

Report No. 77752-ML

Mali

Poverty and Gender Notes

May 31, 2013

Poverty Reduction and Economic Management 4
Country Department West Africa 3
Africa Region



Document of the World Bank

Monetary Equivalents

(Exchange Rate Effective as of March 31, 2013)

Monetary Unit = CFA Franc (CFA F)

1 US dollar = 511.7

Financial Year

January 1 - December 31

ACRONYMS AND ABBREVIATIONS

CAS	Country Assistance Strategy
CPI	Consumer Price Inflation
DHS	Demographic and Health Studies
F CFA	Franc de la Communauté Financière Africaine
ELIM	Enquête Intégrée auprès des Ménages
EMEP	Enquête Malienne sur l’Evaluation de la Pauvreté
FHH	Female-Headed Household
FOB	Free on Board
GDP	Gross Domestic Product
ICI	Initiative Conseil International
IDA	International Development Association
IMF	International Monetary Fund
INSTAT	Institut National de la Statistique
LCU	Local Currency
LICS	Low Income Countries
MDG	Millennium Development Goals
MHH	Male-Headed Household
MICS	Multiple Indicators Cluster Survey
MPFEF	Ministère de la Promotion de la Femme, de l’Enfant et de la Famille
NGO	Non-governmental Organization
PAGAM/GFP	Programme Gouvernemental pour l’Amélioration et la Modernisation de la Gestion des Finances Publiques
PBSG	Planification et Budgétisation Sensible au Genre
PDDSS	Plan décennal de Développement Sanitaire et Social
PNAE	Plan National d’Accès à l’Eau Potable
PNG	Politique Nationale du Genre
PNSA	Programme National de Sécurité Alimentaire

PPI	Post-Partum Insusceptibility
PPP	Purchasing Power Parity
PRODESS	Programme Décennal de Développement Socio-Sanitaire
PRSP	Poverty Reduction Strategy Paper
RPGH	Recensement Général de la Population et de l'Habitat
SONU	Soins Obstétricaux et Néonataux d'Urgence
SOU	Soins Obstétricaux d'Urgence
SSA	Sub-Saharan Africa
STI	Sexually Transmitted Infection
TFI	Total Fertility Index
UNDP	United Nations Development Program
USAID	United States Agency for International Development
USD	US dollar
WAEMU	West African Economic and Monetary Union
WDI	World Development Indicators
WDR	World Development Report
WTI	West Texas Intermediate

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ACKNOWLEDGMENTS

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The report was prepared under the guidance of Marcelo Giugale (Sector Director) and Miria Pigato (Sector Manager, AFTP4). Judite Fernandes provided assistance with document preparation and editing.

EXECUTIVE SUMMARY

1. **In the last decade, Mali enjoyed sustained economic growth.** Mali is one of the poorest countries in the world, with a GDP per capita of about \$691 in 2010. Between 2000 and 2010, Mali's GDP grew on average at a rate of 5.8 percent per annum. Growth rates were volatile at the beginning of the period but stabilized around 5 percent since 2005. In the same period, the population in Mali was estimated to grow at a rate of 3.6 percent per year, resulting in a per capita GDP growth rate around 1.5 to 2 percent per year.

2. **Mali's steady per capita GDP growth was accompanied with a significant decline in the poverty rate, from 55.6 percent in 2001 to 43.6 percent in 2009/10.** Growth has been pro-poor, especially in the later part of the decade. The decline in poverty has been concentrated in rural areas. However, Mali's rapid population growth still has led to an increase of the overall number of people living in poverty, and is constraining progress in terms of per capita health and education outcomes. In its most recent report, the UNDP Human Development Index ranked Mali 175 out of 187 countries.

3. **High fertility rates and gender imbalances are key drivers of Mali's poverty dynamics.** High fertility rates (6.7 births per woman) not only affect population growth, but also women's health and productive capacity. As a matter of fact, female-headed households tend to be poorer after adjusting for household size and scale economies in consumption. Within households, females perceive themselves as poorer than their husbands in terms of both wealth and decision-making power. Literacy rates are lower for females than males (18.8 versus 41.6 percent) and girls are less likely to be in school than boys (gross primary enrollment rates are 69.6 and 79.1 percent respectively). Besides, women are under-represented in political decision making and in business and employment.

4. **The present report compiles three different notes, emphasizing the interrelation between poverty, demographics and gender imbalances.** The first Note discusses the evolution of poverty in Mali since 2001. The second Note reviews recent demographic trends and related policies. The third Note reports on the latest available data on females in business and employment within the formal sector. Altogether, the compilation of these three notes aims to stimulate debates and the exploration of policy options to tackle poverty through its interactions with fertility and gender imbalances. The following sections highlight the main conclusions of each note.

5. **Moving forward, a number of other poverty dimensions could also be explored.** While demographics and gender imbalances play a key role, many other poverty dimensions could be worth exploring. This includes notably (i) qualitative analyses of poverty to better understand poor's livelihoods, (ii) vulnerability analyses to measure how shocks affect households, and how they cope with, (iii) spatial analyses to better understand the geography of poverty and its determinants, and (iv) sectoral analyses to assess the extent to which policies (health, social protection, employment, etc.) can sustainably influence poverty.

Note I - Poverty in Mali in the 2000's: A success story?

6. **This note analyzes three surveys over a decade to present a comprehensive view of poverty's trends in Mali.** Using monetary and non-monetary indicators, including malnutrition data and information about household wealth available at local levels, the note finds a clear and irrefutable reduction in the percent of Malians living in poverty. When looking at poverty across the nine regions of Mali, two findings are worth noting. First, most of the decline in aggregate poverty is explained by a very large decline in the Kayes and Koulikoro regions; and second, the Sikasso region, one of the best endowed agricultural regions in the country, has the highest poverty headcount rate and is the only region not having experienced a decline in poverty (also called the Sikasso paradox).

7. **Using alternative methodologies, the study suggests that setting a more reasonable poverty line for Sikasso, leads to more nuanced findings.** The region is still the poorest in the country, but poverty has decreased over the decade. Using malnutrition data (chronic malnutrition) supports such findings: Sikasso is one of the poorest performing regions in chronic malnutrition, but differences with some of the other regions are fairly small and much smaller than for the poverty headcount rate. This highlights the need to use a more comprehensive set of data and tools in poverty analysis, including having regional price information as well as new poverty line calculations to ensure a more accurate representation of poverty in Sikasso as well as other regions.

8. **The analysis of asset holdings as an alternative poverty measure confirms that progress is being made in poverty alleviation.** But rural areas, where most of the poor live, are still well behind urban areas in access to cellular phones, and other modern amenities. There is a clear tendency for poverty measures to increase with the age of the household head. Larger households are much more likely to be poor than smaller ones. People whose household head has no education account for 85.2 percent of all the poor in the country in 2009/10, which is a small decrease from the first survey in 2001. Nonetheless, overall returns to education over the years have dropped, which might be partly due to the increase in enrolment rates and the lack of economic opportunities.

9. **Analysis of poverty profiles suggests that growth was pro-poor.** The estimation of poverty profiles in the three surveys suggests that there has been an improvement in households' welfare over time, once controlled for individual characteristics. Poverty profiles also suggest that education and demographic characteristics explain most differences between households' consumption levels. In contrast, type and sector of employment matter less.

10. **Access to services has improved substantially over the decade, but is still well below Sub-Saharan Africa averages.** Access to electricity improved from 10 percent nationwide in 2001 to 24 percent in 2010, but rural-urban divide remains wide, with urban areas reaching 60 percent access in 2010 while rural access is only 11 percent. Access to an improved water source has risen from 69 percent in 2001 to 89 percent in 2010, but the two poorer quintiles lag behind, with only 72 percent of them having access to safe water in 2010. Net enrolment in primary and secondary school improved appreciably over the decade, reaching 54 percent and 28 percent respectively in 2010, but remained well below African standards. Children of all quintiles benefitted from these improvements. However, a noticeable gender gap persists, and is especially marked in secondary enrolment.

11. **Looking ahead, it would be important that the *Institut National de la Statistique* (INSTAT) puts in place a poverty monitoring system.** A reliable poverty monitoring system would lay the basis for a series of sound and comparable estimates of poverty over the coming 8-10 years. This should ideally be part of the broader survey plan that INSTAT is currently working on. We suggest such a poverty measurement system revolve around the implementation of a comprehensive high quality survey - using a detailed household consumption and income questionnaire - every 3-5 years. This will enable a rapid identification of poverty trends that is statistically sound and comparable over time.

Note II - Fertility Decline and Socioeconomic Development in Mali

12. **This Note provides a critical analysis of policies, plans and programs adopted by Mali on population issues.** It examines the impact of various demographic scenarios on economic growth, with a focus on education and health sub-sectors. It also discusses the fiscal gains associated with a slowdown of the population growth and the available policy options to accelerate the use of contraception and trigger a demographic transition, recognizing the long term nature of this endeavor.

13. **Over the past 20 years, Mali has adopted and implemented two main population policies, in 1991 and 2003.** Mali has also adopted plans and programs, at sectors level, with a special focus on reproductive health. A fundamental objective of these policies was to contribute to the progressive control of fertility through the increase in the rate of prevalence of contraception. But the results have been disappointing. In 2010, only 9 percent of Malian women in union used a contraceptive method, compared to 5 percent in 1987 and 8 percent in 2006. This corresponds to an annual increase of 0.2 percentage point per year which, if continued, would lead to growth rates of the Malian population of 3% to 3.5% per year for several decades. The lack of coordination between implementing units, and the lack of recent data to set appropriate targets largely explain the lack of consistency between the various policies, plans and programs in population and health. Moving forward, a considerable effort in harmonizing indicators and setting relevant targets is therefore necessary to avoid failures.

14. **In view of the extreme youth of the population (two Malians on three are less than 25 years old) and the still high fertility rates, the Malian population is expected to double in the next 20 years (with a threefold increase in the urban population).** This is what the results of three population projections for Mali carried out in 2009, 2010 and 2011 suggest, despite the projected fertility declines. Given the current trend of economic growth and demography, per capita GDP will be only 42% higher in 2030 compared to 2010. By that time, the number of new entrants to the Malian labor market every year will double and hit 550,000 (for both sexes) in 2030. In the past, the lack of job creation was somewhat offset by the development of informal, poorly paid and generally little productive employment, as well by emigration. Rapid growth in labor supply will become a benefit to the country only if accompanied by the creation of enough jobs and an increase in productivity, which implies major improvements in health and education. Otherwise, this large and growing workforce will remain under-employed and will become a factor of social unrest.

15. **Compared to the current trend, a more rapid decline in fertility would generate significant fiscal space.** Using current unit costs of health and education service delivery, the note suggests that triggering a demographic transition could save up to US\$1.6 billion worth of education and health expenditure by 2030. To meet this objective, the note suggests the adoption of

a "roadmap for meeting family planning needs". Short term actions considered under the roadmap include the design of new advocacy tools to convince citizens and leaders on the urgent need to accelerate the use of contraception. In the medium term, ensuring consistency in terms of results indicators and targets setting for population and reproductive health policies is essential. This might require an update of demographic projections.

Note III - Enterprise, employment and gender in the Mali formal sector

16. **This Note discusses the role of women in the productive sector, as entrepreneurs, managers, and productive employees.** It is situated in a wider context of female empowerment: achieving sustained and shared economic growth by ensuring that the entrepreneurial and managerial skills of females are not discriminated against and that they have the human, physical and social capital necessary to succeed. This is crucial if Mali is to produce a healthy and educated workforce capable of lifting the country out of poverty.

17. **The key findings are:** (1) that females are severely under-represented in the Malian business environment, and this, particularly outside of Bamako; (2) once females prove themselves successful in business however, they tend not to face any more severe constraints than their male counterparts; (3) rather, discrimination is likely to occur at the point of entry into business; (4) female workers appear to have been hit less hard by the crisis than males; (5) female owners and managers are more likely to employ female workers; and (5) both males and females face severe constraints in access to finance in Mali.

18. **Several general and specific policy implications can be drawn from the study.** From a general perspective, firstly, the importance of combating gender inequality from a young age, starting with ensuring that the gender gap in schooling is narrowed is essential in allowing females to access the business environment on an equal basis. Secondly, since male managers and owners are less likely to employ females regardless of the type of work and sector additional efforts should be made to sensitize employers regarding discriminatory practices in employment.

19. **Furthermore, efforts to ensure that females are not discriminated against at the point of entry to the business environment can help to increase their participation.** This can include reviewing the registration process and the processes involved in the application of permits and licenses to ensure they do not disfavor females in the way in which they are implemented. Banks may also wish to review their environment to ensure it is not intimidating for females. In addition, since females tend to be concentrated in small businesses, gender neutral policies aimed at assisting small firms will have a positive impact for women in business. An additional benefit of bringing more females into ownership and management roles is that female employment is also likely to increase. The constraint of lack of access to finance is key for both male and female enterprises.

1. NOTE I - POVERTY IN MALI IN THE 2000's A SUCCESS STORY?¹

A. INTRODUCTION

1.1 This note is devoted to an analysis of how poverty has changed in Mali over the last ten years. It uses a series of household surveys with an expenditure module which permits the computation of consistent monetary-based poverty measures in 2001, 2006 and 2009/10. It builds on collaborative works undertaken jointly between the World Bank and the Mali National Statistical Office (INSTAT). It suggests a notable decline in poverty headcount from 55.6 percent in 2001, to 47.5 in 2006 and 43.6 percent in 2009/10. While the decline in the first half of the decade occurred in both urban and rural areas, the trends since 2006 show that all the poverty reduction has happened in rural areas. Since poverty reduction happen mainly in the poorest regions of the country, inequality has also declined significantly particularly since 2006 and economic growth appears to be pro-poor.

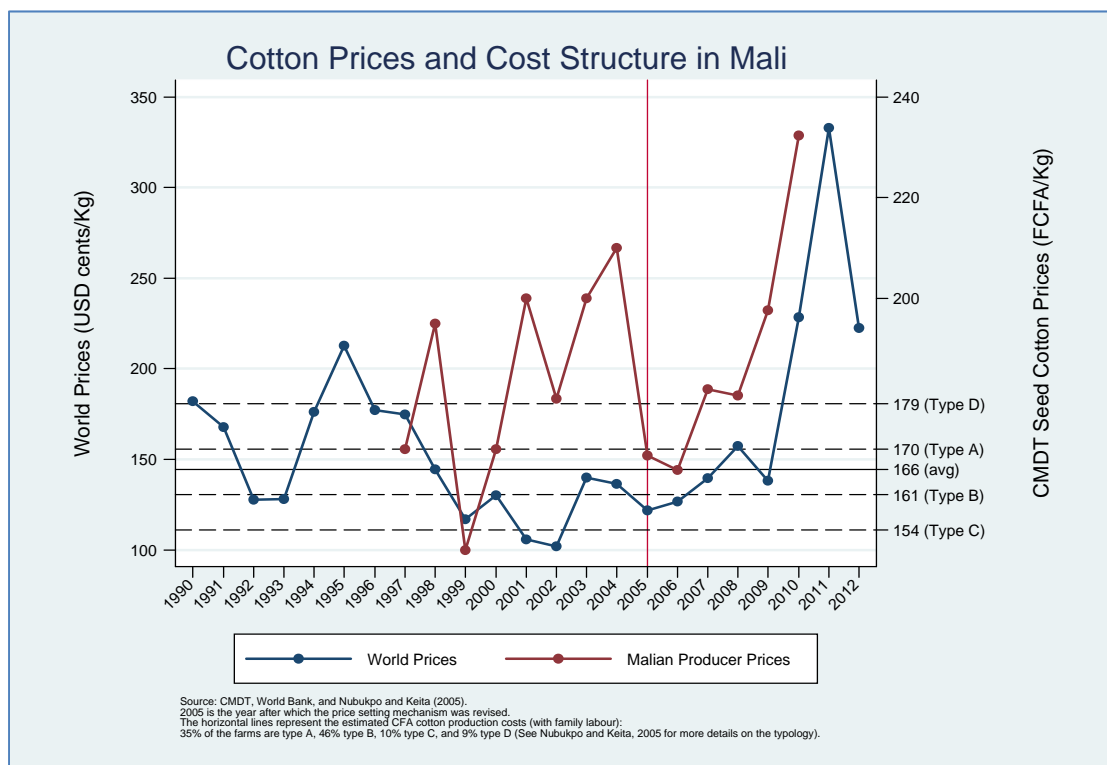
1.2 Mali is the largest land-locked country in the Sahel region of West Africa, and it is one of the poorest countries in the world with an average annual GDP per capita of about \$691 in 2010. In its most recent report, the UNDP Human Development Index ranked Mali 175 out of 187 countries. Between 2000 and 2010, the population in Mali was estimated to grow at a rate of 3.6 percent per year. Fertility rates are especially high (6.7 births per woman) but counterbalanced by high infant mortality rates (127 per 1000) and high emigration (3 million Malians live abroad). In the same period, GDP grew on average at a rate of 5.8 percent per annum. Growth rates were volatile at the beginning of the period but stabilized around 5 percent since 2005. Given the high fertility rate, per capita GDP growth rate is around 1.5 to 2 percent per year.

1.3 Agriculture, livestock and other primary-sector activities have long been the backbone of the Malian economy, although gold mining has also gained in importance in the past decade and now far outstrip cotton in terms of export value. Gold mining represents about a half of the secondary sector and more than 65 percent of total exports (Table 1.2). It is concentrated in the western part of Mali, namely in Kayes and Koulikoro regions. The cotton activity is heavily integrated and concentrated in the south of the country, particularly in the Sikasso region. Until 2005, Mali was the second largest cotton producer in Africa and Malian cotton was recognized as being of high quality with low production costs despite low yields. In the later part of the decade, the production had declined. While the cotton share in total export revenues was growing at the beginning of the past decade, it has declined since 2004. The Malian trade balance is characterized by large structural deficits (see Table 1.2) with capital goods, petroleum products and food constituting the bulk of imports.

¹ This report was written by Harold Coulombe (consultant) and Rob Swinkels (Senior Poverty Economist, AFTP4, World Bank) under the overall guidance of Sebastien Dessus, Dorsati Madani and, Cheikh Diop. Andrew Dabalen and Patrick Eozenou provided very useful contributions and comments. Also, the report benefitted from the comments of the following reviewers: Nina Rosas Raffo, Setareh Razmara, Janet Owens and Roy Katamaya, all from the World Bank. The report is based on analysis undertaken jointly with the National Statistical Office in Bamako (INSTAT). We are grateful for their support. The corresponding author email address is: rswinkels@worldbank.org.

1.4 Its dependence on agriculture and commodity exports makes Mali vulnerable to external shocks such as fluctuations in the world prices of cotton and gold. Both the trend and the volatility of gold prices have been increasing since 2005. Malian cotton producer prices have fluctuated sharply around an average of \$2 per kilogram until mid-2010 after which they spiked temporarily to about \$5 before dropping down again to slightly above \$2 by end 2011. These sharp fluctuations clearly affected the incentive for cotton production and economic health of the producers. This was especially evident by end 2009, when the sector found itself in severe financial stress; many of the producers found themselves highly indebted and left cotton production in favor of other agricultural activities. To revive the sector, the authorities reformed the sector starting in 2009/2010, arranged for the payment of the producers' outstanding debts to attract them back into cotton production. This policy was successful in that for 2011/2012, production surpassed 430,000 tons, compared to 260,000 tons.

Figure 1.1: Cotton World and Malian prices



1.5 Given that economic picture, the following phenomena are likely to influence the poverty pattern in Mali during the 2000's:

- Annual rainfall over the last ten years contributing to a compounded agricultural growth rate between 2000-2010 of about 70% (Table 1B);
- Cotton production that increased in value from 2000 to 2006 but then declined to pre-2000 level in 2010;
- Returning emigrant workers following political instability in Côte d'Ivoire, particularly to urban areas.

**Table 1.1: Rainfall (in mm) and agricultural growth in Mali 1998-2010
(in % and measured in constant local prices)**

Year	Avg. Rain (mm)	Rain Deviation	Ag. growth
1998	707.6	5.8%	10.7%
1999	784.1	17.2%	7.7%
2000	648.7	-3.0%	-10.4%
2001	616.9	-7.8%	11.3%
2002	526.0	-21.4%	-3.2%
2003	781.6	16.8%	19.5%
2004	618.8	-7.5%	-4.1%
2005	513.1	-23.3%	6.6%
2006	588.3	-12.1%	4.3%
2007	562.2	-15.9%	2.5%
2008	762.7	14.0%	13.2%
2009	726.1	8.6%	5.6%
2010	859.9	28.5%	11.5%

Note: Agricultural growth is obtained from the national accounts (IMF).
Average rainfall is obtained from NASA TRMM (3B43 v6).
Rain deviation is the yearly percentage deviation from the 1998-2010 average.

Table 1.2: Selected Macroeconomic Indicators

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Nominal GDP (billions CFAF)	2212.6	2329.9	2574.0	2611.0	2829.0	3131.0	3425.0	3913.0	4233.0	4657.0
Real GDP (annual % change)	13.3	4.3	7.4	2.2	6.1	5.3	4.3	5.0	4.5	5.8
CPI (annual % change)	5.2	5.0	-1.3	-3.1	6.4	1.5	1.5	9.1	2.2	1.4
Primary Sector (% GDP)	39.6	32.3	35.6	33.3	33.6	33.3	32.8	35.3	35.7	37.6
Cotton	3.1	2.4	3.2	2.9	2.5	1.9	1.0	0.8	0.9	0.9
Secondary Sector (% GDP)	23.6	25.4	21.6	21.7	22.1	22.7	20.7	18.8	18.7	17.3
Terms of Trade (annual % change)	2.3	-9.5	-1.1	1.5	-10.7	20.8	0.0	36.3	15.9	-9.0
Exports, f.o.b (billions CFAF)	531.2	624.6	540.0	516.0	580.0	812.0	733.7	917.6	837.7	969.9
of which cotton	81.2	155.4	141.0	181.0	140.0	142.0	109.6	65.6	66.8	73.6
of which gold	353.8	400.0	327.0	269.0	359.0	587.0	545.9	652.1	635.5	737.3
Imports, f.o.b (billions CFAF)	-538.4	-492.8	-574.0	-578.0	-657.0	-770.0	-847.2	-1223.7	-937.9	-1125.6
Trade balance (billions CFAF)	-7.2	131.8	-34.0	-62.0	-77.0	42.0	-113.5	-306.1	-100.2	-155.7
Migrant remittance inflows (% GDP)	3.4	4.1	3.5	3.2	3.3	3.6	4.8	4.9	4.8	4.5
Current account balance (including transfers)	-10.3	-3.0	-6.1	-8.3	-8.2	-3.6	-7.7	-12.7	-7.3	-7.5
Current account balance (excluding transfers)	-12.5	-4.3	-8.7	-10.3	-10.4	-6.3	-9.5	-13.9	-9.2	-9.2
Debt service ratio (% exports of goods and services)	6.3	6.3	5.8	6.4	7.4	3.7	3.4	3.7	4.2	2.9
Cotton exports (% exports)	15.3	24.9	26.1	35.1	24.1	17.5	14.9	7.1	8.0	7.6
Cotton exports (% GDP)	3.7	6.7	5.5	6.9	4.9	4.5	3.2	1.7	1.6	1.6
Gold exports (% exports)	66.6	64.0	60.6	52.1	61.9	72.3	74.4	71.1	75.9	76.0
Gold exports (% GDP)	16.0	17.2	12.7	10.3	12.7	18.7	15.9	16.7	15.0	15.8

Source: IMF and World Bank.

1.6 The next section of this paper presents briefly the constructions of the consumption aggregate used to measure household-level welfare as well as how the different poverty lines were set up. The third section looks at the poverty trends at national and region levels. It also assesses the robustness of our finding and looks at whether the economic growth was pro-poor or not. The fourth section looks at household asset ownership, an alternative to consumption-expenditure based indicators. Section V looks at causes of poverty from univariate and multivariate perspectives as well as to local poverty pattern based on Census data. Section VI

analyses poverty in terms of access to services. Section VII presents the results from the simulations on “possible” commodity price shocks. The last section concludes.

B. DATA AND METHODOLOGY

1.7 Mali has three fairly comparable nationwide expenditure-based surveys covering the 2000’s. These three surveys were administrated by the Malian statistical agency (INSTAT) in 2001, 2006 and in 2009/2010². The surveys had a sample size of 4966, 4494 and 9235 households respectively and had modules covering household expenditures as well as dwelling characteristics, durable goods ownership, education etc. The expenditure questionnaire also covers subsistence production. This poverty note is based on information from all three surveys.

1.8 The household-level welfare measure is defined as total household expenditures per capita. It is based on an aggregate of household consumption expenditure. These aggregates include cash expenditure on food and non-food items, consumption of home produced goods, and user values of owned durable goods. A provision for owner-occupied dwelling is also taken into account. In computing these aggregates, we ensure that they were as comparable as possible across years.³

1.9 A series of poverty lines were constructed by a joint INSTAT/World Bank team based on the 2001 survey using the standard cost of basic needs approach.⁴ These lines were constructed the following way. In the first instance, food poverty lines were computed for each of the nine regions by identifying and costing the food baskets consumed by Malian households that provide 2450 kcal per capita per day. That food basket included some 20 items representing around 80% of the total food expenditure. The quantities in this basket were then scaled so that they would provide exactly 2450 kilocalories per day. The non-food component of the poverty line was estimated using the actual non-food expenditure level of the households whose food consumption was within five percent of the food poverty line. These poverty lines were also estimated by area (urban/rural) within each region. One of the serious drawbacks of the approach used is the fact that the non-food poverty lines were based on a rather small number of households. For example, the Kayes urban non-food poverty line was based on non-food expenditure of 14 households. Sikasso lines were estimated on 14 and 53 households for respectively urban and rural areas. The worst case involved Gao region were only four urban and nine rural households used. As described below, one consequence of estimating non-food poverty lines on such small number of households is getting very volatile poverty lines from across region and area. The sum of these

² The 2001 survey was the *Enquête Malienne d’Évaluation de la Pauvreté* (EMEP), the *Enquête Légère Intégrée auprès des Ménages* (ELIM) in 2006 and the *Enquête par grappes à Indicateurs Multiples et de dépenses des ménages* (MICS-ELIM) in 2009/2010.

³ In the process of computing the expenditure aggregates, we need to “clean” the micro-record data in order to identify and correct outliers, in other words, figures that are deemed too large to be credible. This is standard procedure in the construction of any poverty profile. However, such procedure was rather difficult to implement in the case of Mali because of the structure of the survey questionnaires. In all three questionnaires (2001, 2006 and 2009/10), the expenditure on each item within each household is computed by multiplying the quantity bought (or auto-consumed) by its unit price. This approach contrast sharply by most surveys where the amount spent is directly asked. The Malian approach is surely more error prone as interviewees needs to remember both quantity and unit price for products bought in traditional markets where there are often no standardized quantity unit. This is somewhat confirmed by the large recorded unit price intervals.

⁴ See Backiny-Yetna *et al.* (2007).

two poverty lines (food and non-food) defines the poverty lines used for each region in this paper. The values of these different regional poverty lines can be found in Table 1 in the annex I.

1.10 The poverty lines associated with the 2006 and the 2009/10 surveys were obtained by simply inflating the one calculated using the 2001 survey using the Bamako consumer price index, the only reliable price data time series available to us. Although some concerns have been raised about the high level of some of these region poverty lines, particularly in Sikasso region, no attempt has yet been made by the Malian authorities to recompute these poverty lines. In fact, the lack of regional price deflators forces us to make the fairly strong assumption that Bamako price changes reflect these in other regions. This issue will be examined in the next section.

1.11 Other constraints to poverty analysis in Mali include:

- The expenditure questionnaire asks households about amount consumed and prices paid per unit, but do not collect information on the total amount paid as is common in most other countries. The approach applied is more error prone (see footnote 3).
- There have also been some changes in the expenditure questionnaire. The 2009/10 version for example is somewhat more detailed which affects comparability, although effects are expected to be minor.
- The surveys do not collect information on income and sources of revenue (including agricultural production) which makes it difficult to determine what drives changes in poverty.

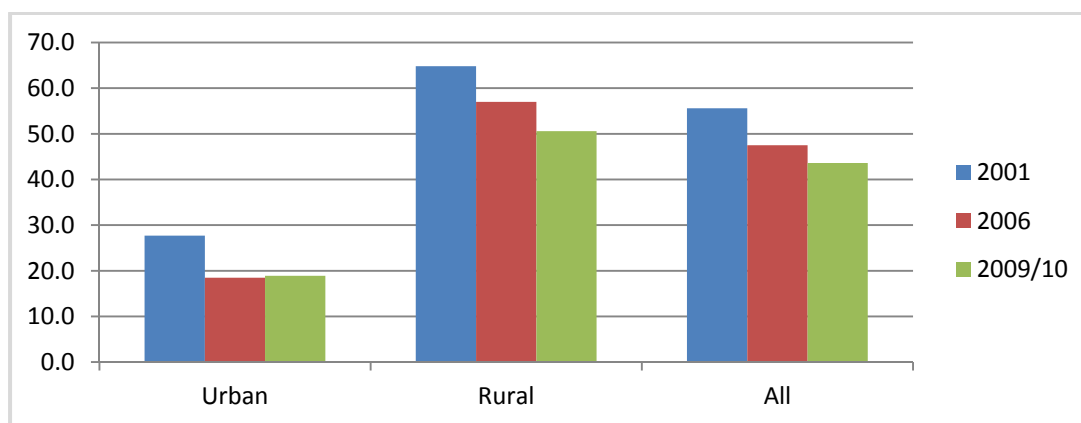
C. PATTERNS AND CHANGES IN CONSUMPTION POVERTY

Trends in Poverty Headcount

1.12 During the 2000s decade, nationwide poverty incidence (the proportion of the population living in poverty) declined steadily from 55.6 percent in 2001 to 47.5 in 2006 and 43.6 percent in 2010 (Figure 1.2). This meaningful decline in poverty incidence over a decade has nevertheless coincided with an increase in absolute numbers of poor from around 5,687,000 in 20001 to almost 6,350,000 individuals in 2010. Given the very high population growth rate (3.6% per year) in Mali a steeper decline in poverty would be needed to lower the absolute number of poor individuals.

1.13 The decline in poverty rate was witnessed in both urban and rural areas between 2001 and 2009/10, although the entire decline in poverty headcount since 2006 has been in rural areas. One reason often mentioned for that lack of poverty reduction in urban areas in the last few years is the return of many Malians coming back from Côte d'Ivoire following the Ivoirian political turmoil.

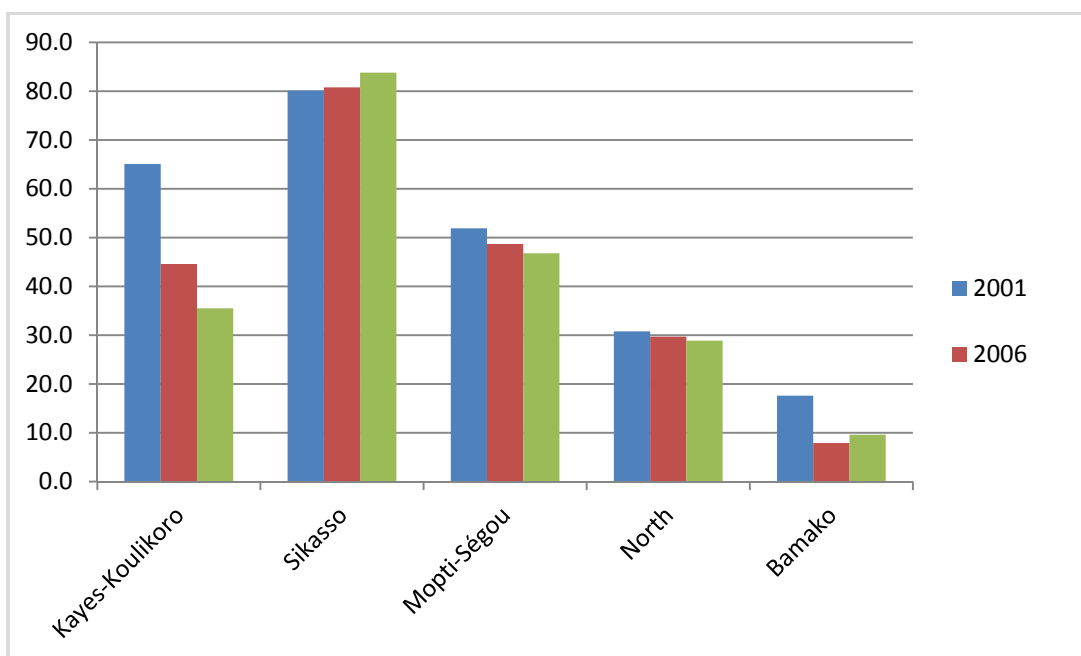
Figure 1.2: Poverty Headcount, by Area, 2001 to 2010



Source: Table 2 in Annex I.

1.14 The national decline in the national poverty rate of twelve percentage points was not evenly distributed across the different administrative regions. Figure 1.3 shows that while Kayes/Koulikoro regions experienced a very large decline in poverty headcount from 65 percent in 2001 to 45 in 2006 and 36 percent in 2009, the Sikasso region has actually seen its poverty headcount increase by a few percentage points. Between these two extreme cases, poverty in Bamako went down in the first half of the decade and then increased slightly afterward. The other regions have seen marginal downward trends. More troublesome and puzzling is the fact that the only region (Sikasso) not having experienced any poverty reduction in the 2000's is also the poorest region having a poverty headcount of more than 80 percent. In 2009/10, Sikasso was much poorer (83.8%) than Mopti/Ségou, the second poorest region at 46.8%. As expected the capital Bamako is the least poor region at less than ten percent of poverty.

Figure 1.3: Poverty Headcount, by Region, 2001 to 2010



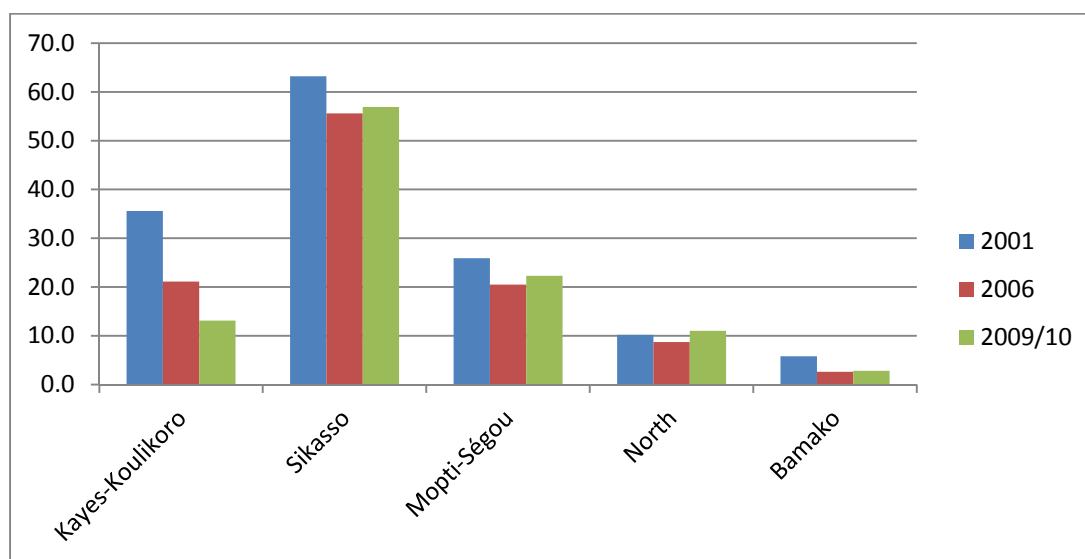
Source: EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

1.15 The high poverty rates in Sikasso are puzzling for two reasons. First Sikasso is usually seen as a region with a rich and diversified agriculture, including cotton. And second, given that the cotton sector was considered a success story during the first half of the decade, why did poverty not come down? This puzzle is also referred to as the ‘Sikasso paradox’. However, when we look at the extreme poverty headcount in Figure 1.4 – using the food poverty line – we actually see a small decline in extreme poverty in Sikasso during the first half of the decade followed by a slight increase later on, mimicking the health of the cotton sector in 2006. The fact that the most recent 2009/10 survey data simply confirms that paradox calls for further investigations, particularly in the role of cotton in wealth creation and poverty alleviation. Unfortunately, given the lack of data on sources of household income, this is not possible with the available household surveys.

1.16 Given the lack of income data we are not able to analyze *what* is driving the decline in poverty in the western part of the country (Kayes and Koulikoro regions). Some would argue that this could possibly be linked to the most successful sector there, namely gold production. However modern mining techniques are capital intensive and generate limited local employment generated. Although the creation of menial jobs, and trucking, food processing and other services could have lifted some people out of poverty, this is likely to have had only a minor effect.

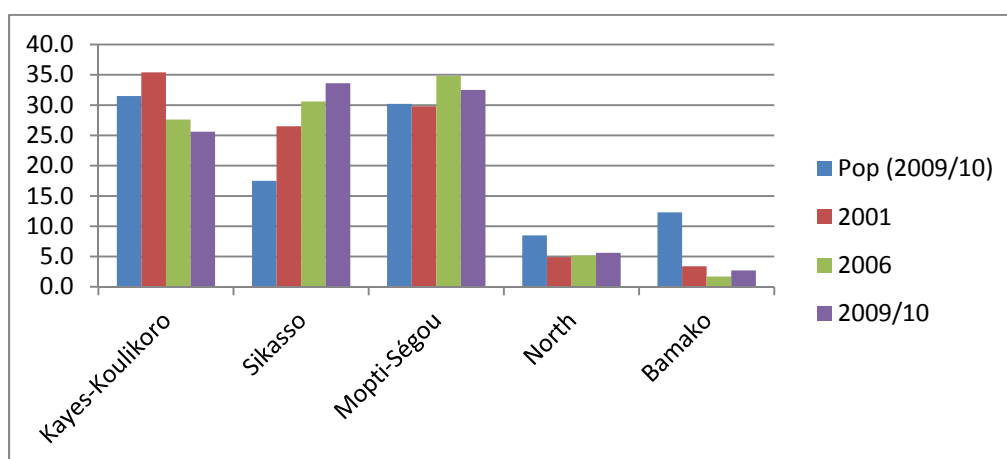
1.17 Poverty in Mali has remained a disproportionately rural phenomenon up till now. In 2009/10, more than 90 percent of the total population living below the poverty line in Mali was living in rural areas. Three percent of the poor live in Bamako and about 33 percent in Sikasso. In fact, the contribution of Sikasso to total poverty in Mali has consistently been increasing. From about 27 percent in 2001, the contribution of Sikasso to total poverty increased to 31 percent in 2006 and has increased further to about 34 percent in 2009/10 while its population share is only 17 percent. On the other hand, the contribution of Kayes/Koulikoro regions to total poverty has steadily declined during the same period. The contributions of the other regions to total poverty in Mali over the years and their population share are indicated in Figure 1.5.

Figure 1.4: Extreme Poverty Headcount, by Region, 2001 to 2010



Source: EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Figure 1.5: Contribution to National Poverty Headcount, by Region, 2001 to 2010

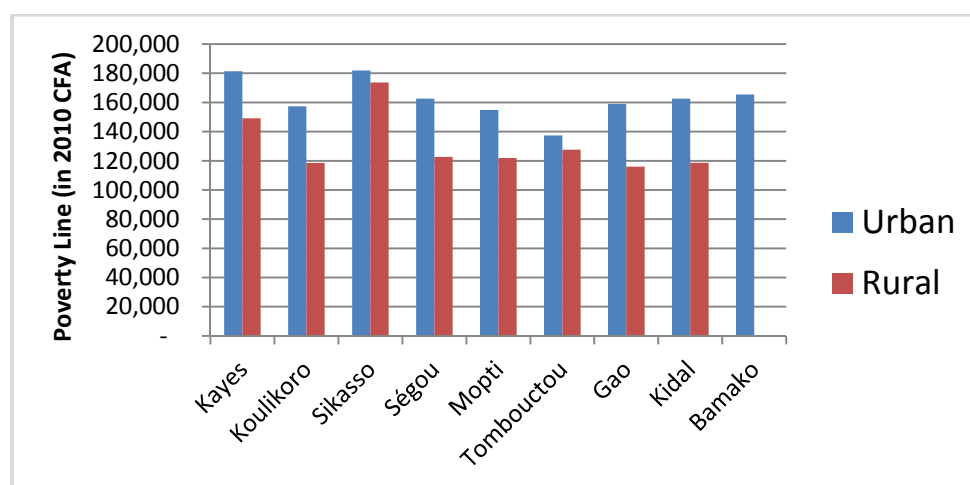


Source: EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

A Re-evaluation of the ‘Sikasso Paradox’

1.18 One possible explanation for the high poverty in Sikasso despite good agricultural conditions and cotton production (i.e. the Sikasso Paradox) is the rather high regional non-food price deflator used in the computation of the poverty line (Table 1 in Annex 1; see also Delarue *et al.* (2009)). A poverty line that is too high would necessarily overestimate poverty headcount. In the case of Mali, a look at the regional poverty lines (Figure 1.6) shows clearly that poverty lines in Sikasso (and to a lesser extent in Kayes) have been set much higher than in the other regions. This is particularly true in rural area of Sikasso where the poverty line - at an annual 174,000 CFA per capita in 2009/10 – is higher than anywhere else in Mali, including the capital Bamako. This is even more striking when we compare to the regions bordering Sikasso (Koulikoro and Ségou) where rural poverty lines are set to around 120,000 CFA per capita annually. Such a large difference (a third higher in Sikasso) is difficult to explain. A possible reason is that the calculation of the non-food part of the Sikasso poverty line (and those of some other regions) is based on a rather small sample of households (see paragraph 1.3.8 and 1.3.9.)

Figure 1.6: Poverty lines, by region and area, 2009/10, in CFA

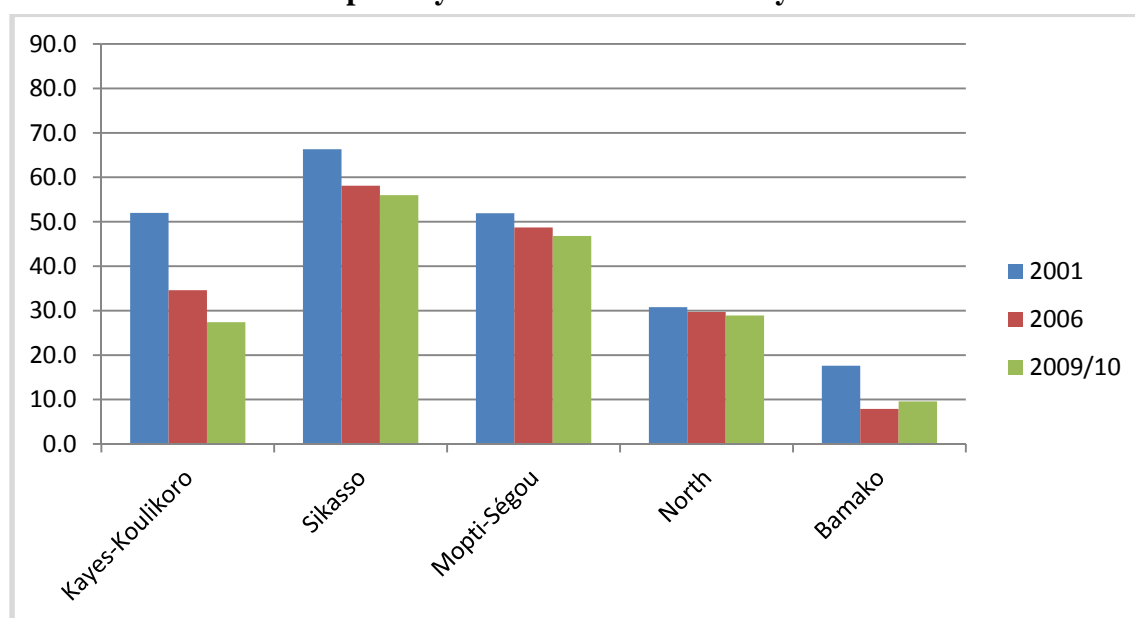


Source: EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys

1.19 What would be the poverty trend if the Sikasso and Kayes urban and rural poverty lines were set equal to the one for Koulikoro? These three regions share a similar agro-climatic environment. Using the new poverty lines, the analysis finds that the level of poverty in Sikasso is much lower although it remains the poorest region in Mali (See Figure 1.7 - which is based on the new poverty lines hypothesis compared to Figure 2, which presents the poverty rates based on the official poverty lines). Furthermore, the declining trend is more in line with most other regions. Overall, these results look more credible.

1.20 The results above also strongly suggest that the issue of reassessing the poverty lines should be addressed. In fact, the ultimate solution to our hypothesis that Sikasso poverty lines were set much too high and therefore led to too high poverty headcount rates would be to recompute the different poverty lines across the three surveys. The remainder of this note does not use these corrected poverty lines, it uses the official ones. Future analytical work will delve further into this issue in collaboration with the Malian authorities. Further qualitative research using focus group discussions with Sikasso household will be useful to deepen our understanding of poverty trends in this region.

Figure 1.7: Poverty Headcount, by Region, 2001 to 2010, with a more realistic poverty line for Sikasso and Kayes



Source: EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Note: Sikasso and Kayes urban and rural poverty lines were set equal to the one for Koulikoro.

Robustness of observed poverty trends

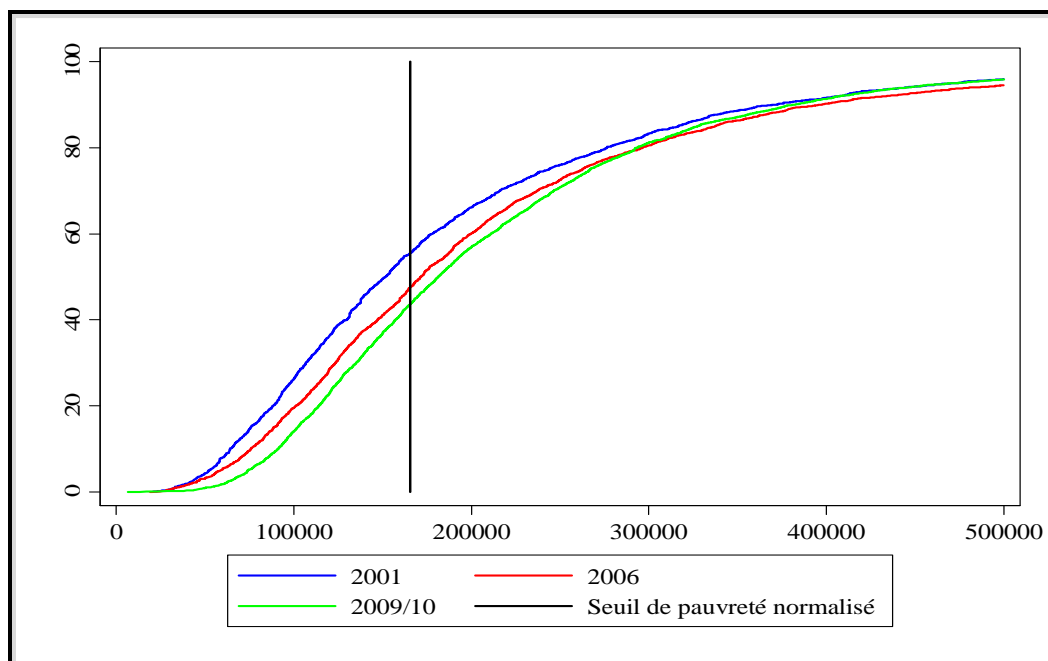
1.21 Is the choice of poverty line critical in determining the poverty outcomes over the last ten years? We compare poverty incidence curves⁵ as a way of assessing the robustness of the observed poverty trends. The poverty incidence curve plots the proportion of the population at

⁵ The comparison of poverty incidence curves can involve comparisons between different groups at a point in time or comparisons of the same group at two or more points in time.

different values of y , where y refers to living standard measure, in our case consumption expenditure per capita. If such a curve is drawn for two different survey years, say period 1 and period 2, then if one curve (say that for period 1) lies always below that for the other period (say period 2), then the property of first order dominance is said to hold. This means that poverty is unambiguously lower in period 1 than in period 2, irrespective of where the poverty line is drawn. Sometimes the curves will cross, in which case outcomes of poverty comparisons would depend on where the poverty line is drawn relative to the point(s) where the curves cross. Setting the poverty line below a crossing point may give the opposite conclusion about poverty levels to setting it above the crossing point. In these circumstances poverty comparisons may not be robust as it would depend where the poverty line is established.

1.22 Applying this approach at the national level, Figure 1.8 shows that the choice of realistic poverty lines does not affect the finding that nationwide poverty declined continuously from 2001 to 2006 and to 2010. In fact, we find that the 2006 and 2010 curves crossed just below 300,000 FCFA per capita, a poverty line that would yield a nationwide poverty rate of almost 80% - which is clearly outside the domain of realistic poverty lines. Any poverty lines higher than this crossing point would yield a poverty increase. And any poverty line lower than that would lead to a decrease of poverty.

Figure 1.8: Poverty Incidence Curves, Mali, 2001 to 2010

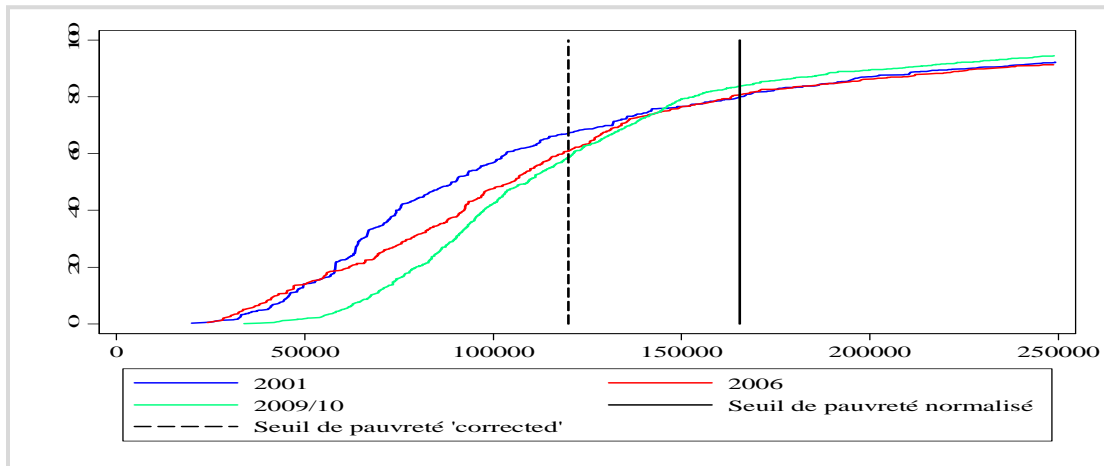


Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

1.23 Earlier, while examining the so-called Sikasso Paradox, we concluded that setting a more credible poverty line for Sikasso –would show poverty has decreased also in Sikasso between 2001 and 2009/10, instead of showing no change in poverty when using the official poverty lines. Figure 1.9 plots poverty incidence curves for the Sikasso region. These curves clearly indicate that a continuous decline in poverty headcount would hold for any poverty lines below 145,000 CFA. In such case, we can conclude that for any poverty lines in the range of the other rural

regions (see Figure 1.9), Sikasso would clearly have seen a significant decline in poverty. Poverty lines above this figure, such as the official one, show an increase in poverty.

Figure 1.9: Poverty Incidence Curves, Sikasso, 2001 to 2010

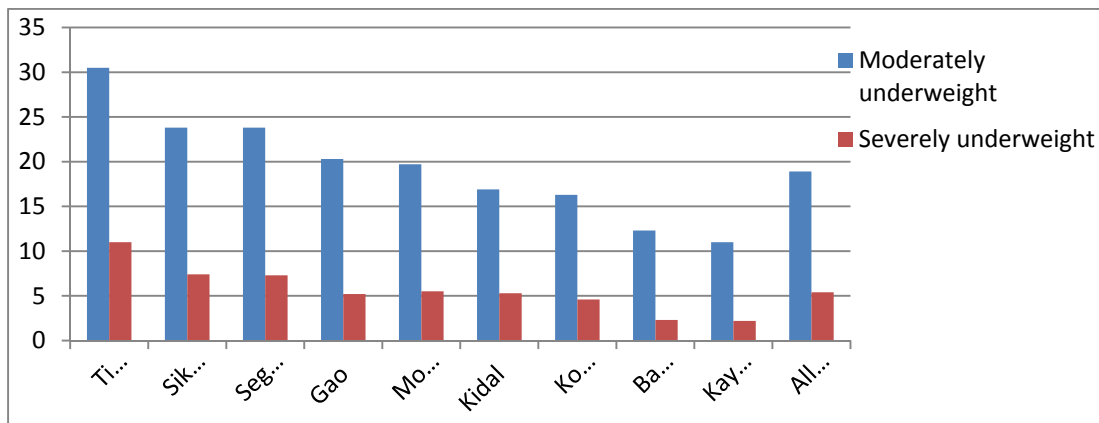


Source: EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

1.24 Some may argue that using consumption per capita as the overall welfare measure will bias the results of a study against Sikasso. This is because this consumption per capita measure is obtained by dividing total household consumption by the number of household members. In Sikasso, average household sizes in Sikasso tend to be the largest in the country. Also, children tend to consume less than adults. However, when we correct for these two factors using recommended energy intakes for children and adults, the poverty trends do not change and Sikasso is still by far the poorest region.

1.25 We also use children's malnutrition data (of children between 0 and 59 months old) from the 2009/2010 household survey to assess the poverty results obtained in Sikasso compared to the rest of the country. While acknowledge that poverty and malnourishment are often not as strongly correlated as one would expect. It is useful to see how malnutrition rates in Sikasso compare to these in other regions.

Figure 1.10: Chronic malnutrition rates of children by region (height for age) (%)



Source: MICS-ELIM household survey 2009/10.

Notes: Population weighted estimates. Children are between 0 -59 months old.

1.26 Taking overall malnutrition – weight for age as a measure - we see that the highest proportion of children that are moderately underweight is found in Timbuktu, followed by Sikasso and Segou. A similar picture emerges when we take the proportion of severely underweight children (Figure 1.10). However, Sikasso is the region with the highest rate of chronically malnourished children ('height for age'): 49% of children are moderately or severely stunted closely followed by Timbuktu (48%) and Segou (45%). We conclude that taking malnutrition as a measure, Sikasso is clearly one of the worst performing regions, but differences with some of the other regions are fairly small and much smaller than for the official poverty head count rate. This provides some evidence that while Sikasso may be the poorest region in Mali, the differences in poverty between Sikasso and other regions might be smaller than shown by the official survey estimates.

Was the Economic Growth Pro-Poor?

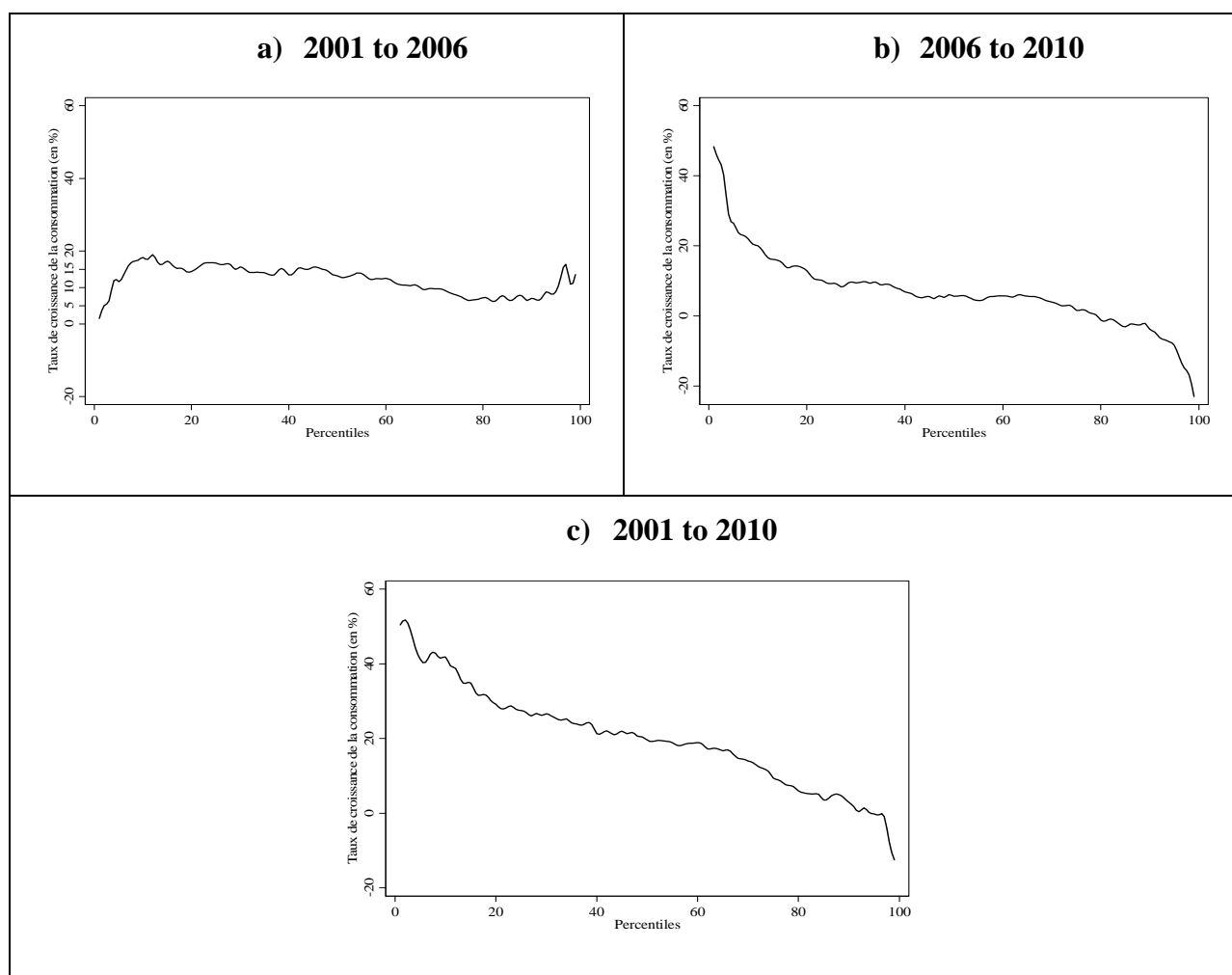
1.27 Has economic growth been pro-poor in Mali during the last 10 years? The economic literature does not fully agree on what defines pro-poor growth. Some researchers want economic growth to be higher for the poor than for the better off households to be declared pro-poor (and thus see a decline in inequality). Others believe that any growth that raises the welfare level of all households is sufficient to label growth as 'pro-poor'.

1.28 Taking either definition, economic growth in Mali has clearly been pro-poor. Growth incidence curves are useful for showing this fact (Ravallion, 2003). These curves graph the growth rates in consumption at various points of the distribution of consumption, starting from the poorest on the left of the horizontal axis to the richest on the right. The growth incidence curve shows the percentage increase in consumption obtained by various groups of the population according to their consumption level. Clearly, as shown in the third panel of Figure 1.11, the growth rates in consumption have been significantly higher in the poorer (on the left of the figure) part of the population. In fact the percentage increases in consumption decline in a monotonic way with respect to level of consumption. This is particularly the case between 2006 and 2010 as the curve is rather flat between 2001 and 2006.

1.29 The results above imply that inequality has necessarily declined in Mali over the period under study. Indeed, as measured by the Gini coefficient, inequality has declined from 0.362 in 2001 to 0.346 in 2006 to only 0.299 in 2009/10.⁶ Such a large decline in such a short period (particularly between 2006 and 2009/10) is a little surprising. Gini coefficients usually have a high level of inertia and move slowly in a relatively stable economic environment as Mali enjoyed during the 2000's. Further analysis including a decomposition of inequality would be needed to shed further light on this.

⁶ In order to minimise the possible influence of outliers, 0.5% of the different household found at both ends of the distribution of the welfare measure was left out of the computation of the Gini inequality index.

Figure 1.11: Growth Incidence Curves, national level



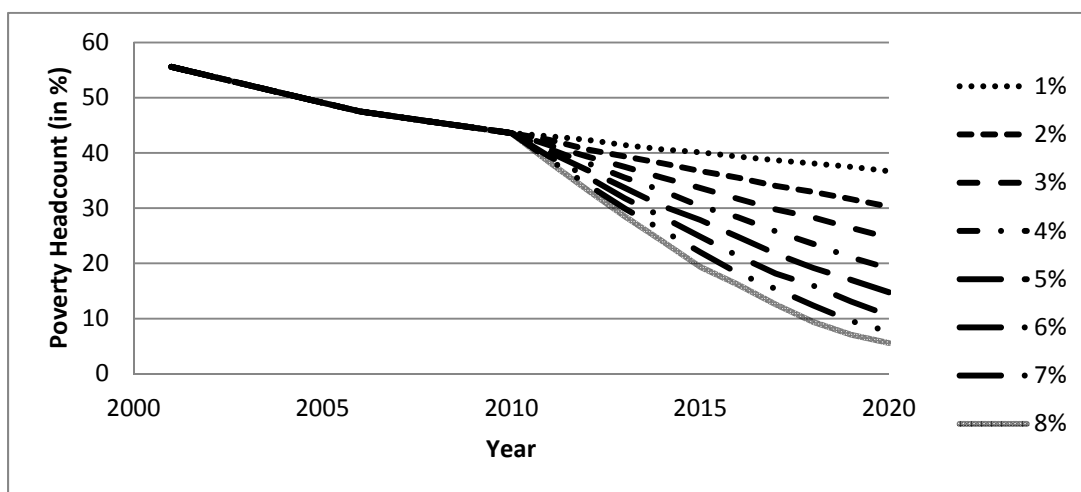
Simulations for future incidence of poverty

1.30 In this section we provide simulations of potential levels of future poverty. These simulations are based on different levels of GDP per capita growth rate and a set of three strong economic assumptions.⁷ Given these assumptions, we scale up per capita aggregate for all households in the ELIM 2009/10 survey by a factor equal to the ratio of the estimated per capita GDP in real terms at any future point to the observed per capita GDP at the time of the survey

⁷ Three strong assumptions are: A first assumption is that GDP per capita growth in the simulations will be essentially perfectly correlated with average growth in the consumption per capita at the household level as measured in the surveys. That is, we will be using our assumptions for per capita GDP growth as our best bet for the changes over time in per-capita household consumption. A second assumption is that we can rely on the poverty lines used for measuring poverty in the 2010 household survey in order to assess the impact of future growth. The fact that we do not change the poverty line for our future poverty measures implies that future growth is assumed not to affect relative prices and consumption patterns in such a way that other poverty lines would have to be used for future poverty measurement. A third assumption is that inequality of per capita consumption will not be affected by future growth, so that we only need to incorporate the impact of growth on mean consumption for our poverty simulations. That is, we simply assume that inequality will remain unchanged when implementing the simulations.

then we compute future poverty measures. Figure 1.12 gives the results of the simulation. For example, with an assumed rate of real GDP growth per capita of 4 percent per year, the share of the population in poverty would decrease from 43.6 percent in 2010 to 19.1 percent in 2020. While actual real GDP per capita growth of 2% per year only allows a reduction to around 30% by 2020.

Figure 1.12: Future share of the population in poverty under various growth scenarios



Source: EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

1.31 To reach a higher real GDP per capita growth rate Mali will need to achieve real GDP growth rates of 5.6 – 7.6 % per year (compared to the recent average of 5 percent) due to its rapid population growth. Using the same assumptions as to the link between the growth of per capita GDP and the reduction of poverty, it is possible to demonstrate that a growth rate of 2.7% per year and per capita GDP would be necessary in order to achieve MDG1 to reduce poverty by half between 1990 and 2015, i.e. that Mali have a rate of poverty of 34.4% at the end of this period. Obviously, a 2.7% growth rate would be required if this growth would be benefit proportionally more the wealthier than the poorest households. The opposite is also true.

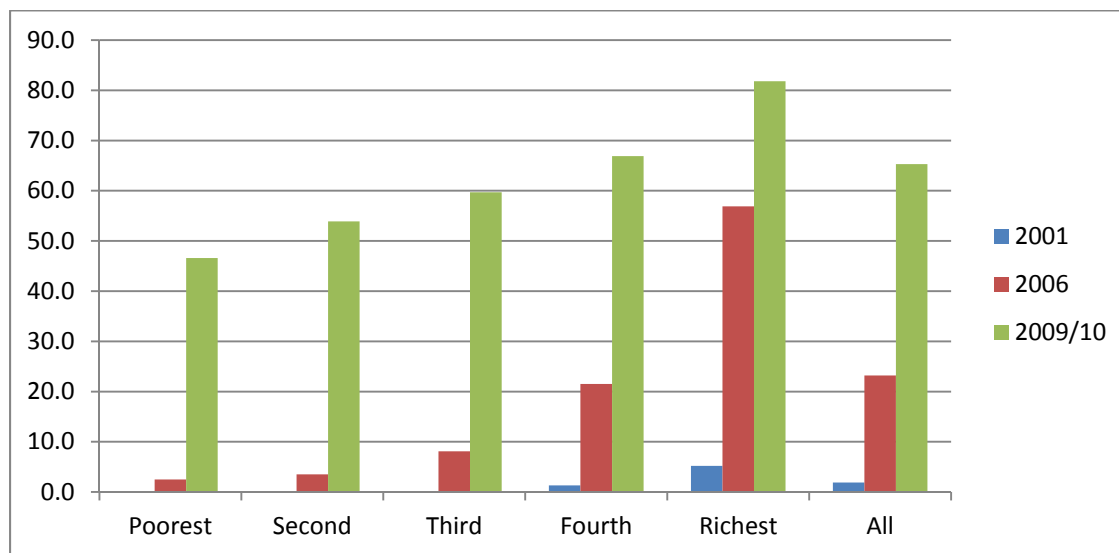
D. HOUSEHOLD ASSETS

1.32 This section of the report measures poverty of households based solely on ownership of key consumer durable goods. This is different from the poverty analysis above which is based on a total consumption aggregate of households (which includes an imputed ‘user value’ of durable goods.) It can be argued that this measure depends on many factors outside the control of households, such as whether or not they have access to electricity, location and cultural attributes that shape lifestyles, and cannot be changed easily by households. Nonetheless, this measure can still be thought of as a good proxy indicator of the standard of living.

1.33 Figures 1.13 to 1.15 show that the proportion of households owning many of these assets increased over the ten year period. The figures refer to ownership of at least one of such items, not the total number of the items each household has the survey periods. We concentrate our analysis on three key items representing different types of durable goods: telephones, televisions

and refrigerators. Data on motorcycle and radio ownership are presented in the Annex 1 (Table 6).

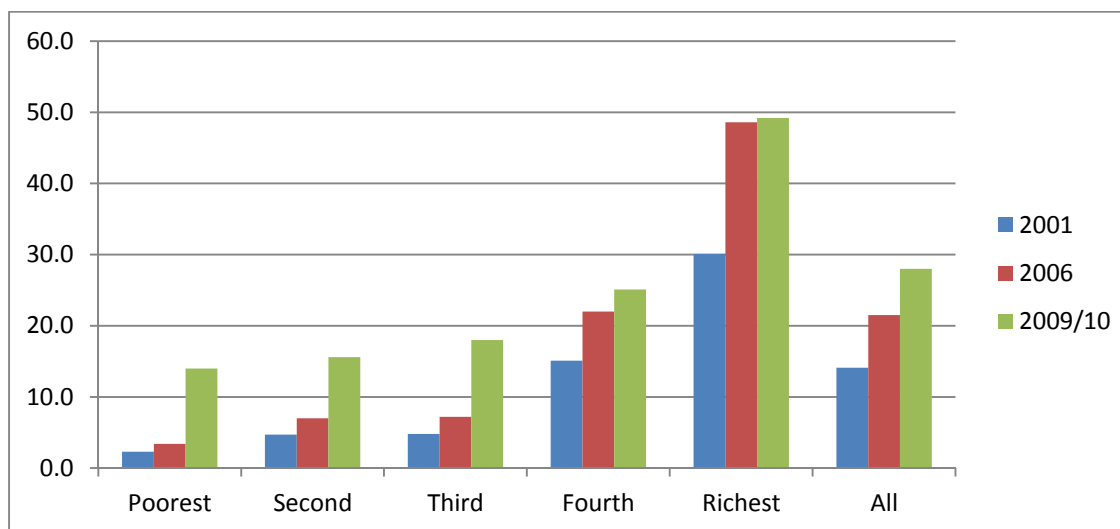
Figure 1.13: Telephone ownership rate, by quintile and year



Source: EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

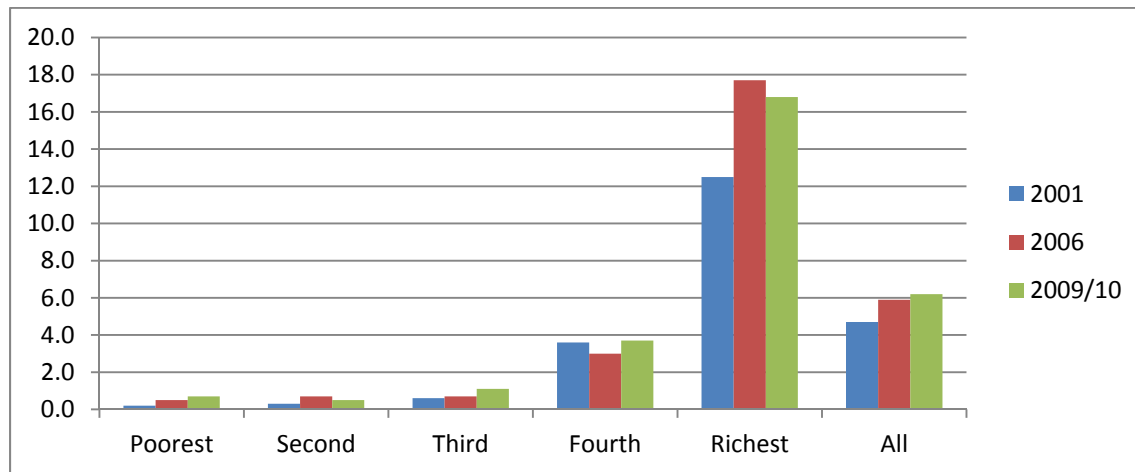
1.34 The proportion of households owning these assets remains much higher in urban areas than in rural areas. However the pattern of changes in ownership is different based on the durable good analyzed. For example, phone ownership (Figure 1.13) has increased sharply between 2001 and 2010 in both urban and rural areas but in steps. Between 2001 and 2006, the increase in mobile phone was mainly in urban areas and in households from the top two quintiles; while between 2006 and 2010 the rural areas where poorer households are mostly found partially caught up to urban areas (mobile or fix).

Figure 1.14: Television ownership rate, by quintile and year



Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Figure 1.15: Fridge ownership rate, by quintile and year



Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

1.35 Fridge ownership seems to follow a different pattern. Over the ten year period, the proportion of households owning a fridge barely moved and most of these fridges are owned by urbanite top quintile households. We might believe that access to electricity is a constraint but the fact that TV ownership is much larger – in either urban or rural areas – seems to rule out that hypothesis.⁸ Generally, the remaining two durable goods analyzed here, radios and motorcycles, do not show any strong geographical or income level patterns.

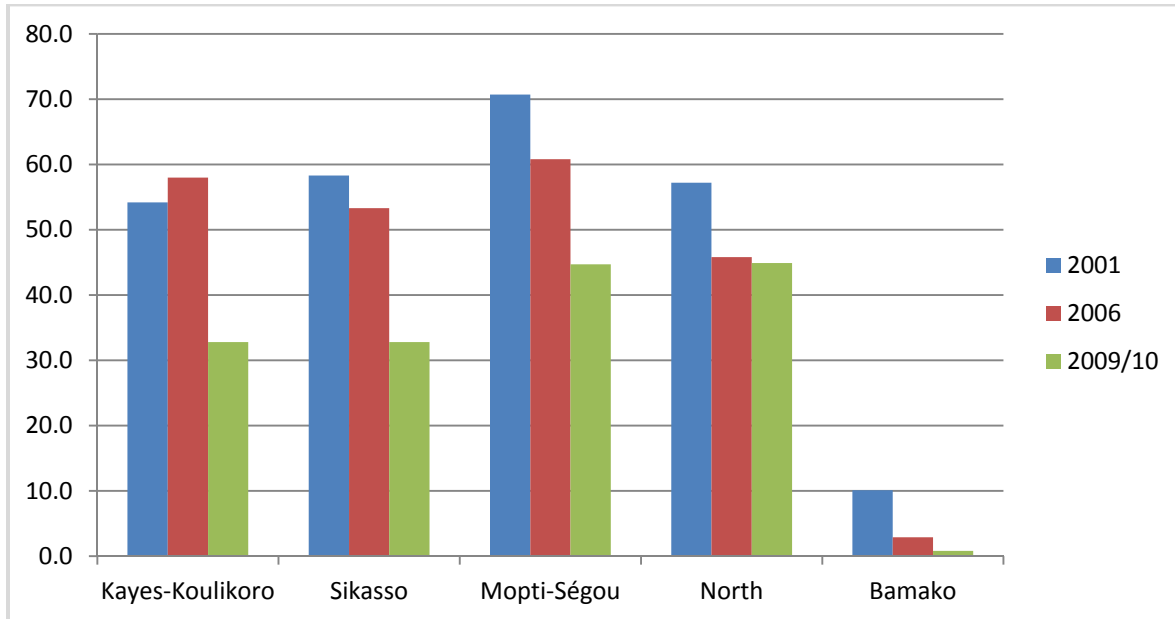
1.36 Analysis of the household assets for Sikasso reinforces the Sikasso paradox. Based on the official poverty lines, this study earlier noted that Sikasso, a relatively rich farming area producing most of the Mali cotton is the poorest region of the country. It is also, the only region having seen its poverty headcount rate going up during the 2000's. Furthermore, in 2001 Sikasso was clearly the poorest region in terms of ownership of many of household asset. However in 2010 it became the region with the highest ownership of televisions outside the capital Bamako (Table 6 in Annex 1). Ownership rates of motorcycles and radios are also the highest in the country. These contradictory results highlight the need for a review of the methodologies used to calculate the official poverty lines.

1.37 The above analysis accounts for one durable good at a time which makes it difficult to have a global appreciation of overall asset ownership over time and across regions. One statistical approach would be to put together a series of these non-monetary indicators in order to get a unique asset-based index. We did so using factor analysis based on ownership of a long series of durable goods as well as a series of dwelling characteristics (main source of water, electricity etc.). In order to compare these results with the monetary-based poverty headcount poverty rate, we established an alternative poverty line for the new index yielding the same poverty rate in 2001 (55.7%). The results of this asset-based index broken down by region are found in Figure 1.16. Based on this alternative measure of welfare, the Sikasso region

⁸ We also tested whether purchases of different goods depended on the sex of household head. Based on the latest survey, we have weak evidences of fridge being more likely to be bought by female headed household while TV is more male purchase. However, the “gender gap” in purchase pattern does not explain much of household preference of TV over fridge.

fare rather well as it has the lowest poverty rate (along with Kayes/Koulikoro) in 2009/10 outside the capital Bamako. Based on that measure of welfare, Sikasso has also experienced a large decline in poverty, particularly between 2006 and 2009/10.

Figure 1.16: Poverty Headcount using an Asset-based Index, by Region, 2001 to 2010



Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

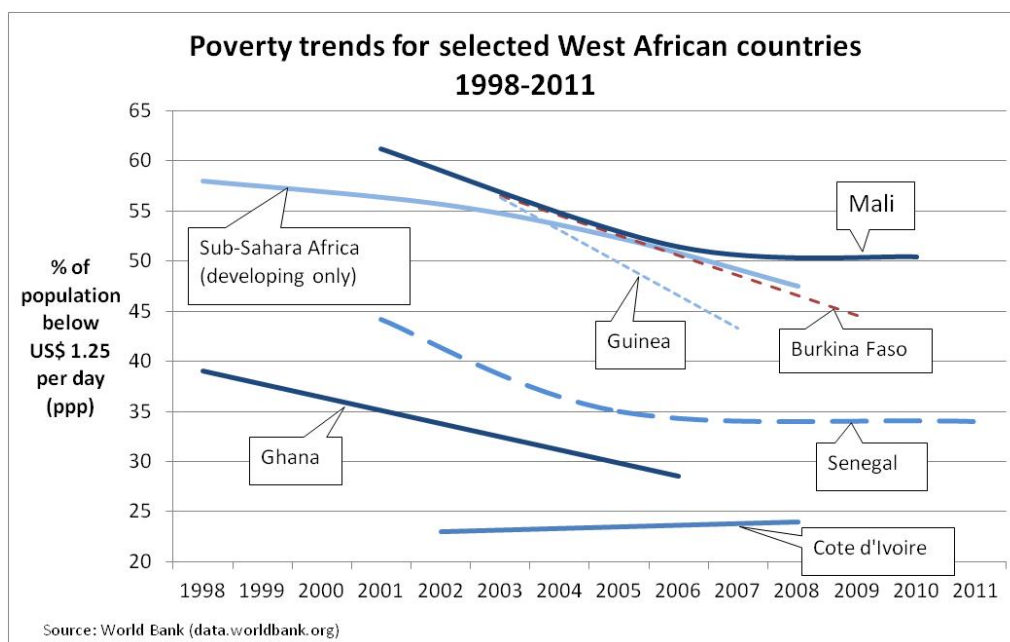
Box 1.1: How does poverty in Mali compared to neighboring countries?

For this we have to use a methodology that is based on expenditure aggregate and a poverty line that is comparable across countries. These are expressed in dollars per day. Or more specifically, in dollars with the same purchase power as in the United States (also known as PPP dollars, for Purchasing Power Parity). A common threshold is 1.25 PPP dollars per day.

By this standard, Mali remains one of poorest countries in West Africa with a poverty rate of 50% in 2010. This makes it poorer than Burkina Faso, Guinea, Senegal, Ghana and Cote D'Ivoire (Figure 1.17). Disparities between countries are large. Broadly speaking, two groups can be distinguished: one group consisting of Burkina Faso, Mali and Guinea have poverty rates between 43% and 50%, while another with Ghana and Cote D'Ivoire have poverty rates around half that. Senegal sits in between.

In the course of the past decade poverty reduction accelerated for Sub-Saharan Africa as whole (Figure 1.17), but it slowed down in Mali. Between 2006 and 2010 poverty in Mali barely changed, while the period 2001-2006 witnessed a rapid reduction from 61% to 51%. A similar slowdown in poverty reduction was witnessed in Senegal between 2005 and 2011.

Figure 1.17: Poverty trends for selected West African countries 1998-2011



E. CORRELATES OF POVERTY

1.38 This section of the report looks more closely at factors that are associated with being poor in Mali. The first part looks at the determinants of poverty from a univariate perspective while the second part uses multivariate analysis in order to take into account cross-effects. The section is completed by a series of poverty and MDG maps as an attempt to look at spatial determinant of poverty.

Determinants of Poverty: univariate analysis

1.39 A poverty profile is a set of tables giving the probability of being poor according to various characteristics, such as the area in which a household lives or the level of education of the household head. Table 1.3 provides this basic profile for the consumption-based poverty measures obtained with the different Malian surveys. The table provides the share of the population in poverty according to characteristics such as the gender of the head of household and other demographic characteristics, as well as the education, socioeconomic groups and employment of the head of household.

1.40 *Geographic location:* The headcount in rural areas (50.6 percent in 2009/10) exceeds that of urban areas (18.9 percent), with rural poverty falling substantially throughout the country since 2001. Estimates by region were given earlier in Figure 1.3 (and Table 2 in the Annex 1).

1.41 *Demographic Characteristics (sex, age, marital status, and household size):* There is a clear tendency for poverty measures to increase with the age of the household head. Larger households are much more likely to be poor than smaller ones. In contrast, the likelihood of being poor in urban areas does not vary very much between male-headed households and female-headed households, especially at the end of the time period under review. However, in rural

areas, poverty affects much more households headed by a male. Polygamous households headed by a male, who tend to have larger households, are more likely to be poor compared to monogamous households headed by a male.

1.42 *Education Level of the head of the household:* As expected, the probability of being poor decreases with the education level of the household head (from no formal education to primary, secondary, to tertiary studies). Household poverty also decreases with the education level of the spouse, although these results are not shown in the table.

1.43 *Sectoral occupation of the head of the household.* The highest probability of being poor is – by far – among heads of households working in agriculture, followed by manufacturing and construction, for all three survey years. However, the poverty headcount decreased substantially for all three groups over the period, from 69 percent to 57 percent in agriculture, from 35 percent to 30 percent in manufacturing, and from 42 percent to 21 percent in construction.

1.44 *Employment Status of the Head of the household:* The lowest rates of poverty are observed among the very small group of “employers” (7 percent of them at the national level were poor in 2009/10), followed by public sector wage earners (15 percent in latest survey), private sector wage employment (20 percent), the self-employed in non-agricultural sector (23 percent), the households with non-working heads (25 percent), and finally the self-employed in agriculture (57 percent).

1.45 Table 1.4 provides the share of the poor that belong to various household categories. From this, it can be seen that people whose household head has no education account for 85.2 percent of all the poor in the country in 2009/10, which is a small decrease from the first survey in 2001. Similarly, more than 73 percent of all poor people are found in self-employed agricultural households.

**Table 1.3: Poverty rates by various household characteristics based
on consumption measurement (%), 2001-2010**

	2001			2006			2009/10		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
<i>Sex of head</i>									
Male	29	66	57	19	57	49	19	52	45
Female	20	45	34	14	48	28	15	32	25
<i>Age of head</i>									
Less than 30	26	55	50	21	47	40	8	39	30
30 to 39	11	52	38	16	48	39	13	44	35
40 to 49	23	59	49	18	57	46	16	43	36
50 to 59	36	65	58	20	59	50	22	50	43
60 to 69	34	70	62	15	60	50	22	56	50
70 and over	43	78	72	27	63	56	29	61	57
<i>Household Size</i>									
1 to 2 individuals	9	32	27	2	14	8	3	12	9
3 to 5 individuals	12	39	32	12	28	22	8	21	17
6 to 8 individuals	13	43	35	20	45	37	13	34	29
9 to 11 individuals	20	59	47	17	57	45	16	49	42
12 to 16 individuals	31	70	59	22	69	61	21	57	50
17 individuals or more	58	88	83	27	72	66	30	65	58
<i>Education level of head</i>									
No education	36	67	62	25	59	53	25	53	49
Fondamental 1 (n/c)	22	56	41	16	61	45	15	46	36
Fondamental 1	23	39	30	12	48	32	15	36	26
Fondamental 2	7	22	14	8	25	18	23	42	29
Secondary	5	21	10	8	12	10	6	18	12
Tertiary	11	14	11	7	13	9	3	12	6
<i>Marital status</i>									
Never married	12	40	29	4	64	42	13	46	35
Married-Mono	23	60	51	20	52	43	16	47	39
Married-Poly	41	75	68	19	63	56	25	55	50
Divorced/Widowed	21	52	40	14	61	35	15	41	33
<i>Occupational Sector of head</i>									
Agriculture	67	69	69	45	61	60	46	57	57
Manufacturing	35	36	35	14	50	30	17	37	30
Construction	33	52	42	29	40	33	11	38	21
Transport/Communication	9	18	11	15	40	20	10	27	17
Trading	16	33	21	14	35	22	17	21	19
Administration	13	5	11	9	5	8	6	26	16
Education/Health	20	24	22	12	14	13	9	24	18
Other Services	8	22	12	12	32	22	19	10	15
Non Working	30	72	62	20	62	50	16	34	25
<i>Employment status of head</i>									
Public	6	8	7	12	13	12	7	22	15
Wage Private	22	45	27	26	39	31	19	22	20
Employer	14	34	17	8	30	16	3	11	7
Self-Employ. Agric.	70	69	69	44	61	61	49	58	57
Self-Employ. Non-Agric.	20	43	30	14	39	24	16	29	23
Non Working	30	72	62	20	62	50	16	34	25
Total	27.7	64.8	55.6	18.5	57.0	47.5	18.9	50.6	43.6

Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Table 1.4: Share of the total number of poor by various household characteristics, based on consumption measurement (%), 2001-2010

	2001			2006			2009/10		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
<i>Sex of head</i>									
Male	90.3	95.7	94.9	90.7	96.0	95.9	89.5	94.0	93.6
Female	9.7	4.3	5.1	9.3	4.0	4.1	10.5	6.0	6.4
Total	100	100	100	100	100	100	100	100	100
<i>Age of head</i>									
Less than 30	4.7	4.9	5.0	4.6	3.8	3.8	4.3	5.3	5.7
30 to 39	8.8	13.4	12.9	21.8	16.9	17.6	20.0	15.6	17.3
40 to 49	25.5	23.1	23.7	30.2	28.4	28.6	23.7	19.7	20.3
50 to 59	28.9	24.0	24.5	23.2	23.9	24.0	25.2	22.2	22.1
60 to 69	18.0	18.8	18.5	9.6	15.1	14.3	15.6	19.8	18.8
70 and over	14.1	15.7	15.5	10.6	11.9	11.7	11.2	17.4	15.8
Total	100	100	100	100	100	100	100	100	100
<i>Household Size</i>									
1 to 2 individuals	1.6	1.2	1.5	0.7	0.8	0.8	2.9	1.9	2.2
3 to 5 individuals	11.6	13.3	13.5	20.5	12.1	12.8	17.8	12.1	13.1
6 to 8 individuals	15.9	19.3	19.1	35.5	27.1	27.7	26.3	23.1	23.7
9 to 11 individuals	17.8	19.1	18.4	19.2	21.0	20.5	14.7	19.7	19.0
12 to 16 individuals	20.6	18.9	18.9	12.0	21.1	20.3	14.3	18.6	17.8
17 individuals or more	32.5	28.2	28.6	12.0	18.0	17.9	24.0	24.6	24.2
Total	100	100	100	100	100	100	100	100	100
<i>Education level of head</i>									
No education	74.2	91.4	89.1	61.5	88.5	85.1	73.7	88.3	85.2
Fondamental 1 (n/c)	7.4	4.9	5.1	7.7	6.1	6.2	10.5	7.3	8.2
Fondamental 1	9.5	1.9	3.0	10.4	3.8	5.0	7.2	2.4	3.4
Fondamental 2	1.4	0.3	0.5	2.9	0.6	1.0	3.5	0.7	1.1
Secondary	3.4	1.3	1.5	10.7	0.7	1.7	3.4	1.1	1.6
Tertiary	4.2	0.2	0.8	6.9	0.3	1.0	1.7	0.3	0.6
Total	100	100	100	100	100	100	100	100	100
<i>Marital status</i>									
Never married	1.5	1.3	1.3	0.6	1.6	1.7	5.8	3.2	4.2
Married-Mono	55.5	55.2	55.9	73.1	56.9	58.9	57.9	54.1	55.3
Married-Poly	33.2	38.4	36.8	17.8	36.2	34.5	29.2	36.7	34.4
Divorced/Widowed	9.8	5.0	5.9	8.5	5.3	5.0	7.1	6.0	6.0
Total	100	100	100	100	100	100	100	100	100
<i>Industry of head</i>									
Agriculture	30.2	75.4	67.5	25.4	75.5	70.0	34.2	84.3	74.3
Manufacturing	8.5	1.9	2.9	7.1	2.0	2.7	6.1	2.7	3.5
Construction	6.1	1.7	2.3	8.5	0.9	1.7	3.5	0.9	1.6
Transport/Communication	2.2	0.4	0.6	5.7	0.8	1.2	3.2	0.5	1.1
Trading	12.6	2.3	3.7	18.5	4.1	5.4	24.5	3.2	6.8
Administration	3.6	0.1	0.7	9.0	0.2	1.1	2.7	1.1	1.7
Education/Health	12.2	1.6	3.2	4.2	0.4	0.9	2.4	1.2	1.5
Other Services	1.8	0.3	0.5	4.4	1.5	1.8	4.3	0.1	0.7
Non Working	22.8	16.3	18.7	17.2	14.5	15.2	19.1	5.9	8.6
Total	100	100	100	100	100	100	100	100	100
<i>Employment status of head</i>									
Public	4.6	0.6	1.1	16.1	0.9	2.6	5.0	1.8	2.7
Wage Private	10.3	1.6	2.6	22.4	2.5	4.8	15.0	1.2	3.6
Employer	1.0	0.2	0.3	1.3	0.6	0.6	0.4	0.2	0.2
Self-Employ. Agric.	29.8	72.1	65.3	18.5	73.9	67.6	30.7	83.8	73.2
Self-Empl. Non-Agric.	30.2	9.1	11.7	25.1	7.6	9.2	30.0	7.1	11.6
Non Working	24.1	16.4	19.0	16.7	14.5	15.2	18.9	6.0	8.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Determinants of Poverty: multivariate analysis

1.46 Drawing a profile of poverty is a necessary step to identify the characteristics of the population groups that are poor, but it is not sufficient to measure the impact of various household characteristics on poverty. The problem with a poverty profile lies in the fact that it provides information on who are the poor, or on the probability of being poor among various household categories, but cannot be used to assess the correlates of poverty to determine which factors are most strongly correlated with poverty. For instance, the variation of poverty rates across regions is sometimes better accounted for by the differences in households' characteristics than by the specificities of each region. Regression analysis is used to sort out the correlates or determinants of poverty and the impact of various variables on the probability of being poor.⁹

1.47 The regressions are estimated separately in urban and rural areas, with the logarithm of the consumption per capita as the dependent variable. The specification of the regression has been kept intentionally simple, so as to permit comparisons over time in the determinants of household consumption and thereby implicitly poverty. Apart from a constant, the regressors include (with a few differences depending on the data sets used): (a) regions; (b) household size variables (number of infants, children, adults and seniors, and their squared value to take into account potential non-linearity in relationships between household size and consumption), whether the household head is a woman, and the marital status of the head (c) characteristics of the household head, including his/her level of education; his/her employment type and sector of activity; and (d) level of education for the spouse of the household head.

1.48 Table 1.5 presents the overall constant and the correlates for each regional dummy variable as determinants of consumption that result from the baseline regressions for each of the survey years. Because these variables are not household characteristics, they essentially represent the different socio-economic environments across regions for what could be referred to as a typical poor household, holding all other household characteristics constant.¹⁰ The value of the coefficients in the table can be interpreted as percentage gains in consumption associated with the various explanatory variables, with the caveat that when a coefficient is not statistically significant, it is replaced by the mention "n/s" in the table.

1.49 Two results stand out. First, the values of the **constants** in the **rural** regressions are increasing slightly over time, suggesting that for poor households (and more generally the population as a whole) there has been an improvement over time in well-being. Second, for the three years of survey data, households in Sikasso are systematically much poorer than households in any other regions. Having controlled for the other determinants in the regressions, this implies that this cannot be attributed to households' characteristics such as education etc.

⁹ Also, when estimating such regressions, it is better to rely on linear regressions for the determinants of consumption per capita than on categorical regressions for the determinants of poverty. This is because using probit or logit implies throwing away valuable information contained in the household consumption information and runs a higher risk of bias.

¹⁰ More exactly, for a household that has as characteristics the excluded reference variables in the regression, including the fact that the head has no education and works in the agricultural sector.

Table 1.5: Determinants of real consumption per capita – economic environment

	Urban			Rural		
	2001	2006	2009/10	2001	2006	2009/10
Constant	12.44	12.11	12.30	11.78	11.84	11.92
Region						
Sikasso	Ref	Ref	Ref	Ref	Ref	Ref
Kayes	n\s	0.211	0.242	0.560	0.564	0.702
Koulikoro	n\s	0.373	0.335	0.498	0.527	0.580
Ségou	n\s	n\s	n\s	0.723	0.365	0.400
Mopti	n\s	n\s	0.168	0.476	0.520	0.486
Tombouctou	0.239	n\s	0.354	0.679	0.503	0.511
Gao	n\s	0.351	0.170	0.656	0.617	0.619
Kidal	n\s	0.423	0.562	0.590	..	0.832
Bamako	0.181	0.577	0.448

Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Note: The dependent variable (expenditure per capita in real terms) is in log and therefore the different coefficients in the above table can be interpreted as effect in percentages with respect the omitted region. For example, in urban areas in 2009/10, households leaving in Kayes are on average 24.2 percent richer than these in Sikasso (the reference region) all else being held constant.

1.50 The detailed coefficient¹¹ estimates from the regressions are provided in Table 1.6. The messages that emerge are similar to the ones obtained with the poverty profile presented earlier.

1.51 *Demographic Characteristics:* An additional person in the household tends to reduce consumption per capita, although the impact is lower for prime age household members. As in a number of other countries, there is no statistically significant difference between male-headed and female-headed households once we control for other variables.¹² In terms of marital structure, households whose head is divorced or widowed tend to be slightly less likely to be poor, particularly in the 2009/10.

1.52 *Education Level of the Head and the Spouse:* As expected, consumption levels increase with the education level of the household head or the spouse's education. Overall, returns to education over the years has dropped, which might be partly due to the fast increase in enrolment rates. Interestingly, if we focus on the most recent survey, the return to education for spouses (most often a female) is higher for lower levels of education. But returns to secondary and tertiary education are higher for household heads (usually a male).

¹¹ It is important to note that the OLS coefficients found in Tables 1.5 and 1.6 are coming from a unique set of regressions. There were split into two tables in order to stress the difference between regional environment and households characteristics.

¹² Those results are in line with Backiny-Yetna et al. (2007). However a recent study (van de Walle, 2011) has shown that that once we control for marital status, households headed by widowed female tend to be much poorer, particularly when compared to single and younger female heading households.

Table 1.6: Determinants of real consumption per capita – Household Characteristics

	Urban			Rural		
	2001	2006	2009/10	2001	2006	2009/10
Age Groups						
Age 0-4	-0.245	-0.111	-0.094	n\	-0.053	-0.066
Age 5-14	-0.131	-0.128	-0.079	-0.075	-0.097	-0.067
Age 15-60	-0.064	-0.034	-0.012	-0.067	-0.026	n\
Age 61 and over	n\	n\	-0.060	n\	-0.079	-0.059
Age 0-4 squared	n\	n\	0.004	n\	0.004	0.003
Age 5-14 squared	0.006	0.007	0.003	0.002	0.005	0.002
Age 15-60 squared	0.002	n\	0.001	0.001	n\	0.001
Age 61 & over squared	n\	n\	n\	n\	n\	0.011
Sex of Head						
Male	Ref	Ref	Ref	Ref	Ref	Ref
Female	n\	n\	n\	n\	n\	n\
Education level of head						
No education	Ref	Ref	Ref	Ref	Ref	Ref
Some Fondamental	0.160	n\	0.095	n\	n\	0.054
Fondamental 1	n\	0.218	0.145	0.271	n\	0.106
Fondamental 2	0.202	0.213	n\	0.424	0.177	n\
Secondary	0.434	0.312	0.224	0.297	0.276	0.243
Tertiary	0.601	0.501	0.372	0.481	0.656	0.429
Education level of spouse						
No education	Ref	Ref	Ref	Ref	Ref	Ref
Some Fondamental	n\	n\	n\	n\	0.201	n\
Fondamental 1	0.134	0.176	0.106	n\	0.264	0.180
Fondamental 2	n\	n\	0.171	0.354	0.234	0.327
Secondary	n\	0.349	0.224	n\	0.445	0.203
Tertiary	0.304	0.619	0.174	n\	n\	0.214
Marital Status						
Married - Monogamy	Ref	Ref	Ref	Ref	Ref	Ref
Never married	n\	n\	0.074	0.149	0.184	n\
Married - Polygamy	n\	0.121	0.066	n\	n\	0.053
Widowed/divorced	n\	n\	n\	n\	-0.129	-0.092
Industry of Head						
Agriculture	Ref	Ref	Ref	Ref	Ref	Ref
Manufacturing	0.239	n\	n\	n\	0.276	n\
Construction	n\	n\	-0.129	n\	0.281	n\
Transport/Com.	n\	n\	n\	n\	0.532	n\
Trading	0.246	n\	n\	0.257	0.493	0.200
Administration	n\	n\	n\	n\	0.318	n\
Education/Health	n\	n\	n\	n\	0.179	n\
Other Services	n\	n\	n\	0.267	0.422	0.172
Employment status of head						
Self-Employ. Agric.	Ref	Ref	Ref	Ref	Ref	Ref
Public Employee	n\	n\	n\	0.317	n\	n\
Private Employee	n\	n\	0.197	0.197	-0.123	n\
Employer	n\	0.346	0.330	n\	n\	0.275
Self-Employ. Non-agric.	n\	0.322	0.256	n\	-0.238	n\
Non-Working	0.266	0.334	0.152	0.132	n\	0.107
N (sample size)	1474	1248	3201	3492	3204	5835
R ²	0.454	0.428	0.391	0.420	0.372	0.452

Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Note: 'Ref' refers to the 'reference' group against which the other categories are compared.

1.53 After controlling for demographic characteristics and education, type and sector of employment do not appear to have large and systematic impacts on consumption. There is weak evidence that households involved in trading have higher levels of consumption than comparable households whose head works in other sectors. On the other hand, the 2009/10 urban regression shows a premium for all employment sectors other than agriculture. The higher level of consumption enjoyed by public sector wage earners seems to be mainly a result of a higher level of education rather than a “public sector” premium.

1.54 A policy-relevant question concerns the level of correlation between the different MDG indicators. If they were highly correlated, it might be adequate to pick a single indicator and based most targeting rules on that single indicator. Otherwise, multiple indicators are needed. Table 1.7 presents the correlation matrix of these 5 indicators as measured at commune level.¹³ A close examination tells us that correlations are very low in most cases although some pairs of indicators might be correlated. In fact, the only two pairs of indicators that are significantly correlated are electricity with water access and electricity with school enrolment. The lack of correlation between the monetary poverty headcount and the other indicators clearly calls for using more than one indicator to properly target the needy population. For example, we can imagine that an investment in public infrastructure could use both infrastructure and poverty indicators if the objective is to both reduce poverty and increase access to public services.

Table 1.7: Correlation matrix between a selection of MDG indicators

	(1)	(3)	(4)	(5)	(6)
(1) Poverty Headcount	1.00				
(2) School Enrolment - Primary	0.07	1.00			
(3) Girl/boy enrolment rate - Primary	-0.07	0.08	1.00		
(4) Access to safe drinking water	-0.08	0.30	0.06	1.00	
(5) Access to electricity	-0.13	0.48	0.13	0.44	1.00

Source: World Bank calculations using the ELIM 2009/2010 household survey.

F. BASIC SERVICES

Infrastructure

1.55 Access to infrastructure is a crucial dimension of poverty reduction. In this section we briefly examine access to electricity and source of water. Tables 6 and 7 in annex 1 cover these two dimensions with a breakdown of data according to urban and rural location, region and expenditure quintile, for the three household surveys spanning the period 2001 to 2009/10. The figures below focus on expenditure quintiles.

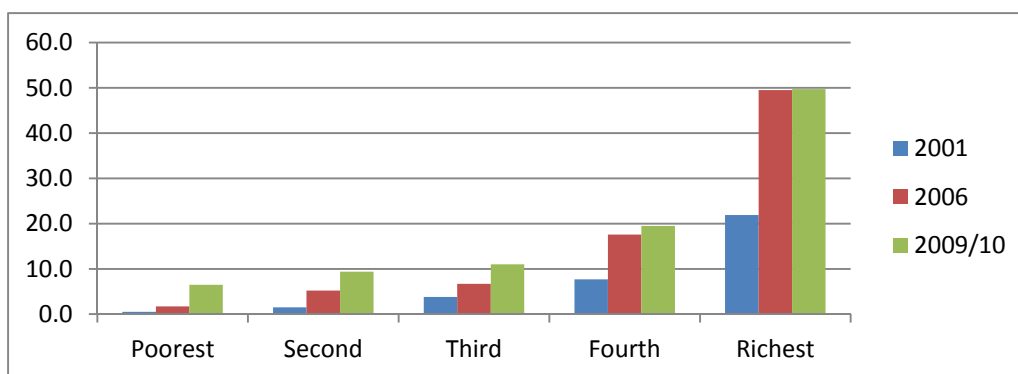
1.56 Access to electricity has increased substantially during the last 10 years, from less than 10 percent nationwide in 2001 to around 24 percent in 2010. Both urban and rural areas have seen their access to electricity increasing. In urban areas, access has more than doubled from 28 percent in 2001 to more than 60 percent in 2010. In rural areas where it started from a much lower base, access to electricity quadrupled (from 2.4 to 11.0%). It is worth noting that most of

¹³ Again the full correlation matrix can be found in Coulombe (2012).

the improvement in urban areas occurred in the first half of the decade while rural areas have experienced a continuous improvement over the whole period. Although the upward trend has benefited rural areas and households in lower quintiles more than the richer urban ones, the poorest households still have a much lower access rate to electricity than better off households (Figure 1.18).

1.57 Again, Sikasso (along with Kayes/Koulikoro) is the region outside Bamako having seen the largest increase in access to electricity from 4.1 percent in 2000 to almost 20 percent ten years later. This again contrasts sharply with the high poverty rate found for Sikasso using the official poverty lines. Bamako remains the region best endowed in electricity coverage at 70 percent.

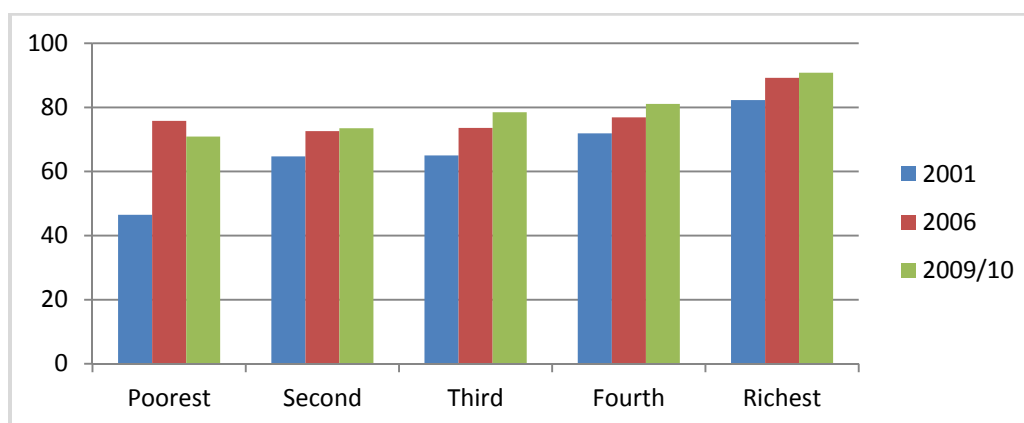
Figure 1.18: Access to Electricity, by expenditure quintile and year



Source: EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

1.58 From 2001 to 2009/10, access to potable drinking water (defined as reliance on any water source except unimproved wells or “other sources”) has changed significantly from 69 percent in 2001 to 79 in 2006 and 81 percent in 2009/10. Figure 1.19 shows that each quintile has seen its access to potable drinking water improve during the 2000-2010 although the two poorest quintiles have fared worse than the richer quintiles between 2006 and 2009/10. Even though there is still a lot of space for further improvement, the gap in access between the lower and higher quintiles is relatively small compared to other services.

Figure 1.19: Access to an improved source of drinking water, by expenditure quintile and year



Source: EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

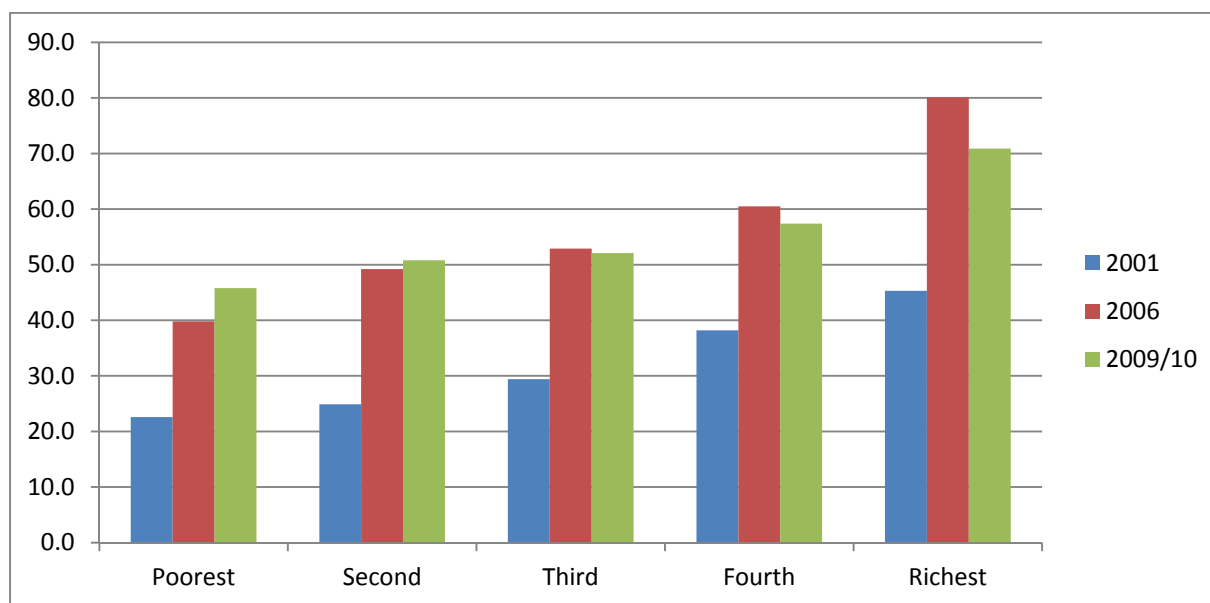
Education

1.59 This section focuses on school enrolment at the primary and secondary level. As school enrolment persistently and appreciably increases over time, literacy rates and levels of educational attainment for the whole population are also likely to rise as well.

1.60 School attendance of children at primary and secondary schools is examined in terms of net enrolment rates, which is the proportion of children in the relevant age group attending primary or secondary school. At the primary level, school enrolment rose sharply from 31 percent in 2001 to 54 in 2009/10 (Table 9 in Annex 1). These enrolment rates however remain rather low by international and also by African standards. Figure 1.20 shows that this increase happened mainly in the first half of the decade but children from all quintiles have benefitted from it.

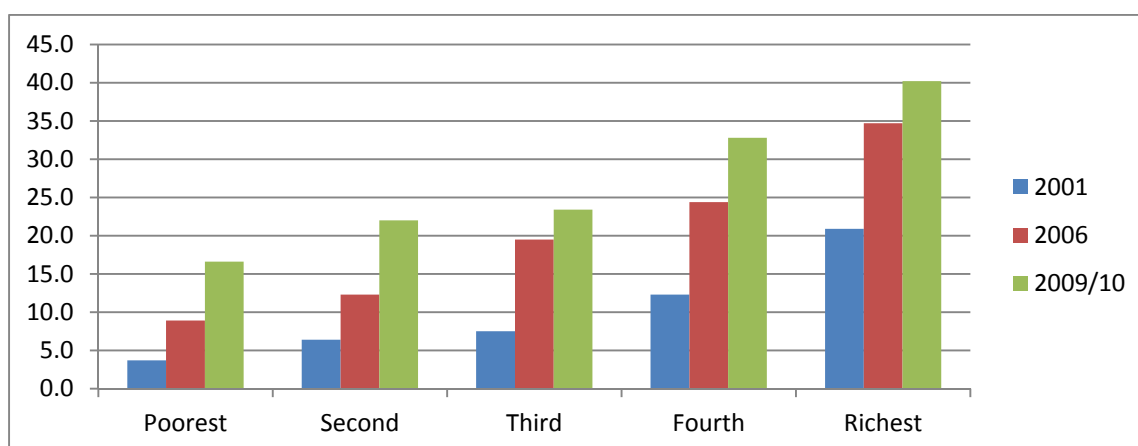
1.61 Net enrolment rates in secondary school are much lower than those for primary school across all the welfare quintiles (Figures 1.21). Net enrolment rate at secondary school increased from only 10 percent in 2001 to 28 percent in 2009/10 (Table 9 in Annex 1). Like for primary schools, all quintiles benefitted from this improvement (Figure 1.21). Generally, net enrolment rates for boys are higher than for girls at both levels although the gender gap at secondary level (34 versus 22 percent in 2009/10) is higher than at primary schools (57 versus 52 percent in 2009/10). Net enrolment rates in both primary and secondary schools do not vary much by region, with Bamako having the highest enrolment rates. Outside the capital, the northern regions as well as Ségou/Mopti have the lowest rates (Table 9 in Annex 1).

Figure 1.20: Primary level Net School enrollment, by expenditure quintiles and year



Source: EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Figure 1.21: Secondary level Net School enrolment, by expenditure quintiles and year



Source: EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

G. PRICE SHOCKS: FOOD AND PETROL

1.62 In recent years, the world and the poorer developing countries in particular have been hit by commodity price volatility of a number of primary products, including cereals and petrol. Because these products (especially cereals) capture a large share of the total consumption of the poor, poorer households could be affected most.

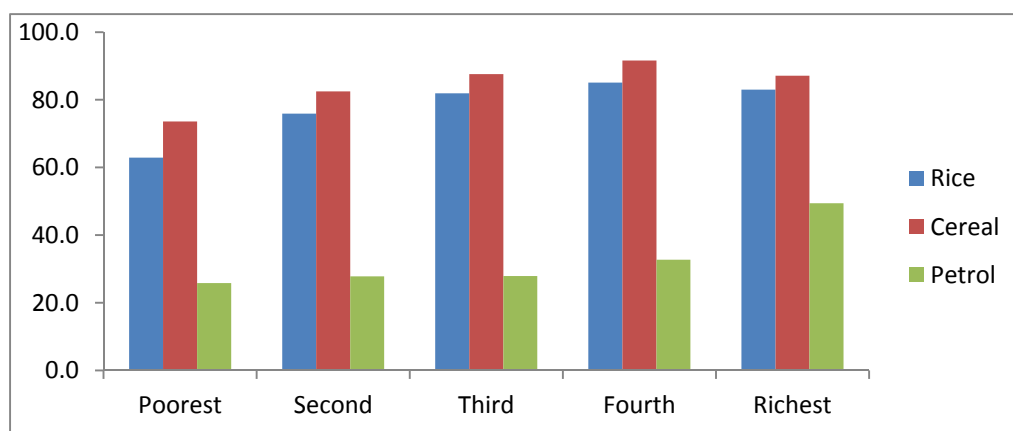
1.63 In the case of Mali, recent inflation patterns in Mali shows the impact of external and natural shocks. In 2008, average inflation rose to 9.2 percent due to the international food price hikes. It declined to 2.4 percent in 2009 and 1.2 percent in 2010 as the crisis passed. However the drought of 2011 led to sharp price increases late in the year, leading to an average inflation rate of 3 percent. From November 2011, Mali's year-on-year inflation went above WAEMU. The government launched a drought mitigation program in November 2011 supported by donors. Emergency measures include the free distribution of cereals in food-deficit areas, purchase of seeds for distribution, and the sale of cereal at moderate prices to help mitigate the price pressures. Hence in January 2012, year-on-year inflation was 3.8 percent. However, the upwards trend resumed in February at a rate of 6.1 percent, driven by food price rises (+11.3 percent), especially cereals prices (+ 26.1 percent year).

1.64 Mali is also vulnerable to petroleum price hikes as it is an energy importer. Over the year 2011, the price of a barrel of crude oil (WTI) was US\$95.05 on average against US\$79.43 in 2010 (a 19.7 percent increase). Moreover, geopolitical risks to oil prices have risen again. These risks are expected to remain elevated for some time, and oil prices will ease only marginally in 2012 despite less favorable prospects for global activity.

1.65 In this section, our objective is to assess what could be the short-term impact on poverty of an increase in the price of cereals (including rice), rice only and petrol in Mali. The impact of a change in the price of petrol is not ambiguous because all petroleum products that are consumed in Mali are imported. For petrol, an increase in price will tend to result in higher poverty in the country as a whole. For cereal in general and rice in particular, the impact on poverty is less obvious as these are commodities that are produced partly in Mali for local consumption. Overall, when considering a price increase in rice, the impact is likely to be an increase in poverty, but

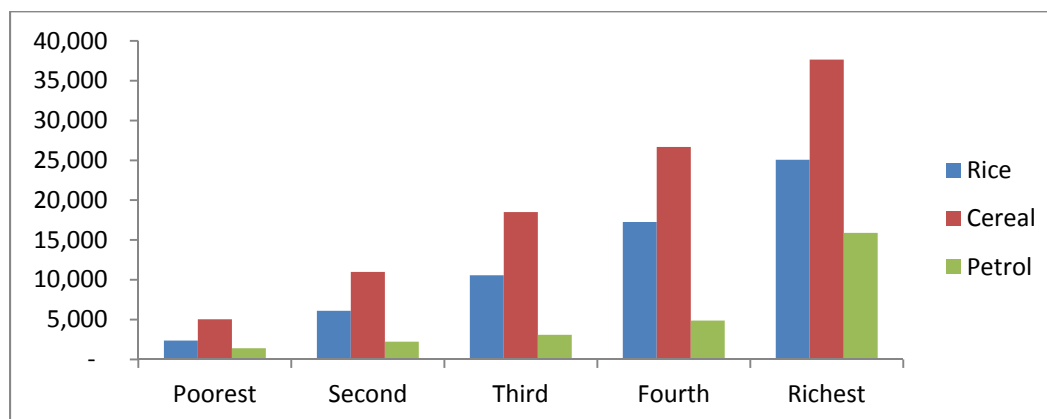
whether this increase will be severe depends on a number of parameters, including who consumes and produces what, and in what amounts. In particularly households that are net sellers of, say, rice could actually benefit from an increase in its price. It is thus an empirical question to assess what might be the impact on poverty of higher cereals price in a country such as Mali. Unfortunately, we do not have any production data (except for production consumed at home) in the 2009/10 survey. Therefore, only the demand side is considered here and the price shock simulations are likely to overestimate the effects of cereal price increase although research by Wodon *et al.* (2008) shows that the supply effects tend to be relatively small.

Figure 1.22: Proportion of Households Purchasing Rice, Cereal or Petrol, by Quintile



Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Figure 1.23: Spending per capita on Rice, Cereal and Petrol, in Cash, by Quintile

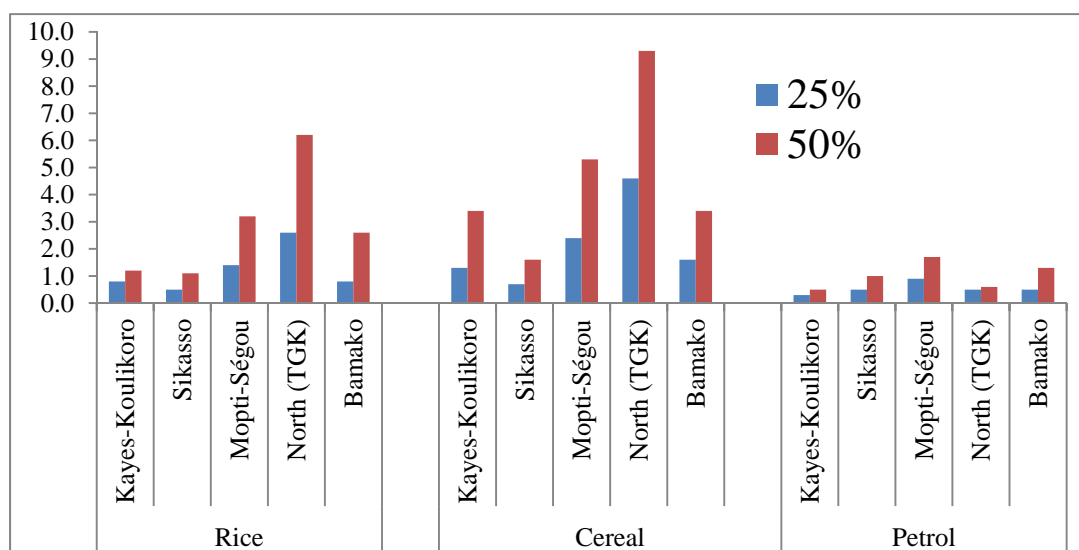


Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

1.66 Most households in Mali, irrespective of their expenditure quintile, purchase cereals and petrol (Figure 1.22), although the value of that consumption increases greatly with their standard of living (Figure 1.23). Therefore most Malian households are likely to be affected by price volatility. For the sake of simplicity, we will assume that the cost of an increase in rice and petrol prices for a household translates into an equivalent reduction of its consumption in real

terms. This means that we do not take into account the price elasticity of demand which may lead to substitution effects and thereby help offset part of the negative effect of higher prices for certain items. Consumption of home produced of cereals (including rice) is not taken into account in the simulations since changes in prices do not affect households when they consume food that they have produced themselves. Poverty measures obtained after the increase in prices are then compared to baseline poverty measures to assess impacts. This implicitly means that we do not take into account the potential spill-over effects of the increase in food prices for the food items included in the analysis on the prices for items not included.

Figure 1.24: Effect on Poverty Headcount of a 25 % and 50 % Price Increases in Rice, Cereal and Petrol, by Region, 2009/10



Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

1.67 Figure 1.24 presents the results from six different price shock simulations using the ELIM 2009/10 survey dataset. We simulated, independently, a 25 and 50 percent price increase for rice, all cereals (including rice) and petrol. For the country as a whole, a 50 percent in the price of rice would lead to an increase of 2.4 percent in poverty headcount. This increase would be 4.3 percent for cereals. The effect would be higher in urban areas (3.3 percent) than in rural areas (2.1 percent) as home consumption is much higher in the rural environment. The more arid northern regions of Mali, where the population has to buy a larger proportion of their food would experience a much larger effect on poverty while the mainly agricultural region of Sikasso is less affected by the price rise because a larger proportion of the food is self-produced. In the case of petrol, the overall effect is smaller (1.1 percent point nationwide in the case of a 50 percent shock) while the effect is larger in urban (1.4 point) than in rural areas (0.9).

H. CONCLUDING REMARKS

1.68 Based on the analysis of the latest three household surveys that include consumption expenditure modules, we establish that poverty in Mali has declined steadily during the 2000's, from 55.6% in 2001 to 47.5% in 2006 and 43.6% in 2009/10. The decline in poverty has been concentrated in rural areas, particularly in the later years. When we look at poverty across the

nine regions of Mali, two findings are worth noting. First, most of the decline in poverty is explained by a very large decline in the Kayes/Koulikoro regions; and second, the Sikasso region has the highest poverty headcount rate and is the only region not having experienced a decline in poverty.

1.69 The high and stable poverty rates in Sikasso are particularly puzzling as many other indicators show a not-so-poor region where living standards are actually improving. The main culprit is likely to be the very high official poverty line used in constructing the poverty profile. We show that if one uses a more sensible poverty line, Sikasso remains the poorest the region in 2009/10 but with a much smaller gap in poverty rate compared to other regions. A lower and more realistic poverty line also shows a declining trend in poverty. It is clear that any further work on poverty in Mali would have to tackle this issue seriously.

1.70 We show that inequality as measured by the Gini coefficient has declined in Mali and that economic growth over the last ten years has been pro-poor.

1.71 Although Mali has produced three useful household expenditure surveys during the past ten years that have generated a series of helpful poverty estimates, a number of measurement problems have surfaced. These relate to (1) the lack of regional consumer price indices, (2) changes in the consumption questionnaire between surveys, (3) problems related to the calculation of the non-food part of the regional poverty lines, and (4) seasonality bias. In addition to this, the surveys collected little data on sources of household revenue. Without such data it is difficult to explain poverty trends as it limiting the analysis of the drivers of poverty reduction and thus making it difficult to generate policy advice.

1.72 Looking ahead, it would be important that the *Institut National de la Statistique* (INSTAT) puts in place a poverty monitoring system that lays the basis for a series of reliable and comparable estimates of poverty over the coming 8-10 years. This should ideally be part of the broader survey plan that INSTAT is currently working on.

1.73 We suggest such a poverty measurement system revolve around the implementation of a comprehensive high quality survey - using a detailed household consumption and income questionnaire - every 3-5 years. This could then be complemented with a lighter version every one or two years based on 'poverty correlates' (such as household characteristics or the consumption of 'luxury' goods such as meat) that can be used to estimate a household consumption aggregate for each household that is comparable to those calculated in the detailed and comprehensive surveys. This will enable a rapid identification of poverty trends that is statistically sound and comparable over time. A reliable poverty monitoring system would probably also have to include (1) a system to collect regional food and non-food prices to generate reliable regional price deflators, preferably on a frequent basis using mobile devices; these could build on efforts already underway to strengthen regional price collection. (2) a robust consumption expenditure questionnaire that also collects actual total spending on the different consumption items and maintains comparability over time as well as with previous surveys, (3) a re-calculation of regional poverty lines to arrive at realistic regional poverty lines for all regions, including Sikasso, (4) data collection better spread out over the year to prevent seasonality bias, and (5) introducing a 'household panel' in the surveys, that is, maintaining a subset of households in between survey years for re-interviewing. This will be helpful for vulnerability analysis.

2. NOTE II - FERTILITY DECLINE AND SOCIOECONOMIC DEVELOPMENT IN MALI¹⁴

A. INTRODUCTION

2.1 For the last fifteen years, Mali has enjoyed significant economic growth of about 5% per year. This “pro-poor” growth helped to significantly reduce the incidence of poverty in the country. Possession of durable goods thus increased in all population strata, but progress in access to basic equipment and services was limited.¹⁵

2.2 Mali’s human development index remains low.¹⁶ 44% of the population is still considered poor, and the Millennium Development Goals (MDGs) will not be achieved by 2015. However, given the initial low starting points for the indicators retained and the size of the gap to close, the limited resources of the State, and the country’s strong demographic growth, it must be recognized that achieving these goals by 2015 was not a realistic objective in the Malian context.

2.3 With respect to population growth, the 2009 census revealed a much larger population than expected, and acceleration in demographic growth.¹⁷ These results led to downward revision of GDP per capita, estimated at 300 000 CFAF (or 600 USD) in 2010.¹⁸ With annual demographic growth estimated today at over 3% and economic growth of 5% per year, it would take more than 35 years to double current GDP per capita. The census results also give larger youth numbers than expected: +1.4 million children below the age of 15, or +23% more than previously estimated.¹⁹ This is the consequence of the absence of a recent significant decline in fertility, which remains at 6.5 children per woman.

2.4 Conscious of the problems caused by strong demographic growth for the country’s economic and social development, Malian authorities adopted a population policy in 1991 that was revised in 2003. One of the objectives of these policies was to contribute to gradual fertility control by increasing the prevalence rate of contraception. However, results were disappointing. In 2010, only 9% of married Malian women used a method of contraception, compared to 5% in 1987 and 8% in 2006. This corresponds to an annual increase of 0.2 percentage points per year, which, if it were maintained, could lead to population growth rates in Mali of 3%-3.5% per year over many decades.

2.5 Over the next 10 to 20 years, Malian authorities will continue to face strong demographic growth and will not be able to meet the population’s basic needs. As such, the Growth and Poverty Reduction Strategy Paper 2006-2011 underscored the need for demographic variables to

¹⁴ This note was prepared by Jean –Pierre GUENGANT (Consultant).

¹⁵ See INSTAT - 2010.

¹⁶ In 2010, Mali’s Human Development Index was estimated at 0.309, ranking the country 160th among the 169 countries classified by the 2010 UNDP report on human development.

¹⁷ According to the « Résultats provisoires du RGPH 2009 », INSTAT, July 2009 Bamako.

¹⁸ World Data Bank - World Development Indicators (WDI) <http://databank.worldbank.org/ddp/home.do>.

¹⁹ According to estimations from the 2010 revision of United Nations demographic projections, which integrate the provisional results of the 2009 census, <http://www.un.org/esa/population/>, this, compared to the estimations from the 2008 revision used previously.

be taken into account and for advocacy with decision makers to raise their awareness about the links between population and development.²⁰

2.6 Following a critical analysis of the policies, plans and programs adopted by Mali with respect to population, this document examines the impact of various demographic scenarios on economic growth, education and health sectors, as well as the “fiscal gains” associated with a slowdown in economic growth. It then examines possible ways of accelerating the use of contraception and thus helping to control fertility and demographic growth.

B. CONTENT AND COHERENCE OF POLICIES, PLANS, AND PROGRAMS RELATING TO POPULATION AND HEALTH

2.7 Over the last 20 years, Mali has adopted and implemented two population policies: in 1991 and 2003. Then, following the adoption of a new comprehensive approach centered on reproductive rights and reproductive health during the International Conference on Population and Development (Cairo, 1994), Mali adopted policies, plans and programs on reproductive health. Finally, in 2000, following the adoption of the MDGs, two Poverty Reduction Strategies were implemented. Given the pending adoption of a 3rd strategy covering 2012-2016, it is worth considering the impact of previous policies.

2.8 The general objective of the 1991 population policy was to improve living conditions and standards for the population, and it had 10 non-quantified objectives, including controlling demographic growth. The population policy that was revised in 2003²¹ took a very wide approach to demographic issues, but with quantified objectives geared towards 2025 for 3 of the 10 general objectives chosen: education, health and fertility. As regards fertility, the 2003 policy aimed to contribute to the gradual control of fertility and had two objectives: increasing the rate of contraceptive prevalence (all methods) from 8.2% in 2001 to 30% in 2025, and promoting a first marriage age of 18 for young girls.

2.9 As regards health and reproductive health, the Ten-Year Health and Social Development Plan (PDDSS) 1998-2007 was implemented through a number of Health and Social Development Programs (PRODESS), the most recent one having been extended until 2011. The chosen objectives between 2006 and 2011 were the following: reduce infant and maternal mortality rates; reduce fertility rates (from 6.6 to 5.5 children per woman); reduce unmet family planning needs from 31% to 25%; and increase the prevalence of modern contraceptives, from 6.2% to 10%.

2.10 Within the PDDSS framework, Mali also adopted in 2002 an “action plan to promote safe contraception in Mali”²² 2002-2011. The main objective, following donor disengagement, was to continue the National Family Planning Program implemented during the 1990s. The high level of obstetrical emergencies led to the adoption of a Strategic plan for reproductive health 2004-2008, and of programs such as the National Plan for Emergency Obstetric Care with the integration of newborns (SOU and SONU). However, in the 2004-2008 Plan, family planning plays a very

²⁰ 2^e generation PRSP, 2007-2011 – adopted by the Council of ministers, December 20th 2006, page 71.

²¹ Ministry delegate to the Prime Minister in charge of the Plan (2003): *La Politique Nationale de Population Révision 1*, Bamako.

²² Ministry of Health (2002): Plan d'action pour assurer la contraception sécurisée au Mali pour la période 2002-2011, Bamako.

moderate role compared to other components (prenatal care, perinatals, postnatals and post-abortion, HIV/AIDS and STI care, etc.). Nevertheless, this plan maintains the objective to bring the prevalence rate of contraception (all methods) from 8% to 15% in four years.

2.11 Following this, in keeping with the Millennium Development Goals, Mali adopted the “Roadmap for accelerating the reduction of maternal and neonatal mortality” for 2007-2015,²³ with a view to increasing the prevalence of modern contraceptives from 6.4% to 20% in 2015. Mali also adopted a law on reproductive health in 2002, which gave people the right to choose freely, with discernment, the number of their offspring and the spacing of their births. Finally, since 2005, Mali has supported a “restructuring of family planning”, which is accompanied every year by the organization of a month-long national campaign promoting family planning.

2.12 The first Poverty Reduction Strategy Paper (PRSP I) predicted an average annual GDP growth of 6.7%, and a very moderate decline in fertility (from 7.3 to 7.1 children per woman in rural areas and 5.4 to 5.2 in urban areas), without taking into account the 1991 population policy. The Growth and Poverty Reduction Strategy Paper (GPRSP) 2007-2011 which followed²⁴ predicted a real annual growth of 7% for GDP, and an annual average growth of 4.0% for national income per capita between 2007 and 2011, compared to 2.6% observed between 2002 and 2005. In its introduction, the GPRSP 2007-2011 indicated that a “real control of demographic growth and improved redistribution of created wealth will help reduce the inequalities and distortions regarding access to basic social services, which are the main causes of increasing pauperization”.²⁵ The Paper thus recommended “taking demographic variables into account when preparing development plans and programs, but in a larger context of increased appreciation for the importance of interactions between social, economic and demographic factors”. It underscored the need for advocacy with decision-makers, to increase their awareness of the interrelations between population and development, as well as the need for social mobilization around the objectives outlined in the 2003 population policy.

2.13 However, the inclusion of demographic variables in sectoral policies is still very incomplete. Thus, in the Ten-year education development program (PRODEC) 2000-2010, the objectives for literacy and school enrolment are most often expressed as a percentage. According to the “National strategy for food safety in Mali by 2015” adopted in 2002, the Malian population will double by 2025, and also that “over 95% of the population will not have the resources to ensure its immediate food security, because of their very income”.²⁶ But the objectives to be met are not quantified. The same can be said of the National Food Safety Program (PNSA) 2006-2015. The National Plan for Access to Potable Water (PNAE), elaborated in 2004, estimated that in 2015 Mali’s population would reach 14.5 million, a number already reached in 2009. Finally, under the national land development policy adopted in 2006, no scenario for the future evolution of the population is taken into account and, as with previous cases; the 2003 population policy is not referred to.

²³ Ministry of Health (2007): *Feuille de route pour l’accélération de la réduction de la mortalité maternelle et néonatale au Mali*, Bamako.

²⁴ Republic of Mali (2006): *Cadre stratégique pour la croissance et la réduction de la pauvreté: 2007-2011*, Bamako (see in particular page 40).

²⁵ 2e generation PRSP, 2007-2011, adopted by the Council of Ministers, December 20th, 2006, see pages 14 and 71

²⁶ « *Stratégie nationale de sécurité alimentaire au Mali à l’horizon 2015* » <http://www.csa-mali.org/docs/CSSAF%20MALI%20final-adopte%2020-11-02.pdf>, page 83.

2.14 The lack of coordination between services, as well as insufficient recent data, largely explains the lack of coherence between the different policies, plans and programs regarding population and health. Also, these policies, plans and programs used results from the 1998 census and the average annual growth rate of 2.2% recorded between 1987 and 1998, and they rarely took into account the results of demographic projections (national or from the United Nations). Thus, considerable effort is necessary to harmonize the indicators used. The same can be said for the establishment of objectives, which does not always follow a determined logic, except when the MDGs are revisited. For example, as regards the prevalence of contraceptives, there are as many objectives to increase prevalence as there are documents: 30% in 2025 for the National Population Policy 2003, 10% in 2011 for the PRODESS 2005-09/11, 15% in 2008 for the Strategic Plan for Reproductive Health 2004-08, 20% in 2015 for the roadmap. The annual growth rates of prevalence range from 0.8 percentage points per year for the PRODESS to 1.8 points per year for the Strategic Plan for Reproductive Health. Furthermore, the Action Plan to ensure Safe Contraception in Mali 2002-11 does not contain any indication of the number of users concerned by this plan or on the corresponding contraceptive prevalence.

2.15 Taking into account demographic variables in the design of development plans and programs leaves something to be desired (see Table 1 in Annex 2, Matrix of interventions by authorities). The GPRSP 2007-2011 objective to increase GDP per capita by 4.0% per year between 2007 and 2011 will not be reached, given the annual average observed over 2007-2010 was 1.4%. There was a small decrease in fertility, and the increase in the use of contraceptives was significant (see Annex 2, table 2). While mortality has declined, we are far from reducing two thirds of mortality rates for children below the age of 5, or from reducing three fourths of maternal mortality rates, as indicated in the MDGs. Finally, only the objective to eradicate the spread of HIV/AIDS by 2015 has been reached, since the prevalence of infection, for people between the ages of 15 to 49, which was estimated between 1.3% and 1.9% in 2001, was estimated in 2009 at 0.8% and 1.3%.

C. SCENARIOS FOR THE FUTURE EVOLUTION OF MALI'S POPULATION

2.16 Given the extreme youth of the population (two out of three Malians are below the age of 25) and the still high fertility levels, we can expect that over the next 20 years Mali's population will double (and its urban population will triple). Results of three demographic projections made in 2009, 2010 and 2011 for Mali's population²⁷ indicate the same trend, despite declines in projected fertility.²⁸

2.17 The latter projections differ from the other two in that future fertility levels are not fixed a priori but depend on the values of its main close biological and behavioral determinants, namely:

²⁷ These are: 1- the projections made within the framework of the study entitled *Le Mali face à ses défis démographiques*. Rapport No. 44459-ML. Banque mondiale, juin 2009; 2 – the projections made during the 2010 revision of the United Nations projection available online in May 2011; 3 – the projections made within the framework of the study entitled « Comment bénéficier du dividende démographique ? Analyse pays: Mali – ICI, Initiatives Conseil International (Burkina Faso) et Agence française de développement, 2011.

²⁸ To note: the future evolution of a population mainly depends on the evolution of fertility. Other variables – such as mortality and international migration – even if they are not negligible, are of lesser importance. It is for this reason that demographic projections generally adopt a number of evolution assumptions for fertility

post-partum insusceptibility,²⁹ the importance of provoked abortions, the importance of sterility and, especially the prevalence of contraception and the efficiency of methods used. In a model that bears his name, John Bongaarts has formalized the relation between fertility levels and the values of its close determinants;³⁰ this facilitated the development of computer programs for demographic projections based on his model³¹. Assumptions were thus made for each close determinant of fertility. As regards contraception, starting from a prevalence rate of 10% in 2010, we advanced three assumptions for increased prevalence. The “high, trending” assumption predicted an annual 0.5 percentage point increase, which leads to a prevalence of 20% in 2030. The “low, proactive” assumption predicted an annual 1.5 percentage point increase, which leads to a prevalence of 40% in 2030. An intermediate assumption predicted an annual 1.0 percentage point increase, which leads to a prevalence of 30% in 2030.

2.18 Increases in chosen contraceptive prevalence of 0.5, 1.0 and 1.5 percentage points per year correspond to the range of evolutions observed: slow, average or fast, over relatively long periods (at least 10 years) in developing countries between the 1970s and beginning of the years 2000.³² The high demographic assumption, which predicts the highest population numbers, was described as “trending” because it corresponds to the very slight increases in use of contraception in Mali (+0.2 points per year between 1987 and 2000, and between 2006 and 2010). The low demographic assumption, which predicts the lowest population numbers, was described as “proactive”, because it considers major efforts to increase use of contraception. It corresponds to fulfilling the current unmet needs in family planning (31%) within 20 years, by 2030 and not by 2015 as predicted by the MDG 5b. By 2030, the low assumption leads to 4.4 children per woman, while the high assumption predicts 5.8.

2.19 In theory and paradoxically, the projections of these very different fertility levels lead to neighboring total population numbers in 2030: 29 million for the high assumption and 27 million for the low assumption. These types of results are generally attributable to what is called the inertia of demographic phenomena. But we forget that, given fertility is the main determinant of demographic evolution, the impact of the different assumptions is first, and relatively quickly, felt through the evolution in the number of births (followed by the number of youths), and thus through the natural population growth rates and the rates of dependence (figures 2.1, 2.2 and 2.3).

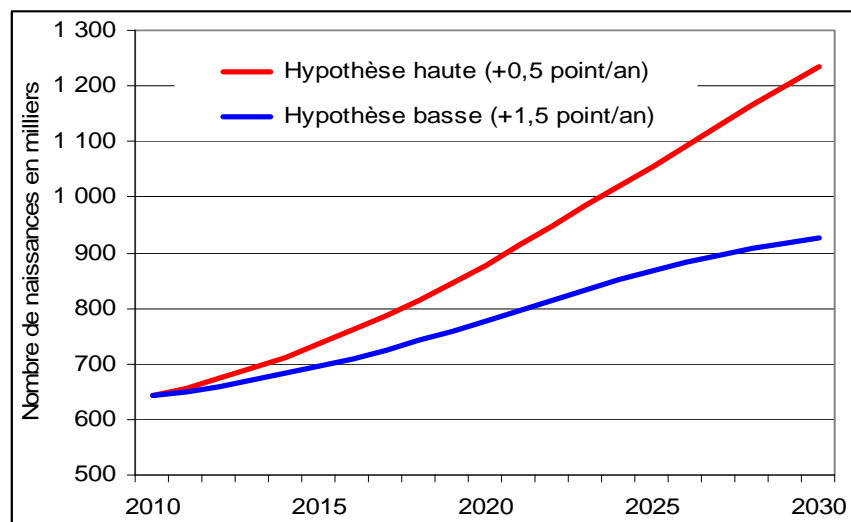
²⁹ Post-partum insusceptibility is the period following childbirth during which the mother is not exposed to a risk of getting pregnant, either because her menstrual cycle has not resumed, usually because she is breastfeeding, or because she has not had sexual relations for some time following childbirth.

³⁰ Bongaarts J., 1978.

³¹ The software used for these projections is SPECTRUM version 3.46
<http://www.futuresgroup.com/resources/software/>

³² Guengant J.-P., Rafalimanana H., 2005.

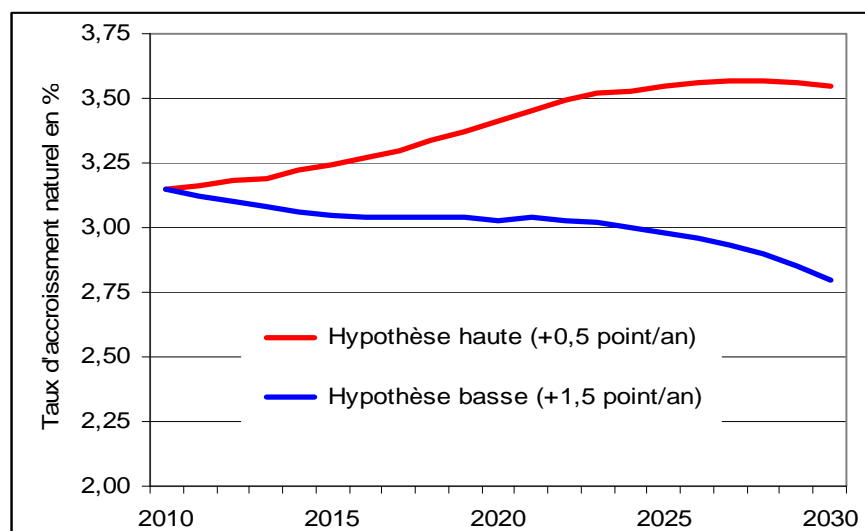
Figure 2.1: Evolution in the annual number of births (2010-2030) in thousands, depending on the chosen assumption



Source: Guengant J-P. « Comment bénéficier du dividende démographique? Analyse pays: Mali », 2011.

2.20 With respect to the evolution of the number of births, the faster decline in fertility resulting from acceleration in the use of contraception (low assumption) is not enough to compensate the expected doubling of procreation-age women by 2030. Thus, births continue to increase from 630 000 in 2010 to 930 000 in 2030 (+44%), and only later is a stabilized annual number foreseeable. However, with a continued slight increase in contraception (high assumption), a doubling of the number of births between 2010 and 2030 should be expected.

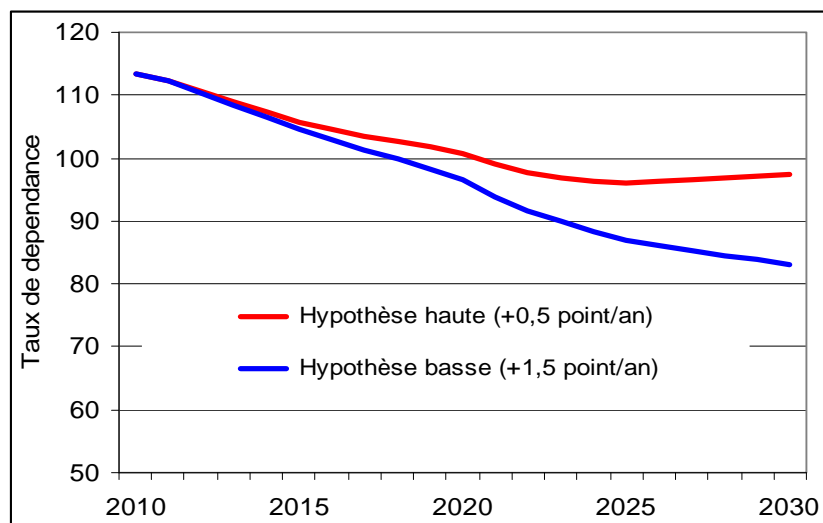
Figure 2.2: Evolution of natural population growth rate as a percentage, based on the selected assumption



Source: Guengant J-P. “Comment bénéficier du dividende démographique ? Analyse pays: Mali”, 2011.

2.21 The impact of a more rapid decline in fertility (low assumption) on natural growth rates³³ is a moderate one, since this rate went from 3.2% in 2010 to 2.8% in 2030. However, the doubling of the number of births indicated in the high assumption leads to a continued acceleration in natural demographic growth, which would surpass 3.5% annually until 2030.

Figure 2.3: Evolution of the rates of dependence (number of dependents under 15 and over 65 for 100 dependents aged 15-64), based on the selected assumptions



Source: Guengant J-P. « Comment bénéficier du dividende démographique ? Analyse pays: Mali », 2011.

2.22 The rates of dependence decline more rapidly under the low assumption than under the high assumption.³⁴ But even with the low assumption, the rate of 83 dependents for 100 workers in 2030 remains well above the rates corresponding to 50 dependents for 100 workers (or two dependents for one worker) reached today by emerging countries.³⁵ However, it is largely thanks

³³ We could have chosen the annual population growth rate instead of the natural growth rate, but the difference between these rates is small. In the projections used here we, like the Population Division at the United Nations, have hypothesized a continued important emigration equal to -40 000 net departures per year, maintained at that level until 2050. In 2010 this corresponds to -0.26% of the total population, and reduces natural growth from an 3.15% to 2.89% (an 8% reduction). As population continues to grow, the projected impact from a net emigration of -40 000 per year is attenuated over time. It thus corresponds to -0.15% of total population in 2030, and less than 0.10% in 2050. Even if we had hypothesized a much more important net emigration, the future dynamic of Mali's population will remain quite largely determined by the country's natural growth rate, and will only be marginally affected by migrations—save for rare unpredictable phenomena of exodus or of massive migrant returns.

³⁴ 90% of dependents (93% in 2010) under 15 years of age and over 65 years of aged are made up of children under the age of 15, as persons over 65 are relatively few in the total population. As a result, dependence rates “under 15 – 65 and over” essentially reflects the ratio of under 15 youths to workers in the 15-64 age range.

³⁵ We can define emerging countries as those countries previously qualified as “developing” or “underdeveloped”, whose GDP per capita remains below that of developed countries, but who are experiencing rapid economic growth and whose quality of life and economic structures are converging towards their counterparts in developed countries. Among them in Africa: Mauritius, Tunisia, Egypt, Morocco and South Africa; in Asia: India, China, South Korea, Singapore, Thailand, Indonesia, Malaysia, Turkey and in Latin America: Brazil, Mexico. The list of said emerging countries varies according to the sources and authors. For instance today, South Korea and Singapore are often considered to be developed, rather than emerging countries.

to the rapid decline of their rates of dependence that these countries were able to direct more resources to productive investments and to improving their human capital. This in turn allowed them to benefit, under certain conditions, from a demographic dividend, and to comfort their economic growth. According to a recent study, persistent elevated rates of dependence would not allow Mali to benefit from this dividend for the next 20 years.³⁶

D. EFFECTS OF ECONOMIC AND DEMOGRAPHIC GROWTHS

2.23 In sub-Saharan Africa, the dominant point of view has been and largely remains to consider population size and growth as factors of prosperity and development, as they contribute to increasing the importance of the country's markets and human capital. However, strong demographic growth in sub-Saharan Africa seems to have led to lower economic performance, when compared to those of Asian and Latin-American countries whose demographic growth went from 2.5%-3% per year in the 1960s to 1% today. Thus, the gross domestic product (GDP) for sub-Saharan Africa, which represented 2.2% of global GDP in 1960, only represents 1.8% in 2010.³⁷ Real GDP for the sub region was multiplied almost six times between 1960 and 2010, a sustained demographic growth of 2.5% to 3% per year. However, average GDP per capita in the region has only increased by 48%, while it has been multiplied 3 to 6 times in Latin America, South Asia and East Asia.

2.24 In Mali, total real GDP was multiplied by 4.4 between 1967 (first available year) and 2010, but GDP per capita only increased by 65%. In 2010, GDP per capita in Mali was thus estimated at 300 000 CFAF (600 US\$ or 1°060 USD PPP), which places Mali 4th within the WAEMU.³⁸ Over the period (1967-2010), Mali's economic growth was thus insufficient to stimulate a rapid increase of GDP per capita. In fact, fairly good performances during the 1970s (an average GDP growth of +5.2% per year) were followed by insignificant growth during the 1980s and beginning of 1990s, until a recovery was observed from the mid-1990s (see Annex 2, figures 1 and 2). However, accelerated demographic growth, from an annual average of 1.8% in the 1970s to over 3% per year in the years 2000, reduced the annual average growth of GDP per capita. GDP per capita thus went from +3.3% per year during the 1970s, to approximately -1.0% per year between 1980 and 1994; then from +2.8% between 1995- and 2004, but went back down to +1.8% per year over 2005-2010.

2.25 This growth recovery allowed a reduction of poverty. Between 2001 and 2010, the 12-percentage point reduction (from 56% to 44%) of Malians considered to be poor is in fact partly attributable to a growth effect, and partly to a redistribution effect. Economic growth over the last 10 years was indeed pro-poor and helped reduced inequalities between Malians to a certain extent.³⁹ Poverty reduction was most marked in rural areas (-16 points), which account for close to 80% of the country's population and where, as recent as 2010, the poor represented 51%.

³⁶ Bloom D. E. et al., 2007.

³⁷ All socioeconomic data referenced here is taken from the World Development Indicators (WDI) <http://databank.worldbank.org/ddp/home.do> (Accessed in August 2011). In 2010, South Africa and Nigeria accounted for 50% of GDP in Sub-Saharan Africa.

See also Box 2 (p.66) on GDP and GDP per capita.

³⁸ However, with a GDP of almost 4 600 billion CFAF in 2010, Mali was the third largest economy in the WAEMU, to which it contributed 13% of GDP.

³⁹ See, *INSTAT-2011*.

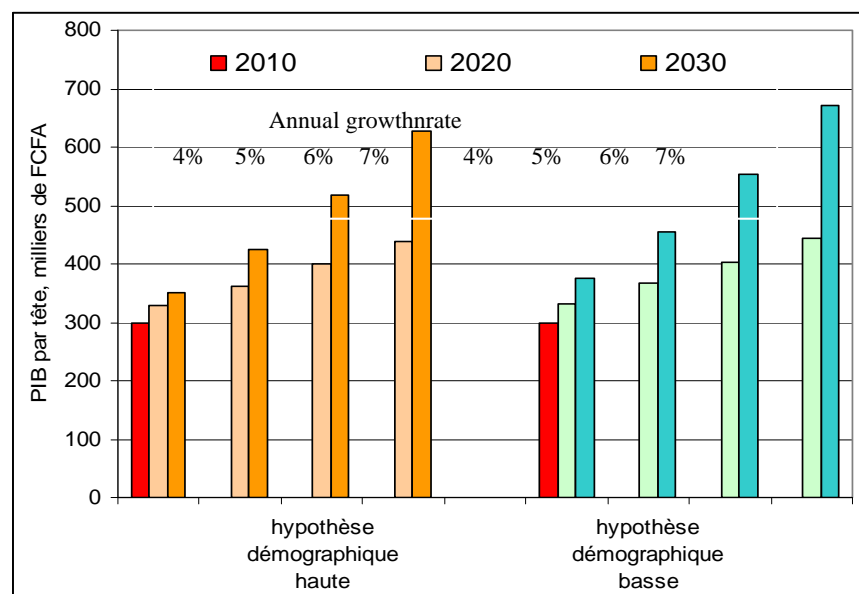
Poverty in urban areas and in Bamako was lower between the studies done in 2001 and 2006; but it was not lower between 2006 and 2010, and remains a concern for approximately 20% of urban dwellers and 10% of Bamakois (see Annex 2, figure 3). The percentage of people living in extreme poverty, which stood at 32% in 2001, also varied slightly between 2006 (24%) and 2010 (22%). The results show the impact of a slowdown in per capita economic growth between 2005 and 2010, and the more favorable evolution of rural areas is the result of good climatic conditions favorable for agriculture experienced over the past few years.

2.26 Overall, the relatively strong economic growth of the last 10 years, as well as the reduction of poverty and inequalities, allowed numerous Malians to acquire imported durable goods. Among these, the mobile telephone owned in 2010 by 65% of Malians ranks first, followed by the motorcycle, owned by 41% of Malians. These are followed by televisions and refrigerators, owned by 28% and 6% of Malians, respectively, but with very strong disparities between urban and rural areas, due to the electricity needs of these devices. However, increase in access to basic equipment and services is limited. The percentages of households with access to potable water regressed from 2001 to 2010 (from 75% to 72%), much like the percentage of households using a flushing system, pits or latrines (83% to 81%) for their excreta. Furthermore, in 2010, 74% of households were still using wood as energy for cooking their food (a threat for the environment), and only 24% of households had access to electricity (11% in rural areas and 70% in Bamako). Declines and delays regarding access to basic equipment and services have a demographic dimension and are attributable, at least in part, to the difficulty of committing the necessary resources to meeting corresponding needs of a population in rapid growth, both in urban and rural areas.

2.27 The Malian economy's recent performances are attributable to the income generated from gold mining and the agricultural sector (which contributes 36% of GDP). Income generated from gold should decline from 2015 onwards, but this decline should be partly compensated by an increase in agricultural production (cotton and other products) thanks to reforms in the sector. The IMF has thus projected that economic growth in Mali over the next 20 years could reach an average of approximately 5.0% per year, but this rate does not allow us to foresee a substantial increase of GDP per capita or a decline in the significant amount of foreign aid Mali receives⁴⁰. Concerning our work, we used the 2010 GDP per capita of 300 000 CFAF and the annual constant economic growth rates of 5%, 6%, 7% (rates selected from the GPRSP 2007-2011), combined with the demographic growth rates from the low and high assumptions previously presented, to calculate GDP per capita for 2020 and 2030 (figure 2.4).

⁴⁰ See *IMF 2011*, pages 3 and 11. In 2009, the official (net) aid for development received by Mali reached 985 million dollars (490 billion CFAF), 11% of its GDP. In comparison, direct net foreign investment in 2008 and 2009 were only at 180 and 110 million dollars (90 and 54 billion CFAF), 2% and 1.2% of GDP; and disbursement of funds (officially) in 2008 and 2009 from emigrated nationals were at 430 and 405 million dollars (210 and 200 billion CFAF), which corresponds to 5% of the country's GDP.

Figure 2.4: Evolution of GDP per capita in Mali from 2010 to 2030, in thousands of CFAF, based on numerous assumptions on economic and demographic growth



Source: author's calculations.

2.28 The results obtained (see details in Annex 2, Table 5) confirm that doubling of GDP per capita before 2030 is only possible with a constant economic growth of 7% per year. With the assumption of an economic growth rate of 5% per year, GDP per capita in 2030 is 52% higher than in 2010 with the low demographic assumption, and 42% higher with the high demographic assumption. This difference might not seem significant; however, the high demographic assumption lengthens the amount of time needed to double GDP per capita. Thus, with an economic growth of 5% per year GDP per capita can double in 40 years (by 2050) with the high demographic assumption, while it will double almost ten years earlier (by 2041) with the low demographic assumption- an advantage that is not to be ignored.

2.29 Then, the next 20 years will be marked by double the amount of entrants on the Malian job market, which will reach 550 000 (for both sexes) in 2030.⁴¹ In the past, insufficient job creation was accompanied by the development of informal, poorly remunerated and poorly productive work, and emigration.⁴² The anticipated strong growth of Malian labor will only become an advantage for the country if it is coupled with the creation of a sufficient number of jobs and an increase in productivity. This presupposes a major improvement in the current levels of health and education, which are far from being attained. Without this, the large labor force could be unemployed and instead become a burden and factor of social unrest. This is the consequence of the past strong demographic growth, because almost all these future young workers have already been born.

⁴¹ Supposing that all youths (men and women) enter the job market between the ages of 15 and 24, we can estimate annual entries on the job market to a tenth of the 15- 24-age group.

⁴² According to the estimations given in “*Migrations and remittances, Factbook 2011*”. Second Edition. The World Bank, November 2010, page 172, emigration concerned over 1 million Malians in 2010.

Box 2.1: GDP and GDP per capita estimations

Per capita GDP is the gross domestic product divided by the population in the middle of the year. GDP is the sum of gross added value of all the producers resident in an economy plus all the taxes on the products and minus subsidies not included in the value of these products. Per capita GDP is expressed in USD, but it may be calculated by dividing total GDP expressed in local currency units (LCU, which, in this case is the CFA franc) by the population.

Per capita GDP is different from per capita GNI formerly known as per capita GNP. In fact, GNI is the gross national income converted into USD using the “World Bank Atlas” method divided by the population in the middle of the year. GNI is defined as GDP plus net revenues from foreign primary revenues (wages of workers and property income). GNI calculated in local currency units is usually converted into USD using the official exchange rate for comparison between economies. However, to control price and exchange rate fluctuations, a special method known as the Atlas method of conversion is used by the World Bank.

Per capita GNI in purchasing-power parity (PPP) (formerly known as per capita GNP in PPP) is the GNI (per capita gross national income as defined above) converted into current international dollars through purchasing-power parity rates. It is assumed that an international dollar has the same purchasing power both in the countries under study and in the US

- In the case of Mali, the World Bank estimated that in 2010:
- Per capita GDP will stand at 602 USD;
- Per capita GNI at 600 USD;

Per capita GNI in purchasing-power parity (PPP) at 1,057 international dollars (about 76 percent higher than per capita GNI. This reflects the higher cost of living in the US than in Mali).

By dividing the GDP of Mali estimated by the World Bank in 2010 at CFA 4,582 billion by an estimated population of 15,370,000 inhabitants (by the UN Population Division in its 2010 projections; these figures are incorporated by the World Bank), we obtain an estimated per capita GDP of CFA 298,100 in 2010.

For details on these definitions and data, consult the following sites simultaneously.

<http://donnees.banquemondiale.org/indicateur/>

<http://data.worldbank.org/indicator/> and

<http://databank.worldbank.org/ddp/home.do>

E. ANTICIPATED GAINS FROM A DECLINE IN FERTILITY IN THE AREAS OF HEALTH AND EDUCATION

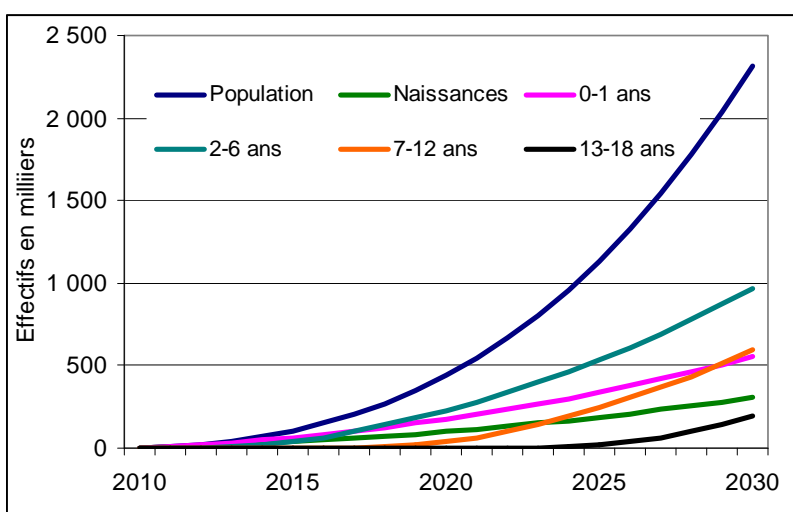
2.30 Since its independence, Mali has spent considerable resources to improve the levels of health and education within its population. However over the next 20 years, Mali will continue to face three main challenges in these two essential areas for the quality of human capital: increasing the number of workers, closing the gap in coverage rates, which remains insufficient, and improving the quality of care and services provided to the population.

2.31 As indicated in paras 2.19 to 2.21 above, the impact of a more rapid decline in fertility (low demographic assumption) compared to a trending evolution (high demographic assumption) is first observed through the evolution in the number of births, followed by the number of youths. Thus, as early as 2011, there are fewer births and children between the ages of 0 to 1 with the low demographic assumption. The numbers for children aged 2 to 6 is lower from 2013 onwards, the number of children aged 7 to 12 is lower from 2018, and the number for children aged 13 to 18 is lower from 2024 (figure 2.5). Each year, cumulating the difference between the high and low assumption gives an idea of the reduced population burden (births and obstetrical or neo natal

emergencies), to vaccinate and to treat (young children), and to send to school (from age 7) with the low assumption (figure 2.6).

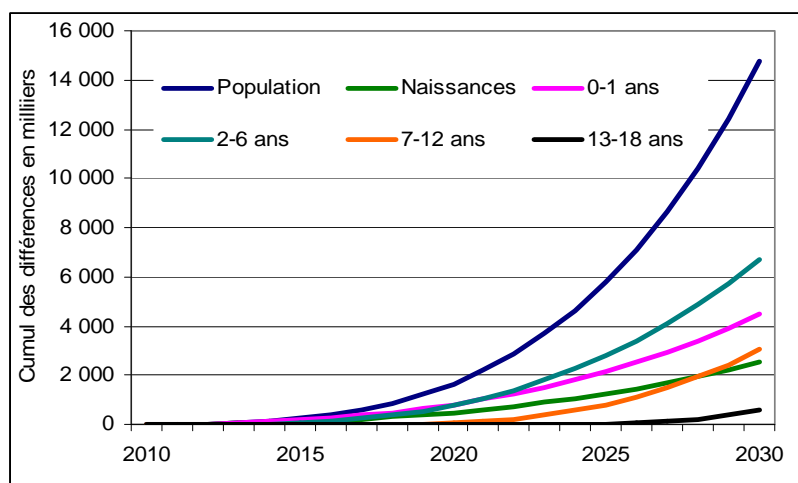
2.32 These cumulated headcounts thus generate a “fiscal gain” which is the accumulation of annual savings made as a result of a more rapid decline of fertility. We have evaluated the corresponding fiscal gain for health by estimating futures expenditures based on the cost per person given in 2009 (38,4 dollars, rounded up to 40 USD for 2010). For education, we have evaluated the corresponding fiscal gain based on expenditure per student as a percentage of GDP per capita in 2009: 78 USD and 196 USD for primary and secondary school respectively, which were rounded up to 80 USD and 200 USD respectively for 2010 (figure 2.7) (see details of calculations in Annex 2, table 10).

Figure 2.5: Differences in numbers (in thousands) between the high and low assumptions



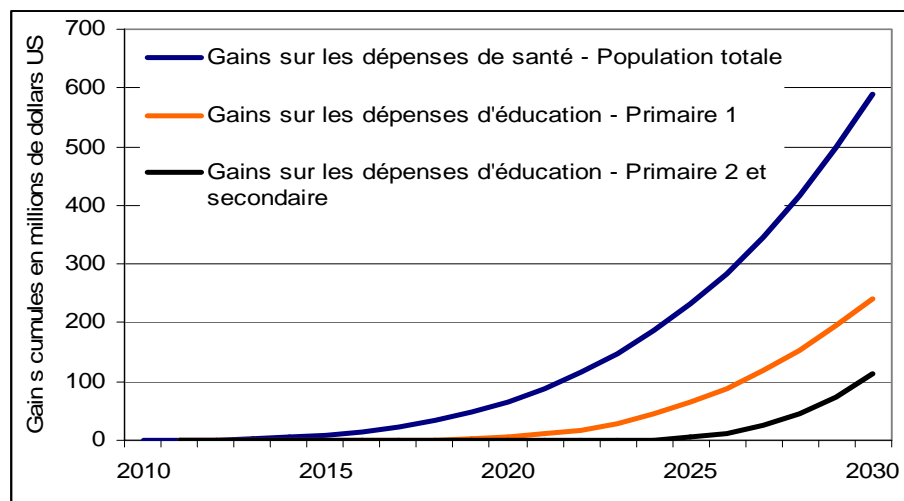
Source: author's calculations.

Figure 2.6: Cumulating the differences in numbers, between the high and low assumptions



Source: author's calculations.

Figure 2.7: Cumulated gains in millions of dollars (USD) from the differences between the high and low assumptions



Source: calculations from the author.

2.33 From 2011 to 2020, cumulated gains from health total 66 million dollars (10% of expenditures in 2010), and reach 600 million dollars in 2030, the equivalent of expenditures in 2010 (Annex 2, table 10). With the gains in 2030 from education spending in primary and secondary school (primaire 2 and secondaire in Mali), we obtain a total gain of a billion dollars (945 million, or 450 billion CFAF). The moderate slowdown in demographic growth indicated by the low assumption (see figure 2.3) thus generates significant gains.

2.34 In Mali, total spending regarding health is equally split between private sector spending and public spending. The latter represented 11% of government spending from 2005 to 2008, and 9% of spending from 2009. The sector has benefited from increasing external resources since the 1990s (25% of total health spending in 2009). As regards education, public spending which represented 30% of government expenditure in 1980, decreased significantly during the crisis years and stood at 15% in 2000. It has since increased, representing 22% of government spending in 2009. Public spending for these two sectors, that are essential for the country's development, currently makes up a third of government expenditure.

2.35 How these expenditures are likely to evolve based on the objectives for improving sanitary and educational coverage on top of the 3+% annual increase in the number of people? For the health sector, a detailed analysis is needed for the division of expenditure between what goes to monitoring pregnancies and childbirths, followed by vaccinations and monitoring young children, against total spending. We can, however, evaluate the growth factor for spending which would correspond to, in 2020 or 2030, childbirth assistance by qualified personnel for 100% of women, compared to 29% in 2010. With a 2020 time horizon, the necessary resources for childbirth assistance would need to be multiplied by 4.7 under the high assumption, compared to 4.2 under the low assumption, which corresponds to annual growths of 7% and 5%, respectively. With a 2030 time horizon, resources would need to be multiplied by 7 with the high demographic assumption, compared to 5 with the low assumption, which would correspond to annual increases of 7% and 5% respectively. As regards vaccination, in 2010, 50% of children were fully

vaccinated. In order to reach 90% of vaccinated children by 2020, the necessary resources for vaccination would need to be multiplied by 2.3 in the high demographic assumption, compared to 2.1 with the low assumption, which would correspond to annual increases of 8.9% and 7.6%, respectively. With a 2030 time horizon, the resources would need to be multiplied by 3.3 under the high demographic assumption, compared to 2.5 with the low assumption, which corresponds to annual increases of 6.2% and 4.8% (respectively).

2.36 As regards education, the gross rate of primary schooling was estimated at 75% in 2010, and the net rate at 54%⁴³. To achieve a gross rate of 100% by 2020, the affected resources allocated to primary school education would need to be multiplied by 1.7 in both assumptions, which would correspond to an annual increase of 5.7%. With a 2030 time horizon, the resources would need to be multiplied by 2.4 in the high demographic assumption, compared to 2.1 with the low assumption, which would correspond to annual increases of 4.5% and 3.8% respectively. However, a 100% net schooling rate is the objective, higher growth rates for the necessary resources are obtained: more than 9.0% per year if a time horizon of 2020 is selected for both assumptions. And, if a 2030 time horizon is selected, we arrive at an annual increase of 6.2% with the high demographic assumption, and 4.8% annually with the low assumption. A similar logic can be applied to secondary school education.

2.37 These estimates, which combine the impact of a future population increase and of the catch-up objectives for coverage rates, do not take into account the costs that can be associated to an improvement of the quality of care and education provided. Nor do they (to our knowledge) integrate the cost of additional infrastructures to be built. In fact, the key question posed by these simulations is the possibility and the consequences of strong increases in the resources allocated to health and education at high or even higher levels, on the economic growth rate. As we have seen, few are the scenarios for increased adequate coverage for pregnancies and vaccinations or education coverage that require average annual growths below 5%, the current projected rate. However, this is impossible in certain cases with the low demographic assumption. In Mali's specific case, is it foreseeable to accelerate the use of contraception, an essential condition for the materialization of scenarios such as that suggested by the low demographic assumption, leading to a fairly rapid decline of demographic growth?

F. DETERMINANTS OF FERTILITY AND DESIRED NUMBER OF CHILDREN

2.38 Fertility levels depend on two types of variables: socioeconomic, cultural, institutional and political variables and close determinants, which act directly on fertility. However, among these is increased use of contraception that plays a major role in the transition of fertility—the passage from elevated, uncontrolled fertility levels to lower levels.⁴⁴

2.39 In 2010, less than 10% of Malian women in relationships were using a method of contraception, which is one of the lowest rates in the world (see Annex 2, table 2). On this point, it is worth noting that contraceptive prevalence in emerging countries during the 1960s was around 10% to 20%, and that it stood between 60% and 85% in the mid 2000s.⁴⁵ These countries

⁴³ INSTAT - mai 2011.

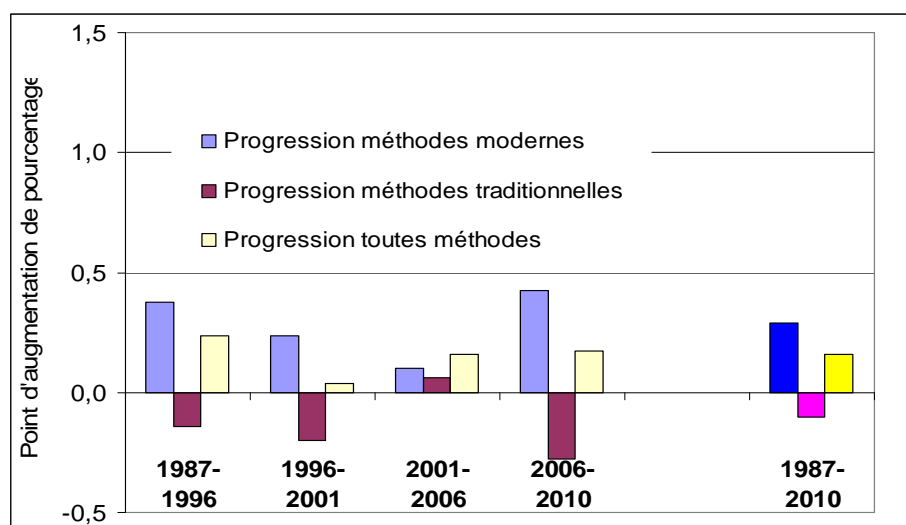
⁴⁴ Bongaarts J., 1982.

⁴⁵ United Nations: 2010 and 2011 Update for the MDG Database: [Contraceptive Prevalence Unmet Need for Family Planning](http://www.un.org/esa/population/unpop.htm), Population division (<http://www.un.org/esa/population/unpop.htm>)

thus achieved their “contraceptive revolution” within approximately forty years, thanks to an average increase in contraception use of 1.5 percentage points per year, the growth indicated in our demographic assumption proactive (low).⁴⁶ In comparison, the increase of contraceptive prevalence in Mali over the last 20 years has been insignificant (an average of +0.2 points per year) (figure 2.8). However, the results of studies performed in Mali from 1987 to 2010 indicate a significant unsatisfied demand in family planning (31% in 2010), mainly for spacing reasons. In fact, fertility control in Mali has always largely been the result of long periods of postpartum insusceptibility⁴⁷, which do not allow inducing a reduction of fertility (see the breakdown of fertility according the Bongaarts model in Box 2.2).

2.40 Sustained high levels of fertility and poor contraception use in Mali are the results of a widespread acceptance (conscious or not) of premature, numerous and poorly spaced pregnancies.

Figure 2.8: Annual average growth point of contraceptive prevalence per period



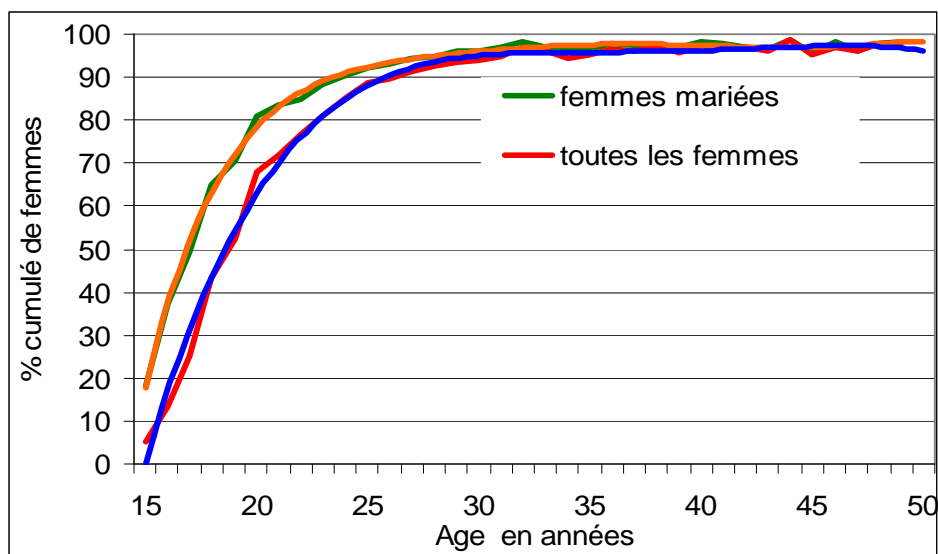
Source: Measures DHS Online Tools (<http://www.statcompiler.com/>) and *Enquête par grappes à indicateurs multiples (MICS), 2010, Rapport Final, mars 2011.*

2.41 According to results from the 2010 MICS study, 5% of all 15 young girls had already given birth, 43% of them had given birth by age 18, and 68% by age 20. If only the girls who were married are considered, 18% of 15 year olds had already given birth, as had 65% of 18 year olds and 81% of 20 years olds (figure 2.9). These underage pregnancies are largely accepted in a marriage, since before age 40, only 10% to 15% of the interviewees who had given birth within the past two years indicated that they did not want to have a child at that age (figure 2.10). These results are consistent with the low contraception use across almost all age groups (figure 2.11).

⁴⁶ Increased prevalence by approximately 60 points (from 10-20 % to 70-80 %) in 40 ans corresponds indeed to an average increase of 1.5 percentage points per year (Guengant et Rafalimanana, 2005).

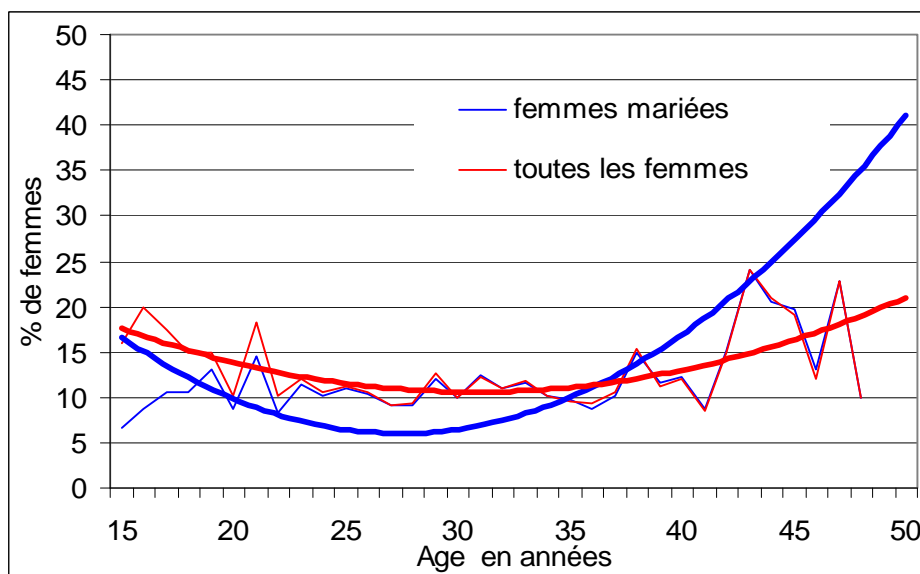
⁴⁷ See definition of postpartum insusceptibility in note 31.

Figure 2.9: Cumulated percentage of women having already given birth, according to age



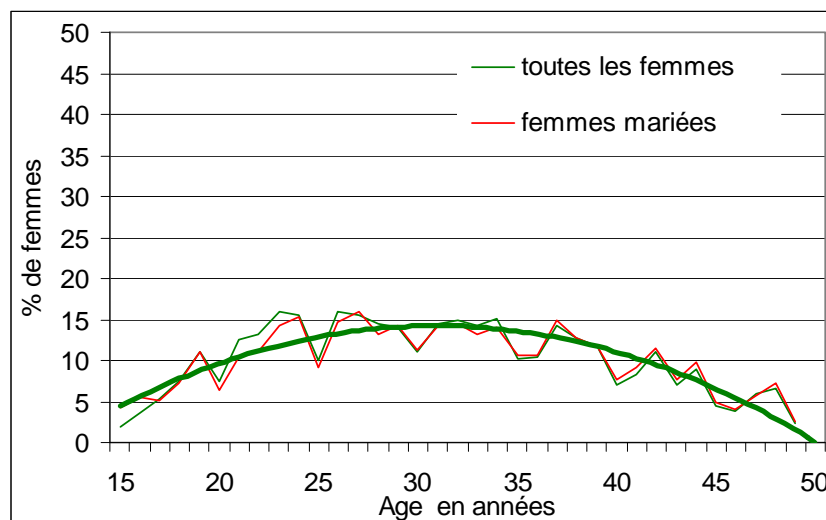
Source: MICS study, 2010.

Figure 2.10: Percentage of women having given birth within the two years preceding the study who did not plan on having a child at that time, according to age



Source: 2010 MICS study.

Figure 2.11: Percentage of women using a method of contraception at the time of the study, according to age



Source: MICS study, 2010.

2.42 The levels of contraception use and contraception demand evidently vary depending on women's level of education and the "wealth quintile" to which they belong (Annex 2, table 2). Thus, in 2010, 24% of the most educated women were using a method of contraception, compared to 7% of non-schooled women; and 21% of wealthier women compared to 4% of poorer women. Total demand for family planning (sum of the percentage of women using contraception and of the percentage of non-satisfied needs) also varies according to the categories. It is indeed at 57% and 53% for more educated and wealthier women respectively, and 38% and 33% with less educated and poorer women. However, while approximately 40% of this demand is met for the wealthier and better-educated women, less than 20% of demand is satisfied for uneducated and poorer women. None of these results are satisfactory.

2.43 Deterioration of the quality of care provided by public services certainly played a part in the weak response to the family planning demands expressed. This deterioration provoked a demoralization of teams, which did not incite the personnel to provide women with even the most basic information on family planning during pre/post-natal consultations⁴⁸. It is also worth questioning the weakness of total expressed demand, even with the few women who have secondary school education or more. In fact, the almost exclusive focus placed on spacing childbirths by information campaigns certainly contributed to sustained social norms, which perpetuate the valorization of multiple pregnancies. Results from the 2006 DHS study (based on age group, level of education, and wealth quintile) indicated indeed that high numbers of desired children still persisted in Mali, even among the more educated women. The average number of desired children, as indicated in 2006 by women aged 15 to 24 with at least a secondary school education, remained around 4.6 children, and at 5.7 children for the rest of women aged 15 to 24,

⁴⁸ On this topic, see the results of the studies conducted on relations between *soignants* et *soignés* in five West African capitals: Abidjan, Bamako, Conakry, Dakar and Niamey Jaffrey. Olivier de Sardan J.-P. (eds), 2003 .

compared to 6.3 for the rest of the population.⁴⁹ These results underscore, contrary to common ideas on the subject, that progress in education, improved quality of life and less “traditional” behavior in youths is not enough to affect a rapid decline in fertility and demographic growth.

Box 2.2: Breakdown of fertility according to the Bongaarts model

Close determinants of fertility are the biological and behavioral factors through which fertility control is directly involved.

According to John Bongaarts, fertility could reach an average of 15.3 children in the absence of these factors (theoretical natural fertility).⁵⁰ The main factors of fertility controls or close determinants retained by Bongaarts are:

- Marriage or being in a union,
- Post-partum insusceptibility,
- Abortion,
- Sterility,
- Use of contraception.

These factors are a combination of behavioral and biological factors.

In the model named after him, John Bongaarts developed a formula that links fertility levels (or Total Fertility Index, TFI) to indexes for each close determinant. The value of these indexes is between 0 and 1: a 0 represents an integral reduction of natural fertility, in other words reduces fertility to zero; and a 1 represents a null reduction effect, or no reducing effect on natural fertility. John Bongaarts’ formula is as follows

$$\text{TFI} = \text{Cm} * \text{Ci} * \text{Ca} * \text{Cs} * \text{Cc} * \text{FN}$$

Where

- Cm is the marriage index,
- Ci is the post-partum insusceptibility index,
- Ca is the abortion index,
- Cs is the definitive sterility index,
- Cc is the contraception index, and
- FN is natural fertility (estimated at an average of 15,3 children per woman).

Thus, in developed countries and in most of today’s developing countries-- namely the emerging countries in which marriage is late, the duration of breastfeeding is short, use of contraceptives is widespread and recourse to abortion is more or less important—, an average of 2.0 children per woman can be associated to the following Bongaarts indexes:

$$\begin{aligned} \text{TFI} &= \text{Cm} * \text{Ci} * \text{Ca} * \text{Cs} * \text{Cc} * \text{FN} \\ 2,00 &= (0,5 * 0,9 * 0,8 * 0,9 * 0,4) * 15,3 \end{aligned}$$

In this case, fertility control is essentially the result of a widespread use of contraception (Cc= 0.4) and of a relatively low percentage of marriages (Cm=0.5).

The situation is very different in countries with higher fertility such as Mali, where underage marriage is widespread, and the duration of breastfeeding is long, often associated to more or less prolonged periods of abstinence after childbirth. On the other hand, practice of contraception in these countries is weak.

As regards Mali,⁵¹ we calculated Bongaart index values using results of the DHS studies from 1987 and 2006. We obtained the following results (in this case, with a value for natural fertility, not fixed at 15.3 children a priori, but resulting from data used in the model):

⁴⁹ See in Guengant J-P., 2011, pages 42-43.

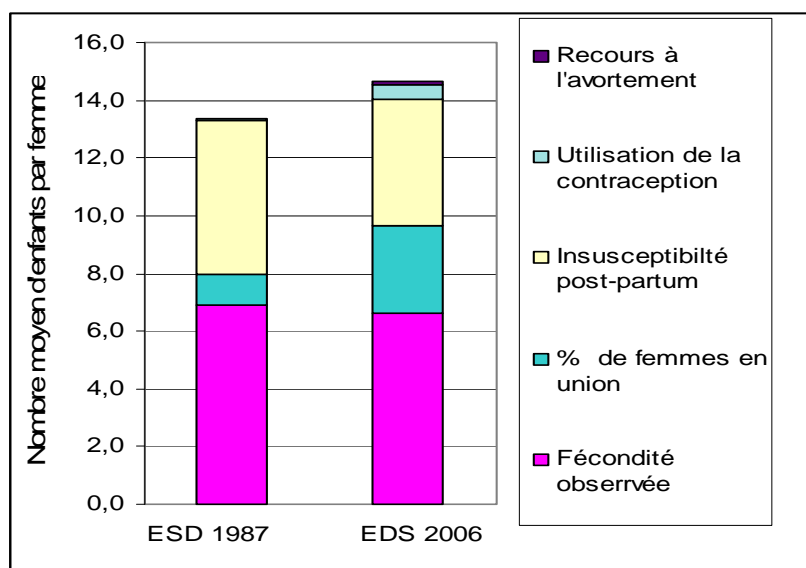
⁵⁰ BONGAARTS J., 1978 –

$$TFI = C_m * C_i * C_a * C_s * C_c * FN$$
 Mali 1987: $6,93 = (0,92 * 0,57 * 0,99 * 1,00 * 0,99) * 13,4$
 Mali 2006: $6,60 = (0,79 * 0,62 * 0,99 * 1,00 * 0,93) * 14,7$
 (Note: in the absence of data, recourse to abortion was estimated at a weak value of $C_a=0.99$).

It would appear that over the 20 years that separate the two studies, the factor most responsible for reducing natural fertility remains, by far, post-partum insusceptibility (PPI) ($C_i=0.57$ in 1987 and $C_i=0.62$ in 2006). The importance of this factor has, however, slightly diminished due to a reduction of the duration of PPI (from 16.8 months in 1987 to 13.6 months in 2010), a result of reduced periods of breastfeeding and abstinence following childbirth. This reduction was compensated by a decrease in the percentage of women in a relationship (from 92% in 1987 to 79% in 2006), which is the 2nd factor of natural fertility reduction ($C_m=0.79$ in 2006, compared to $C_m=0.92$ in 1987). The reducing factor for contraception use that was insignificant in 1987 (4% contraceptive prevalence, $C_c=0.99$) also progressed (contraceptive prevalence of 8% in 2010, which corresponds to $C_c=0.93$). But in total, data from the two studies suggest a very slight decline in fertility: from 6.93 children per woman during 1983-1987, to 6.60 children per woman during 2004-2006. In fact, the decline of the reductive factor of natural fertility, induced by reduced periods of breastfeeding and abstinence, was slightly overcompensated by the reducing effect of the decline in the percentage of women in union (due to late marriages), and incidentally by an increase, which remains modest, of the reducing effect imputable to the slight increase in contraceptive prevalence between 1987 and 2006.

These results are illustrated in the graph below.

Figure 2.12: Breakdown of fertility according to the Bongaarts model



Source: DHS (Demographic and Health Studies), see Country, Mali: DHS, 1987 and DHS 2006, Final Reports (French) <http://www.measuredhs.com/pubs/>, (Accessed August 2011).

⁵¹ By means of calculations of close determinants developed by Futures Group: <http://futuresgroup.com/resources/software/proximate-determinants-of-fertility/> and by using the values for close determinants provided by the results of the 1987 and 2006 DHS studies: Demographic and Health Studies, see Country, Mali: DHS, 1987 et DHS 2006, Final Reports (French) <http://www.measuredhs.com/pubs/>, (Accessed August 2011).

G. STATUS OF WOMEN

2.44 In Mali, slow change in behavior is further due to the traditional leading role men play in decision-making concerning households and reproduction as well as the fact that most women have accepted such a situation. A 2010 MICS study reveals an image of inferiority of women in relation to their spouses. In fact, the figures show that the majority of married women aged 15 to 49 interviewed on matrimonial violence find it normal for a man to beat his wife on different occasions. 57 percent of women interviewed agree that a man can beat his wife when she objects to his opinions, 56 percent when she goes out without telling him, 52 percent when she neglects the children, and 34 percent when she burns food. These figures are even higher in cases of very sensitive issues of authority. Thus, 74 percent of women interviewed find it normal for a man to beat his wife where she disrespects her parents-in-law, 72 percent where she refuses to have sex, and 80 percent where she is not faithful to her husband. The broad acceptance by women of matrimonial violence seen as pegged to the authority of the husband is widespread among young women. In fact, figures showing acceptance of matrimonial violence by women aged 20 to 24 are slightly below those by women aged 40 to 44.

2.45 The study further shows that female genital mutilation or excision, another form of violence against women, involves 89 percent of women aged 15 to 49. According to the study, “although this is not a good practice, women do not seem to reject it: 73 percent of women believe that the practice must continue while 20 percent think it should cease.” 58 percent of educated women still advocate excision as against 77 percent of uneducated women. Thus, it is not surprising that excision is still prevalent among young women. Besides, the study shows that age-wise, excision is slightly more widespread today than in the past. Local women carry out more than 90 percent of excision.

2.46 It is against this backdrop that a National Gender Policy (PNG) was drawn up and adopted in November 2010. This document lays down the different roles of men and women as observed in the Malian society and indicates that customary and religious practices remain the management references in relations between the man and the woman in the family. The document stresses that some practices “such as levirate/sororate, excision, flogging, and early and forced marriages are still used to justify poor behaviour and practices.” The National Gender Policy aims at “making men and women of the country enjoy equal opportunities in the full exercise of their human rights in order to contribute on equal basis, to the national, political, economic, social and cultural development as well as rolling back poverty, and equally benefiting from the spillovers of economic growth.” The PNG proposes an institutional framework to implement among other things, a restructuring of the Ministry of Women’s Empowerment, the Child and the Family (MPFEF), a communication strategy, and institutional mechanisms (notably a Higher Gender Equality Council chaired by the Prime Minister of Regional Gender Equality Councils, and the setting up of a Permanent Secretariat of National Gender Equality Policy.

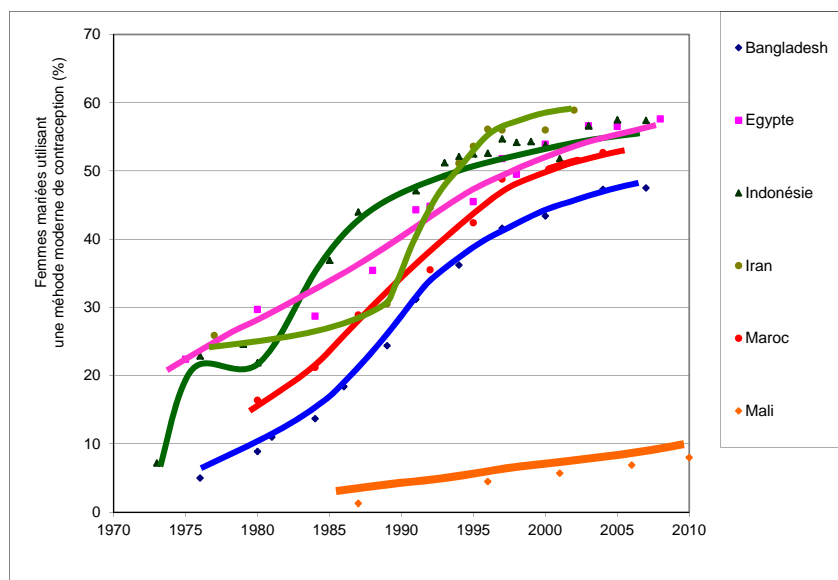
H. FOREIGN EXPERIENCES

2.47 Each country is unique from a historical, cultural, economic and political perspective. But this should not stop an assessment of why some policies and programs succeed especially on family planning. An overview of programs implemented since the 1970s in different countries

was published recently.⁵² Family planning programs in developing countries have generally adopted two patterns.⁵³ The first, which best corresponds to the experience of Asian countries, includes an initial support backed by political leaders, a strong involvement of the State and the public sector, and promotion of small-sized families for the well-being of the country. The second pattern, witnessed mostly in Latin American countries and the Caribbean, includes initial efforts where clinics were opened and information campaigns, organized mostly by NGOs and the private sector (except in Mexico). However, in many of these countries, the State and the public sector provided services in family planning once duly requested and where opposition was weakened.

2.48 There are many Muslim countries among countries that have successfully implemented a family planning program. An analysis of the fertility and contraception prevalence rates in most Muslim-majority countries was published in 2005.⁵⁴ Updated data from the study (See Annex 2, Figures 5 and 6) confirm the varying rates of contraception prevalence in most Muslim-majority countries. With a prevalence rate between 60 and 75 percent for all methods, and of about 60 percent for modern methods, most of these countries are among countries with the highest prevalence in the world (See Figure 2.13), notably Iran, Turkey, Morocco, Algeria, Indonesia, Egypt, and Tunisia. Besides, a prevalence rate of 57 percent was observed in 2007 in Bangladesh, ranked with Mali among the lesser-developed countries. Currently, the average number of children per woman is between two and three in these countries and in about half of Muslim-majority countries. Figure 2.13 below shows the rapid progression of the use of modern contraceptive methods since 1970 in these Muslim countries, and the very slow use trend in Mali.

Figure 2.13: Progression of the use of modern contraceptive methods since 1970 in some Muslim Countries



⁵² Warren C. Robinson et John A. Ross Eds., The World Bank, 2007.

⁵³ Levels and Trends of Contraceptive Use As Assessed in 2002. Population Division, Department of Economic and Social Affairs, ST/ESA/SER.A/239 United Nations 2006.

⁵⁴ Farzaneh Roudi-Fahimi Population Reference Bureau, Wahington, 2005.

2.49 Let us take a quick look at the experiences of two of these countries, Indonesia and Bangladesh.⁵⁵ In 1970, the Government of Indonesia set up a National Family Planning Agency headed by an official with rank of minister and who enjoyed the full support of the President of the country. The President of the Agency was expected to ensure that the main public, private and civil society stakeholders of the country including Ministers and senior officials even from regions, industrialists and businessmen, academic communities, cultural personalities and religious leaders are fully committed to the population policy. The Vice-President of the Agency had to ensure that family planning was supported by the medical community (gynecologists, doctors, mid-wives and nurses), and develops clinics, consultation centers with family health and family planning services. The full commitment of the Agency, cultural personalities, and religious leaders is to ensure the production and wide dissemination of messages that are culturally adapted to small families, and the use of contraceptive methods to attain this objective helped “legitimize” family planning in a general setting while respecting the culture of the country. The financial and political crises the country witnessed in 2000 caused a decentralization of “population and family planning” activities and a breakup of the Agency into local branches thereby reducing its influence. However, results of studies show that in Indonesia, the most Muslim populated country in the world, contraception prevalence (for all the methods) registered an uptrend from 9 percent in 1973 to 61 percent in 2007, and a downtrend fertility rate from 5.7 children per woman between 1965 and 1970 to 2.2 children per woman between 2005 and 2010. During this period, Indonesia’s per capita GDP in constant dollars was multiplied by five in 2000, reaching almost 3000 US dollars in 2010. Meanwhile, during the same period Mali’s per capita GDP increased by only 56 percent. In the 1970s, Indonesia registered an average annual economic growth of 7 percent that later dropped and stabilized averagely between 5 and 6 percent annually. Nevertheless, a slowdown in population growth from the 1980s helped maintain per capita GDP annual growth rate between 3 and 4 percent in the last thirty years. That said, in spite of a sharp drop in fertility, the population of Indonesia continued to increase from 118 million inhabitants in 1970 to 240 million inhabitants in 2010. However, its population growth rate that stood at an annual 2 percent from 1970 to 1975 dropped to 1 percent from 2005 to 2010.

2.50 Shortly after her independence from Pakistan in 1971, the authorities of Bangladesh acknowledged the Herculean challenges caused by rapid population growth. A population policy was adopted in 1976 and since then, successive Governments have been fully committed to the policy that was revised in 2004. The Ministry of Health and Population has implemented a four-component family planning program: (1) recruitment of young married women trained as family visitors and family counselors to sensitize and lure women and families to accepting contraception, (2) provision of a large variety of contraceptive methods, (3) opening of family planning clinics in rural areas, and (4) carrying out Information, Education and Communication (IEC) campaigns on available contraceptive methods and the benefits of small families. Donors heavily supported the program. Thus, contraception prevalence (for all methods) in Bangladesh jumped from 8 percent in 1975-1976 to 54 percent in 1999-2000, and to 56 percent in 2007. However, in recent years, the prevalence of modern methods seems to stagnate at 47 percent. Furthermore, the average number of children per woman dropped from 6.9 between 1970 and 1975 to 2.4 between 2005 and 2010. During the same period, per capita GDP of Bangladesh in constant dollars in 2000 doubled; an increase higher than that registered in Mali.

⁵⁵ See all population policies and policies of these two countries: John F. May (to be published). *World Population Policies: Their Origin, Evolution, and Impact*. New York, NY: Springer.

2.51 In the 1970s, Bangladesh registered a low annual economic growth of 1.5 percent, but it rapidly increased later to an annual average of 3.2 percent in the 1980s, 4.8 percent in the 1990s, and 5.8 percent between 2000 and 2011. As population growth dropped from 2.9 percent annually between 1965 and 1970 (before independence) to 1.1 percent between 2005 and 2010, per capita GDP growth increased from an annual average of 0.7 percent in the 1980s to 2.7 percent in the 1990s, and 4.2 percent between 2000 and 2010. Nevertheless, the population of Bangladesh has almost tripled in the last forty years, from 67 million in 1970 to 167 million in 2010, and currently, the population density is well over 1,000 inhabitants per square kilometer. Even with a per capita GDP of 673 current dollars in 2010, slightly higher than that of Mali, and of 1,643 international dollars (as against 1,057 for Mali), Bangladesh is still a poor country. However, while population growth has slowed down, economic growth is scaling up. These positive results are due to the following factors: a significant increase in the schooling of women, the leading role women play today in the family and the society, their entry into the job market, especially in the textile industry, and the success of the national family planning program. These factors contributed simultaneously to the success and not in isolation, and this may be the big lesson to learn from the Bangladesh experience.

I. COST OF RISE IN CONTRACEPTIVE PREVALENCE

2.52 What is the cost of the rise in contraceptive prevalence in Mali? An evaluation conducted in 2009 adopted the “year-couple-protection” approach and formulated two assumptions. The first assumed an increase in contraceptive prevalence in percentage point per year in relation to 2008. The second assumed satisfying the unsatisfied needs by 2015, thereby incorporating the unrealistic target 5b of MDGs that aims to achieve universal access to reproductive health⁵⁶ by 2015.

2.53 We have tried to project cost of contraceptive products in the next ten years for the three demographic assumptions of prevalence increase retained.⁵⁷ With a proactive assumption (low) of + 1.5 contraceptive prevalence increase point per year, the satisfaction of unsatisfied needs (31 percent) will be achieved in 20 years; that is, in 2030 and not in 2015 as set in target 5b of MDGs.

2.54 The cost of contraceptive products and their evolution depend on the following four factors: (1) the cost of each method accepted in a year and price increase in the course of time, (2) increase in the number of women of childbearing age (and in union), (3) changes in distribution of methods used, cost varying from method to method, and (4) assumption of contraceptive prevalence increase retained for modern methods. For each method, we have fixed a base price for the basic year 2010 (prices at Bamako excluding taxes and customs duties), by calculating the average cost of contraceptives received in the country as notified (in USD) in the Reproductive Health Supplies Coalition database.⁵⁸ Data for the other factors result from population projections and the assumptions. Thus, it is estimated that in 2010, the cost of contraceptives for the 202,000 users will stand at 850,000 dollars; about CFA 450 million (See Annex 2, Table 10); that is, an average cost of 4.2 USD, about CFA 2,200 per user.

⁵⁶ See Eva Weissman, Usaid, 2009, and USAID, 2010.

⁵⁷ See Guengant J-P. , 2011, pages 50-52.

⁵⁸ Costs estimated based on average costs (2005-2010-2011), <http://rhi.rhsupplies.org/>

2.55 Between 2010 and 2020, a combination of these factors (cost of each method, increase in the number of women of childbearing age, distribution of methods used, and prevalence increase assumption) leads to an estimated cost of products in 2020 that will be three times higher with trend-setting assumption of +0.5 point per year, and five times higher with a proactive assumption of +1.5 points per year. The corresponding costs in 2020 will stand at 2.5 and 4.3 million dollars respectively. Consequently, whichever assumption is retained, huge contraceptives financing will be needed in the coming years. In the next five years, average annual increase in cost will stand at 12 percent with a high population estimate and prevalence increase of + 0.5 point per year, and at 20 percent with a low population estimate and prevalence increase of +1.5 points per year. Accumulated financing needs are expected to reach between 6 and 8 million USD for the period 2011-2016 and between 16 and 24 million USD for the period 2011-2020. These amounts are to be compared to the accumulated gains obtained with the low proactive assumption (See Annex 2, Table 7d) that stand at 9.5 million USD for the period 2011-2015, and 71 million USD for the period 2011-2020. However, it must be remembered that the cost of contraceptives is only a fraction of the cost of the family planning program in Mali. If the cost of staff (or the fraction of their time spent on family planning issues), and cost of communication and promotion are included, then the cost of the program may be between three and six times higher than the figures above.

J. CONCLUSIONS AND RECOMMENDATIONS

2.56 There are no population solutions to development issues be it in Mali or elsewhere. But the examples of emerging countries and of Bangladesh show that no effective development can take place without proper consideration of population variables.

2.57 Historically, no country has developed effectively with an average of 5 or 6 children per woman. Thus, among the 10 “developing” countries of the G20, only one had, in the early 1960s, between 5 and 7 children per woman. Today, these countries have between 1.4 and 2.6 children per woman. Therefore, it was necessary to develop information on family planning and access to corresponding services. Fertility control in these countries was a lever to encourage development which in turn helped increase the use of contraceptives, women’s empowerment, and enhancement of the quality of their human capital.

2.58 The use of contraceptives at the rate of +0.2 percentage point per year since 1987 while unsatisfied needs stand at 30 percent is unacceptable. If this trend continues, it would mean that current unsatisfied needs will be satisfied only in the next 150 years (30 divided by 0.2 points per year) as well as maintaining population growth of more than 3 percent per year for many decades. Such population growth would compromise the chances of Mali of legitimately becoming “An emerging Mali, guarantor of the best standard of living for all”.⁵⁹ In fact, in this case, the financing needed to meet the steady increase in the number of births and children to vaccinate and send to school will be higher than the economic growth of the country and Government revenue. Consequently, Government will not be able to intervene in other sectors such as agriculture, infrastructure, etc.

⁵⁹ Growth and Poverty Reduction Strategic Framework - CSCR- 2012-2017/ Mali , temporary version of September 2011.

2.59 Recent results available: 2009 census, 2010 ELIM/MICS study, and data on economic growth require an in-depth diagnosis and proper review of:

- Linkages between population and development;
- Content of advocacy addressed to leaders;
- Family planning sensitization campaigns;
- Running of family planning services;
- Distribution of roles of each stakeholder in the areas of population, family planning information and services; and
- Policies on population, health, reproductive health, securing contraceptive products, and sectoral policies and development.

2.60 In order to obtain demographic transition (as emerging countries did) to help Mali register positive dependency rates for its socio-economic development, it must adopt a road map known as the “road map to meet family planning needs”. This road map may be adapted from Law No. 02-044 of 2002 on Reproductive Health that upholds “the right of individuals to decide freely and with discernment, the number of children they wish to have and birth spacing”, and the right to be availed of information to that effect. The roadmap may focus on the following points and calendar:

1 - In the short-term; that is, one-year period:

- Organize a forum on the theme “Population and Development” to help review the situation of Mali in the light of publications in the last ten years and new knowledge acquired at the international level on the issue. During the forum, the reasons for the success of family planning programs in other countries, notably Muslim countries will be examined;
- Prepare new “Population and Development” advocacy tools to convince leaders of the country on the urgency to take decisions on this issue, and the need to speed up the use of contraceptives to meet the current needs of women. Like in Indonesia, the content of these advocacy tools should help “legitimize” family planning while respecting the culture of the country and considering current resistance against a wide dissemination of the use of family planning.
- Launch many sensitization actions (by using newly developed advocacy tools) at the level of Government, Parliamentarians, the elite, and opinion leaders as well as cultural personalities;
- Prepare and launch a national multimedia communication campaign to meet current unsatisfied needs in family planning. Like in Bangladesh, this national campaign may focus on the recruitment of young married women trained as family visitors and family counselors to go from door to door and collect information on the needs of women and motivate those who would have expressed an unsatisfied need so that they may go to a health center or relevant center where their needs can be met.

2 - In the medium-term; that is, from one to three years:

- New population projections such as a decision-making aid tools like those mentioned in this document. These projections may incorporate contraceptive prevalence increase of 1.5 percentage points per year, and that of contraceptive prevalence increase of 0.5 or 0.2 percentage points per year. The results of these projections are expected to be examined in relation to the different economic growth assumptions; 7 percent, 5 percent, and 3 percent per year, for example. They are expected to be completed with derived projections, highlighting future needs in health and education while considering not only increase in the under-population concerned, but also coverage delays to meet.
- Draw up a new population policy that will fit into the development strategies framework of the country, in particular, the GPRSP. However, this does not mean that it must, like the current situation, cover a large number of areas. The new policy should focus on new areas such as how to influence population development (that is, how to speed up the drop in mortality and fertility, and take the impact of international immigrations into account. Issues on immigration should be the subject of two different special policies: a territorial development policy, and a policy on immigration and management of immigrants (Diaspora and return home) that involve the State and other stakeholders other than those involved in the population policy per se);
- A detailed examination of the role of every one (Department of Population issues, Ministry of Health, NGOs, private trade sector) on advocacy, information and sensitization, and family planning services to be able to carry out necessary readjustment and re-organization for the best comprehensive efficiency of actions undertaken; and
- The consistency of data used and objectives to be attained, population policies, health, reproductive health, securing contraceptive products, and sectoral policies and the GPRSP.

3. NOTE III - EMPLOYMENT AND GENDER IN THE MALI FORMAL SECTOR⁶⁰

A. CONTEXT OF THE REVIEW

Background and motivation

3.1 Women are a disadvantaged group in Mali. Female headed households tend to be poorer after adjusting for household size and scale economies in consumption (van de Walle, 2011) and within households, females perceive themselves as poorer than their husbands in terms of both wealth and decision-making power (Escot and Touré, 2011). As elsewhere in Sub-Saharan Africa, females are under-represented in political decision making (although a new female Prime Minister was recently appointed the number of female cabinet ministers actually declined) and, as shown in this Note, in business and employment. Literacy rates are lower for females than males (18.8 versus 41.6 percent) and, despite, girls are less likely to be in school than boys (gross primary enrollment rates are 69.6 and 79.1 percent respectively, INSTAT, 2011) suggesting that the current situation is likely to persist to some degree over time despite government commitment to the third Millennium Development Goal (MDG) on gender equality.

3.2 Recent efforts to revise family law giving greater legal rights to females met with strong opposition from some, particularly religious, sections of Malian society leading to significant adjustments before being adopted in late 2012. The original version designated the ‘parental authority’ as head of the family but this was revised to designate the male as household head following protests; the female age of marriage was intended to be 18 years but this was revised downwards to 16 in the final version (the legal marriage age for males remained 18 years). In addition, according to the new family law code, the female owes obedience to her husband.

3.3 This Note focuses on the role of women in business and employment showing the importance of improvements in terms of gender equality but also as an economic and social necessity in the drive for increased economic growth and employment. In other respects, Mali has reached a crossroads. It faces numerous challenges resulting from its high population growth: employment creation; migration; and resources for funding the health and education of the young population are key to the country’s stability and success.

3.4 A population growth rate of 3.6 percent per year – significantly above the sub-Saharan average of 2.2 percent – means that the country will triple or more in size from today’s 14.5 million inhabitants to over 45 million by 2050. The labor market will have to absorb 6.2 million

⁶⁰ This Note was prepared by Simon Davies (Economist, AFTP3). Comments on the draft paper have been gratefully received from Louis Boakye-Yiadom (Assistant Professor, Economics, University of Ghana); Reena Badiani (Economist, EASPR); Francisco Campos (Consultant, AFTPM); Paulette Castel (Consultant, AFTSP); Maria Elena Garcia Mora (Consultant, AFTPM); Louise Fox (Lead Economist, AFTP1); Deborah Hardoon (Senior Research Coordinator, Transparency International); John May (Lead Population Specialist, AFTHE); Richard Record (Trade Specialist, EASPR); Clara de Sousa (Senior Economist, CFPIR); Michael O’Sullivan (Research Analyst, AFTPM); Dominique van de Walle (Lead Economist, PRMGE) and Dorsati Madani (Senior Economist, AFTP3). In addition, this paper was presented at the Cellule Technique of the Cadre Stratégique de Lutte Contre la Pauvreté (CT/CSLP) in Bamako, Mali to relevant government and donor parties on July 28, 2011 and has benefited significantly from comments and discussions by participants.

new workers between now and 2025 or over 250,000⁶¹ annually. The scale of this task should not be underestimated. With an economically active population of around 4.5 million this results in a required job creation rate of over double the SSA average requirement; between 1990 and 2003 the average annual labor force growth rate in Sub-Saharan Africa was 2.5 percent per year with, due to rural to urban migration, the urban rate being around twice this (Fox and Gaal, 2009). With large numbers of often uneducated workers migrating from rural to urban areas, cities in particular will struggle to generate sufficient number of productive jobs (Fox and Gaal, 2009, World Bank, 2010).⁶² But job creation is not sufficient; increased production and productivity is necessary if the consumption demands of a growing population are to be met (Guengant, 2011; World Bank, 2011). Finally, increased government resources are a requirement in order to fund the education and health of the rapidly increasing young population. This means ensuring the expansion of productive firms, which pay taxes.

3.5 Failure to meet these challenges will prejudice recent advances made in poverty reduction in Mali (see INSTAT, 2011) and put great strain on social stability: “it would be foolish to think masses of jobless Malian youth will never rise up in protest at their lack of opportunities – and no one can safely predict what forces such a movement might unleash” (Mills and McNamee, 9: 2011). Despite the risks, the business environment remains severely constrained in Mali with all businesses having to face administrative and other difficulties, prejudicing private sector growth and employment creation.

3.6 This climate calls for an analysis of enterprise and employment from a gender perspective for several reasons. Firstly, the private sector is the driver of employment and productivity and Mali simply cannot afford to waste the entrepreneurial and managerial talent of half of its population if it is to meet the challenges of providing jobs and goods for its growing population. Drafting largely uneducated female migrant workers into the productive sector is essential in order to ensure increased output to serve the increasing population. Secondly, the 2012 World Development Report on gender recognizes the importance of closing productivity gaps between genders by, *inter alia*, ensuring females have better access to formal employment in all sectors. Thirdly, in the context of a rapidly growing population, female empowerment becomes all-important in ensuring that the children and young people are adequately cared for and given the best prospects in life.

3.7 The 2012 WDR finds that gender gaps can be persistent if efforts are not taken to break this circle. Female employment and therefore income alters household relationships providing an increased voice for females⁶³ (e.g. Al-Hossienie, 2011; Thomas, 1990; McElroy, 1990) which, in turn, has the effect of re-focusing household expenditure – notably towards ensuring that children

⁶¹ This is likely to be the lower boundary. The PRSP 2012-17 reports an estimate of 300,000 and Mills and McNamee (2011) estimate around 350,000 jobs need to be created per year.

⁶² Unfortunately, the data used in this study capture firms in urban areas only. Clearly if more jobs were created in rural areas, rural-to-urban migration would be likely to slow.

⁶³ Escot and Touré (2011) undertake a qualitative study of poverty in Mali and find that females in households tend to perceive themselves as significantly poorer than males within the same households. Both the 2006 and 2010 Mali Poverty Profiles (INSTAT, 2011) report that *de facto* female headed households are wealthier than male headed households on a per capita consumption basis. However, van de Walle (2011) shows that in per adult equivalent terms or when considering scale economies in consumption this no longer holds and FHH are no longer better off than MHH, indeed, female households headed by widows are considerably poorer than others.

are adequately cared for (Thomas and Strauss, 1998; Katz, 1995; Lundberg and Pollak, 1993).⁶⁴ This is crucial if Mali is to produce a healthy and educated workforce capable of lifting the country out of poverty. Finally, and perhaps most obviously, the importance of gender equality of opportunity as an aim in and of itself should not be forgotten.

Key findings

3.8 This short Note reports and discusses the results from the latest available data on females in business and employment within the formal sector. It aims to stimulate discussion on the role of women in the productive sector in terms of entrepreneurs and managers as well as productive employees. It is situated in a wider context of female empowerment; achieving sustained and shared economic growth by ensuring that the entrepreneurial and managerial skills of females are not discriminated against and that they have the human, physical and social capital necessary to succeed; improving the business environment; and the importance of job creation in a country of rapid population growth.

3.9 The key findings are: (1) that females are severely under-represented in the Malian business environment, and this is particularly severe outside of Bamako; (2) once females prove themselves successful in business however, they tend not to face any more severe constraints than their male counterparts; (3) rather, discrimination is likely to occur at the point of entry into business; (4) female workers appear to have been hit less hard by the crisis than males; (5) female owners and managers are more likely to employ female workers; and (5) both males and females face severe constraints in access to finance in Mali.

3.10 Several general and specific policy implications can be drawn from the study. From a general perspective, firstly, the importance of combating gender inequality from a young age, starting with ensuring that the gender gap in schooling is narrowed is essential in allowing females to access the business environment on an equal basis. Secondly, since male managers and owners are less likely to employ females regardless of the type of work and sector additional efforts should be made to sensitize employers regarding discriminatory practices in employment.

3.11 More specifically, efforts to ensure that females are not discriminated against at the point of entry to the business environment can help to increase their participation. This can include reviewing the registration process and the processes involved in the application of permits and licenses to ensure they do not disfavor females in the way in which they are implemented. Banks may also wish to review their environment to ensure it is not intimidating for females. In addition, since females tend to be concentrated in small businesses, gender neutral policies aimed at assisting small firms will have a positive impact for women in business. An additional benefit of bringing more females into ownership and management roles is that female employment is also likely to increase. The constraint of lack of access to finance is key for both male and female enterprises.

⁶⁴ The beautiful video on The Girl Effect (<http://goo.gl/MDJ6X>) produced by the World Bank's Teenage Girl Initiative (<http://go.worldbank.org/ET4S6TEXY0>) shows the importance of ensuring that girls are adequately cared for.

3.12 The remainder of the introduction summarizes the government and Bank agenda in gender and employment and discusses the data used in this study, particularly with regards to its limitations. Section B looks at the characteristics of female owned and managed firms compared with those of male firms. Section C discusses the different constraints that male and female owned businesses face and section D focuses on the most important of these: access to finance. Section E concludes and summarizes policy implications.

Government and Bank agenda in gender and employment

3.13 The issue of the role of females in the Malian economy is one which the government recognizes as important. In 2010, the Ministry of the Economy and Finances drew up a National gender sensitive planning and budgeting strategy (PBSG) with the aim of taking special consideration of gender aspects of policy across the sector spectrum. In addition, the action plan for the new PAGAM/GFP⁶⁵ notes that sensitization to the importance of females as economic agents is an important aspect of the economy (IMF, 2010 148, 149). The 2010 PRSP Progress Review (IMF, 2010) notes that “[i]n commerce, informal production and mines, the role of females is not sufficiently taken into account despite the fact that they contribute strongly towards the dynamism of these sectors” (IMF, 2010 67). However, some progress has been made. Notably in enterprise, the proportion of female members of the Chamber of Commerce and Industry has risen from zero in 2008 to 14 percent in 2009. However, government efforts made to date (see table 4 IMF, 2010) focus largely on women in the informal sector.

3.14 Despite the importance of job creation in order to achieve shared and sustainable economic growth, Malian data remain irregular and unreliable. Indications show that formal sector employment saw large increases in 2008 and 2009 – 66 and 34 percent respectively but then fell back by 38 percent during 2010 (IMF, 2010 206). The 2010 PRSP review notes that unemployment affects females more than males and that this tendency is strong across the entire country (IMF, 2010 208). This is reflected to some extent in our finding that especially male owners and managers appear to disfavor female workers.

3.15 The Bank’s new Africa Strategy emphasizes the need for job creation in the context of a continent which sees between seven and ten million young Africans enter the labor market each year. The importance of the private sector in both providing productive employment and producing the goods and services the increasing populations require cannot be under-estimated, and the role of women as both contributors to and beneficiaries of development, is crucial (IMF, 2010 8). Although formal job creation is growing, it is insufficient to absorb the new entrants into the labor force. Africa, and Mali, in particular with its demographic growth rate, cannot afford to exclude from the economy the entrepreneurial skills of half of its population in its drive to create jobs and wealth (IMF, 2010 21). As such, the Africa Strategy recognizes that female empowerment is critical to accelerate economic growth – this entails “making regulations and other business conditions more conducive to women entrepreneurs” (IMF, 2010 42). In addition, the Bank recognizes the importance of cross-cutting gender issues for economic and social

⁶⁵ The Government Action Plan for the Improvement and Modernization of Public Finance Management.

development under the IDA-16 replenishment framework⁶⁶ and Country Assistance Strategies (CAS) are now required to incorporate gender assessments.

Data

3.16 This study uses data from the 2010 and 2007 Enterprise Surveys which contain information on the gender of the owner and manager of the firms as well as details of male and female employment.⁶⁷ Although some attempt is made to compare results with the limited information available on the informal artisan sector, a major drawback to this study is that the Enterprise Surveys focus only on the private formal sector. One estimate suggests that the informal sector accounts for around 70 percent of employment in Mali (Traore, 2003). It is a major draw-back of this survey that informal employment is not covered. Where possible we compare our results with descriptive statistics from an Artisans Census. We recognize that capturing information on micro-entrepreneurship through household surveys would have been better, but we did not have this option. Unfortunately, this is not available. Clearly, for a full picture of non-agricultural entrepreneurship and employment it will be necessary to study data from the informal sector as well as the transition from informal to formal. Nonetheless, the surveys are designed to ensure that results are broadly representative of the formal sector and all descriptive results are weighted where appropriate. In addition, the tax-paying formal sector is of utmost importance within the Malian context of a demographic growth of 3.6 percent per year leading to fiscal pressure to fund health and education for the fast-growing young population.

3.17 An additional issue is that we are not comparing like-for-like between 2007 and 2010. Due to data limitations we are restricted to discussing results in terms of manager gender in 2010 and owner gender in 2007. In addition, the firms are two separate cross-sections rather than panel (although a small panel sub-sample is available for some variables). Despite this draw-back, information is presented from both years to allow for indicative comparisons and because the separate results are of interest. In addition, females who have succeeded in enterprise are not likely to represent a cross-section of females in society and whilst the same may be true of males, the degree of representation will be larger. Thus, female owners/managers are likely either to have very particular personality traits and/or be drawn from particularly well-educated or wealthy backgrounds⁶⁸ to a far greater degree than their male counterparts. The female pool captured by the survey will thus be of a higher caliber in some respects than the male pool.

⁶⁶ Available on the Bank website at:

<http://siteresources.worldbank.org/IDA/Resources/Seminar%20PDFs/73449-1271341193277/ImplementationFramework.pdf>

⁶⁷ The complete data set is available for download at www.enterprisesurveys.org. The survey asked firms to report the total number of employees and how many of these were female. For manufacturing firms, it separated employment into production and office/administrative/clerical jobs. Only firms in the formal sector are interviewed although it is not always clear if firms have reported only formal jobs or total jobs (since some firms may have both).

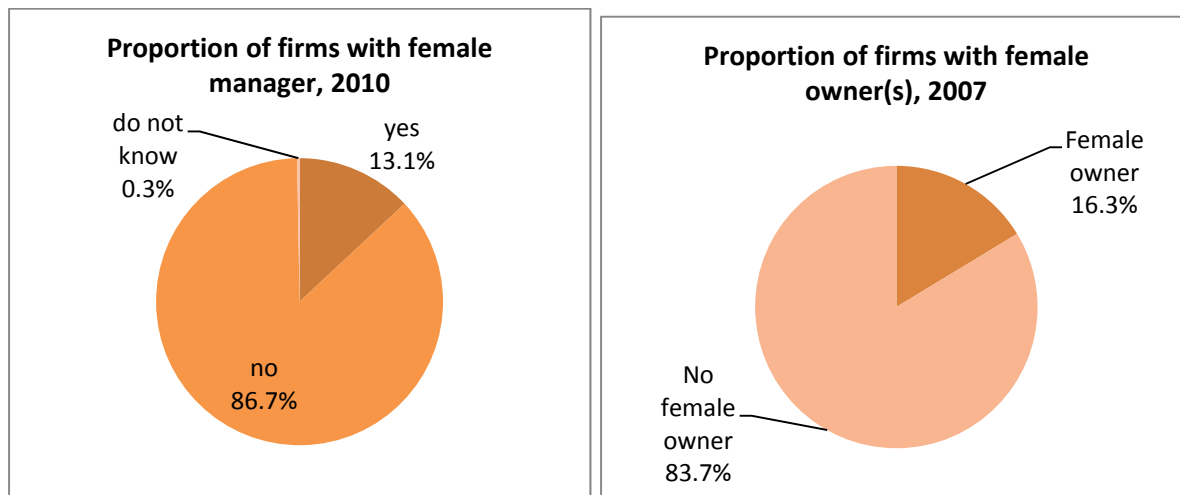
⁶⁸ Or perhaps both. If families tend to send boys to school before girls, females who have received sufficient education to become managers in the formal sector are also likely to be from more wealthy households on average than male managers.

B. FEMALE OWNERS AND MANAGERS AND THEIR FIRMS

3.18 As elsewhere, females are under-represented amongst owners and managers⁶⁹ of formal enterprises in Mali. In 2010, females represent 13.1 percent of all managers whilst in 2007 females are 16.3 percent of owners (Figure 3.1).⁷⁰ Evidence from other SSA countries shows that female controlled firms differ from their male controlled counterparts.

3.19 In general, ‘female firms’ tend to be smaller in terms of employment and turnover and are more likely to operate in the service sector. These characteristics are reflected in the Malian Enterprise Survey (see Figure 3.2) and Tables 5 and 6 in Annex 3). In addition, firms with female managers tend to be more likely to be in a large town – perhaps reflecting a larger pool of qualified female labor in large urban areas and rural-urban differences in social norms. It is also possible that, in the formal sector, there is a greater density of ‘female sectors’ in urban areas. Female managers also employ more female employees on average both in absolute terms and as a proportion of the workforce. This is discussed in more detail later. It is striking that, despite the difficulties of comparison across the years due to using female managers in 2010 and female owners in 2007, many of the characteristics of ‘female firms’ are applicable in both cases (see Figure 3.1).

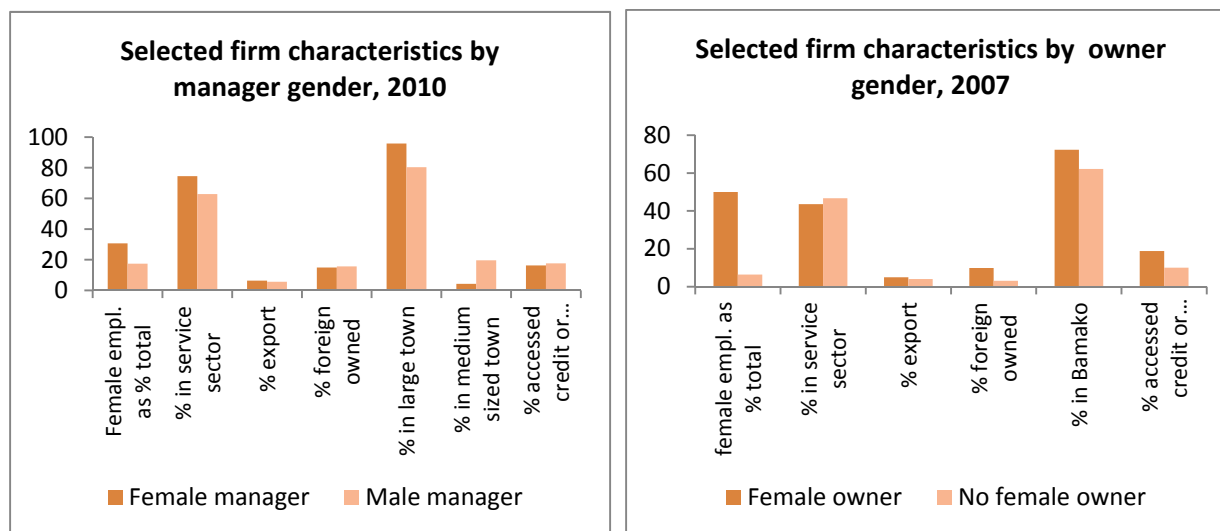
Figure 3.1: Female owners and managers



⁶⁹ Owners and managers are separately distinguished in the survey. However, it is possible that the owner and main manager may be the same person but it is not possible to judge this from the survey.

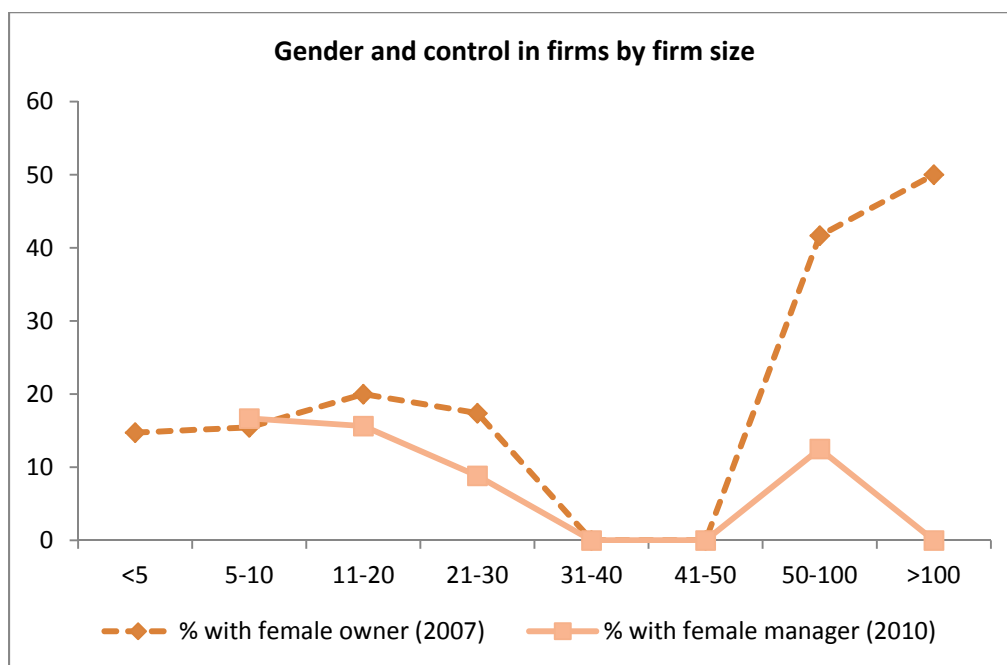
⁷⁰ Reliable information on ownership was not, unfortunately, collected in 2010 whilst there is no information on managers in 2007. Thus, the 2007 and 2010 surveys are not exactly comparable but throughout this short paper we use female management and ownership as indicators of female control within the formal sector.

Figure 3.2: Selected characteristics of male and female managed firms, 2010



3.20 Figure 1.3 shows the relationship between gender and firm size with similar patterns being in evidence for 2007 and 2010. In Mali, female controlled firms are most likely to be small. Female control however, appears to be characterized by a ‘missing middle’ in Mali with no female representation in firms of between 30 and 50 employees. Although for both years there is some evidence of female participation amongst the largest firms, this sub-sample is relatively small so results should be treated with caution.

Figure 3.3: Firm size and gender

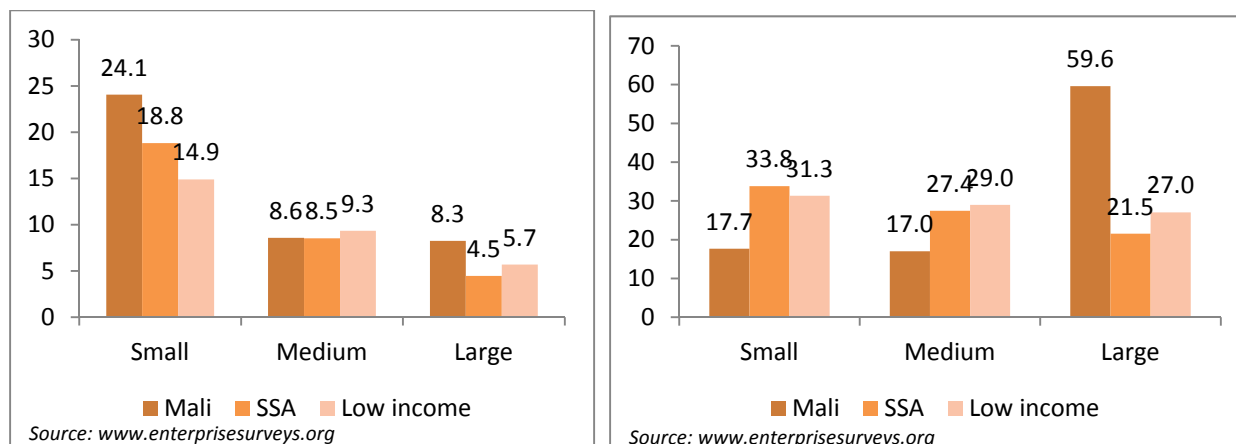


**Note:* The very small sample size of large (above 50 employees) female owned and managed firms means that the high percentages reported for these firms in 2007 cannot be considered reliable.

3.21 The Enterprise Survey website contains comparative tools.⁷¹ Comparing small, medium and large companies, Figure 3.4 shows that, in 2010, Malian firms follow a similar pattern to other SSA and low income countries (LICs), although the situation is more pronounced than the comparator groups with Mali having a greater proportion of small enterprises being managed by females than the average.⁷² Amongst small and medium sized firms in 2007, Malian firms are less likely to have female representation in ownership than the average for SSA and LICs. Large Malian firms are significantly more likely than the average to have female participation in ownership; however, the small sample of large firms in Mali means the result cannot be considered reliable.

3.22 Amin (2010) uses a sample of over 600 informal firms from six West African countries from surveys carried out at the same time as the formal Enterprise Surveys. He finds that female-owned firms are more likely to be smaller in terms of employment than their male-owned counterparts and notes that gender-neutral policy aimed at encouraging the growth of smaller firms would have the impact of assisting female entrepreneurs expand their businesses. This would have a benefit in terms of female income but also, as shown later in this study, in terms of female employment as female entrepreneurs are more likely to employ other females regardless of sector.

Figure 3.4: Gender and firm size in international comparison, 2010 (left panel) and 2007 (right panel)



*Note: The very small sample size of large female owned firms in Mali means that the high percentages reported for these firms in 2007 cannot be considered reliable.

3.23 It is estimated that the artisan sector employs around 40 percent of the population and contributes some 15 to 20 percent to GDP (IMF, 2010 46) and a large proportion of these are likely to be informal. This sector is thus an important creator of employment and wealth as well as from a growth perspective.⁷³ From the gender perspective, results from the Artisan Census

⁷¹ See www.enterprisesurveys.org from which all raw data can be downloaded and comparative analyses undertaken.

⁷² The sample used is slightly different. All firms interviewed are used in the online statistics, whereas the analysis conducted for this paper benefits from some cleaning. The differences are, however, minimal, and do not affect the key results or conclusions presented.

⁷³ It should be noted that informal firms can be classified into one of two groups; those which substitute for unemployment (or underemployment) and are unlikely to have much growth potential and those which have been unable to enter the formal sector but which have growth potential. An enabling business environment should allow

Report, which surveyed both formal and informal firms but does not report this information – presented in Table 3.1 – show that females own 7.4 percent of the over 30,000 artisanal firms surveyed. This is perhaps surprisingly few but it is possible that more female than male micro-enterprises may operate from home with female producing goods and males selling. This would make it easier for surveys to capture male owners than female owners. Capturing this in a future survey would be highly relevant to better understand micro entrepreneurship in general and the role of females in particular.

3.24 The results from the Artisan Census (Table 3.2; *Ministère de l'Artisanat et du Tourisme*, 2010) compare with table 3.1 which reports the sectors in which female owners and managers operate in the formal sector. The food sector is the most consistently important one for females across both Enterprise Surveys and the Artisan Census but remains more important for females operating in the artisan sector than those interviewed by the Enterprise Surveys. Hygiene and personal care artisans (hairdressers, beauty salons, etc.) are more likely to be female than those from other sectors but firms in this sector do not feature at all in the formal sector due, likely, partly to sampling and partly to the fact that most such firms operate in the informal market. The differences amongst years between the 2007 and 2010 surveys however mean that sampling differences may play a significant role. It is worth pointing out that in the Artisan Census there are large differences in women involvement in different sectors between the regions, particularly with respect to the ‘arts and other’ subcategory (see table 3.2 below). This may reflect other opportunities available and tourism as well as local culture.

Table 3.1: Sector and gender - Enterprise surveys, manufacturing only

	Female manager (2010)	Female owner (2007)
Food	13.0%	19.6%
Textiles & garments	4.7%	17.6%
Heavy industry	8.3%	32.1%
Metal	11.1%	0.0%
Other	7.7%	4.2%

Table 3.2: Sector and gender: Artisan census report

	Total	Bamako	Kayes	Koulikoro
Food	23.1%	27.6%	10.4%	16.4%
Construction and related	4.3%	1.6%	0.8%	9.6%
Wood and furniture	0.8%	0.8%	0.7%	0.8%
Metal transformation and usage	0.4%	0.4%	0.4%	0.5%
Clothing, leather and textiles	7.6%	7.5%	5.5%	10.5%
Hygiene and personal care	28.6%	27.9%	36.6%	28.6%
Art and other	13.1%	2.8%	14.9%	49.1%
Non-identified	3.4%	2.7%	10.8%	7.9%
Total	7.4%	7.4%	6.0%	8.6%

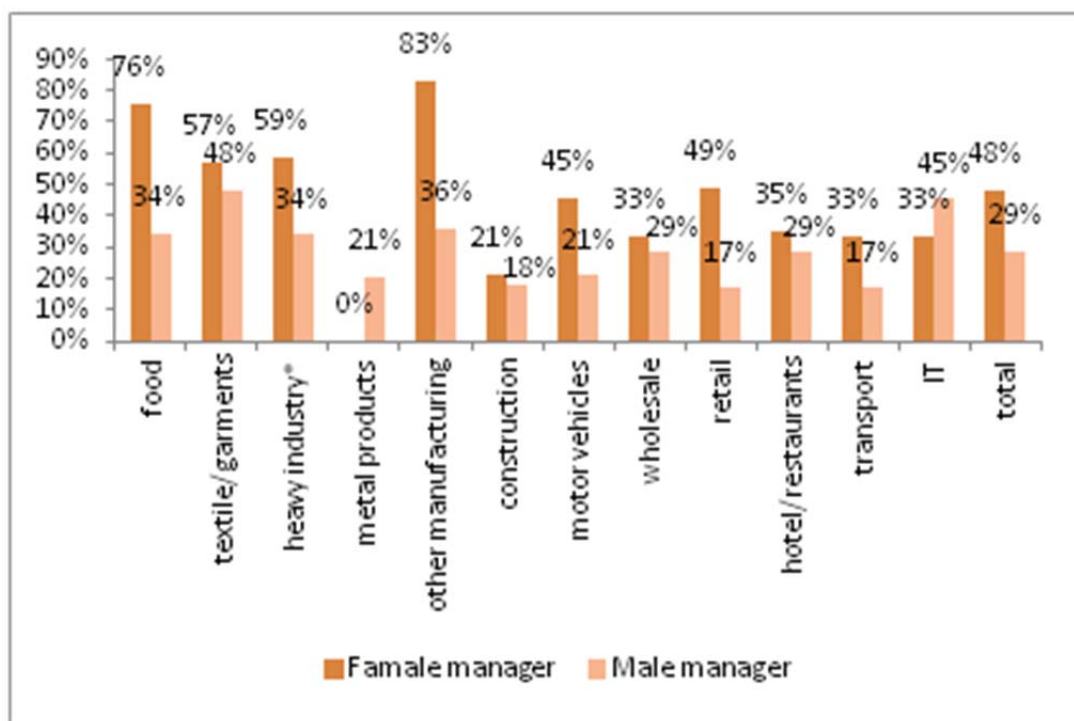
the latter informal businesses of today to become the formal, growth-driving and tax-paying firms of tomorrow. Although outside of the scope of this Note, understanding the dynamics of this transition and ensuring that ‘going formal’ carries benefits – such as improved access to finance for expansion – is an important if Mali is to achieve its growth potential and to bring sufficient numbers of firms into the tax-paying sector in order to finance increased investment in infrastructure and the health and education of a fast-growing population.

Box 3.1: A focus on female employment

Increasing female employment remains an essential part of the effort to achieve gender equality through female empowerment in the home and of increasing production output to cater for the rapidly growing population. A key correlate of female employment is female control of a firm. Regardless of sector, female owners and managers are more likely to employ female workers* (box 3.1, figure 3.5). The clear implication is female managers and entrepreneurs are desirable not only so that Mali can use their skills to achieve higher economic and employment growth and not only as an element of gender equality in itself, but also as a means to improve the employment prospects of women in general. The available data do not provide sufficient information to ascertain reasons why female owners and managers employ more female workers than their male counterparts. One suggestion is that in the socio-cultural context, female owners and managers are more able to professionally manage female subordinates but may find this more difficult with male employees. Female owners and managers may also lack male prejudices against the employment of women.

The textile/garment sector** is important for female employment. Figure 3.5 shows that male managers in this sector employ more females as a percentage of the workforce than they do in any other sector.

Figure 3.5: Female workers by sector, 2010



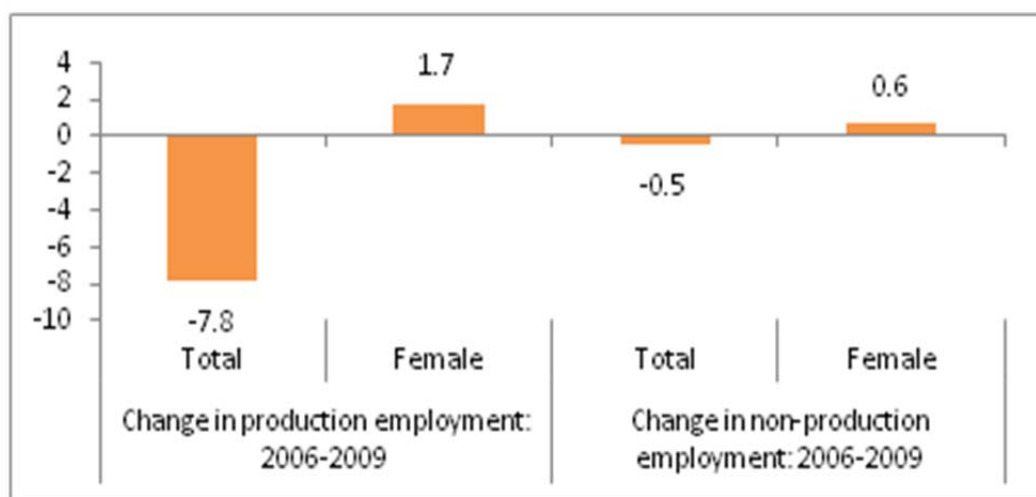
In Africa, notably, the Lesotho textile sector is the largest employer outside of the government creating around 90 percent of manufacturing employment in the country most of whom are uneducated female migrants from rural areas. Within the Malian context of high population growth and large-scale rural-to-urban migration of a largely uneducated workforce, the export manufacturing sector becomes an important means to absorb these workers and ensure that they are able to make a positive economic contribution (Fox and Gaal, 2009 and Kingdon et al., 2006).

One important means of expanding the economic contribution of this group is to ensure a well-trained workforce. For example, the Lesotho textile sector, which employs a large number of unskilled female rural-to-urban migrants, suggests that in a low-education context, continual training is required in order to ensure production standards are maintained†. In addition, high staff turnover in the low-skilled sector means that new staff are regularly being trained and companies compete for the best trained as well as the most reliable staff. It should be noted that high staff

turnover can also act as a disincentive to train workers with firms focusing only on a minimal training necessary for operation rather than improving productivity.

Using a sub-sample which creates a panel of firms included in both 2007 and 2010, the Enterprise Surveys show that the proportion of employees who are females has increased between 2007 and 2010. Indications are that a significant number of firms suffered a decrease in total employment over the time period, reflecting a decline in formal employment of 38 percent during 2010 (IMF, 2010 206). Interestingly, this decline appears to have affected males more than females, explaining the increased proportions of female workers. Indeed, Box figure 3.1 reports that in the manufacturing sector for production and non-production (clerical, administration, management) workers, while total employment fell between 2007 and 2010, female employment actually rose slightly. An analysis by sector (results not shown) indicates that the food sector and heavy industry suffered the most job losses in total including, for heavy industry, female job reductions, whilst the textile and garments sub-sectors saw little change in total employment but increases in female employment. This suggests that there has been some re-balancing of employment by sector toward more female-friendly sectors. Other motivations may also go some way to explaining the changes. If female wage rates are lower, one explanation may reside in companies replacing more expensive male staff with females during the crisis. Another may be that firms with higher female intensity of employment were better able to resist the effects of the crisis than more greatly exposed male-orientated ones. Alternatively, even within a firm, the nature of employment may be changing favoring female employment. In any case, the impact has been to increase the proportion of employees who are female+.

Figure 3.6: Average change in number of employees in manufacturing



* Except metal, for which there are no female managed firms.

** Unfortunately, sample size does not permit the disaggregation of the textile and garment sectors. However indications are that the two sub-sectors have similar characteristics.

† The 2010 Poverty Profile (INSTAT, 2011) reports that girls' education continues to lag behind that of boys with primary net enrollment rates being 51.8 and 56.7 percent for girls and boys respectively. In addition, in total net primary enrollment rates are worse in 2010 than in 2006 due to high population growth.

One possibility is that there was a shift from permanent to temporary workers. If the former tend to be male and the latter female then this would lead to results similar to that found. Unfortunately, the data do not provide this information by gender.

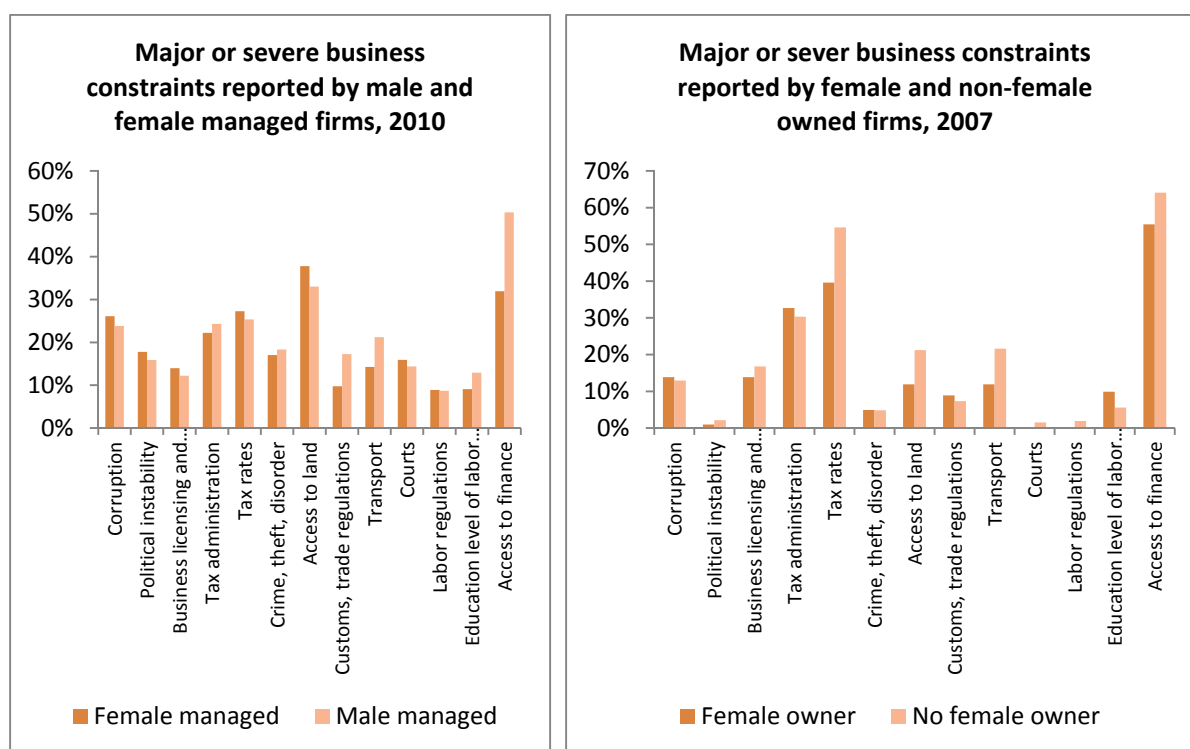
+ There are likely to be some sample selection issues; the 2010 survey samples a smaller range of firms than the 2007 survey and the total decrease in employment is likely to reflect some unintended bias in selection.

C. GENDER DIFFERENCES IN CONSTRAINTS TO DOING BUSINESS

3.25 In a masculine-orientated society with a male-dominated political and business environment there is real risk that women entrepreneurs are discriminated against despite their importance for economic growth and female employment and equality. This could take the form of officials being more likely to solicit bribes from females or prevent them from obtaining operating licenses. In banks male employees may disfavor female clients and potential employees who may be less willing to work for female superiors.

3.26 Addressing such issues can have both short run beneficial impacts on economic growth and employment, as well as positive longer-run effects on the underlying social causes of such discrimination. This section studies if there is evidence if female/male managers (in 2010 data) and female/male firm owners (in 2007 data) perceived obstacles to doing business differently. The Enterprise Survey asks respondents to indicate how severe they perceive potential obstacles to doing business to be on a scale of zero (no obstacle) to four (very severe obstacle). Figure 3.7 shows the proportion of firms that reported different obstacles to be ‘major’ (three) or ‘very severe’ (four) by female ownership/management.

Figure 3.7: Self-reported major or severe business constraints



3.27 Figures 3.7 show male/female differences by plotting these percentages on different axes; where there is no difference between the genders the points lay on the 45 degree line, obstacles which fall to the right of the line are seen as more severe by females and those to the left by males.

3.28 ‘Access to finance’ is the single most important obstacle although there appears to have been some improvement over time. Both males and females rate this as a significant constraint in both years. Indeed, with the exception of females in 2010 who rate ‘access to land’ as slightly more of a constraint, ‘access to finance’ is consistently the most severe constraint. Such is the importance of that we focus on this in the next section. The key result however, is that, for both 2010 and 2007, there are very few differences between the two groups. Indeed, for the most severe constraint (‘access to finance’), fewer female-managed firms and female-owned firms actually reported this to be a major or severe constraint than their male counterparts.

3.29 Figures 50 and 51 illuminate other key differences between male and female firms in terms of constraints. In 2010, the obstacles which fell furthest from the 45 degree line – and therefore those with the largest differences – were: access to finance; access to land; transport; and customs/trade regulations. In 2007, the major differences were in access to finance; tax rates; and transport.

Figure 3.8: 2010 constraints by managerial gender

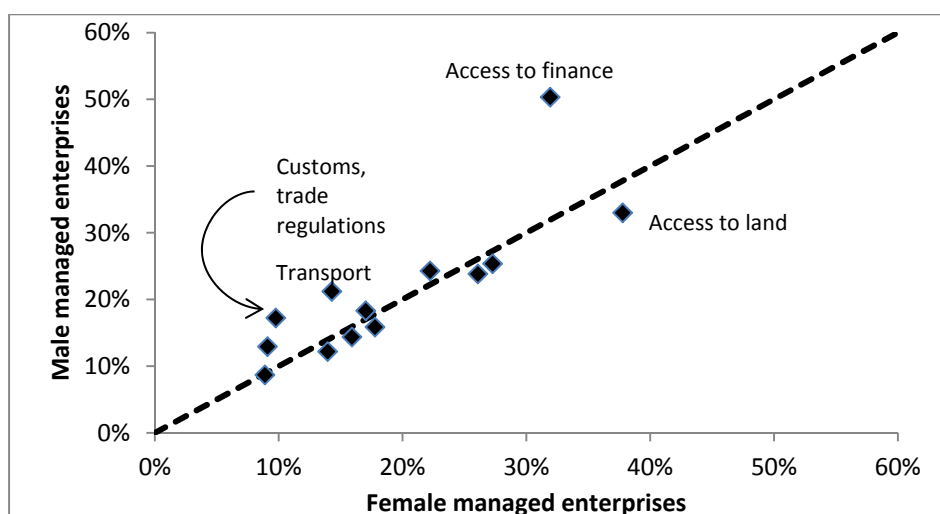
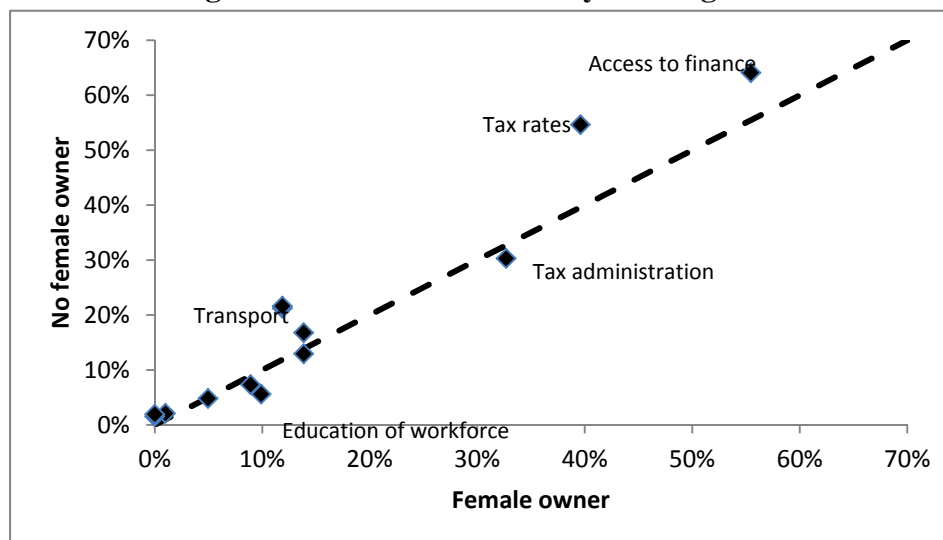


Figure 3.9: 2007 constraints by owner gender



3.30 To verify the descriptive results, we estimate probit models for the 2010 obstacles including firm characteristics as controls⁷⁴ following a standard methodology (see, for example Bardasi and Getahun, 2007).⁷⁵ In all of the models, the ‘female dummy’ is insignificant confirming that, for all obstacles, after having controlled for other firm characteristics, male and female managers do not perceive obstacles significantly differently.⁷⁶ Any selection or discrimination therefore, is likely to occur prior to reaching the point of being an established firm.⁷⁷ That is, those females who have become managers in formal enterprises are a select group who are able to ‘compete’ with their male counterparts. Given the available data, we are unable to say anything about the females who have failed to reach this point.

D. A FOCUS ON ACCESS TO FINANCE

3.31 Access to finance is critical for allowing successful, productive firms to expand output and employment (Aterido et al., 2011). However, it is the major obstacle cited to doing business in Mali and is consistently cited as a severe constraint in developing countries. This section delves deeper into the available data to shed more light on the issue from a gender perspective. Some of the results are supportive of earlier findings that females report that access to finance is less of an obstacle than males do. For example, 93.6 percent of female managed firms have bank accounts compared with 81.4 percent of male managed firms. A similar proportion of each group has overdrafts but female managers report an average overdraft interest rate of 11.6 percent compared with 16.1 percent for males. For loans, the sample is small for female-managed firms and the story more mixed; the value of required collateral is higher for females than for males but the average interest rate is lower (Table 3.10). In general then, the more objective data are supportive of the fact that female managers find access to financial services to be less of an issue than for males (Figure 3.10) and the perceived importance of obstacles are reflected in the realities of access to finance. The fact that males report this as more of an obstacle suggests that they would actually welcome improved access to finance.

3.32 There are a number of reasons why females may find accessing finance easier; one reason may lie with a certain degree of success in micro-finance schemes which tend to target females. Secondly, females in Mali may be seen as more reliable repayers than their male counterparts – lending to females is simply less risky. This would also go some way to explain the lower interest rates females tend to be charged. Thirdly, females may maintain better social networks, giving them greater access to informal networks from which they can borrow funds, although this would not account for higher use of bank accounts. Finally, the females who have succeeded in management of formal enterprises (i.e. those captured by the survey) are likely to be amongst the highest caliber females in the country with either particularly strong education or wealthy backgrounds and/or particularly strong business acumen as a character trait. Males captured are likely to be from a more diverse pool. No personal details on the owners of the firms exist to do further analysis.

⁷⁴ Controls used are: firm age; firm size; sector; ownership; exports; and capital city.

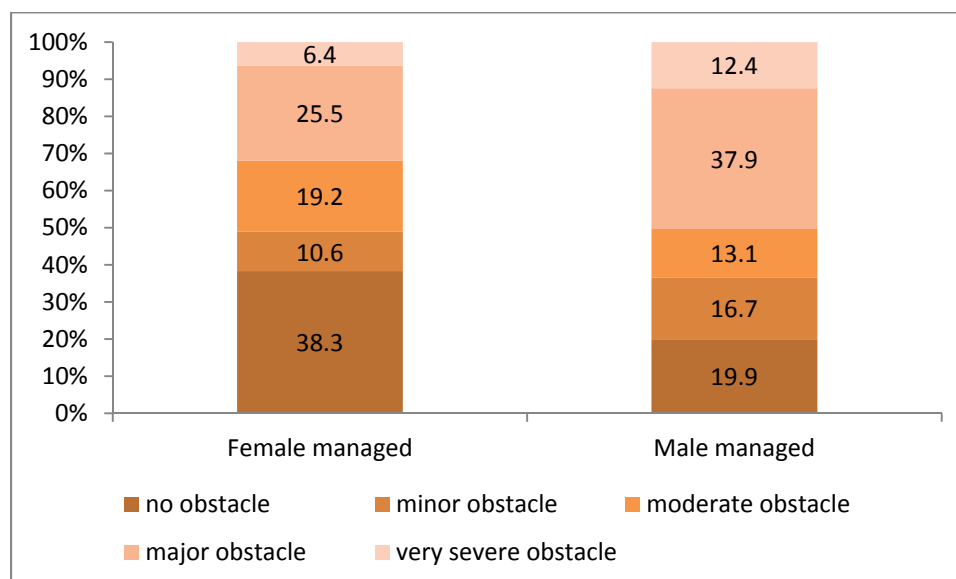
⁷⁵ For a discussion of the caveats of this methodology, see World Bank (2011).

⁷⁶ Full results are reported in Table 3 in the annex 3.

⁷⁷ Other explanations cannot be completely ruled out. For example, females may be less pre-disposed to complaining or may have lower expectations against which to measure the extent potential obstacles are seen as problematic.

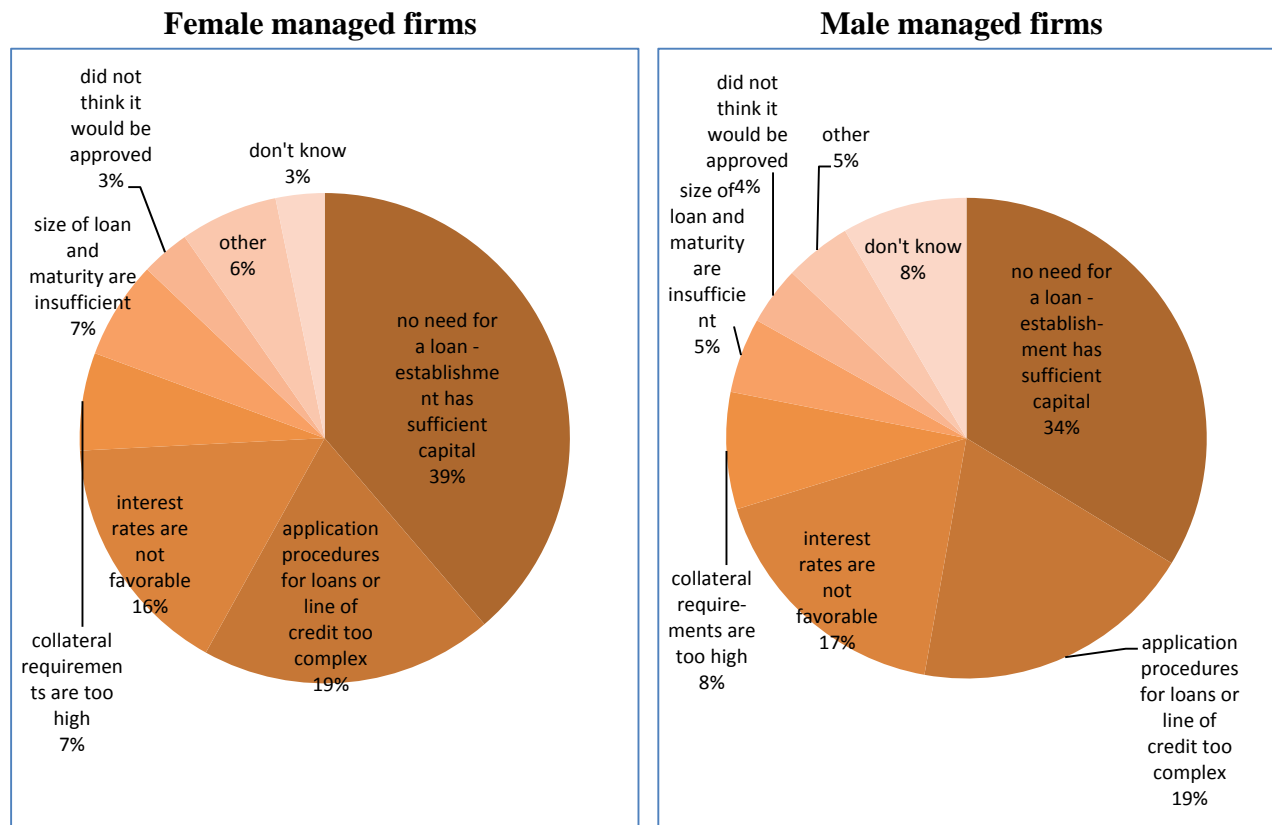
Table 3.3: Access to finance: selected indicators, 2010

	Female managed	Male managed
Bank account	93.6	81.4
Overdraft	44.7	45.8
Average % interest rate	11.6	16.1
Loan	14.9	16.0
Average % interest rate	11.5	16.3
Value of collateral req'd	200mil	141mil
Type of collateral req'd:		
Land/buildings	80.0	69.6
Equipment	0.0	13.6
Accounts	0.0	18.2
Personal assets	20.0	13.6

Figure 3.10: How much of an obstacle is access to finance? 2010

3.33 For firms which did not access a new loan/credit line in the previous year, the Enterprise Surveys ask why this is the case. Male and female managed firms reported very similar explanations (Figure 3.11). For both groups, having sufficient capital was the main reason with female-managed firms being slightly more likely to report this than male-managed firms (39 against 34 percent respectively). This small difference may be the result of the fact that female firms tend to be smaller so perhaps require less capital to grow. Alternatively, personal or social motivations or expectations may mean females choose to grow their businesses slower or prefer to keep it small. Greater research would be required to understand these causes however. Other reasons include the complex application procedures (19 percent for both groups), high interest rates (16 versus 17 percent respectively) and collateral requirements (7 versus 8 percent).

Figure 3.11: Reasons for not applying for loan/credit line, 2010



E. CONCLUSION

3.34 Malian females are less educated and less likely to be literate than males. Girls are less likely to be in school than boys. Young women lack control over birth spacing and women can face domestic violence. Females are under-represented in terms of political representation and in commerce. The current situation is both undesirable in and of itself and also has negative consequences for economic and social development. Excluding the managerial skills of 50 percent of the population risks having detrimental effects on private sector growth, productivity and employment. In a country which needs to create a minimum of 250,000 new jobs per year to absorb new labor market entrants this degree of exclusion is not sustainable.

3.35 The growing population requires not only employment but also a significant increase in production if sufficient goods and services are to be produced; here again, Mali cannot afford to ignore entrepreneurial skills of half of the population. Female employment matters too: the increase in production necessary to meet the challenges of the growing population requires female participation in the production process. Increased female employment empowers both the current generation of women – who will gain an increased voice in household matters, likely favoring children – and future generations who benefit from female role-models.

3.36 The findings presented in this study that females who have succeeded in business do not face more severe obstacles than their male counterparts needs to be examined in more detail.

This, combined with the fact that only around 15 percent of owners and managers are female suggests that females are likely to face disadvantages sooner - upon entry into the formal sector. For example, females are less well educated and may face greater problems in the administration involved in becoming formal, or are unable to access credit at this initial stage (despite facing little difficulty after having achieved a certain degree of success). The present data set does not allow this possibility to be studied. Supply-side constraints related to the high fertility rate in Mali are also likely to be an issue for some women adding further impetus to the need to addressing demographic issues.

3.37 This paper has not been able to analyze the informal sector due to lack of data. Gathering additional data will help to understand the informal sector in general and how best to encourage growth and a movement to formality as well as the importance of female roles within this sector.

3.38 From a policy perspective, this Note draws out a set of both general and specific policy challenges to be addressed. General challenges include:

- Closing the gender gap in education which causes females to be disadvantaged in participation in the business environment;
- Sensitization of male managers and owners to minimize discrimination in employment practices;
- Understanding the source of differences between Bamako and the rest of the country could lead to improvements in female participation outside of the capital;
- Making further efforts to improve the business climate, which prejudices private sector development for all groups.

3.39 More specifically:

- Efforts to ensure that females are not discriminated against at the point of entry to the business environment can help to increase their participation – for example reviewing the registration process and the processes involved in the application of permits and licenses to ensure they do not disfavor females. Banks may also wish to review their environment to ensure it is not intimidating for females;
- Social constraints that prevent females from entering the business environment also need to be better understood;
- Addressing the constraint of lack of access to finance is important for both male and female business owners and managers;
- Gender neutral policies aimed at assisting small businesses will benefit female entrepreneurs and managers as they tend to be concentrated in small businesses, and this will have a positive impact on female employment;

3.40 To counter employer reluctance to hire female workers a Jordanian pilot provided graduates with training in ‘soft skills’ and provided females with vouchers covering some of their salary for a set period of time. This allowed females the opportunity to overcome stereotypes and demonstrate their productivity (see box 6, WDR 2012).

Annex 1: Poverty Measures

Table 1: Poverty Lines, per region and area, 2001, 2006 and 2010
(in FCFA/ capita per year)

	Kayes	Koulikoro	Sikasso	Ségou	Mopti	Tombouctou	Gao	Kidal	Bamako
2001 Urban									
Food	108 551	91 615	90 703	80 921	84 133	90 082	90 082	90 082	91 615
Total	149 011	129 314	149 419	133 647	127 201	112 899	130 638	133 572	135 920
2001 Rural									
Food	98 842	83 439	82 600	73 694	76 614	82 052	82 052	n/a -	n/a-
Total	122 483	97 361	142 678	100 835	100 169	104 825	95 317	n/a -	n/a -
2006 Urban									
Food	119 026	100 456	99 455	88 729	92 251	98 775	98 775	98 775	100 456
Total	163 391	141 793	163 838	146 543	139 476	123 794	143 245	146 461	149 037
2006 Rural									
Food	108 380	91 491	90 570	80 805	84 007	89 970	89 970	n/a -	n/a-
Total	134 302	106 756	156 447	110 566	109 835	114 940	104 515	n/a -	n/a -
2010 Urban									
Food	140 019	118 173	116 996	104 378	108 521	116 196	116 196	116 196	118 173
Total	181 364	157 390	181 861	162 663	154 818	137 411	159 002	162 572	165 431
2010 Rural									
Food	127 495	107 627	106 544	95 057	98 823	105 838	105 838	105 838	n/a -
Total	149 075	118 499	173 656	122 728	121 917	127 584	116 011	118 616	n/a -

Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Table 2: Consumption-Based Poverty Measures by Area and Region, 2001-2010

	Poverty Indices				Contribution to national poverty		
	Pop'n Share	Poverty Rate (P ₀)	Poverty Gap (P ₁)	Poverty Severity Index (P ₂)	Poverty Rate (C ₀)	Poverty Gap (C ₁)	Poverty Severity Index (C ₂)
2001							
Area							
Urban	24.9	27.7	8.1	3.3	12.4	9.5	7.6
Rural	75.1	64.8	25.6	13.2	87.6	90.5	92.4
Region							
Kayes-Koulikoro	30.2	65.1	24.5	12.3	35.4	34.8	34.7
Sikasso	18.4	80.1	40.1	23.3	26.5	34.7	40.1
Mopti-Ségou	31.9	51.9	17.0	7.3	29.8	25.5	21.8
Tombouctou-Gao-Kidal	8.8	30.8	7.0	2.6	4.9	2.9	2.1
Bamako	10.7	17.6	4.2	1.2	3.4	2.1	1.2
National	100.0	55.6	21.2	10.7	100.0	100.0	100.0
2006							
Area							
Urban	24.7	18.5	5.3	2.2	9.6	7.8	6.7
Rural	75.3	57.0	20.4	9.9	90.4	92.2	93.3
Region							
Kayes-Koulikoro	29.5	44.6	14.1	6.2	27.6	25.0	22.7
Sikasso	18.0	80.8	36.3	20.2	30.6	39.2	45.3
Mopti-Ségou	34.0	48.7	15.1	6.6	34.8	30.7	27.8
Tombouctou-Gao-Kidal	8.3	29.7	7.5	2.9	5.2	3.7	3.0
Bamako	10.2	7.9	2.2	0.9	1.7	1.4	1.2
National	100.0	47.5	16.7	8.0	100.0	100.0	100.0
2009/10							
Area							
Urban	22.0	18.9	4.8	2.0	9.5	7.9	8.0
Rural	78.0	50.6	15.6	6.5	90.5	92.1	92.0
Region							
Kayes-Koulikoro	31.5	35.5	8.5	3.0	25.6	20.1	16.9
Sikasso	17.5	83.8	31.7	14.6	33.6	41.9	46.0
Mopti-Ségou	30.2	46.8	13.6	5.5	32.5	31.0	30.2
Tombouctou-Gao-Kidal	8.5	28.9	7.2	2.6	5.6	4.6	4.0
Bamako	12.3	9.6	2.5	1.3	2.7	2.4	3.0
National	100.0	43.6	13.2	5.5	100.0	100.0	100.0

Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Table 3: Consumption-Based Extreme Poverty Measures by Area and Region, 2001-2010

		Poverty Indices				Contribution to national poverty		
	Pop'n Share	Poverty Rate (P ₀)	Poverty Gap (P ₁)	Poverty Severity Index (P ₂)	P ₁ /P ₀	Poverty Rate (C ₀)	Poverty Gap (C ₁)	Poverty Severity Index (C ₂)
2001								
Area								
Urban	24.9	11.4	2.4	0.9	21.1	8.9	6.1	4.9
Rural	75.1	39.0	12.5	5.6	32.1	91.1	93.9	95.1
Region								
Kayes-Koulikoro	30.2	35.6	11.5	5.2	32.3	33.4	34.6	35.8
Sikasso	18.4	63.2	24.2	11.5	38.3	36.2	44.5	48.3
Mopti-Ségou	31.9	25.9	6.0	2.0	23.2	25.7	19.0	14.6
North (TGK)	8.8	10.2	1.8	0.6	17.6	2.8	1.6	1.2
Bamako	10.7	5.8	0.3	0.0	5.2	1.9	0.4	0.1
All	100.0	32.2	10.0	4.4	31.1	100.0	100.0	100.0
2006								
Area								
Urban	24.7	6.9	1.7	0.6	24.6	7.0	5.7	4.8
Rural	75.3	29.9	9.0	3.9	30.1	93.0	94.3	95.2
Region								
Kayes-Koulikoro	29.5	21.1	5.2	1.8	24.6	25.8	21.3	17.6
Sikasso	18.0	55.6	19.7	9.8	35.4	41.4	49.5	57.2
Mopti-Ségou	34.0	20.5	5.4	2.1	26.3	28.8	25.7	22.6
North (TGK)	8.3	8.7	2.1	0.7	24.1	3.0	2.4	1.7
Bamako	10.2	2.6	0.7	0.2	26.9	1.1	1.0	0.8
All	100.0	24.2	7.2	3.1	29.8	100.0	100.0	100.0
2010								
Area								
Urban	22.0	6.6	1.8	0.9	27.3	6.6	7.6	10.3
Rural	78.0	26.5	6.3	2.2	23.8	93.4	92.4	89.7
Region								
Kayes-Koulikoro	31.5	13.1	2.4	0.7	18.3	18.6	14.2	11.8
Sikasso	17.5	56.9	15.3	5.5	26.9	45.0	50.6	50.1
Mopti-Ségou	30.2	22.3	5.1	1.9	22.9	30.6	29.1	29.4
North (TGK)	8.5	11.0	2.1	0.6	19.1	4.2	3.4	2.9
Bamako	12.3	2.8	1.2	0.9	42.9	1.6	2.9	5.8
All	100.0	22.1	5.3	1.9	24.0	100.0	100.0	100.0

Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Table 4: Consumption-Based Poverty Measures by Area and Region, 2001-2010, with a more realistic regional poverty lines

	Population Share	Poverty Headcount		Contribution to national poverty	
		Base	Corrected	Base	Corrected
2001					
Area					
Urban	24.9	27.7	27.2	12.4	13.8
Rural	75.1	64.8	56.3	87.6	86.2
Region					
Kayes-Koulikoro	30.2	65.1	52.0	35.4	32.0
Sikasso	18.4	80.1	66.3	26.5	24.9
Mopti-Ségou	31.9	51.9	51.9	29.8	33.8
Tombouctou-Gao-Kidal	8.8	30.8	30.8	4.9	5.5
Bamako	10.7	17.6	17.6	3.4	3.9
National	100.0	55.6	49.1	100.0	100.0
2006					
Area					
Urban	24.7	18.5	17.7	9.6	10.8
Rural	75.3	57.0	48.0	90.4	89.2
Region					
Kayes-Koulikoro	29.5	44.6	34.6	27.6	25.2
Sikasso	18.0	80.8	58.1	30.6	25.9
Mopti-Ségou	34.0	48.7	48.7	34.8	40.9
Tombouctou-Gao-Kidal	8.3	29.7	29.7	5.2	6.1
Bamako	10.2	7.9	7.9	1.7	2.0
National	100.0	47.5	40.5	100.0	100.0
2009/10					
Area					
Urban	22.0	18.9	17.3	9.5	10.5
Rural	78.0	50.6	41.5	90.5	89.5
Region					
Kayes-Koulikoro	31.5	35.5	27.4	25.6	23.8
Sikasso	17.5	83.8	56.0	33.6	27.0
Mopti-Ségou	30.2	46.8	46.8	32.5	39.1
Tombouctou-Gao-Kidal	8.5	28.9	28.9	5.6	6.8
Bamako	12.3	9.6	9.6	2.7	3.3
National	100.0	43.6	36.2	100.0	100.0

Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Note: Sikasso and Kayes urban and rural poverty lines were set equal to the one for Koulikoro.

Table 5: Future share of the population in poverty under various growth scenarios

	Assumed rate of growth in real GDP per capita							
	1%	2%	3%	4%	5%	6%	7%	8%
2010	43.6	43.6	43.6	43.6	43.6	43.6	43.6	43.6
2011	43.0	42.4	41.4	40.7	40.2	39.4	38.8	38.4
2012	42.4	40.6	39.4	38.2	36.9	35.8	34.3	33.4
2013	41.4	39.4	37.5	35.6	33.7	31.8	30.0	28.5
2014	40.6	38.1	35.5	33.2	30.4	28.4	26.0	24.0
2015	40.1	36.7	33.7	30.4	27.9	24.9	22.1	19.4
2016	39.3	35.5	31.7	28.4	24.8	21.4	18.2	16.2
2017	38.7	34.1	29.8	25.8	21.8	18.2	15.4	12.6
2018	38.1	32.9	28.3	23.5	19.2	15.9	12.4	9.4
2019	37.5	31.6	26.4	21.1	17.0	13.1	9.6	7.1
2020	36.7	30.3	24.7	19.1	14.8	10.6	7.6	5.6

Source: World Bank using ELIM 2009/2010 household survey.

Table 6: Durable Goods Ownership, by Area and Quintile, 2001-2010

	Radio	Television	Phone	Fridge	Motocycle
2001					
Area					
Urban	84.4	39.1	6.4	15.7	27.9
Rural	63.0	5.2	0.2	0.7	12.9
Region					
Kayes-Koulikoro	69.3	11.0	1.1	2.5	10.4
Sikasso	56.9	7.4	0.6	1.7	17.0
Mopti-Ségou	72.0	9.5	0.7	2.7	21.5
North (TGK)	57.9	10.8	0.2	2.3	8.0
Bamako	92.3	50.5	10.8	22.9	27.7
Quintile					
Poorest	51.3	2.3	0.0	0.2	10.4
Second	64.2	4.7	0.1	0.3	12.1
Third	60.7	4.8	0.1	0.6	11.6
Fourth	71.8	15.1	1.3	3.6	19.1
Richest	82.2	30.1	5.2	12.5	24.3
National	68.7	14.1	1.9	4.7	16.9
2006					
Area					
Urban	69.3	50.6	54.5	17.7	42.0
Rural	47.9	9.2	9.9	1.0	27.8
Region					
Kayes-Koulikoro	49.2	15.1	23.2	3.7	25.2
Sikasso	65.8	22.0	17.6	4.6	47.8
Mopti-Ségou	44.3	14.9	13.3	3.4	34.2
North (TGK)	51.5	14.0	19.7	1.9	11.9
Bamako	82.2	61.0	79.5	23.4	42.5
Quintile					
Poorest	37.7	3.4	2.5	0.5	22.6
Second	45.5	7.0	3.5	0.7	26.1
Third	44.8	7.2	8.1	0.7	23.9
Fourth	57.3	22.0	21.5	3.0	30.9
Richest	71.9	48.6	56.9	17.7	46.6
National	54.3	21.5	23.2	5.9	32.0
2009/10					
Area					
Urban	74.0	56.9	89.1	17.5	50.0
Rural	75.0	18.0	57.0	2.3	37.2
Region					
Kayes-Koulikoro	76.8	27.2	69.3	6.3	40.5
Sikasso	83.2	27.9	65.6	3.7	49.8
Mopti-Ségou	71.2	17.3	55.0	2.0	40.8
Nord (TGK)	69.7	17.1	60.2	2.5	18.6
Bamako	73.4	62.1	98.2	20.9	48.1
Quintile					
Poorest	73.9	14.0	46.6	0.7	35.2
Second	76.2	15.6	53.9	0.5	36.8
Third	72.6	18.0	59.7	1.1	35.3
Fourth	74.0	25.1	66.9	3.7	38.4
Richest	76.2	49.2	81.8	16.8	49.7
National	74.7	28.0	65.3	6.2	40.5

Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Table 7: Access to Electricity by Area and Quintile, 2001-2010

	2001	2006	2009/10
Area			
Urban	27.8	56.7	60.1
Rural	2.4	4.6	11.0
Region			
Kayes-Koulikoro	5.1	13.7	20.4
Sikasso	4.1	17.7	19.8
Mopti-Ségou	7.8	11.1	10.3
Nord (TGK)	4.9	12.1	12.7
Bamako	36.1	70.5	69.8
Quintile			
Poorest	0.5	1.7	6.5
Second	1.5	5.2	9.4
Third	3.8	6.7	11.0
Fourth	7.7	17.6	19.5
Richest	21.9	49.5	49.7
National	9.2	20.1	23.6

Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Table 8: Source of Drinking Water by Area and Quintile, 2001-2010

	Pipe	Borehole	Improved Well	Others	All	
2001						
Area						
Urban	62.0	2.9		25.6	9.5	100.0
Rural	9.8	15.2		36.2	38.8	100.0
Region						
Kayes-Koulikoro	17.1	14.1		39.8	29.0	100.0
Sikasso	19.1	14.2		23.2	43.6	100.0
Mopti-Ségou	13.0	16.2		37.4	33.3	100.0
Nord (TGK)	30.7	3.5		33.9	31.9	100.0
Bamako	68.3	0.5		27.2	4.0	100.0
Quintile						
Poorest	9.6	14.1		22.8	53.6	100.0
Second	13.1	15.9		35.7	35.3	100.0
Third	13.6	15.0		36.4	35.1	100.0
Fourth	25.0	12.0		34.9	28.2	100.0
Richest	41.2	7.0		34.1	17.7	100.0
National	23.6	12.0		33.4	31.0	100.0
2006						
Area						
Urban	80.2	1.2		14.3	4.3	100.0
Rural	16.3	19.7		35.7	28.4	100.0
Region						
Kayes-Koulikoro	26.7	18.9		26.5	28.0	100.0
Sikasso	32.2	19.2		39.5	9.2	100.0
Mopti-Ségou	20.1	16.5		32.6	30.9	100.0
Nord (TGK)	46.3	4.7		36.2	12.8	100.0
Bamako	89.3	0.5		8.1	2.1	100.0
Quintile						
Poorest	18.9	18.9		38.0	24.2	100.0
Second	19.0	18.0		35.6	27.4	100.0
Third	24.0	18.4		31.2	26.4	100.0
Fourth	34.9	13.3		28.6	23.3	100.0
Richest	61.3	7.3		20.6	10.8	100.0
National	35.3	14.2		29.3	21.2	100.0
2009/10						
Area						
Urban	82.4	1.6		11.1	4.9	100.0
Rural	13.5	17.1		33.6	35.9	100.0
Region						
Kayes-Koulikoro	25.2	11.7		34.7	28.4	100.0
Sikasso	20.7	20.8		26.3	32.3	100.0
Mopti-Ségou	15.0	17.0		31.3	36.7	100.0
Nord (TGK)	23.1	12.4		33.6	30.9	100.0
Bamako	93.2	0.4		4.7	1.7	100.0
Quintile						
Poorest	10.6	19.3		26.2	43.9	100.0
Second	14.1	18.8		27.4	39.7	100.0
Third	19.8	14.8		32.4	33.0	100.0
Fourth	30.0	12.5		31.5	26.1	100.0
Richest	57.5	6.7		23.1	12.7	100.0
National	31.2	13.1		27.8	27.9	100.0

Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

**Table 9: Net Enrolment Rate in Primary and Secondary School,
by Area and Quintile, 2001-2010**

	Primary			Secondary		
	Boys	Girls	Total	Boys	Girls	Total
2001						
Area						
Urban	52.4	48.0	50.2	33.5	17.7	24.5
Rural	30.1	20.8	25.8	7.5	2.9	5.3
Region						
Kayes-Koulikoro	36.9	25.3	31.5	11.8	5.0	8.3
Sikasso	35.6	25.3	30.8	9.4	4.7	7.1
Mopti-Ségou	23.5	21.6	22.6	11.3	5.7	8.6
Nord (TGK)	43.6	29.1	36.8	6.7	7.0	6.9
Bamako	58.8	56.6	57.6	39.4	18.6	26.9
Quintile						
Poorest	28.0	16.4	22.6	5.3	2.0	3.7
Second	28.7	20.6	24.9	10.2	2.0	6.4
Third	35.4	21.8	29.4	10.4	4.8	7.5
Fourth	39.9	36.5	38.2	15.8	9.0	12.3
Richest	46.7	44.1	45.3	27.9	15.9	20.9
National	34.8	27.5	31.3	13.7	7.3	10.4
2006						
Area						
Urban	82.0	77.8	79.8	47.8	34.0	40.6
Rural	51.4	44.7	48.2	15.5	8.5	12.3
Region						
Kayes-Koulikoro	55.6	50.1	53.0	18.2	12.1	15.3
Sikasso	56.5	49.0	53.1	22.5	15.3	19.3
Mopti-Ségou	50.1	47.0	48.5	20.8	12.9	17.1
Nord (TGK)	66.7	62.4	64.8	26.2	21.0	23.5
Bamako	88.7	80.6	84.7	51.3	30.9	40.1
Quintile						
Poorest	44.7	34.1	39.8	11.9	5.4	8.9
Second	51.4	46.6	49.2	15.2	8.7	12.3
Third	56.0	49.7	52.9	20.8	17.9	19.5
Fourth	63.7	57.3	60.5	29.8	18.9	24.4
Richest	80.5	79.7	80.1	43.2	27.1	34.7
National	57.8	52.4	55.2	23.9	16.2	20.2
2009/10						
Area						
Urban	76.4	69.7	72.9	58.9	34.0	44.7
Rural	52.5	47.4	50.0	26.0	17.0	21.5
Region						
Kayes-Koulikoro	61.3	51.4	56.5	33.5	19.5	26.3
Sikasso	62.1	56.0	59.1	32.6	21.6	27.2
Mopti-Ségou	44.5	44.5	44.5	24.3	19.9	22.1
Nord (TGK)	50.2	45.7	47.9	24.8	18.7	21.8
Bamako	78.3	72.1	75.0	64.2	31.3	44.3
Quintile						
Poorest	49.4	41.8	45.8	20.5	12.5	16.6
Second	53.1	48.5	50.8	26.9	16.9	22.0
Third	52.8	51.2	52.1	28.4	18.3	23.4
Fourth	60.8	54.1	57.4	39.6	26.0	32.8
Richest	74.4	67.6	70.9	53.2	31.1	40.2
National	56.7	51.8	54.3	33.7	22.0	27.7

Source: World Bank calculations using EMEP 2001, ELIM 2006, MICS/ELIM 2009/2010 household surveys.

Table 10: List of non-monetary MDG indicators computed at local levels, Mali 2009

Employment Rate for the 15-64 age group
Self-Employment Rate
Dependency Ratio: Proportion of individuals aged less than 18 or more than 64 years old
Net School Enrolment in Primary Education (5)
Net School Enrolment in Secondary Education (6)
Male Literacy Rate: Proportion of male individuals aged 15-24 being literate
Female Literacy Rate: Proportion of female individuals aged 15-24 being literate
Girl-to-Boy ratio in Primary Education
Girl-to-Boy ratio in Secondary Education
Female in Wage Employment in Non-Agricultural Sector
Infant Mortality rate: Rate of born children having die in their first 12 months (in thousands)
Improved Water Source: Percentage of population having pipe or borehole as water source
Improved Sanitation: Percentage of population having a flush toilet or a VIP
Access to Electricity: Percentage of population having access to electricity
Not Using Wood: Percentage of population not using wood as cooking combustible

Source: World Bank calculations using MICS/ELIM 2009/2010 household survey and the 2009 Mali Population census.

Annex 2: Malian Interventions in the Area of Population

Table 1: Matrix for Malian authority interventions in the areas of population and reproductive health, with results

Objectives/ areas under study	Government policies/programs	Responsible organizations/ institutions	Indicators /objectives	Objectives	Results
1-Economy - Economic growth	GPRSP 2007-2011	Ministry of Economy and Finance	Real GDP growth rate	7 % per year from 2007-2011	4,6% per year from 2007-2010
- GDP per capita growth	GPRSP 2007-2011	Ministry of Economy and Finance	GDP per capita growth rate	4% per year from 2007-2011	1,4% per year from 2007-2010
2- Demography - Demographic growth	GPRSP 2007-2011	Ministry of Economy and Finance	Demographic growth rate	3% per year from 2007-2011	3,6% per year 1998-2009; 3,2% per year 2005-2010
- Fertility levels	PRODESS (Health and Social Development Program)	Ministry of Health	Total fertility rate	6,6 children per woman to 5,5 from 2006 to 2011	6,3 in 2010 (United Nations estimations) and 6,5 (DNP estimation)
3- Reproductive health - Family planning	National Population Policy 2003 (revised)	Ministry of Economy and Finance (DNP)	Contraceptive prevalence rate (TPC)	8,2 % in 2001 to 30 % en 2025	9,2 % in 2010 (All methods)
	PRODESS	Ministry of Health	Modern contraceptive prevalence rate	6,2 % in 2006 to 10 % in 2011	8,0 % in 2010 (modern methods)
	Reproductive Health Strategy Plan 2004-2008	Ministry of Health	Contraceptive prevalence rate (TPC)	8,0 % in 2004 to 15 % in 2008	9,2 % in 2010 (All methods)
	“Road map” to accelerate the reduction of maternal and neonatal mortality	Ministry of Health	Modern contraceptive prevalence rate	6,4 % in 2007 to 20 % in 2015	8,0 % in 2010 (modern methods)
	PRODESS	Ministry of Health	Reduce unmet family planning needs	31% in 2006 to 25% in 2011	31% in 2010
- Youth health	National Population Policy 2003 (revised)	Ministry of Economy and Finance (DNP)	Infant mortality rate	113 ‰ in 2001 to 50 ‰ in 2025	97 ‰ in 2010 (United Nations estimations) and 86‰ (DNP estimation)
	National Population Policy 2003 (revised)	Ministry of Economy and Finance (DNP)	Juvenile mortality rate (1-4 years)	128 ‰ in 2001 to 65 ‰ in 2025	Lack of similar recent data
	GPRSP 2007-2011	Ministry of Economy and Finance	Mortality rate for children under 5 years of age	229 ‰ in 2001 to 211 ‰ in 2009	183 ‰ in 2010 (United Nations estimations) 127‰ (DNP estimations)
	GPRSP 2007-2011	Ministry of Economy and Finance	Low weight in children under the age of 5	38 % in 2001 to 28% in 2009	18,9% in 2010
- Mother health	National Population Policy 2003 (revised)	Ministry of Economy and Finance	Maternal mortality rate	582 in 2001 to 291 in 2025	Lack of similar recent data

Objectives/ areas under study	Government policies/programs	Responsible organizations/ institutions	Indicators /objectives	Objectives	Results
	GPRSP 2007-2011	Ministry of Economy and Finance	Maternal mortality rate	582 in 2001 to 574 in 2009	Lack of similar recent data
	« Road map»	Ministry of Health	Maternal mortality rate	582 in 2007 To 146 in 2015	Lack of similar recent data
- IST/VIH/SIDA	National Population Policy 2003 (revised)	Ministry of Economy and Finance (DNP)	HIV/AIDS prevalence rate	1,7 % in 2001 to 0,5 % in 2025	Between 0,8 % and 1,3 % in 2009
4- Education - Primary school indication	National Population Policy 2003 (revised)	Ministry of Economy and Finance (DNP)	1-Gross enrolment rates in primary school 2- Literacy rates	1- 66% in 2001 and 100% in 2025 2- 35% in 2001 and 90% 2025	Gross primary school enrolment rate in 2010 75,4% (ELIM) Lack of similar recent data
	GPRSP 2007-2011	Ministry of Economy and Finance	Gross enrolment rates in primary school	75% in 2006 to 87% in 2011	Gross primary school enrolment rate in 2010 75,4% (ELIM)
5- Status of women,	National Population Policy 2003 (revised)	Ministry of Economy and Finance (DNP)	Age of marriage	Promote the Age of first marriage for young girls to 18	Non materialized – The Personal and Family Code was not adopted

Table 2: Some indicators of fertility, contraception and mortality

	1990	2010	2010
	Data from the Population Division (a)		National data (b)
Total fertility rates	7,1	6,3	6,5
<i>Average number of children per woman</i>			
Life expectancy at birth (Men and women)	44,2	51,0	61,2
Infant mortality rate <i>For 1000 live-born children</i>	131	97	86
Mortality rate < 5 years old <i>For 1000 live-born children</i>	246	183	127
	Other sources of data (c)		
Contraceptive prevalence as a % <i>All methods, women in union</i> (DHS 1995-96 and MICS 2010)	7 (1995-96)	9 (2010)	
Maternal mortality rates for 100 000 <i>Live births</i> (DHS Studies)	577 (1989-1996)	582 (1995-2001)	464 (2000-2006)
Maternal mortality rates (model) <i>For 100 000 live births</i>	1200 (1990)	830 (2008)	

Sources:

a) 2010 revision of the United Nations demographic projections <http://www.un.org/esa/population>

b) Le Mali face à ses défis démographiques. Rapport No. 44459_ML. Banque mondiale, juin 2009 page 89, and Report No. 44459-ML, World Bank, Mali The Demographic Challenge, June 23, 2010, p86

c) Prevalence of DHS contraception (Demographic and Health Studies), see Country, Mali: DHS, 1995-96 - Final Report (French) <http://www.measuredhs.com/pubs/> and MICS 2010 Enquête par grappe à Indicateurs multiples, INSTAT -Institut National de la Statistique- Bamako MALI, Rapport Final, mars 2011

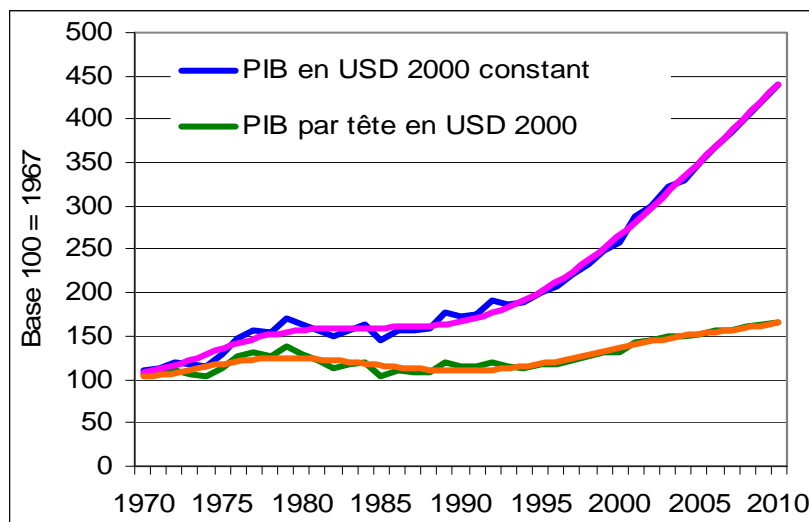
d) Maternal mortality rate: DHS (Demographic and Health Studies), see Country, Mali: DHS, 1995-96 - Final Report (French) page 181, DHS 2001 Final Report (French) page 183, and DHS 2006 - Final Report (French) page 199 <http://www.measuredhs.com/pubs/>; and for the Maternal mortality rate (model), see World Data Bank – World Development Indicators (WDI) <http://databank.worldbank.org/ddp/home.do> (Accessed August 2011)

Notes:

1- we will note that national estimations on mortality based on data from the 2009 census were not available in mid-2011, and that previous national estimations on life expectancy at birth (at 61 years in 2010) were only 10 years higher than those calculated by the United Nations Population Division in the revised 2010 demographic projections.

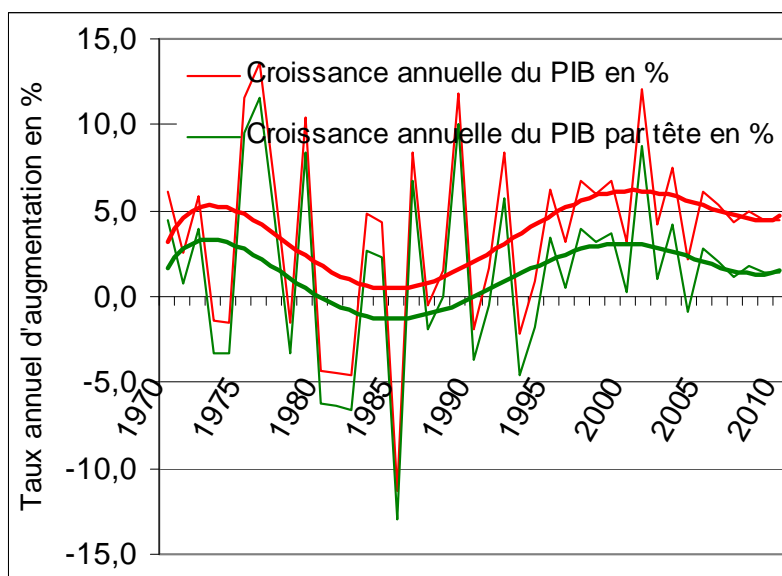
2- Two types of estimations (which vary by a factor of two) are available to determine maternal maternity: those based on statements by the sisters of women questioned during DHS studies, and those based on a regression model. The 2006 DHS study gives a maternal mortality rate of 464 for 100 000 live births during the 6 years preceding the study (2000-2006) compared to 830 in 2008 for the regression model-based estimation.

Figure 2: Evolution of GDP and GDP per capita in Mali since 1970



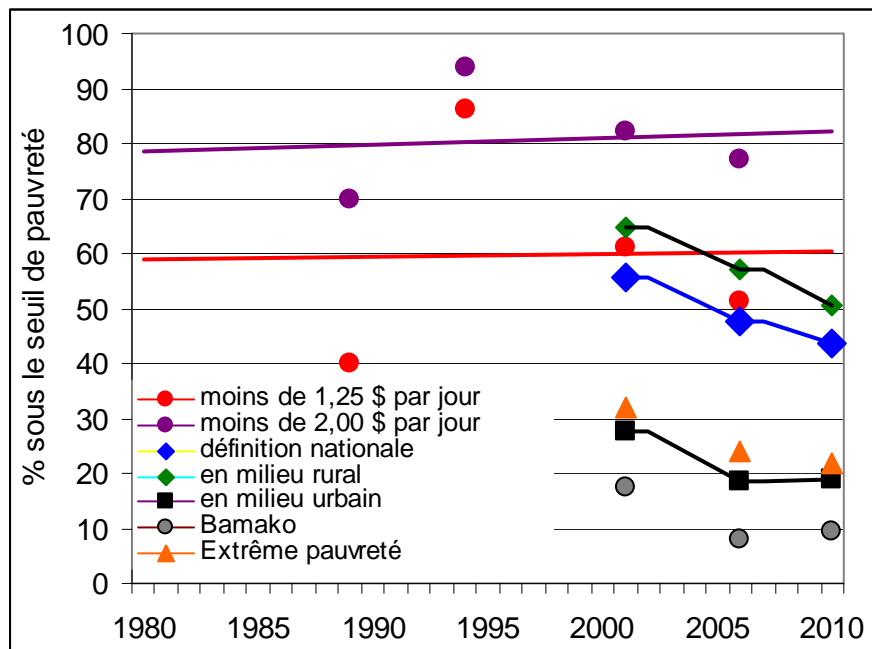
Source: World Data Bank – World Development Indicators (WDI)
<http://databank.worldbank.org/ddp/home.do> (Accessed August 2011).
 See also endnote on GDP and GDP per capita estimations.

Figure 3: Evolution of GDP and GDP per capita growth rates in Mali since 1970



Source: World Data Bank – World Development Indicators (WDI)
<http://databank.worldbank.org/ddp/home.do> (Accessed August 2011).

Figure 4: Population living below the poverty line as a percentage, according to different definitions



Sources:

1- Percentages for population with less than 1,25\$ and less than 2,00\$ PPA/day are those given by the Development Indicators of the World Bank: (<http://databank.worldbank.org/ddp/home.do>);

2) Percentages of poor (according to national definitions) living in urban and rural areas in Bamako, and of people living in situations of extreme poverty, are the results of studies on Malian households conducted in 2001, 2006 and 2010 (see INSTAT - *Institut National de la Statistique, Enquête par grappe à Indicateurs multiples et de dépenses des Ménages* (MICS/ELIM) 2010) *Résultats préliminaires du volet ELIM*, mai 2011, Bamako.

Table 5: Evolution of GDP per capita in Mali from 2010 to 2030, in thousands of CFAF, according to various assumptions on economic and demographic growth

	Economic growth							
	4% per year		5% per year		6% per year		7% per year	
	Demographic growth							
Year	Assumption		Assumption		Assumption		Assumption	
	High	Low	High	Low	High	Low	High	Low
2010	300	300	300	300	300	300	300	300
2015	314	315	330	331	346	347	363	364
2020	328	332	362	366	399	404	439	445
2025	339	352	394	408	456	472	527	545
2030	349	374	426	455	518	553	628	671
Difference in 2030		25		30		36		43
Increase from 2010- 2030	1,16	1,25	1,42	1,52	1,73	1,84	2,09	2,24

Source: calculations by author.

Table 6: Evolution of figures (in thousands) from 2010 to 2030 for total population, births, children and youths to enroll according to high and low demographic assumptions

6a - Evolution of figures (in thousands), high assumption (+0,5 points per year)

Year	Population	Births	0-1 years	2-6 years	7-12 years	13-18 years
2010	15 214	643	1 236	2 784	2 681	1 948
2015	17 676	736	1 343	2 961	3 214	2 583
2020	20 723	878	1 609	3 403	3 504	3 066
2025	24 550	1 055	1 948	4 132	3 972	3 452
2030	29 209	1 235	2 297	4 988	4 820	3 809
Ratio						
2020/2010	1,36	1,37	1,30	1,22	1,31	1,57
2030/2010	1,92	1,92	1,86	1,79	1,80	1,96

6b - Evolution of figures (in thousands), low assumption (+1,5 points per year)

Year	Population	Births	0-1 years	2-6 years	7-12 years	13-18 years
2010	15 214	643	1 236	2 784	2 681	1 948
2015	17 572	696	1 278	2 923	3 214	2 583
2020	20 281	777	1 434	3 174	3 466	3 066
2025	23 415	866	1 611	3 599	3 726	3 434
2030	26 892	927	1 741	4 019	4 225	3 617
Ratio						
2020/2010	1,33	1,21	1,16	1,14	1,29	1,57
2030/2010	1,77	1,44	1,41	1,44	1,58	1,86

6c – Differences of figures (in thousands) between the high and low assumptions

Year	Population	Births	0-1 years	2-6 years	7-12 years	13-18 years
2010	0	0	0	0	0	0
2015	104	40	65	38	0	0
2020	442	101	175	229	38	0
2025	1 135	189	337	533	246	18
2030	2 317	308	556	968	594	192
Sum of differences						
2011/2020	1 656	486	812	782	62	0
2011/2030	14 768	2 532	4 469	6 704	3 027	562
Distribution of differences						
2011/2020	100,0%	29,3%	49,0%	47,2%	3,8%	0,0%
2011/2030	100,0%	17,1%	30,3%	45,4%	20,5%	3,8%

Source: Calculations by author.

Table 7: Evolution of annual health and primary education expenditures from 2010 to 2030, according to high and low demographic assumptions

7a – Annual expenditure (in millions of dollars), high demographic assumption

Year	Health:	Education	
	Total population	Primary (1)	Secondary (1)
	Cost per	Age 7-12	Age 13-18
	Person \$40,00	Cost per student \$80,00	Cost per student \$200,00
2010	\$ 608,6	\$214,5	\$389,6
2015	\$ 707,0	\$257,2	\$516,6
2020	\$ 828,9	\$280,3	\$613,1
2025	\$ 982,0	\$317,8	\$690,5
2030	\$1 168,4	\$385,6	\$761,9

7b – Annual expenditure (in millions of dollars), low demographic assumption

Year	Health:	Education	
	Total population	Primary (1)	Secondary (1)
	Cost per	Age 7-12	Age 13-18
	Person \$40,00	Cost per student \$80,00	Cost per student \$200,00
2010	\$ 608,6	\$214,5	\$389,6
2015	\$ 702,9	\$257,2	\$516,6
2020	\$ 811,2	\$277,3	\$613,1
2025	\$ 936,6	\$298,1	\$686,8
2030	\$1 075,7	\$338,0	\$723,4

7c - Differences (in millions of dollars) in annual expenditures between high and low demographic assumptions

Year	Health:	Education	
	Total population	Primary (1)	Secondary (1)
	Cost per	Age 7-12	Age 13-18
	Person \$40,00	Cost per student \$80,00	Cost per student \$200,00
2015	\$4,2	\$0,0	\$0,0
2020	\$17,7	\$3,0	\$0,0
2025	\$45,4	\$19,7	\$3,7
2030	\$92,7	\$47,5	\$38,5

**7d – Cumulation of annual differences in expenditures (in millions of dollars)
between the high and low assumptions**

Year	Health:	Education	
	Total population Cost per Person \$40,00	Primary (1) Age 7-12 Cost per student \$80,00	Secondary (1) Age 13-18 Cost per student \$200,00
2011-2015	\$9,5	\$0,0	\$0,0
2011-2020	\$66,2	\$5,0	\$0,0
2011-2025	\$231,0	\$64,9	\$4,8
2011-2030	\$590,7	\$242,2	\$112,4

Source: Calculations by author

Note (1): According to preliminary results from the ELIM component *Enquête par grappe à Indicateurs multiples et de Dépenses des Ménages*: MICS/ELIM 2010, mai 2011, INSTAT, schooling from ages of 7-12 in Mali falls under Primaire 1, and schooling from ages 13-15 falls under Primaire II, which in other countries corresponds to the 1st cycle of secondary school. According to this source, schooling from ages 16-18 in Mali falls under Secondaire. However, figures for expenditure per student provided for secondary school in the World Development Indicators (WDI) <http://databank.worldbank.org/ddp/home.do> refers to 6 years of schooling. For this reason, we have retained the “traditional” appellations, namely “primary” for schooling from age 7-12 and “secondary” for schooling from age 13-18.

Table 8: Evolution of contraception use, unmet needs and of total demand for contraceptives

DHS and MICS studies	DHS 1987	DHS 1995- 1996	DHS 2001	DHS 2006	MICS 2010
Contraceptive prevalence					
- Modern methods	1,3	4,5	6,9	6,9	8,0
- Traditional methods	3,3	2,2	1,1	1,4	1,2
Total	4,7	6,7	8,0	8,3	9,2
% Traditional methods	70%	33%	14%	17%	13%
Annual average progression, in percentage points					
- Modern methods	0,38	0,44	0,00	0,28	0,29
- Traditional methods	-0,13	-0,20	0,06	-0,05	-0,09
Total	0,24	0,24	0,06	0,23	0,20
DHS et MICS studies	1987	1995-1996	2001	2006	2010
Unmet needs	-	25,7	28,5	31,2	30,8
Total demand for contraceptives		32,4	36,5	39,5	40,0

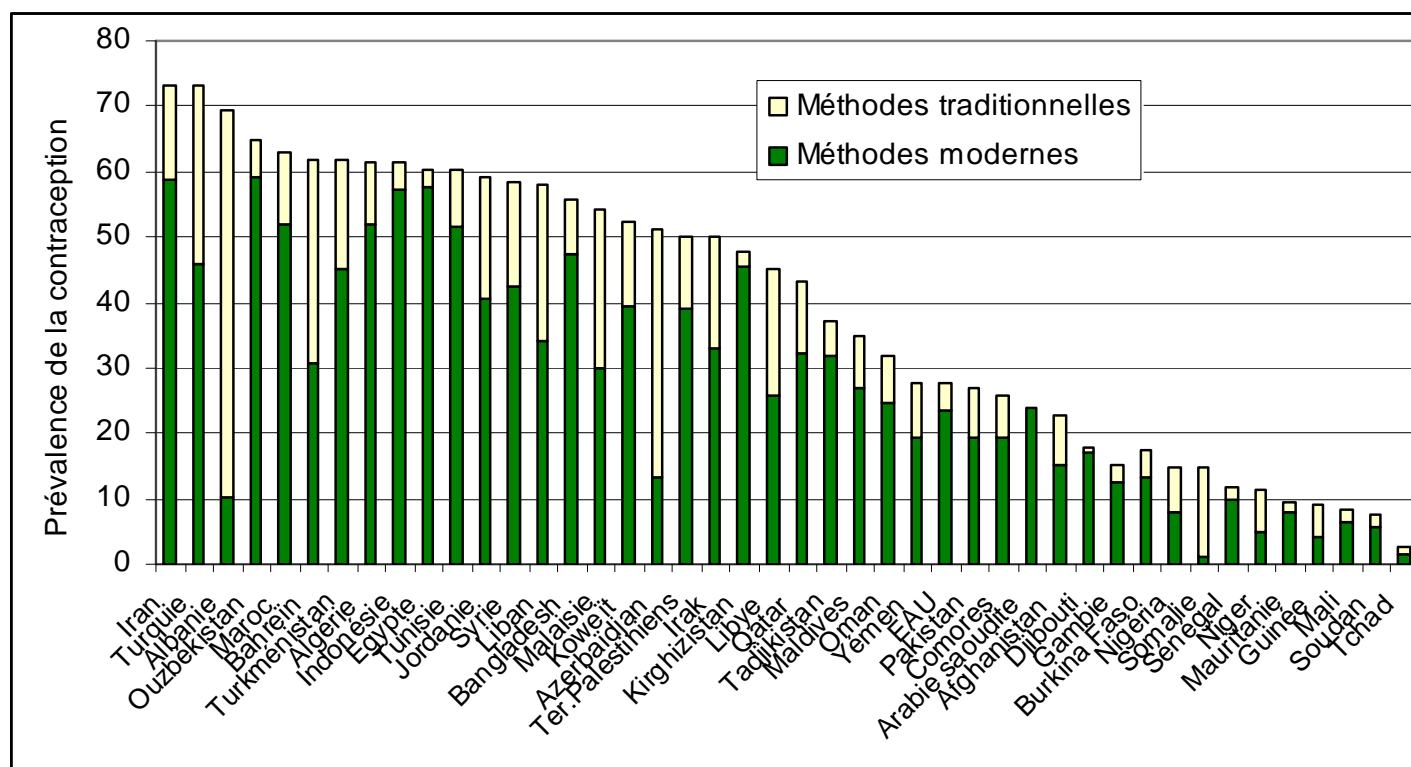
Source: MEASURES DHS Online Tools (<http://www.statcompiler.com/>) and Enquête par grappes à indicateurs multiples (MICS), 2010, Rapport Final, mars 2011.

Table 9: Use of contraceptives, unmet needs, and demand for contraception by level of education and wealth quintile in 2010

Use, need and Demand for Contraception (MICS 2010)	Use of contraception	Unmet needs				Demand For FP Total	% of Satisfied Demand
		Total	of which		% for		
			Spacing	Stopping	Stop		
By level of education							
- Uneducated women	7,3	30,7	21,0	9,7	32%	38,0	19%
- Primary school level	15,5	30,4	22,9	7,4	25%	45,9	34%
- At least secondary school level	24,1	32,8	25,1	7,6	23%	56,9	42%
By wealth quintile							
- Poorer women	4,2	28,8	19,5	9,3	32%	33,0	13%
- Very poor	5,3	30,4	21,4	9,0	30%	35,7	15%
- Poor	7,0	30,9	21,5	9,4	30%	37,9	18%
- Middle-class	13,0	32,1	22,7	9,4	29%	45,1	29%
- Wealthier	20,7	32,1	23,2	8,9	28%	52,8	39%
Ensemble	9,9	30,8	21,6	9,2	30%	40,7	24%

Source: MALI, Enquête par grappes à indicateurs multiples (MICS), 2010, Rapport Final, mars 2011.

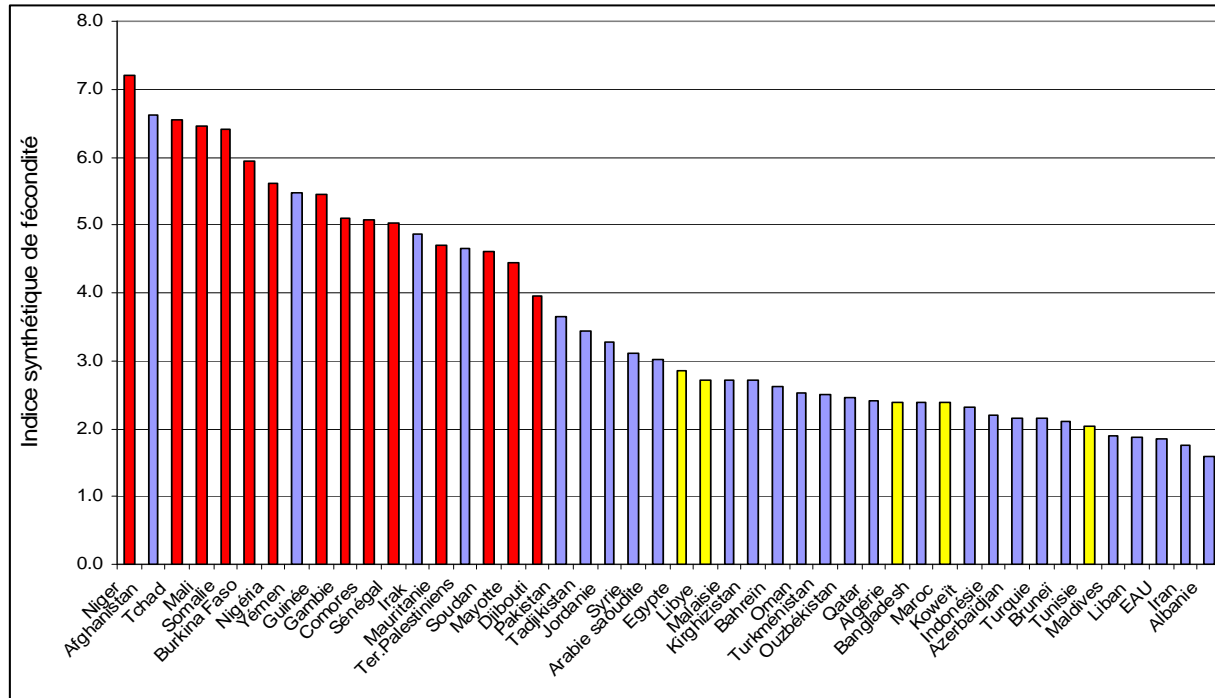
Figure 5: Percentage of women using a method of contraception using during the last study conducted in Muslim-majority countries



Source: Update for the MDG database [Contraceptive Prevalence](#)

United Nations, Population Division, 2011 <http://www.un.org/esa/population/>

Figure 6: Average number of children per woman in Muslim-majority countries from 2005-2010



Note: Sub-Saharan African countries are indicated in red and North African countries in yellow. The other countries are from Asia, with the exception of Albania.

Source: [World Population Prospects: The 2010 Revision](http://www.un.org/esa/population/) United Nations, Population Division 2011, <http://www.un.org/esa/population/>

Table 10: Estimated purchasing costs of contraceptive products, according to assumptions on annual increase in the use of contraception

Year / periods	2010	2015	2020	% Of annual growth	
				2010-2015	2015-2020
Women aged 15 to 49 (thousands)	3 177	3 818	4 575	3,7 %	3,7 %
Prevalence, modern methods					
- High assumption, + 0,5 points/year	7,9 %	10,2 %	12,6 %	5,2 %	4,3 %
- Assumption + 1,0 points/year	7,9 %	12,3 %	16,9 %	9,2 %	6,5 %
- Low assumption, + 1,5 points/year	7,9 %	14,4 %	21,2 %	12,7 %	8,0 %
Female users, modern methods (thousands) ¹					
- High assumption + 0,5 points/year	201	307	447	8,8 %	7,8 %
- Assumption + 1,0 points/year	201	370	600	13,0 %	10,1 %
- Low assumption, + 1,5 points/year	202	433	752	16,6 %	11,7 %
¹ Not included is women who have received sterilization and users of diaphragms, mousses or jellies.					
Cost of modern methods	2010	2015	2020	% Of annual growth	
Without sterilization, in US Dollars				2010-2015	2015-2020
- High assumption, + 0,5 points/year	848 499	1 500 666	2 532 708	12,1 %	11,0 %
- Assumption + 1,0 points/year	848 499	1 808 192	3 394 163	16,3 %	13,4 %
- Low assumption + 1,5 points/year	848 499	2 115 035	4 254 534	20,1 %	15,0 %
Cost per method, in US Dollars				Total	Total
				2011 - 2015	2011 - 2020
Total high assumption, + 0,5 points/year				6 065 994	16 474 546
Total assumption + 1,0 points/year				6 910 528	20 394 034
Total low assumption, + 1,5 points/year				7 752 298	24 306 140

Source: Estimations/projections made within the framework of the study.

Annex 3: Gender

Figure 1: Gender of firm owners, 2010

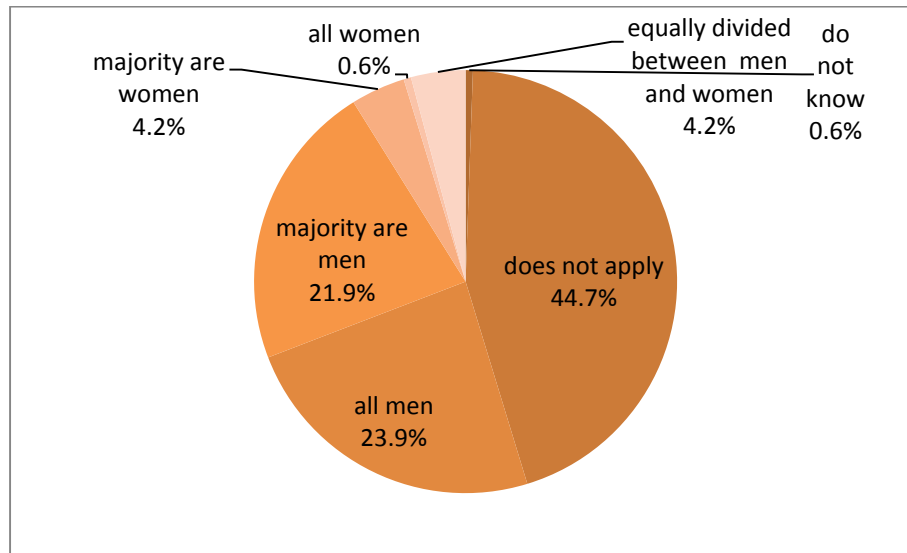


Table 1: Gender of firm owners, 2010

Gender of firm owners	Freq.	Percent
all men	86	23.9
majority are men	79	21.9
majority are women	15	4.2
all women	2	0.6
equally divided between men and women	15	4.2
does not apply	161	44.7
do not know	2	0.6
Total	360	100

Note: The predominance of 'does not apply' is somewhat surprising given that of the 161 establishments that reported this 'does not apply', 158 were sole proprietors and three were partnerships.

Table 2: Female managers, 2010

Is the top manager female?	Freq.	Percent
yes	47	13.06
no	312	86.67
do not know	1	0.28
Total	360	100

Table 3: Management and ownership

gender of firm owners	Is the top manager female?			Total	% female
	yes	no	d/k		
all men	3	83	0	86	3.5
majority are men	7	72	0	79	8.9
equally divided	2	13	0	15	13.3
majority are women	11	4	0	15	73.3
all women	2	0	0	2	100.0
does not apply*	22	138	1	161	13.8
do not know	0	2	0	2	0.0
Total	47	312	1	360	13.1

* All of the 22 establishments with a female as the top manager are sole proprietorships and 135 of the 138 no responses are also sole proprietorships.

Table 4: Firm ownership 2007

	Freq.	Percent
Female owner	101	16.3
No female owner	518	83.7

Table 5: Selected characteristics of male and female managed firms, 2010

	Obs	Mean	Std. Dev.	Min	Max
Top manager female					
Age	47	11.3	5.9	1	28
sales (CFAF millions)	19	195.0	475.0	0.1	2000
Employment	47	12.9	14.7	3	75
Female employment	33	4.0	3.3	0	18
Female empl. as % total	33	30.7	--	--	--
% in service sector	47	74.5	--	--	--
% export	47	6.4	--	--	--
% foreign owned	47	14.9	--	--	--
% in large town	47	95.7	--	--	--
% in medium sized town	47	4.3	--	--	--
% accessed credit or overdraft last year	43	16.3	--	--	--
Top manager male					
Age	282	11.9	8.2	1	53
sales (CFAF millions)	88	1190.0	3150.0	0.001	19000
Employment	301	19.9	29.3	1	250
Female employment	178	3.5	5.7	0	46
Female empl. as % total	178	17.4	--	--	--
% in service sector	301	62.8	--	--	--
% export	285	5.6	--	--	--
% foreign owned	301	15.6	--	--	--
% in large town	301	80.4	--	--	--
% in medium sized town	301	19.6	--	--	--
% accessed credit or overdraft last year	277	17.7	--	--	--

Table 6: Selected characteristics of male and female owned firms, 2007

	Obs	Mean	Std. Dev.	Min	Max
At least one female owner					
employment	101	16.2	35.0	1	250
age	101	9.1	8.4	1	57
female employment (manufacturing only)	50	3.3	8.5	0	59
female empl. as % total (manufacturing only)	50	18.1	--	--	--
% with foreign ownership	101	9.9	--	--	--
% in service sector	101	43.6	--	--	--
% export	101	5.0	--	--	--
% accessed credit or overdraft in last year	101	18.8	--	--	--
% in Bamako	101	72.3	--	--	--
No female owner					
employment	518	11.1	21.6	1	350
age	518	9.7	7.5	1	47
female employment (manufacturing only)	251	1.1	3.8	0	50
female empl. as % total (manufacturing only)	251	6.4	--	--	--
% with foreign ownership	518	3.1	--	--	--
% in service sector	518	46.7	--	--	--
% export	518	4.1	--	--	--
% accessed credit or overdraft in last year	518	10.0	--	--	--
% in Bamako	518	62.2	--	--	--

Table 7: Owner gender, sector and female employment, 2007

	Obs	Mean	Std. Dev.	Min	Max
At least one female owner					
food	18	14.7%	0.18	0.00	0.47
textile/garments	22	22.6%	0.21	0.00	0.93
heavy industry*	9	15.9%	0.12	0.01	0.38
metal products	0				
other manufacturing	1	0.0%		0.00	0.00
total	50	18.1%	0.19	0.00	0.93
No female owner					
food	78	4.0%	0.08	0.00	0.31
textile/garments	118	8.5%	0.16	0.00	1.00
heavy industry*	19	9.7%	0.10	0.00	0.38
metal products	19	1.6%	0.05	0.00	0.21
other manufacturing	17	4.1%	0.08	0.00	0.21
total	251	6.4%	0.12	0.00	1.00
Total					
	Obs	Mean	Std. Dev.	Min	Max
food	96	6.0%	0.11	0	0
textile/garments	140	10.7%	0.17	0	1
heavy industry*	28	11.7%	0.11	0	0
metal products	19	1.6%	0.05	0	0
other manufacturing	18	3.9%	0.07	0	0
total	301	8.3%	0.14	0	1

* chemicals, plastics and rubber, non metallic mineral products, basic metals, machinery & equipment, electronics

Table 7: Manager gender, sector and female employment, 2010

	Obs	Mean	Std. Dev.	Min	Max
Female manager					
food	6	76.0%	24.5	42.9%	100.0%
textile/garments	2	57.1%	60.6	14.3%	100.0%
heavy industry*	3	58.9%	41.7	16.7%	100.0%
metal products	0	0.0%		0.0%	0.0%
other manufacturing	1	83.3%		83.3%	83.3%
construction	2	21.0%	8.0	15.4%	26.7%
motor vehicles	1	45.5%		45.5%	45.5%
wholesale	1	33.3%		33.3%	33.3%
retail	18	48.7%	19.4	18.2%	100.0%
hotel/restaurants	6	35.2%	22.9	12.0%	64.3%
transport	3	33.3%	57.7	0.0%	100.0%
IT	1	33.3%		33.3%	33.3%
total	44	48.3%	29.5	0.0%	100.0%
Male manager					
food	37	34.3%	39.6	0.0%	100.0%
textile/garments	38	48.3%	43.1	0.0%	100.0%
heavy industry*	31	33.8%	37.8	0.0%	100.0%
metal products	8	20.6%	34.5	0.0%	100.0%
other manufacturing	11	36.0%	35.2	0.0%	100.0%
construction	24	18.0%	13.6	0.0%	50.0%
motor vehicles	9	20.8%	15.8	0.0%	50.0%
wholesale	7	28.8%	27.2	0.0%	78.4%
retail	62	16.9%	21.7	0.0%	100.0%
hotel/restaurants	23	28.8%	13.8	5.4%	60.0%
transport	21	16.8%	16.8	0.0%	55.6%
IT	12	45.3%	34.3	12.5%	100.0%
total	283	28.8%	31.9044	0.0%	100.0%
Total					
	Obs	Mean	Std. Dev.	Min	Max
food	43	40.1%	40.3	0.0%	100.0%
textile/garments	40	48.8%	43.1	0.0%	100.0%
heavy industry*	34	36.0%	38.2	0.0%	100.0%
metal products	9	18.3%	33.0	0.0%	100.0%
other manufacturing	12	40.0%	36.3	0.0%	100.0%
construction	26	18.2%	13.2	0.0%	50.0%
motor vehicles	10	23.3%	16.8	0.0%	50.0%
wholesale	8	29.4%	25.2	0.0%	78.4%
retail	80	24.0%	25.0	0.0%	100.0%
hotel/restaurants	30	30.2%	15.6	5.4%	64.3%
transport	24	18.8%	23.8	0.0%	100.0%
IT	13	44.4%	33.0	12.5%	100.0%
total	329	31.4%	32.2	0.0%	100.0%

* chemicals, plastics and rubber, non metallic mineral products, basic metals, machinery & equipment, electronics

Table 8: Female workers by sector-production versus non-production employees, 2010

	Obs	Mean	Std. Dev.	Min	Max
Total					
Employees	349	19.0	27.8	1	250
Employees (if reported number of female employees)	329	19.3	28.4	1	250
Total number of female employees	329	5.1	9.6	0	89
Average weighted percentage of female employees	329	26.6	--	--	--
Service sector					
Employees	225	17.2	22.9	1	185
Employees (if reported number of female employees)	212	17.4	23.1	1	185
Total number of female employees	212	3.5	5.4	0	46
Average weighted percentage of female employees	212	20.4	--	--	--
Manufacturing sector					
Employees	124	22.2	34.9	2	250
Employees (if reported number of female employees)	117	22.8	35.9	2	250
Total number of female employees	117	8.1	13.9	0	89
Average weighted percentage of female employees	117	35.2	--	--	--
Total production workers	124	17.8	29.7	1	200
Total non-production workers	124	4.5	7.9	0	50
Total production workers (if reported number of female employees)	117	18.4	30.5	1	200
Total non-production workers (if reported number of female employees)	117	4.4	8.0	0	50
Female production employees	117	6.4	11.6	0	74
Female non-production employees	117	1.7	3.2	0	16
Weighted average % of production workers who are female	117	34.6	--	--	--
Weighted average % of non-production workers who are female	117	38.1	--	--	--

Table 9: Female workers in manufacturing-production versus non-production employees, 2007

	Obs	Mean	Std. Dev.	Min	Max
Employees	490	14.4	26.8	5	350
Employees (manufacturing sector only)	301	17.4	32.6	5	350
Total number of female employees	301	1.5	4.9	0	59
Average weighted percentage of female employees	301	8.4	--	--	--
Total production workers	301	14.7	29.5	2	326
Total non-production workers	301	2.7	4.6	0	40
Female production employees	301	1.1	4.3	0	56
Female non-production employees	301	0.4	1.2	0	10
Weighted average % of production workers who are female	301	7.6	--	--	--
Weighted average % of non-production workers who are female	200	13.1	--	--	--

Note: Unfortunately, in the 2007 Enterprise Survey, information on female employees was collected only from manufacturing firms.

Table 10: Female employment by manager gender, 2010

	Obs	Mean	Std. Dev.	Min	Max
Total, female manager					
Employees	47	12.9	14.7	3	75
Employees (if reported number of female employees)	45	11.6	11.7	3	75
Total number of female employees	45	4.2	3.3	0	18
Average weighted percentage of female employees	45	36.7%	--	--	--
Total, male manager					
Employees	301	19.9	29.3	1	250
Employees (if reported number of female employees)	283	20.6	30.1	1	250
Total number of female employees	283	5.3	10.2	0	89
Average weighted percentage of female employees	283	25.7%	--	--	--
Service sector, female manager					
Employees	35	13.8	16.4	3	75
Employees (if reported number of female employees)	33	11.9	12.9	3	75
Total number of female employees	33	4.0	3.3	0	18
Average weighted percentage of female employees	33	33.2%	--	--	--
Service sector, male manager					
Employees	189	17.8	23.9	1	185
Employees (if reported number of female employees)	178	18.4	24.5	1	185
Total number of female employees	178	3.5	5.7	0	46
Average weighted percentage of female employees	178	18.8%	--	--	--
Manufacturing sector, female manager					
Employees	12	10.5	7.7	4	30
Employees (if reported number of female employees)	12	10.5	7.7	4	30
Total number of female employees	12	5	3.4	0	12
Average weighted percentage of female employees	12	47.6%	--	--	--
Total production workers	12	8.8	7.9	2	30
Total non-production workers	12	1.7	1.9	0	5
Total production workers (if reported number of female employees)	12	8.8	7.9	2	30
Total non-production workers (if reported number of female employees)	12	1.7	1.9	0	5
Female production employees	12	3.8	3.7	0	12
Female non-production employees	12	1.2	1.6	0	5
Weighted average % of production workers who are female	12	43.4%	--	--	--
Weighted average % of non-production workers who are female	12	70.0%	--	--	--
Manufacturing sector, male manager					
Employees	112	23.5	36.5	2	250
Employees (if reported number of female employees)	105	24.3	37.5	2	250
Total number of female employees	105	8.4	14.5	0	89
Average weighted percentage of female employees	105	34.6%	--	--	--
Total production workers	112	18.7	31.0	1	200
Total non-production workers	112	4.8	8.3	0	50
Total production workers (if reported number of female employees)	105	19.5	31.9	1	200
Total non-production workers (if reported number of female employees)	105	4.7	8.4	0	50
Female production employees	105	6.7	12.1	0	74
Female non-production employees	105	1.7	3.3	0	16
Weighted average % of production workers who are female	105	36.5%	--	--	--
Weighted average % of non-production workers who are female	105	35.6%	--	--	--

Table 11: Change in employment using panel sample

	Obs	Mean	Std. Dev.	Min	Max
2007 survey					
Employees	490	14.4	26.8	5	350
Change in employment: 2002-2007	66	-2.8	42.9	-268	92
2010 survey					
Employees	349	19.0	27.8	1	250
Change in employment: 2006-2009	142	-4.7	24.8	-194	61

Table 12: Changes in employment in manufacturing sector

	Obs	Mean	Std. Dev.	Min	Max
Change in employment: 2006-2009	142	-4.7	24.8	-194	61
Change in employment: 2006-2009 (if reported number of female employees)	85	-8.3	29.3	-194	30
Change in female employment: 2006-2009	85	2.4	9.2	-59	33
Change in production employment: 2006-2009	92	-7.5	27.3	-176	33
Change in non-production employment: 2006-2009	92	-0.2	7.4	-33	40
Change in production employment: 2006-2009 (if reported number of female employees)	85	-7.8	28.3	-176	33
Change in non-production employment: 2006-2009 (if reported number of female employees)	85	-0.5	7.3	-33	40
Change in female production employment: 2006-2009	85	1.7	8.3	-56	20
Change in female non-production employment: 2006-2009	85	0.6	2.5	-9	13

Table 13: Probit models for obstacles to doing business

2010 Constraints. Probit models: 1=severe or major obstacle for firm.

	Business					Customs, trade					Education			
	Corruption	Political instability	licensing and permits	Tax administration	Tax rates	Crime, theft, disorder	Access to land	regulations	Transport	Courts	Labor regulations	level of labor force	Access to finance	
Age	0.01 (1.94)	0.01 (2.03)*	0.00 (0.43)	0.00 (1.20)	0.00 (0.57)	0.00 (0.28)	-0.00 (-0.91)	0.00 (0.65)	0.00 (0.88)	0.01 (2.08)*	0.00 (0.50)	-0.00 (-0.07)	0.00 (0.76)	
Second quartile	-0.01 (-0.17)	-0.03 (-0.47)	0.03 (0.37)	0.02 (0.25)	0.04 (0.37)	0.00 (0.02)	-0.23 (-3.81)***	-0.08 (-1.45)	-0.13 (-2.51)*	-0.04 (-0.65)	-0.00 (-0.03)	0.04 (0.53)	-0.11 (-1.14)	
Third quartile	0.03 (0.39)	-0.04 (-0.70)	0.01 (0.16)	0.12 (1.58)	0.01 (0.18)	0.08 (1.14)	-0.04 (-0.57)	0.04 (0.64)	-0.03 (-0.52)	0.00 (0.02)	0.03 (0.66)	0.01 (0.28)	-0.01 (-0.09)	
Largest firms	-0.11 (-2.00)*	-0.07 (-1.30)	-0.02 (-0.34)	-0.01 (-0.13)	-0.02 (-0.25)	0.06 (1.01)	-0.11 (-1.69)	0.05 (0.90)	-0.05 (-0.86)	-0.03 (-0.68)	0.05 (1.13)	0.02 (0.48)	-0.21 (-2.94)**	
Service sector	-0.01 (-0.16)	-0.04 (-0.88)	-0.02 (-0.51)	-0.02 (-0.30)	0.01 (0.17)	-0.04 (-0.89)	-0.04 (-0.62)	0.08 (1.92)	-0.03 (-0.51)	0.02 (0.34)	0.00 (0.16)	-0.06 (-1.48)	-0.20 (-3.22)**	
Foreign ownership	0.01 (0.13)	0.10 (1.32)	0.09 (1.27)	0.04 (0.51)	0.01 (0.11)	0.23 (3.05)**	-0.09 (-1.25)	-0.07 (-1.53)	-0.07 (-1.22)	0.14 (1.89)	0.00 (0.01)	-0.02 (-0.56)	-0.01 (-0.17)	
Female manager	0.02 (0.57)	0.01 (0.20)	0.00 (0.06)	0.04 (1.02)	0.03 (0.84)	0.01 (0.29)	0.02 (0.61)	0.10 (1.49)	0.09 (1.21)	0.01 (0.31)	-0.00 (-0.05)	0.03 (0.75)	0.16 (1.85)	
Firm exports	0.06 (0.49)	0.01 (0.06)	0.14 (1.20)	-0.03 (-0.26)	0.09 (0.73)	-0.02 (-0.31)	0.13 (1.10)	0.15 (1.28)	0.24 (2.00)*	-0.10 (-1.69)	0.08 (0.98)	0.06 (0.74)	0.08 (0.67)	
Capital city	-0.01 (-0.13)	-0.08 (-1.12)	-0.09 (-1.40)	0.01 (0.15)	0.07 (1.10)	0.05 (0.83)	-0.11 (-1.60)	-0.09 (-2.06)*	-0.07 (-1.21)	-0.02 (-0.40)	0.03 (0.65)	-0.08 (-2.41)*	0.21 (2.81)**	
N	288	282	271	295	284	318	310	297	301	280	306	294	316	
Chi 2	8.35	10.86	8.25	5.92	2.78	16.56	14.94	15.65	11.60	12.16	5.56	7.56	33.93	

*Marginal effects reported; quartiles represent firm size.

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