster for households in the bottom 40 percent than for those in the top 30 percent richest segments between 2004 and 2014 – for instance, improved roof material increased by 28 percent for the bottom 40 percent households, against 16 percent for the top 30 percent households (Figure III.11).

³⁶ Given a poverty rate of 42.4 percent, the bottom 40 percent of the population are almost equivalent to the group of the poor.

Figure III.10: Trends in dwelling material, 2004-2014 (percentage of households)

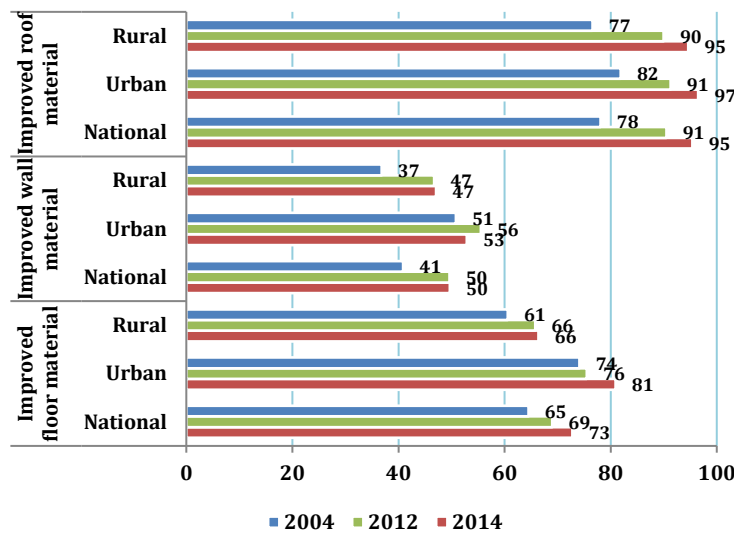
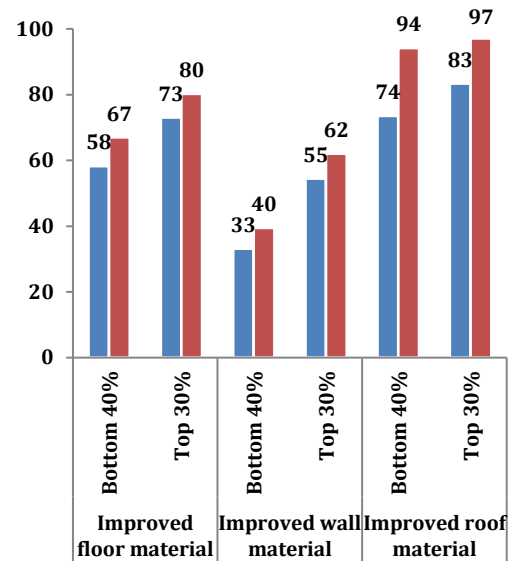


Figure III.11: Trends in dwelling material for Bottom 40 and Top 30 % (percentage)



Sources: EIM 2004, DHS 2012, and EESIC 2014.

Notes:

- Improved roof materials refer to: concrete, cinderblocks or corrugated galvanized iron in EIM (2004); metal, zinc, ceramic tiles, cement or roof shingles in DHS (2012); and to tiles, metal sheets or cement in EESIC (2014).
- Improved wall materials refer to: hard materials in EIM (2004); uncovered adobe, finished walls, cement, stone with cement, bricks, cinderblocks or covered adobe in DHS (2012); and to cement/hard materials in EESIC (2014).
- Improved floor materials refers to: cement, Polyvinyl chloride (PVC) tiles or floor tiles in EIM (2004); finished floor, polished wood, asphalt, ceramic, cement or carpet in DHS (2012); and cement or floor tiles in EESIC (2014).

Data on access to electricity is unreliable and does not suffice to draw conclusions. EIM (2004) reports information about the main lighting source in the dwelling only. DHS (2012) asks the question: *Do you have electricity in your house?* To which 69.3 percent of households answer positively. By 2014, the same question³⁷ from EESIC (2014) shows that only 19.8 percent had access to electricity (*Ma-Mwé or EDA*) services within 500 meters of distance of their house and only 18 percent of these households mention to be completely satisfied with the service. Even more puzzling is the fact that in this same survey (EESIC, 2014), 68.5 percent of households reported to use electricity as their main lighting source. In EIM (2004) this statistic was 37.2 percent (Figure III.12).

The use of electricity as source of energy for cooking remains marginal and the use of wood and charcoal for cooking has increased among urban and rural households. In 2004, 39.4 percent of urban households used wood and charcoal as their main sources of energy for cooking. This proportion increased to 44.2 percent in 2012 and 54.5 percent in 2014, to the detriment of oil

³⁷ The EESIC (2014) questions on electricity availability (Q29UTIL Q29DLOGEM) are asked in Section CQ29, which is dedicated entirely to access to services.

and gas energy sources that decreased from 58 percent to 42 percent as the households' source of energy for cooking between 2004 and 2014 (Figure III.13). As expected, a larger number of rural households use wood and charcoal for cooking; they were 89.1 percent in 2004, 90.6 percent in 2012 and 91.9 percent in 2014. At the national level, the mix of energy sources for cooking remained rather constant between 2004 and 2014. The use of oil and gas slightly decreased at national levels, from 24.2 percent in 2004, to 22.3 percent in 2012, and 22.4 percent in 2014.

Figure III.12: Main source of energy for lightning (percentage of households)

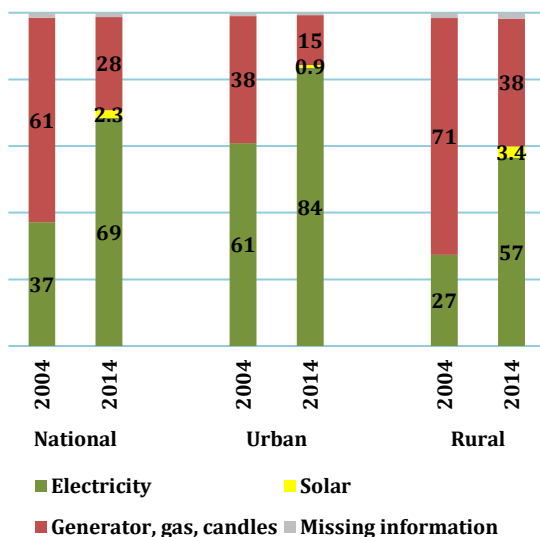
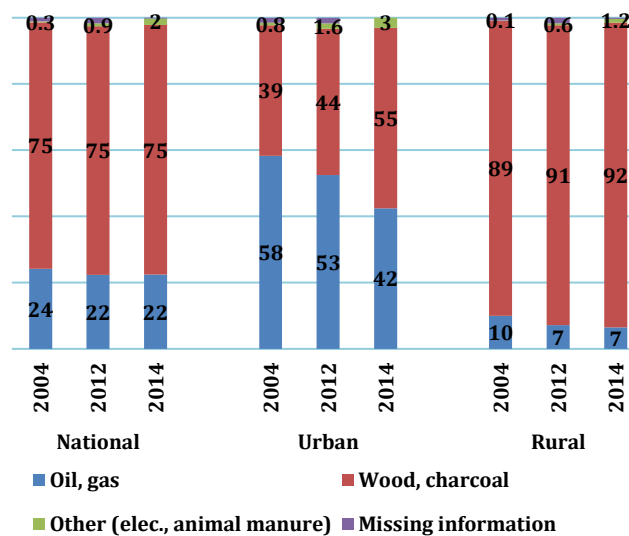


Figure III.13: Main source of energy for cooking (percentage of households)



Sources: EIM 2004, DHS 2012, and EESIC 2014.

Note: The figures on electricity are about the proportion of households with electricity as a main source of lightning in the dwelling.

Access to safe drinking water slightly improved at the national level and in rural areas, but deteriorated in urban zones. At the national level, the proportion of households with unimproved drinking water sources went down from 38 percent in 2004, to 29 percent in 2012, but then increased again to a high 41 percent in 2014 (Figure III.14). While the share of rural households using unimproved water sources remained more or less at the same level (47 percent in 2004 compared to 48 percent in 2014, with an improvement at 37 percent in 2012), the situation dramatically worsened for urban households. The proportion of urban households using unimproved water sources was 16 percent in 2004 and 12 percent in 2012, but it jumped to 33 percent in 2014. This worsening stemmed from a conjunction of reduced access to piped water sources and a lower access to public safe water. At the national level, the proportion of households using piped water went up from 30 percent in 2004 to 38 percent in 2012 and 2104. The same pattern is observed for rural households whose access to piped water increased from 21 percent in 2004 to 29 percent in 2012, and finally 36 percent in 2014. Conversely, while urban households' access to piped water improved from 50 percent to 56 percent between 2004 and 2012, it went down to 41 percent in 2014. Between 2004 and 2014, access to public safe drinking

sources declined at the national level, as well as at the urban and rural levels. It went down from 32 percent to 21 percent at the national level between 2004 and 2014, while over the same period, it went down from 33 percent to 26 percent for urban households, and from 31 percent to 16 percent for rural households.

Figure III.14: Drinking water sources (percentage)

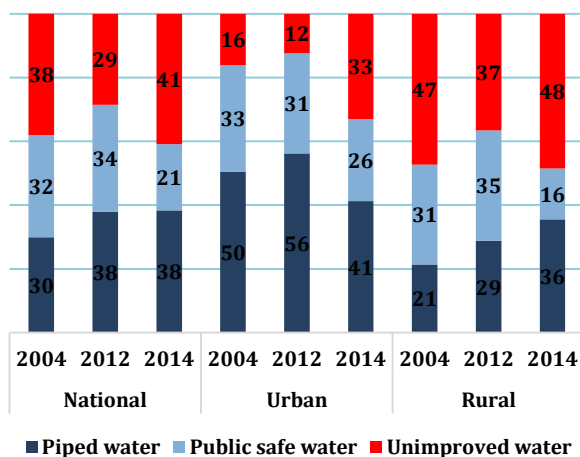
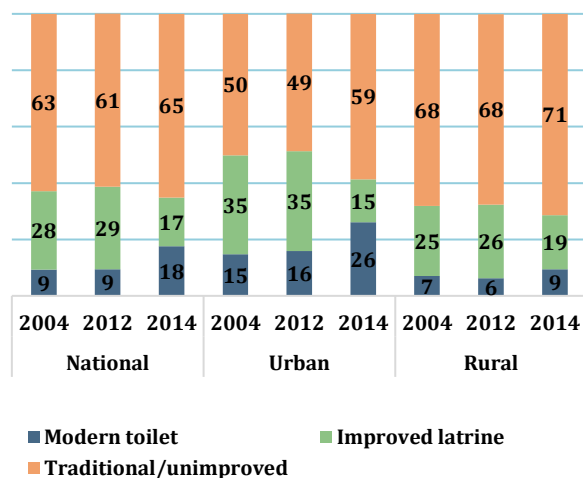


Figure III.15: Sanitation facilities (percentage)



Sources: EIM 2004, DHS 2012, and EESIC 2014.

Note:

- Access to water follows WHO definitions: Improved sources include piped, public tap and protected dug well. Unimproved drinking water sources refer to water from any of the following sources: unprotected well; unprotected spring; river/dam/lake/ponds/stream/canal/irrigation channel (surface water); and tanker truck or cart with small tank.
- EIM (2004) and EESIC (2014) do not allow to know if spring sources and wells are protected or not. In these statistics they are all considered unprotected. Less than 7 percent and 2 percent of the households used these sources in 2004 and 2014, respectively.
- Modern and improved sanitation follow WHO definition and includes flush, ventilated and pit latrine.

Major progresses have been accomplished between 2004 and 2014 with respect to access to improved sanitation, but traditional/unimproved sanitation facilities remain the most common feature. At the national level, the proportion of households with access to modern toilets went up from 9 percent in 2004 and 2012, to 18 percent in 2014 (Figure III.15). Those progresses occurred both in urban and rural areas. Between 2004 and 2014, the share of urban households with access to improved sanitation increased by 11 percentage points, from 15 percent in 2004 to 26 percent in 2014, while the proportion of rural households with access to improved sanitation only increased by 2 percentage points, up from 7 percent in 2004 to 9 percent in 2014. However, at the same time, the proportion of households with access to improved latrines decreased both at the national level and at the urban and rural levels (down from 28 percent in 2004 to 17 percent in 2014 at the national level), leading to a worsening of the situation of households that only have access to traditional or unimproved sanitation facilities. At the national level, the share of households with access to traditional or unimproved sanitation facilities slightly increased between 2004 and 2014 from 63 percent to 65 percent. The situation particularly worsened for urban households as the proportion of urban households with access to

traditional/unimproved sanitation facilities increased by 9 percentage points, from 50 percent in 2004 to 59 percent in 2014.

Ownership of communication means greatly improved between 2004 and 2014. The proportion of households with phones and television increased markedly between 2004 and 2014, while the proportion of radios slightly decreased, which could reflect a substitution effect during which households tend to replace traditional items with more modern ones. At the national level, the proportion of households owning a mobile or land phone dramatically increased by more than 60 percentage points between 2004 and 2014, up from 14 percent in 2004 to 75.4 percent in 2014 (Figure III.16). This increase in phones' ownership particularly benefited the poorest households. The proportion of the bottom 40 percent households owning a mobile or land phone increased by 64.5 percentage points, up from 7.7 percent in 2004 to 72.2 percent in 2014, against an increase of 57.7 percentage points for the top 30 percent households (Figure III.17). Likewise, the share of households owning a television set increased from 27.9 percent in 2004 to 57.8 percent in 2014. Conversely, the proportion of households owning a radio slightly decreased, down from 56.7 percent in 2004 to 52 percent in 2014.

Ownership of small and big appliances also increased markedly, benefiting in particular the bottom 40 percent and urban households. At the national level, ownership of large household appliances such as refrigerators, freezers, washing machines, and so forth, steadily increased from 18.7 percent in 2004 to 27.1 percent in 2012, and 31.2 percent in 2014 (Figure III.16). For households at the bottom 40 percent of the consumption distribution, this proportion increased by 12.6 percentage points (11.4 percent in 2004 to 22.1 percent in 2014), against 9.3 percentage points for the top 30 percent households (Figure III.17). Urban households also benefited more from this improvement than their rural counterparts, as the proportion of urban households owning large appliances increased by 13.3 percentage points between 2004 and 2014, against 8.9 percentage points for rural ones over the same period. Likewise, the proportion of households owning small appliances such as DVDs, air conditioners, sewing machines, computers, generators, and so forth, increased at the national level from 35.3 percent in 2004 to 55.8 percent in 2014, with a similar emphasis on urban households, as well as the poorest population groups, compared to their respective counterparts.

Figure III.16: Ownership of modern assets, 2004-2014 (percentage of households)

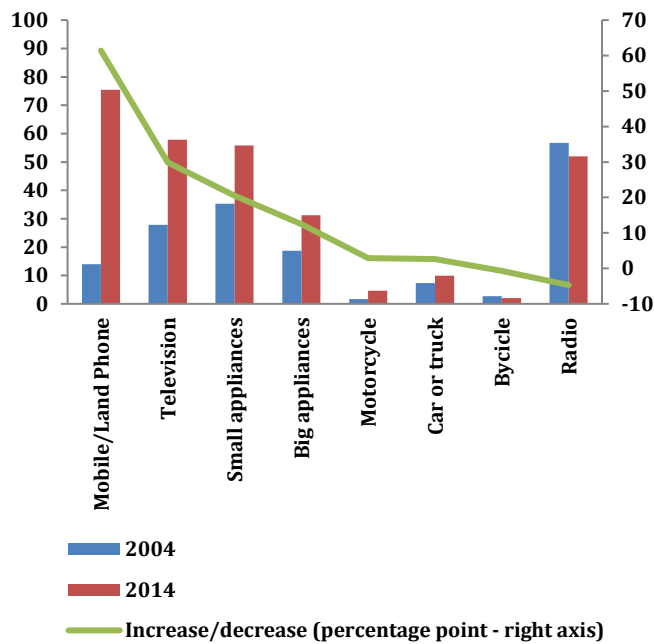
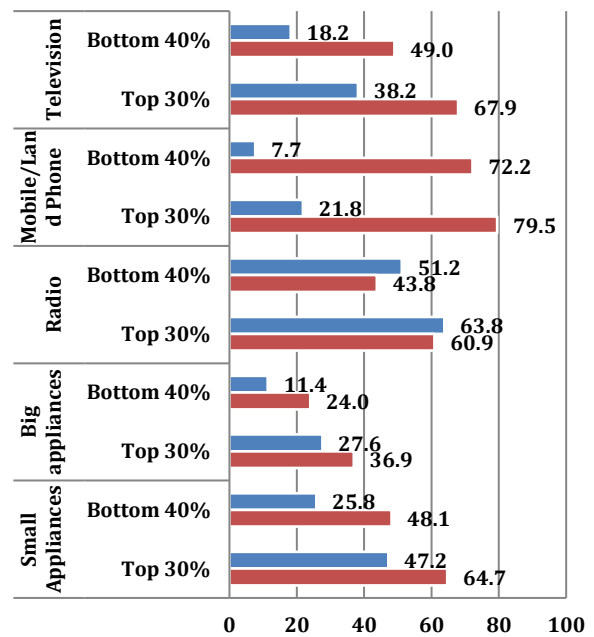


Figure III.17: Ownership of modern assets for Bottom 40% and Top 30% (percentage of households)



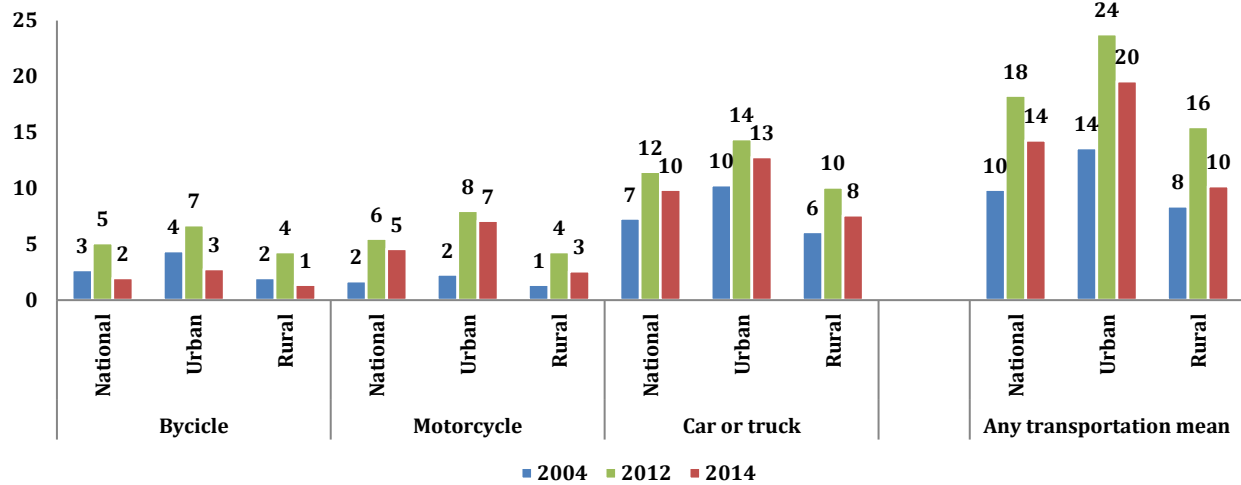
Sources: EIM 2004, DHS 2012, and EESIC 2014.

Note:

- Big assets refer to: refrigerators, freezers and washing machines in EIM (2004); refrigerators in DHS (2012); and refrigerators and freezers in EESIC (2014).
- Small appliances refer to: video recorders, blenders, fans and sewing machines in EIM (2004); DVDs, air conditioners, fans, sawing machines, computers and generators in EESIC (2014).

Possession of transportation means at national level remains limited, consistently below 20 percent of households over the period of analysis. The proportion of households with at least one “standard transportation mean” (bicycle, motorcycle, or car) went up from 9.9 percent in 2004 to 18.3 percent in 2012, and decreased back to 14.3 percent in 2014 (Figure III.18). There were two subgroups of the population with relatively notorious improvements in terms of transportation. First, the proportion of households with motorcycles and scooters in urban areas went up from 2.3 percent in 2004 to 7.1 percent in 2014. This amelioration seems to be driven by households at the top 30 percent of the consumption distribution, whose proportion went from 2.9 percent in 2004 to 6.9 percent in 2014. Second, ownership of cars or trucks among bottom 40 percent households increased by 4.5 percentage points between 2004 and 2014, from 3.5 percent in 2004 to 8 percent in 2014. Conversely, it seems that households have replaced traditional transportation means by more modern ones, as revealed by the decline in ownership of bicycles and increase of motorcycles and mopeds. Bicycle ownership decreased overall, but more rapidly in the top 30 percent households whose proportion owning bicycles decreased by 2.3 percentage points between 2004 and 2014, whereas bicycle ownership remained steady for the bottom 40 percent households.

Figure III.18: Ownership of transportation means, 2004-2014 (percentage of households)



Sources: EIM 2004, DHS 2012, EESIC 2014.

Land tenure remained steady between 2004 and 2012. The proportion of households reporting owning a land plot was 62 percent in 2004 and 61.7 percent in 2012 (Figure III.19).³⁸ The statistic is not directly comparable with the information contained in EESIC (2014) since the latter gathers information on agricultural work rather than land ownership.³⁹

Livestock ownership fluctuates significantly between 2004 and 2014 and seems to be subject to important comparability issues with the DHS (2012) survey. Animal ownership was 16.7 percent in 2004, 41.7 percent in 2012, and 28.4 percent in 2014 (Figure III.19). Comparability issues between the different surveys probably caused those large unexplained variations. They might also reflect ad-hoc or seasonal changes. Not surprisingly, ownership of livestock is much more important in rural areas than in urban areas with 39 percent of rural households owning at least one animal in 2014, compared with 15 percent of urban households in the same year (Figure III.20). Households that are at the bottom 40 percent of the consumption distribution also possess more livestock than their counterparts located in the top 30 percent of the consumption distribution, which probably stems from the fact that poorer households tend to be located in rural areas and to work in agriculture.

³⁸ EIM (2004) and DHS (2012) report owned land.

³⁹ The exact question in EESIC (2014) is: Over the last 12 months, at least one member of your household was a farm operator, worked in agriculture, or exploited its land? In total, 24.9% of the households reported to be working on their own land (Yes, owner). Another 46% reported renting a land plot for work (sharecropper), working in a land plot for free (free work), or not to do any agricultural work (No). Finally, 29% did not respond to the question.

Figure III.19: Land and livestock ownership, 2004-2014 (percentage of households)

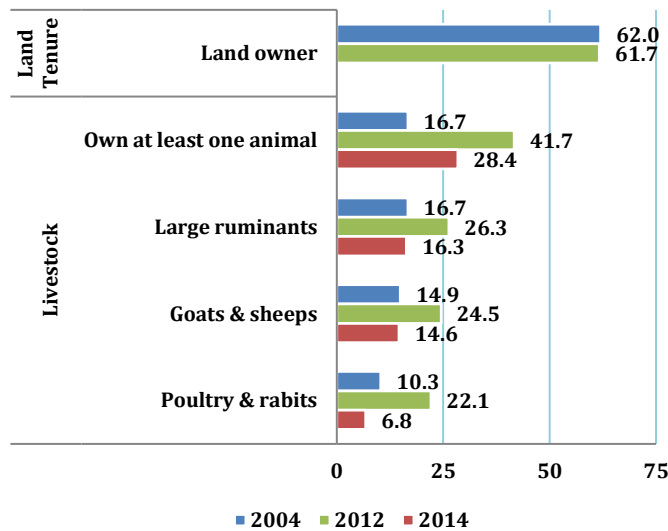
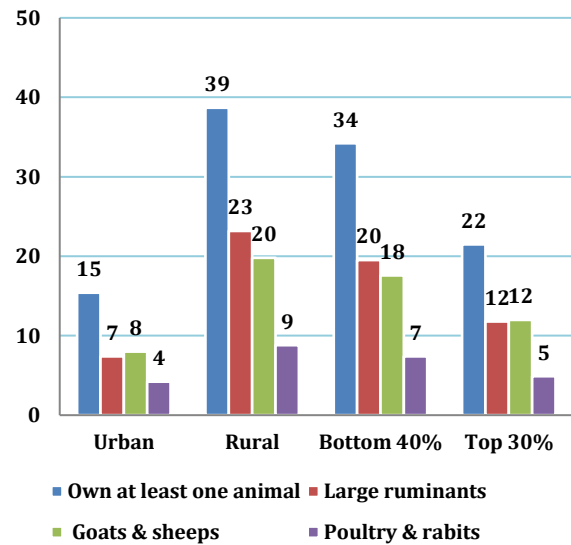


Figure III.20: Livestock ownership, 2014 (percentage of households)



Sources: EIM 2004, DHS 2012, and EESIC 2014.

Human development outcomes have been improving, with problems remaining in terms of health and nutrition

Households’ size decreased between 2004 and 2014, but the demographic structure did not change fundamentally with the proportion of children declining slightly. Comoros’ households underwent a demographic transformation between 2004 and 2014, characterized by a decrease of the family size from 5.9 individuals in 2004, to 5.4 individuals in 2012, and then 5 individuals in 2014 (figure III.21). The family size for households at the bottom 40 percent of the consumption distribution went down from 7.3 to 6.3 individuals during 2004-14, while the size of those from the top 30 percent declined from 4.6 to 3.8 individuals. As expected, rural households are larger compared to urban ones, but both have diminished over the period of time considered, rural households’ size declining from 6.1 individuals in 2004 to 5.4 in 2014, and urban households’ size decreasing from 5.5 individuals in 2004 to 4.5 in 2014. The demographic structure of Comoros’ households did not fundamentally change between 2004 and 2014 other than a slight increase of the proportion of adults, mainly to the detriment of the proportion of 5- to-15-year-old children. At the national level, the proportion of adults in a household between 2004 and 2014 went up from 61 percent to 64 percent, while the share of children between 5 and 15 years old went down from 24 percent to 22 percent, and the one of children under 5 also decreased by one percentage point (Figure III.22). A similar trend is found across all households, no matter their urban/rural origin or their income. Not surprisingly, rural and poorest households are the ones found with the highest proportions of children under 15 years old relatively to their adult population. In 2014, the proportion of under-15-year-old children in the bottom 40 percent households was 44 percent, against 28 percent for the top 30 percent households.

Figure III.21: Households' size, 2004-2014 (number of individuals)

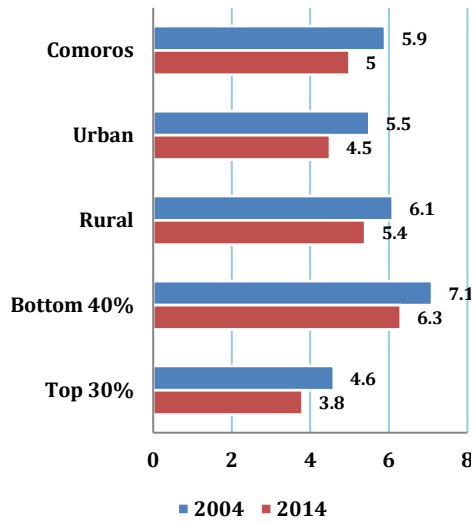
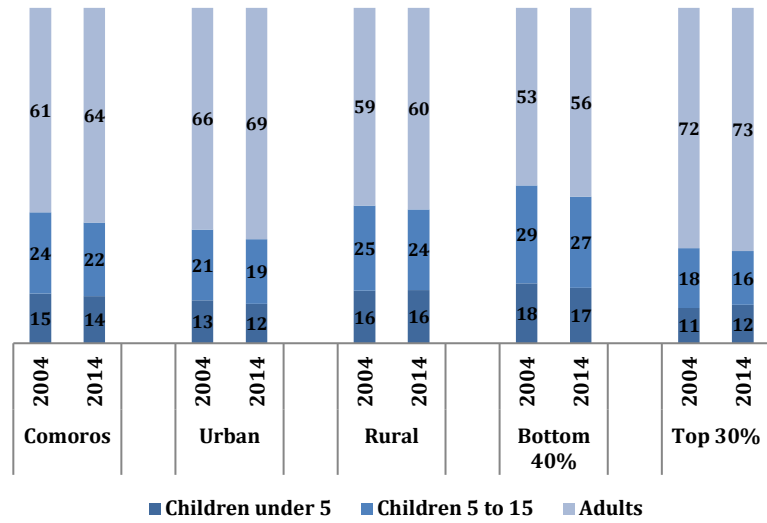


Figure III.22: Households' demographic structure, 2004-2014 (share of individuals within Comoros' households)



Sources: EIM 2004, DHS 2012, and EESIC 2014.

The proportion of households headed by women has increased to reach almost 30 percent of Comoros' households, mostly among urban and low-income households. In 2004, 21.5 percent of the households' heads were women. This proportion increased to 27.8 percent in 2014 (Figure III.23). This phenomenon particularly affected households from the lower end of the income distribution. Between 2004 and 2014, the proportion of bottom 40 percent households headed by women increased by almost 10 percentage points, up from 18.6 percent in 2004 to 27.9 percent in 2014. Likewise, urban households experienced a major rise of 10 percentage points in the proportion of households headed by women, increasing from 22.7 percent in 2004 to 32 percent in 2014.

Figure III.23: Female head of household, 2004-2014 (percentage of households)

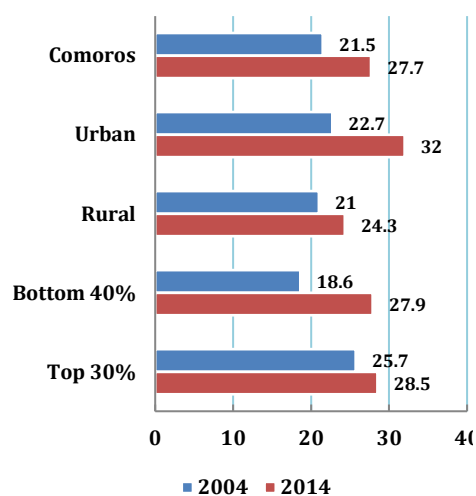
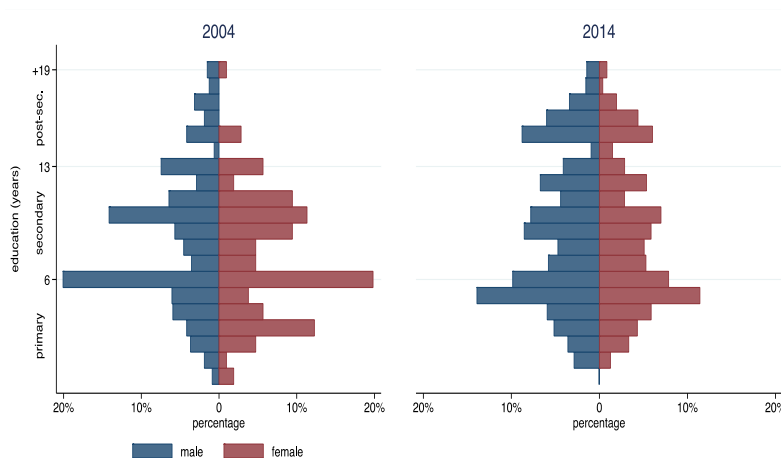


Figure III.24: Household head's years of education by gender, 2004-2014 (percentage of households)



Sources: EIM 2004, DHS 2012, and EESIC 2014.

The proportion of households' heads with secondary and post-secondary education also increased between 2004 and 2014. The proportion of households' heads with secondary education went up between 2004 and 2014 from 6.3 percent in 2004 to 16.2 percent in 2014 (Figure III.24). The proportion of households' heads with postsecondary education also increased by 10 percentage points over the same period, up from 4.5 percent in 2004 to 14.5 percent in 2014. This latter improvement is evident for urban and rural families, and for households at both ends of the consumption distribution.

School enrollment increased significantly between 2004 and 2014. At the national level the rate of primary school enrollment increased by close to 7 percentage points between 2004 and 2014, up from 64.7 percent to 71.9 percent (Figure III.25). The increase benefited both urban and rural households. The primary enrollment rate of children from urban and rural households increased respectively by 6.7 and 5.7 percentage points. However, rural households remain worse-off than their urban counterparts with a primary enrollment rate at 62.7 percent in 2014, about 9 percentage points below the urban level. There has been also an important expansion in access to both lower and upper secondary education as well as tertiary education, with enrollment in tertiary education increasing slightly faster. In 2004, 39.5 percent of the population of lower secondary school age (12–15 years) and 27 percent of the population of upper secondary school age (16-18 years) was in school.⁴⁰ These proportions respectively rose to 45.5 percent and 29.1 percent in 2014. Tertiary school enrollment increased from 11.1 percent to 31.8 percent during

⁴⁰ School age groups are from The Comoros National Education Profile- World Bank (2014).

the same period.⁴¹ The surge was particularly pronounced in rural areas, where the enrollment rate at the tertiary level increased by over 20 percentage points while lower and upper secondary enrollment increased by around 2 percentage points. However, secondary and higher enrollment rates remain significantly lower in rural areas compared to urban ones, with gaps of 7 percentage points and above.

Primary and lower secondary school enrollments increased faster among households at the bottom 40 percent, while upper secondary enrollment expanded more among the better off.

As shown by Figure III.26, primary and lower secondary enrollments increased for both bottom 40 percent and top 30 percent groups, but increased faster among the former, allowing them to significantly reduce the education gap with the better off groups. Enrollment in upper secondary also increased significantly between 2004 and 2014, but the increase benefitted more the top 30 percent for whom the enrollment rate increased by about 10 percentage points, compared to an increase of around 2 percentage points for the bottom 40 percent. There seems to be a surge in enrollment in tertiary education among the poor population groups, with the enrollment rate increasing by about 24 percentage points among the bottom 40 percent, against an increase of 11 percentage points in the top 30 percent groups. In parallel to increased enrollments, late enrollments have also been reduced, the share of children aged 7 years old (the compulsory school age) enrolled in school increased from 65.2 percent in 2004 to 69.5 percent in 2014. The increase was even more pronounced among the bottom 40 percent with the rise of the share of 7-year-old from 64.3 percent to 72 percent.

Figure III.25: School enrollment rates, 2004-2014 (percentage)

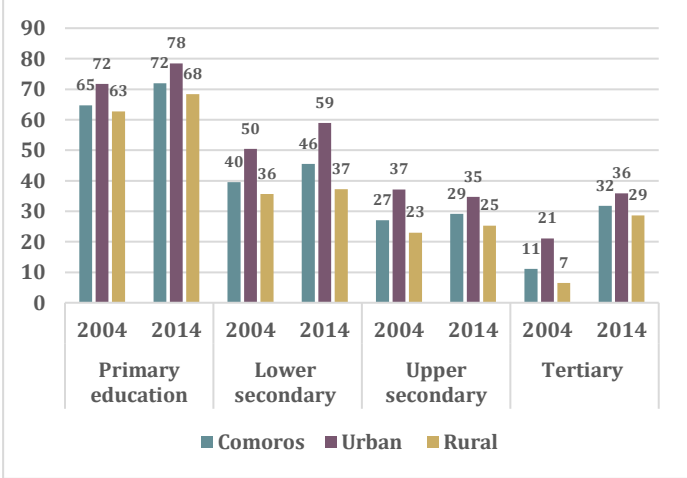
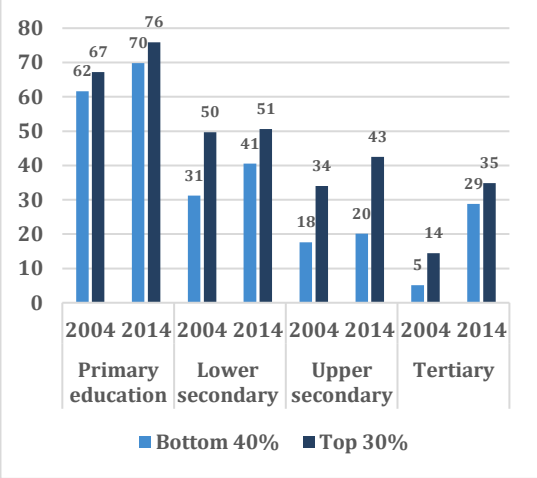


Figure III.26: Enrollment rates among bottom 40% and top 30% (percentage)



Sources: EIM 2004 and EESIC 2014.

Increased school enrollment as well as access to primary and secondary education is slowly transforming the educational structure of the country. As shown in Figure III.27, the share of

⁴¹ WDI (2016) shows much lower tertiary enrollment rates, with gross tertiary enrollment rates of about 9 percent in 2013. However, WDI data do not allow to distinguish between urban and rural areas.

the population aged 15 years old and older who has no education or informal education has declined from 67.7 percent in 2004 to 40.9 percent in 2014, while the share of the population with some or completed secondary education has become more prevalent, increasing by 15 percentage points, from 6 percent in 2004 to 21.3 percent in 2014. The trend has benefited all households, whether they are located in urban or rural areas, or they are at the bottom or top of the welfare distribution (Figure III.28).

Figure III.27: Educational attainment 15 years and above (percentage)

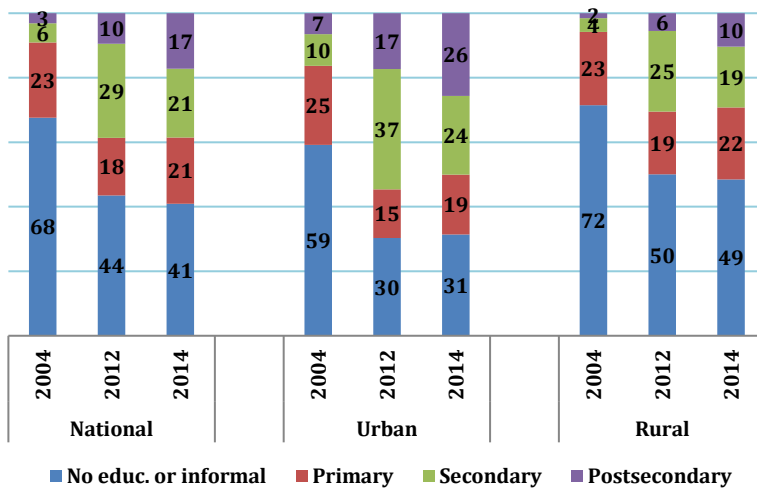
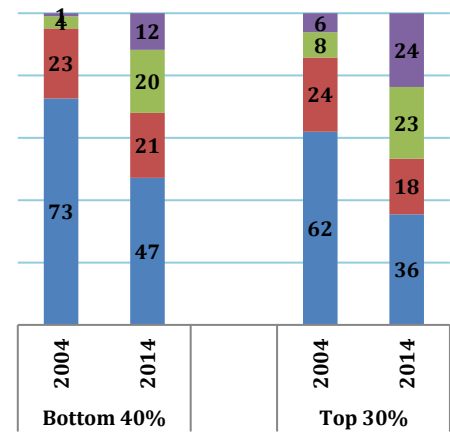


Figure III.28: Educational attainment 15 years + for bottom 40% and top 30% (percentage)



Sources: EIM 2004, DHS 2012, and EESIC 2014.

Gender parity has also progressed with tremendous improvements from the poorest and rural households. At the national level, the gender parity index for primary school enrollment went up from 0.94 in 2004 to 1.03 in 2014 (Figure III.29). This increase in favor of girls was primarily driven by important improvements for rural and bottom 40 percent households. The gender parity index of rural households went up from 0.89 percent in 2004 to 1.03 in 2014, while the gender parity index of households from the bottom 40 percent increased even more from 0.80 in 2004 to 1.04 in 2014 (Table III.2).

Figure III.29: Gender parity index, 2004-2014 (girl-to-boy enrollment ratio)

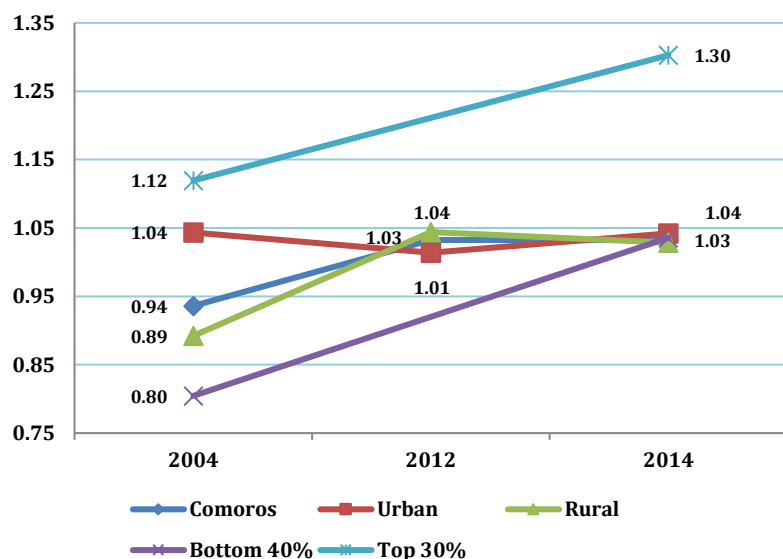


Table III.2: Gender parity, 2004-2014 (girl-to-boy enrollment ratio)

	2004	2012	2014
Comoros	0.94	1.03	1.03
Urban	1.04	1.01	1.04
Rural	0.89	1.04	1.03
Bottom 40%	0.80		1.04
Top 30%	1.12		1.30

Sources: EIM 2004, DHS 2012, and EESIC 2014.

Comoros performs better than SSA peers in health outcomes, though malnutrition continues to be widespread

Maternal health indicators appear in line with African peers. The indicators on health, infant and maternal mortality, and malnutrition are from DHS 2012. Almost 60 percent of pregnant women made at least four antenatal visits to a health care assistant, which is in line with WHO recommendations, and 67 percent received post-natal care. Among the remaining 40 percent who made less than 4 prenatal visits, 20 percent did not see a specialist during pregnancy, 30 percent made 1-2 visits and 50 percent made 3 visits (Figure III. 30). In terms of maternal mortality ratio, Comoros appears much better off than its international peers. At 172 deaths per 100,000 births in 2012, the maternal mortality ratio is moderately low in Comoros, significantly lower for instance than the maternal mortality ratio of 464 deaths per 100,000 live births in Tanzania. Likewise, the maternal mortality rate of Comoros is much lower than the average for sub-Saharan Africa, which stood at 587 deaths per 100,000 births in 2012 (Figure III.31).

Figure III.30: Antenatal visits, 2012 (number of visits per mother)

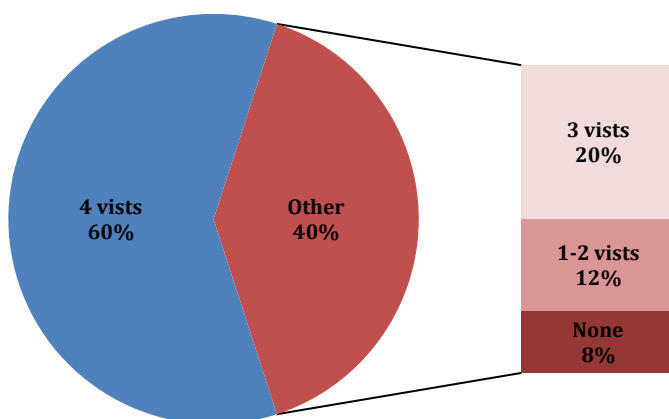
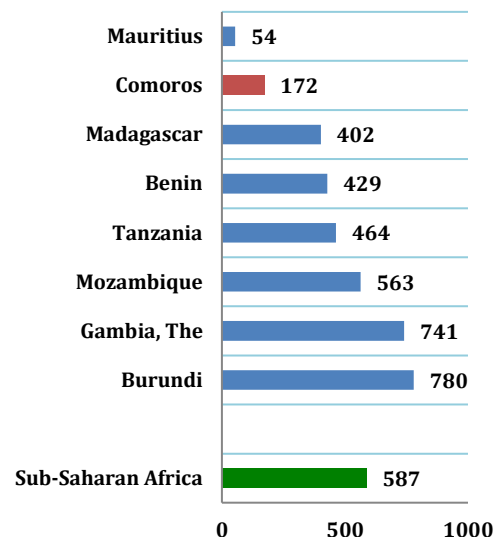


Figure III.31: Maternal mortality ratio, 2012 (per 100,000 births)



Sources: DHS 2012 and WDI estimates for 2012.

Health indicators related to children’s mortality rate fall within the international average with high discrepancies between rural and urban areas. Under-five mortality, which measures the probability of children dying between birth and their fifth birthday, stood at 50 deaths per 1,000 births in 2012 at the national level (Figure III.32). However, the indicator displays significant differences between rural and urban areas. In 2012, the under-five mortality rate in rural areas stood at 58 per 1,000 live births, more than twice the under-five rate in urban areas (28 per 1,000 live births in 2012). The island of Ngazidja, without considering Moroni, is where the rate was higher, standing at 57 per 1,000 live births in 2012, compared with Moroni or Mwali’s under-five mortality rates of respectively 34 and 41 per 1,000 live births. Out of 3,149 births reported during the five years before the survey, the infant mortality rate (which measures the probability of infants dying before their first birthday per 1,000 live birth) in 2012 stood at 40.3 per 1,000 births, compared to an infant mortality rate of 61.5 per 1,000 births in Sub-Saharan Africa in 2012 (Figure III.33). Such an infant mortality rate was lower than countries such as Burundi (59.5 per 1,000 births, 2012) but higher than Tanzania (38.8 per 1,000 births, 2012) or Mauritius (12.8 per 1,000 births, 2012).

Figure III.32: Under-5 mortality rate by geographical location, 2012 (per 1,000 live births)

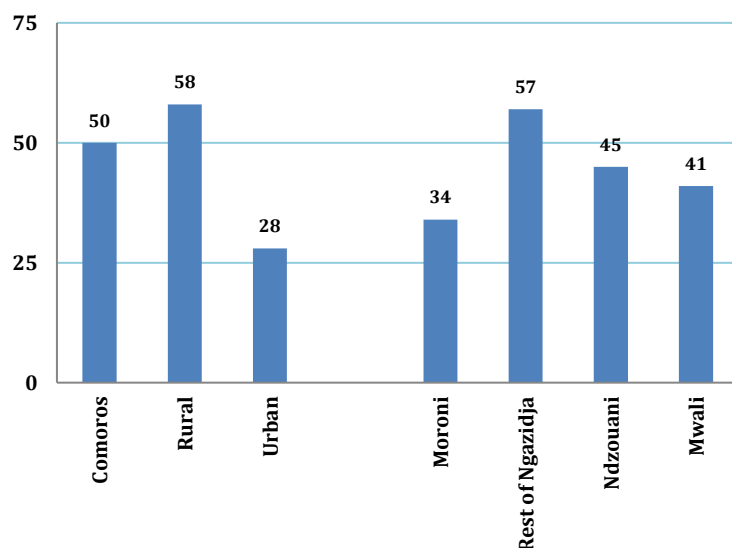
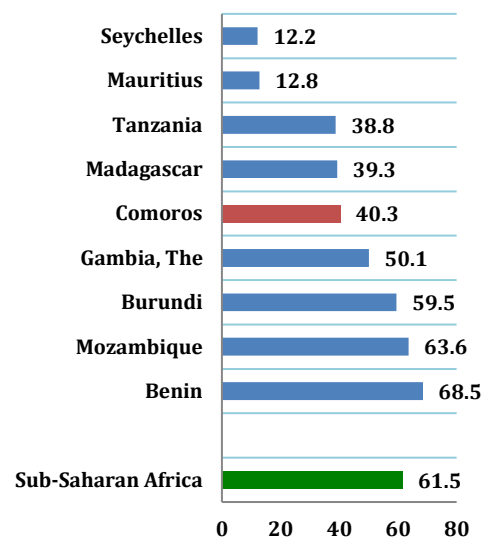


Figure III.33: Infant mortality rate, 2012 (per 1,000 live births)



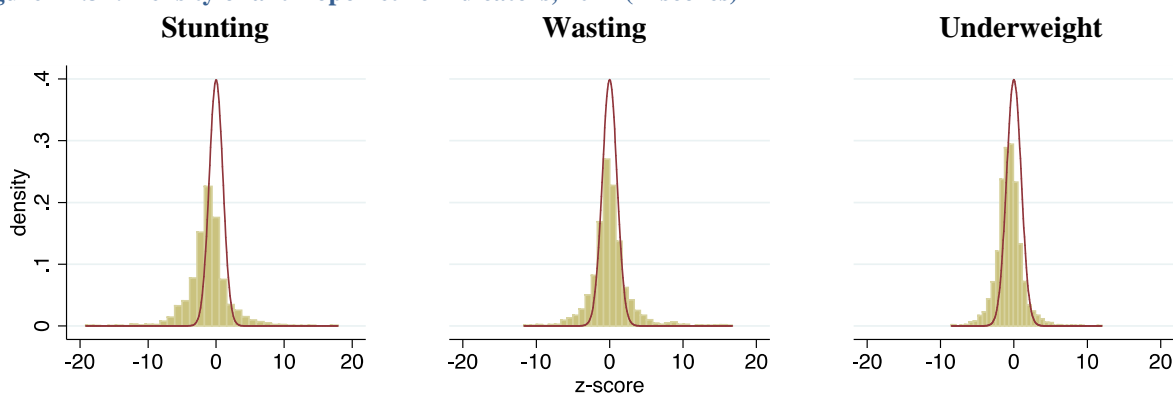
Sources: DHS 2012 and WDI estimates for the 2012.

Average values of the child nutrition indicators follow a normal distribution at national level, but also in the three islands. For children, the three most commonly used anthropometric indices to assess their growth status are wasting (weight for height), stunting (height for age) and underweight (weight for age). For each one of those indicators, we calculate Z-scores using international standardized measures of a reference child in good health of the same age and sex.⁴² A Z-score is considered normal if it is above 2 standard deviations of the reference point, moderately low if it is below 2 and 3 standard deviations, and severely low if it is below 3 standard deviations of the standardized reference measure. For example, a child whose height-for-age z-score is -2.5 is considered stunted, while a child whose z-score is -3.5 is considered severely stunted.⁴³ In Comoros, the average Z-score values are within normal ranges (less than two standard deviations). As seen in Figure III.34, the densities of the three anthropometric indicators (the orange bars) fall within the reference density (the red curve), with some minor discrepancies. In particular, the stunting's density, and to a lesser extent the one for underweight, are slightly shifted to the left of their respective reference distributions. The analysis of the z-scores shows that children in rural areas, and boys in particular, tend to have lower health indicators.

⁴² Anthropometric Z-scores calculated using the 2006 WHO child growth standards <http://www.ifpri.org/staffprofile/jef-leroy>.

⁴³ Prevalence of overweight and obesity remains relatively low and thus it is excluded from the analysis.

Figure III.34: Density of anthropometric indicators, 2012 (Z-scores)

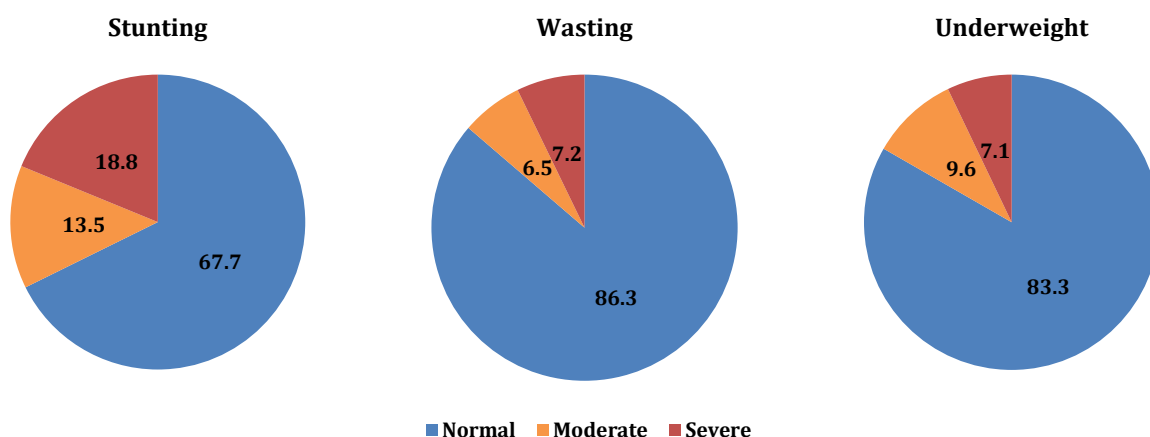


Source: DHS 2012.

The relatively good results observed for the wasting and underweight indicators suggest the absence of short-term shocks affecting nutrition such as starvation or food security issues. The observed distribution of wasting (body weight relative to the height) follows relatively well the distribution of z-scores in the reference population since the histogram of the population follows the normal distribution (it falls within the red line curve). Likewise, the observed distribution of underweight also seems to follow the distribution of z-scores. Nonetheless, 13.7 percent of children do have a low weight for their height, which could be the consequence of a severe disease, for instance diarrhea (Figure III.35). Similarly, in 2012, 9.2 percent of rural children were in a state of moderate underweight, and 8.2 percent of them were considered as severely underweight. The proportion of children affected by wasting and underweight does not significantly vary between urban and rural areas.

Conversely, the stunting indicator shows poor results that primarily affect rural areas. Stunting's density is shifted to the left of its reference distribution (Figure III.36). In 2012, 22.3 percent of under-5-year-old children were considered stunted at the national level, with 13.5 percent of them identified as moderately stunted and 18.8 percent severely stunted (Figure III.35). The situation affects primarily rural areas with a proportion of severely stunted children reaching 19.4 percent (Table III.3), compared to 17.2 percent in urban areas.

Figure III.35: Anthropometric indicators, 2012 (percentage of children)



Source: DHS 2012.

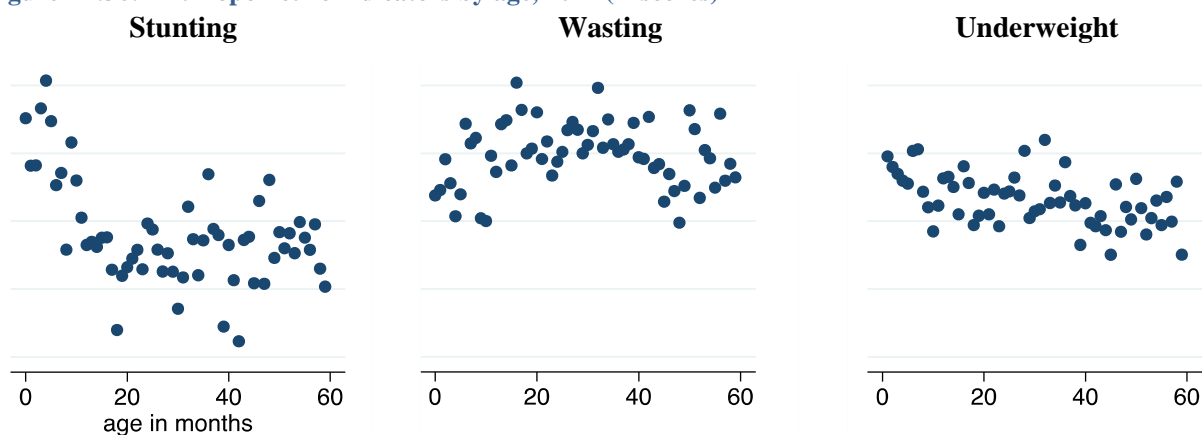
Table III.3: Anthropometric indicators, 2012 (percentage of children)

		National	Urban	Rural
Stunting	Normal	67.7	71.4	66.3
	Moderate	13.5	11.3	14.3
	Severe	18.8	17.2	19.4
Wasting	Normal	86.3	85.2	86.7
	Moderate	6.5	7.8	6.0
	Severe	7.2	7.0	7.3
Underweight	Normal	83.3	86.2	82.2
	Moderate	9.6	9.3	9.7
	Severe	7.1	4.5	8.2

Source: DHS 2012.

Stunting poor results suggest the existence of long-term or chronic nutrition inadequacies among some of the children. Stunting, defined as low height for age, could be an indicator of persistent nutritional insufficiencies and/or frequent illness among young children. This possibility is particularly plausible since stunting appears more prevalent among children between 2 and 4 years old – 24 to 60 months (Figure III.36). Furthermore, stunting is also likely to occur among low-birth-weight infants, which in turn might be caused by poor maternal health since stunted women are more likely to give birth to low-birth-weight babies. Among children born during the five years preceding the DHS (2012) and whose birth weight was reported (by recall or from a written card), 83 percent weighed 2.5 kg or more and 17 percent were underweight.

Figure III.36: Anthropometric indicators by age, 2012 (Z-scores)



Source: DHS 2012.

III. Extent and Evolution of Multidimensional Poverty

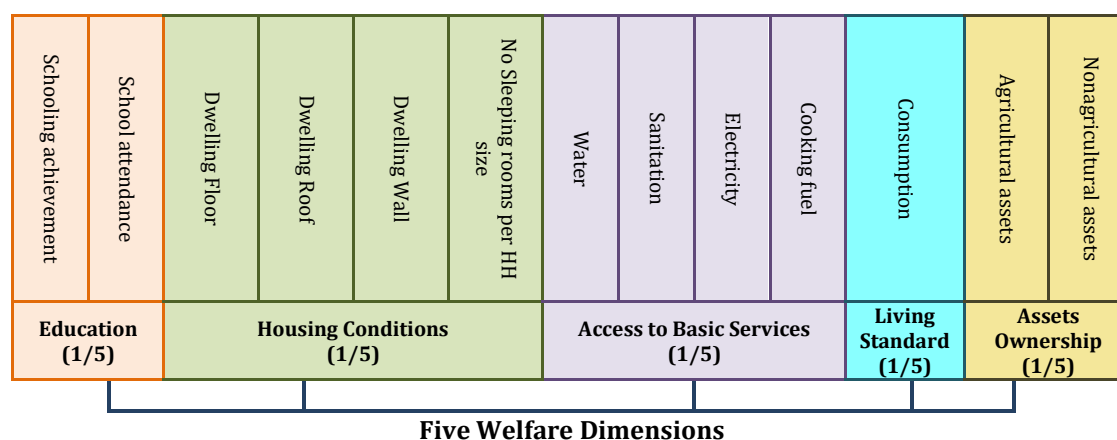
The previous section revealed fairly important improvements in households' living conditions between 2004 and 2014, especially in education and housing conditions. Despite these improvements, major challenges remain to be addressed: better housing conditions, access to electricity and improved water sources, as well as larger enrollment in higher education. In order to overcome these challenges, it is necessary to understand the different dimensions and forms of deprivation experienced by households and their causes. The following section will therefore analyze the multiple deprivations experienced by the Comorian households in various areas of well-being, and assess the extent and evolution of multidimensional poverty.

Significant decline of multidimensional poverty, particularly in rural areas, but rural populations and those outside of Ngazidja continue to face important deprivations

The approach of multidimensional poverty is based on the idea that the well-being of a population can be jeopardized not only by severe shortfalls in consumption and income, but also by deficits in many living conditions' dimensions. Efforts to sustainably address poverty need to go beyond the proximate causes of deficits in consumption in order to understand the different forms of deprivation and address the multiple underlying causes to poverty and vulnerability. However, the multitude of dimensions in which people can suffer deprivation and the complicated ways in which these dimensions are intertwined make such analysis challenging. We use a relatively simple methodology proposed by Alkire and Foster (2011) to measure multidimensional poverty based on two elements: *shortfalls in each of the relevant dimensions of well-being, and the extent of deprivation in the different dimensions.*

We consider five main dimensions, and thirteen indicators, for the measurement of the **Multidimensional Poverty Index (MPI)** (Figure III.37).⁴⁴ The MPI reflects the prevalence of poverty and the breadth of multiple deprivations among the poor.⁴⁵ We consider as multidimensionally poor all Comorian individuals deprived in at least 30 percent of the indicators. Those deprived in over 50 percent of the indicators are identified as in *severe deprivation* and those deprived in between 10 and 30 percent of the indicators are considered as *vulnerable to deprivation*. More details on the approach can be found in Appendix 3.

Figure III.37: Welfare dimensions and indicators of the method



About three fourth of the Comorian population suffer from deprivation in around a third of relevant dimensions of well-being, and close to one fourth suffer from severe deprivations. Table III.4 reports the MPI rate and its two components – incidence and average intensity of deprivation faced by the poor— at the national and regional levels.⁴⁶ At the national level, the incidence of deprivation and the multidimensional poverty rate were respectively 75 percent and 38 percent in 2014. The first informs on the prevalence of multidimensional poverty and the second represents the proportion of weighted deprivations experienced by the poor relative to the maximum potential deprivations that could be experienced by the whole population. The levels of vulnerability to deprivation were also quite important and exceeded 24 percent in 2014, showing that Comoros’ population as a whole was considered as *vulnerable to deprivation*.

⁴⁴ Each dimension is equally weighted and each indicator within each dimension is equally weighted.

⁴⁵ The MPI is calculated by multiplying the incidence of deprivation (or poverty) (H) by the average intensity of deprivation (A), where H represents the headcount or the proportion of the population that is deprived or poor in a multidimensional way, and A represents the average breadth or multiplicity of deprivation people suffer at the same time, measured by the average proportion of indicators in which poor people are deprived (see <http://www.ophi.org.uk/> for more details).

⁴⁶ The MPI is also interpreted as the adjusted headcount ratio.

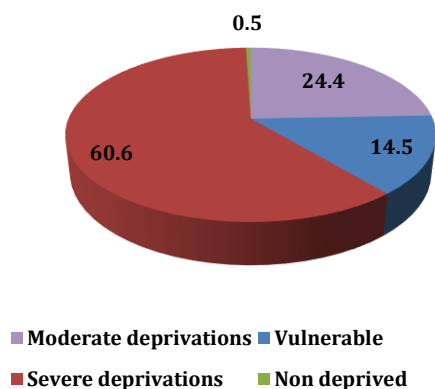
Table III.4: Multidimensional Deprivations Indicators

	MPI		Incidence of Deprivation		Average Intensity Across the Poor		Vulnerability to Deprivation		Severe Deprivation	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
National	50.3	38.1	85.0	75.0	59.2	50.8	14.5	24.1	60.6	39.8
Urban	36.1	29.3	68.3	62.5	52.8	46.9	30.4	36.4	43.7	26.0
Rural	55.5	44.0	91.1	83.3	60.9	52.7	8.7	16.0	70.8	48.9
<i>By Island</i>										
Moroni	34.8	29.7	71.8	65.5	48.5	45.3	28.2	34.3	37.0	24.7
Rest of Ngazidja	48.5	37.2	86.0	76.8	56.4	48.5	13.9	23.1	61.6	36.1
Ndzouani	53.4	41.8	85.5	77.1	62.5	54.2	13.6	21.1	71.1	47.9
Mwali	57.0	41.5	90.0	76.9	63.3	54.0	10.0	22.2	73.6	46.7

Sources: EIM 2004 and EESIC 2014.

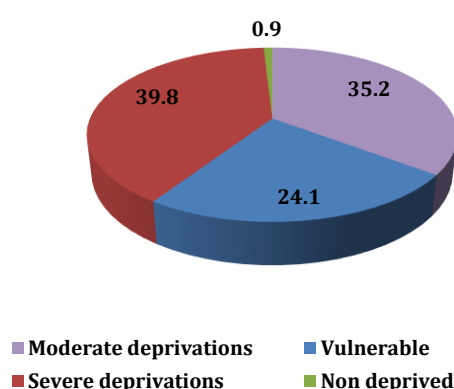
The proportion of multi-dimensionally poor people significantly declined between 2004 and 2014, but people remain vulnerable to deprivation and poverty. At the national level, the headcount and MPI estimates respectively declined by around 10 and 12 percentage points between 2004 and 2014. A more significant decline is observed in the proportion of severely deprived population groups as shown by the respective declines of the headcount and multidimensional rates by about 21 and 16 percentage points between 2004 and 2014 (Figures III.38 and 39). However, those who have been able to move out of deprivation remain near the deprivation thresholds and vulnerable to fall back into deprivation and poverty. The substantial increase in the vulnerability rates, by close to 10 percentage points between 2004 and 2014, indicates that, despite the registered improvements in welfare, an important part of the Comorian population remains at risk to fall into poverty.

Figure III.38: Proportion of multidimensionally poor and vulnerable people in 2004 (percentage)



Source: EIM 2004.

Figure III.39: Proportion of multidimensionally poor and vulnerable people in 2014 (percentage)

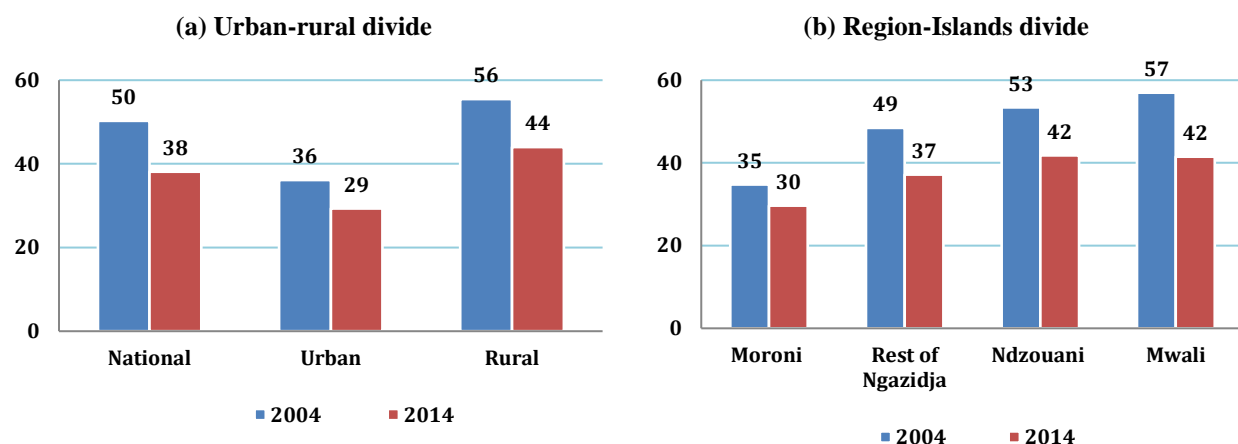


Source: EESIC 2014.

Rural populations suffer more breadth of deprivation, but their situation is improving faster than their urban counterparts. In line with the findings of the previous section, the prevalence and breadth of deprivation are declining faster in rural areas than in urban sectors. The decline of multidimensional poverty in rural areas seems to be more significant than the decline in consumption-related poverty observed previously, which suggests that improvements in rural nonmonetary indicators of welfare were more important than improvements in rural consumption

levels. Conversely, the decline of the MPI in urban areas was slightly lower than the decline in the monetary headcount, indicating that in these areas, consumption improved faster than nonmonetary welfare dimensions of deprivation. Despite these changes, rural households continue to be much poorer than their urban counterparts (Figure III.40 (a)).

Figure III.40: Multidimensional Deprivation Indicators by area



Sources: EIM 2004 and EESIC 2014.

Mwali and Ndzouani are facing the highest levels of deprivation, while households in Ngazidja seem to be better off. In 2004, Mwali was the poorest region with its MPI estimated at 57 percent (and over 90 percent of the population was deprived in one third of the living conditions' dimensions). However, between 2004 and 2014, deprivation declined much faster in Mwali than in the rest of the country, which resulted in similar multidimensional deprivation rates for both Mwali and Ndzouani in 2014 (Figure 40 (b)). Those multidimensional deprivation rates still remain much higher than in Ngazidja, and particularly Moroni. The consumption poverty analysis in the first section presented a quite similar picture of Moroni and the rest of Ngazidja being better off than Ndzouani and Mwali, but it only showed a faster decline of poverty in the latter when small area estimation method was used to estimate the 2004 poverty levels. The focus on consumption only (meaning the re-estimation of the consumption poverty figures using EIM 2004) revealed almost no improvements in Mwali, while the results in the present section reveal a quite substantial drop in terms of multidimensional poverty, suggesting that even though households in this region did not experience an increase of their living standards, they witnessed improvements in the other nonmonetary dimensions of their living conditions.

Figure III.41: Deprivation levels among the poor at the national level (percentage)

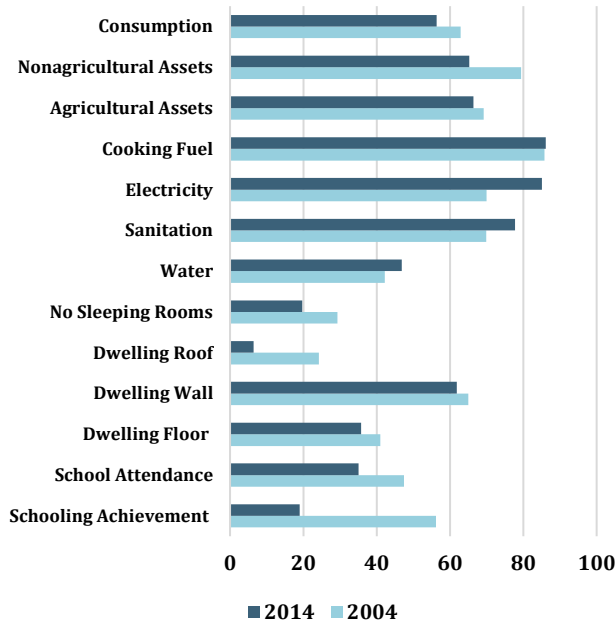
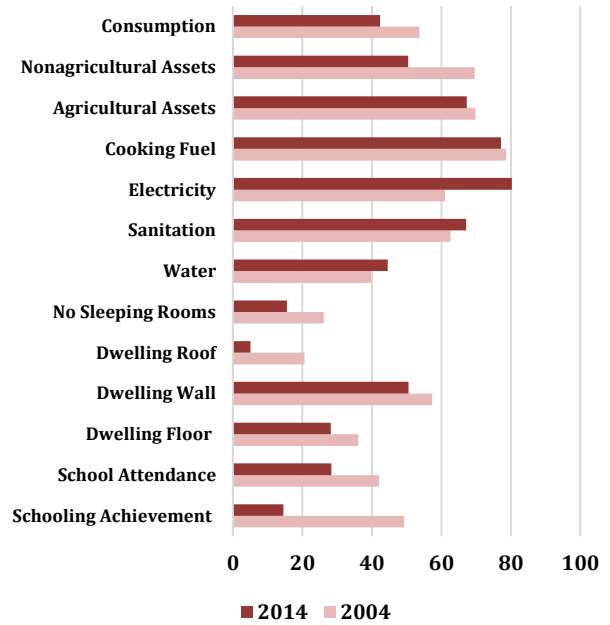


Figure III.42: Deprivation levels for total population at the national level (percentage)



Sources: EIM 2004 and EESIC 2014.

Poor segments of the Comoros’ population are experiencing high deprivations in a number of important dimensions of well-being, including first and foremost in access to electricity and efficient cooking fuels, followed by sanitation and assets ownership. As shown by Figure III.41, over three quarters of the (multidimensional) poor Comorians are deprived in access to electricity, efficient cooking fuels such as gas, kerosene or charcoal, and improved sanitation; and more than half of them are deprived in assets and basic needs consumption. The levels of deprivations among the whole population, while following the same trends, seem to be lower, except in the cases of access to electricity and cooking fuels (Figure III.42). In spite of improvements in children school enrollments, over one third of the poor population remains deprived in school attendance, meaning that in these households many members aged between 6 and 15 years old are not attending schools. Deprivations in electricity, cooking fuels and improved sanitation, followed by school attendance, are significantly higher among rural poor than urban ones (Figures 43 and 44).

Figure III.43: Deprivation levels among the rural poor (percentage)

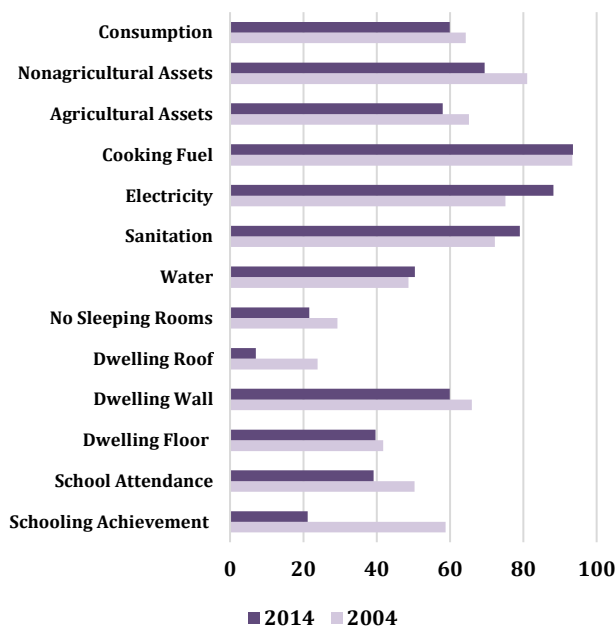
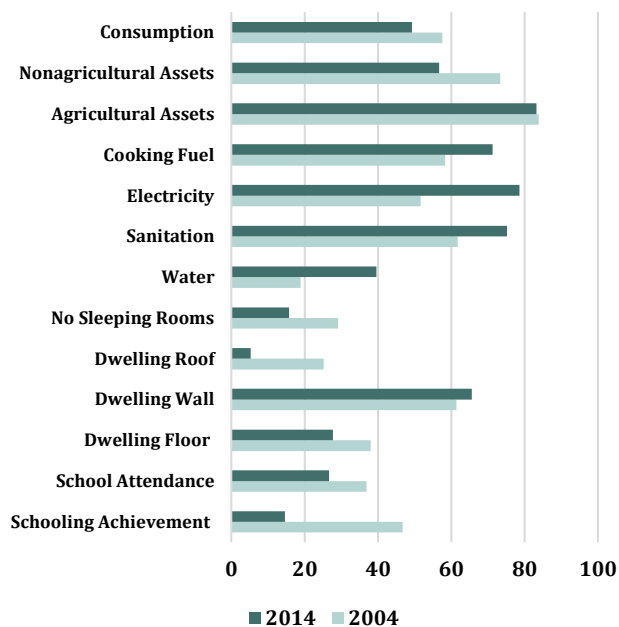


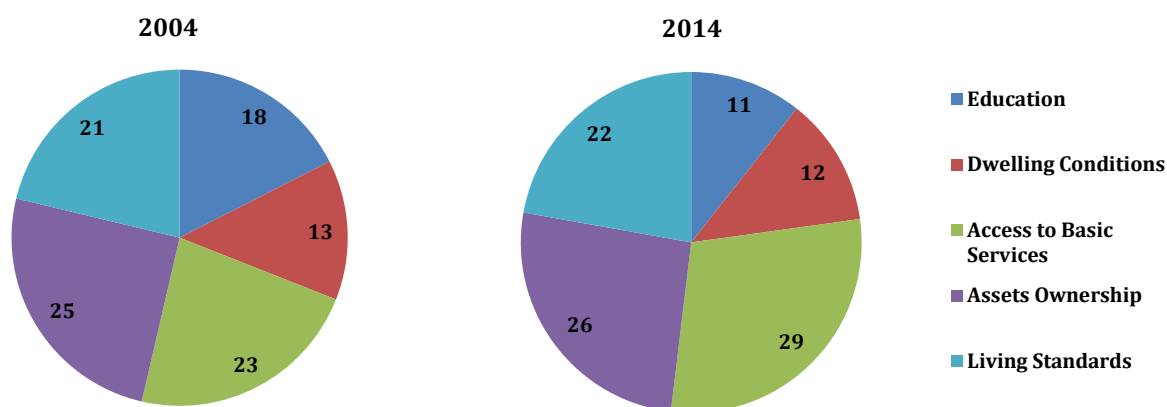
Figure III.44: Deprivation levels among the urban poor (percentages)



Sources: EIM 2004 and EESIC 2014.

Access to basic services and ownership of assets, followed by consumption, account for the most important share of the Multidimensional Poverty Indicator. In 2004, deprivations in assets and access to basic services each contributed to about one fourth of multidimensional poverty, while deprivation in consumption contributed to around one fifth. In 2014, the contribution of the three dimensions increased, with the contribution of deprivation in access to basic services increasing more sharply, suggesting that despite the improvements in their living conditions and standards, the Comorian population continues to suffer mainly from low access to basic services (Figure III.45). Education and housing conditions have the lowest shares in the MPI, suggesting that although many Comorian households continue to face deprivations in these dimensions, they remain more deprived in the other dimensions of welfare.

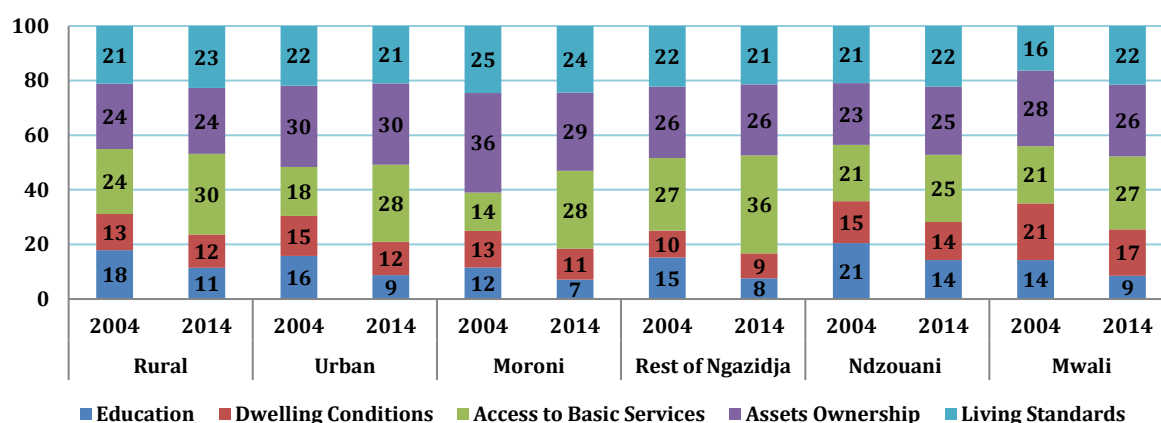
Figure III.45: Contribution of the different dimensions to the MPI (percentage)



Sources: EIM 2004 and EESIC 2014.

All the regions of the country are mostly deprived in access to basic services and assets, while deprivation in education is relatively low. According to Table III.5 and Figure III.46, the contribution of access to basic services to multidimensional poverty has the highest share and is increasing over time. Deprivation in access to basic services seems to increase particularly in Ngazidja. The contribution of deprivation in consumption to the MPI varies between one fourth and one fifth across the different regions, and seems to be stable over time, except in Mwali where it increased by around 6 percentage points between 2004 and 2014, indicating that improvements in living standards on the island were much slower than improvements in nonmonetary dimensions of welfare. Education has the lowest contribution and its share is declining over time. In particular, in 2014, the contribution of education to the MPI was the lowest in urban areas and in Mwali. This suggests that although efforts to promote school enrollment and basic education should be pursued and even furthered, more needs to be done to develop the infrastructures that facilitate access to services and to productive jobs, and that increase the living standards of the households.

Figure III.46: Contribution of the different dimensions to the MPI by region (percentage)



Sources: EIM 2004 and EESIC 2014.

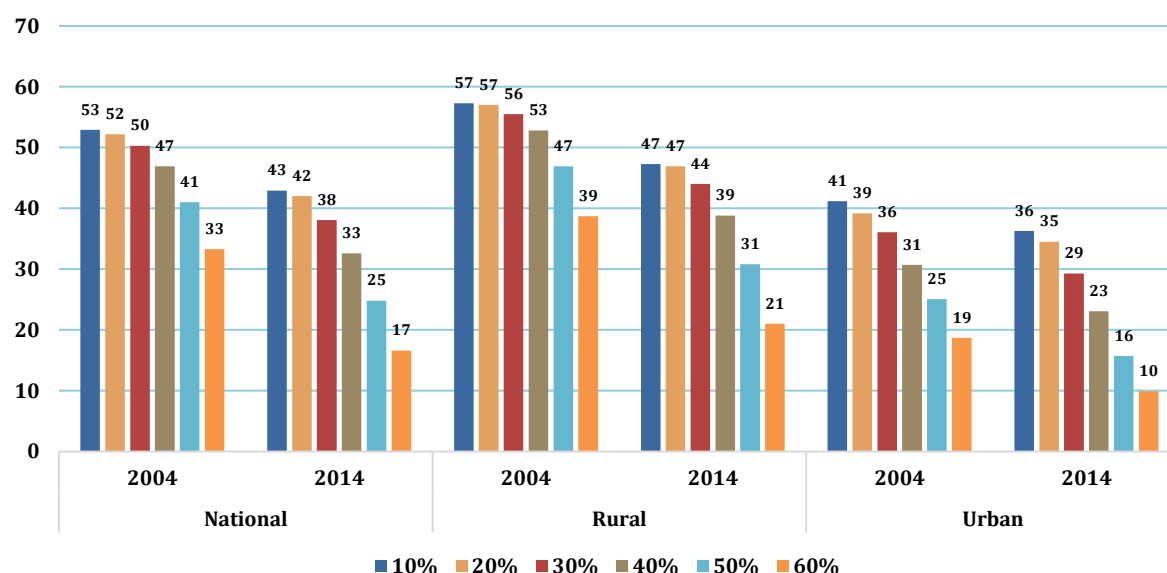
Table III.5: Contribution of the different dimensions to the MPI by region (percentage)

	Rural		Urban		Moroni		Rest of Ngazidja		Ndzouani		Mwali	
	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014	2004	2014
Education	17.9	11.4	15.8	8.8	11.6	7.1	15.2	7.6	20.5	14.3	14.3	8.5
Dwelling Conditions	13.2	12.2	14.6	12.2	13.3	11.3	9.9	9.2	15.3	13.9	20.8	17.0
Access to Basic Services	23.7	29.5	18.0	28.2	14.1	28.5	26.6	35.8	20.6	24.5	20.9	26.7
Assets Ownership	24.0	24.2	29.8	29.8	36.5	28.7	26.1	26.0	22.7	25.0	27.6	26.3
Living Standards	21.1	22.7	21.8	21.0	24.5	24.4	22.2	21.4	20.9	22.3	16.4	21.5

Sources: EIM 2004 and EESIC 2014.

Multidimensional deprivation declines with the increase of the cutoff, and attains about 17 percent in 2014 when considering the proportion of the population deprived in 60 percent of the indicators of well-being. Table III.6 and Figure III.47 show that the MPI declines sharply when considering cutoffs levels over 50 percent, particularly in 2014 and in urban areas, indicating that most of the Comorian population, particularly urban, is deprived in half (and less) of the relevant dimensions of well-being. The ranking of the MPI indicators across the different regions is maintained for the different cutoffs, and the urban-rural gap seems to be wider for cutoff levels between 30 percent and 50 percent.

Figure III.47: Variation of the MPI with the cutoffs at the national and rural-urban levels (percentage)



Sources: EIM 2004 and EESIC 2014.

Table III.6: Variation of the MPI with the cutoff levels

	National		Rural		Urban	
	2004	2014	2004	2014	2004	2014
10%	52.9	42.9	57.3	47.3	41.2	36.3
20%	52.2	42.0	57.0	46.9	39.2	34.5
30%	50.3	38.1	55.5	44.0	36.1	29.3
40%	46.9	32.6	52.8	38.8	30.7	23.1
50%	41.0	24.8	46.9	30.8	25.1	15.7
60%	33.3	16.6	38.7	21.0	18.7	9.9

Sources: EIM 2004 and EESIC 2014.

The demographic characteristics of the household, the sector of employment of the head and access to basic services are the most important factors influencing the probability of being poor. We attempt to understand the determinants of deprivation using a logit model to estimate the impact of households' characteristics on the probability of the household to be poor in a multidimensional way. The results are reported in Appendix 3. The estimation results in Table 3-1 indicate that households with larger size and important number of children have high probabilities to be poor. The causality here runs in both directions. On the one hand, poor households tend to have larger size and more kids, who are often perceived as a form of private insurance for retirement. On the other hand, the size of the household, and the subsequent large number of children, yield a negative impact on welfare by dividing scarce resources over a large number of individuals. The age of the head and the presence of elderly members do not seem to have a significant impact on the probability of being poor. Likewise, households with a head having a university degree have significantly lower probability of being poor. The reverse is also true, as lower education levels of the head do not seem to significantly reduce the risk of deprivation and poverty.

Other results from the logit model show that the sector of employment, the geographical location, and access to a various set of assets and services have a significant impact on the probability to be poor. Working in the manufacturing and the trade sectors strongly reduce the probability of being poor. Lack of access to electricity, improved drinking water sources and improved sanitation, as well as important distances to college, have a strong negative impact on poverty. Similarly, benefitting from transfers and ownership of assets, particularly communication and transportation means, as well as livestock, significantly reduce the poverty probability risk. The regional location affects significantly the probability of deprivation. Being located in rural areas increases the chances of being poor, while being located in the rest of Ngazidja seems to lower the probability of poverty.

Chapter IV – Employment in Formal and Informal Economy

Key Messages

- **Despite the fairly good level of education of its workforce, Comoros' labor market continues to offer limited productive job opportunities;**
- **There has been signs of structural transformation since 2004, with labor moving out of agriculture, but the shift was largely in favor of the service sector, and employment remains concentrated in informality;**
- **The vast majority of businesses are micro-enterprises with one or two workers, largely operating in an informal setting with low capacity to add value;**
- **Inclusion of women in the labor market is relatively weak, they are often confined in low-skilled informal jobs.**

Comoros lacks the prerequisites for productive transformation and jobs creation. The size of the economy and the weaknesses of its infrastructure and institutions are holding back private investment and productive activity. Consequently, most of the population rely on agriculture and non-agriculture informal jobs and are likely to continue working in these sectors for the foreseeable future. The present chapter examines the structure of the labor market and informal employment, and attempts to investigate the main bottlenecks for accelerating economic growth and poverty reduction.

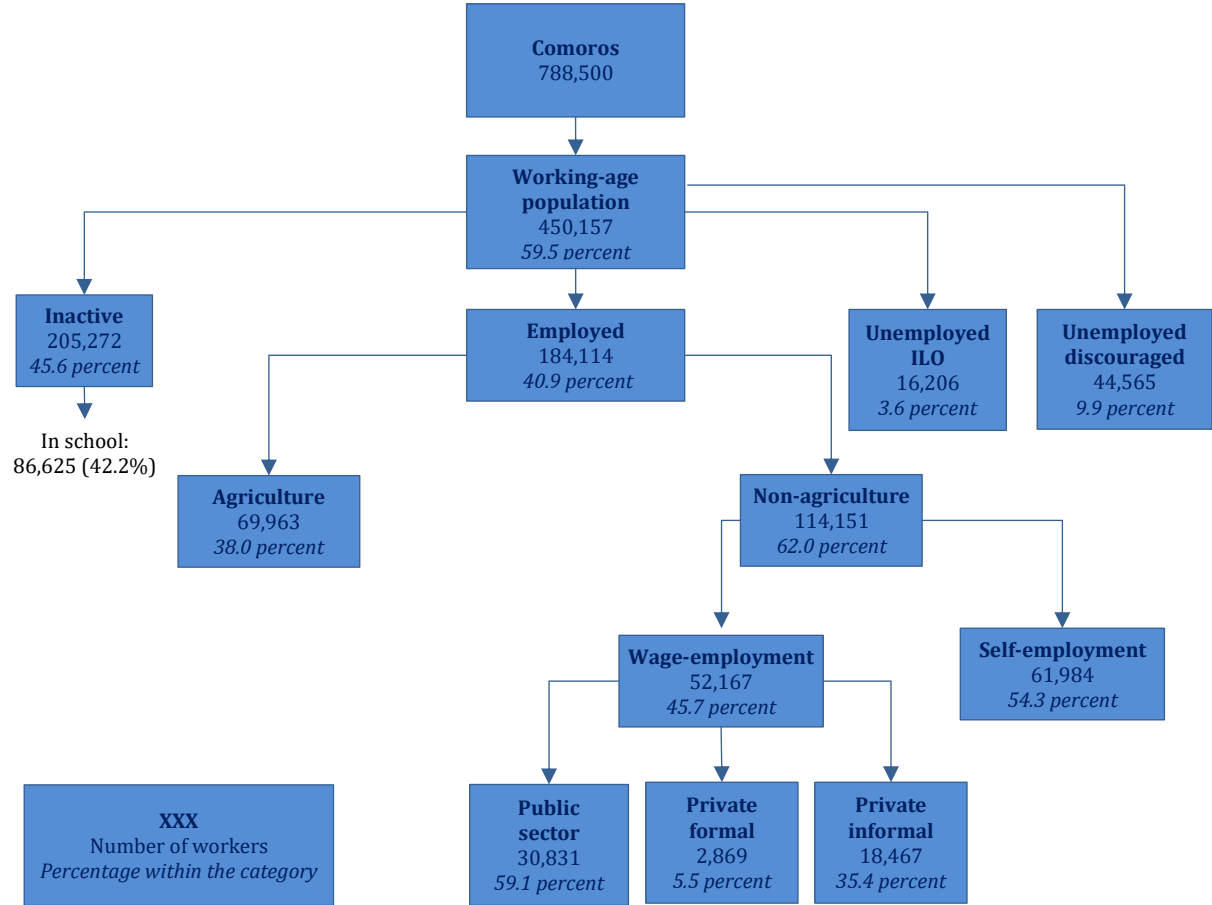
The chapter is built on the 2014 EESIC that informs quite thoroughly on the state of the labor market in Comoros. The survey follows a 1-2-3 methodology and is divided into three phases. Phase 1- Employment Section collects information allowing to establish the main indicators of the labor market and characteristics of the workforce. This phase also provides data on under-employment and unemployment, as well as the level of multi-activity and its incidence on households' revenues. The pool of households interviewed during the first phase allows to gather information on informal work and to constitute the sub-sample of UPI that will be interviewed in phase 2. Phase 2- Informal Sector Section aims at understanding the informal labor market. The pool of respondents is drawn out of phase 1's respondents that have been identified as head of informal unit of production (UPI). Heads of UPI need to satisfy three criteria, whether it is for their principal activity or their secondary job: *i*) employer or self-account worker; *ii*) non detailed accounting or no fiscal registration; and *iii*) the unit produces goods and services that are sold. This second phase allows to identify the sectors where informality prevails, and to assess the overall weight and importance of informality within the economy of Comoros. Drawing on those descriptive statistics, we can further determine the needs, constraints, and opportunities that characterize the informal sector, as well as explore the different strategies implemented by UPIs to face modern competition. Phase 3- Households' Consumption Section collects information on

households’ consumption and living conditions for the analysis of poverty. It also provides critical insights to analyze the role played by informal activities and its subsequent revenues to satisfy households’ needs. The analysis is complemented by a discussion on the changes in the labor market during the last decade, drawing on data from EIM (2004).

The distinction between individual workers and units of production or enterprises remains challenging for an economy characterized by a high degree of informality, where the frontier is always blurry and many individuals are accounted as self-account enterprises. The analysis presented in the first and second sections of the chapter will make a clear distinction between jobs held by individual workers and UPI – Informal Unit of Production. The chapter starts by sketching the main features of employment in Comoros. The second and third sections examine the employment structure and underemployment. The last section investigates the state of informal employment in non-farming enterprises.

I. Labor Force characteristics and participation

Figure IV.1: A snapshot of the job market in Comoros



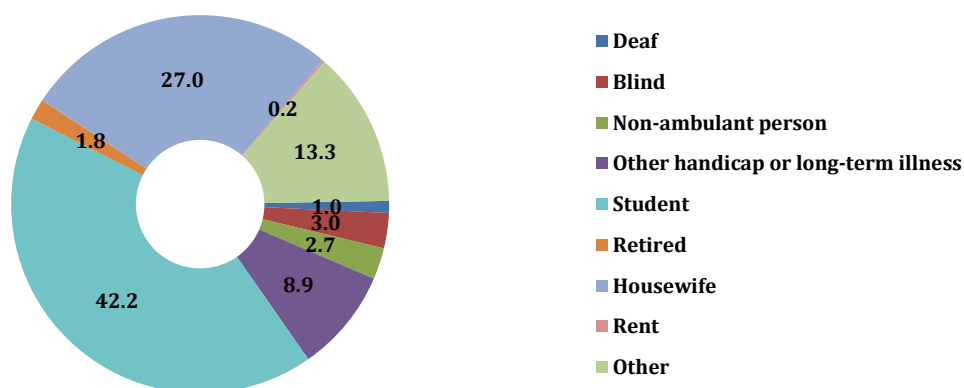
Sources: EESIC 2014 and World Bank Staff calculations. Note: The number of working-age people is extracted from the WB database for the year 2014, and is based on the age-dependency ratio that stood at 76.3 percent in 2014.

Labor force participation remains very low, with discrepancies across gender.

The Comorian labor market is characterized by very low participation of the working-age population in the labor force. In 2014, the working-age population – i.e. more than 15 years old – amounted to around 60 percent of the whole Comorian population. Within this working-age population, only 45 percent was actively engaged in the labor market. The rest was either inactive (45.6 percent), or were considered as discouraged unemployed workers (9.9 percent). Such a participation rate is among the lowest in Africa, especially when compared for instance with Tanzania (89.1 percent), Burundi (82.6 percent), Madagascar (88.5 percent) or even Kenya (67.3 percent).⁴⁷ The participation rate has remained virtually unchanged from its level in 2004 (45 percent).

A large share of Comoros’ inactive workers is actually engaged in studies. Within the inactive, the share of working-age people at school amounts to 42.2 percent of them (Figure IV.2). In absolute value, it represents around 86,600 people at school, a figure greater than the total amount of people engaged in agricultural activities (around 70,000 people). People that are inactive because of their studies represent almost half of Comoros’ active workers (86,600 vs 184,000), a situation which raises questions regarding potential future and decisive changes in the level of education of Comoros’ population.

Figure IV.2: Reasons for not Working (percentage of non-labor force/inactive)



Source: EESIC 2014.

Overall, the participation rate seems only weakly influenced by the level of education.

Indeed, Comorians in the labor force and inactive share the same educational profile. While the national participation rate stands around 45 percent, whether people have no education or hold a university degree does not appear to have an influence on labor participation (Table IV.1). For instance, the participation rate for Comorians without education is measured at 47 percent,

⁴⁷ World Bank Database. Figures for year 2013.

compared to 49 percent and 47 percent for those with primary education and superior education respectively. The only figure that stands out is among those with secondary education. In this category, the participation rate is quite low (35 percent) and might reflect the ongoing studies of many of the category's respondents. Although they are more than 15 years old, and thus included in the labor force statistics, they might still be at school, therefore artificially lowering the participation rate of this specific educational category.

Table IV.1: Participation rate measured by educational attainment (percentage)

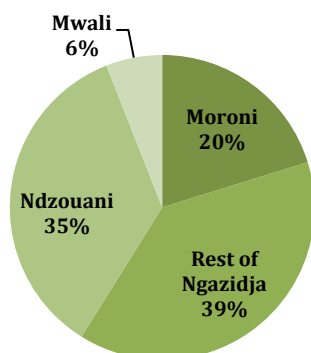
	No Education	Primary	Secondary	Superior	Comoros
Non-labor force	53	51	65	53	56
Labor force	47	49	35	47	44
Total	100	100	100	100	100

Source: EESIC 2014.

The participation rate across all three islands is similar. In 2014, the participation rate was virtually the same on the three islands. Ngazidja has the highest participation rate with 46.3 percent of its population being active. The other regions followed with very similar rates, the lowest being 42.1 percent in Ndzouani.

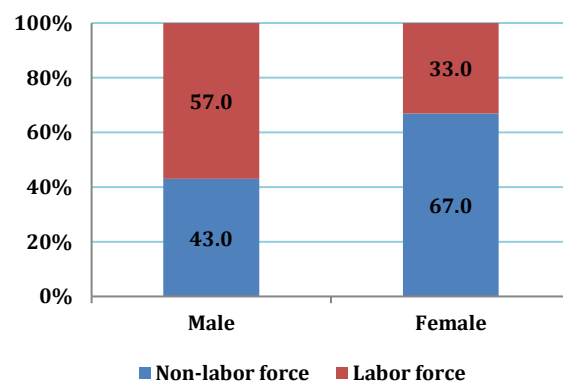
However, because of the differences in population across islands, the contribution of each island to the total labor force is significantly different. While the participation rates within each island are similar, the differences in terms of population between the islands imply very different contributions from each island in terms of absolute number of workers. For instance, Ndzouani and Mwali have similar participation rates but since Ndzouani is much more populated than Mwali, 35 percent of Comoros' workforce lives on the island of Ndzouani, while only 6 percent of it comes from the island of Mwali. Looking at the contribution of each island to the total workforce, Ngazidja is by far the largest contributor to Comoros' workforce, with 20 percent of the workforce located in the capital city of Moroni, and another 39 percent living in the rest of the island of Ngazidja (Figure IV.3).

Figure IV.3: Contributions of Islands and Moroni to the Labor Force (percentage of total workforce)



Source: EESIC 2014.

Figure IV.4: Labor Force participation by Gender (percentage)



Source: EESIC 2014.

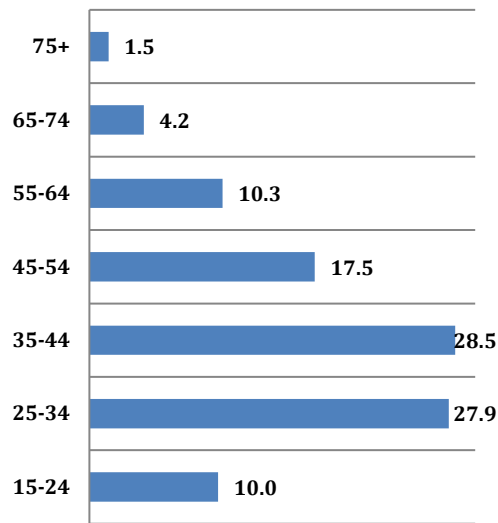
The low participation rate in the labor market is partially related to the weak labor inclusion of women. Comoros, through its main religion and its socio-economic structures, shares a lot of similarities with the Maghreb countries. Compared to the main economies of the Maghreb region, Comoros has a national participation rate that is similar. In 2014, the participation rate of Morocco stood at 50.5 percent, Mauritius at 58.6 percent, and Egypt at 49.1 percent. Similarly to those countries, this low national participation rate is partly driven by a very weak participation of women in the labor market (26.5 percent in Morocco and 23.7 percent in Egypt for instance). As shown by figure IV.4, only one-third of Comoros' women are part of the workforce. Such a very low female rate of participation heavily weighs on the overall rate of participation. Furthermore, this phenomenon of low female participation rate is a constant across all different age classes. For instance, while participation rates of men aged 35-54 are beyond 80 percent, women's participation rates for the same age groups hardly reach 50 percent. Overall, across all age classes, female's participation rates are consistently lower than male's rates by close to 30 percentage points.

The second factor is an unusual low male's participation, which severely hampers Comoros' national participation rate. While female participation remains very low, the overall participation rate in Comoros is also driven down by a particular low men's participation. While Maghreb countries achieve male rates of participation around 80 percent, which partly compensates for the very low rates they experience on the female side, Comoros fails to do so since only 57 percent of Comoros' working-age males participate to the labor force (Figure IV.4).

Mid-aged labor force with quite important shares holding higher education degrees

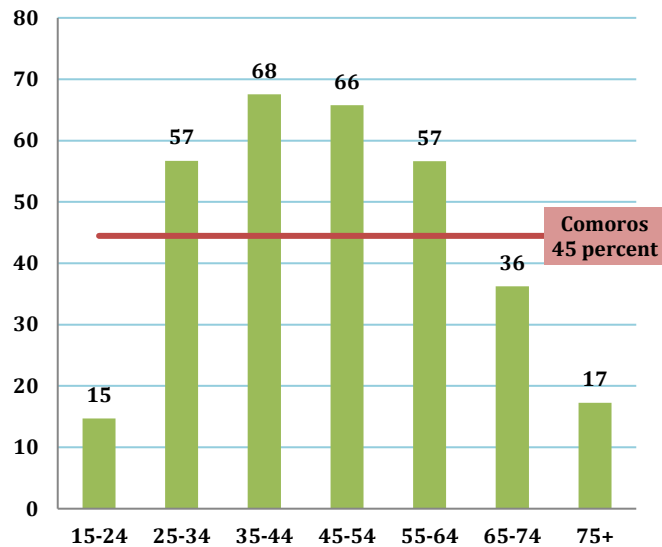
The average age of Comoros' labor force is around 40 years old. As shown by Figure IV.5, the bulk of the workforce in Comoros is comprised by the generations between 25 and 45 years old that represent more than 56 percent of the total labor force. The share of the 15-19 and 20-24 age groups in Comoros only represent respectively 3 percent and 7 percent of the total workforce. Considering the very high number of working-age Comorians at school (around 86,600 of them), the low rate of the 15-24 age group could be explained by a high investment in human capital, which favors the presence of young adults in universities.

Figure IV.5: Labor force by Age (percentage of total workforce)



Source: EESIC 2014.

Figure IV.6: Labor participation rate by Age (percentage of age-class specific workers)



Source: EESIC 2014.

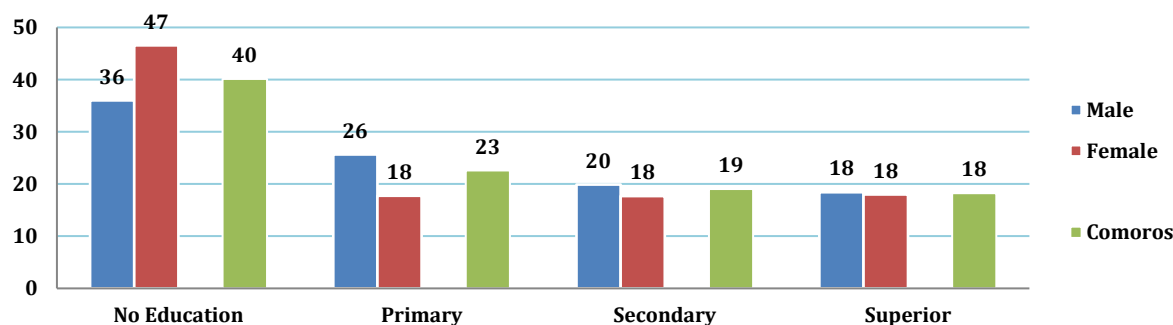
This relatively important investment in studies, and the subsequent late participation of Comoros’ youth, are confirmed by the bell-shape of the labor participation rates by age groups. The effect of age on labor market inclusion in Comoros follows a typical bell curve. The participation rate is low among the youth – only 15 percent of individuals aged 15-24 are part of the labor force. It gradually increases, eventually reaching 68 percent of those aged 35-44 and 66 percent for those aged 45-54 (Figure IV.6), and then decreases among the elderly. This follows standard theory as on the one hand, during youth, the trade-off between working and investing in human capital tilts towards investing in human capital; on the other hand, physical unfitnes, preference for leisure, labor legislation on retirement age, and discouragement due to fewer opportunities being available (higher labor and training costs, technological requirements) force the elderly to gradually withdraw from the labor market.

A large share of the population in Comoros still lacks proper education with large differences between men and women. 40 percent of Comoros’ labor force has never received any education and 23 percent of it has only achieved primary schooling. Overall, it leaves close to two third of the country’s labor force with low levels of education (Figure IV.7). The discrepancies between men and women are also striking given that 47 percent of Comoros’ female labor force has not received any education, compared to only 36 percent of the male workforce.

Yet, Comoros has unusual strong numbers in terms of superior education, especially when compared with other Sub-Saharan peers. In 2014, 18 percent of Comoros’ working age population had superior education and 19 percent had reached a secondary education level (Figure IV.7). Within the Superior and Secondary categories, the differences between men and

women are minor. When looking deeper and comparing with the situation in 2004, we see that while 40 percent of Comoros' labor force has not received any education in 2014, the educational attainment of the Comoros' labor force has significantly improved. For instance, in 2004, half of the working population had never attended school and only 8 percent had a higher education degree. In 2014, the former had decreased to 40 percent and the later had increased to 18 percent. Those 2014 levels appear exceptionally high when compared with Comoros' Sub-Saharan peers. For instance, in Burundi, only 1.4 percent of the labor force had achieved secondary education in 2014. Similarly, in Tanzania, 15 percent of the population had completed secondary education in 2012, and only 2.6 percent had completed superior education.⁴⁸

Figure IV.7: Labor force by Education and Gender in 2014 (percentage)

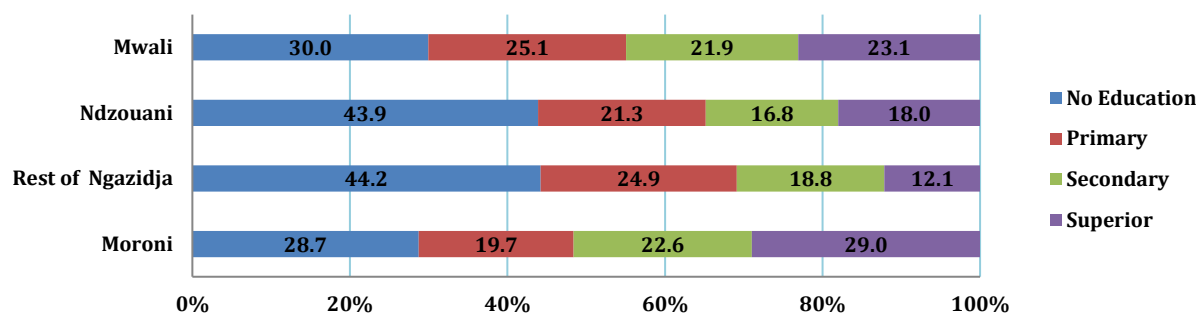


Source: EESIC 2014.

However, the level of education of the labor force is very different across all three islands and the capital city of Moroni. The island of Mwali and the city of Moroni enjoy relative low levels of uneducated people and high levels of educated workers. More than 50 percent of Moroni's workforce has an educational attainment higher than secondary schooling (Figure IV.8). Conversely, the situation remains critical in the rest of Ngazidja and in Ndzouani with 44.2 and 43.9 percent of their respective workforce that has not received any education. Those rates reach 69 and 65 percent when considering workers with a level of education not higher than elementary school. Comparatively, it represents more than a 10-point differential with Mwali and Moroni. The difference is particularly striking between Moroni and its rural hinterland – that is the rest of the island of Ngazidja—, probably underlying existing strong discrepancies in terms of economic activities and sector of production.

⁴⁸ World Bank Database. Figures for year 2013.

Figure IV.8: Labor force by Education and Island (percentage)



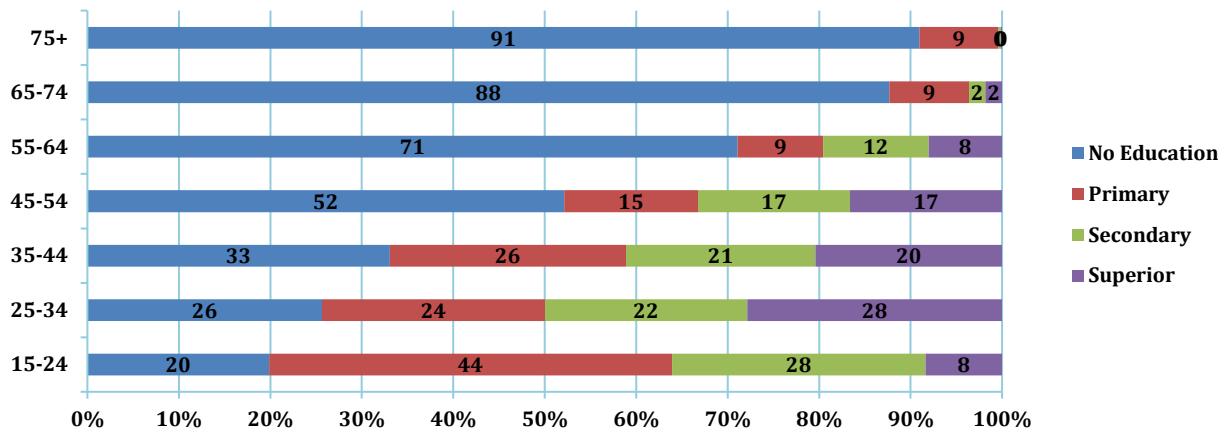
Source: EESIC 2014.

Significant changes in labor participation and socio-demographic profile of the labor force between 2004 and 2014.

Significant changes in the participation rate occurred between 2004 and 2014 across the three Comorian islands. Data from EIM 2004 showed that in 2004, the participation rate in Ngazidja was only 38 percent, compared to 51 percent on the two other islands (13 percentage points above). Since 2004, labor supply has substantially increased in Ngazidja and the participation rate on this island has become the highest in the country (46 percent). Conversely, over the 2004-2014 period, labor supply has substantially decreased on the other two islands and participation rates have dropped by more than 9 points in Ndzouani and by 6 points in Mwali.

The improvement of the level of education of the labor force between 2004 and 2014 reveals a major generational shift. The distribution of education level across Comoros' age groups shows the prevalence of low educational attainment in the oldest groups of the population, while the young generation is well educated. The dramatic improvement of educational attainment is confirmed by figure IV.9. While workers aged more than 55 years old have rates of non-educated higher than 70 percent, only 33 percent of workers aged 35-44 received no education, and 26 percent for those aged 25-34. The trend continues to improve as shown by the age class 15-24: while the share of uneducated workers has decreased to 20 percent, we can expect highly educated workers of this group to join the labor market in the coming years, increasing the relative share of secondary and highly educated workers on the one hand, and further reducing the share of uneducated workers in this class of age.

Figure IV.9: Labor force by Education and Age (percentage)



Source: EESIC 2014.

However, even though the level of education of the labor force as a whole has improved, the evidence suggests a persistent demand for low levels of skilled employment among employers in Comoros. This phenomenon is very pronounced among men. Less than 55 percent of male university graduates have entered the labor market, compared to around 64 percent of male with no education or elementary education. Moreover, participation rates have significantly decreased from 2004 to 2014 among men with higher education – from 62 percent to 55 percent among men with university degrees, and 54 percent to 44 percent among men with secondary education. On the contrary, the participation rates of men with no education or elementary education have respectively increased by 9 and 8 points over the same period.

II. Unemployment and Underemployment

Unemployment rate remains limited but with very high discrepancies across gender and islands.

In 2014, over 8.1 percent of Comoros' workforce was unemployed with high geographical and gender discrepancies. This unemployment rate is calculated following the ILO strict definition – not employed during the seven previous days, actively seeking a job, and available to work. The analysis by island in 2014 shows heterogeneity. In 2014, the unemployment rates in Ndzouani and Mwali in 2014 stood at 10.5 and 9.5 percent respectively (Figure IV.10). Conversely, the unemployment rate on the island of Ngazidja as a whole was much lower at 6.6 percent. However, when analyzing separately the city of Moroni, we find a very high unemployment rate in the capital (10.9 percent of the workforce), compared to a low 4.3 percent for the rest of the island of Ngazidja. Gender-based analysis also reveals discrepancies between men and women. Therefore, while the male unemployment rate was below the national average at

6.7 percent, women remained worst off with a female’s unemployment rate standing at 10.4 percent.

Between 2004 and 2014, the unemployment rate sharply increased. The unemployment rate went up between 2004 and 2014, increasing from 5.4 percent in 2004 to the current level of 8.1 percent. This sharp increase was observed at the island level. For instance, the unemployment rates in Ndzouani and Mwali stood at 10.5 and 9.5 percent respectively in 2014, compared to respective rates of 3 and 4.1 percent in 2004 (Figure IV.10).

Figure IV.10: Unemployment rate by Gender and Island, 2004-2014 (percentage of total labor force)

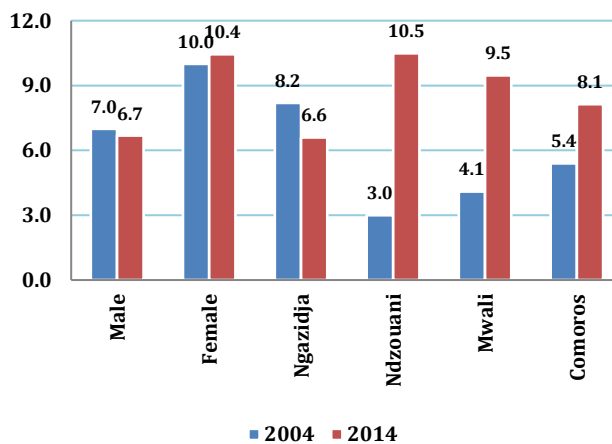
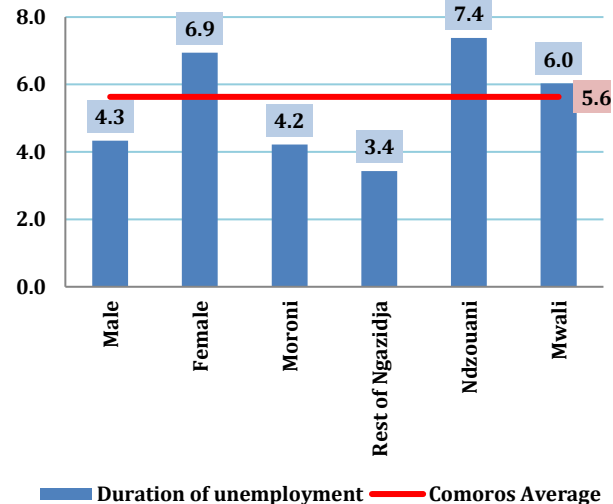


Figure IV.11: Average duration of unemployment period in 2014 (months)



Source: EESIC 2014.

Source: EESIC 2014.

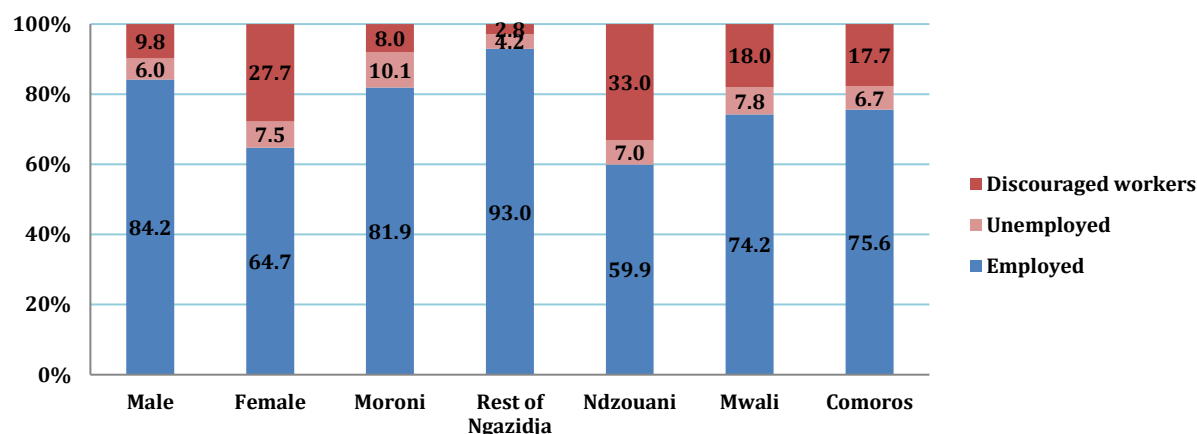
The average unemployment duration in the Comoros in 2014 was 5.6 months, with persistent high geographical and gender discrepancies. In 2014, average unemployment duration was 5.6 months. Average unemployment duration was longer in Ndzouani and Mwali, with an average of 7.4 and 6 months respectively, compared to 4.2 months in Moroni, and only 3.4 months in the rest of Ngazidja (Figure IV.11). Long-term unemployment affects over 26 percent of the unemployed in Ndzouani, in comparison to 16 percent at the national level. At the national level, the unemployment duration has declined sharply between 2004 and 2014. In 2004, the average unemployment duration stood at 10 months. This improvement is most visible in Ngazidja and Mwali, where the unemployment duration fell by two thirds between 2004 and 2014. In contrast, this decrease was quite limited in Ndzouani, falling from 10 to 7.4 months between 2004 and 2014.

Important broad unemployment rate suggests inefficiencies in terms of labor market absorption of new entrants

Looking deeper reveals that broad unemployment concerns one quarter of Comoros’ population. The unemployment rate based on ILO discussed above is based on a strict definition,

namely not employed during the seven previous days, actively seeking a job, and available to work. Conversely, the broad unemployment rate also includes the discouraged workers that are not employed and not actively seeking a job. Therefore, any important differences between the unemployment rate and the broad unemployment rate underline the prevalence of discouragement among Comoros' potential workers. While the national unemployment rate stands at 8.1 percent of the labor force, the broad unemployment rate rises to 24.4 percent of Comoros' working-age population (Figure IV.12).

Figure IV.12: Broad unemployment rate by Gender and Island (percentage of total working-age population)



Source: EESIC 2014.

Notes: Broad unemployment rate is different from ILO-unemployment rates of Figure IV.10, which are based on ILO strict definition and different calculation base. Present percentages are calculated on the basis of working-age population, which includes discouraged workers. ILO-figures are calculated based on labor force, which excludes discouraged workers.

At the island level, broad unemployment is particularly important in Ndzouani as well as in Mwali. Compared to an unemployment rate of 10.5 percent in Ndzouani, slightly above the national average, the proportion of discouraged workers reaches 33 percent of the working-age population, putting the proportion of unemployed and discouraged workers at more than 40 percent of Ndzouani's population. Similarly, the proportion of discouraged workers in Mwali reaches 18 percent, putting the broad unemployment rate in Mwali at 25 percent (Figure IV.12).

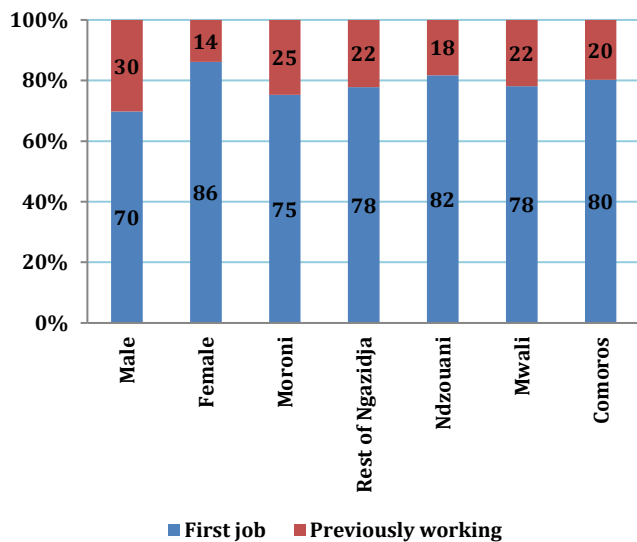
Broad unemployment levels also show high discrepancies across gender. Women have greater difficulty finding work; their unemployment rate is 10.4 percent – compared to 6.7 percent for men – and their broad unemployment rate (35.3 percent) is twice as high as men's (15.8 percent) (Figure IV.12).

The high proportion of first-time job seekers within the unemployed workers suggests that unemployment in Comoros is the result of economic stagnation and insufficient net job creation. In 2014, 80.3 percent of Comoros' unemployed were first-time job seekers (Figure IV.13). Such a situation suggests that the unemployment problem is primarily an issue of access

to the labor market rather than mobility across sectors. Regarding gender discrimination, female were particularly disadvantaged compared to male, with only 69.7 of unemployed men that were first-time job seekers compared to 86.1 percent of unemployed women.

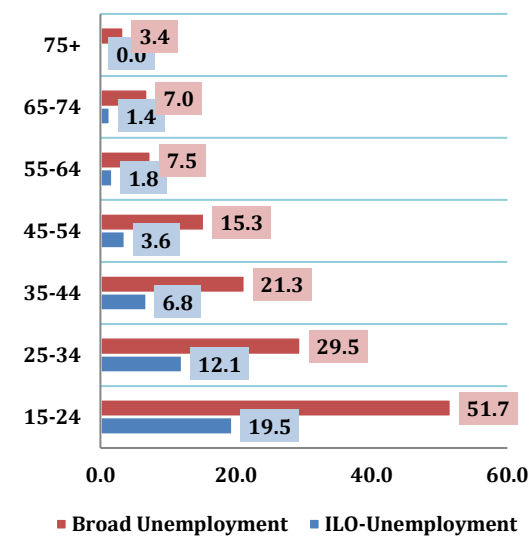
The failure to create enough jobs to absorb new generations of workers is further confirmed by the high unemployment rates of the youth. A lack of absorption capacity of the labor market enhances job competition among the labor force, reducing the probability of employment for workers with limited professional experience. Youth with low levels of professional experience are particularly exposed in this regard. As shown by Figure IV.14, the youngest generations are particularly hit by high unemployment rates, suggesting that the absorption of incoming workers on the labor market is not working efficiently. Youth strict unemployment rate remains very high in Comoros at 19.5 percent compared to unemployment rates below the national average (8.1 percent) for age groups older than 35 years old. When looking at the broad unemployment rate, which is an indicator of discouragement and difficulty to access the labor market, the age discrepancy is even more striking. The broad unemployment rate of the 15-24 age group stands at 51.7 percent compared to 21.3 percent and 15.3 percent for the 35-44 and 45-54 age groups respectively.

Figure IV.13: Type of job-seeker by Gender and Island (percentage of unemployed population)



Source: EESIC 2014.

Figure IV.14: ILO-unemployment and Broad-unemployment rates by Age (percentage)



Source: EESIC 2014.

Underemployment related to income is relatively high, while time-related underemployment remains limited

Underemployment in general is quite prevalent in Comoros. While unemployment captures the segment of the labor force searching for but unable to find a job that would be both decent and satisfying, underemployment allows to analyze the potential misuse of the working labor

force. Underemployment entails two dimensions. One variation is linked to working hours and helps understand the under-utilization of the labor force with regard to hours of work: any working individual in employment who does not actually perform 35 working hours a week, and would like to work more, is considered to be under-employed. The second variation is linked to inadequate employment; it is meant to analyze the under-utilization of labor in terms of productivity. In other words, any person earning less than the minimum hourly wage is considered to be inadequately employed, as the actual results of his/her work do not correspond to the expected outcomes, considering the amount of work mobilized. In this analysis, the minimum wage is KMF 16,865 for a 35-hour week.

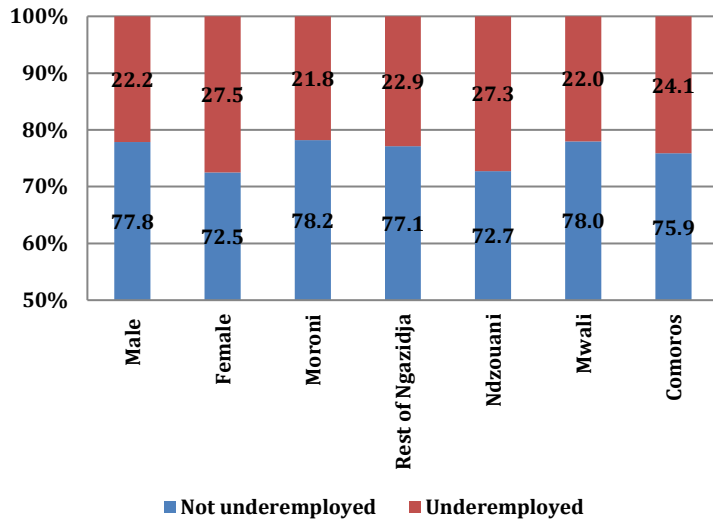
Nearly one-quarter of Comoros' workforce suffers from income-related underemployment.

In 2014, 24.1 percent of the labor force earned less than the official minimum hourly wage. The lowest performance is found among Ndzouani's workers with an income-related underemployment rate of 27.3. Income-related underemployment in other islands is less significant, and remains below the national average with rates of 22 percent in Mwali, 21.8 percent in Moroni, and 22.9 percent in the rest of Ngazidja. Significant productivity gaps between men and women at the national level: the difference in the income-related underemployment rate amounted to more than 5 percentage points in 2014 (Figure IV.15).

Return to labor varies greatly across different types of activity.

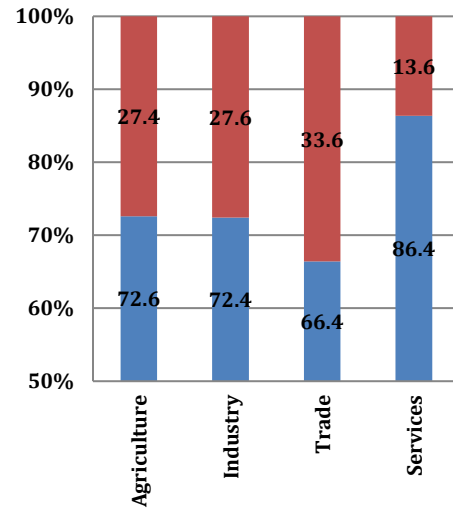
Returns to trade activities are the lowest: in this sector, around one third of employees earn less than the minimum hourly wage. In contrast, the service sector has low income-related underemployment standing at 13.6 percent in 2014. In industrial transformation activities and in agriculture, this proportion reaches 27.6 percent and 27.4 percent respectively (Figure IV.16). However, the farming situation varies across the three islands; Mwali has the lowest agricultural results, with underemployment rates above 44 percent. Furthermore, Comoros is unique in that the number of low-paid employees is much higher in the formal private sector than in the informal sector. This phenomenon is very visible in Ndzouani, where a great majority (56 percent) of formal enterprises employees earn less than the minimum hourly wage, compared to only 29 percent of informal workers.

Figure IV.15: Income-related underemployment rate by Gender and Island (percentage of labor force)



Source: EESIC 2014.

Figure IV.16: Income-related underemployment rate by Sector (percentage of labor force)

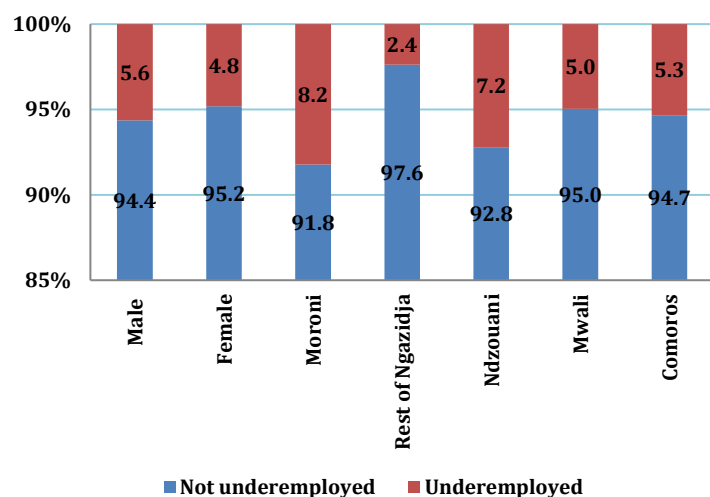


Source: EESIC 2014.

Regarding the time-related aspect, underemployment remains limited in Comoros with only 5.3 percent of the workers affected. Those figures tend to slightly rise in the cases of Moroni and Ndzouani where underemployment rates respectively stand at 8.2 and 7.2 percent of the workers (Figure IV.17). No significant differences seem to exist between men and women.

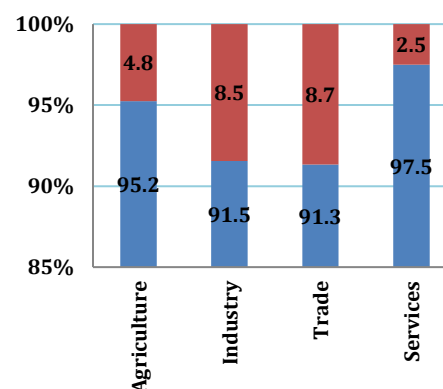
Time-related underemployment appears to be strongly linked with the types of work performed and the sectors of activity. It is more common in industrial transformation activities and trade, with respective rates of underemployment of 8.5 and 8.7 percent in those sectors (Figure IV.18). Conversely, less than 5 percent of workers in agriculture are in a state of underemployment, and only 2.5 percent of services' employees. In the public sector and the formal private sector – where working hours are regulated and part time patterns have not yet developed as a rule –, this phenomenon is very rare, with less than 3 percent of the employees working less than 35 hours against their will. In the informal sector, this proportion rises to more than 6 percent.

Figure IV.17: Time-related underemployment rate by Gender and Island (percentage of labor force)



Source: EESIC 2014.

Figure IV.18: Time-related underemployment rate by Sector of Employment (percentage of labor force)



Source: EESIC 2014.

III. Employment Structure

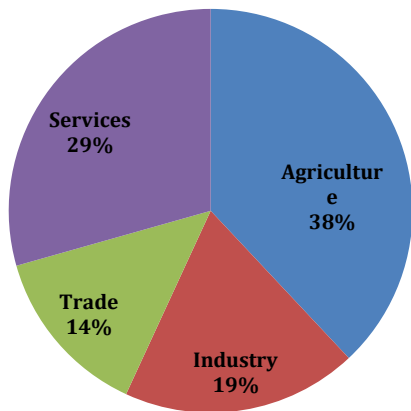
The analysis of the employment structure follows two axis: one considers the *sectors* and is defined as traditional sectors of activity that are Agriculture, Industry, Trade, and Services; the second axis of the analysis considers the *institutional sectors* of employment, which is defined as Public administration, Public or para-public administration, Formal private sector, Informal private sector, and Households.

Comoros' labor market offer is fairly divided across its different sectors, with strong educational level and wage differences across them

Employment in Comoros is quite diversified since none of the sectors prevails in the labor market. In 2014, the agricultural sector accounted for 38 percent of the workforce's activities, while the service sector accounted for 29 percent of the labor force (Figure IV.19). Industry and trade followed, respectively representing 19 and 14 percent of the working population.

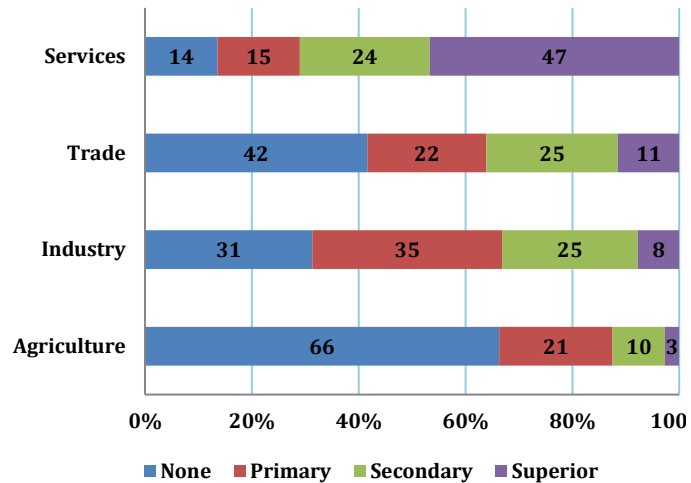
Less educated workers being concentrated in low-skilled areas such as agriculture. As in many other countries, sectors of employment are highly determined by their workers' education level. Over two thirds of agricultural workers have never attended school and less than 3 percent have higher education (Figure IV.20). Conversely, in the service sector, 47 percent of workers are university graduates, and 70 percent of the service sector's employees have an education level higher than the elementary level.

Figure IV.19: Sector of Employment (percentage of labor force)



Source: EESIC 2014.

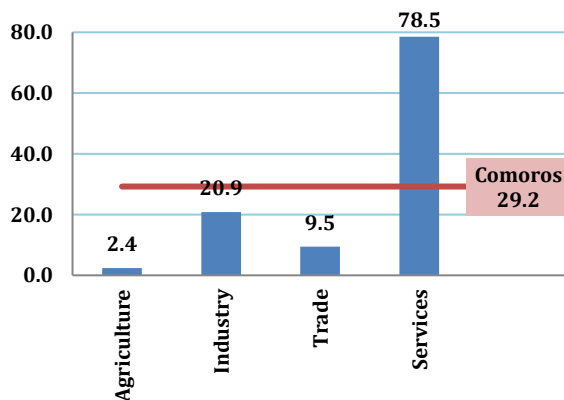
Figure IV.20: Sector of Employment by Education (percentage of labor force)



Source: EESIC 2014.

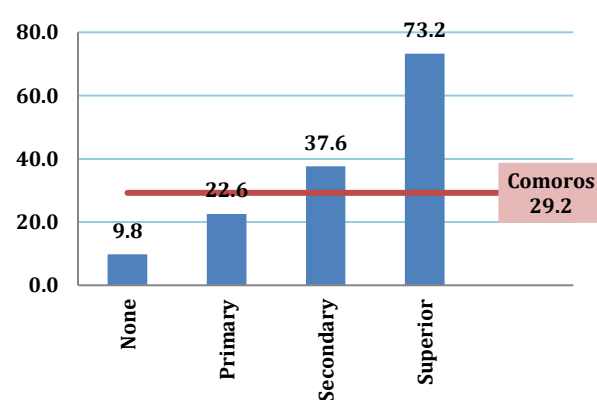
The likelihood of workers to receive a wage is highly linked to their sector of activity and in particular the services sector. In 2014, only 29.2 percent of Comorians workers were waged employees. The share of wage employees is extremely high in service activities with more than 78 percent of service employees receiving a salary (Figure IV.21). Conversely, the three other sectors fall below the national average. In particular, agriculture stands out with only 2.4 percent of agricultural workers being waged workers. Likewise, only 9.5 percent of the trade sector’s employees are wages workers.

Figure IV.21: Wage employment’s share by Sector of Employment (percentage of labor force)



Source: EESIC 2014.

Figure IV.22: Wage employment’s share by Education (percentage of labor force)



Source: EESIC 2014.

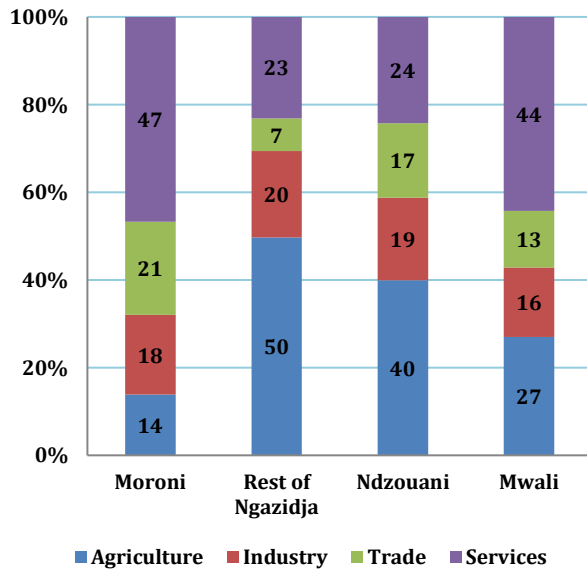
Wage employment is also strongly associated with higher levels of education. As seen before, education is strongly linked to the type of position held by a worker with less educated workers being concentrated in low-skilled sectors such as agriculture. Therefore, it negatively influences

the ability of non-educated workers to land waged jobs. Only 9.8 percent of Comorians with no education have waged jobs, compared to 73.2 percent of Comoros' university graduates (Figure IV.22). Self-employment is particularly prevalent when it comes to uneducated workers since over 57 percent of self-employed workers have never attended school and around 33 percent of them have not studied beyond primary education. Self-employment is generally characterized by the absence of wages, which automatically explains that only 22.6 percent of primary-educated workers receive wages.

However, strong discrepancies in terms of sector of activities exist at the island level

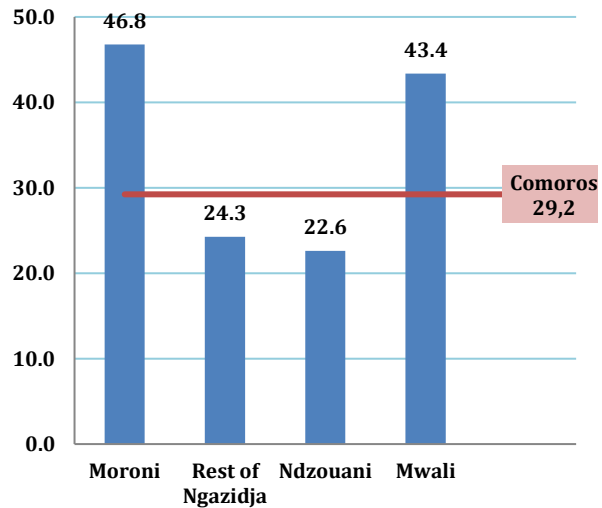
Moroni and Mwali have very well developed service sectors with much smaller agricultural sector than the rest of the country. The situation is much more diverse at the island level with strong discrepancies across regions in terms of sector of activities (Figure IV.23). In Mwali, the service sector represents 44 percent of the employment. Furthermore, the agriculture's share only represents 27 percent of Mwali's employment. Similarly, in Moroni, the service activities account for 47 percent of the total employment. Conversely, the rest of Ngazidja's workforce is overwhelmingly employed in the primary sector – the agricultural sector represents 50 percent of the employment, while the trade sector is reduced to 7 percent of it.

Figure IV.23: Sector of Employment by Island (percentage of labor force)



Source: EESIC 2014.

Figure IV.24: Wage employment's share by Island (percentage of labor force)



Source: EESIC 2014.

Consequently, the same differences across islands are found when considering wage employment with high rates in Moroni and Mwali. The situation varies greatly from island to island. Not surprisingly, Moroni that concentrates most of the public administration and the private sector has the highest rate in the country with 46.8 of the workers receiving a wage (Figure IV.24). In Mwali, the share of wage employees is also high with 43.4 percent of the

workers receiving wages in 2014. In Ndzouani and the rest of Ngazidja whose local economies are still dominated by the agricultural sector, the share of wage employees remains respectively at a very low 22.6 percent and 24.3 percent of their respective labor force.

Institutional sectors of employment show a strong opposition between publicly employed educated workers and less-educated workers limited to self-account activities

Comoros’ labor market is dominated by informal private sector companies and by public administration employment. Most of the population of Comoros works in the informal private sector, which represents 73 percent of the country’s employment (Figure IV.25). This widespread form of employment is completed by an important public sector that accounts for 19 percent of the national employment (taking into account both public and para-public employees). Conversely, the formal private sector is almost non-existent since it only accounts for 2 percent of Comoros’ labor force.

Figure IV.25: Institutional Sector of Employment (percentage of labor force)

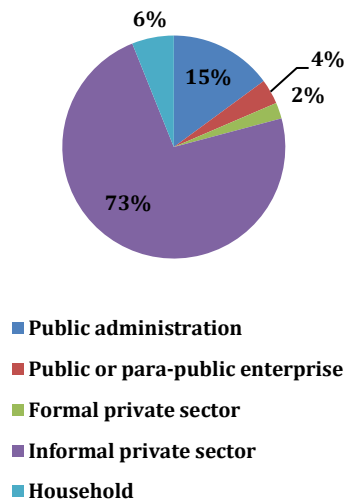
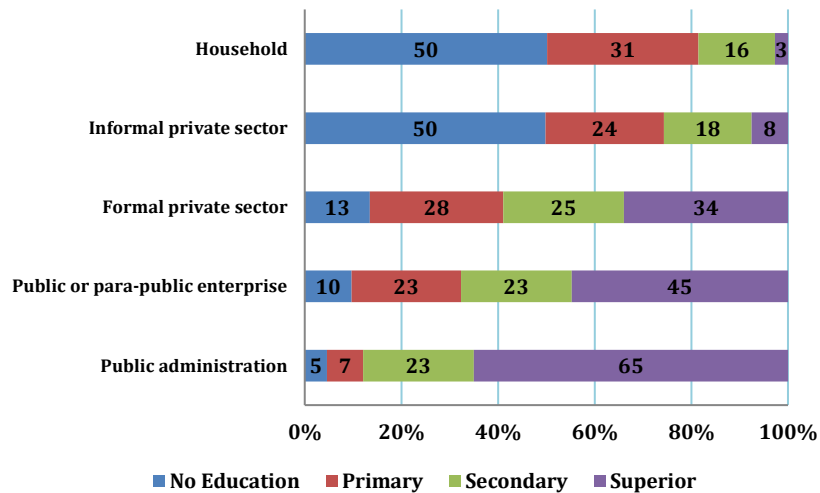


Figure IV.26: Institutional Sector of Employment by Education (percentage of labor force)



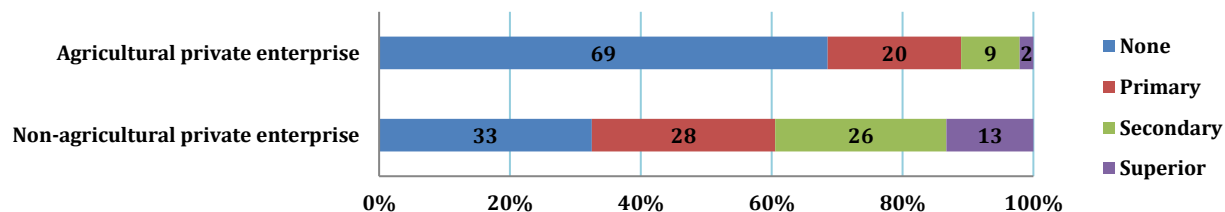
Source: EESIC, 2014.

Source: EESIC, 2014.

The concentration of skilled workers is particularly skewed toward public entities rather than private sector. Even though university graduates in particular, and educated workers in general, tend to be more concentrated in the service and industry sectors (Figure IV.22), looking at a more precise breakdown of sectors of activity reveals a very high concentration of educated workers in the public administration and in public companies. For instance, 64 percent of employees in the public administration hold a university degree, and 46 percent of public or near-public employees have a superior level of education (Figure IV.26). Conversely, 50 percent of workers in the informal private sector have no education.

Within the private sector, discrepancies also exist between agricultural and non-agricultural workers (Figure IV.27). The non-agricultural private sector employs 13 percent of university graduates. The rest of non-agricultural private workers are equally divided between non-educated (33 percent), primary-educated (28 percent), and secondary-educated (26 percent) workers. Not surprisingly, agricultural private enterprises primarily employ workers without any form of education (69 percent) and very few educated workers (9 percent of secondary educated workers and 2 percent of university graduates).

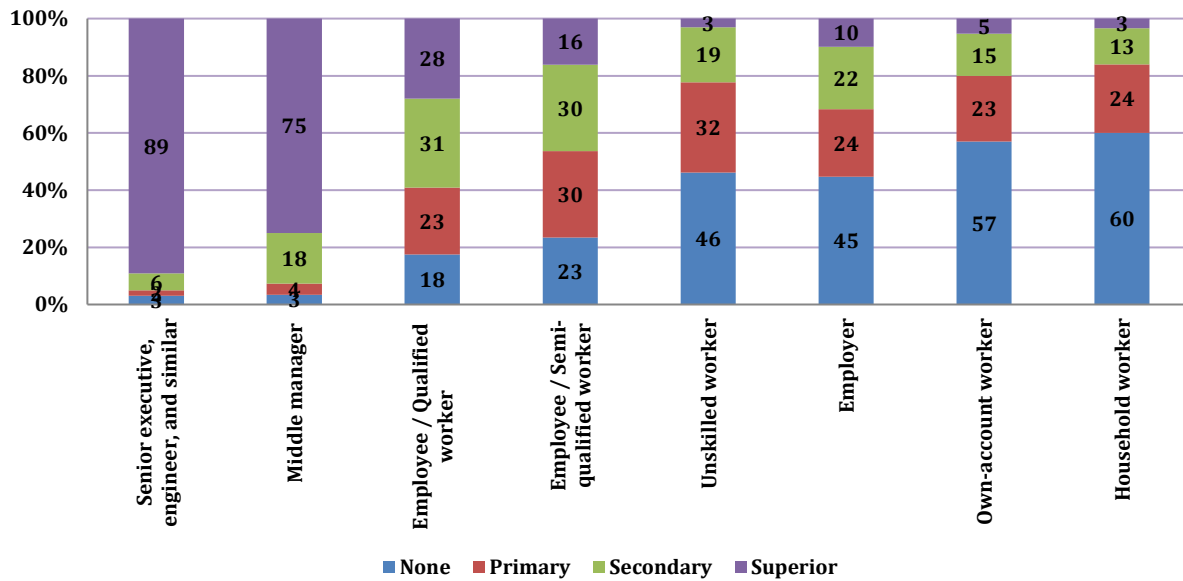
Figure IV.27: Private Employment Entity by Education (percentage)



Source: EESIC 2014.

Two profiles arise: educated workers holding skilled position on the one hand, and less-educated workers confined in unskilled jobs and self-account activities with precarious contractual agreements on the other hand. Figure IV.28 shows that while university graduates account for almost all senior executive positions (89 percent), as well as 75 percent of middle manager positions, uneducated workers are not only predominant in unskilled worker positions, but also particularly in own-account or employer positions. Those forms of employment are the least secured, with very precarious, if not at all, contractual agreements and almost no social protection. The fact that employers are mostly uneducated (45 percent) or primary-educated (24 percent) workers suggests that entrepreneurship in Comoros is strongly correlated to informal, basic, and low-added value activities such as subsistence agriculture and local craftwork.

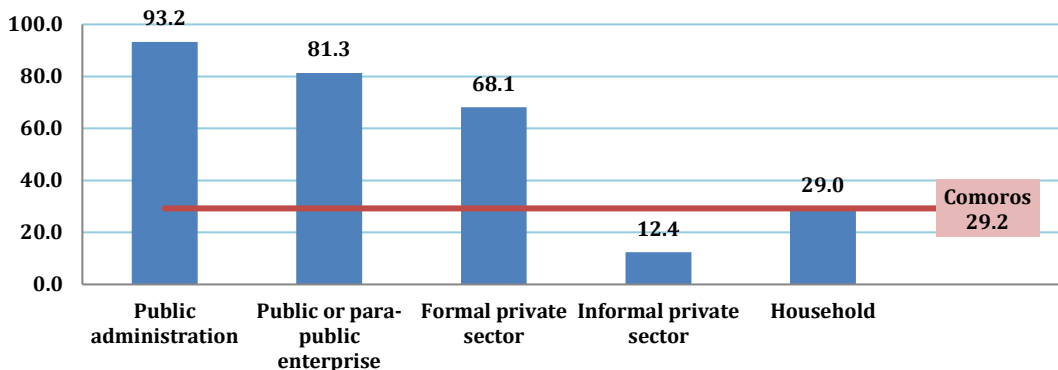
Figure IV.28: Employment Status by Education (percentage of labor force)



Source: EESIC 2014.

Contrary to less-educated workers, the first profile of educated workers working in public administration benefits from wages. While 93.2 percent and 81.3 percent of employees respectively in the public administration and public companies receive wages, the share of workers in the informal private sector that receives wages falls to a low 12.4 percent (Figure IV.29). It underlines the prevalence of self-employment (i.e. non waged jobs) in the informal private sector.

Figure IV.29: Wage employment's share by Institutional Sector of Employment (percentage of labor force)



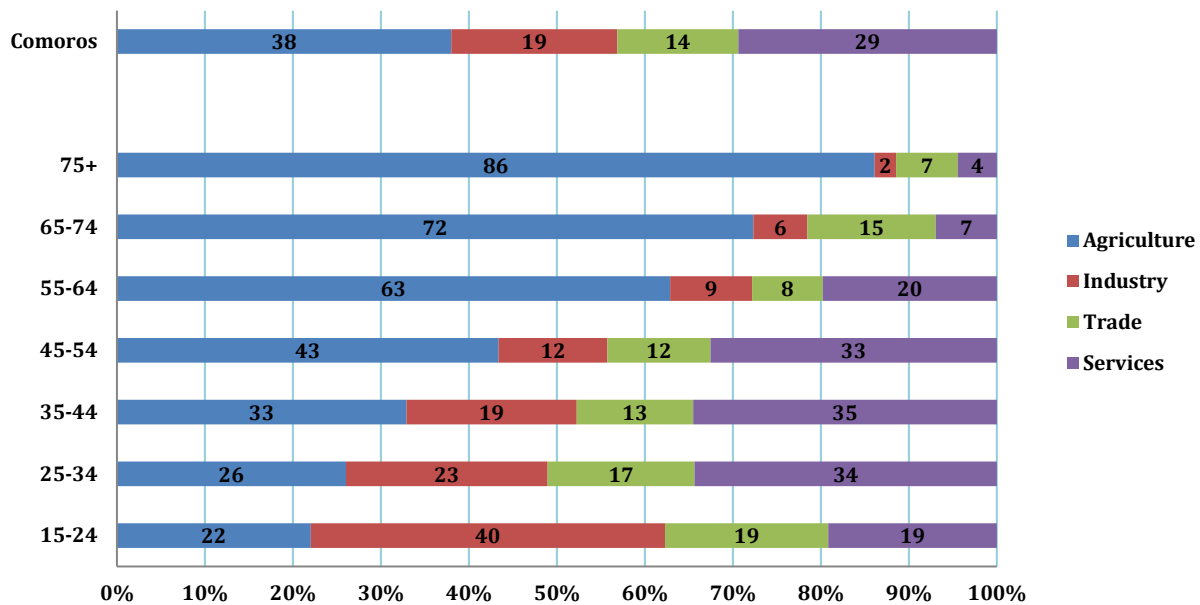
Source: EESIC 2014.

The employment structure drastically changed between 2004 and 2014, underscoring a phenomenon of generational shift.

Between 2004 and 2014, employment structure reveals a strong mobility of the agricultural workforce towards other branches of activity within the Comorian economy. Indeed, between 2004 and 2014, the agricultural sector decreased by almost 20 points (it accounted for 57 percent in 2004, against 38 percent in 2014), whereas all the other sectors (industry, trade, service) have grown. This redistribution of the workforce went faster in Mwali, since agricultural workers accounted for over 58 percent of the workforce in 2004 and dropped to 27 percent in 2014.

This shift is partly explained by a generational shift, with the young generations increasingly working in the service sector. The average age of workers in agriculture in 2014 was 46 years old, which is 4 years older than in 2004 and 10 years older than workers' average age in the other sectors. While age groups older than 55 years old have an agricultural employment's share higher than 50 percent, the share of primary sector employment decreases gradually as the workforce becomes younger (Figure IV.30). Conversely, the shares of workers in the industry, trade, and service sectors consistently increase in the youngest generations. Therefore, while only 20 percent of the labor force aged 55-64 works in the service sector, 8 percent of them in the trade sector, and 6 percent in the industry sector, the same figures rise respectively to 35, 13, and 19 percent for those aged 35-44. The small shares of workers from group age 15-19 and 20-24 employed in trade and services can be explained by the effect of education: workers from those age groups are still studying and therefore not accounted as labor force. We can expect their share to grow over the coming years to reach the same profile as the age groups 25-34.

Figure IV.30: Sector of Employment by Age and by Education (percentage of labor force)

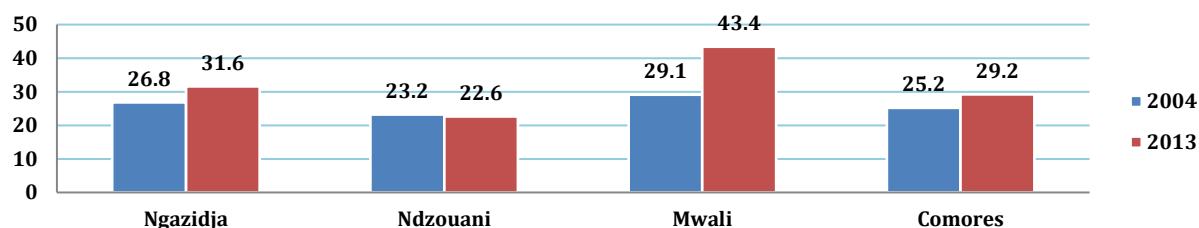


Source: EESIC 2014.

The education level of the labor force has also changed since 2004 with an increased concentration of university graduates in the service sector. In 2004, skilled work was homogeneously distributed across the different sectors of activity. For instance, the vast majority of university graduates (over 52 percent) used to work in agriculture. Since then, there has been a strong shift of skilled jobs towards services from agriculture. As the education level increases, workers tend to shift from agriculture to industrial transformation activities, and services. In 2014, over 77 percent of university graduates were working in the service sector. At the same time, agriculture is the domain of the least educated workers, employing 62 percent of Comorian workers with no education and less than 6 percent of Comoros’ university graduates. This phenomenon can be observed among both men and women and on all three Comorian islands.

However, those sectorial and generational shifts did not really translate into an increase of wage employment, although the situation is contrasted at the island level. Between 2004 and 2014, the share of Comorian workers benefiting from waged employment only increased by four points from 25.2 to 29.2 percent. But the situation varies greatly from island to island. In Mwali, the share of wage employees has skyrocketed from a low 29 percent in 2004 to 43.4 percent in 2014 (Figure IV.31). In Ndzouani, however, there has been no significant improvement in this respect; the share of wage employees in 2014 remains at a very low 22.6 percent of the labor force, compared to 23.2 percent in 2004. The rate in the island of Ngazidja as a whole, including Moroni, increased moderately by 4 percentage points, following the national trend, from 26.8 percent in 2004 to 31.6 percent in 2014.

Figure IV.31: Wage employment's share by Island between 2004 and 2014 (percentage of labor force)

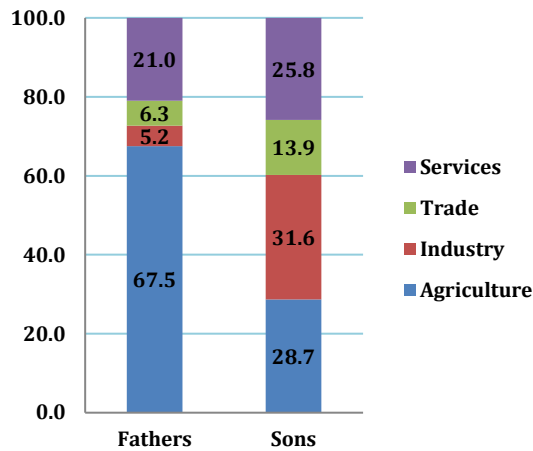


Sources: EIM 2004 and EESIC 2014.

Intergenerational mobility in terms of sector of employment is important, though the direction is mixed

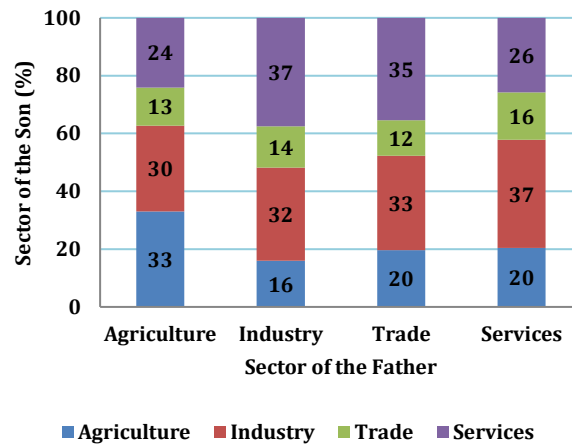
Overall, there has been positive occupational mobility between father and son, primarily characterized by a shift from the agricultural sector towards the other ones. The EESIC questionnaire includes information on the occupational status of workers' parents (based on current workers' responses), enabling an exploration of intergenerational occupation mobility. In this subsection, we look at the relation between the occupation of young workers (15-30) and that of their parents. The profile of both generations, in terms of sector of employment, shows a massive decrease of agricultural employment (Figure IV.32). While 67.5 percent of the fathers worked in the agricultural sector, only 28.7 percent of their sons that are aged between 15 and 30 years old do so. Conversely, while only 6.3 percent and 5.2 percent of the fathers worked respectively in trade and industry, the share of those sectors for the sons' generation goes up to respectively 13.9 percent and 31.6 percent. However, the cross-data analysis presented in Figure IV.33 shows mixed results in terms of the direction of this inter-generational mobility. While it appears that only 33 percent of the young workers whose father worked in agriculture also work in the agricultural sector, it also seems that 26 percent of those whose father worked in services still work in the same sector, and only 12 percent of those whose father worked in trade still do so. Overall, only 30.2 percent of male youth aged 15 to 30 years old work in the same sector as their father.

Figure IV.32: Sector of employment of fathers vs sons (percentage)



Source: EESIC 2014.

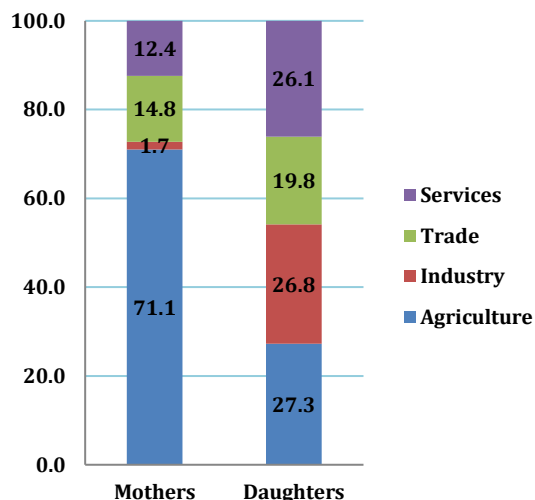
Figure IV.33: Intergenerational sector mobility between fathers and sons (percentage of sons)



Source: EESIC 2014.

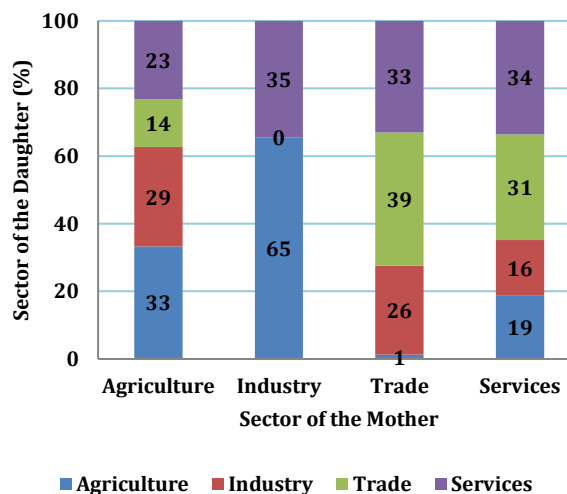
Occupational mobility across generations has also been important between mothers and daughters. The profile of both generations in terms of sector of employment also shows a massive shift from agriculture, primarily toward the industrial sector, and to a lesser extent towards trade (Figure IV.34). While 67.5 percent of the mothers worked in agriculture, the share of 15-30 female workers in the agricultural sector drops to 28.7 percent. Conversely, while only 5.2 of the mothers worked in industry, 31.6 percent of their daughters work in that sector. Similarly to the pattern observed for fathers and sons, the cross-data analysis shows mixed results in terms of the direction of this mobility (Figure IV.35). Around one third of daughters still work in the same sector as their mothers (33 percent in agriculture, 39 percent in trade, and 34 percent in services). The case of the industrial sector stands alone as almost no mothers used to work in that sector.

Figure IV.34: Sector of employment of mothers vs daughters (percentage)



Source: EESIC 2014.

Figure IV.35: Intergenerational sector mobility between mothers and daughters (percentage of daughters)



Source: EESIC 2014.

IV. Informal Sector

The analysis of the informal sector encompasses two different units of analysis – the first one is the informal unit of production itself known as the UPI (Unité de Production Informelle); the second one is the informal worker. The latter is valuable to understand the socio-demographic structure of the informal sector, as well as to spot potential employment discriminations regarding gender, islands, and so forth. However, when looking at the individual/worker perspective, the whole country is virtually in a state of informality. For instance, even within a formal unit of production, wages and payments are often handled informally which classifies the concerned workers as informal. Therefore, it is also necessary to focus on UPI and on companies' accounting practices to assess the extent of informality, to analyze the relative weight of the informal sector, and to draw stronger economic conclusions.

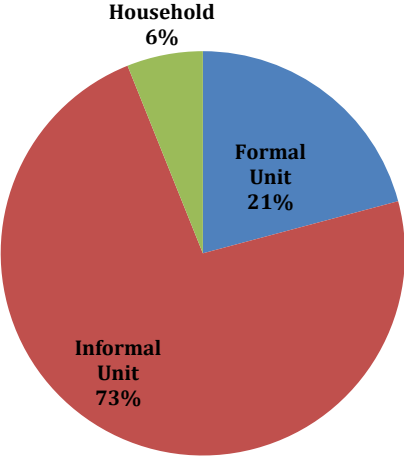
In the following analysis, three criteria are used to define the informal sector: non-membership in the National Social Security Fund (Caisse nationale de prévoyance sociale, CNPS), absence of formal accounting (following the OHADA's – Organization for the Harmonization of Business Law in Africa – standards or the National accounting plan's standards) and the commercial nature of the production, in whole or in part. This definition is in line with the AFRISTA's and ILO's definitions.

High prevalence of informality within Comoros' economy, with the informal sector accounting for close to two third of economic activity

In 2014, the informal sector – calculated through the proxy of UPI—accounted for 73.1 percent of all Comoros' unit of productions (Figure IV.36). Most of the informal units are

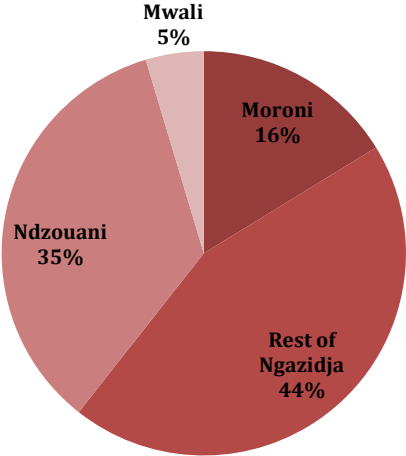
concentrated in rural areas, namely the island of Ngazidja, excluding Moroni and the island of Ndzouani that respectively concentrate 44.4 and 34.7 percent of all UPIs (Figure IV.37). Conversely, Moroni and Mwali only host a small share of Comoros' UPIs with respectively 16.2 and 4.6 percent of them.

Figure IV.36: Type of unit of production in Comoros (percentage of units of production)



Source: EESIC 2014.

Figure IV.37: UPI by Island (percentage of UPIs)



Source: EESIC 2014.

At the national level, informality is widespread across all sectors except services. Not surprisingly, agricultural as well as trade units of production are almost entirely informal (96.6 percent and 94.1 percent respectively). It underlines the prevalence of own-account workers in the trade sector. While 75.1 percent of industrial units of production are informal, only 31.5 percent of those in the service sector are informal. In the latter, the share of formal units of production dominates with 63.5 percent of formal companies and employers (Figure IV.38).

Figure IV.38: Type of unit of production by Sector (percentage of units of production)

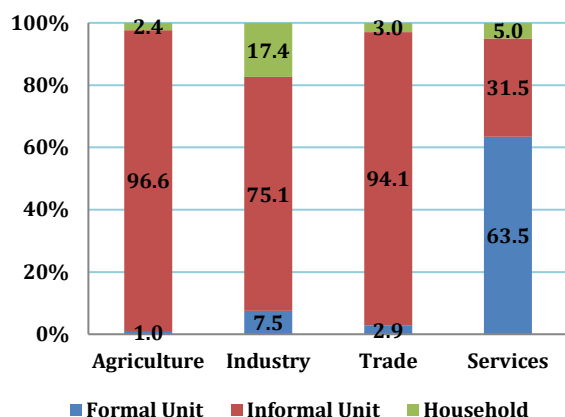
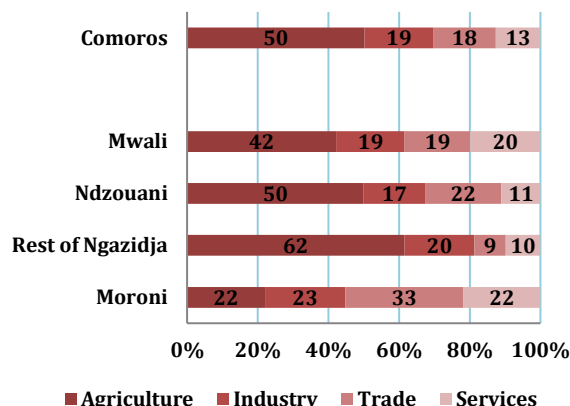


Figure IV.39: UPI by Island and Sector (percentage of UPIs)



Source: EESIC 2014.

Source: EESIC 2014.

However, because of the weight of agriculture in the economy as a whole, Comoros’ UPIs primarily operate in the agricultural sector, although strong variations exist across islands. At the national level, 50 percent of Comoros’ UPIs operate in the agricultural sector, 19 percent of them in the industry sector, 18 percent in the trade sector, and 13 percent in the service sector (Figure IV.39). However, strong discrepancies exist across islands. The informal sector of Ngazidja (excluding Moroni) is primarily constituted of UPIs operating in agriculture with 62 percent of Ngazidja’s UPIs in agriculture. Mwali and Ndzouani have informal sector’s breakdowns by activity sector much more similar to the national profile, with around 50 percent of their UPIs engaged in agricultural activities. Conversely, Moroni’s informal sector, as an urban center, is much more focused on trade and services activities, representing respectively 33 and 22 percent of Moroni’s UPIs.

Informal sector’s labor force is characterized by lower educational attainments, similar age pattern, and higher prevalence of women

The education level of the informal sector’s labor force remains consistently lower than the rest of Comoros. Most workers in the informal sector are uneducated (50 percent), compared to 41 percent at the national level. Less than 7 percent of the workforce has attended secondary education. Compared to formal units’ workers, the gap is very important since only 6 percent of formal units’ employees are uneducated and over 58 percent are university graduates (Table IV.2). Few informal sector workers (only 3 percent) had the opportunity to participate in vocational training before or after getting their current jobs. However, they have on average 2 more years of experience than the formal sector employees (generally, on-the-job training), with 13 and 10 years, respectively.

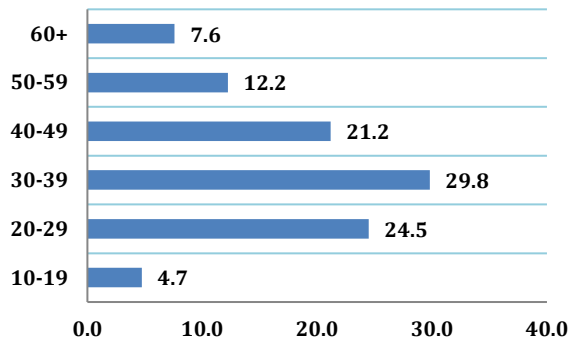
Table IV.2: Level of Education by Type of Unit (percentage)

	Formal Unit	Informal Unit	Household	Comoros
None	6	50	50	41
Primary	12	24	31	22
Secondary	23	18	16	19
Superior	58	8	3	18
Total	100	100	100	100

Source: EESIC 2014.

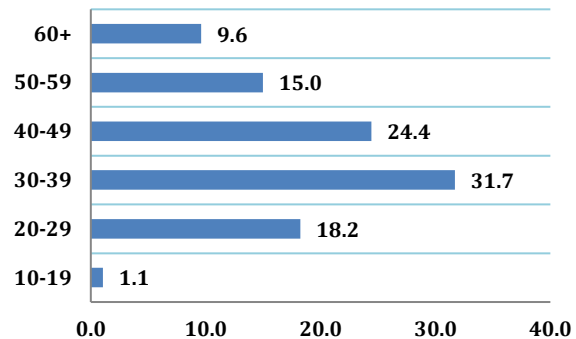
The informal sector’s labor force follows the same age pattern as the overall workforce, though heads of UPI tend to be older. The bulk of the informal labor population (75 percent) is concentrated in the age range of 20 to 50 years old (figure IV.40). While this pattern is similar to the overall one for the Comoros’ labor market, the age of heads of UPI is more skewed towards older generation. While 20-29 years old informal workers account for 24.5 percent of the informal workforce, they only represent 18.2 percent of the UPIs’ heads. Conversely, 50 years old and older informal workers account for 19.8 percent of the informal workforce, but constitute almost 25 percent of the UPIs’ heads (Figure IV.41). This skewed profile reckons the importance of accumulating assets and the ability of older people to build on their savings to possess their own informal business unit.

Figure IV.40: Age of Informal Workforce (percentage of informal workforce)



Source: EESIC 2014.

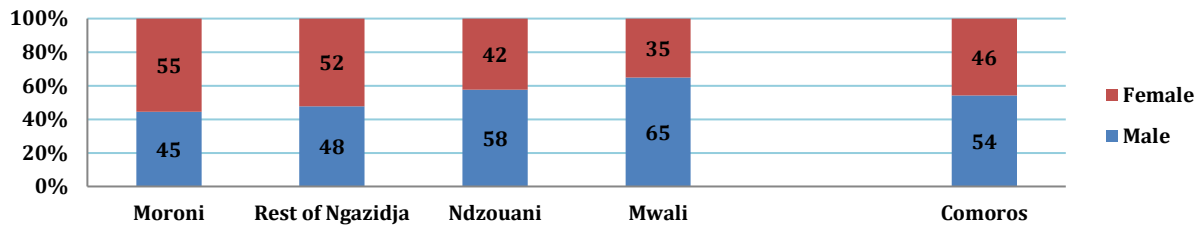
Figure IV.41: Age of Head of UPI (percentage of heads of UPIs)



Source: EESIC 2014.

Women’s participation in the informal sector is higher than the national overall average, with very large discrepancies across islands. While the women’s share in the labor force at the national level, taking into account both the formal and informal sectors, stands at 38.9 percent, the informal sector itself is characterized by a much higher participation of women. At the national level, 45.8 percent of the informal workforce is composed of women (Figure IV.42). The difference between the two rates underlines the traditional discrimination existing towards women that in most instances are dominant in low-skilled, informal, and unsecured jobs. At the island level, Ngazidja and Moroni reach high rates of female informal employment with respectively 52 and 55 percent of the informal workforce. Conversely, women’s share falls to 35 percent of the informal workforce in Mwali.

Figure IV.42: Informal Workforce by Gender and by Island (percentage of informal workforce)



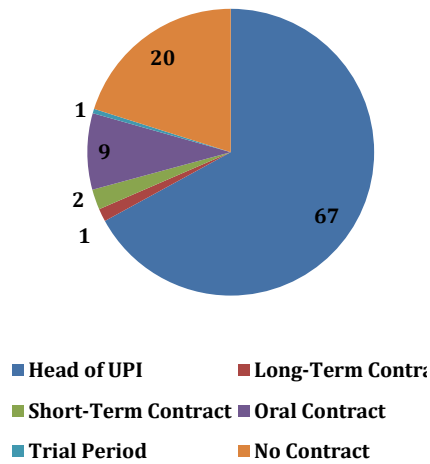
Source: EESIC 2014.

Characteristics of the UPIs in the informal sector

UPIs in Comoros are very small, mostly consisting of one employee, with a high prevalence of own-account informal units. On average, around 80 percent of Comoros' UPIs only have one employee and 15 percent of them are composed of two workers. The consequence is the high prevalence of own-account workers defined as head of UPIs. 67 percent of informal workers are considered as head of UPI, underlining the very small share of employees (Figure IV.43). Among informal workers that are not heads of UPIs, the dominant form of contract is the absence of it. 20 percent of informal workers declare not having any form of written or oral contractual agreement. Oral contracts also concern 9 percent of the informal workforce. Ultimately, informal employees benefitting from a written and "formal" sort of contract only represent 3 percent of the informal population.

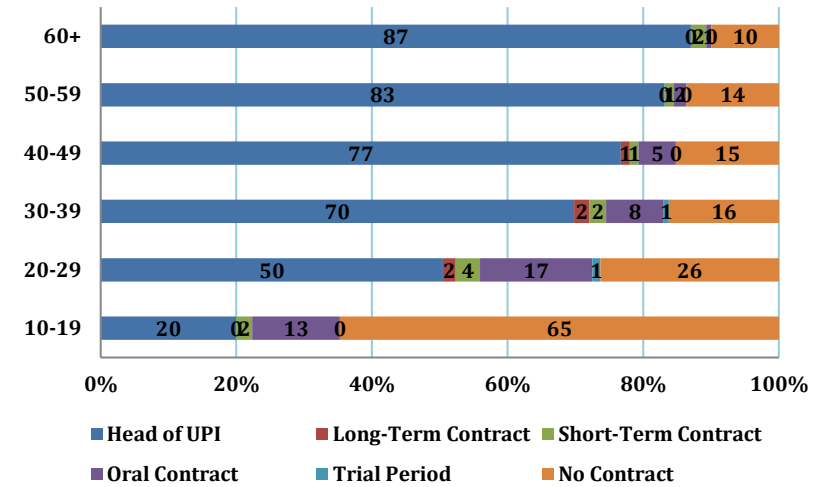
In addition, informal employees are mostly young and subjected to inexistent contractual agreements. As hinted by the age profile of UPIs' heads, lower forms of contracts are mostly prevalent in low-age groups of the informal workforce (Figure IV.44). While 26 percent of informal laborer in the 20-29 age class are employees without any form of contract, the same figure falls to 14 and 10 percent of the 50-59 and 60+ age classes respectively. Conversely, the share of UPIs' heads consistently increases from 50 percent for the 20-29 age class to 83 and 87 percent for the 50-59 and 60+ age classes. The 10-19 years old class is heavily characterized by the absence of contract, probably highlighting the phenomenon of children working for their parents' UPI within the household's framework, and thus without any contract.

Figure IV.43: Type of Contract of Informal Workforce (percentage of informal workforce)



Source: EESIC 2014.

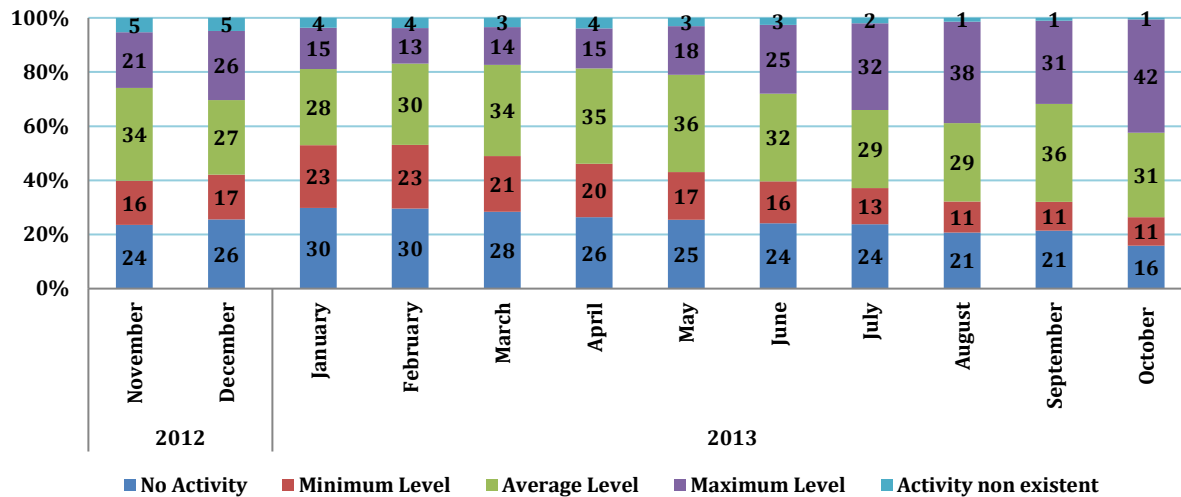
Figure IV.44: Type of Contract of Informal Workforce by Age (percentage of informal workforce)



Source: EESIC 2014.

The activity of UPIs is subjected to some variations across the year due to the nature of their economic activities. When asked to heads of UPIs about their monthly level of activity from non-existent to maximum, the results show a cyclical pattern. The activities of UPIs are heavily reduced during the winter period. On the one hand, in January and February, 30 percent of the heads of UPIs declared that their unit was not engaged in any economic activity, and another 23 percent declared that their level of activity was at its minimum level (Figure IV.45). Conversely, only 15 and 13 percent of the heads of UPIs declared that their activity level was at its maximum in January and February respectively. On the other hand, the economic activity of UPIs is much more intense over the period spanning from July to October. In August, 38 percent of heads of UPIs are at their maximum level of economic activity and 29 percent of them at their average level. Likewise, in October, only 16 percent of heads of UPIs report no activity at all, while 42 percent of them declared that their level of activity was at its maximum level, and 31 percent of them at its average level of activity. The observed economic cycle probably reflects the nature of informal activities, and the fact that 50 percent of Comoros' UPIs are in the agricultural sector, making them subjected to seasonal work.

Figure IV.45: Level of Economic Activity as declared by Heads of UPIs on a 12-month period (percentage of UPIs)



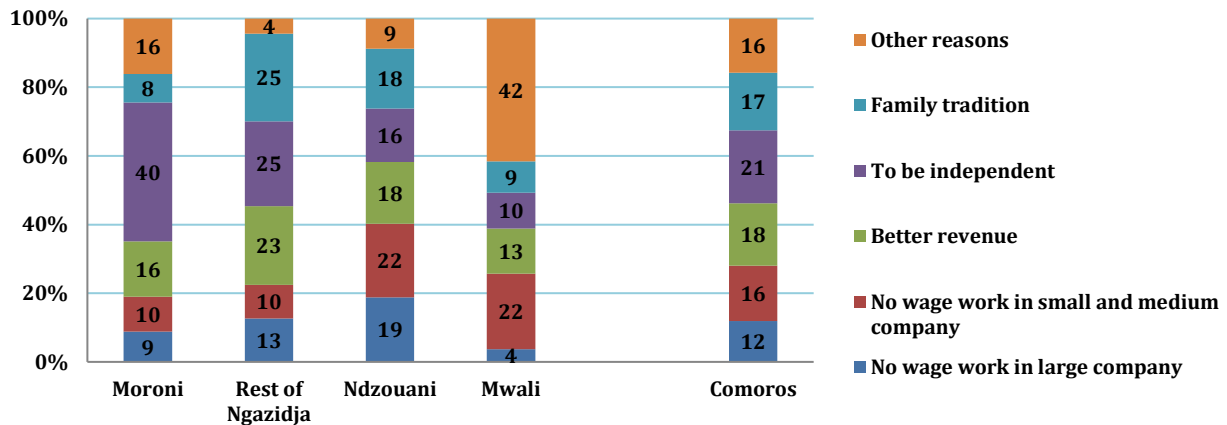
Source: EESIC 2014.

Informality is driven by prospects of independency and better revenues

The dynamic of the labor market is not necessarily driven by the lack of formal waged labor, although Ndzhouani stands out. At the national level, only 28 percent of the heads of UPIs state the lack of waged employment as the primary reason for working in the informal sector. This situation suffers from important discrepancies across the islands. While Ngazidja, and Moroni in particular, stand out with very few heads of UPIs claiming that the lack of waged employment is the reason for the creation of their UPI (23 and 19 percent respectively), 41 percent of the heads of UPIs of Ndzhouani are driven to informality by their inability to land a formal waged job (Figure IV.46).

Conversely, informal employment and entrepreneurship appear as a choice explained by the prospect of independence and better revenue. Rather than a condition imposed by the labor market itself, creating and running a UPI appears to be a choice driven by family tradition (17 percent), the prospect of being independent (21 percent), and the hope of benefitting from better revenue (18 percent). The desire to become independent is particularly strong in Moroni where 40 percent of the heads of UPIs state this reason (Figure IV.46).

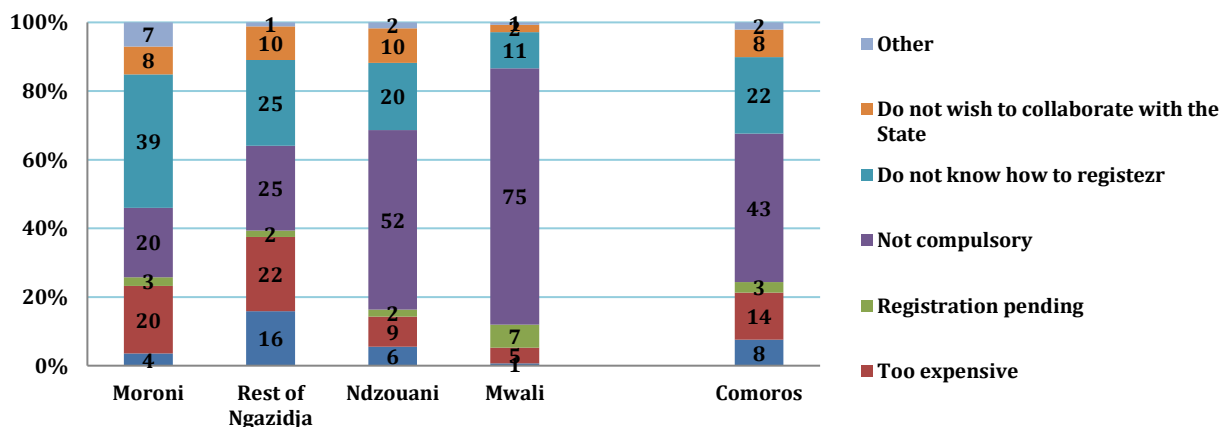
Figure IV.46: Reasons for Creating the UPI as stated by Heads of UPIs by Island (percentage of UPIs)



Source: EESIC 2014.

Heads of UPIs choose to remain in the informal sector primarily because fiscal registration is not compulsory, whereas the cost of registration only appears as a secondary factor. The lack of registration of UPIs to the fiscal authority through the Fiscal Identification Number (NIF – Numéro d’Identification Fiscale) appears to be hardly justified by the cost of registration (14 percent) or the difficulty associated with it (8 percent). Instead, heads of UPIs tend to consider the non-compulsory aspect of registration as the main reason for failing to do so (43 percent). In particular, 75 percent of the heads of UPIs in Mwali state this reason, while 52 percent of them do so in Ndouzani (Figure IV.47). Interestingly, the lack of knowledge regarding the registration procedure is also a dominant factor at the national level (22 percent), and more particularly in Moroni and the rest of Ngazidja, with respectively 39 and 25 percent of the heads of UPIs naming that reason.

Figure IV.47: Reasons for failing to register on the NIF (percentage of UPIs)



Source: EESIC 2014.

Chapter V – Migration and Remittances

Key Messages

- **Comoros' diaspora is large and expanding over time; with women holding primary education dominating, but more intensive emigration among tertiary educated groups is seen in recent years;**
- **Comoros accounts among the top three largest recipients of remittances in SSA, with remittances contributing around 25 percent to the GDP and over 20 percent to households' revenues;**
- **Remittances are mainly directed towards consumption and were essentially supporting unemployed and uneducated groups, though economically active household's members are increasingly benefitting from remittances.**

This chapter aims to provide a background analysis on the Comorian diaspora and the amount of remittances they send to better understand the role of these transfers on individuals' income and government finances. The first section explores the size of the diaspora, the main destinations and the socioeconomic characteristics of migrants. About 15 percent of Comorians live abroad, mostly in France, where women aged between 35-44 with primary education form the predominant migrant group. The following sections analyze the amount of remittances sent by the diaspora. Thus, the second section introduces the macroeconomic data on remittances gathered by the Central Bank and International Organizations. In Comoros, remittances account for around 25 percent of GDP and are the first source of foreign currency to the country and the most important flow in the balance of payments, well ahead of official development assistance or imports. The third section of this chapter presents the results of the household surveys conducted in 2004 and 2014 to shed light on the characteristics of the households that receive remittances and the amounts received. Finally, the last section attempts to align the macro data presented by the Central Bank and the micro data derived from the household surveys. The results from the micro data are consistent with the aggregation of the macro data, which estimated the number of total remittances at about 140 millions of dollars for the year 2014. At the individual level, Comorian household members receive on average about 500 dollars annually, which is equivalent to 22 percent of their annual income.

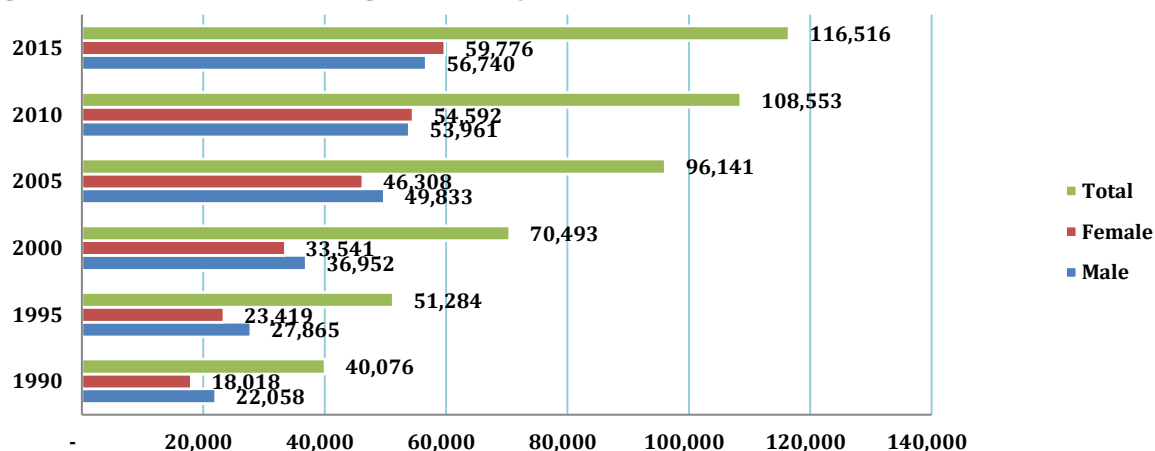
I. The Comorian Diaspora

Large and expanding diaspora, increasingly composed by tertiary educated and women

Historically Comoros has been marked by a large number of migrants leaving the country. Migration in Comoros used to have commercial and political causes, but today this phenomenon mainly responds to economic needs. The different population flows in the islands has changed over time. Before French colonization, Comorians generally emigrated to East Africa, Madagascar and the Arabian Peninsula. From 1912 and 1946, Comoros was administratively attached to Madagascar and after a period of regulated immigration, free circulation and large migration flows took place during the 1950s. Comorian migration also focused on Mayotte and La Réunion due to the development of the plantation economy in these islands, particularly for workers hired to be in the fields.⁴⁹ Comorian migration shifted to Metropolitan France from the Second World War onwards. Larger migration flows to France took place after independence in 1975, peaking in the mid-1980s.

The number of emigrants living outside Comoros has more than doubled since the 1990s. The Population Division of the United Nations estimates the international migrant stock every five years. For Comoros, they estimated the number of emigrants at 40,076 in 1990 and at 116,516 in 2015, an increment of 191 percent. This increment is much larger than the change in population during the same period – an increment of 90 percent from 1990 to 2015. In general, the number of people leaving the country has increased at a larger pace than the population. Until 2005, men accounted for the majority of Comorian migrants. However, according to the 2010 and 2015 estimates, this tendency has reversed, with more women than men among Comorian emigrants (Figure V.1).

Figure V.1: Evolution of Total Migrant Stock by Sex from Comoros



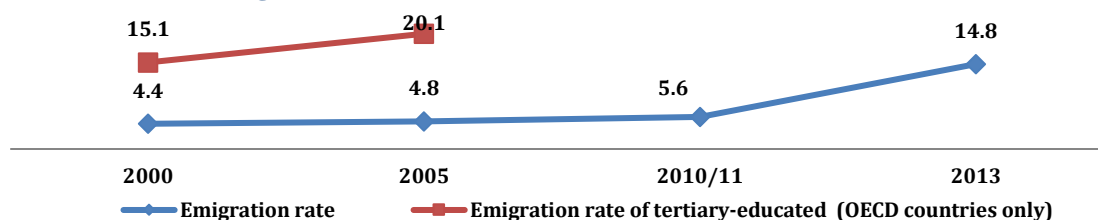
Source: United Nations, Population Division, Department of Economics and Social Affairs.

⁴⁹ Barbey (2009).

The emigration rate in Comoros has increased since 2000, especially that of tertiary-educated migrants. The Emigration and Remittances Division of the World Bank has estimated the emigration rate of Comoros⁵⁰ in different years. As seen in Figure V.2, the rate presents an irregular upward trend. While the emigration rate slowly increases between 2000 and 2011 (from 4.4 to 4.8 percent), it increases sharply to 14.8 percent from 2011 to 2013 (Figure V.2). There are also some disparities between OECD and UN data presented previously. The emigration rate in Comoros following the UN estimates would show a more gradual upward trend, from 13 percent in 2000 to 15 percent in 2015.

High-educated Comorians are more likely to leave the country. The emigration rate for tertiary-educated is defined as the number of emigrants with tertiary education over the total number of people who has tertiary education in the country. This rate has presented much higher values than the overall emigration rate in the years where data is available. In addition, there has been an increment from 15 percent to 20 percent in 5 years, which indicates a growing tendency for higher educated people to seek better job opportunities abroad. Nonetheless, the tertiary-educated rate might be slightly overestimated, as it considers only OECD countries. In 2000, the emigration rate of tertiary-educated population is equivalent to 12 percent for OECD and non-OECD members, 3 points less than the rate including only OECD countries.

Figure V.2: Comoros Emigration Rate – Historical Evolution



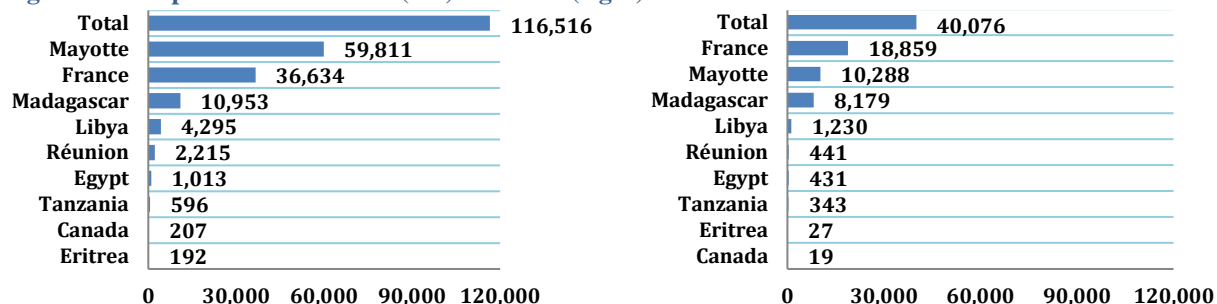
Sources: Data in 2000 and tertiary-educated rate in 2005 correspond to OECD migration database (DIOC). The rest corresponds to Migration and Remittances Factbook 2008 (rates for 2005), 2011 (rates for 2010/11) and 2016 (rates for 2013).

Close to 15 percent of the population, particularly from Ngazidja, has migrated, mostly to France. According to UN estimates, around half of Comorian emigrants live in Mayotte (French Overseas Department) and close to one-third live in metropolitan France, mainly in Marseille and Paris. The third largest destination for Comorians is Madagascar with 10 percent of total emigrants located there. Finally, Libya, La Réunion (French Overseas Department), Egypt, Tanzania, Canada and Eritrea gather around 7 percent of total Comorian emigrants. Overall, there are around 116 thousand Comorians abroad, which corresponds to 14.8 percent of the population. Top destinations have not changed significantly over the past fifteen years. In 1990, France, Mayotte and Madagascar also gathered more than 90 percent of the Comorian diaspora. However,

⁵⁰ The emigration rate of a given origin country *i* in a given year is defined as the share of the native population of country *i* residing abroad at this time: $m_i = M_i / (M_i + N_i)$, where M_i is the emigrant population from country *i* living abroad, and N_i is the native non-migrant population of country *i*.

there seems to be a change of preferences among these top destinations: while in 1990 Comorian emigrants mainly left to Metropolitan France, they have massively left towards Mayotte since then, making this destination the most important one in 2015 (Figure V.3).

Figure V.3: Top Destinations 2015 (left) and 1990 (right)

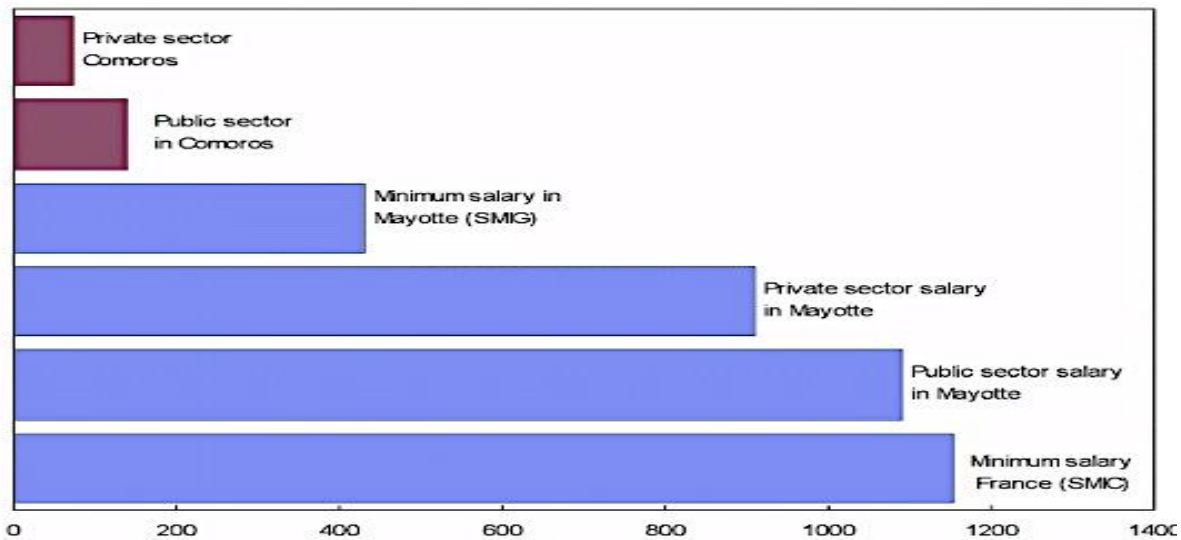


Source: United Nations, Population Division, Department of Economics and Social Affairs.

Compared to the country's emigration levels, immigration has presented much lower values. An estimated number of 12,511 immigrants live in Comoros, which represents 1.7 percent of total population. According to 2013 estimates, around 77 percent of those come from Madagascar. Data for 2010/11 present similar trends with an immigrant stock amounting to 13,525, or 2 percent of total population, mainly from Madagascar (77 percent) and Mayotte (7 percent).

Comorians around the world are, relative to population, one of the largest African Diasporas. As seen in Figure V.4, the emigration rate of Comoros is the fourth largest in Africa after Cabo Verde (32 percent), Somalia (19 percent) and Lesotho (17 percent). Other countries in the Mediterranean area with large diaspora are Palestine with 80 percent due to the number of refugees fleeing the country, Syria with 27 percent due to the war, and Malta with 24 percent. The number of emigrants in Comoros is comparable to other islands in the Indian Ocean, such as Seychelles and Mauritius, marked by small and fragile economies with limited salaries and job opportunities that create large incentives to migrate.

Figure V.5: Salaries in Comoros versus Mayotte and France (in euros/month)



Source: IMF 2006.

The diaspora is largely composed of women with primary education, mostly employed in low-skilled jobs, but women with tertiary education start emigrating more intensively

The following section analyzes the information gathered by the OECD in its Database on Immigrants in OECD and non-OECD Countries (DIOC). DIOC compiles information on migration and labor market's characteristics distributed in two types of databases: DIOC-E, which contains information on the population from 32 OECD member countries and 68 non-members around the year 2000; and DIOC, which contains information on the population from 32 OECD countries for different years. The main tables compare DIOC 2010/11 with DIOC-E 2000. Despite the fact that the latter also includes non-OECD countries, the differences between DIOC-E 2000 and DIOC 2000 (only OECD) are not significant. This report uses DIOC-E to show a more accurate picture of the socioeconomic characteristics of Comorian emigrants in 2000. All tables cover individuals aged 15 years old and over, except Table V.1.

Women aged between 35-44 years old with primary education constitute the largest group among Comorian diaspora. As mentioned previously, Comorian women have emigrated more than men over the last five years. Women between 25 and 44 years old represent 30 percent of total Comorian emigrants – the largest group among the categories presented in Figure V.6. Young people emigrate significantly less than adults, with no differences by gender. However, emigrants above 54 years old consist mostly of men (Table V.1). With regards to the level of education, there is a clear predominance of primary-educated people among emigrants, particularly among women (Table V.1), which mirrors the low levels of education in the country. However, in relative terms, tertiary-educated people emigrate more than others: around 13.4

percent of emigrants had tertiary education in a country where the tertiary education enrollment was 7.9 percent in 2011.⁵¹

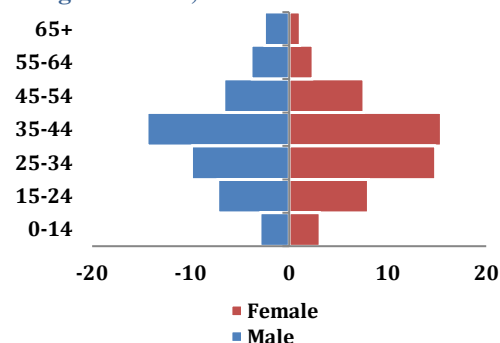
Table V.1: Emigrant stock 2010/11 by Level of Education, Gender and Age

	Primary	Secondary	Tertiary	n/a	Total
Male	9,686	4,975	2,500	19	17,180
0-14	1,047	18	2		1,067
15-24	1,148	1,188	274	5	2,615
25-34	1,329	1,419	830	5	3,583
35-44	2,810	1,521	882	7	5,220
45-54	1,542	501	353	2	2,398
55-64	1,042	228	128	-	1,398
65+	768	100	31	-	899
Female	12,280	4,371	2,347	17	19,015
0-14	1,127	4	-		1,131
15-24	1,328	1,221	354	-	2,903
25-34	2,832	1,538	1,005	5	5,380
35-44	3,890	1,120	568	4	5,582
45-54	2,047	362	336	1	2,746
55-64	701	104	58	5	868
65+	355	22	26	2	405
Total	21,966	9,346	4,847	36	36,195

Source: DIOC 2010/11.

Adult women with tertiary education appear to be the group with largest increases from 2000 to 2010/11. While women emigrants with primary and secondary level of education have more or less doubled from 2000 to 2010/11, those with tertiary education have almost tripled over the same period (Table V.1 and V.2). There has been a tendency for educated women to leave the country at a higher rate than educated men – in relative terms, tertiary educated men represent the same share of total emigrants in both 2010/11 and 2000. Overall women’s share in total number of Comorian emigrants increased relative to men over the analyzed period.

Figure V.6: Population Pyramid of Emigrant Stock, 2010/11



Source: DIOC 2010/11.

Table V.2: Emigrant stock 2000 by Level of Education, Gender and Age

	Primary	Secondary	Tertiary	n/a	Total
Male	5,575	2,677	1,186	12	9,450
15-24	1,096	720	107	1	1,924
25-64	4,134	1,919	1,059	11	7,123
65+	345	38	20		403
Female	6,049	1,980	790	5	8,824
15-24	1,203	609	93	3	1,908
25-64	4,716	1,361	687	2	6,766
65+	130	10	10		150
Total	11,624	4,657	1,976	17	18,274

Source: DIOC 2010/11.

⁵¹ World Development Indicators, gross enrollment for tertiary education.

Comorian emigrants tend to spend long periods of time in their host countries, a tendency that has become more acute over time. The majority of emigrants had spent more than 20 years in their host countries by 2010/11.⁵² Overall, there is a clear tendency to report large “duration of stay” in the host countries, as only 11 percent of emigrants had lived less than 5 years abroad by 2010/11. There are slight gender variations: while the largest groups of male emigrants are those who reported to have lived abroad for more than 20 years, female emigrants are more numerous in the group “10 to 20” years. As mentioned previously, this probably corresponds to the fact that Comorian women have emigrated more intensively in recent years. In 2000, migrants reported shorter duration abroad, with only 15 percent of emigrants reporting 20 years or more, versus the 24 percent reported in 2010/11.

Table V.3: Duration of Stay of Comorian Emigrants by Level of Education and Gender

	2010/11							2000 ⁵³							
	< 1	1 - 5	5 - 10	10 - 20	20+	n/a	Total	< 1	1 - 3	3 - 5	5 - 10	10 - 20	20+	n/a	Total
Male	264	1,227	2,322	3,410	4,282	4,533	16,038	323	334	336	1,565	2,737	1,714	2,069	9,078
Primary	121	578	1,095	1,722	2,353	2,768	8,637	164	183	177	1,032	1,623	985	1,213	5,377
Secondary	85	373	824	1,175	1,253	1,203	4,913	118	108	81	386	852	509	524	2,578
Tertiary	52	269	403	508	676	562	2,470	40	42	74	146	260	220	332	1,114
n/a	6	7	-	5	-	-	18	1	1	4	1	2	-	-	9
Female	402	1,756	2,937	4,207	3,748	4,695	17,745	427	461	522	1,972	2,681	969	1,579	8,611
Primary	267	1,057	1,984	2,540	2,282	3,010	11,140	289	334	404	1,480	1,697	671	1,015	5,890
Secondary	92	434	595	1,107	934	1,198	4,360	84	110	87	376	708	168	401	1,934
Tertiary	40	259	356	559	528	487	2,229	54	17	30	115	274	130	163	783
n/a	3	6	2	1	4	-	16	-	-	-	1	2	-	-	4
Total	666	2,983	5,259	7,617	8,030	9,228	33,783	750	795	858	3,537	5,418	2,683	3,648	17,689

Sources: DIOC 10/11 and DIOC 2000.

Only half of Comorians living outside the country are employed, a percentage that has slightly improved over time. In 2010/11, 46 percent –up from 40 percent in 2000– of Comorian emigrants reported to be employed, while the rest reported to be either unemployed or inactive. There appears to be more emigrants inactive than unemployed, with gender variations: women are more likely to be unemployed and inactive compared to men. However, this tendency has improved since 2000, where 30 percent of women emigrants were employed, versus 37 percent in 2010/11. In 2010/11, there were more or less the same number of women emigrants employed than inactive, and the gap between employed women and men is smaller than that in 2000. There are also large variations with regard to the level of education: tertiary-educated migrants are more likely to be employed than the other groups (Table V.4).

⁵² Note that the largest emigrant group by duration of stay corresponds to the label “n/a”. More complete information may change the trends observed in Table 3 - 2010/11.

⁵³ This table displays data from DIOC 2000 that only covers OECD countries, which is why the total is equivalent to about a thousand less people than that shown in Table 2.

Table V.4: Labor Force Status by Sex and Level of Education, 2000 and 2010/11

2010/11					
	Em- ployed	Unem- ployed	Inactive	n/a	Total
Male	8,998	2,959	4,243	7	16,207
Prim.	4,294	1,631	2,710	1	8,636
Sec.	2,941	986	1,098		5,025
Ter.	1,761	342	424		2,527
n/a	2		11	6	19
Female	6,655	4,175	6,946		17,776
Prim.	3,652	2,715	4,768		11,135
Sec.	1,807	1,012	1,518		4,337
Ter.	1,194	448	646		2,288
n/a	2	-	14		16
Total	15,653	7,134	11,189	7	33,983

Source: DIOC 2010/11.

2000					
	Em- ployed	Unem- ployed	Inactive	n/a	Total
Male	4,624	2,058	2,679	14	9,375
Prim.	2,649	1,331	1,585		5,565
Sec.	1,357	543	744	4	2,648
Ter.	616	184	350		1,150
n/a	2			10	12
Female	2,668	2,796	3,374	4	8,842
Prim.	1,684	2,082	2,291		6,057
Sec.	617	545	830		1,992
Ter.	363	169	250		782
n/a	4		3	4	11
Total	7,292	4,854	6,053	18	18,217

Source: DIOC-E 2000.

Most Comorian emigrants are employed in elementary, non-skilled occupations. In the period 2010/11, around 30 percent of employed emigrants worked in “elementary occupations”. These include, inter-alia, street vendors, cleaners, messengers, porters, doorkeepers or garbage collectors. The second most frequent occupation was “service and sales workers” with 21 percent of total workers. This sector refers mainly to personal and protective service workers such as travel attendants, housekeeping, restaurant services, personal care, etc. Around 12 and 11 percent of emigrants were “craft and related trades workers” –mainly in the building sector– and “clerks” respectively. As seen in Table V.5, the emigrant distribution among the different types of occupation responds, roughly, to the level of education. Nevertheless, around 38 percent of tertiary-educated emigrants occupied a non-skilled position in 2010/11.

Working Comorian emigrants are shifting towards more skilled occupations, but at a very slow pace. The occupation distribution among migrants follows the same trends in 2000 than in 2010/11. However, the share of total emigrants employed in elementary occupations and service/sales seems to lose importance (35 and 24 percent respectively in 2000 vs 31 and 21 percent in 2010/11) in favor of professionals, technicians and clerks (4, 8 and 8 percent respectively in 2000 vs 5, 10 and 11 percent in 2010/11). There were also gender differences in the employment dynamics for the period 2000. It seems that emigrant women were employed in elementary occupations at greater portion than men (42 percent of total women emigrants vs 31 percent of total men emigrants). In addition, “craft and related workers” were mainly formed by men, and “clerks” by women (Table V.5).

Table V. 5: Occupation of Comorian emigrants by level of education and sex, 2010/11 vs 2000

	Armed Forces	Managers	Professionals	Tech. & associate professionals	Clerks	Service & sales workers	Skilled agr. forest & fish.	Crafts & related trades workers	Plant operat & assemblers	Elementary occupations	Total
2010/11⁵⁴											
Prim.	22	148	138	333	604	1,730	110	945	497	3,411	7,938
Sec.	75	96	150	580	655	1,023	29	761	315	994	4,678
Ter.	17	137	445	695	423	458	3	130	119	335	2,762
Total	114	381	733	1,608	1,682	3,211	142	1,836	931	4,740	15,378
2000											
Male	50	71	204	395	204	1,071	110	669	377	1,429	4,580
Prim.	13	33	53	87	90	731	110	345	209	972	2,643
Sec.	33	17	33	148	91	255	-	287	143	324	1,331
Ter.	4	21	118	160	23	85	-	37	25	133	606
Female	4	74	84	162	348	628	82	108	27	1,119	2,636
Prim.	4	24	11	21	153	403	75	80	11	895	1,677
Sec.		25	12	42	123	185	7	20	12	188	614
Ter.		25	61	99	72	40	-	8	4	36	345
Total	54	145	288	557	552	1,699	192	777	404	2,548	7,216

Sources: DIOC 2010/11 and DIOC-E 2000.

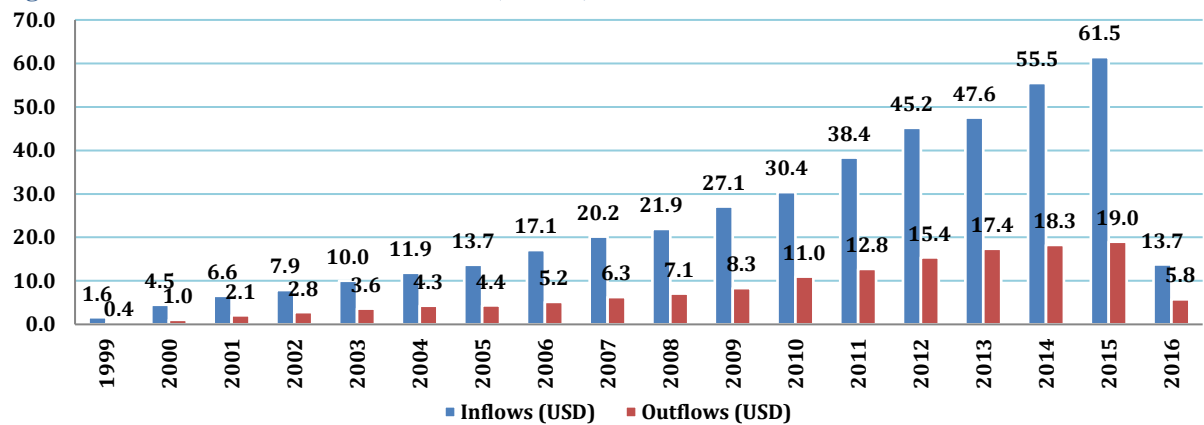
II. Size of Remittances: Macro Data – Central Bank and International Organizations

Comoros accounts among the top three largest recipients of remittances in SSA, but these are mostly directed to consumption

According to the BCC, the amount of remittances received in Comoros has been increasing significantly over time, up to USD 62 millions in 2015. The *Banque Centrale des Comores* (BCC) collects the statistics of migrants' remittances on a monthly basis. BCC includes remittance flows through formal channels, including commercial banks and other providers of international transfers approved by Comorian authorities. According to the BCC, the total amount of remittances coming into the country accounted for USD 62 millions in 2015, up from 56 millions in 2014 (+11 percent). Remittances have been growing at high rates, with an average of 19 percent from 2001 to 2015 (Figure V.7). This continuous growth has partly offset the effect of higher imports on the current account deficit, estimated at 11.3 percent of GDP in 2014 (IMF). Transfers leaving the country presented a similar evolution over time, but with lower absolute values. Average outflows growth accounted for 23 percent from 2001 to 2015.

⁵⁴ For the year 2010/11 there is no data available that separates men and women.

Figure V.7: Total Remittances in Comoros (in USD)



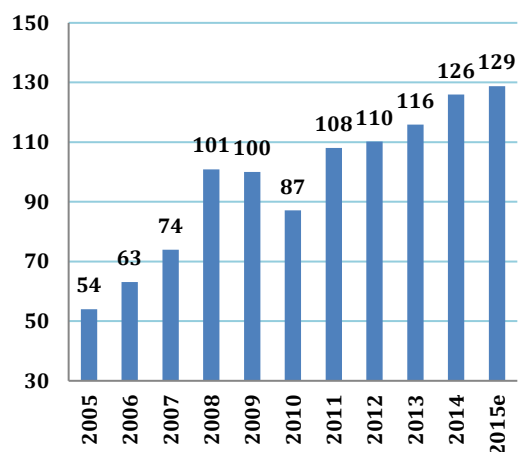
Source: Historical Data Compiled by the BCC⁵⁵

Notes: Figures have been converted to USD from KFM. The exchange rate KMF/USD applied is 0.00214, as per December 16, 2016.

Meanwhile, the World Bank estimates the total number of remittances in Comoros at 129 millions USD for 2015. This figure is almost twice the figure provided by the Central Bank (65 millions). This divergence is mainly explained by the estimation of the informal remittances that the World Bank includes in its calculations. As mentioned previously, remittances' inflows have remained steady and growing despite global financial contraction (Figure V.8). In addition, remittances' inflows present certain degree of variability throughout a given year. Monthly data shows that August and September are the months where emigrants have been sending more money back home, mainly to finance the “*grand marriages*” or big weddings that are typically celebrated around this time of the year (Figure V.9).

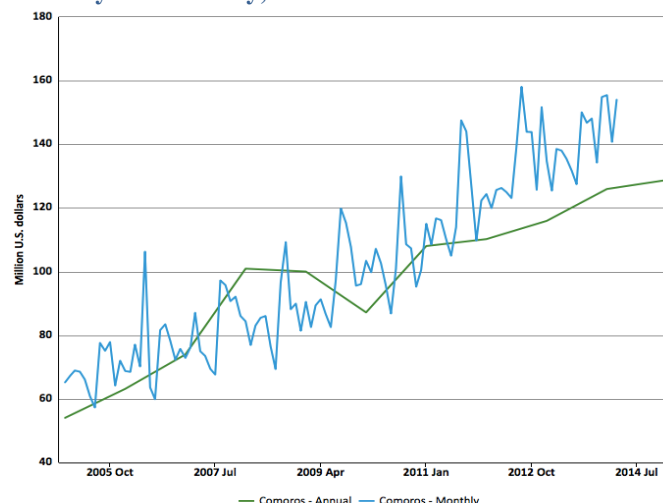
⁵⁵ The figure for the year 2016 corresponds to the amount of remittances accumulated until March 2016.

Figure V.8: Total Remittance Inflows (in USD million), 2005-2015



Source: World Bank staff calculations.
 Note: All numbers are in current (nominal) USD.

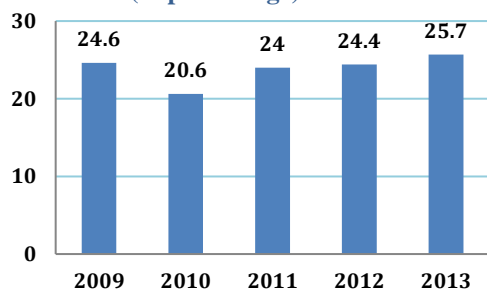
Figure V.9: Total Remittances Inflow (in USD million), annually and monthly, 2005-2015



Source: World Bank remittances database, Knoema.
<https://knoema.com/WBRIO2014/migration-and-remittances-factbook-2015>

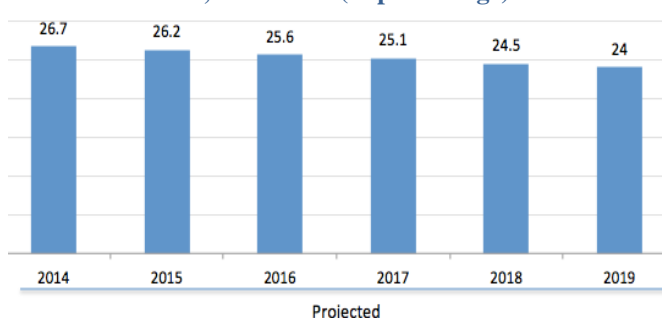
In Comoros, remittances account for around 25 percent of GDP. Remittances have been growing not only in absolute terms but relative to GDP as well (Figure V.10). The Central Bank reported a record high of 26 percent of remittances’ inflows as percentage of GDP in 2013. Meanwhile, the IMF produces its own estimates of remittances. According to its projections, remittances will maintain its importance in the balance of payment of Comoros, particularly to finance imports. Remittances are projected to continue growing but they will decline relative to GDP (Figure V.11). There is an expected modest reduction in remittances’s growth as a percentage of GDP from 26.4 percent in 2014 to 24 percent in 2019. This percentage is expected to decrease further to around 16 percent by 2034, according to IMF projections. The impact of a drop in remittances on growth would be relatively small given the small percentage of remittances spent on productive activities. Nonetheless, consumption levels and welfare will be more negatively affected.

Figure V.10: Remittances as share of GDP, 2009-2013 (in percentage)



Source: Bulletin Trimestriel de la Banque Centrale des Comores, April 2014.

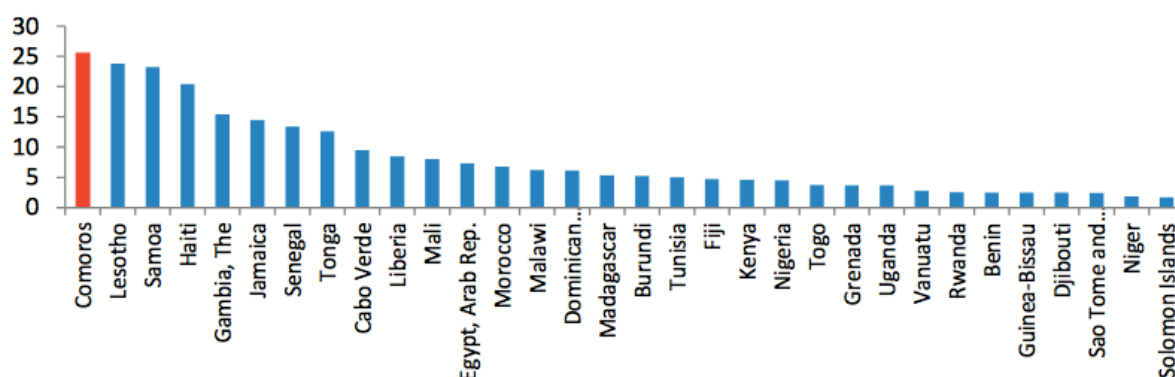
Figure V.11: IMF Projections of Remittances as share of GDP in Comoros, 2014-2019 (in percentage).



Source: IMF, 2015

In relative terms, remittances’ inflows in Comoros are among the largest in SSA. The country has the largest remittances’ inflows as a share of GDP among the top 20 sub-Saharan countries and small islands with more remittances inflows. It is also one of the main remittances’ recipients in the world, followed by Lesotho, Samoa and Haiti (Figure V.12). The World Bank made a similar analysis for the year 2014 and placed Comoros in the third position after Liberia and Gambia.

Figure V.12: Remittances in percentage of GDP, 2012

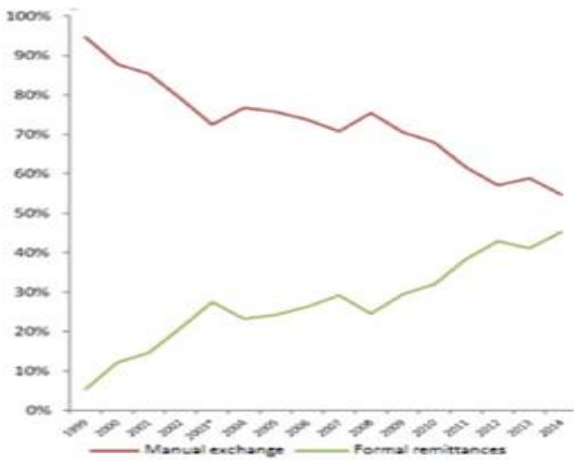


Source: IMF (2015).

Remittances mainly flow through informal channels, although formal channels are increasingly being used. In early 2000s, there was a clear predominance of informal channels to transfer remittances, mainly in form of family members and friends entering the country. The BCC estimates that 85 percent of transfers used informal channels in 2000. Nonetheless, in the last few years, the number of remittances transferred through formal channels has increased significantly, with only 55 percent of remittances captured by informal channels in 2014 (Figure V.13). This is explained by the increasing number of money transferred to companies operating in the country and the opening of the banking sector. Western Union monopolized the remittances market until 2006 when new operators entered the market. Currently, Western Union and Money Gram dominate the market, but there are room for others such as Money Express, RIA, Rial Express, Money Transfer and Global (World Bank, 2016).

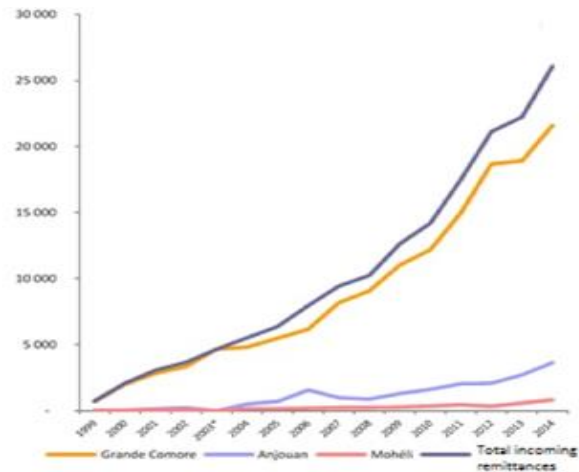
Most of incoming remittances go to Ngazidja. According to Central Bank data, around 84 percent of remittances are received in Ngazidja (Grande Comore). The rest goes mainly to Ndzouani (Anjouan), which has increased its share since 2004 (Figure V.14). In addition, 50 percent of outgoing remittances come from Ndzouani and are intended primarily to fund the education of Comorian youth studying abroad, particularly in African countries. The transferred funds are often collected through a migrant savings association and most of them come from people in low-paid jobs and French social security.

Figure V.13: Evolution of Formal and Informal Remittances



Source: Banque Centrale des Comores.

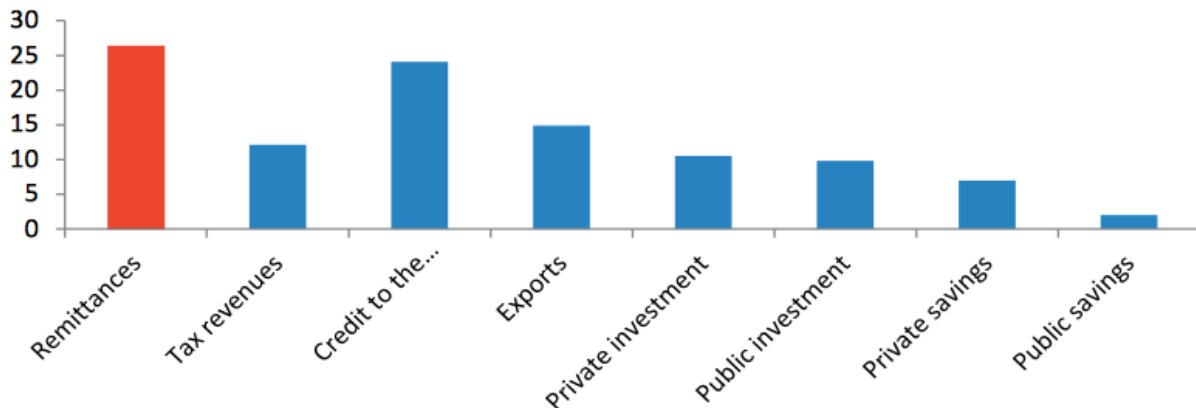
Figure V.14: Incoming Remittances by Island



Source: Banque Centrale des Comores.

Although remittances are the main source of revenues and foreign exchange for the country, they are not directed to productive investment and growth. The largest component in the balance of payment is the income coming from remittances. It even exceeds the receipts from exports, which account for 15 percent of GDP (Figure V.15). However, only a small portion of remittances is directed towards productive activities. This is mainly due to poor business environment, market failures, the lack of infrastructures in key sectors, a weak legal system, and a shallow and non-competitive financial sector. Instead, remittances in Comoros are used mostly to finance imports. Around 70 to 90 percent of remittances’ inflows are spent in consumption, particularly as part of “*grand marriages*” or big weddings, crowding out savings to finance productive investment. Remittances also help in improving people’s standard of living and their resilience to shocks by maintaining their consumption levels (IMF, 2015).

Figure V.15: Sources of financing, 2013 (in percentage of GDP)



Source: IMF 2015.

III. Size and Use of Remittances: Micro Data - Household Surveys

Remittances are not only important at the macroeconomic level, as they account for about 25 percent of GDP, but also important relative to an individual income level. The following section aims to provide an analysis on remittances in Comoros based on the findings from two different household surveys: EIM (2004) and EESIC (2014).⁵⁶ In poorer households, remittances mainly finance the purchase of basic consumption goods, housing, children's education and health care. In richer households, they can provide capital for small businesses and entrepreneurial activities. The surveys also reflect the extensive use of informal channels to transfer remittances. The results cover only cash transfers, as EESIC 2014 does not include questions related to in-kind transfers.

Amount and scope of household remittances

The average amount of remittances received by a household member in one year was equivalent to 429 USD in 2004 and 501 USD in 2014. Average remittances appear to have increased by about 17 percent between the two periods, although figures from 2004 and 2014 are not completely comparable since they are based on two different surveys with different samples, questionnaires, scope and methodology. In addition, the average amount of remittances varies across the islands. It is higher in the island of Ngazidja, with an average of 639 dollars in Moroni and 868 dollars in the rest of the island for the year 2014. In 2004, the divergences between Ngazidja and the other islands were more pronounced, with Moroni concentrating the largest average amount of remittances with an average of 798 dollars annually (Table V.7).

In the rural areas of Ngazidja, the amount of remittances received from the diaspora represents about 36 percent of the individual's average annual revenues. The rest of Ngazidja is mainly rural as the urban activity is concentrated in the capital, Moroni. In these areas, remittances are particularly important to support consumption as they account for a large percentage of annual revenues (Table V.6). This is partially explained by the high frequency of “*grand marriage*” in rural families in Ngazidja, as well as widespread community work funded by the diaspora. Remittances in Ndzouani also account for a significant share of average revenues –almost 20 percent. The amount of remittances received in Mwali and Moroni represents a smaller share of annual revenues, but for different reasons: in Moroni because the annual revenues are relatively high, and in Mwali because the average remittances received are relatively low. There was no data available on annual revenues for the year 2004.

⁵⁶ See Appendix 1.A for information on the methodology of the two surveys.

Table V. 6: Average amount of foreign remittances received over the last 12 months (in KMF)

	2004		2014	
	Remittance	Remittance	Average Annual Revenues	(%)
Moroni	372,907 (1)	298,395	2,510,982 (2)	12%
Rest of Ngazidja	308,180	405,541	1,134,937	36%
Ndzouani	80,118	135,722	709,750	19%
Mwali	105,821	56,419	1,304,361	4%
Comoros	200,239	234,028	1,070,502	22%

Sources: EIM 2004, EESIC 2014 and World Bank staff calculations.

Notes:

(1) This is the average amount received by a household member residing in Moroni from abroad over the 12 months prior to the survey.

(2) This amount represents the average annual income of surveyed individuals living in Moroni who received remittances over the last 12 months.

Table V.7: Average amount of foreign remittances received over the last 12 months (in USD)

	2004		2014	
	Remittance	Remittance	Average Annual Revenues	(%)
Moroni	798	639	5,374	12%
Rest of Ngazidja	660	868	2,429	36%
Ndzouani	171	290	1,519	19%
Mwali	226	121	2,791	4%
Comoros	429	501	2,291	22%

Sources: EIM 2004, EESIC 2014 and World Bank staff calculations.

Notes: Figures have been converted to USD from KFM. The FX rate KMF/USD applied is 0.00214, as per December 16, 2016.

Remittances' inflows for poor population groups increased significantly between 2004 and 2014, suggesting their positive role in poverty reduction. Between 2004 and 2014, the average amount of remittances received by the poor in Comoros expanded markedly, increasing by around 40 percent. Conversely, the average amount of remittances received by non-poor households decreased by around 20 percent (Figures V.8 and V.9). However, this general increase for poor households hides important discrepancies across Comoros' islands. For instance, the average amount of remittances received by poor households decreased in Mwali and Moroni, while it increased in the rest of Ngazindja and in Ndzouani.

Table V.8: Average amount of foreign remittances received over the last 12 months for poor and non-poor (in KMF)

	2004		2014	
	Poor	Non Poor	Poor	Non Poor
Moroni	460,372	334,040	336,814	262,147
Rest of Ngazidja	261,550	376,209	388,328	286,004
Ndzouani	75,539	92,668	107,889	144,117
Mwali	171,299	119,612	61,204	56,144
Comoros	183,469	253,620	256,056	201,579

Sources: EIM 2004, EESIC 2014 and World Bank staff calculations.

Table V.9: Average amount of foreign remittances received over the last 12 months for poor and non-poor (in USD)

	2004		2014	
	Poor	Non Poor	Poor	Non Poor
Moroni	985	715	721	561
Rest of Ngazidja	560	805	831	612
Ndzouani	162	198	231	308
Mwali	367	256	131	120
Comoros	393	543	548	431

Sources: EIM 2004, EESIC 2014 and World Bank staff calculations.

Notes: Figures have been converted to USD from KFM. The FX rate KMF/USD applied is 0.00214, as per December 16, 2016.

Profile of households with remittance activities

About 38 percent of households received foreign remittances in 2014, nearly doubling the 2004 levels. Comorian households are increasingly involved in the remittances market with 51 percent of the households covered by the 2014 survey having shown transfer activity, compared to the 26 percent of households covered by the 2004 survey (Table V.10). In addition, the number of households that received foreign remittances has grown from 21 percent to 38 percent between 2004 and 2014. This increment is particularly acute in the case of Moroni (from 11 to 37 percent), and Ndzouani (from 18 to 37 percent). The number of households who send remittances abroad has also increased between the two analyzed periods, although it remains low. Ndzouani and Mwali are the regions that have experienced larger increases in the number of households involved in sending remittances.

Table V.10: Share of households with transfer activities in Comoros (in percentage)

	2004		2014	
	Receiving (%)	Sending (%)	Receiving (%)	Sending (%)
Moroni	10.7	8.9	37.1	6.2
Rest of Ngazidja	33.6	8.1	43.8	13.4
Ndzouani	18.1	3.5	36.7	15.2
Mwali	8.7	2.5	18.2	20.4
Comoros	20.7	5.1	38.0	13.0

Sources: EIM 2004 and EESIC 2014.

Women in Comoros have become the main recipients of remittances in the households. In 2014, 64 percent of those receiving remittances were women, and 36 percent were men (Table V.11). This reflects a change in gender dynamics of remittance activity considering that in 2004, men were predominantly selected as remittances' recipients –56 percent were men, compared to 44 percent that were women. This trend is more relevant in Ngazidja and Mwali, where the share of women who received remittances has increased significantly. This predominance of women among remittances' recipients is aligned with the OECD macro data displayed before (Tables V.1 and V.2) that showed large increases in the emigration rate of women from 2001 to 2011, especially among those with higher education levels. Women's involvement in migration and

remittances is consistent with the matriarchal feature of the Comorian society and their strong involvement in the economic activity.⁵⁷

Table V.11: Gender of household members receiving foreign remittances (in percentage)

	Moroni		Rest of Ngazidja		Ndzouani		Mwali		Comoros	
	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)
Male	57.1	26.5	49.0	24.4	62.4	46.2	46.4	27.2	55.9	35.9
Female	42.9	73.6	51.0	75.6	37.3	53.8	53.6	72.8	43.9	64.2

Sources: EIM 2004 and EESIC 2014.

Individuals aged between 34 and 64 years constitute the largest group of remittances' recipients in all three islands. About 55 percent of individuals who received remittances in 2014 were between 34 and 64 years old, down from 63 percent in 2004 (Table V.12). In contrast, younger individuals have become more prominent as remittances' receivers from the diaspora abroad. This situation is similar in all three islands, with the particularity of a significant increase in the share of pensioners and the elderly in Moroni. This is a consequence of the larger emigration levels experienced in Moroni over the past decade. Since Moroni is more urban and modern than the rest of the territory, their inhabitants are better endowed to emigrate, and thus an increasingly number of pensioners and elderly have been able to receive subsidies from their descendants living abroad.

Table V.12: Age group of household members receiving foreign remittances (in percentage)

Age group	Moroni		Rest of Ngazidja		Ndzouani		Mwali		Comoros	
	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)
< 15	0	1.2	0	0	0.4	1.6	0	3.2	0.2	1.1
15 to 24	0	5.5	2.7	5.6	4.0	9.5	3.6	18.4	3.2	7.9
25 to 34	23.8	25.3	14.0	21.6	15.1	19.3	10.7	19.9	15.0	21.0
35 to 64	71.4	57.7	63.0	58.2	62.5	53.3	64.3	49.3	63.4	55.4
65 +	4.8	10.3	20.2	14.7	18.0	16.2	21.4	9.2	18.2	14.6

Sources: EIM 2004 and EESIC 2014.

About half of the respondents who received remittances in 2014 did not have formal education, a share that has significantly decreased since 2004. In 2004, about 76 percent of the respondents who received remittances had no education. However, this percentage has been reduced to 49 percent in 2014 due to an increase in the number of individuals with primary and higher education. In particular, the latter have seen an enormous increase, from only 2 percent of respondents reporting to have higher education in 2004 to 16 percent in 2014. The mentioned increment can be partially explained by positive educational achievements observed in the islands over the past decade, particularly in rural areas (as they had relatively lower levels than in Moroni). Table V.13 shows larger increases in the number of remittances' receivers with higher education in the rest of Ngazidja and Ndzouani. Moroni, on the other hand, has seen an increment in the share of individuals who receive remittances with no schooling, which may correspond to larger emigration rates among highly educated individuals from Moroni.

⁵⁷ In the Comorian society, women play an important role, both culturally and economically. Inheritance goes to girls in families, and the Comorian family is matrilocal, i.e. the house belongs to the woman.

Table V.13: Level of education of household members receiving foreign remittances (in percentage)

	Moroni		Rest of Ngazidja		Ndzouani		Mwali		Comoros	
	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)
No schooling	42.9	50.4	75.6	52.0	81.3	48.2	60.7	22.9	75.6	49.1
Primary	23.8	29.1	12.3	17.9	8.5	20.9	10.7	30.0	11.3	21.5
Secondary	23.8	14.9	10.8	10.5	8.5	13.9	25.0	34.3	11.3	13.6
Higher	9.5	5.6	0.4	19.7	1.8	17.0	3.6	12.9	1.8	15.8

Sources: EIM 2004 and EESIC 2014.

Comorians who are engaged in economic activity are increasingly benefitting from remittances, a trend that has reversed since the beginning of the past decade. About half of household members who received remittances in 2014 had an occupation versus 31 percent in 2004, when most remittances’ recipients reported to be inactive. There are, however, some regional differences: Mwali and Moroni remittances’ recipients are mainly inactive in both analyzed periods. In addition, it is worth noting that the percentage of surveyed individuals who were employed in 2004 and 2014 was 38 percent and 52 percent respectively. These percentages are slightly higher than the employment figures of surveyed individuals who received remittances (Table V.14). This indicates that on average, individuals who receive remittances are less likely to be employed. These results may provide further insights to the literature that claims that remittances reduce labor force participation. It can also indicate that those who are employed are less dependent on remittances or less likely to receive these transfers.

Table V.14: Activity status of household members receiving foreign remittances (in percentage)

	Moroni		Rest of Ngazidja		Ndzouani		Mwali		Comoros	
	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)
Occupied	27.3	35.9	40.9	54.3	22.7	52.3	66.7	40.9	31.2	49.9
Unemployed	9.1	16.0	11.4	2.6	24.2	18.2	0.0	10.1	16.7	12.8
Inactive	63.6	48.1	47.7	43.2	53.0	29.5	33.3	49.0	52.2	37.3

Sources: EIM 2004 and EESIC 2014.

Notes: Unemployed include household members who currently do not have an occupation over the reference period but are looking for a job. In 2014 unemployed also include “discouraged workers”, meaning household members who did not have a job and are willing to work but are not necessarily looking for a job during the reference period, because he or she finds a very weak chance to find it in the coming days.

More than half of employed Comorians who receive remittances are self-employed, a tendency that persists in the two studied periods. About 60 percent of household members who receive remittances are self-employed –especially in the informal sector– and about one third are salaried workers. For Comoros as a whole, these percentages do not significantly vary from 2004 to 2014 (Table V.15). However, in Moroni 72 percent of those who received remittances were categorized as salaried workers in 2004, whereas only 29 percent were categorized as such in 2014. In contrast, self-employed remittances’ receivers in the capital have significantly increased between the two periods as well as family helpers. Another regional difference is observed in Mwali, where most individuals who received remittances were salaried employees in 2014, as opposed to what is observed in the other islands.

Table V.15: Occupational categories of occupied household members receiving foreign remittances (in percentage)

	Moroni		Rest of Ngazidja		Ndzouani		Mwali		Comoros	
	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)
Salaried employees	71.4	29.0	27.1	37.1	26.2	32.5	66.7	47.8	31.0	34.0
Self-employed	28.6	63.5	57.9	62.3	68.5	57.3	22.2	38.2	60.2	59.3
Family helper and similar	0.0	7.5	15	0.6	5.4	10.2	11.1	14.0	8.8	6.7

Sources: EIM 2004 and EESIC 2014.

Siblings and children are the main senders of remittances to Comoros. In 2014, over one third of individuals who received remittances reported that these transfers were sent by a brother or sister, and another third reported that these were sent by a son or daughter (Table V.16). Siblings remained significant in 2004, but those claiming that they receive remittances from their children were considerably fewer (only 6 percent). Meanwhile, 30 percent of respondents reported that they received remittances from in-laws in 2004, a percentage that has been reduced to only 2 percent in 2014. There are also important increases in the share of those who received remittances from other relatives between 2004 and 2014. Regionally, there is some variability between Moroni and the rest of the country. Outside Moroni, remittances appear to have come mainly from a brother or sister, particularly in the case of Ndzouani and Mwali. Meanwhile, in Moroni, the distribution of remittances' senders is more widely dispersed among parents, siblings, children and other relatives. This reflects a greater variety of family members from Moroni living abroad.

Table V.16: Relationship between foreign remittances' senders and recipients (in percentage)

	Moroni		Rest of Ngazidja		Ndzouani		Mwali		Comoros	
	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)	2004 (%)	2014 (%)
Father, mother	21.1	15.6	6.5	3.2	6.1	15.2	3.6	7.1	7.2	11.4
Son, daughter	15.8	32.7	4.8	26.6	6.1	33.5	0.0	26.8	6.0	31.1
Brother, sister	21.1	19.1	33.9	34.0	38.9	36.6	46.4	37.0	36.1	33.0
In-laws	31.6	1.9	36.6	4.7	27.5	0.0	17.9	4.9	30.7	1.9
Other relative	5.3	29.5	13.4	22.8	8.5	12.4	14.3	16.1	10.4	18.4
Without relationship	5.3	1.2	4.8	8.7	13.0	2.3	17.9	8.1	9.6	4.3

Sources: EIM 2004 and EESIC 2014.

Use of remittances from diaspora

The main reason for receiving remittances from a relative abroad is to support and assist the family in Comoros. In 2014, around 68 percent of individuals who received remittances reported “family support and assistance”, mainly to fund consumption and operating expenses, as the purpose for these transfers. 11 percent of remittances' receivers reported that they were using these funds for healthcare and 7 percent to cover education costs (Table V.17). However, in Grande Comoros (Moroni and Rest of Ngazidja) remittances are relatively more used to financing education than in the other two islands. In Moroni, enrolling in insurance schemes ranks as the second most important reason to receive remittances due to a more developed financial and insurance market. Meanwhile, remittances are highly concentrated in “family support” in

Ndzouani and, to a lesser degree, in Mwali where a significant share of people reported investment needs as the main purpose of remittances. The 2004 survey did not provide information on the use of remittances.

Table V.17: Main purposes for remitting, 2014 (in percentage)

	Moroni	Rest of Ngazidja	Ndzouani	Mwali	Comoros
Religious purposes (church, mosque)	3.1	0.0	0.4	3.0	0.8
Illnesses	11.0	21.2	4.8	3.9	10.8
Deaths, funerals	2.0	4.3	1.6	6.0	2.6
End of mourning/ Building a tomb	0.0	1.7	0.0	0.0	0.5
Associations / Mutual insurance schemes	17.0	2.3	2.3	4.5	4.7
Studies	12.7	10.4	3.5	3.6	7.1
Baptism, marriage ceremonies	2.0	0.0	0.0	0.0	0.3
Other family support and assistance	43.2	55.9	84.4	60.8	68.4
Investment	5.6	4.1	2.5	16.1	3.8
Other (job loss, birth, birthdays)	3.5	0.0	0.5	2.1	0.9

Source: EESIC 2014.

IV. Discrepancies between Central Bank and Household Survey Data

In general, it is difficult to match household survey data with the aggregation of the macro data from International Financial Institutions or the Central Bank. There are mainly three sources of total remittances data for Comoros: (i) the *Banque Centrale des Comores* (BCC), (ii) the World Bank/IMF, and (iii) the *Institut National De La Statistique Et Des Etudes Economiques Et Démographiques* (INSEED) through the household surveys EIM (2004) and EESIC (2014). Hence, the difficulty to obtain a remittances' figure somehow homogenous among the three sources lies in the different characteristics and quality of the data gathered by each source. Appendix 4 provides a more detailed description of the sources of discrepancies between the data sources, and a summary of the literature on how these discrepancies can be addressed.

BCC data are more accurate but likely underestimate the real number of remittances coming to Comoros. The BCC keeps a monthly record of the total cash remittances coming into the country through formal financial channels, which include commercial banks and other providers of international funds' transfers approved by Comoros. For this reason, Central Bank's figures are believed to be more accurate than estimates of household's data. Meanwhile, Central Bank's estimates fail to capture the amount of remittances coming through informal channels, mainly in the form of cash carried by relatives, friends or acquaintances. Cruz (2004) estimated that 80 percent of total transfers to Comoros came through informal channels due to the fragility of the banking sector. These transfers are not captured by the Central Bank and constitute the main reason of discrepancy between household's and Central Bank's data.

Household surveys' data have the advantage of capturing informal remittances but are subject to sampling error. EESIC (2014) and EIM (2004) incorporate modules designed to capture the amount of total transfers received from family members living abroad, regardless of the channel or system used to receive these funds. However, these surveys have some disadvantages: a) surveys are subject to sampling errors, b) households may misreport amounts

received, c) neither EESIC or EIM are designed to generate an accurate measure of remittances. In addition, Comoros' household data might be slightly overestimated since both EESIC and EIM include pensions and payments received from clubs or associations.⁵⁸ These two components do not fit the typical notion of what should be counted as remittance.

Finally, World Bank's data are often used as a benchmark against the accuracy of other type of data, as it is more comparable and adjusted to international standards. The World Bank generates its own remittances' estimates based on data from IMF Balance of Payments Statistics, releases from central banks, national statistical agencies, and World Bank country desks. The World Bank figures also include an estimation of informal remittances and thus, are larger than BCC's estimations. Ducanes (2010) and others use the World Bank's estimations as a benchmark to calculate the "missing remittances" in household's and Central Bank's data. That is because the World Bank's figures are ultimately based on Central Bank's figures –which are believed to be more accurate than household data–, that include an estimation of informal remittances and are adjusted to international measurement standards.

In the case of Comoros, there are no major discrepancies between the results from the household surveys and the Central Bank's estimates. After including the amount of informal remittances that the Central Bank fails to capture, the total amount of remittances received in the year 2004 is equivalent to 54 million dollars, with no significant difference between household's and Central Bank's data (Tables V.18 and V.19). For 2014, there is a small difference of about 10 million dollars between the two sources. The Central Bank's estimates are equivalent to 136 millions and the household survey to 146 millions. This implies an increment of about 160 percent over ten years that can be explained by increases in the average remittances per household and, more importantly, in the number of households who received these transfers.⁵⁹ Meanwhile, the World Bank's estimates are slightly lower than the other two: 49 millions for the year 2004 and 126 millions for the year 2014. Overall, the official figures and the results from the household surveys are quite close, particularly in the year 2004, which is unusual in this type of estimations.⁶⁰

⁵⁸ The World Bank defines remittances as the sum of personal transfers - current transfers in cash or in kind between resident and non-resident *individuals*– and compensation of employees –wages and social contribution of workers who are employed in an economy where they are not resident and of residents employed by nonresident entities.

⁵⁹ To calculate this growth rate, we have used 141 millions dollars for the year 2014, which is the average between household's and Central Bank's estimates.

⁶⁰ For example, Philippines Ducanes (2010) estimated that in 2006 the amount of "missing remittances" (the difference between household's data and the World Bank's data) were equivalent to 8.8 billions of dollars.

Table V.18: Differences between household and Central Bank estimations (in KMF millions)

Annual remittances	2004	2014
Central Bank (only covers formal remittances)	5,542	25,924
Household Surveys (covers formal and informal remittances)	25,030	68,476
Informal Remittances as % of total remittances (see Figure V.7)	78%	55%
Total informal remittances (based on household data)	19,523	37,662
Central Bank + Total informal remittances	25,065	63,586
Difference between household surveys and CB + informal remittances	35	4,890

Sources: Central Bank of Comoros, EIM 2004 and EESIC 2014.

Notes: Household surveys' annual remittances have been extrapolated by multiplying the average amount of remittances (see Table 6) per the number of people who received remittances in the corresponding year, which in turn, has been calculated by multiplying the percentage of individuals that received remittances (see Table 8) and the total population of the country in each year.

Table V.19: Total annual remittances in Comoros, various estimations (USD millions)

	Central Bank + informal remittances	Household Surveys	World Bank
2004	53.6	53.6	48.7 ¹
2014	136.1	146.5	126.0

Sources: Central Bank of Comoros, EIM 2004 and EESIC 2014.

Notes: This figure is extrapolated based on the average growth rate of remittances between 2005 and 2010, according to the World Bank data. The FX rate KMF/USD applied is 0.00214, as per December 16, 2016.

Chapter VI – Fiscal Incidence Analysis

Key Messages

- **Fiscal policy – direct taxes (personal income tax), indirect taxes (VAT and excise duties), and in-kind spending on health and education services – reduces inequality in Comoros;**
- **Indirect taxes taken together produce a very small reduction in inequality, while specific excises on rice and tobacco increase inequality;**
- **In-kind transfers of education and health services have the largest impact on inequality, and education has the largest in-kind impact;**
- **Personal income taxes also reduce inequality, but poor households are not protected by a high income tax threshold;**
- **Fiscal policy (excluding in-kind transfers) increases the poverty headcount, while most of poor households are net payers into the fiscal system.**

Public investment is receiving more attention in the development strategy of the Government of Comoros. The Government’s strategy for Accelerating Growth and Sustainable Development (2015-2019) focuses on four elements: (a) the acceleration, diversification, and sustainability of economic growth; (b) the development of infrastructure to support growth; (c) an improved access to basic social services and an increased resilience of households; and (d) the strengthening of governance, institutional, and human resilience.

High and increasing inequality remains an obstacle to the acceleration of poverty reduction.

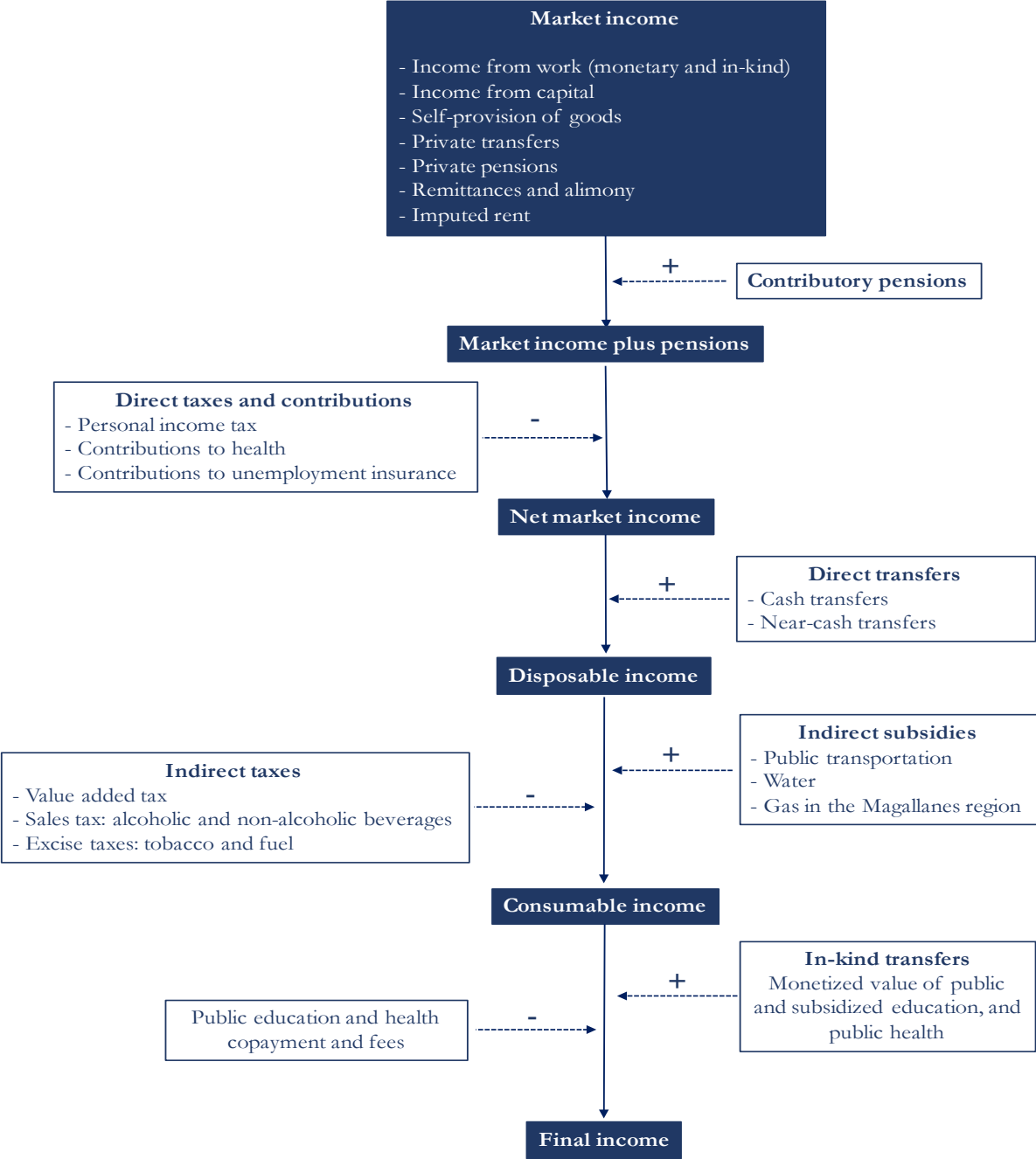
This chapter examines the role of fiscal policy in contributing to this trend. The chapter summarizes results from the analysis of the incidence of fiscal policy in Comoros based on a Commitment to Equity (CEQ) Assessment (Lustig and Higgins, 2013), and using ESSIC 2014 data and budget reporting from 2014. More specifically, the analysis investigates the impact of tax and expenditure policies on inequality and poverty, and thereby provides an evidence base for possible improvements in basic social service delivery and household resilience. The logic behind a CEQ Assessment is summarized in Figure VI.1, which shows in a schematic fashion the different measures of “pre-fiscal” and “post-fiscal” income (as well as the fiscal policy elements included in each income concept).

A CEQ assessment compares pre- and post-fiscal income distributions to determine whether fiscal activity, or a particular tax or public expenditure, has been poverty- or inequality-reducing, as well as who has gained and who has lost (on net) from fiscal activity.

Any income concept and any fiscal intervention can be compared to another in a flexible and valid manner; for instance, the assessment determines whether there is a reduction in inequality from Market income to Net Market income, and it also indicates whether receipt of contributory pension benefits or the payment of Personal Income Taxes (and other direct taxes like property taxes) contribute more to the decrease in inequality from pre-fiscal Market income to post-fiscal

Net Market income. The fiscal activities – taxes and transfers – listed in the flowchart indicate the complete set of fiscal activities that distinguish the pre-fiscal income concept (indicated by the node occurring nearer to the top of the page) from the post-fiscal income concept (indicated by the node occurring nearer to the bottom of the page). More details on the methodology and data can be found in Appendix 5.

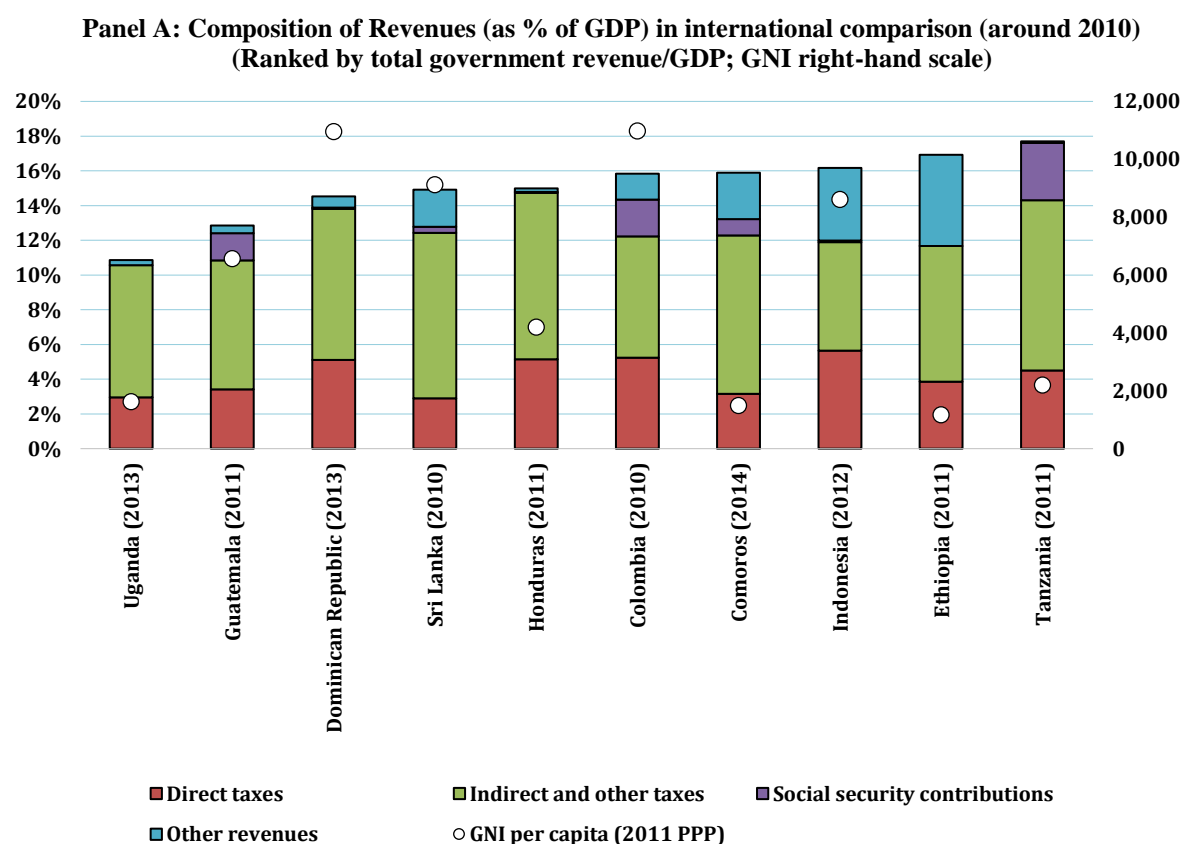
Figure VI.1: Income Concepts and Fiscal Interventions in the Commitment to Equity (CEQ) Assessment



Source: Adapted from the Commitment to Equity Handbook: Estimating the Redistributive Impact of Fiscal Policy, (Nora Lustig, ed, 2017.) Tulane University and the Brookings Institution Press.

Public revenues in Comoros mostly stem from indirect taxes while social spending mainly take the form of social transfers. Figure VI.2 below puts the Comoros fiscal-year 2014 revenue collection and expenditure mix in international perspective. Panel A indicates that Comoros, similar to Ethiopia, Uganda, and Tanzania (and the rest of the countries shown), raises most of its domestically-collected revenues from indirect rather than direct taxes. In the Comoros CEQ, we allocate the VAT on imports, the VAT on domestically-produced goods, and the diesel, petrol, rice, alcohol, and tobacco excise taxes.⁶¹ Personal income taxes are also allocated in this CEQ Assessment. Panel B indicates that Comoros is again similar to Ethiopia, Uganda, and Tanzania (and most of the rest of the countries shown) by concentrating the bulk of its social spending⁶² in in-kind transfers. The bulk of in-kind transfer spending goes to education rather than health. In 2014, education expenditures were nearly five times larger than health expenditures in Comoros.⁶³

Figure VI.2: Revenues and Expenditures Included in the 2014 Comoros CEQ Assessment

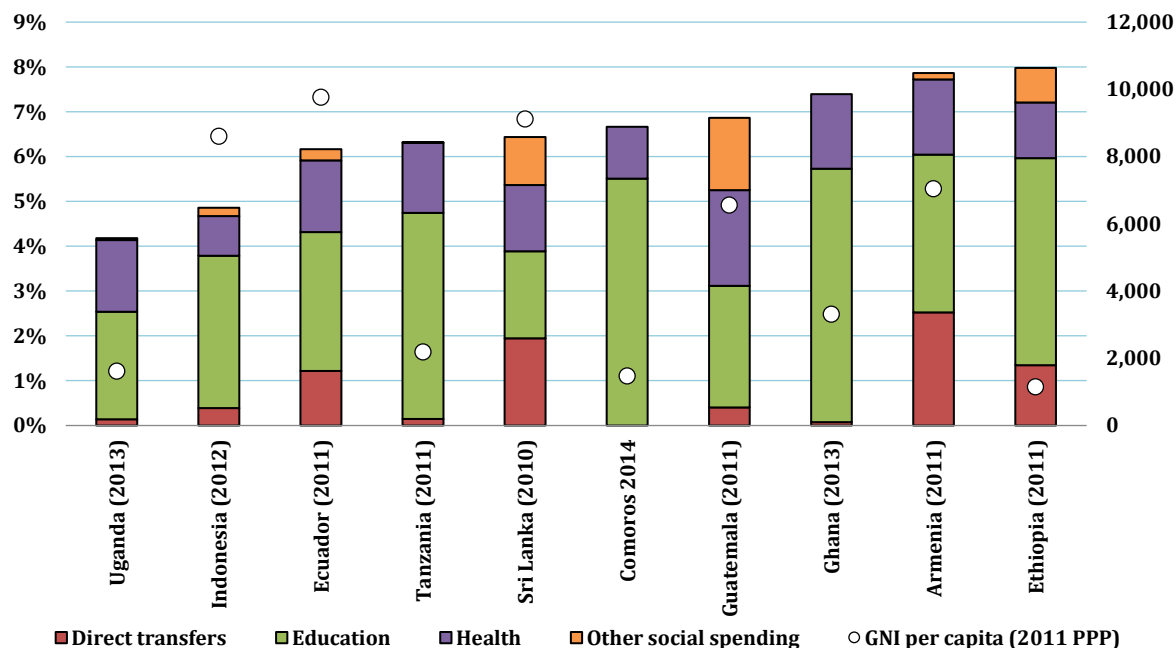


⁶¹ Total direct taxes – personal income, payroll, corporate income, and property taxes – are about one-third the size (in 2014) of total indirect taxes in the Comoros.

⁶² CEQ Social spending includes: direct transfers, spending on education and health, and other social spending like subsidized public housing and/or tax credits for low-wage earners.

⁶³ While there is a small World Bank-funded social protection pilot, there is no fiscal space for large, national-coverage direct transfer expenditures.

Panel B: Composition of Expenditures (as % of GDP) in international comparison (around 2010)
(Ranked by social spending/GDP; GNI right-hand scale)



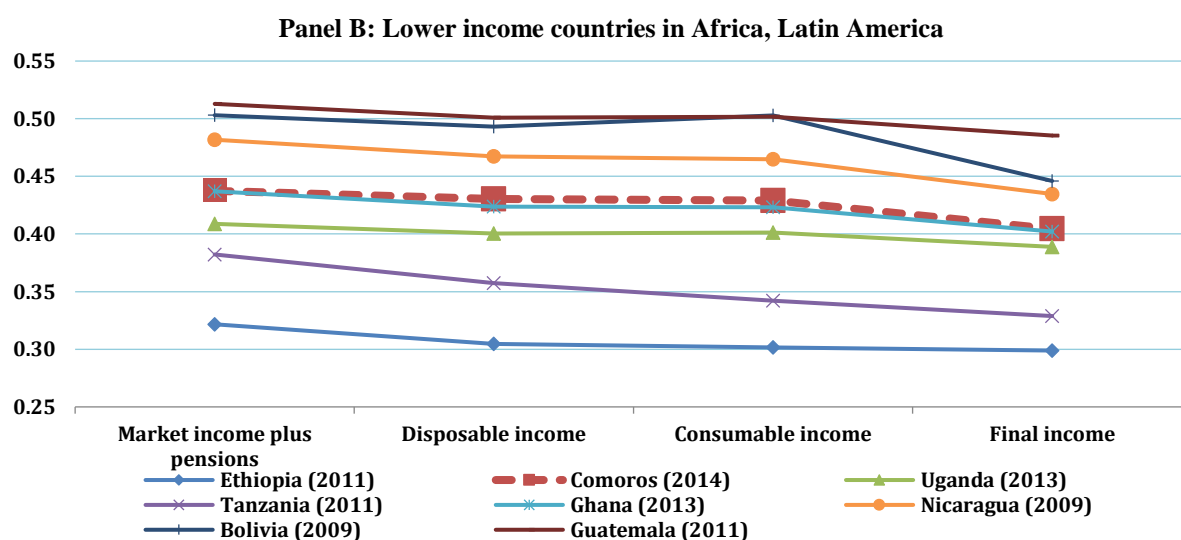
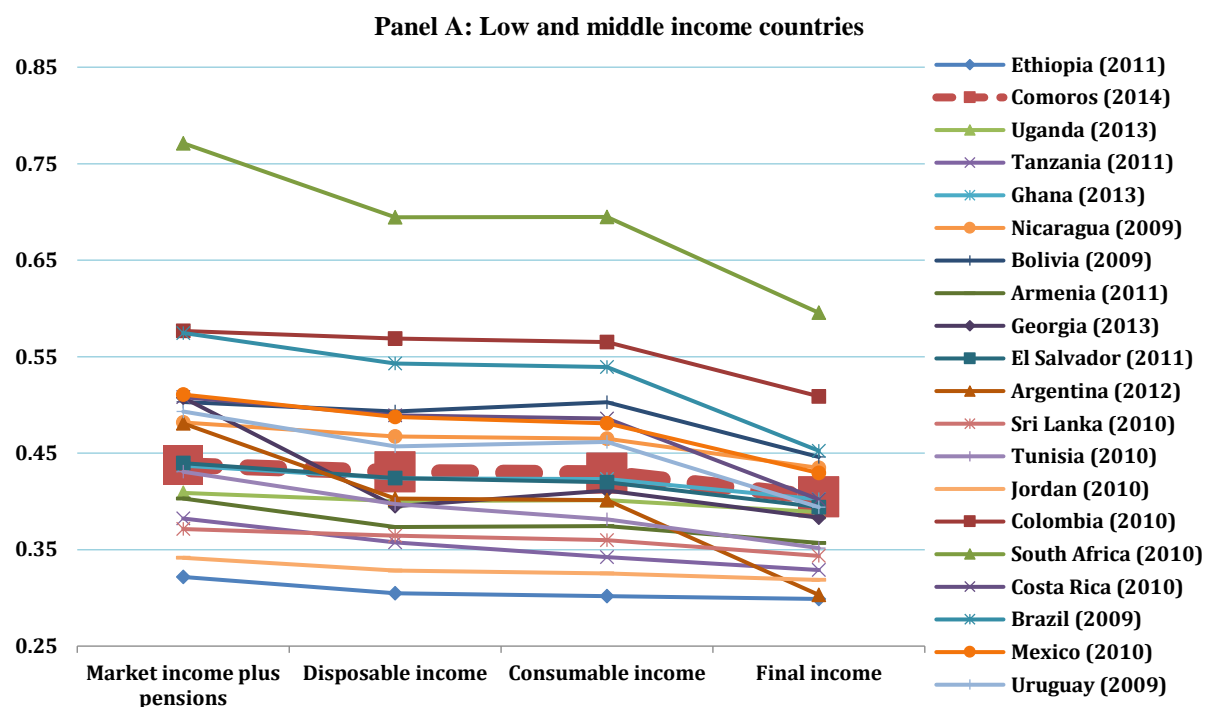
Sources: EESIC (2014) and authors' calculations, Comoros; Aristy-Escuder et al. (forthcoming), Dominican Republic; Jellema et al. (2017), Uganda; Afkar et al. (forthcoming), Indonesia; Llerena Pinto et al. (2015), Ecuador; Younger (2017), Tanzania; Arunatilake et al. (forthcoming), Sri Lanka; Cabrera et al. (2015), Guatemala; Younger (2017), Ghana; Younger and (forthcoming), Armenia; Hill et al. (forthcoming), Ethiopia.

I. Incidence of public expenditure

Education and health contribute to the reduction of Inequality

Overall, inequality would be higher in Comoros if the fiscal policy elements covered here were eliminated. In other words, fiscal policy does reduce inequality. Figure VI.3 below demonstrates that the Gini coefficient estimated over Market Income + Pensions is 0.437, while the Gini coefficient estimated over Final Income, which is net of direct and indirect taxes paid and includes a monetized value of healthcare and education services received in kind, stands at 0.404 in 2014. Therefore the total impact of fiscal policy – including direct and indirect taxes, and in-kind spending on public health and education services – on inequality is a reduction of Comoros' Gini coefficient by approximately 3.3 points.

Figure VI.3: Gini coefficient, Market Income (incl. pensions) to Final Income, various countries and years

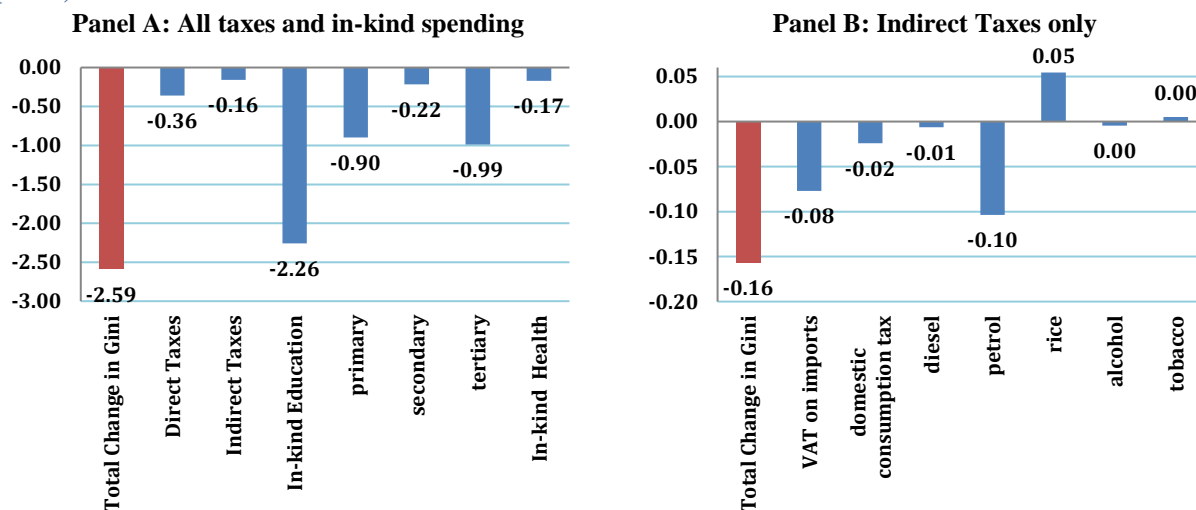


Sources: EESIC (2014) and authors' calculations, Comoros; Aristy-Escuder et al. (forthcoming), Dominican Republic; Jellema et al. (2017), Uganda; Afkar et al. (forthcoming), Indonesia; Llerena Pinto et al. (2015), Ecuador; Younger (2017), Tanzania; Arunatilake et al. (forthcoming), Sri Lanka; Cabrera et al. (2015), Guatemala; Younger (2017), Ghana; Younger and (forthcoming), Armenia; Hill et al. (forthcoming), Ethiopia; Cabrera and Moran (2015), Nicaragua; Paz Arauco et al. (2014), Bolivia; Concha and Bondarenko (forthcoming), Georgia; Beneke et al. (2017), El Salvador; Rossignolo (2017), Argentina; Shimeles et al. (2017), Tunisia; Alam et al. (forthcoming), Jordan; Harker et al. (forthcoming), Colombia; Inchauste et al. (forthcoming), South Africa; Sauma and Trejos (2014), Costa Rica; Higgins and Pereira (2014), Brazil; Scott (2014), Mexico; Bucheli et al. (2014), Uruguay.

Comoros remains one of the most unequal low-income African countries even after fiscal activity is taken into account. Figure VI.3 indicates that pre-fiscal inequality in Comoros is “middle of the pack” when a low- and middle-income CEQ country-set is included (Panel A). However, Comoros has relatively high pre-fiscal inequality when compared only to other low-income countries in Africa (Panel B) such as Uganda, Ethiopia, Tanzania, and Ghana. Since the total reduction in inequality from pre- to post-fiscal income in Comoros falls within the average of this set of region- and income-comparators, Comoros remains with relatively high post-fiscal income inequality.

In-kind education and health expenditures account for the largest contribution to inequality reduction via fiscal activity. Figure VI.4, which presents the marginal contributions of individual taxes and in-kind transfers to total inequality reduction from redistributive fiscal policy, indicates that in-kind education, and to a lesser extent, health expenditures contribute the most to inequality reduction. Inequality reduction stemming from in-kind spending alone accounts for over 90 percent of total inequality reduction from fiscal activity. Within the inequality reduction from in-kind fiscal expenditures, the education’s share itself stands at approximately 90 percent. Therefore, approximately 4/5th of all inequality-reduction from fiscal activity is produced by education spending alone. Health expenditures also participate to the reduction of inequality, but the estimated impact of health is about one-third of the estimated impact of education.

Figure VI.4: Total Change in Inequality, Market to Final Income and from Fiscal Interventions (in Gini points)

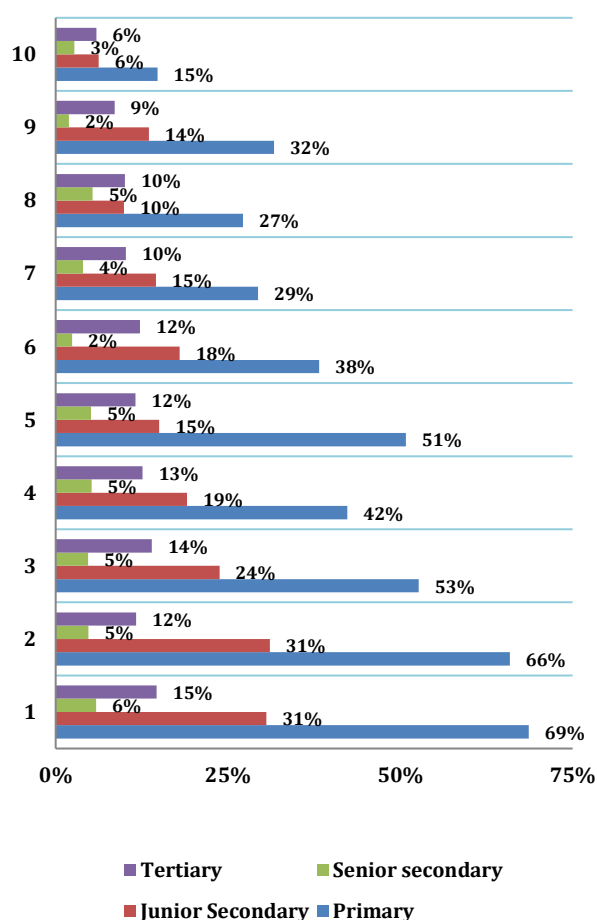


Source: EESIC 2014.

Within education expenditures themselves, spending at the tertiary level accounts for nearly half of the marginal decrease in inequality from education spending. This distribution of tertiary education spending is uncommon among the CEQ country-set, where tertiary education spending often increase inequality. Figure VI.5 demonstrates that the frequency of utilization of public tertiary education services (out of the general population) is actually higher among poorer

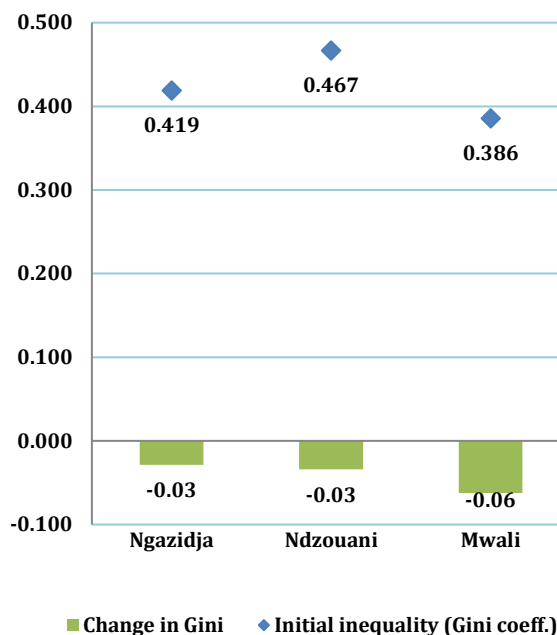
households. This result is entirely driven by public tertiary education’s utilization in the island of Ngazidja (Grande Comore); on the other islands (Ndzouani and Mwali), the frequency of utilization of public tertiary education services increases with income level.

Figure VI.5: Frequency of household-level utilization of public education services by education level and decile



Source: EESIC 2014.

Figure VI.6: Total Change in Inequality by Island, Market to Final Income (in Gini points)



Source: EESIC 2014.

Public expenditures have higher equalizing effects in Mwali. The administration and delivery of the public health system (excluding national referral hospitals) and the public education system (excluding tertiary education) are delegated to the islands; funding for these expenditures comes from non-designated transfers from the Union fiscal authority.⁶⁴ The impact of health and education expenditures on inequality by island is shown in Figure VI.6. It is clear that the island with the lowest initial inequality (Mwali) also delivers the largest reduction in inequality from in-kind health and education services.

⁶⁴ See World Bank (2015).

However, the majority of total public education expenditures are on personnel (civil servant waged employees).⁶⁵ Union-wide, 94 percent of public education expenditure covers wages. Even though the number of public primary and secondary school students enrolled was nearly 30 percent higher in Ndzouani than in Ngazidja, total education expenditures in Ndzouani were only 5 percent higher, while total education salary expenditure was 13 percent higher.⁶⁶ Meanwhile, in Mwali, the number of enrolled students was nearly 80 percent lower than in Ngazidja, but salary expenditure per enrolled student was approximately equal. Incomes are lower in Mwali, so a transfer representing the government’s cost of providing education per student – which is approximately constant regardless of the location because of the high proportion of salary spending – appears more valuable in Mwali.⁶⁷

The decentralization of the service delivery system might contribute to the equalizing effects. A decentralized service delivery framework allows for significant variation in the underlying costs of service (for example, with respect to the total salary share of a year of education), as well as in the cost-recovery mechanisms that lower-level governments use in producing services. For example, a recent review of public expenditures in Comoros⁶⁸ indicated that the island governments’ focus on salary expenditure left funding gaps at the facility level that were covered by contributions from students or patients. While the empirical magnitudes and distributions of those fees are not known, and while the existence of fees undoubtedly lowers the net benefit provided by public provision of services, the theory and the CEQ country-case-study archive both indicate that such fees can be income equalizing.

II. Taxation incidence

The taxation system has a progressive marginal rate structure, but is negatively affecting poverty

Total indirect tax collections are slightly equalizing even though the rice and tobacco excises alone actually contribute to an increase in inequality. In Comoros, indirect taxation – which reduces purchasing power over goods and services – privileges certain types of goods with lower rates and exemptions. Figure VI.7 below demonstrates that total revenue collections from the Import VAT (at 1.72 trillion Francs in 2014) are approximately equal to the collections from the domestic consumption tax (at 1.69 trillion Francs in 2014); however, in the EESIC the median

⁶⁵ In the public health system, approximately 44 percent of all expenditure is on salaries.

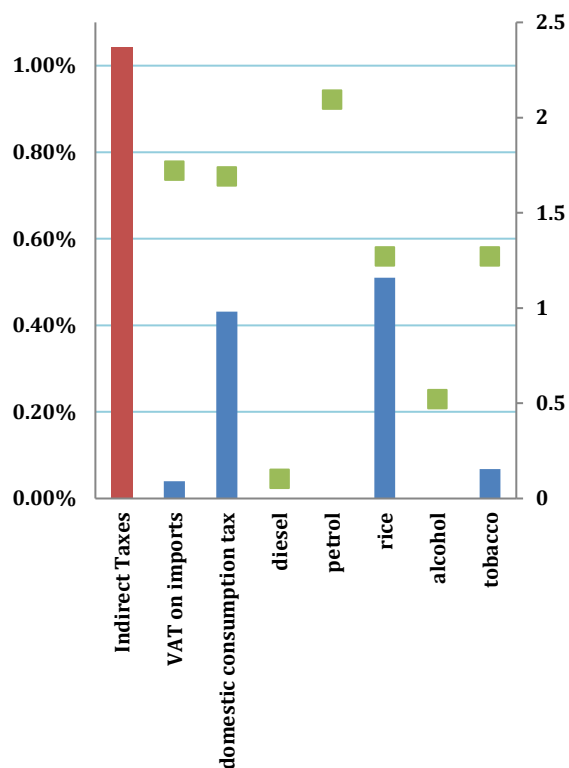
⁶⁶ Circa (2011, 2013)

⁶⁷ Or, from the opposite perspective, we are unable to determine whether the extra personnel and salary spending per student in Ngazidja and Mwali (relative to Ndzouani) is actually a transfer to households with schoolchildren (i.e., a more valuable in-kind education benefit) or a transfer to skilled or semi-skilled labor (i.e., a civil service contract).

⁶⁸ “Comoros Public Expenditure and Fiscal Management Review”, World Bank (2015).

import share (of consumption expenditures) is zero⁶⁹ for every decile. Similarly, approximately equal amounts are collected from the rice excise and from the tobacco excise, but 22 percent of EESIC households pay a nonzero rice excise amount, while only 15 percent of EESIC households pay a nonzero tobacco excise amount.

Figure VI.7: Revenue collection and change in poverty by indirect taxes



Change in Poverty Headcount from Indirect Taxes (percentage points) - *Left-Hand Side*

Revenue collections from Indirect Taxes (bln Francs, 2014) - *Right-Hand Side*

Figure VI.8: Shares of items and purchase types in total consumption expenditure by decile



Source: EESIC 2014.

Poorer households are taking advantage of preferential rates and statutory and non-statutory exemptions. Figure VI.8 summarizes, by consumption expenditure decile, the shares of total consumption expenditure that are not market purchases (and are therefore gifts or other private transfers, or auto-consumption); that are rice, alcohol, or tobacco purchases from informal sellers; that are domestic purchases from formal locations; and that are purchases of imports. While auto-production and auto-consumption is a more frequent source of consumption value for

⁶⁹ The mean import share ranges from approximately 2 to approximately 9 percent from the poorest to the richest decile.

poorer households, their informal purchases – especially of the excised rice, alcohol, and tobacco products – and their avoidance of imports appear more significant.⁷⁰

Indirect taxes negatively affect poverty. Even though poorer households are taking advantage of lower implicit tax rates created by the rate schedule and statutory and non-statutory exemptions, and even though the indirect tax system overall reduces inequality, indirect taxes increase the poverty headcount rate. The indirect taxes that have the largest impact on poverty are the domestic consumption tax and the rice excise, while the fuel and alcohol excises have virtually zero impact on poverty headcounts. As there is no fiscal space for national-coverage direct transfers,⁷¹ Comoros fiscal policy (through the CEQ Consumable Income concept) is impoverishing, and nearly 100 percent of those who are poor are net payers into the fiscal system (through the CEQ Consumable Income concept).⁷²

The personal income tax (PIT) system positively affects inequality. The Gini coefficient measured over gross incomes (or incomes before imputed PIT are collected) is 0.437; the Gini coefficient measured over net incomes (or incomes after imputed PIT are collected) is 0.434. The Kakwani coefficient on imputed taxes is 0.31, which indicates that the PIT system is pro-poor in the sense that PIT paid (as a share of pre-PIT income) rises with income.

However, the PIT system, like the indirect tax system, does create impoverishment. Figure VI.9 reports mean and minimum per capita income in each decile of the official welfare series, as well as the mean per-capita incomes in poor households and the PIT threshold (in 2012). The tax threshold, at 150,000 KMF (annual, 2012) is about 8 percent lower than mean per-capita incomes in poor households in 2014.⁷³ This does not mean that poor households expect a PIT burden; the PIT threshold is defined for individual incomes, and the welfare aggregate that determines poverty status is the value of total household consumption expenditure divided by the size of the household. Furthermore, even poor households with one (or more) income earners who have individual incomes above the threshold may not earn income from the formal sector or from assets that are “visible” to the PIT system administration. Poor households are also larger (by about 2 household members) than non-poor households, and therefore will likely be able to exempt more income (in the form of child allowances and/or pension-income exemptions, for example) from PIT calculations.

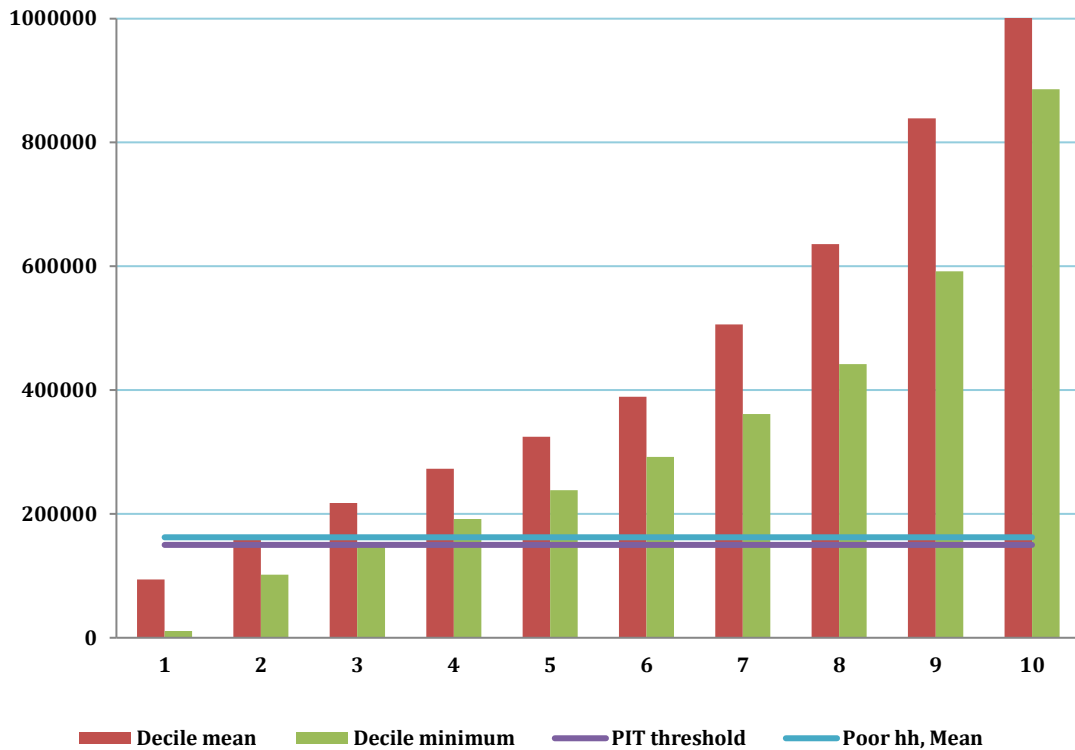
⁷⁰ The fewer statutory or non-statutory exemptions there are, or the more the rate structure tends towards uniformity across goods and services, the closer to neutral will the distribution of indirect taxes paid be (relative to the value of consumption expenditures). However, a perfectly proportional indirect tax system may still be regressive relative to actual income as richer households typically dedicate a smaller share of their income to current consumption.

⁷¹ Therefore no income is being added via fiscal policy to poor households’ incomes before they make purchases.

⁷² There is a very small group, representing about 0.5 percent of the population, paying no indirect taxes; the majority are smaller households concentrated in rural areas with higher income from auto-production/auto-consumption, and with nearly 100 percent shares of informal purchases – which we have chosen to exclude from the set of purchases which attracts indirect taxes – in total purchases.

⁷³ Consumer price Inflation (as measured by the Comoros consumer price index) between 2012 and 2014 was just over 3 percent; therefore, the 2012 tax threshold in 2014 nominal currency values would still be below mean per-capita incomes in poor households in 2014.

Figure VI.9: Per-capita consumption expenditures by decile and poverty status; PIT threshold



Source: EESIC 2014.

While the share of poor individuals that had high enough incomes to fall within the PIT threshold remains limited at 5 percent, some poor households may face a PIT burden. In the imputation of PIT carried out for this CEQ Assessment, approximately 5 percent of poor individuals had high enough incomes (as proxied by household consumption expenditures plus potential PIT payments) and had multiple formal employment characteristics so that they were imputed to be likely taxpayers. Furthermore, nearly all of those poor households with one imputed taxpayer have (at least) one individual wage earner employed in the civil service, meaning that those households are likely receiving non-salary benefits (including pensions) that we do not measure. However, a PIT threshold slightly above, at, or even below poverty-level expenditure means that some poor households, depending on demographic composition and level of informality, will face a PIT burden. In the imputation carried out here, the poor households with a PIT burden contribute to only 2 percent of total PIT revenues collected. Therefore, there is scope for a revenue-neutral revision of the tax schedule that includes an increase in the tax threshold combined with a revenue-weighted 2-percentage point increase in marginal rates.

Some conclusions and implications

Comoros fiscal policy does not directly add purchasing power to poor or vulnerable households through cash or near-cash transfers. On the revenue collection side, although indirect tax schedules provide preferential rates, although most economic activity is informal and therefore not subject to indirect taxation, and although the personal income tax schedule has a progressive marginal rate structure, the total tax burden in the first decile (in the poorest 10 percent of the population) still represents 1.3 (1.7) percent of pre-tax income. A tax burden that is not balanced by benefits is necessarily poverty increasing. A revision of the indirect and direct tax schedules or a compensatory direct transfer would better protect poor households from impoverishment via fiscal policy.

Comoros' fiscal policy as a whole reduces pre-existing inequality, and many individual fiscal programs on both the expenditure and revenue sides make marginal contributions to inequality reduction. The largest of these contributions to inequality reduction comes from public education. However, in Comoros' decentralized service-delivery framework, island governments, who are responsible for funding and delivering primary social services, have prioritized salary and personnel spending while neglecting materials and non-salary operational expenses (like facility maintenance). This pattern has led facilities to charge users (students) access fees; such fees reduce the net benefit of public services to utilizing households. Including these locally-collected fees, while adjusting island-level spending to reflect an efficient amount of salary versus non-salary spending, may alter the inequality impact of in-kind transfers in education.

Appendices

Appendix 1.A: Overview on the methodology and design of EIM 2004 and EESIC 2014.

Most of the analysis in this report is based on the existing two household budget surveys, namely the *Enquête Intégrale auprès des Ménages* (EIMM) for 2004 and the *Enquête sur l'Emploi, le Secteur Informel et la Consommation des Ménages aux Comores* (EESIC) for 2014.

EIM 2004 has three objectives: (i) assess the poverty levels, monitor indicators of household welfare, and promote specific analysis to strengthen economic and social policies; (ii) mitigate the institutional constraints – the lack of unity between various statistical activities and weak statistical tools– that impede a comprehensive understanding of poverty; and (iii) enhance analytical capacity at conceptual, methodological and technical levels. The EIM uses three statistical modules: a household questionnaire, a community questionnaire, and a questionnaire on prices. The household questionnaire administered in two parts divided into six sections each, aims to provide integrated information on the mechanisms that determine the standards of living of families.

The EESIC 2014 is built in 3 phases (enquête 1-2-3) completed between November 2013 and June 2014. Phase 1 and 2 focus on labor market indicators and the informal sector respectively and were carried out simultaneously. Phase 3, named *Dépenses de consommation des ménages aux Comores* (EDMC), was executed later, from May to June 2014, and focuses on household's consumption expenditures with the objectives of: (i) identifying households' consumption level and structure; (ii) reviewing the role of the informal sector in meeting household needs; (iii) assessing changes in income, consumption and cash transfers received or sent by the households in the sample; and ultimately (iv) providing the weights for a consumer price index (CPI).

This appendix covers technical issues in the design, implementation, comparability and poverty estimation methodology of the surveys with a focus on data quality. These issues have been mentioned in the body of the report, but are elaborated here.

I. Methodology and data collection

Sampling design

The samples of the two surveys come from the population and housing census conducted in 2003. A two-stage stratified sampling design was used in the two surveys. The EIM 2004 has a sample of 2,988 households distributed in 249 Enumeration Areas (EAs) randomly selected within each island to distinguish between urban and rural areas, and Moroni. The 249 EAs represent the first level of sampling where: (i) 220 EAs were derived from a stratified two-stage survey; and (ii) an

additional 29 EAs were identified to include a sufficient number of households belonging to localities affected by FADC (*Fonds d'Appui de Développement Communautaire*). The second level of sampling is formed by households within each of the 249 EAs identified in the first level of sampling. The table below summarizes the spatial distribution of the sample.

Table 1.A-1: Sample for the EIM 2004

Strata	Number of EAs	Number of households identified in 2003	Coefficient of variation of sample from the average expenses per household	Coefficient of variation of sample from the proportion of poor households
Mwali rural	12	2 337	17%	14%
Mwali urban	20	2 840	18%	22%
Ndzouani rural	70	27 572	4%	7%
Ndzouani urban	31	10 733	6%	13%
Ngazidja rural	90	29 168	6%	9%
Ngazidja urban	26	10 964	5%	11%
Moroni	16	7 654	11%	24%
Mwali	32	5 177	13%	12%
Ndzouani	101	38 305	3%	6%
Ngazidja	116	40 132	5%	8%
Rural	172	59 077	4%	5%
Urban	77	24 537	5%	10%
Comoros	249	83 614	3%	5%

Source: EIM 2004.

The EESIC 2014 uses the same strata. The survey has a sample of 4,966 households randomly selected in 338 Enumeration Areas (EAs) that were surveyed during Phase 1. The sample size in Phase 3 represents 65% of the sample in Phase 1, thus 3,276 households. The survey was conducted in 4 successive waves, each comprised of 819 households, within a total duration of 15 days. The table below summarizes the spatial distribution of the sample per strata.

Table 1.A-2: Sample for the EESIC 2013/14

Strata	Moroni	Rest of Ngazidja	Ndzouani	Mwali
Number of EAs to be sampled in urban areas	84	50	43	36
Number of households to be sampled in urban areas	1,008	378	387	387
Number of EAs to be sampled in rural areas	0	50	41	34
Number of households to be sampled in rural areas	0	378	369	369
Total EAs	84	100	84	70
Total households	1,008	756	756	756

Source: EESIC 2014.

Structure of the questionnaires

The EIM 2004 consists of three components: the household, community and price questionnaires. The household questionnaire contains:

1. Identification of the household
2. Housing
3. Education
4. Health
5. Occupation
6. Agriculture
7. Food and non-food consumptions

8. Non-farm enterprises
9. Transfers and revenues
10. Assets, loans and saving
11. Anthropometry

The third phase of EESIC 2014, the EDMC module, is based on three questionnaires. The first questionnaire is the main one and is composed of 29 sections which can be summarized as follows:

1. Identification of the household
2. List of household members
3. Daily expenditures
4. Clothing and shoes
5. Housing, electricity, water, gas and other fuels
6. Furniture and maintenance
7. Health
8. Transport
9. Communication
10. Leisure and culture
11. Education
12. Hotels and restaurants
13. Miscellaneous goods and services
14. Transfers
15. Agriculture
16. Livestock farming
17. Fishing
18. Forest exploitation
19. Access to public services

The second questionnaire is based on the subjective assessment of poverty and the third questionnaire is an additional questionnaire to collect data on gender.

Periods of data collection and duration

Both EIM 2004 and EESIC/EDMC 2014 collected consumption and expenditures data over two months. They were conducted approximately during the same months: for instance, May and June and were divided into different stages. In 2004, individual characteristics were recorded during the first stage and the second stage concerned the household's expenditures. Given the objective of the 2014 survey to collect as much detailed information related to household consumption as possible, the data were collected in four stages. Daily purchases were recorded during the last three stages.

The methodology is not the only issue that matters for Comoros in assessing poverty and inequality trends. The quality of the data is also a big issue that should be taken into account in such assessments.

II. Quality and design differences

Both EIM 2004 and EESIC 2014 suffer from important quality issues, including errors in data entry, important outliers, mismatches between the socio-demographic variables in the different modules of each survey, absence of labelling of variables and difficulties to link them with the questionnaire. Yet, the EESIC is of better quality than the EIM. The 2014 EDMC module of EESIC differs from the preceding 2004 EIM in the following ways:

a. **Number of items and aggregation in the recall module:** The EDMC 2014 probed for a much larger number of items than the EIM 2004. Using a larger number of items can lead to higher consumption aggregates. Also, the two surveys used different classification of the products. The 2004 survey probed for less than one hundred product items, and the products were often not disaggregated to take into account several types of sub-products. In contrast, the 2014 survey was based on the COICOP classification and therefore, included different sorts of products. The number of food and non-food items considered in the 2014 survey is significantly higher than that of 2004. There was a possibility to aggregate the product items to obtain common products across the two surveys. However, this was difficult to do in the case of some products for which it was difficult to find equivalent products in 2004.

b. **Methods of data capture – diary versus recall:** The 2014 EDMC collects food and non-food expenditures through a 9 days diary and different recall modules, while the EIM 2004 used recall modules only. In the EDMC 2014, item codes in the diary did not correspond to the recall module, and the latter grouped some of the items together that were recorded separately in the diary, which makes a comparison of expenditures across the two sources more difficult. Diary could be seen as being more appropriate for food consumption and frequent purchases than recall. However, diary is based on the household self-reports without the presence of the interviewer. Although the latter should verify all information reported by the household and should record it in the questionnaire, it is likely that this was not done properly. Indeed, the data show that information reported by households was sometimes problematic.

c. **Recall periods:** The EIM 2004 uses recall periods of 14 days for all items, as well as recall periods of 1, 3 and 12 months depending on the items, while the EDMC 2014 uses recall periods of 1, 3 and 12 months depending on the item (see Table 1.A-3 for an overview). A large literature shows that changes in the recall period can have effects on measured consumption and poverty (e.g. Beegle *et al.*, 2010; Lanjouw, 2005; Gibson, Huang and Rozelle, 2005).

Table 1.A-3: Reference periods of the two surveys

	EIM 2004				Diary 9 days	EESIC/EDMC 2014		
	Recall					Recall		
	14 days	1 month	3 months	1 year	3 months	6 months	1 year	
Food and drinks	X		X	X	X			
Alcohol and tobacco	X		X	X	X		X	
Clothing and shoes	X		X	X	X		X	
Housing, electricity, water and gas	X	X	X	X	X		X	
Furniture and maintenance	X		X	X	X		X	
Health	X	X		X	X	X	X	
Transport	X		X		X	X	X	
Communication	X		X		X	X	X	
Leisure and culture	X		X		X		X	
Education				X	X		X	
Hotels and restaurants	X		X		X	X	X	
Miscellaneous goods and services	X		X		X		X	

Sources: EIM 2004 and EESIC 2014.

Other problems relate to the non-standard units of measurement. This problem concerns both 2004 and 2014 surveys, but was surprisingly more acute in 2014. There were more than 70 different units of measurement for quantities in the 2014 survey. Trying to reduce the number of units by converting them into conventional units or trying to correct wrong units was difficult, given the limited availability of market prices. While there was an effort to collect market prices in 2004, though the coverage of products was low, this effort was much more limited in 2014, and market prices were collected for a very low number of items compared to the number of products (particularly food products) available in EESIC/EDMC 2014. This affected the estimation of spatial price deflators, the caloric conversion of food items to estimate the poverty line and the possibility to identify outliers. Besides these issues, there were other problems related to the collection of own-consumed items in 2004 and difficulties to identify the labelling of some consumption/expenditures items in this survey, which led to disregarding some of them.

Appendix 1.B – Poverty Estimation Data and Methodology

Computing consumption aggregates is the first step for poverty estimates. In the case of 2014, the monthly expenditures and quantities for each household were calculated in both diary and recall modules, if the same items were surveyed in both modes. In order to avoid double counting in case where the household has both diary and recall expenditures, diary and recall were compared to keep the most reasonable quantities and prices, and the ones from the recall module were used in most cases in the end.

I. Calculation of the Household Consumption/Expenditure Indicator

The 2014 household consumption/expenditure indicator is estimated as an aggregation of food and non-food expenditure data collected using both diary and recall approaches through specific survey modules. The estimation work exploits a total of 21 modules directly linked to food and non-food data.

1. Food consumption expenditure:

Food data and indicators are first drawn from the CQ03 module, which is a diary-based module that collects daily current expenditures of eligible household members assigned to this task and subsequently registered in household diaries. It contains daily current expenditures undertaken over a 9-day period in which households are visited 4 times at a 3 days interval by interviewers to inspect and validate registered expenditures prior to the corresponding record in the CQ03 module. Second, food data and indicators are drawn from the CQ04 module, which is a classical recall-based module destined to capture important (bulky) or exceptional food expenditures carried out over a 12-month period. Note that food expenditures made for ceremonies (wedding celebrations or funerals) are not included in the estimation of the household food consumption indicator.

The household food indicator is estimated by combining food data from respective diary and recall modules. First, diary-based food data are merged with 12-month recall period food data, using the following merging variables: household identifier, product item or service code (COICOP), harmonized measurement unit of product or service, frequency of renewal of product or service, place where the purchase is made, and the origin of the product or service. Then, within each household, the final list of food expenditures to be further aggregated is defined according to a simple rule, namely: (i) if the food product or service originates solely in the diary-based module (not purchased in the 12-month recall-based data file), we include it in the list directly; (ii) if the food product or service originates solely in the recall-based module (not purchased in the diary-based data file), we include it in the list directly; (iii) if the food product or

service originates in both diary-based module and recall-based module, we retain it in the diary-based module only if they follow a more reasonable distribution.

2. Non-food consumption expenditure:

Non-food data and related estimated indicators are both from diary and recall modules, with several recall periods for the later. A simple 3-step approach is used to estimate the non-food consumption/expenditure indicator:

First, identical non-food products or services (as per their COICOP codes) collected with different recall periods are merged to form unified recall-based non-food datasets, based on differentiated merging variables. The twelve household final consumption/expenditure categories were collected through the diary approach, which was completed by recall-based data collected through different recall modules/periods. Except “housing, water, electricity, gas and other fuels” and “education”, all non-food data modules had to be merged before being aggregated/combined to obtain those unified recall datasets. Prior to proceeding to this merging step, monthly non-food indicators are calculated using the respective recall periods of the non-food datasets that have to be combined. Similar to the estimation of food consumption indicators, a decision has to be made with regard to non-food products or services collected simultaneously in the two non-food datasets that are merged. The monthly non-food indicator retained is the one displaying a somewhat more reasonable distribution. For non-food products or services originated only in one of the two merged datasets, inclusion in the household list of final non-food products or services is made.

The second step consists in analyzing the distributions of monthly non-food consumption/expenditure obtained from the two different recall-based non-food datasets that are merged. The final outcome of this said data selection/cleaning process is as follows:

- Clothing and footwear: 89 products or services matched perfectly, from which we retained the monthly non-food consumption based on the 6-month recall period.
- Furnishings, household equipment and routine household maintenance: 13 products or services matched perfectly, from which we retained the monthly non-food consumption based on the 6-month recall period.
- Health: There were not products or services matched in the two merged non-food datasets.
- Transport: 95 products or services matched perfectly, from which we retained the monthly non-food consumption based on the 3-month recall period.
- Communication: There were not products or services matched in the two merged non-food datasets.
- Recreation and culture: There were not products or services matched in the two merged non-food datasets.
- Restaurants and hotels: 3 products or services matched perfectly, from which we retained the monthly non-food consumption based on the 3-month recall period.
- Miscellaneous goods and services: There were not products or services matched in the two merged non-food datasets.

The third step of the non-food estimation process consists in forming combined diary-recall non-food datasets for each of the 10 household final consumption/expenditure functions related to non-food. Here again, we apply the same selection/cleaning rule for non-food products or services that matched, which gives the following specific outcome:

- Clothing and footwear: 466 products or services matched perfectly, from which we retained the monthly non-food consumption using the recall-based estimation.
- Housing, water, electricity, gas and other fuels: 2,343 products or services matched perfectly, from which we retained the monthly non-food consumption using the recall-based estimation.
- Furnishings, household equipment and routine household maintenance: 4,603 products or services matched perfectly, from which we retained the monthly non-food consumption from the recall-based dataset.
- Health: 364 products or services matched perfectly, from which we retained the monthly non-food consumption from the recall-based dataset.
- Transport: 935 products or services matched perfectly, from which we retained the monthly non-food consumption from the diary-based dataset.
- Communication: 1,131 products or services matched perfectly, from which we retained the monthly non-food consumption from the recall-based dataset.
- Recreation and culture: 615 products or services matched perfectly, from which we retained the monthly non-food consumption from the recall-based dataset.
- Education: There were not products or services matched in the two merged non-food datasets.
- Restaurants and hotels: 4 products or services matched perfectly, from which we retained the monthly non-food consumption from the recall-based dataset.
- Miscellaneous goods and services: 795 products or services matched perfectly, from which we retained the monthly non-food consumption from the recall-based dataset.
- Other miscellaneous goods and services: 230 products or services matched perfectly, from which we retained the monthly non-food consumption from the recall-based dataset.

3. Consumption/expenditure aggregate:

The total consumption aggregate is calculated as the sum of total food and nonfood consumption expenditures. Following INSEED's methodology, the consumption aggregate excludes housing-related expenditures, neither actual rent or imputed rental values for homeowners. The consumption aggregate also excludes use values for large durable items, even though it includes the purchasing values of a fairly large number of smaller, semi-durable goods.⁷⁴ Finally, household level investments (purchase of houses, apartments, garages, payments for hiring labour for own construction, expenditures on ceremonies such as weddings, funerals, business expenditures etc.) were also excluded.

⁷⁴ The distinction between durables, semi-durables and non-durable items is based on UNStats.un.org official COICOP classification in which ND=Non Durable, SD=Semi Durable and D=Durable.

4. Normalizing consumption for spatial differences in cost of living

Households with the same level of nominal consumption (per capita) might have different levels of real consumption if they face different costs of living. Nominal consumption of the household should hence be adjusted for spatial cost-of-living differences, associated with the location of households in four strata: Moroni, Rest of Ngazidja, Ndzouani and Mwali.

The price indices used to adjust nominal consumption are computed from the EDMC 2014 data. However, the non-conventional units of measurement (existence of over 70 different units of measurement such as bags, small plate, big plate etc.) made this exercise difficult. To address this issue, we first tried to convert the non-conventional units in the consumption module to conventional units (e.g., kg or liter) based on the most frequent unit available for each item. We also attempted to match the data in the consumption module with the prices module and used median market prices, at both national and regional levels, for available items in the latter.

A price index is a combination of prices and budget shares in a base and a comparison period. The budget shares are the weights that each commodity has in the index and are equivalent to their share in the cost of the bundle being analyzed. The EDMC 2014 can provide information on budget shares and prices (unit values) for all (food and non-food) items captured in the diary. The non-food price indices were computed following a similar procedure as food price indices, but only items for which market prices were available were considered as units' values for non-food commodities in the consumption module were not reliable.

We use Fisher ideal index to adjust for spatial price differences. Fisher price indices are more accurate than Laspeyres or Paasche price indices in capturing differences in consumption patterns across domains, as a consequence of differences in relative prices. Separate food and non-food fisher price indices are estimated by geographic stratum (Moroni, Rest of Ngazidja, Ndzouani and Mwali).

5. Poverty lines

The EESIC/EDMC 2014 poverty lines are based on a food basket concept and correspondingly anchored in nutrition. The 2014 food poverty line is based on the cost of a food basket that delivers 2,200 calories per person per day. The cost of buying 2,200 calories is derived from the food consumption patterns prevailing in a reference population—the 2nd to 5th quintile of the distribution of total consumption per capita. Consumed quantities are converted into calories using the Afristat/INSEED calorie conversion factors and valued at national mean prices (the same as the reference for the Fisher deflators).⁷⁵ The non-food component of the basic needs poverty line is based on average non-food consumption of households whose total consumption is

⁷⁵ As in the context of the Fisher price deflator, only transactions in the most frequent unit are used for the computation of prices and to derive the budget shares. Given the data limitations and lack of prices data (due to the prevalence of non-conventional units), mean Fisher prices were found to be more accurate for the estimation of the food line, though the difference with median Fisher was not large.

close to the food poverty line.⁷⁶ In the EDMC 2014, households in this reference group devoted approximately 66 percent of their total consumption to food. Scaling up the food poverty line by this ratio delivers the basic needs poverty line of KMF 25,341 per person per month.

The estimation of the consumption aggregates for 2004 was based (as much as possible) on the same method as for 2014. The poverty lines of 2014 were deflated by the CPI to obtain the poverty lines of 2004 (though we recalculated also the 2004 poverty lines using the same method as 2014 to assess the accuracy of the CPI). Despite the efforts to obtain comparable poverty estimate in 2004 and 2014 by re-estimating consumption aggregates of 2004 using the 2014 survey as the reference, it was difficult to address the issues related to survey design differences. We therefore used the small area estimation technique/poverty mapping to estimate the poverty trend.

II. Potential Quality Issues Plaguing Quality of Consumption/Expenditure Estimations

1. Non-standard units of measure:

As mentioned above, there are several non-standard units of measure included in the expenditures questionnaires. The equivalents for these measures in standard units were difficult to estimate.

2. Retrospective expenditures:

The questionnaire defines the categories of goods are to be collected for the 12, 6 or 3 month time period. Respondents are then asked if they have purchased any of these items during a particular time period. The added value of this questionnaire is that the information is collected by the individual, not at the household level. This allows for gender analysis on non-food expenditures.

However, there are potential collection errors in retrospective expenditures.

- There are no standard questions to obtain the information. The questionnaire has several columns with a heading that determines the information to be included in the column. The manual includes some suggestions on how to ask the information, but it is uncertain how the information was collected. COICOP categories for each section are included on the left side of the page. The list of codes was used as a guide for the items that are to be included on the corresponding section of the questionnaire. There is potential for errors and omissions because the interviewers were not provided with the wording of the questions they asked, and because they had to calculate expenditures on the fly (see below).

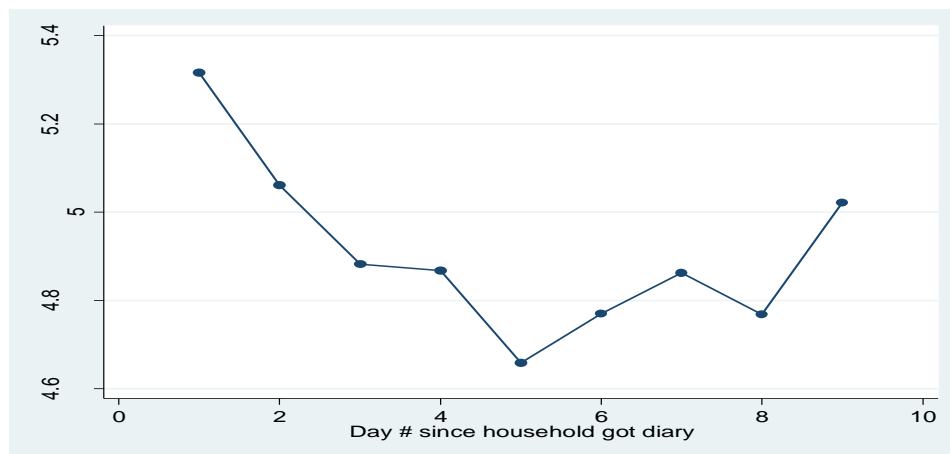
⁷⁶ More precisely, these are households whose total consumption lies within the following interval [food poverty line; 1.2*food poverty line].

- The instructions in the Interviewer Manual call for the interviewer to calculate expenditures during the interview rather than recording what the informant reports. The interviewer has to do this with every purchase while in the household, and thus it must be done quickly so that the respondent does not lose interest in the survey or decide to stop the interview. Hence, the information reported in the questionnaire is the number calculated by the interviewer.

3. Respondent's fatigue:

There are some problems related to the implementation of the diary surveys. A strong pattern of respondent's fatigue/or under-reporting during the absence of enumerator is found as the number of transactions declined over the course of the diary. In addition, the number of transactions seems to increase only when the enumerators visit the household, as they go every other day (Figure 1. B-1).

Figure 1. B-1: Number of transactions recorded since households receive the diary



Sources: EESIC/EDMC 2014.

III. Differences between the report and INSEED's method

Despite efforts to reconcile the methodology for the measurement of poverty levels in the report with the methodology used by INSEED (with the support of Afristat), differences persisted. INSEED's poverty rate for 2014 is estimated at 34.3 percent against 42.4 percent in the report. This difference is driven by many causes listed in the table below, but the main cause is related to the use of the mean prices of Moroni, instead of the mean national prices, as the reference for the spatial price deflator.

INSEED through AFRISTAT	World Bank Group
<i>Household consumption / expenditure (difference)</i>	
<p>The household consumption / expenditure indicator is made up of (i) food consumption / expenditure (either purchased in markets or self-produced and consumed) and (ii) non-food consumption / expenditure (either purchased in markets or self-produced and consumed). The consumption aggregate includes expenditures on ceremonies such as wedding, funerals etc. Mean real monthly per capita consumption is: KMF 45,204.5.</p>	<p>The household consumption / expenditure indicator is made up of (i) food consumption / expenditure (either purchased in markets or self-produced and consumed) and (ii) non-food consumption / expenditure (either purchased in markets or self-produced and consumed). Mean real monthly per capita consumption is: KMF 42,808.</p>
<i>Excluded from household consumption / expenditure (difference)</i>	
<i>Price indices to deflate household consumption (difference)</i>	
<p><i>Paasche price indices</i> are calculated to control for spatial differences in the cost of living of the survey strata, with Moroni taken as the base strata.</p>	<p><i>Fisher price indices</i> are calculated to control for spatial differences in the cost of living of the survey strata, with national prices taken as the base.</p>
<i>Per capita household consumption (no difference)</i>	
<p>Use of household size to adjust for differences in household composition.</p>	<p>Use of household size to adjust for differences in household composition.</p>
<i>Source of caloric equivalent values (difference)</i>	
<p>Per capita caloric needs are estimated at 2,100 Kcal per day. Most caloric values are drawn from caloric food tables developed by FAO, which provide the caloric equivalents of most food products consumed by African households. These caloric equivalents reflect the caloric value per 100 grams or 100 milliliters of edible food / beverage products.</p>	<p>Per capita caloric needs are estimated at 2,200 Kcal per day. Most caloric values are drawn from caloric food tables developed by FAO, which provide the caloric equivalents of most food products consumed by African households. These caloric equivalents reflect the caloric value per 100 grams or 100 milliliters of edible food / beverage products. <u>But, missing values are completed using caloric equivalent values from African tables.</u></p>
<i>Estimation of poverty lines (no difference)</i>	
<p>Use of <i>cost of basic needs</i> (CBN) approach to estimating food poverty line with the following characteristics: (i) a food basket is determined, which contains 50 food items representing the most consumed products; (ii) calculation of the quantities of consumed products in standard units (kg or liter), per capita and per day, for the 50 items; (iii) conversion of each product consumed in calories; (iv) using the prices collected in markets, calculating the expenditure amounts for these products, which permit to achieve the daily 2,100 Kcal per head. Food and non-food poverty lines are then generated as usually done in the CBN approach, relying on the Ravallion works (especially for the non-food poverty line). INSEED's basic needs poverty line is: KMF 24,592/person/month</p>	<p>The same CBN approach is used, with slight variance. Basic needs poverty line: KMF 25,341/person/month</p>

Appendix 1.C – Multivariate Regression

We perform a regression analysis to examine the main factors affecting households' consumption and poverty. This allows us to identify the main correlates of poverty.

We use two regression models. The first examines the impact of the household's socioeconomic characteristics on the logarithm of real per capita household consumption, and the second investigates the determinants of the probability of being poor. The first model is estimated using the Ordinary Least Square (OLS) method and the second using the Probit model. The estimation results are reported respectively in Tables 1.C-1 and 1.C-2.

It is worth mentioning that the direction of causality is sometimes difficult to establish in these kinds of analysis. The results below allow the identification of variables closely related with poverty, but the direction of causation will necessitate analysis that is more sophisticated.

Table 1.C-1: Correlates of Consumption, 2014

	(1) Comoros	(2) Rural	(3) Urban
Household size	-0.132*** (0.01)	-0.126*** (0.01)	-0.135*** (0.01)
Share of members aged 0-14 years	-0.302*** (0.08)	-0.254* (0.12)	-0.383*** (0.09)
Male head of household	0.069 (0.04)	0.090 (0.06)	0.040 (0.04)
Education of the head (Omitted: no education)			
Completed primary	0.042 (0.04)	0.113 (0.06)	-0.047 (0.05)
Completed secondary	0.116* (0.05)	0.102 (0.07)	0.078 (0.05)
Completed superior	0.178** (0.06)	0.216 (0.12)	0.109 (0.06)
Migrant household	0.120 (0.09)	0.346* (0.17)	-0.043 (0.09)
Type of work of the head (Omitted: engaged in government/public administration/IO)			
Engaged in private non agricultural business	0.068 (0.07)	0.082 (0.12)	0.036 (0.07)
Engaged in agricultural farming	0.048 (0.05)	0.116 (0.06)	-0.110 (0.06)
Engaged in association/HH duties	-0.136 (0.07)	-0.152 (0.11)	-0.178* (0.07)
Sector of employment of the head (Omitted: agriculture)			
Industry	0.233*** (0.06)	0.319*** (0.10)	0.094 (0.07)
Trade	0.182** (0.06)	0.271** (0.10)	0.063 (0.06)
Services	0.144* (0.07)	0.254 (0.13)	0.044 (0.07)
Form of employment of the head (Omitted: self-employed alone)			
Wage employee	0.054 (0.07)	0.077 (0.14)	0.060 (0.07)
Self-employed with others	0.168* (0.08)	0.151 (0.12)	0.194* (0.08)
Family helper	0.025 (0.10)	0.071 (0.15)	-0.013 (0.11)
Occupation status of the head (Omitted medium status)			
Low status	0.018 (0.07)	0.070 (0.14)	0.008 (0.07)
High status	-0.070 (0.06)	-0.126 (0.09)	-0.003 (0.06)

Water facilities (Omitted: piped water)			
Public safe source	-0.210*** (0.05)	-0.265*** (0.08)	-0.056 (0.06)
Other non-safe source	-0.118* (0.05)	-0.101 (0.09)	-0.117* (0.06)
Access to electricity	0.197*** (0.05)	0.263** (0.08)	0.100* (0.05)
Sanitation facilities (Omitted traditional latrine/WC)			
Modern toilet	0.024 (0.05)	0.032 (0.10)	0.024 (0.05)
Improved latrine	0.108* (0.05)	0.106 (0.07)	0.105 (0.06)
Access to college (Omitted: no access)			
Less than 0.5 kilometer	0.046 (0.08)	0.245 (0.13)	-0.110 (0.08)
Between 0.5 and 1 kilometer	0.121 (0.08)	0.438*** (0.12)	-0.169* (0.08)
More than 1 kilometer	0.010 (0.08)	0.250* (0.12)	-0.174* (0.08)
Access to health center (Omitted: no access)			
Less than 0.5 kilometer	-0.219** (0.08)	-0.180 (0.11)	-0.259*** (0.08)
Between 0.5 and 1 kilometer	-0.176* (0.07)	-0.154 (0.11)	-0.149 (0.08)
More than 1 kilometer	-0.276*** (0.07)	-0.295** (0.10)	-0.172* (0.07)
Access to market (Omitted: no access)			
Less than 0.5 kilometer	0.155** (0.06)	0.104 (0.09)	0.146* (0.06)
Between 0.5 and 1 kilometer	0.120* (0.06)	0.167 (0.09)	0.023 (0.07)
More than 1 kilometer	0.100 (0.05)	0.036 (0.07)	0.113 (0.07)
Mobile phones	-0.002 (0.05)	-0.054 (0.06)	0.022 (0.06)
Tenure of dwelling unit (Omitted: owned)			
Rented	0.062 (0.06)	0.301* (0.14)	0.014 (0.06)
Provided free/other	0.106 (0.08)	0.132 (0.12)	0.060 (0.07)
Sheep	0.123 (0.13)	0.110 (0.14)	0.263** (0.10)
Goat	0.145** (0.05)	0.179** (0.07)	0.137 (0.07)
Computer	0.102* (0.05)	0.038 (0.12)	0.156** (0.05)
Other mean of communication	0.132* (0.05)	0.093 (0.07)	0.149* (0.07)
Other type of asset	0.113* (0.05)	0.142* (0.07)	0.064 (0.07)
Generator	0.133 (0.07)	-0.013 (0.14)	0.280*** (0.07)
Bicycle	0.100 (0.13)	0.147 (0.24)	0.090 (0.10)
Car	0.115 (0.06)	0.197 (0.11)	0.052 (0.06)
Rural household	-0.174*** (0.04)		
Island of residence (Omitted: Moroni)			
Rest of Ngazidja	0.417*** (0.05)	0.000 (.)	0.312*** (0.06)
Ndzouani	0.318*** (0.06)	-0.191 (0.10)	0.496*** (0.07)
Mwali	0.267*** (0.06)	-0.169 (0.10)	0.287*** (0.06)
Receive transfers	0.161***	0.148**	0.158***

	(0.04)	(0.05)	(0.04)
Constant	10.658***	10.622***	10.981***
	(0.11)	(0.19)	(0.11)
Observations	3,131	1,113	2,018
R-squared	0.421	0.453	0.397

Table 1.C-2: Correlates of Poverty, 2014

	(1) Comoros	(2) Rural	(3) Urban
Household size	0.221***	0.224***	0.241***
	(0.02)	(0.03)	(0.02)
Share of members aged 0-14 years	0.547**	0.401	0.886***
	(0.19)	(0.30)	(0.22)
Male head of household	-0.176*	-0.279*	-0.065
	(0.09)	(0.14)	(0.10)
Education of the head (Omitted: no education)			
Completed primary	-0.089	-0.284	0.154
	(0.10)	(0.15)	(0.12)
Completed secondary	-0.248*	-0.381*	-0.071
	(0.12)	(0.18)	(0.12)
Completed superior	-0.347*	-0.340	-0.213
	(0.15)	(0.30)	(0.15)
Migrant household	-0.164	-0.590	0.180
	(0.24)	(0.61)	(0.19)
Type of work of the head (Omitted: engaged in government/public administration/IO)			
Engaged in private non agricultural business	-0.359*	-0.644*	-0.076
	(0.17)	(0.31)	(0.17)
Engaged in agricultural farming	-0.195	-0.295*	0.106
	(0.11)	(0.15)	(0.14)
Engaged in association/HH duties	0.162	0.065	0.380*
	(0.17)	(0.26)	(0.19)
Sector of employment of the head (Omitted: agriculture)			
Industry	-0.327*	-0.288	-0.290
	(0.14)	(0.22)	(0.15)
Trade	-0.323*	-0.313	-0.262
	(0.15)	(0.26)	(0.15)
Services	-0.039	-0.165	-0.018
	(0.15)	(0.28)	(0.15)
Form of employment of the head (Omitted: self-employed alone)			
Wage employee	-0.073	-0.029	-0.107
	(0.20)	(0.36)	(0.20)
Self-employed with others	-0.002	-0.031	0.010
	(0.16)	(0.23)	(0.16)
Family helper	0.086	0.027	-0.064
	(0.19)	(0.32)	(0.23)
Occupation status of the head (Omitted medium status)			
Low status	-0.088	-0.057	-0.197
	(0.19)	(0.34)	(0.19)
High status	0.167	0.255	0.102
	(0.12)	(0.19)	(0.13)
Water facilities (Omitted: piped water)			
Public safe source	0.329**	0.494**	0.053
	(0.12)	(0.18)	(0.14)
Other non-safe source	0.235	0.203	0.166
	(0.13)	(0.26)	(0.14)
Access to electricity	-0.221	-0.307	-0.114
	(0.12)	(0.19)	(0.11)
Sanitation facilities (Omitted traditional latrine/WC)			
Modern toilet	0.068	0.039	0.066
	(0.12)	(0.23)	(0.13)
Improved latrine	-0.231	-0.142	-0.466***
	(0.12)	(0.17)	(0.14)
Access to college (Omitted: no access)			

Less than 0.5 kilometer	-0.133 (0.20)	-0.563 (0.29)	0.202 (0.28)
Between 0.5 and 1 kilometer	-0.312 (0.19)	-1.103*** (0.28)	0.398 (0.27)
More than 1 kilometer	-0.081 (0.19)	-0.642* (0.29)	0.281 (0.27)
Access to health center (Omitted: no access)			
Less than 0.5 kilometer	0.406* (0.17)	0.369 (0.25)	0.529* (0.22)
Between 0.5 and 1 kilometer	0.298 (0.17)	0.091 (0.24)	0.552* (0.22)
More than 1 kilometer	0.564*** (0.16)	0.559* (0.24)	0.535* (0.22)
Access to market (Omitted: no access)			
Less than 0.5 kilometer	-0.275* (0.12)	-0.198 (0.18)	-0.339* (0.14)
Between 0.5 and 1 kilometer	-0.208 (0.13)	-0.273 (0.20)	-0.184 (0.15)
More than 1 kilometer	-0.257* (0.12)	-0.133 (0.17)	-0.385* (0.16)
Mobile phones	0.002 (0.10)	0.076 (0.14)	-0.026 (0.12)
Tenure of dwelling unit (Omitted: owned)			
Rented	-0.071 (0.14)	0.249 (0.46)	-0.032 (0.15)
Provided free/other	-0.069 (0.15)	-0.272 (0.26)	0.111 (0.15)
Sheep	-0.149 (0.33)	0.052 (0.38)	-1.590** (0.61)
Goat	-0.180 (0.12)	-0.288 (0.16)	-0.126 (0.17)
Computer	-0.181 (0.13)	-0.065 (0.28)	-0.245 (0.14)
Other mean of communication	-0.144 (0.12)	-0.051 (0.16)	-0.181 (0.15)
Other type of asset	-0.191 (0.12)	-0.255 (0.16)	-0.139 (0.14)
Generator	-0.160 (0.20)	-0.131 (0.39)	-0.380* (0.18)
Bicycle	0.160 (0.25)	0.280 (0.42)	0.067 (0.27)
Car	-0.161 (0.16)	-0.115 (0.27)	-0.170 (0.15)
Rural household	0.402*** (0.10)		
Island of residence (Omitted: Moroni)			
Rest of Ngazidja	-0.734*** (0.14)	-0.221 (0.27)	-0.556*** (0.15)
Ndzouani	-0.497*** (0.15)	0.194 (0.16)	-0.882*** (0.16)
Mwali	-0.524*** (0.14)	0.000 (.)	-0.669*** (0.16)
Receive transfers	-0.348*** (0.08)	-0.454*** (0.12)	-0.235* (0.09)
Constant	-0.913*** (0.25)	-0.310 (0.35)	-1.766*** (0.28)
Observations	3,131	1,113	2,018

* Significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level. Coefficient between brackets are standard errors.

Sources: EIM 2004 and EESIC 2014.

Appendix 2.A – The Unconditional Quantile Regression Method

The unconditional quantile regression approach used to investigate the underlying causes of inequality within Comoros' households, in the third section of the first chapter, is based on the estimation of the Recentered Influence Function (RIF) for different quantiles of the consumption distribution. An ordinary least squares (OLS) regression model of the following form is then estimated to evaluate the impact of the different households' attributes on their consumption levels:

$$RIF(y, Q_\theta) = X\beta + \varepsilon \quad (1)$$

where y is log real per capita monthly household consumption, and $RIF(y, Q_\theta)$ is the RIF of the θ^{th} quantile of y estimated by computing the sample quantile Q_θ and estimating the density of y at that point by kernel method:

$RIF(y, Q_\theta) = Q_\theta + (\theta - I\{y \leq Q_\theta\}) / f_Y(Q_\theta)$, f_Y is the marginal density function of y and I is an indicator function. RIF can be estimated by replacing Q_θ by θ^{th} sample quantile and estimating f_Y by kernel density.⁷⁷

X is the regressors' matrix including the households' demographic characteristics, the education, occupation and sector of work of the head, assets ownership, access the basic services and geographic location. β is the regression coefficient vector and ε is the error term.

The sources of inequality between rural and urban areas are analyzed using the Recentered Influence Function (RIF) regression method. The procedure allows to understand how the difference in the distributions of observed household characteristics between the locations contribute to the welfare gap and how the marginal effects of these characteristics vary across the entire distribution.

Popular approaches used in the decomposition of distributional statistics and the analysis of the sources of inequality include the standard Oaxaca–Blinder decomposition method, the reweighting procedure of DiNardo, Fortin, and Lemieux (1996) and the quantile-based decomposition approach of Machado and Mata (2005). The main drawback of the Oaxaca–Blinder technique is that it applies the decomposition to only the mean welfare differences between two population sub-groups and yields an incomplete representation of the inequality sources. The other conventional methods extend the decomposition beyond the mean and permit

⁷⁷ For more details see Firpo, Fortin and Lemieux (2009).

the analysis of the entire distribution, nevertheless they all share the same shortcoming in that they involve a number of assumptions and computational difficulties (Fortin *et al.*, 2010).

The RIF regression approach recently proposed by Firpo, Fortin and Lemieux (2009, 2010) addresses these shortcomings and provides a simple regression-based procedure for performing a detailed decomposition of different distributional statistics such as quantiles, variance and Gini coefficient. The RIF-regression model is called unconditional quantile regression when applied to the quantiles. The technique consists of decomposing the welfare gaps at various quantiles of the unconditional distribution into differences in households' endowment characteristics such as education, age, employment etc., and differences in the returns to these characteristics. These components are then further decomposed to identify the specific attributes, which contribute to the widening welfare gap.

We apply the RIF unconditional quantile regression to examine the rural-urban welfare differentials at various points of the consumption distribution. The procedure is carried out in two stages. The first stage consists of estimating unconditional quantile regressions on log real per capita monthly household consumption for rural and urban households, then constructing a counterfactual distribution that would prevail if rural households have received the returns that pertained to urban area. The comparison of the counterfactual and empirical distributions allows to estimate the part of the welfare gap attributable to households characteristics differentials, the *endowment effect*, and the part explained by differences in returns to characteristics, the *return effect*. The second stage involves dividing the *endowment* and *return* components into the contribution of each specific characteristic variable.

The method can be easily implemented as a standard linear regression of the form of Equation (1).

The regressors in this model include seven groups of variables: (1) the household demographic and general characteristics variables including household size, the proportion of household members aged below 15 years and the gender of the household head; (2) the household human capital measured by the education level of the head⁷⁸; (3) the household head and spouse employment sector recoded as a categorical variable: (i) Agriculture, (ii) Industry, (iii) Service, and (iv) Trade; and the occupation recorded as (i) Government & public administration, (ii) Private nonfarm, (iii) Household and others; (4) Household head other attributes, which include age, marital status, whether he receives transfers; (5) Assets ownership, including dummy variables indicating respectively whether the household owns big and small livestock, transportation means, communication means, generator and other appliances; (6) access to basic services measured by categorical variables indicating the sources of cooking fuel, drinking water,

⁷⁸ The experience of the head was not significant in any equation, thus we excluded it. We also estimated different models, including the education level of the spouse and household's members, maximum level of education between the head and the spouse etc. but none was significant.

sanitation and access to electricity; and (7) external factors to the household capturing the community characteristics and geographic location fixed effects.

We estimate model (1) for the 10th to 90th quantiles and used the unconditional quantile regression estimates to decompose the rural-urban inequality into a component attributable to differences in the distribution of characteristics, and a component due to differences in the distribution of returns as follows:

$$\hat{Q}_\theta^i - \hat{Q}_\theta^{i'} = \{\hat{Q}_\theta^i - \hat{Q}_\theta^*\} + \{\hat{Q}_\theta^* - \hat{Q}_\theta^{i'}\} = (\bar{X}^i - \bar{X}^{i'})\hat{\beta}_\theta^i + \bar{X}^{i'}(\hat{\beta}_\theta^i - \hat{\beta}_\theta^{i'}) \quad (2)$$

where \hat{Q}_θ is the θ^{th} unconditional quantile of log real per capita monthly household consumption, \bar{X} represents the vector of covariate averages and $\hat{\beta}_\theta$ the estimate of the unconditional quantile partial effect. Superscripts i , i' and $*$ designate respectively the urban, rural and counterfactual values.

$\hat{Q}_\theta^* = X^{i'}\hat{\beta}_\theta^i$ is the counterfactual quantile of the unconditional counterfactual distribution which represents the distribution of welfare that would have prevailed for group i' (rural) if they have received group i (urban) returns to their characteristics.⁷⁹

The first term on the right-hand side of equation (2) represents the contribution of the differences in distributions of household's characteristics to inequality at the θ^{th} unconditional quantile, denoted *endowment effect*. The second term of the right-hand side of the equation represents the inequality due to differences (or discrimination) in returns to the household's characteristics at the θ^{th} unconditional quantile.

The *endowment* and *return* effects can be further decomposed into the contribution of individual specific households characteristics (or group of some characteristics) as follows:

$$\hat{Q}_\theta^i - \hat{Q}_\theta^* = \sum_k (\bar{X}_k^i - \bar{X}_k^{i'})\hat{\beta}_{\theta,k}^i \quad \text{and} \quad \hat{Q}_\theta^* - \hat{Q}_\theta^{i'} = \sum_k \bar{X}_k^{i'}(\hat{\beta}_{\theta,k}^i - \hat{\beta}_{\theta,k}^{i'}) \quad k:1\dots K \quad (3)$$

where k designates the individual specific household characteristics.

⁷⁹ The decomposition results may vary with the choice of the counterfactual distribution. For example, if the counterfactual used is the distribution that would have prevailed for group i , if they have received group i' returns, we would obtain different results. The choice of the counterfactual in this analysis is motivated by the aim of emphasising household groups living in disadvantaged areas.

Appendix 2.B: Inequality of Opportunity

Method of Decomposition

The approach to estimate the degree of opportunity inequality associated with the distribution of both consumption and income is based on the framework of Bourguignon *et al.* (2007). The method is based on the separation of the determinants of household's outcome (consumption or income), y_i , into a set of circumstances variables, denoted by the vector C_i ; efforts variables, denoted by the vector E_i and unobserved factors, represented by v_i . The outcomes function can be specified as:

$$y_i = f(C_i, E_i, v_i) \quad i:1\dots N \quad (1)$$

The circumstances variables are economically exogenous since they are outside the individual's control, but effort factors may be endogenous to circumstances as an individual's actions may be influenced by its gender, parental background, etc.

Equality of opportunity occurs, in the Roemer's (1998) sense, when outcomes are independently distributed from circumstances. This independence implies that circumstances have no direct causal effect on outcomes and no causal impact on efforts. The degree of opportunity inequality can therefore be determined by the extent to which the conditional distribution of outcomes on circumstances, $F(y/C)$, differs from $F(y)$.

Inequality of opportunity can be estimated as the difference between the observed total inequality in the distribution of consumption or income, and inequality that would prevail if there were no differences in circumstances. Let $\tilde{F}(\tilde{y})$ be the counterfactual distribution of outcomes when circumstances are identical for all individuals. The opportunity share of inequality can be defined as:

$$\Theta_p^r = 1 - \frac{I(\tilde{F}(\tilde{y}))}{I(F(y))} \quad (2)$$

The first step for computing Θ_p consists on estimating a specific model of (1), which can be expressed in the following log-linear form:

$$\ln(y_i) = C_i\alpha + E_i\beta + v_i \quad (3)$$

$$E_i = AC_i + \varepsilon_i$$

where α and β are two vectors of coefficients, A is a matrix of coefficients specifying the effects of the circumstance variables on effort and ε_i is an error term. Model (3) can be expressed in reduced form as:

$$\ln(y_i) = C_i \delta + \eta_i \quad (4)$$

where $\delta = \alpha + \beta A$ and $\eta_i = v_i + \varepsilon_i \beta$.

Inequality of opportunity can be measured using equation (2) where the counterfactual distribution is obtained by replacing y_i with its estimated value, from equation (4), and which can be expressed as: $\tilde{y}_i = \exp(\bar{C} \hat{\delta} + \hat{\eta}_i)$. In this decomposition, the variation in \tilde{y}_i can be interpreted as the influence of effort because circumstances are set to be equal for all households, and inequality of opportunity is measured as a residual.

Inequality of opportunity can also be measured directly by eliminating the contribution of effort to outcomes, using the *smoothed* distribution, obtained from the predicted values of outcomes based on circumstances in equation (4), while ignoring the remaining variation in the residuals:

$$\tilde{z}_i = \exp(C_i \hat{\delta}) \quad (5)$$

The share of inequality of opportunity can thus be measured by:

$$\Theta_p^d = \frac{I(\tilde{F}(\tilde{z}))}{I(F(y))} \quad (6)$$

The subscripts d and r , in Θ_p , denote respectively that inequality of opportunity is estimated directly or residually by eliminating the contribution of effort or circumstances to outcomes. The direct and residual methods can yield different figures of opportunity inequality, and the only inequality measure for which the two methods give the same results is the mean log deviation (*Theil_L*), which has a path-independent decomposition when the arithmetic mean is used as the reference income or consumption (Foster and Shneyerov, 2000). By using the mean log deviation inequality index, the residual and direct methods give the same opportunity inequality measures.

The parametric approach allows the estimation of the partial effects of one or some circumstance variables on outcomes, while controlling for the others, by simulating distributions such as:

$\tilde{y}_i^j = \exp(\bar{C}^j \hat{\delta}^j + C^{h \neq j} \hat{\delta}^{h \neq j} + \hat{\eta}_i)$, where $\tilde{F}(\tilde{y}^j)$ is the counterfactual outcomes distribution obtained by keeping circumstance C^j constant.

The inequality share specific to circumstance j can be computed residually by:

$$\Theta_p^j = 1 - \frac{I(\tilde{F}(\tilde{y}^j))}{I(F(y))} .$$

Data

The analysis uses data from the Employment module (Phase 1) and EDMC (Phase 3) of EESIC 2014. The survey was conducted on nationally representative sample of households and includes information on household's characteristics; household's consumption and income, individuals' education and employment status; parents' education, employment and occupation status; and the community of birth.

Inequality of opportunity is derived from consumption⁸⁰. Household's consumption is measured as real monthly per capita consumption of food and non-durables and excludes expenses on housing and durable goods. The circumstance variables used in the analysis include father's and mother's education; categorical variables for father's sector of employment and occupation; the gender; age and region of birth of the head.⁸¹ There are 55 communities of birth, in order to avoid potential estimation bias due to the large categories in the place of birth, we estimated opportunity inequality, grouping these variables into 16 prefectures. Using communities and prefectures (and even grouping into strata) shows large role of region of birth in shaping opportunity inequalities.

Computing the opportunity share of consumption inequality for the entire country is important to the design of equal-opportunity policies, but it fails to capture the differential intensity of opportunity inequality across areas and population groups. Because heterogeneity in population composition across the urban and rural areas may distort the aggregate picture of inequality of opportunity, opportunity inequality indices are also computed for urban and rural subgroups.

⁸⁰ We attempted also to estimate IOP from income but the results were not significant.

⁸¹ We also estimated a model with mothers employment sector and occupation but it was not significant.

Appendix 3: Multidimensional Poverty Approach

Alkire and Foster (2011) propose a simple methodology for the measurement of multidimensional poverty, which employs a generalization of the conventional Foster-Greer-Thorbecke (FGT) poverty measures, to account for multidimensionality. The approach builds on the work on multidimensional poverty and deprivation developed by Oxford Poverty & Human Development Initiative (OPHI), and introduces an intuitive approach to identify the poor using two forms of cutoff: one within each of the relevant dimensions of the welfare to determine whether a person suffers shortfalls in that dimension, and a second across dimensions that delineates how widely deprived a person must be in order to be considered poor and identifies the poor by ‘counting’ the dimensions in which an individual is deprived. They propose an adjusted FGT measure that is particularly suitable for use with ordinal data and informs on the breadth of multiple deprivations of the poor.

Consider a number of relevant dimensions of well-being, $d \geq 2$, for a population of n individuals. The well-being dimensions might relate to education, living standards, access to basic services, etc. The individuals’ achievements are denoted by the $n \times d$ matrix $y = [y_{ij}]$, where $y_{ij} \geq 0$ is the achievement of individual i in dimension j .

The first step is to determine a threshold or *deprivation cutoff*, $z_j > 0$, for each dimension, according to which individuals can be considered as deprived in that dimension. Then, construct the $n \times d$ matrix of deprivations $g^0 = [g^0_{ij}]$, where $g^0_{ij} = 1$ when $y_{ij} < z_j$ (*deprived*) and $g^0_{ij} = 0$ if $y_{ij} \geq z_j$ (*non deprived*). A vector C of deprivation scores is constructed from the matrix g^0 , where the deprivation score for each individual i is defined by the following weighted sum:

$$c_i = \sum_j w_j g^0_{ij} \quad \text{where } w_j \text{ is the weight associated with each dimension } j, \text{ and summing to } d.$$

The second step consists in identifying the poor, and is based on the selection of a cutoff level for the deprivation scores and a definition of an identification function. Let $k \leq d$ the poverty cutoff and $\rho_k(y_i; z)$ the identification function defined as follows:

$$\rho_k(y_i; z) = 1 \quad \text{if } c_i \geq k \quad (i \text{ is poor})$$

and

$$\rho_k(y_i; z) = 0 \quad \text{if } c_i < k \quad (i \text{ is nonpoor})$$

$\rho_k(y_i; z)$ identifies individual i as poor when the number of dimensions in which he/she is deprived is at least k .

Based on ρ_k , the headcount ratio which measures the proportion of people identified as multidimensionally poor can be defined as:

$$H(y, z) = \frac{\sum_{i=1}^n \rho_k(y_i, z)}{n} = \frac{q}{n}$$

This is analogous to the conventional income headcount ratio which measures the incidence of poverty, but in a multidimensional setting.

The headcount ratio has two main shortcomings: first, it remains unchanged if a poor individual becomes deprived in a new dimension. Second, it does not allow the evaluation of the contribution of each dimension to poverty.

To address these shortcomings, Alkire and Foster (2011) suggest an additional measure that assesses the breadth of deprivation experienced by the poor:

$$A = \frac{\sum_{i=1}^n c_i(k)}{dq}$$

A measures the average proportion of deprivations in which the poor are deprived, through calculating the percentage of total deprivations each poor person has ($c_i(k)/d$), and calculating the average of those percentages across the poor (dividing by the number of poor only, q).

The Multidimensional Poverty Index (MPI) is then defined as a combination of the headcount and the average proportion of deprivation to inform on the prevalence of poverty and the average extent of a poor individual's deprivation. It is given by the simple product of H and A : $MPI = HA$. MPI represents the proportion of weighted deprivations experienced by the poor relative to the maximum potential deprivations that could be experienced by the whole population.

The contribution of each dimension to poverty, CD_j , can be calculated using MPI as:

$$CD_j = \frac{\left(\frac{w_j}{d}\right) \sum_{i=1}^n w_j g_{ij}^0(k)}{w_j n MPI}$$

To estimate multidimensional poverty in Comoros, we consider 13 indicators within five main dimensions: (1) Education which includes two indicators, (i) **years of schooling** where a household is considered non deprived if all the members older than 15 years have at least primary education; and (ii) **school attendance** where a household is non deprived if all his members between 6 and 15 years old are attending school. (2) Housing conditions which include 5 indicators, (i) **Dwelling floor** where the household is non deprived if the floor is not in mud, sand, gravel, etc.; (ii) **Dwelling wall** where the household is non deprived if the walls are in bricks, stones, concrete, etc.; (iii) **Dwelling roof** where the household is non deprived if the roof is in sheet, tile or cements; and (iv) **Number of sleeping rooms relative to the household size** where the household is non deprived if there are less than four members by sleeping room. (3) Access to

basic services which includes four indicators; (i) *Access to safe drinking water* where the household is non deprived if it has access to public or private piped water and protected sources such as pump or protected wells; (ii) *Access to electricity* where the household is non deprived if it has access to electricity; (iii) *Access to cooking fuel* where the household is non deprived if it has access to efficient cooking fuels such as gaz, petroleum and charcoal; (iv) *Sanitation* where the household is non deprived if it has access to flush toilet, latrine to piped sewer system, septic tank, pit latrine, etc. (4) Assets ownership which includes two indicators, (i) *Agricultural assets* where the household is non deprived if it owns cattle, sheep, goats and/or poultry; (ii) *Nonagricultural assets* where the household is non deprived if it owns durable assets, cell phone, generator, small appliances such as radio, furniture etc., and/or transportation means. (5) *Living standards* measured by real monthly per capita consumption and where a household is non-deprived if the consumption level exceeds the cost of basic needs poverty line.

Table 3-1: Logit Regression: Probability of being Multidimensionally Poor

	2004	2014
Household size	0.156*** [0.037]	0.316*** [0.043]
Percentage of Children under 15 years old	1.712*** [0.433]	1.394*** [0.407]
Head men	-0.172 [0.255]	0.136 [0.195]
Head migrant	N/A	-0.038 [0.342]
Head Education (Omitted= No education)		
Primary	-1.642*** [0.285]	-0.063 [0.239]
Secondary	-1.969*** [0.387]	-0.071 [0.220]
Tertiary	-2.292*** [0.454]	-0.956*** [0.262]
Head employment status (Omitted= Self employed nonfarm)		
Wage employee Public sector/NGO	0.271 [0.337]	-0.736** [0.322]
Self-employed farming	-0.039 [0.273]	-0.122 [0.259]
Households/associations	N/A	0.367 [0.364]
Head sector of work (Omitted=agriculture)		
Industry	0.160 [0.344]	-0.632** [0.298]
Trade	-0.483 [0.305]	-0.635** [0.321]
Service sector	-0.279 [0.301]	-0.071 [0.268]
Spouse sector of work (Omitted=agriculture)		
Industry	N/A	-0.139 [0.325]
Trade	N/A	-0.129 [0.372]
Service sector	N/A	0.369 [0.349]
Head occupation (Omitted= Medium skilled)		
High status, manager etc.	N/A	-0.942** [0.381]
Low skilled	N/A	0.013 [0.283]
Access to water (Omitted=piped water)		
Public safe	N/A	0.318 0.379

	[0.290]	[0.286]
Unimproved source	0.738** [0.340]	1.576*** [0.296]
Electricity	-1.594*** [0.306]	-0.677*** [0.212]
Access to sanitation (Omitted=traditional latrine)		
Modern toilet	-1.087*** [0.320]	-0.849*** [0.231]
Improved latrine	-0.870*** [0.212]	-1.546*** [0.241]
Distance to public college (Omitted=none)		
Less than 500m	N/A	-0.925** [0.399]
0.5 to 1 km	N/A	-0.627 [0.387]
Over 1 km	N/A	-0.470 [0.392]
Distance to health center (Omitted=none)		
Less than 500m	N/A	0.262 [0.336]
0.5 to 1 km	N/A	0.177 [0.327]
Over 1 km	N/A	0.148 [0.335]
Distance to market (Omitted=none)		
Less than 500m	N/A	0.300 [0.291]
0.5 to 1 km	N/A	0.851* [0.448]
Over 1 km	N/A	-0.006 [0.308]
Dwelling type (Omitted=owned)		
Rented	N/A	-0.301 [0.287]
Provided free	N/A	-1.163*** [0.387]
Own sheep	1.337 [0.901]	-1.060 [0.904]
Own goat	-1.350*** [0.335]	-1.518*** [0.300]
Own computer	N/A	-0.253 [0.226]
Own telephone	0.364*** [0.084]	-1.022*** [0.259]
Own other communication means	N/A	-1.463*** [0.418]
Own transportation means	-0.459* [0.183]	-1.372*** [0.499]
Own other assets	-0.879*** [0.222]	-2.210*** [0.257]
Own generator	N/A	-0.378 [0.355]
Transfers	N/A	-0.514** [0.204]
Rural	0.495** [0.205]	0.900*** [0.203]
Strata (Omitted= Moroni)		
Rest of Ngazidja	0.297 [0.404]	-0.973*** [0.279]
Ndzouani	0.859** [0.360]	-0.075 [0.310]
Mwali	0.704* [0.370]	-0.634* [0.328]

Sources: EIM 2004 and EESIC 2014.

Notes: The reported coefficients are odds ratios. Numbers between brackets are standard errors. Estimated coefficients exhibiting a negative sign in student-t denote a decrease in the odds, by $(1 - \text{odds ratio}) * 100$. Estimated coefficients with a positive sign indicate an increase in the odds, by $(\text{odds ratio} - 1) * 100$.

* Significant at the 10 percent level; ** significant at the 5 percent level; *** significant at the 1 percent level.

Appendix 4: Problems in estimating remittances: discrepancies between data sources

Across time, the actual levels of remittances in developing countries seem to have grown much more slowly than what has been estimated in research. This is explained by the problems related to the estimation of remittances, including different data sources that researchers use to measure them. Clemens and Mckenzie (2014) estimate that 79 percent of the growth in remittances received by developing countries between 1990 and 2010 reflects changes in measurement, with only 21 percent representing changes attributable to an actual growth in the migrant stock and income.

There are two main sources of data for estimating the volume of remittances in a country: household survey data and central bank data. The data that feeds macro aggregates from international organization such as the IMF or the World Bank comes mainly from central banks. They gather monthly or quarterly estimates of the transfers that enter and exit the country. Household survey data, on the other hand, is micro data. National surveys about income, expenditures or consumption usually include questions on the level of remittances the household receives. Trends on the volume of remittances over time, as well as their impact on poverty reduction, inequality or labor participation, will largely depend on the data source used in the analysis.

Many countries had a remittance growth that exceeded what would be predicted from the growth in migrant stocks and the growth in the income that these migrants were receiving. The analysis of Clemens and Mckenzie (2014) finds that growth in remittances during 1990-2010 is due to changes in measurement, and thus there were no changes in GDP growth coming from it. In addition, the growth in central bank data largely exceeds that in household data at the times when changes in measurement occurred. For instance, Turkish central bank changed its method of accounting remittances in 2003. The spending by migrants during their visits as tourists to Turkey were entered under “tourism”, whereas prior to this date they were counted as remittances. Another example is Jamaica, who designated “Building Societies” as financial institutions to be supervised by the Bank of Jamaica in 1994. According to central bank data, remittances grew 167 percent between 1993 and 1996, compared to a 34 percent growth reported with household data (McLean 2008).

I. Central Bank data

Central banks rely on the country financial system to estimate remittances’ levels. Central banks gather data on the total cash remittances coming into a country through formal financial channels, such as commercial banks, foreign exchange corporations, and offshore banking units.

For this reason and despite its shortcomings, central bank figures are believed to be more accurate than household data estimates.

A weakness of central bank data is that it only captures the volume of formal remittances, disregarding those that enter into the country through informal channels. In general, central bank data for many African countries are believed to undercount remittances because of poorer statistical systems and higher number of informal transfers. For instance, Comoros' central bank, *Banque Centrale des Comores (BCC)*, collects data on remittances through formal channels, which include commercial banks and other providers of international funds transfers approved by Comoros. However, the World Bank (2004) estimated that 80 percent of total transfers to the island came through informal channels, mainly in the form of cash carried by relatives, friends or acquaintances. The fragility of the banking sector in Comoros encourages individuals to use informal channels to transfer their money. Some central banks are making efforts to collect data on informal remittances. For example, the *Bangko Sentral ng Pilipinas* (Philippines' central bank) started to collect data on informal remittances in 2001. The World Bank also generates its own estimates of total annual remittances, which include informal remittances as they take central bank figures and then adjust them to international measurement standards.

There has been a shift from informal to formal payment methods in many countries. The share of remittances going through the informal system is believed to have been very high in the 1980s, but to have substantially declined to the present. There are two reasons that explain this change. First, there has been a wider availability of banks. This has resulted in larger competition of remittances' providers leading to drastic reductions in the cost of sending remittances. Second, new regulations for anti-money laundering and to combat the financing of terrorism (AML/CFT) have crackdown on informal remittances' providers in many destination countries.

Yet, in many cases, central banks' coverage of formal remittances has been partial. De Luna Martínez (2005) analyzed the case for 40 developing countries based on a survey of central banks that took place in 2004. He reported that 90 percent of the countries collected data on remittances from commercial bank, 65 percent collected data from credit unions and exchange houses, only 38 percent collected from money transfer operators, and only 35 percent of countries collected data from post offices. This problem has become increasingly important as the number of new channels and financial instruments to transfer money increase at higher speed than central banks' capacity to capture them. Even when financial institutions are reporting figures on remittances, they do not report all remittances' transactions. Orozco (2010) notes that in most cases, money transfer companies only had to provide reports for transactions exceeding US\$3,000. This amount that far exceeds the average remittance transaction undertaken by migrants in developing countries.

II. Household survey data

Household surveys have the advantage of capturing remittances through both formal and informal channels. As opposed to central bank data, households are asked to report information on informal remittances. These include money transfers that occur through private channels such as money brought by friends, relatives or the migrant himself. Freund and Spatafora (2005) estimated that informal remittances range from 35 to 75 percent of formal remittances with large variation across regions. Informal remittances to Eastern Europe and Sub-Saharan Africa are relatively higher than those to East Asia and the Pacific.

Household data may provide an accurate picture of the growth rates in remittances. Even if household surveys contain relatively few households with migrants or households misreport amounts received, they can still be useful to estimate the growth of remittances. The main reason is that such issues seem to be constant over time. Hence, household data is useful to identify sharp movements and provide further checks against other data sources, even when household surveys underestimate the level of remittances.

However, household data is difficult to find prior to 2000 in developing countries. Few developing countries had household income and expenditure surveys before the 2000s, and even the few of them who had, asked separately about remittances. For example, India introduced questions about international remittances in the 64th round of its National Sample Survey in 2008. Clemens and McKenzie (2014) discussed that they were able to obtain data from only nine developing countries from the 1990s or 2000s with at least five waves of household survey data.

Household data are subject to sampling error, less available and not specifically designed to measure remittances. Household surveys are self-reporting data coming from a sample of the population. They assume that accurate responses are obtained from sampled individuals and that the sample covers the target population, which might not be the case. Besides, surveys that incorporate questions on remittances are usually multi-topic surveys, that is, they collect information on people's income, consumption and expenditures in general (as opposed to specific surveys on labor participation or health). In terms of implementation, they are time-consuming due to the broad nature of the survey – the interviewer spends a relatively large amount of time in each household. For this reason, household data is not as frequently available and updated as central bank data.

Household survey data may include some income items that do not fit in the typical notion of remittances. For instance, Ducanes (2010) poses the example of the Family Income Expenditure Survey (FIES) in the Philippines. FIES questionnaire asks: *Did you or any member of your family receive in cash any receipt, gift, or other assistance from abroad?* If the answer is affirmative, the respondent is asked to report how much of the following items the family received:

- a. Cash received from family members who are contract workers

- b. Cash received from family members who are working abroad
- c. Pensions, retirement, workmen's compensation, and other benefits
- d. Cash gifts, support, relief, etc. from abroad
- e. Dividends from investment abroad

Note that c and e are pensions, retirement benefits and dividends from investment abroad. These types of transfers should not be considered as remittances, but they are included when using FIES to analyze the impact of remittances in the Philippines. According to Ducan (2010), the National Statistics Office in the Philippines use the sum from a to e but not its individual components.

The Comoros household survey presents several weaknesses that prevent an accurate picture of the volume of remittances in the country. The Household Consumption Expenditures Survey, *Enquête sur les Dépenses de Consommation des Ménages aux Comores (EDMC)*, is the household data used to estimate remittances in the country. Question 23 attempts to capture the amount of money transferred within the country and abroad. It asks the individuals to specify the type of transfer among the following options:

- a. Gift given in the form of cash to a relative, non-relative, club or association
- b. Loan of money, repayment of housing loan, other loans (car, household appliances, etc.), lost of money, contribution to an association or tontine⁸², pensions, other cash transfer
- c. Gifts received in the form of cash to a friend, relative, club or association
- d. Borrowings, debt collection, transfers received from a relative, non-relative, club or association, pensions received, and other cash transfers.

After, individuals have to specify whether these transfers are coming from abroad or within the country. Several weaknesses are detected in this format:

- Part c does not separate transfers received from individuals than those receive from clubs or associations. The latter would not be classified as remittances.
- Part d does not distinguish between pensions, loans and other “cash transfers” that might include remittance money.
- The survey only covers cash transfers and fails to capture in-kind transfers from workers abroad.

Household surveys fail to capture remittances that go directly into the overseas worker's personal bank account and do not get transferred to households. The worldwide rise of electronic banking has enabled overseas workers to have greater control over their money and the amount and frequency of remittance they send. For instance, they can have their salaries sent to their personal bank accounts, which they can access through internet or mobile phones, to either transfer some of it to another bank account or to an electronic money account. Household surveys

⁸² Revolving savings and credit groups.

do not capture these types of movements because they normally ask only for the remittance that the household received.

Household data do not include questions related to the purchase of real estate by overseas workers. In some cases, overseas workers might comprise a large part of the market for real estate in their home countries. As estimated by Duncan (2010), overseas Filipino workers account for 60-70 percent of new condominium purchases.

Household surveys may undercount the number of individuals working abroad, which will underestimate of the volume of remittances. Surveys do not capture adults who lived on their own before they migrated or couples who both migrated leaving no children behind. If such people remit money to their country, these remittances will not be included in household data. Migration patterns in the last decade suggest that this type of migration is probably to rise.

III. Calculating missing remittances

There have been several attempts to estimate the volume of “missing remittances” in different countries, that is, the number of remittances that are not being captured by the data available. Both household and central bank data have some degree of “missing remittances”. It is important to recognize the strength and weaknesses of each data source to minimize the volume of missing remittances.

Estimates on the divergences between different data sources suggest larger numbers of “missing remittances” in household data. To calculate “missing remittances”, Clemens and McKenzie (2014) use central bank data and then compare the growth rate in remittances to what one would expect based on the growth in migration and the growth in incomes in destination countries. Their findings show that growth in remittances is due to measurement issues. In addition, they use time series household data on remittances for several countries to illustrate that the growth in the central bank remittances data is greater than that in household data between 1999 and 2010. For instance, in Peru, they reported a remittance growth of 154 percent using central bank data versus a 75 percent growth using household data. For Honduras, they estimated a 679 percent growth with central bank data and only a 3 percent growth with household data. Remittances in Pakistan grew 294 percent according to central bank data estimates versus 24 percent looking at household data. Finally, for El Salvador they reported 109 percent growth with central bank data versus 79 percent with household data.

The impact of “missing remittances” on poverty and inequality depends on how they are distributed across income groups. Duncan (2010) uses the difference between World Bank and FIES figures to estimate the number of missing remittances. According to his analysis, the missing remittances in the Philippines went up to PHP 438 billions or 12.7 percent of total household income in 2006. He then runs simulations with various FIES rounds (1997- 2006). He

adds the missing remittances across different income groups and investigates the changes in poverty and inequality. His results suggest that missing remittances are not equally distributed among various income groups. If one supposes that higher income are those more likely to adopt new technology, then most of the missing remittances go to these groups. However, if we assume that new technology, such as mobile phone banking, are more likely to be adopted by those in the rural areas – assuming that they have smaller access to existing technology and that new technology represent relatively higher cost savings – then, missing remittances will be larger in poorer households.

Simulations show that poverty levels and inequality are being mismeasured due to the omission of “missing remittances”. Duncan (2010) suggests that large mismeasurement of poverty and inequality has occurred in the Philippines because household data have underestimated the levels of remittances that the country received. He suggests that the mismeasurement is especially severe for inequality where including the missing remittances shows inequality being unchanged since 1997, whereas its non-inclusion shows sharp declines in inequality.

The least that can be done is to factor into the analysis possible deficiencies of the data. Economists do not have the tools at this time to reliably measure the effects of remittances on growth and development. In general, different trends in remittances are likely to reflect changing measurement practices and data deficiencies more than changes in true flows. It does not seem to be an obvious or easy fix for the weaknesses observed in remittances data. Researches tend to run different simulations to test how sensitive the outcome of interest (e.g. poverty) is to different estimates of the level of remittances and draw conclusions accordingly.

IV. Data for the estimation of household remittances

The EDCM (Phase 3) module of EESIC 2014 includes 28 sub-modules. Sub-Module 23 (CQ23: *Transferts reçus en espèces*) captures the amount of remittances received or paid over the 12 months prior to the survey by those household members who were present at the time of the survey. These include those identified in Phase 1 and new members identified in Phase 3 of the EESIC survey. The survey identification section (CQ02) has allowed linkages between Phase 1 and 3. Sub-Module 23 asks for monetary transfers broadly, including gifts, loans, debt collections, pensions and other transfers received from individuals, clubs and associations. It only covers cash transfers and fails to capture in-kind transfers from the diaspora.

The EIM 2014 uses three statistical surveys: a household questionnaire, a community questionnaire, and a questionnaire on prices. The household questionnaire, administrated in two parts divided in six sections each, aims to provide integrated information on the mechanisms that determine the standards of living of families. In section 10 part B (*transferts reçus par le ménage*), the questionnaire asks for transfers received from the diaspora, and unlike the EESIC, it

includes questions related to in-kind transfers. The questionnaire differentiates between loans, monetary transfers, food supplies and other in-kind transfers. In order to match 2004 with 2014 data, only cash transfers have been included in the remittances analysis.

Appendix 5: Fiscal Incidence Methodology

Methodological Summary

The CEQ Assessment takes specific fiscal policy elements, programs, expenditures, or revenue collections and allocates them to individuals and households appearing in a micro-level socio-economic survey. Once the allocations have been made, the CEQ analytical program consists of calculating different measures of poverty and impoverishment, inequality and progressiveness, and the amount of redistribution accomplished (*inter alia*) on the measures of income – or “Income Concepts” – that exclude (“pre-fiscal”) and include (“post-fiscal”) these fiscal policy elements.

Data constraints in Comoros meant that we chose to use consumption expenditure as our primary income measure. We assumed total consumption expenditures – including the value of imputed rent for those living in owner-occupied housing, as well as the implied value of any auto-production/auto-consumption – were equal to the CEQ Disposable Income concept and worked backwards to Net Market Income, Market Income plus Pensions, and Market Income and forwards from Disposable Income to Consumable Income and Final Income.⁸³

Data Sources

The primary micro-level dataset providing the individual- and household-level information necessary to allocate fiscal policy elements is the *Enquête sur l’emploi, le secteur informel et la consommation des ménages aux Comores 2014* (EESIC 2014). It includes modules covering health, education, economic and labor market activity, household consumption expenditure, agricultural production, and rent (or imputed rent for owner-occupied housing) in addition to a household’s roster which provides individual and demographic characteristics, as well as dwelling characteristics. The EESIC covers all three islands in the Union of the Comoros. The full sample includes 150,970 households (and 753,000 individuals), but not all households completed a full questionnaire, so less than 100 percent of the EESIC sample households are represented in the CEQ Assessment.

The source for total revenues collected by the government (in 2014) from households via the consumption, excise, and import taxes is the Ministry of Finance. To impute “effective” or actually prevailing rates (which may differ from statutory rates), we first scale down the expected tax taken from EESIC households so that the ratio of VAT (for example) revenues in the Ministry of Finance reports to Private Final Household Consumption Expenditure in Comoros National Accounts data is equivalent to the ratio of VAT collections from EESIC households to the value of cumulative EESIC household consumption expenditure. Government expenditure on in-kind

⁸³ As a result, our “pre-fiscal” income measure (Disposable Income) is net of any personal income taxes paid.

transfers of healthcare and education services are also taken from the Ministry of Finance and are scaled in a manner equivalent to the scaling of taxes.

Allocation Assumptions

CEQ Assessments allocate fiscal policy elements to individuals or households. For example, when an individual queried in a socioeconomic survey is asked to recall how much she has paid in VAT on all her purchases in the last 7 days, or is asked to provide receipts detailing VAT payments, then the CEQ Assessment observes total VAT collection from that individual. These VAT payments recorded by individuals are then assumed to be the same VAT revenues listed in the executive, administrative, and other budget reporting for the same year. The subheadings below provide a summary of allocation assumptions used in Comoros for various fiscal policy elements.

Direct Taxes (Personal Income Tax): Imputation based on employment characteristics, statutory threshold, and marginal rate structure

Direct taxes – property taxes and corporate and personal income taxes – represent one-quarter of all tax revenue (in 2014), and personal income tax (PIT) revenues represent about one-third of total direct tax revenue or about one percent of GDP. PIT statutes include a very low tax threshold, which means poor households may be liable for PIT. In order to allocate PIT in the EESIC, we first impute individual taxpayer status using the employment module. We first select only civil servants, employees of state-owned enterprises or quasi-public administrative bodies, and those who are privately employed in the non-farm structure. We then use employer characteristics and employment-arrangement attributes to develop a simple, categorical scale of “formality” in the employment arrangement. Only those individuals with a high formality score are imputed to be likely taxpayers.

We then determine an expected marginal tax bracket for each likely taxpayer based on the per-capita value of consumption expenditure; the higher the per-capita level of consumption expenditure is, the greater the likelihood that the individual belongs to a higher marginal-rate tax bracket will be. Once all likely taxpayers have a likely tax bracket, we determine a marginal effective rate structure (that replicates the relative dispersion of the statutory marginal rate structure), such that the determined rates, when applied to the taxable incomes among likely taxpayers, produce a total PIT collection (from EESIC individuals) that is appropriate to the level of total consumption expenditures recorded in the EESIC.

Indirect Taxes (VAT, Excises): based on expenditure records

We back out, for every item purchased by an EESIC household, the share of the item’s value that is an indirect tax charge. In order to determine this share, we first scale these taxes by calculating the ratio of revenues collected (per indirect tax) in the Ministry of Finance reports to Household Final Consumption Expenditure in the National Accounts, and set it equal to the ratio of revenues collected from EESIC households (per tax) to cumulative EESIC consumption expenditure. We then create categories of goods in the EESIC consumption module which attract the tax in

question. For example, the only good listed in the EESIC consumption module which attracts the Diesel Excise tax is diesel fuel itself; only EESIC households who record nonzero expenditure on diesel are allocated a Diesel Excise tax.⁸⁴ We then determine the share of the tax in the total expenditure value of the taxed good (or good category). From this share, we determine what “effective” rate of taxation would, when applied to the value of the good *net of the indirect tax paid*, give us back the actual sales value of the good, as recorded by households in the EESIC.

The “effective” rate, or the on-average actual rate, so calculated allows us to take care not to allocate indirect taxes to purchases of goods or services that are exempt from the tax. We also exclude any informal purchases that are not included in the transactions over which an indirect tax is collected; as the EESIC has rich consumption expenditure data, we directly observe informal purchases, as well as whether the item purchased is an import or is locally produced, so the indirect taxes paid by EESIC households who make informal purchases are reduced specifically for those households.⁸⁵

In-kind transfers

Expenditures on education and health are allocated to those EESIC households where at least one member utilizes the public education or public healthcare service system (respectively). Scaled in-kind spending is divided by the total number of EESIC users in order to get a “per student” or “per patient” subsidy; this uniform amount is then allocated to all directly-identified EESIC users. Thus, a single household with an enrolled primary school student, an enrolled secondary school student, and one visit to a (public) hospital would receive three different in-kind subsidies for the three service types utilized.

⁸⁴ We do not have access to the sales value of the indirect tax bases (by sector or good/service category), so we instead assume for every indirect tax, that all tax is collected at the same rate (proportional to net-of-tax price) over all goods that attract the tax.

⁸⁵ Other weaknesses in tax administration (besides non-coverage of informal transactions) can lower indirect tax collection and reduce the effective rate of collection below the statutory rate; these are allocated to all households purchasing the goods that are taxed.

References

- Adams Jr., R.H. (2004). “Economic Growth, Inequality and Poverty: Estimating the Growth Elasticity of Poverty.” *World Development*, 32(12), 1989–2014.
- Adams Jr, Richard H., and Alfredo Cuecuecha. (2013). “The impact of remittances on investment and poverty in Ghana.” *World Development*, 50, 24–40.
- Afkar, Rythia, Jon Jellema, and Mathew Wai-Poi. (Forthcoming). “The Distributional Impact of Fiscal Policy in Indonesia,” in: Inchauste, Gabriela and Nora Lustig (Eds.), *The Distributional Impact of Fiscal Policy: Experience from Developing Countries*. World Bank, Washington, D.C.
- Africa’s Pulse (2013). “An analysis of issues shaping Africa’s economic future.” The World Bank, October 2013 Vol. 8.
- African Development Bank. (2006). “Les Transferts des Fonds des Migrants, un Enjeu de Developpement”, *African Development Bank and Agence française de développement*.
- Alam, Shamma A., Gabriela Inchauste, and Umar Serajuddin. Forthcoming. “The Distributional Impact of Fiscal Policy in Jordan,” in: Inchauste, G., Lustig, N. (Eds.), *The Distributional Impact of Fiscal Policy: Experience from Developing Countries*. World Bank, Washington, D.C.
- Alkire, S., and Foster, J. (2011). Counting and multidimensional poverty measurement. *Journal of Public Economics* 95: 476-487.
- Amuedo-Dorantes, C. and Pozo, S. (2010). “Accounting for remittance and migration effects on children’s schooling.” *World Development*, 38(12), 1747–1759.
- Angrist, J.D. and Pischke, J.S. (2009). “Mostly Harmless Econometrics: An Empiricist’s Companion.” Princeton University Press.
- Aristy-Escuder, J., M. Cabrera, B. Moreno-Dodson, and M. E. Sanchez-Martin. (Forthcoming). “Fiscal policy and redistribution in the Dominican Republic,” in: Inchauste, G., Lustig, N. (Eds.), *The Distributional Impact of Fiscal Policy: Experience from Developing Countries*. World Bank, Washington, D.C.
- Arunatilake, Nisha, Gabriela Inchauste and Nora Lustig. (Forthcoming). “The Incidence of Taxes and Spending in Sri Lanka,” in: Inchauste, G., Lustig, N. (Eds.), *The Distributional Impact of Fiscal Policy: Experience from Developing Countries*. World Bank, Washington, D.C.
- Banque Centrale des Comores. (2014). “Bulletin trimestriel de la Banque Centrale des Comores.” *Bulletin n.2*, April 2014.

- Barbey, A. (2009). “Les migrations comoriennes vers l’ouest de l’Océan indien. Histoire et dynamiques contemporaines”. *Hommes & migrations, Revue française de référence sur les dynamiques migratoires*.
- Barros, Ricardo P., Ferreira, Francisco H.G, Molinas Vega, Jose R., Chanduvi, Jaime S., with Mirela de Carvalho, Samuel Franco, Samuel Freije-Rodríguez, and Jérémie Gignoux. (2009). *Measuring Inequality of Opportunities in Latin America and the Caribbean*. The World Bank, Washington D.C.
- Becker, G. S. (1960). “An Economic Analysis of Fertility.” In National Bureau of Economic Research (NBER), *Demographic and Economic Change in Developed Countries*, Columbia University Press.
- Beegle, K., De Weerd, J., Friedman, J., and Gibson, J. (2012). “Methods of Household Consumption Measurement through Surveys: Experimental Results from Tanzania.” *Journal of Development Economics*, 98 (1), 3–18.
- Belhaj Hassine, N., (2011). “Inequality of Opportunity in Egypt.” *World Bank Economic Review*, 26(2), 265–295.
- Beneke, Margarita, Nora Lustig, and Jose Andres Oliva. (2017). “The Impact of Taxes and Social Spending on Inequality and Poverty in El Salvador.” Chapter 13 in Nora Lustig (editor) *Commitment to Equity Handbook. A Guide to Estimating the Impact of Fiscal Policy on Inequality and Poverty*, Brookings Institution Press.
- Birdsall, N. (2001). “New Findings in Economics and Demography: Implications for Policies to Reduce Poverty.” In National Bureau of Economic Research (NBER), *Demographic and Economic Change in Developed Countries*, Columbia University Press.
- Birdsall, N. and Sinding, S.W. (2001). “How and Why Population Matters: New Findings, New Issues.” In N. Birdsall, A. C. Kelley and S. W. Sinding (eds.), *Population Matters: Demographic Change, Economic Growth, and Poverty in the Developing World*, Oxford University Press.
- Bloom, D. E. and Williamson, J. G. (1998). “Demographic Transition and Economic Miracles in Emerging Asia.” *World Bank Economic Review*, 12(3), 419–455.
- Bourguignon, F., Ferreira F.H.G., and Menéndez, M. (2007). “Inequality of Opportunity in Brazil.” *Review of Income Wealth*, 53(4), 585–618.
- Bradshaw, S. and Quirós Viquez, A. (2008). “Women Beneficiaries or Women Bearing the Cost? A Gendered Analysis of the Red de Protección Social in Nicaragua.” *Development and Change*, 39, 823–844.
- Brunori, P. Palmisano, F and Peragine, V. (2016). “Inequality of Opportunity in Sub-Saharan Africa”. Policy Research Working Paper 7782, the World Bank.

- Bucheli, M., N. Lustig, M. Rossi, and F. Amabile. 2014. "Social Spending, Taxes and Income Redistribution in Uruguay," in Lustig, N., Pessino, C., Scott, J. (eds.), *The Redistributive Impact of Taxes and Social Spending in Latin America*. Special Issue. *Public Finance Review*, 42(3), 413-433.
- Cabrera, Maynor, Nora Lustig, and Hilcías E. Morán. (2015). "Fiscal Policy, Inequality, and the Ethnic Divide in Guatemala." *World Development* 76, 263-279.
- Cabrera, M. and E. Moran. (2015). "CEQ Master Workbook: Nicaragua." CEQ Institute, Tulane University, Instituto Centroamericano de Estudios Fiscales and International, version: October 14.
- Cancho, Cesar and Elena Bondarenko. (Forthcoming). "The Distributional Impact of Fiscal Policy in Georgia," in: Inchauste, G., Lustig, N. (Eds.), *The Distributional Impact of Fiscal Policy: Experience from Developing Countries*. World Bank, Washington, D.C.
- Canning, D. (2013). The Demographic Dividend in Africa, Paper presented at the Wilson Center, Washington DC (October 15).
- Christiaensen, L., Lanjouw, P., Luoto, J., and Stifel, D. (2012). "Small Area Estimation-based Prediction methods to Track Poverty: Validation and Applications." *Journal of Economic Inequality*, 10, 267–297.
- Christiaensen, L., and Devarajan, S. (2013). "Making the Most of Africa's Growth." *Current History*, May, 181–87.
- Christiaensen, L., De Weerd, J. and Todo, Y. (2013). "Urbanization and Poverty Reduction: The Role of Rural Diversification and Secondary Towns." *Policy Research WP 6422*. The World Bank, Washington D.C., USA.
- Clemens, MA., and McKenzie, D. (2014). "Why Don't Remittances Appear to Affect Growth?" *Center for Global Development, Working Paper 366*, May.
- Cowell, F.A., Jenkins, S.P. (1995). "How much inequality can we explain? A methodology and an application to the USA." *Economic Journal*, 105, 421–430.
- Cruz, V., Fengler, W., and Schwartzman, W. 2004. "Remittances to Comoros Volume, Trends, Impact and Implications" *World Bank African Region, Working Paper Series No.75*, October.
- Dabalén, A., Etang, A., Mungai, R., Wambile, A. and Wane, W. (2014). "Is Poverty Reduction in Africa Underestimated because of Poor Data?." Paper Presented at the CSAE 2014.
- Dardanoni, M. and Peracchi, F. (2011). "Regression with imputed covariates: a generalized missing-indicator approach." *Journal of Econometrics*, 162(2), 362–368.
- Deaton, A. (2005). "Measuring Poverty in a Growing World (or Measuring Growth in a Poor World)." *Review of Economics and Statistics*, 87, 1–19.

- De Brauw, A., Mueller, V. and Woldehanna, T. (2013). “Motives to Remit: Evidence from Tracked Internal Migrants in Ethiopia.” *World Development*, 50, 13–23.
- De Luna Martínez, J. (2005). “Workers’ Remittances to Developing Countries: A Survey with Central Banks on Selected Public Policy Issues”, *World Bank Policy Research WP no. 3638*. The World Bank, Washington D.C., USA.
- De Weerd, J. and Hirvonen, K. (2013). “Risk sharing and internal migration.” *Policy Research Working Paper Series 6429*, The World Bank, Washington D.C., USA.
- Dimova, R., Epstein, G. and Gang, I. (2011). “Migration, Transfers and Child Labor.” *IZA Discussion Papers 5641*, Institute for the Study of Labor (IZA).
- DiNardo, J., Fortin, N.M., and Lemieux, T. (1996). “Labor Market Institutions and the Distribution of Wages, 1973–1992: A Semiparametric Approach.” *Econometrica*, 64, 1001–1044.
- Ducanes, G. (2010). “The Case of the Missing Remittances in the FIES: Could it be causing us to mismeasure welfare changes?” *UP School of Economics*, Discussion Paper No. 2010-04. March
- Eastwood, R. and Lipton, M. (2001). “Demographic Transition and Poverty: Effects Via Economic Growth, Distribution, and Conversion.” In N. Birdsall, A. C. Kelley and S. W. Sinding (eds.), *Population Matters: Demographic Change, Economic Growth, and Poverty in the Developing World*, Oxford University Press.
- Elbers, C., Lanjouw, J. and Lanjouw, P. (2003). “Micro-Level Estimations of Poverty and Inequality.” *Econometrica* 71(1), 355–64.
- Ferreira, F.H.G., Gignoux, J. (2011). “The measurement of inequality of opportunity: theory and an application to Latin America.” *Review of Income and Wealth*, 57(4), 622–657.
- Firpo, S., Fortin, N. M., and Lemieux, T. (2009). “Unconditional Quantile Regressions.” *Econometrica*, 77 (3), 953–973.
- Firpo, S., Fortin, N. M., Lemieux, T. (2010). “Decomposition Methods in Economics.” *National Bureau of Economic Research*, WP 16045.
- Fortin, N. M., Lemieux, T., and Firpo, S. (2010). “Decomposition Methods in Economics.” *National Bureau of Economic Research*, WP 16045.
- Foster, J. E., and Shneyerov, A.A. (2000). “Path independent inequality measures.” *Journal of Economic Theory*, 91(2), 199–222.
- Fox, L. (2009). “Poverty and Household Size in Uganda.” *World Bank Policy Note*, mimeo.
- Freedom House. (2016). “Freedom in the World 2016”. *Freedom House*.
- Freund CL., and Spatafora N. (2005), “Remittances: Costs, Determinants, and Informality”, *World Bank Policy Research WP No. 3704*. The World Bank, Washington D.C., USA.

- GCB. (2013). “Global Corruption Barometer 2013: Report.” *Transparency International*.
- Gibson, J., McKenzie, D. and Stillman, S. (2011). “The Impacts of International Migration on Remaining Household Members: Omnibus Results from a Migration Lottery Program.” *The Review of Economics and Statistics*, 93(4), 1297–1318.
- Green, T. R. (2005). “The Political Economy of a Social Transfer Program: Evidence from PROGRESA in Mexico.” Paper presented at the 63rd Midwest Political Science Association Conference, Chicago.
- Harker, A., N. Lustig, V. Martinez, and M. Melendez. (Forthcoming). “The Impact of Taxes and Transfers on Inequality and Poverty in Colombia.” *CEQ Working Paper 24*, CEQ Institute, Center for Inter-American Policy and Research and Department of Economics, Tulane University and Inter-American Dialogue.
- Haushofer, J., and Shapiro, J. (2013). “Household Response to Income Changes: Evidence from an Unconditional Cash Transfer Program in Kenya.” http://www.iies.su.se/polopoly_fs/1.162160.1389355591!/menu/standard/file/HaushoferJob%20Market%20Paper.pdf
- Higgins, Sean and Claudiney Pereira. (2014). “The Effects of Brazil’s Taxation and Social Spending on the Distribution of Household Income,” in Lustig, N., Pessino, C., Scott, J. (eds.), *The Redistributive Impact of Taxes and Social Spending in Latin America*. Special Issue. *Public Finance Review*, 42(3), 346–67.
- Hildebrandt, N. and McKenzie, D. (2005). “The effects of migration on child health in Mexico.” *Economia*, 6(1), 257–89.
- Hill, Ruth, Gabriela Inchauste, Nora Lustig, Eyasu Tsehaye and Tassew Woldehanna. Forthcoming. “A Fiscal Incidence Analysis for Ethiopia,” In: Inchauste, G., Lustig, N. (Eds.), *The Distributional Impact of Fiscal Policy: Experience from Developing Countries*. World Bank, Washington, D.C.
- Iceland, J. (2003). “Why Poverty Remains High: the Role of Income Growth, Economic Inequality, and Changes in Family Structure, 1949–1999.” *Demography*, 40(3), 499–519.
- Inchauste, Gabriela, Nora Lustig, Mashekwa Maboshe, Catriona Purfield and Ingrid Wollard. (Forthcoming). “The Distributional Impact of Fiscal Policy in South Africa,” in: Inchauste, G., Lustig, N. (Eds.), *The Distributional Impact of Fiscal Policy: Experience from Developing Countries*. World Bank, Washington, D.C.
- International Monetary Fund. (2006). “Union of the Comoros: Selected Issues and Statistical Appendix.” IMF
- International Monetary Fund. (2015). “Union of the Comoros, 2014 article IV consultation—staff report, press release and statement by the executive director for union of the Comoros.” *IMF Country Report No. 15/34*.

- Jellema, Jon, Astrid Haas, Nora Lustig, and Sebastian Wolf. (2017). “The Impact of Taxes, Transfers, and Subsidies on Inequality and Poverty in Uganda.” Chapter 16 in Nora Lustig (editor) *Commitment to Equity Handbook. A Guide to Estimating the Impact of Fiscal Policy on Inequality and Poverty*, Brookings Institution Press.
- Jerven, M. (2013). “Poor Numbers: How We are Misled by African Development Statistics and What to Do About It.” *Studies in Political Economy*, Cornell University Press.
- Kabeer, N. (2010). “Can the MDGs Provide a Pathway to Social Justice? The Challenges of Intersecting Inequalities.” New York: UN MDG Achievement Fund: Brighton: IDS.
- Kelley, A. C. and Schmidt, R. M. (1995). “Aggregate Population and Economic Growth Correlations: The Role of the Components of Demographic Change.” *Demography*, 32(4). 543–555.
- Kessy, F., Mashindano, O., Shepherd, A. and Scott, L. (Eds) (2013). “Translating Growth into Poverty Reduction: Beyond the Numbers.” Mkuki na Nyota, Dar es Salaam.
- Klasen, S. (2005). “Population Growth, (Per Capita) Economic Growth, and Poverty Reduction in Uganda: Theory and Evidence.” mimeo.
- Lefranc, A., Pistoiesi, N. and Trannoy, A. (2008). “Inequality of Opportunities vs. Inequality of Outcomes: Are Western Societies All Alike?.” *Review of Income and Wealth*, 54(4), 513–46.
- Lindh, T. and Malmberg, B. (2007). “Demographically Based Global Income Forecasts Up to the Year 2050.” *International Journal of Forecasting*, 23, 553–67.
- Llerena Pinto, Freddy Paul, María Christina Llerena Pinto, Roberto Carlos Saá Daza, and María Andrea Llerena Pinto. (2015). “Social Spending, Taxes and Income Redistribution in Ecuador.” *CEQ Working Paper 28*, Center for Inter-American Policy and Research and Department of Economics, Tulane University and Inter-American Dialogue.
- Lokshin, M., Bontch-Osmolovski, M. and Glinskaya, E. (2010). “Work-Related Migration and Poverty Reduction in Nepal.” *Review of Development Economics*, 14(2), 323–332.
- Lustig, Nora (editor). (2017). “Commitment to Equity Handbook. A Guide to Estimating the Impact of Fiscal Policy on Inequality and Poverty.” Brookings Institution Press.
- Machado, J.F., and Mata, J. (2005). “Counterfactual Decomposition of Changes in Wage Distributions Using Quantile Regression.” *Journal of Applied Econometrics*, 20, 445–465.
- McCord, G. C., Conley, D. and Sachs, J.D. (2010). “Improving Empirical Estimation of Demographic Drivers: Fertility, Child Mortality and Malaria Ecology.” *Earth Institute Working Paper*, Columbia University.
- McKenzie, D. (2005). “Beyond remittances: the effects of migration on Mexican households.” *International migration, remittances and the brain drain*, McMillan and Palgrave: 123–47.

- McKenzie, D., Stillman, S. and Gibson, J. (2010). “How Important is Selection? Experimental VS. Non-Experimental Measures of the Income Gains from Migration.” *Journal of the European Economic Association*, 8(4), 913–945.
- McKenzie, D. and Rapoport, H. (2007). “Network effects and the dynamics of migration and inequality: Theory and evidence from Mexico.” *Journal of Development Economics*, 84(1),1–24.
- McKenzie, D. and Sasin, M. (2007). “Migration, remittances, poverty, and human capital: conceptual and empirical challenges.” *Policy Research Working Paper Series 4272*, The World Bank.
- McLean, E. (2008). “An investigation of recent trends in the remittance industry: Evidence from Jamaica.” *Bank of Jamaica Working Paper*.
- Merrick, T. (2001). “Population Matters: Demographic Change, Economic Growth, and Poverty in the Developing World.” In N. Birdsall, A. C. Kelley and S. W. Sinding (eds.), *Population Matters: Demographic Change, Economic Growth, and Poverty in the Developing World*, Oxford University Press.
- Mo Ibrahim Foundation. (2016). “Ibrahim Index of African Governance. Country Insights Burundi.” *Mo Ibrahim Foundation*.
- Molyneux, M. (2006). “Mothers at the Service of the New Poverty Agenda: Progres/Oportunidades, Mexico’s Conditional Transfer Programme.” *Social Policy and Administration*, 40, 425–449.
- OECD. (2008). “A Profile of Immigrant Populations in the 21st Century: Data from OECD Countries.” *OECD Publishing*, Paris.
- Palloni, A. and H. Rafalimanana (1999). “The Effects of Infant Mortality on Fertility Revisited: New Evidence from Latin America.” *Demography* 36 (1): 41–58.
- Pastrana, D. (2005). “El Programa Oportunidades Fracasa. Mucho dinero, pobres resultados.” *Masiosare* 389, UNAM, Mexico, <http://www.jornada.unam.mx/2005/06/05/mas-daniela.html>;
- Paz Arauco, Verónica, George Gray Molina, Wilson Jiménez Pozo, and Ernesto Yáñez Aguilar. 2014. “Explaining Low Redistributive Impact in Bolivia.” In Lustig, Nora, Carola Pessino and John Scott. 2014. Editors. *The Redistributive Impact of Taxes and Social Spending in Latin America*. Special Issue. *Public Finance Review* 42, 326-345.
- Ravallion, M. (1998). “Poverty Lines in Theory and Practice. Living Standards Measurement Study.” *Working Paper No. 133*, World Bank, Washington D.C.

- Ravallion, M. (2001). “Measuring Aggregate Welfare in Developing Countries: How Well do National Accounts and Surveys Agree?.” *Policy Research Working Paper 2665*, World Bank, Washington D.C.
- Ravallion, M. (2008). “Poverty Lines.” In: S. N. Durlauf and L. E. Blume (eds), *The New Palgrave Dictionary of Economics*, 2nd edition, Palgrave Macmillan.
- Rocha Menocal, A. (2001). “Do Old Habits Die Hard? A Statistical Exploration of the Politicisation of PROGRESA, Mexico’s Latest Federal Poverty Alleviation Programme, under the Zedillo Administration.” *Journal of Latin American Studies*, 33, 513–538.
- Roemer, J. E. (1998). *Equality of opportunity*. Cambridge, MA: Harvard University Press.
- Rosenbaum, P. R. and Rubin, D. B. (1983). “The central role of the propensity score in observational studies for casual effects.” *Biometrika*, 70(1):41–55.
- Rossignolo, Dario. (2017). “Taxes, Expenditures, Poverty, and Income Distribution in Argentina.” Chapter 11 in Nora Lustig (editor) *Commitment to Equity Handbook. A Guide to Estimating the Impact of Fiscal Policy on Inequality and Poverty*, Brookings Institution Press.
- Royston, P., White, I.R., (2011). “Multiple imputation by chained equations (MICE): implementation in Stata Journal.” *Stata Software*, 45(4), 1–20.
- Rubin, D.B. (1987). “Multiple Imputation for Nonresponse in Surveys.” *John Wiley & Sons, Inc.*, New York.
- Sandefur, J. (2013). “Africa Rising: Using Micro Surveys to Correct Macro Time Series.” CSAE Mimeo (August 9).
- Sauma, Juan and Diego Trejos. 2014. “Social public spending, taxes, redistribution of income, and poverty in Costa Rica.” *CEQ Working Paper No. 18*, Center for Inter-American Policy and Research and Department of Economics, Tulane University and Inter-American Dialogue.
- Schneider, F., A. Buehn and C. E. Montenegro (2011). “Shadow economies all over the world: new estimates for 162 countries from 1999 to 2007.” In: F. Schneider (eds.) *Handbook on the Shadow Economy* Edward Elgar Publishing Ltd., Cheltenham UK.
- Scott, John. (2014). “Redistributive Impact and Efficiency of Mexico’s Fiscal System.” In: Lustig, N., Pessino, C., Scott, J. (eds.), *The Redistributive Impact of Taxes and Social Spending in Latin America*. Special Issue. *Public Finance Review*, 42(3), 368-390.
- Shimeles, Abebe, Ahmed Moumami, Nizar Jouini, and Nora Lustig. (2017). “Fiscal Incidence and Poverty Reduction: Evidence from Tunisia.” Chapter 15 in Nora Lustig (editor) *Commitment to Equity Handbook. A Guide to Estimating the Impact of Fiscal Policy on Inequality and Poverty*, Brookings Institution Press.

- Stewart, F., and Langer, A. (2007). “Horizontal Inequalities: Explaining Persistence and Change.” Centre for Research on Inequality, Human Security and Ethnicity. *Working Paper No. 39*. Oxford: University of Oxford.
- Tarozzi, A. (2002). “Estimating Comparable Poverty Counts from Incomparable Surveys: Measuring Poverty in India.” *Working Paper*, Princeton University.
- Tarozzi, A. (2007). “Calculating Comparable Statistics from Incomparable Surveys, with an Application to Poverty in India”. *Journal of Business and Economic Statistics*, 25(3), 314–336.
- UNDP (1990). *Human Development Report 1990*, Oxford University Press, New York and Oxford.
- Uwezo (2013). “Are Our Children Learning? Literacy and Numeracy Across East Africa.” Uwezo East Africa at Twaweza, Nairobi.
- WDI (2017). *World Development Indicators*. <<http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators>> (accessed March 2017).
- WHO (2012). “World Malaria Report 2012.” World Health Organization, Geneva.
- Williamson, J. G. (2001). “Population Matters: Demographic Change, Economic Growth, and Poverty in the Developing World.” In N. Birdsall, A. C. Kelley and S. W. Sinding (eds.), *Population Matters: Demographic Change, Economic Growth, and Poverty in the Developing World*, Oxford University Press.
- World Bank. (2005). “World Development Report 2006.” *Equity and Development*. World Bank, Washington D.C.
- World Bank. (2007a). “Ethiopia. Capturing the Demographic Bonus in Ethiopia: Gender, Development and Demographic Action.” World Bank, Washington D.C.
- World Bank. (2008). “Migration and Remittances FactBook.” World Bank, Washington, D.C.
- World Bank. (2011). “Migration and Remittances FactBook.” Second Edition. World Bank, Washington, D.C.
- World Bank. (2013). “Migration and Remittances FactBook.” Third Edition. World Bank, Washington, D.C.
- World Bank. (2015). “Comoros Public Expenditure and Fiscal Management Review.” World Bank, Washington, D.C.
- World Bank. (2015). “The Little Green Data Book 2015.” World Bank, Washington, DC.
- World Bank. (2015a). “Poverty in a Rising Africa: Overview.” World Bank, Washington, DC.

- World Bank. (2015b). “A Measured Approach to Ending Poverty and Boosting Shared Prosperity. Concepts, Data, and the Twin Goals.” World Bank, Washington, DC.
- World Bank. (2015c). “Ending Poverty and Sharing Prosperity: Global Monitoring report 2014/15.” World Bank, Washington, DC.
- World Bank. (2016). “Financial Instruments for International Remittances Capture”. World Bank, Washington, DC.
- World Bank. (2017). “Doing Business 2017: Equal Opportunity for All.” World Bank, Washington, D.C.
- World Bank. (2017). Doing Business Ranking. < <http://www.doingbusiness.org/rankings>> (accessed March 2017).
- Yang, D. (2008). “International Migration, Remittances and Household Investment: Evidence from Philippine Migrants’ Exchange Rate Shocks.” *The Economic Journal*, 118(528), 591–630.
- Younger, Stephen. (2017). “The Impact of Reforming Energy Subsidies, Cash Transfers, and Taxes on Inequality and Poverty in Ghana and Tanzania.” Chapter 10 in Nora Lustig (editor) *Commitment to Equity Handbook. A Guide to Estimating the Impact of Fiscal Policy on Inequality and Poverty*, Brookings Institution Press.
- Younger, Stephen D., and Artsvi Khachatryan. (Forthcoming). “Fiscal Incidence in Armenia,” in: Inchauste, G., Lustig, N. (Eds.), *The Distributional Impact of Fiscal Policy: Experience from Developing Countries*. World Bank, Washington, D.C.
- Younger, S., E. Osei-Assibey and F. Opong. (2015). “Fiscal Incidence in Ghana.” *CEQ Working Paper 35*, Center for Inter-American Policy and Research and Department of Economics, Tulane University, Ithaca College, University of Ghana and World Bank.

