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MAURITIUS

Inclusiveness of Growth and Shared Prosperity

WORLD BANK GROUP

GPVDR
AFRICA

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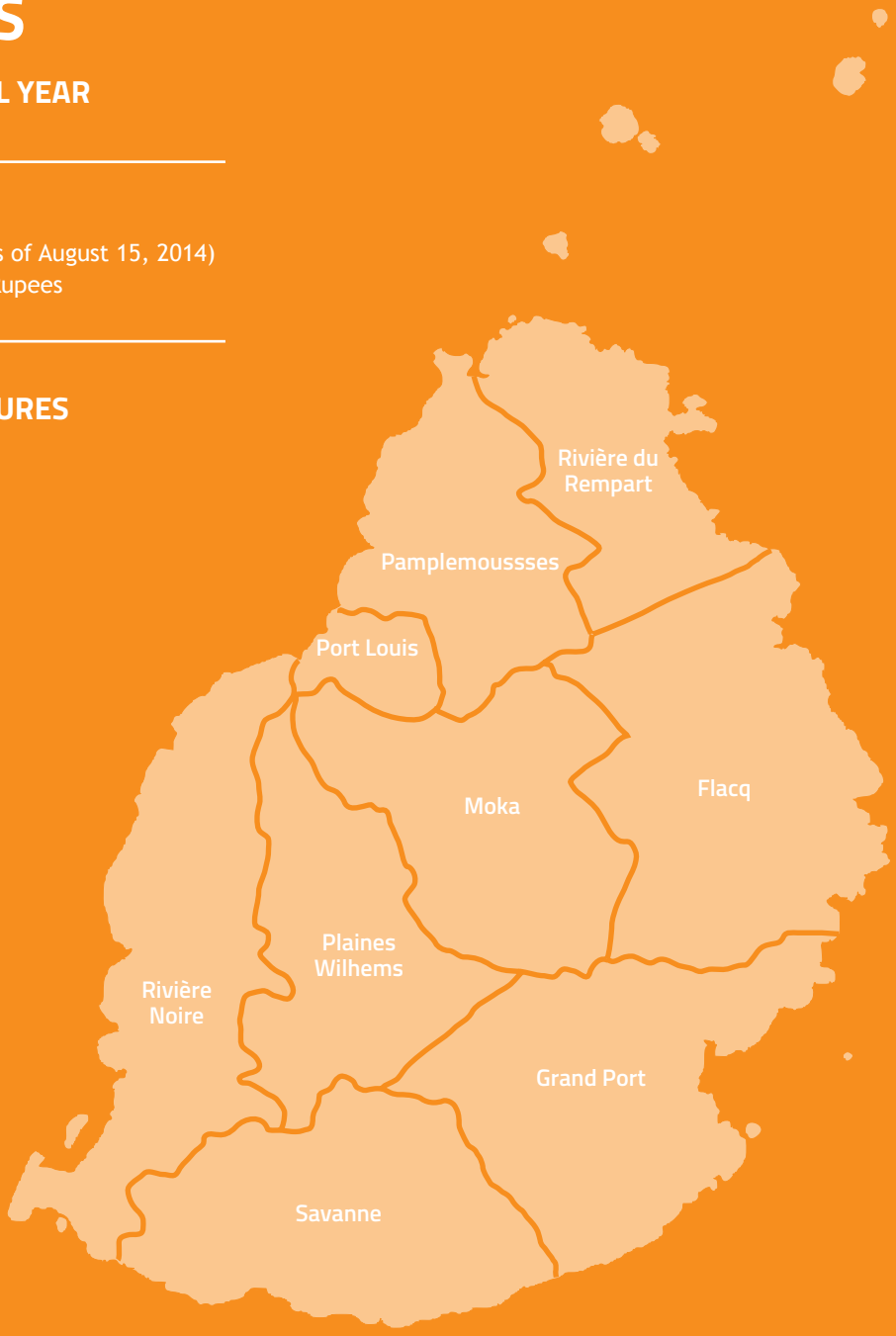
MAURITIUS

GOVERNMENT FISCAL YEAR
July 1 - June 30

CURRENCY UNIT
(Exchange Rate Effective as of August 15, 2014)
Currency Unit = Mauritian Rupees
US$1.0 = Rs.30.60

WEIGHTS AND MEASURES
Metric System



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ABBREVIATIONS AND ACRONYMS

BRP	Basic Retirement Pension
CPE	Certificate of Primary Education
CPI	Consumer Price Index
CSO	Civil Society Organizations
CSR	Corporate Social Responsibility
DCP	Decentralized Cooperation Program
EAP	Eradication of Absolute Poverty
EBIT	Earnings Before Interest and Taxes
ECD	Early Childhood Development
ECCE	Early Childhood Care and Education
GDP	Gross Domestic Product
GIC	Growth Incidence Curve
GNI	Gross National Income
HBS	Household Budget Survey
HIV/AIDS	Human Immuno-deficiency Virus/ Acquired Immuno-Deficiency Syndrome
ILO	International Labor Organization
IMF	International Monetary Fund
IP	Invalid Pension
ISIC	International Standard of Industrial Classification
IT	Information Technology
LSMS	Living Standard Measurement Surveys
MIC	Middle Income Countries
MUR	Mauritian Rupee
NEET	Neither in Education nor in Training and Unemployed
NEF	National Empowerment Fund
NISP	New Income Support Program
NPF	National Pension Fund
NSF	National Savings Fund
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
PISA	Progress for International Student Assessment
PMT	Proxy Means Test
PPP	Purchasing Power Parity
ROA	Return on Assets
Rs	Rupees
SA	Social Assistance
SACMEQ	Southern and Eastern Africa Consortium for Monitoring Education Quality
SAP	Social Aid Program
SBTC	Skill Biased Technical Change
SI	Social Insurance
SME	Small and Medium-sized Enterprises
SOC	Standard Occupational Classification
SP	Social Protection
SRM	Social Registry of Mauritius
SSA	Sub-Saharan Africa
STEM	Science, Technology, Engineering and Math
TFSIVG	Trust Fund for the Social Integration of Vulnerable Groups
TIMSS	Trends in International Mathematics and Science Study
UNESCO	United Nations Educational and Scientific and Cultural Organization
USD	United States Dollar
WCP	Widows and Children Pension

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EXECUTIVE SUMMARY

A. Reforms to sustain growth

1. Mauritius is a high middle-income country with low levels of poverty and inequality. The headcount poverty level was 6.9 percent in 2012; measured by the international standard of US$2 per day (PPP), poverty was less than 1 percent. On inequality, Mauritius also fared well compared to its peer middle-income countries, with a Gini coefficient 0.39 in 2012. On the negative side, Mauritius' growth has not been equally shared, despite the general improvement in welfare in the 2000s. In terms of per capita income growth rates of the bottom 40 percent of the population, Mauritius ranked 63rd among 84 developing countries.

2. Since independence in 1968, Mauritius' economic performance has been strong, associated with diligent economic policies, productivity growth, and human-capital accumulation. Despite the general success in the early 2000s, the country developed many inefficiencies, including restrictive regulations in trade and labor and deficiencies in macro management. GDP growth reached its long-run potential, and labor-market indicators started to deteriorate. Structural and institutional challenges led the Government to liberalize its industrial, trade, and labor policies in the mid-2000s. It removed many bureaucratic and regulatory obstacles and introduced an array of improvements in the business environment. Along with these structural reforms, the Government took a bold approach to dealing with high public deficits and rising public debt, removing the medium-term threat that an unsustainable fiscal course posed to macroeconomic stability. This was complemented by a prudent monetary policy and flexible exchange rates, which helped build considerable foreign reserves.

3. The reforms had an immediate, palpable impact on Mauritius' economic performance. GDP growth accelerated, associated with improvements in exports and the current account, increases in FDI, and improvements in the main labor market indicators. However, the reforms did not resolve the issue of relatively low and falling productivity, and TFP's contribution to growth was limited.

B. Fast growth but low shared prosperity

4. The economic changes of the 2000s led to increasing income inequality and deterioration in the shared-prosperity indicators. The economy's polarization was associated with a structural transformation from labor-intensive industries to services and knowledge-intensive industries. Declines in agriculture and traditional textile industries led to a deterioration of the primary and secondary sectors, while accommodations and wholesale trade have been at the forefront of a booming tertiary sector. The financial and construction sectors have also expanded. High-tech industries have grown in recent years, but they are still marginal. The demand for traditional and low-skilled occupations has declined, and migrant workers have taken many blue-collar domestic jobs, filling vacancies in unattractive occupations that no longer appeal to Mauritian job-seekers.

5. Growing demand for highly skilled workers, combined with insufficient supply, led to an increase of almost 30 percent in the skills-mismatch index between 2001 and 2010. The Enterprise Survey points to inadequate skills as a major challenge for the larger enterprises. Foreign workers also substituted for Mauritians in many low-skill occupations. Some workers who lost their jobs were forced to look for employment in more advanced sectors, where higher education is at a premium, but their skills were not necessarily adequate. Unmet demand led to a disproportionate increase in relative wages for skilled workers. The highest salaries are in the services sector, and the trend remains upward. Compared to agriculture, tourism and the tertiary sector paid around 40 percent more in 2012, while manufacturing salaries were 30 percent higher. At the same time, high skills and high-tech jobs growth were important sources of employment growth, starting in the second half of the decade. The STEM[1] and high-tech occupations also pay considerably higher salaries. Labor-market outcomes are worse among the poor, and their situation has deteriorated, leading to widening disparities.

6. Reforms boosted job creation and the entrance of new firms in the mid-2000s. However, SMEs face challenges to being profitable and raising their market share, and they report difficulties in finding qualified employees. Mauritian firms are relatively small, not

[1] STEM is an acronym referring to the academic disciplines of science, technology, engineering and mathematics.

very profitable, and generally lack growth potential. New firms face even more severe challenges. They have been more likely to enter the construction and services industries. Access to financing is still a major obstacle. A majority of new firms generate little revenue, and they are severely leveraged and more risky. Around 70 percent of small firms and roughly 55 percent of medium and large firms are highly leveraged. Small firms are more likely than other businesses to be unprofitable. Compared to the services industry, firms are more likely to be unprofitable in agricultural and textiles industries.

7. Despite some improvements in labor regulations in the 2000s, wage determination in Mauritius depends heavily on non-market regulations and collective bargaining. A puzzling aspect of the Mauritian economy is a disproportionate increase in real wages in the public sector. Increases of 23.5 percent have been observed in the public sector, compared with only 7 percent in the private sector.

8. Rising income inequality and lagging shared prosperity had adverse impacts on relative poverty and inequality in Mauritius. Although absolute poverty fell from 8.5 percent to 6.9 percent in 2007-12, relative poverty2 rose from 8.5 percent to 9.8 percent. Income inequality, measured by the Gini coefficient, increased from 0.36 to 0.39.3 According to our analysis, the reduction of absolute poverty in Mauritius would be almost twice as large if growth were better shared, and inequality would not have worsened. Economic growth and declining inequality are equally important for the reduction and possible eradication of poverty in Mauritius.

9. The poor are generally trapped in poverty due to a weak connection to the labor market, demographic issues, low education, and health challenges. The poor tend to live in large households, often headed by a single parent. Poverty has a predominantly young face, increasing among households headed by younger people. Overall, Sino-Mauritians are the least poor ethnic group, and they have experienced a large decline in the incidence of poverty. People living in households headed by more highly educated people tend to earn higher incomes than their less educated counterparts. As a result, poverty is highest among people living in households with heads who did not complete any education level.

10. Poverty is especially high among the unemployed, but the inactive group makes up the largest share of the poor. In addition, the working poor are a relatively large group, representing 26 percent of Mauritians living in poverty. White-collar occupations are associated with lower poverty, while poverty among blue-collar workers is high and has tended to increase over time. Better educated individuals have better chances than the poorly educated to get the best jobs. Poverty also varies widely across occupations.

11. Increasing economic vulnerability is a worrisome trend in Mauritius. The share of the population considered economically vulnerable increased from 10.2 percent in 2007 to 12.7 percent in 2012. The share of the population in the middle class has also declined—although the majority of the population is still considered middle class. Our analysis suggests that skilled employment and quality tertiary education are the main attributes for reaching the upper middle class in Mauritius. In addition, employment in public administration or public enterprises is key, with 75 percent of those employed in these occupations making it to the upper middle class, compared with 53 percent in private enterprises, 43 percent in export-oriented enterprises, and 32 percent in household services. Vulnerability, however, is growing in agriculture and industry and is an attribute of those with lower labor-force participation.

12. As opposed to receiving most income from transfers provided through various forms of government assistance, working leads to higher shares of the population becoming middle class and lower shares being poor or vulnerable. Highly skilled occupations are also key to gaining middle-class status. More than 70 percent of managers, professionals, technicians/associates, and clerical workers are upper middle class, but less than 44 percent of those in skilled agricultural, trade, and elementary occupations are upper middle class.

C. Resolving inefficiencies and looking forward

13. Moving from middle-income to high-income status will require a careful review of an economic model that has worked in the past. When Mauritius will be able to become a high-income country will depend on its ability to improve the labor force's skill set, develop infrastructure, and further improve the business environment to attract FDI and generate domestic investment. Inclusiveness remains the main challenge for the current growth pattern.

14. Rapid poverty and vulnerability reduction requires more inclusive growth. Micro-simulation analysis suggests that reducing and eventually eradicating

[2] Relative poverty defined as 50 percent of median consumption per adult equivalent.

[3] Gini coefficients presented in this report are estimated on an income or consumption per capita basis, while official inequality figures are estimated on total income or consumption. For this reason, official estimates of inequality are higher.

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poverty in Mauritius will depend on a two-fold combination of policies—first, improved targeting efficiency in social protection and, second, lower unemployment and greater productivity. Targeted policy interventions could boost poverty reduction in Mauritius. Investment in the following areas should boost shared prosperity in Mauritius:

a) Long-term productivity improvement

15. Low productivity remains a major challenge for private-sector development in Mauritius. Policies designed to upgrade infrastructure, support R&D and innovation, advance public-sector efficiency, and further improve the business environment will boost productivity. A new wave of public-sector reforms could raise accountability at all levels and improve planning, procurement, and management processes across the system. Efficient country-level monitoring and evaluation (M&E) systems should be developed, supporting evidence-based policymaking. Public utilities need to become more efficient and have their infrastructure upgraded. Reforms in public enterprises will create fiscal space for more productive spending. Improved road infrastructure and further development of public transport are also suggested.

16. Being employed is obviously a key factor in achieving middle-class status, while being unemployed is among the most telling vulnerability factors. There is a clear correlation between increased education and higher shares in the middle class, especially for those with a secondary or higher education. Tertiary-education expansion needs to focus on innovation and R&D.

b) Fix inadequate labor regulations

17. The labor market needs to foster flexibility and reward higher productivity. Annual salary compensation and remuneration orders are designed to reduce disparities, but they rarely impact wage determination in the intended way (see labor section of the report). The thresholds are set at very low levels by international standards—on average, 22 percent of the wage. In addition, the national tripartite negotiations set up in 2010 make it more difficult to maintain competitiveness. In the longer term, Mauritius has to find an appropriate balance between worker protection and labor-market flexibility.

c) Reversing growing skills mismatches and boosting education

18. Demand for highly educated workers has not been met, resulting in mismatches between the supply of available skills and the demand for skills. The mismatches put upward pressure on unemployment rates. This report finds that skills mismatches grew by 30 percent during 2000s, signaling an urgent need for policies to reduce the mismatches and support the transition to high-tech and services-oriented industries. Resolving the problem of skills mismatches remains the main challenge for Mauritian development. Education is a fundamental prerequisite for individual economic success. The share of employed workers with tertiary education more than doubled in Mauritius. However, the country has considerable scope to improve its educational system, and educational reforms are needed to provide people with appropriate and relevant skills. Both the SCD and this report find that the lack of adequate skills has a negative impact on the inclusiveness of growth, with the more vulnerable the most affected by educational deficiencies. Education and skills should be improved and realigned toward the needs of the business sector.

d) Overcoming lack of intergenerational mobility

19. A lack of intergenerational mobility has adverse effects for the overall economy's growth potential. Our analysis finds a strong influence of family background on post-secondary education. Parents of tertiary educated individuals are better educated and richer than the rest of the society and these differences are not disappearing with time. The offspring of well-educated and rich families will invest in education, increasing their probability of preserving their favorable economic position. Meanwhile, poorer and worse-educated parents will not be able to offer the same opportunities to their children, perpetuating the social structure over time.

e) Fixing gender disparities

20. Major gender disparities are evident in the Mauritian labor market. Women experience substantially lower employment levels and higher unemployment and inactivity rates than their male counterparts. These gaps have been falling, an encouraging sign of convergence in Mauritius. The gender wage gap in Mauritius is severe and, unlike the gaps related to labor force status, shows no sign of decreasing. In fact, it widened in recent years. Even when comparing men and women with the same education level, age, potential work experience, and sector of employment, women still earn significantly less than men.

f) Addressing youth unemployment and vulnerability

21. Young people between ages 15 and 24 experience substantially worse labor-market outcomes than the rest of Mauritius' population. Youth unemployment rates are especially high, and young workers are particularly vulnerable to labor-market fluctuations. Compared to the rest of the population, young people display a more volatile pattern of employment, reflecting a higher sensitivity to the economic cycle. On a positive side, the portion of young individuals who are neither in education nor in training and unemployed (NEET) has decreased considerably since 2005. In addition, the number of young people in education has increased, reaching a high point in the past two years.

g) Resolving challenges of the social protection system

22. The expansion of social protection (SP) programs has not been sufficient to prevent an increase in income inequality. Higher incomes from work and self-employment among initially better-off groups led to the greater inequality. Mauritius has operated a wide range of labor-force activation programs for some time, but they are small in coverage, fragmented, lack mutual coordination, and have few robust linkages to SP programs. The Government has undertaken meaningful steps toward greater coordination in SP programs, but further improvements are needed. The Social Aid program—the only program in Mauritius that specifically targets the poor—has been the leading contributor to poverty reduction; however, it could be scaled up and significantly improved.

Chapter 1

INTRODUCTION

A. Background

23. By the mid-2000s, the Mauritian economy was facing structural challenges and stagnating exports. The investment rate, which had peaked at more than 30 percent of GDP in 1994, slumped to an average of just 22 percent in 2001-05, diminished by a retrenchment of both public and private investments. Declining investments and labor-market rigidities led to a rise of the unemployment rate from less than 3 percent in 1991 to 9.5 percent in 2005. In addition, deteriorating external conditions and a "triple trade shock"—the losses of textile and sugar preferences and soaring oil prices—put pressure on the balance of payments and slowed economic growth.

24. The Government confronted this situation in the mid-2000s by implementing a set of bold reforms—for example, opening the economy to further competition, eliminating distortions between the EPZ and the rest of the economy, significantly eliminating tariffs and trade barriers, simplifying the tax system with low income-tax rates set at 15 percent, and simplifying labor and business regulations.

25. The structural transformation accelerated the economy in Mauritius, and the rewards came quickly in the form of an increased FDI, reinvigorated growth in high value added sectors (i.e., ICT, finance), and lower unemployment. In addition, there has been a noticeable progress on measures of human development, including life expectancy, maternal and infant mortality, school enrollment measures, and access to primary education for both genders. Mauritius is one of the few African countries that has accomplished remarkable results on the MDG indicators in just 15 years, with six of eight specific goals more or less achieved. Extreme poverty is almost negligible, the net primary school enrollment ratio has risen 97 percent (2011), life expectancy has increased, and infectious diseases such as malaria, polio, diphtheria, typhoid, and cholera have been virtually eradicated.[4]

26. The 2005 economic and trade reforms led to a substantial reallocation of resources, with clearly positive effects on economic growth and human development indicators. Our report looks into the inclusiveness of these positive changes to determine whether all groups of population have benefited equally from the recent growth. The report explores how economic changes have affected households, workers, and firms.

B. The concept of inclusive growth

27. The need for "inclusive growth" has now been recognized in many countries. During the past decade, China, India, and Mozambique and many other developing nations had stable and often high rates of economic growth. However, the extent to which this growth has been shared differs greatly, and income inequality has increased in many countries. Regional inequalities have tended to increase sharply in such places as Ghana and Nigeria, where the northern parts of the country have been traditionally left behind.[5] Yet, many Latin American countries have successfully reduced income inequalities. Cash transfers played an important role, along with increases in other government investments and macroeconomic stability.

28. The World Development Report 2013 focuses on labor-market institutions. The report highlights the importance of looking beyond macroeconomic growth and paying attention to distributional concerns and the extent to which people feel they participate in making the decisions that shape their life. The micro dimension captures the role of structural transformation in economic diversification and competition. Inclusiveness and shared prosperity are the essential ingredients of any successful growth strategy. Inclusiveness is a multidimensional concept that encompasses equity, equality of opportunity, and protection in market and employment transitions. It entails changes in market structure, access to finance, discrimination in labor and product markets, and conditions in the informal sector. The inclusive growth approach takes a longer-term perspective, focusing on increasing incomes for traditionally excluded groups through productive employment rather than redistribution.

29. A wide range of literature covers various aspects of inclusive growth and shared prosperity. As stated above, inclusiveness is a multidimensional process related to economic factors, human capital, and political and social dimensions. It combines improvement in average level of various indicators with a distributional component. This multidimensional approach takes into consideration inequality in economic factors, human-capital accumulation, and political and social dimensions in the relatively long period of time and in a sustainable manner. For growth to be inclusive, productivity must be improved, new opportunities for employment created, and the gains should be shared across population groups.

[4] "Do children in Mauritius have Equal Opportunities in Education?" 2012. Statistics Mauritius with the support of the World Bank.

[5] Regional disparities might not be the case in Mauritius, while ethnic disparities should be explored if data were to become available.

C. Inclusive growth approach adopted in this report

30. The overall situation has improved in Mauritius on various fronts, but additional analysis is needed to measure the distribution of these positive changes. The IMF studied the inclusiveness of growth in Mauritius in the 2000s using household survey data.[6] It was a period of profound structural change in the Mauritian economy, linked to the loss of sugar preferences and the phase-out of textile trade preferences (i.e., dismantling of the Multi-Fiber Agreement). As the services sector emerges as a new engine of growth, the question is whether the benefits of economic growth continue to be widely shared by various segments of the population. The authors find evidence pointing to a more skewed distribution of the benefits of growth, possibly because of fundamental structural changes in the Mauritian economy.

31. To enhance the policy relevance of the analysis, the uneven distribution needs greater emphasis; especially now, with Mauritius entering the club of developed economies. The report looks into the inclusiveness of growth in Mauritius, taking into consideration its three main dimensions: (i) gains and shared prosperity associated with the growth of incomes, (ii) opportunities created for employment, and (iii) inclusiveness in firms' profitability.

i. Gains and shared prosperity associated with growth of incomes

32. This section includes an analysis of decade-long trends in income distribution, focusing on economic growth and its inclusiveness in Mauritius. It looks at the poverty, inequality, and shared prosperity indicators. The report discusses the sources of changes in poverty and vulnerability in Mauritius, focusing on how prices, jobs, income, and social-protection efficiency have impacted poverty and economic vulnerability. The report defines the scope of the middle class in Mauritius and follows the evolution of the middle class over time. It analyzes the impact of the economic changes on the size and characteristics of the poor and vulnerable.

ii. Opportunities created for employment

33. Employment creation has become a priority for the Government, which sees it as the best way to ensure broad-based economic growth and social cohesion. For a particular group of individuals—those with a limited supply of certain types of labor skills—the constraints are related to the capacity of individuals rather than the business or labor environment. This situation calls for an in-depth analysis of labor-market challenges that determine individuals' resources. This section analyzes the main labor-market issues in Mauritius, such as employment, sectorial movement and changes over time, and unemployment rates and wages. Finding work is challenging for many youths, either due to lack of the skills demanded by a modern economy or labor-market rigidities. The report systematically looks at the issues of female job participation, intergenerational mobility, skills mismatches, and other issues and disparities in the labor market.

iii. How reforms have accelerated economic growth at firm level

34. In comparison to studies using only aggregate data, analyses of firm-level data have the potential to more credibly identify in more detail the effects of certain policies and describe the mechanisms behind the effects of the policies. This would serve to identify the main systemic factors behind the lagging sectors and how government policies can adequately support them. The objective of this section is to improve the understanding of firms' performance and inclusiveness of growth by analyzing the determinants of firm profitability, size, and sectoral dynamics.

35. To assess the inclusiveness of growth in all these dimensions, the report systematically looks at patterns of household incomes and consumption growth (chapter 3), analyses the causes of changes in poverty and vulnerability (chapter 4), defines and analyzes economic vulnerability and middle class trends (chapter 5), looks at the role and efficiency of the social-protection system (chapter 6), conducts detailed analysis of labor market (chapter 7), and examines firm profitability and challenges (chapter 8).

[6] Antonio C. David and Martin Petri, 2013 "Inclusive Growth and the Incidence of Fiscal Policy in Mauritius — Much Progress, But More Could be Done."

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Chapter 2

MAURITIUS ECONOMIC DEVELOPMENT

Since independence in 1968, Mauritius' economic performance has been strong, associated with efficient government, diligent economic policies, human capital accumulation, and fast growth in FDI, tourism, and exports. However, structural and institutional challenges led the Government of Mauritius to liberalize its industrial, trade, and labor policies in the mid-2000s. The reforms had an immediate, positive impact on the Mauritian economy's performance but brought increasing income inequality. Traditional textile and agriculture sectors contracted while tertiary sectors expanded. Among the economic challenges are relatively low productivity that stunts growth, widening skills mismatches, and rigid labor regulations. Moving forward, Mauritius's GDP growth rate appears to be close to its long-run potential. Achieving high-income country status will depend on Mauritius' ability to improve the labor force's skill set, develop infrastructure, and further improve the business environment to attract FDI and generate domestic investment. Inclusiveness remains the main challenge of the current growth pattern and will be analyzed in later chapters.

A. Economic reforms and economic outcomes

36. **Mauritius has been characterized by strong economic performance.** In the 1970s and 1980s, it diversified from a mono-crop economy dominated by sugar cane to a more diversified one based on sugar, textiles and garments, and tourism. This economy has expanded continuously since the 1990s. From 1992 to 2005, it grew at an annual average of 5.1 percent. By the mid-2000s, however, the rapid growth in low-wage, low-skill, and labor-intensive exports that had powered the Mauritian miracle in the 1980s ran out of steam.

37. **Mauritius' economic development, successful since independence, confronted structural challenges and stagnating exports in the mid-2000s.** Labor shortages had emerged in the early 1990s, driving up real wages and undermining competitiveness in low-skill sectors. The investment rate, which peaked at over 30 percent of GDP in 1994, slumped to an average of just 22 percent of GDP in 2001-05, reflecting a retrenchment of both public and private investment. Rigidities in the economy made it difficult to transfer resources to emerging sectors. After 2000, exports stagnated, investment slumped and, reflecting also labor-market rigidities, unemployment rose to 9.6 percent in 2005, up from less than 3 percent in 1991. Then in the middle of the decade, the country suffered a "triple trade shock" with the loss of textile and sugar preferences and soaring oil prices, further hurting economic growth and putting the balance of payments under pressure.

38. **Economic reforms have accelerated since 2005.** A new Government that came to power in 2005 confronted this situation and implemented a bold set of reforms, including opening the economy to further competition. The Government focused on halting the slide by raising competitiveness, promoting higher value-added exports, investing in infrastructure and education, and reforming industrial relations. A structural reform program was implemented to raise the efficiency of the private sector and modernize the public sector for a post-regulatory world. The Government significantly reduced custom tariffs and trade barriers, simplified the tax system with low income tax rates set at 15 percent, and streamlined labor and business regulations.

39. **The Government liberalized its industrial and trade policies.** Interventions and regulations had created a biased structure of incentives, with trade protection favoring domestic production rather than exports, inflexible regulations deterring new sectors, and complex incentive schemes and high compliance costs favoring large rather than small firms. In an effort reminiscent of those made by successful export-led economies, such as China, the reform program expanded to the entire economy the favorable tax and regulatory environment that was previously provided exclusively to Export Processing Zone (EPZs), It also eliminated 95 percent of tariff lines on a phased basis over three years, lightened regulatory burdens, and developed and implemented sector strategies to reduce costs and increase competitiveness in existing and new sectors.

40. **Removing bureaucratic obstacles improved the business environment**. According to the Doing Business survey for 2007, it took 49 days to start a business in Mauritius, compared to 27 days in Mexico, nine days in Turkey, and an average of 16.6 days in the OECD countries (Figure 1) Mauritius' score in the Difficulty of Firing Index nearly doubled the OECD average and was even above average for the SSA region. To respond to this, the Government passed the Business Facilitation Act of 2006 to spur investments and creation of new businesses. As a result, Mauritius' ranking in the World Bank's Doing Business Index improved to 17th in 2010.

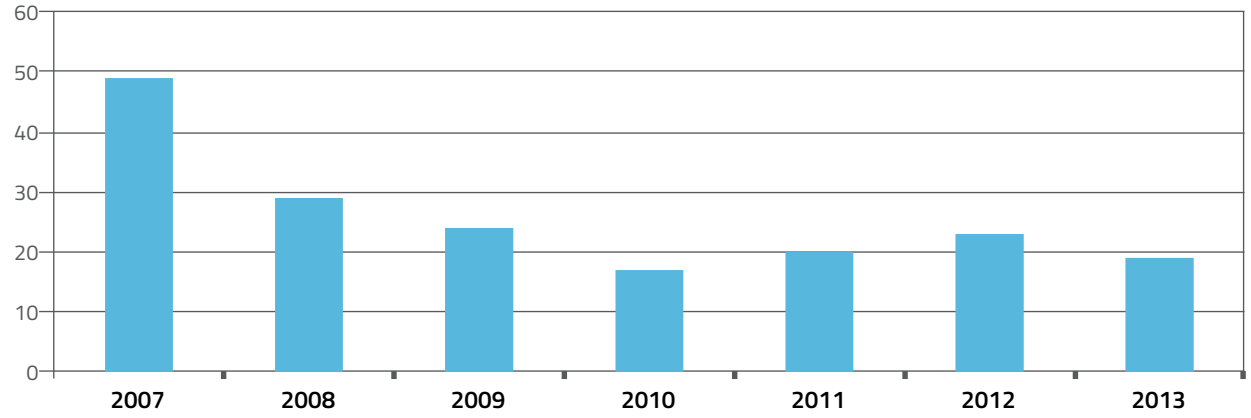
41. **Along these structural reforms, the Government also took a bold approach to dealing with high public deficits and a rising public debt, removing the medium-term threat to macroeconomic stability of an unsustainable fiscal course.** The Government sought to broaden the tax base by introducing a flat tax rate of 15 percent for both personal and corporate income, with no exemptions. In addition, a unified and strengthened Mauritius Revenue Authority enlarged the tax base and simplified tax procedures. As a result, tax revenue increased from 17.9 percent of GDP in 2005 to 18.9 percent in 2012. Many low-income tax payers actually saw their tax payments dwindle. Public revenues, which had averaged 19.7 percent of GDP between 2000 and 2005, increased to 21percent in 2008, and a prudent fiscal stance reduced the public deficit from an average of 5.8 percent of GDP between 2000 and 2005 to 2.7 percent in 2008 (Figure 2). As a result of these efforts, public debt was reduced from 65 percent of GDP in 2005 to 52 percent in 2008. A new Public Debt Management Act enshrined the medium-term sustainability of the public finances, mandating a public-debt threshold of 60 percent of GDP, with a reduction to 50 percent by 2018.

Tax revenue increased from 17.9 percent of GDP in 2005 to 18.9 percent in 2012.

42. **Fiscal reform was complemented with prudent monetary policy and flexible exchange rates, which helped build considerable foreign reserves.** After current account surpluses averaging 2 percent of GDP in 2000-04, deficits averaged 7.5 percent of GDP between 2005 and 2008, reflecting negative contributions from declining sectors. The impact of the external sector on real domestic income was even larger after taking into account the 9.2 percent deterioration in the terms of trade between 2005 and 2008 because of lower prices of textile and sugar products and higher food and oil import prices. The worsening current account was financed through a doubling of FDI to Mauritius to 2.6 percent of GDP and net short-term capital inflows averaging close to 6 percent of GDP, related to the development of Mauritius as an international financial center (Figure 9). As a result, balance of payments turned positive and international reserves increased 30 percent to around US$1.76 billion (3.4 months on imports) in 2008. However, inflation picked up, rising from an average of 4.9 percent in 2000-04 to 8.1 percent in 2005-08 as a result of an accommodating monetary policy, double-digit increases in import prices, and increases in some excises.

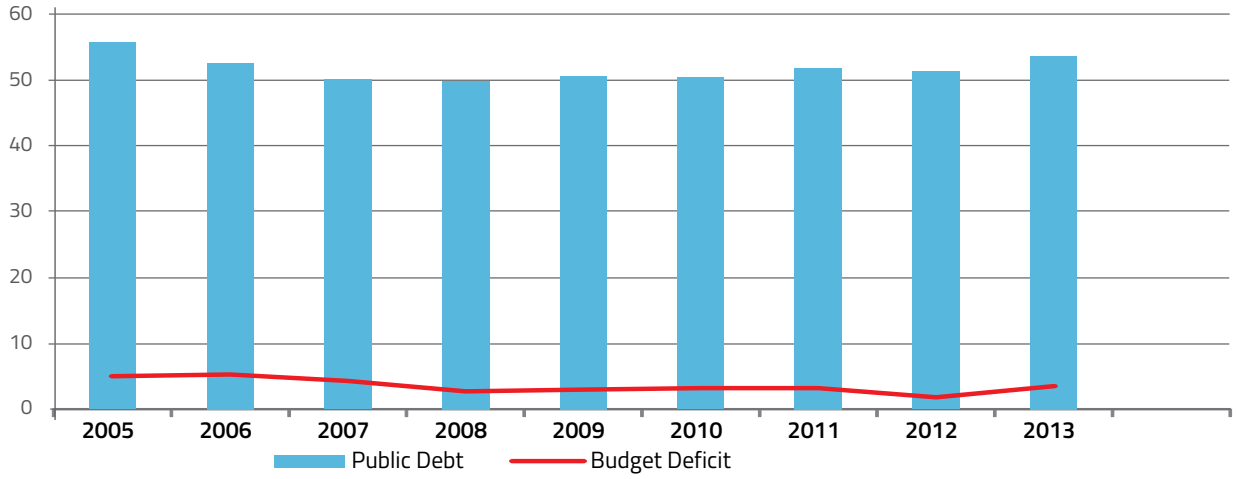
43. **In general, the reforms had immediate and positive impacts on the performance of the Mauritian economy.** A more favorable business environment, a rise in FDI, and stronger macroeconomic policies led to a progressive improvement in economic growth as well as the formation of new sectors. GDP growth rose from 1.5 percent in 2005 to 5.5 percent in 2007 (Figure 4); private investment increased from 8.0 percent of GDP in 2005 to 17.7 percent in 2007; FDI tripled from 1 percent of GDP in 2005 to 3 percent in 2007. As a result, net job creation accelerated, and the unemployment rate fell from 9.6 percent in 2005 to 7.2 percent in 2008. The services and construction sectors were the main contributors to growth between 2005 and 2008. The tertiary sector's share of the of the economy rose by more than 3 percentage points between 2000 and 2004 and again between 2005 and 2008, reaching an average of 60.2 percent of GDP. The diversification served to compensate for slower growth in such traditional sectors as agriculture, which underwent annual contractions of 1.4 percent between 2005 and 2008.

Figure 1: Doing Business ranking, 2007-13



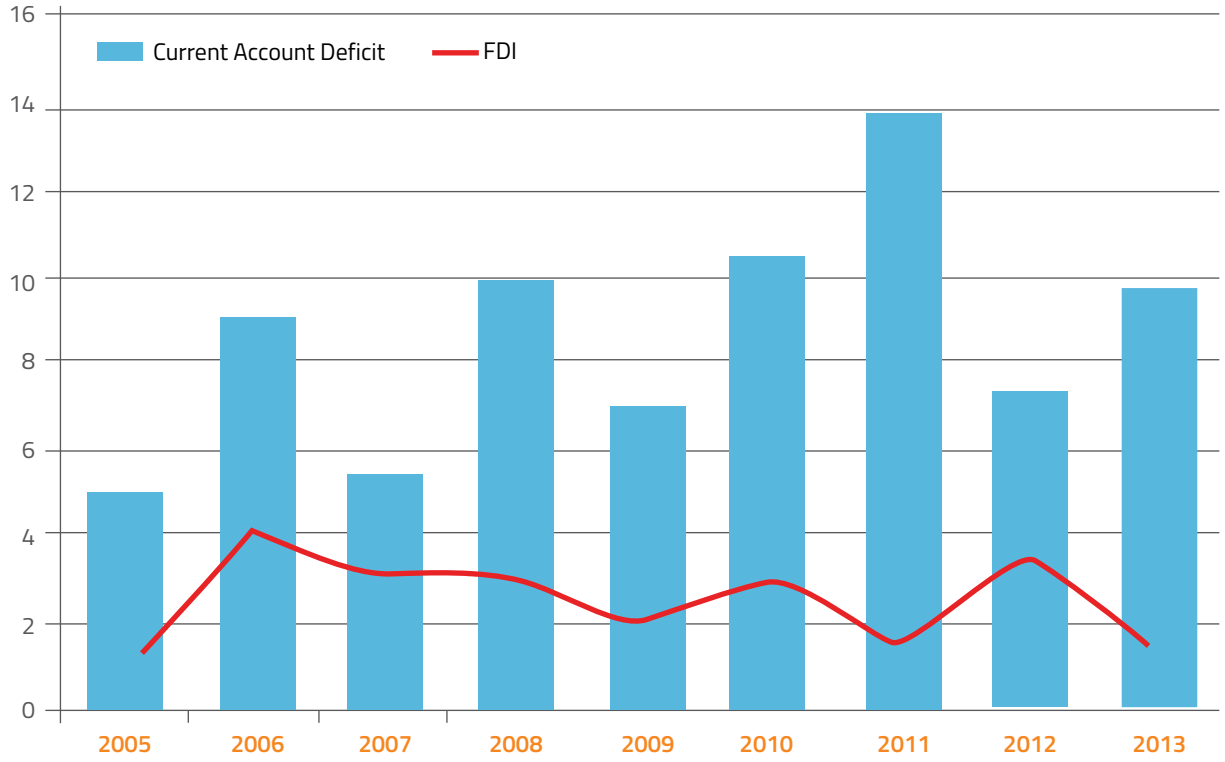
Source: World Bank, Doing Business indicators.

Figure 2: Budget deficit and public debt (percent of GDP), 2005-1



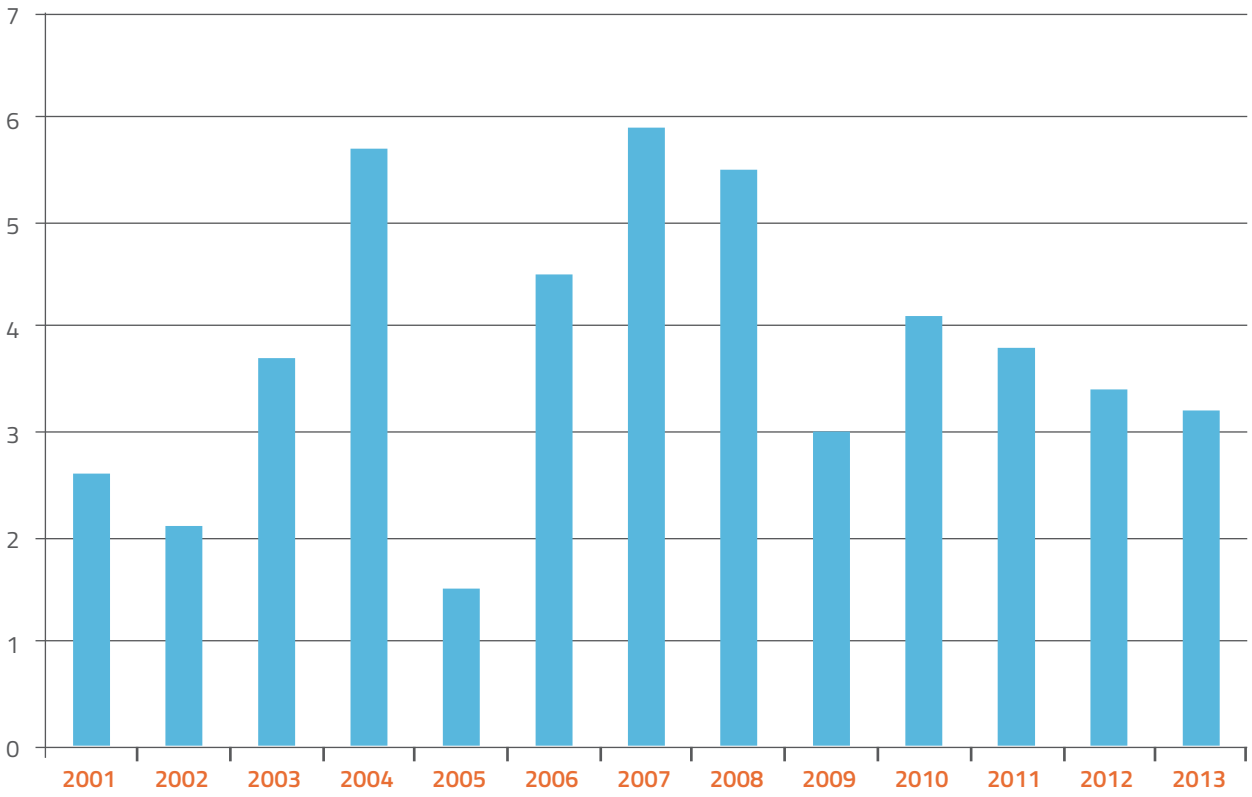
Source: Statistics Mauritius.

Figure 3: Current account deficit and FDI (percent of GDP), 2005-1



Source: Statistics Mauritius.

Figure 4: Real GDP growth rate, 2001-13



Source: Statistics Mauritius.

BOX 1: OUTLINE OF THE REFORMS IN MAURITIUS

In the mid-2000s, a bold package of policies and institutional reforms deepened the efforts initiated in the preceding years and it aimed at addressing some politically sensitive reforms as well. The ambitious reform program was structured around four pillars: (i) fiscal consolidation and public sector efficiency; (ii) trade competitiveness; (iii) improving the investment climate, and (iv) widening the circle of opportunities. The empowerment program, which included a workfare scheme emphasizing training and skill-building, supported the reforms. The list below outlines main reforms introduced in Mauritius in this period:

A. CONSOLIDATING FISCAL PERFORMANCE AND IMPROVING PUBLIC-SECTOR EFFICIENCY

- Fiscal rule (public debt legislation)
- Public financial management reforms
- Revamping of tax system (single flat tax on personal and corporate income)

B. ENHANCING COMPETITIVENESS

- Tariffs reduced
- Regulations for export processing zone (EPZ) and non-EPZ firms unified
- Improving telecommunication services

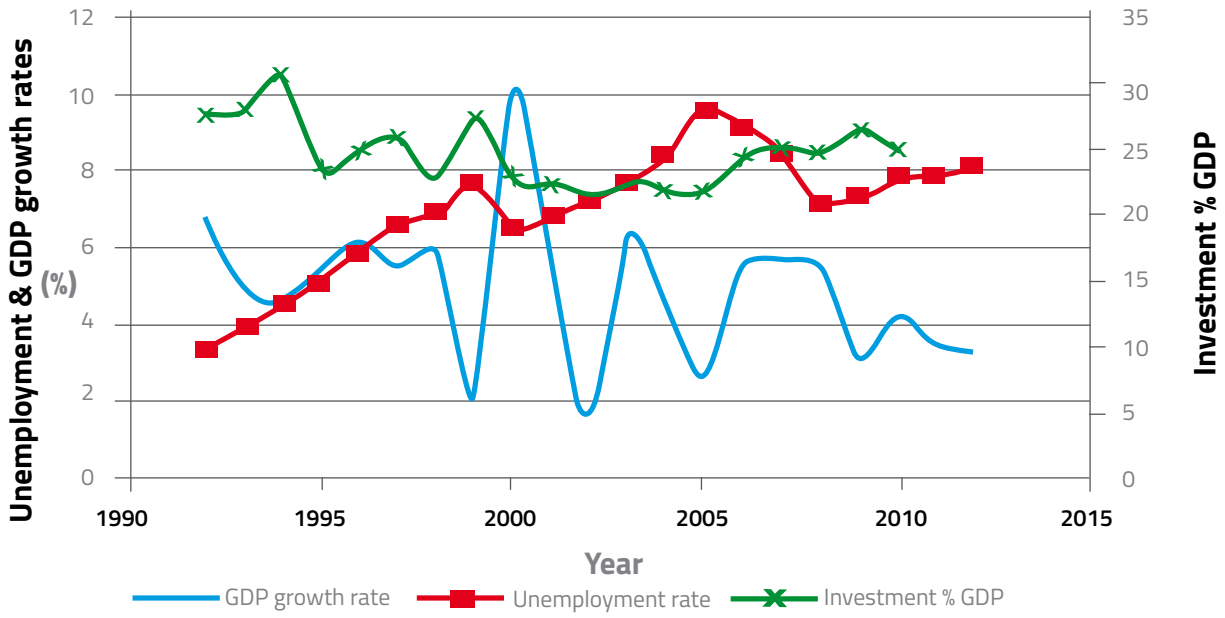
C. IMPROVING THE BUSINESS CLIMATE

- Business registration, regulation, and insolvency revamped through new legislation
- Restrictions on land acquisition by foreigners eased
- New labor-market legislation for widening the circle of opportunity through greater participation

D. INCLUSION AND SUSTAINABILITY

- The National Empowerment Foundation as umbrella institution minimizing social costs of economic transformations
- Education reform launched
- Background analytical work to improve efficiency of the SP system

Figure 5: Macroeconomic performance



Source: Adapted using data from Statistics Mauritius.

The economic reforms have reversed some of the negative trends. Between 1990 and 2005, Mauritian GDP growth was extremely volatile. Exports stagnated. Investment as a share of GDP peaked at 30.4 percent in 1994 and gradually fell afterwards, The unemployment rate tripled from 3.3 percent in 1992 to 9.6 percent in 2005.

This deterioration in the economic performance was in part associated with the loss of sugar preferences and the phase-out of textile trade preferences. As a result of the mid-2000s economic reforms, the investment rate showed a positive trend since 2005, unemployment subsided, and GDP growth became less volatile, averaging 4.4 percent per year between 2006 and 2012.

44. **These reforms facilitated a proactive approach to the extraordinary challenge of the 2008-10 global economic crisis.** With a small domestic market, dependence on Europe for exports and FDI, and heavy reliance on imports, Mauritius was exposed to the financial and economic downturn that hit the world economy and particularly Europe. Real GDP growth fell from 5.5 percent in 2008 to 3.1 percent in 2009. The tourism sector was severely hit, with earnings falling from US$997 million in 2008 to US$763 million in 2009. After the reforms implemented in 2006-08, however, Mauritius was in a relatively strong position to cushion the effects of the global crisis. Two sets of policy actions were at the core of Mauritius' resilience. First, the resolute implementation of the mid-2000s reform agenda fostered investor confidence and reinforced economic diversification, helping to sustain overall economic activity as more traditional sectors faltered. Second, the fiscal space achieved during previous years allowed the Government to adopt a stimulus package in 2008 to counter the impact of the global crisis, accelerating infrastructure investment projects and providing timely, targeted, and temporary social assistance to cushion the crisis' impact on workers and the most vulnerable citizens.

45. **Overall, the current macro-fiscal framework fosters an environment conducive to economic growth.** Despite recent slowdown in reforms, the successful policies implemented prior to 2010 built a resilient and thriving economy that has diversified over the years. Government decisions with regard to spending and saving also contributed to this increased resilience. As a result of significant fiscal consolidation, the public sector in Mauritius has become a net saver, reducing the demand for external financing. Mauritius' economy is still performing well in a difficult global context. Its 3.2 percent growth in 2013 (Figure 4) was reasonably solid, despite a high unemployment of 8.0 percent.

B. Economic challenges

46. **Moving from middle-income to high-income status will require a careful review of an economic model that worked in the past.** The Government is expecting to achieve high-income status in the medium term while ensuring inclusive growth. However, as presented in the SCD analysis, the economy's performance since 2008 has been less robust than expected, and the country is facing challenges on several fronts. GDP growth is losing steam as the positive impact of reforms wanes. Job creation remains slow, income inequality is increasing (as will be shown later in the report), and economic vulnerability is not falling.

47. **The economy is showing some signs of fragility, reinforced in large part by an uncertain external environment.** Investment has been on a downward trend while unemployment rose from 7.8 percent in 2010 and 8.0 percent in 2013. This provides further evidence of the labor-market rigidities that have not been addressed and the increasing difficulties in absorbing unskilled and semi-skilled workers as the economy transitions to services and knowledge-based industries. The gap in firm efficiency has widened both across and within sectors. While Mauritius hosts the leading regional firms in many sectors, they often coexist with less efficient firms that seem unable to fully acquire the technology and market knowledge of the leading companies.

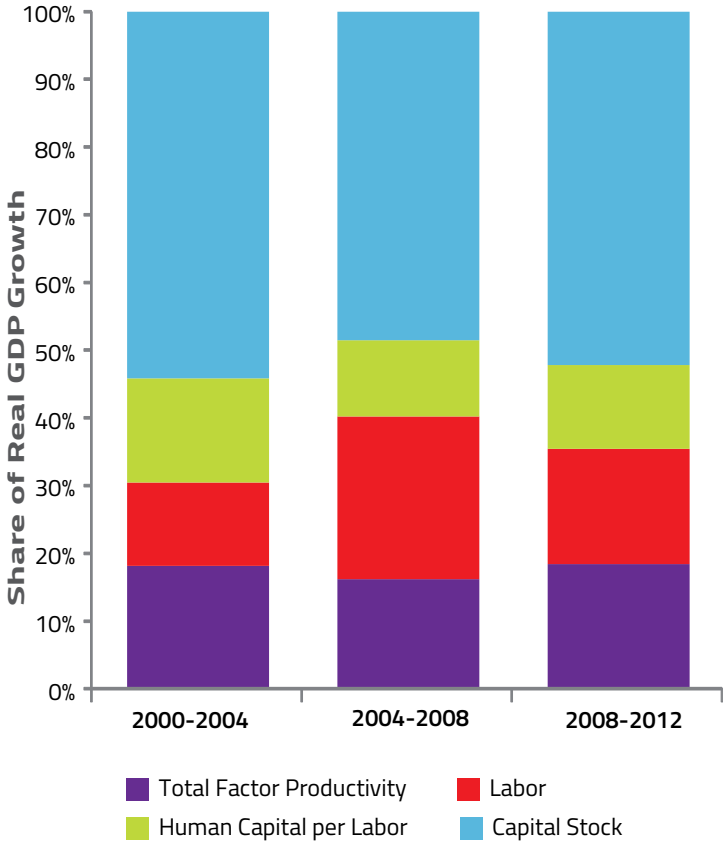
48. **Since 2010, reforms have faltered, and relatively accommodative monetary and fiscal policies have been difficult to rein in.** Current public expenditures have remained relatively high, going from 24.9 percent of GDP in 2010 to 24.8 percent in 2013. The debt-to-GDP ratio has actually increased to reach 57.9 percent in 2013. Implementation of reforms has slowed substantially, further accelerating the decline in gross national saving to below 15 percent of GDP and leading to a stagnation of private investment at around 18 percent of GDP. As a result, economic growth has been on a slowly declining trajectory—from 4.1 percent in 2010 to 3.2 percent in 2013. Contributing factors have been difficulties in the tourism sector, where growth slowed to an average of 3.8 percent over the period, and construction, which declined -3.4 percent. Banks remain well capitalized, with adequate provisions, and loans have increased substantially, particularly to construction and real state, which today represent 20.4 percent of GDP, up from 14.1 percent in 2010. However, non-performing loans have slowly increased from 0.95 percent of GDP to 1.67 percent of GDP.

49. **Mauritius has been characterized by relatively low productivity growth.** Figure 6 shows that total factor productivity contributed less than 20 percent to annual value-added growth between 2000 and 2010. Productivity's impact on growth was fairly steady throughout the period. Most of the value-added growth was driven by the tertiary sector (Figure 9). The primary sectors, mainly agriculture, contributed the least.

50. **Challenges and inefficiencies exist in the labor market, associated with rigid institutional arrangements.** As will be described in more detail in the labor chapter, the disproportionally high wages set by collective bargaining and labor regulations affect the competitiveness of certain sectors and lower employment creation. The question of when Mauritius will be able to achieve high-income country status will depend on its ability to improve the labor force's skill set and infrastructure quality. In addition, the speed of technology adoption and further improvements in business environment will be essential to attracting FDI and generating domestic investment.

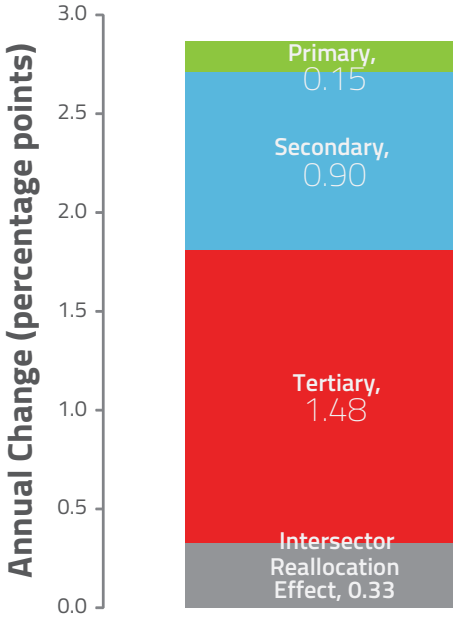
51. Mauritius has always relied largely on its human resource to sustain economic growth, increasing the importance of access to education and its quality. At 15 percent, public spending on education as a percentage of government expenditures was above the global average. As a share of GDP, however, public spending was below average at 3.5 percent (WDI databases). Free public schools provide all children with full access to education, although the fact that many households finance private schooling translates into highly unequal educational outcomes. The proportion of pupils starting primary school and reaching its last grade is very high at 98.7 percent, according to official data. The literacy rate is relatively high, increasing from 85 percent in 2001 to 89.7 in 2011. Literacy rates are almost 100 percent for children and youths and growing for the elderly. However, overall literacy remains below the median for comparable countries.

Figure 6: Decomposition of per capita value-added growth, 2000-12



Source: Authors' calculations.

Figure 7: Factors in per capita value-added growth, 1990-2013



Source : Mauritius SCD report (forthcoming). Data sources: various, including WDI, Statistics Mauritius (2015). The periods do not match, and the figures should be used for illustrative purposes.

Photo : © Petter Thorden

52. **Educational quality remains a challenge.** The education system is failing to equip many young Mauritians with adequate skills.. Not only do too many children fail to acquire the minimum level of education, partly because of failing the Certificate of Primary Education, but the overall quality of learning does not compare well with other upper middle-income countries.

C. Moving forward

53. **Mauritius' GDP growth rate appears to be close to its long-run potential.** Supported by an improving external environment, the economy is projected to grow by between 3.7 percent and 4.0 percent in 2014. The fishing, ICT, and financial services sectors are expected to drive near-term growth, more than offsetting slow or even negative growth rate in construction. However, these forecasts are subject to significant downside risks, and current projections depend, inter alia, on successful implementation of the Government's public-investment program. While Mauritius continues to be resilient to external shocks, a faltering recovery in the euro zone would further undermine economic growth by cutting both tourism earnings and FDI inflows.

54. **The current outlook recognizes possible downsides that could cause growth to deviate from these projections.** The outlook assumes that measures will be taken to stimulate private investment, utilize public investment, expand market share in emerging economies, and support growth in emerging sectors while consolidating traditional sectors. It remains subject to downward revision should various risks materialize. Domestically, the main threat to the outlook is the slow pace of the structural reforms needed to support growth, chiefly the need to increase the efficiency of the public sector. On the external front, sluggish growth in external demand and the pressures that may build on the current account remain matters of concern. Nevertheless, In light of the resilience exhibited by the Mauritian economy in recent years, and given the means available for coping with external uncertainty, these risks should be manageable.

Photo : © Matti Mattila

Chapter 3

HOW GROWTH AND ECONOMIC REFORMS TRANSLATES INTO INCOME DISTRIBUTION OF THE HOUSEHOLDS

Earlier studies found noticeable progress on human-development indicators in Mauritius, including life expectancy, maternal and infant mortality, enrollment measures, and access to primary education for both genders. This study confirms that the general well-being of the population has improved between 2007 and 2012. Household consumption and income have both increased in real terms, and absolute poverty has declined. However, the growth was not equally shared. When it comes to growth, people in the middle of the distribution and the rich have benefited more than the bottom 40 percent. Income inequality and relative poverty have increased. Poverty depth has also increased. Growth of the bottom 40 percent was much less than the average growth rate. Professionals and generally skilled workers benefited the most from growth, while the unemployed and inactive population lagged. In terms of the levels of poverty and inequality, Mauritius is comparable to many other middle-income countries, but it is behind in terms of the shared-prosperity indicators.

A. Introduction

55. Earlier studies have found noticeable progress on human-development indicators in Mauritius, including life expectancy, maternal and infant mortality, enrollment measures, and access to primary education for both genders. A recently published Statistics Mauritius Human Opportunity Index report[7] found that the "overall social picture is quite impressive and encouraging, as demonstrated by good progress on the Millennium Development Goals (MDGs)." According to the report, Mauritius is one of the few African countries achieving remarkable results over the past 15 years in meeting MDG indicators, with six out of eight specific goals more or less accomplished. The overwhelming majority of the population has access to safe drinking water. Primary education is universal. The population's general state of health is good. Life expectancy increased from 62 years at the time of independence in 1968 to 72 years in 2010, and infectious diseases such as malaria, polio, diphtheria, typhoid, and cholera have been virtually eradicated.

[7] Quotation is taken from the World Bank report "Do Children in Mauritius Have Equal Opportunities in Education?" 2012.

BOX 2: OVERVIEW OF INCLUSIVE GROWTH CONCEPT [8]

The need for more "inclusive growth" has been recognized in many countries. During the past decade, many developing nations had stable and often high rates of economic growth, including China, Vietnam, India, Mozambique, and Bangladesh. But the extent to which this growth has been shared differs greatly, with many of the countries experiencing higher income inequality. In some places, the greater inequality takes on a regional dimension—as in Ghana and Nigeria, where the northern parts have traditionally been left behind.[9] However, many Latin American countries have successfully reduced income inequalities. Cash transfers played an important role, along with increases in other public investments and macroeconomic stability.

Inclusiveness of growth and shared prosperity are essential ingredients in any successful growth strategy. Inclusiveness is a multidimensional concept that encompasses equity, equality of opportunity, and protection in market and employment transitions. The inclusive growth approach takes a longer-term perspective because it focuses on productive employment, rather than on direct income redistribution, as a means of increasing incomes for excluded groups.

Inclusiveness covers a broad range of issues—for example, changes in the market structure, access to finance, discrimination in labor and product markets, and conditions in the informal sector. The micro dimension captures the importance of structural transformation for economic diversification and competition. The World Development Report 2013 emphasizes the role of labor-market institutions. It highlights the importance of looking beyond macroeconomic growth and taking into account distributional concerns and the extent to which people feel they take part in the decisions that shape their lives.

Extensive research addresses various aspects of inclusive growth and shared prosperity. As stated above, inclusiveness is a multidimensional process related to economic factors, human capital, and political and social dimensions. It combines improvement in average level in various indicators as well as distributional component. The following is a table map of different measures generally associated with inclusiveness of growth. Inclusive growth method is a multidimensional approach taking in the consideration inequality in economic, human capital accumulation, social dimensions on the relatively long period of time and in a sustainable manner. For growth to be inclusive productivity must be improved, new opportunities for employment created, and the gains should be shared across population groups.

[8] See Box 2 describing definition of the inclusive growth (IR).
[9] Regional disparity might not apply in Mauritius, while ethnic disparities should be explored if data availability.

56. The IMF has analyzed the distributional impact of the Mauritian economic reforms, using household survey data[10] to e 00s; however, the evidence points to a skewed distribution of the benefits of growth, possibly associated with fundamental structural changes in the Mauritian economy. Inequality has increased, largely explained by variations in employment income. The largely untargeted SP system played an important role in successfully combating poverty, but reforms are needed to ensure that resources are spent in the most cost-effective way. On the revenue side, Mauritian income taxes are relatively progressive, although they have a negligible impact on the overall income distribution. The analysis also indicated that the VAT is relatively progressive, even if its impact on overall income distribution was small.

57. We look at inclusiveness of growth in Mauritius based on recently available HBS data for 2007 and 2012, labor force surveys (LFS) for 2001-12, and firm-level data from registry of companies. As described in the Chapter 1, economic reforms resulted in a substantial reallocation of resources, which clearly had positive effects on economic growth. This report addresses several questions: How has economic growth affected workers, firms, and households? What is the role of the SP programs and improved employment? Has vulnerability increased, and is the middle class better-off or worse than eight years ago? With respect to firms, how much of the structural change took place in recent years?

B. Consumption expenditure and income

58. **Mauritius' HBS data are of good quality and generally comparable over time.** This section benefits from the use of more recent data to analyze the effect of growth on household well-being. It uses the latest HBS, implemented in 2012, making comparisons to the preceding one, the HBS 2006-7. The surveys cover a similar set of variables, follow the same sampling procedures, and are generally comparable for analysis.[11] To understand the effect of growth on well-being, we used both household expenditures and income as the welfare aggregates. Household consumption expenditure is the value of goods and services acquired during the reference period, regardless of whether they were paid for or received for free. Household income is the total receipts of members who received employment income, property income, transfer income, income from own produced goods, and imputed rent for non-renting households.

59. **Between 2007 and 2012, both household consumption and income increased in real terms, but poorer people benefited less.** In both cases, better-off individuals benefited more than their less advantaged counterparts (Figure 8 and Figure 9). For low consumption and income levels, the probability density functions corresponding to the periods 2007 and 2012 trace each other. For higher consumption and income levels, however, the 2012 probability density functions are to the right of the 2007 ones. The finding that the rich benefited more than the poor is confirmed by comparing mean and median changes. Over the period studied, mean per capita consumption expenditure increased by 16 percent while the median increased by 7 percent. For per capita income, the figures are 17 percent and 6 percent. This suggests that richer individuals pushed up incomes and expenditures. The poor showed little change.

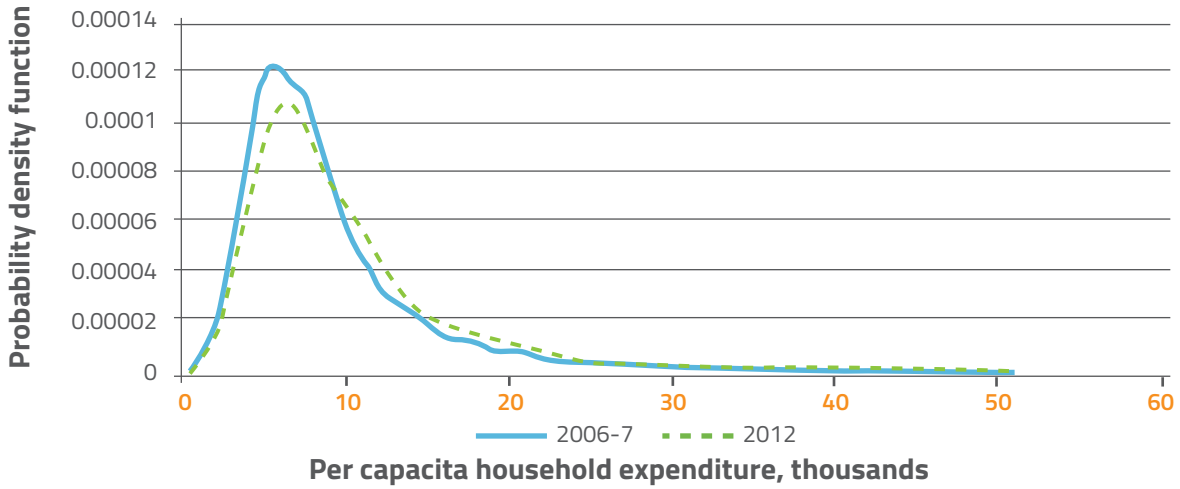
C. Poverty trends in Mauritius

60. To understand the effect of growth on poverty, this section focuses on two concepts of poverty: absolute and relative. Absolute poverty compares per adult equivalent household income to a fixed poverty line over time. In other words, the poverty line is the same in 2012 as it was in 2007. In relative poverty analysis, the poverty line is allowed to vary with income—i.e., per adult equivalent income is compared to a relative poverty line. The relative poverty line is defined as half median monthly household income per adult equivalent. Figure 10 presents absolute and relative poverty estimates over time.

[10] Antonio C. David and Martin Petri, 2013 "Inclusive Growth and the Incidence of Fiscal Policy in Mauritius— Much Progress, But More Could be Done."

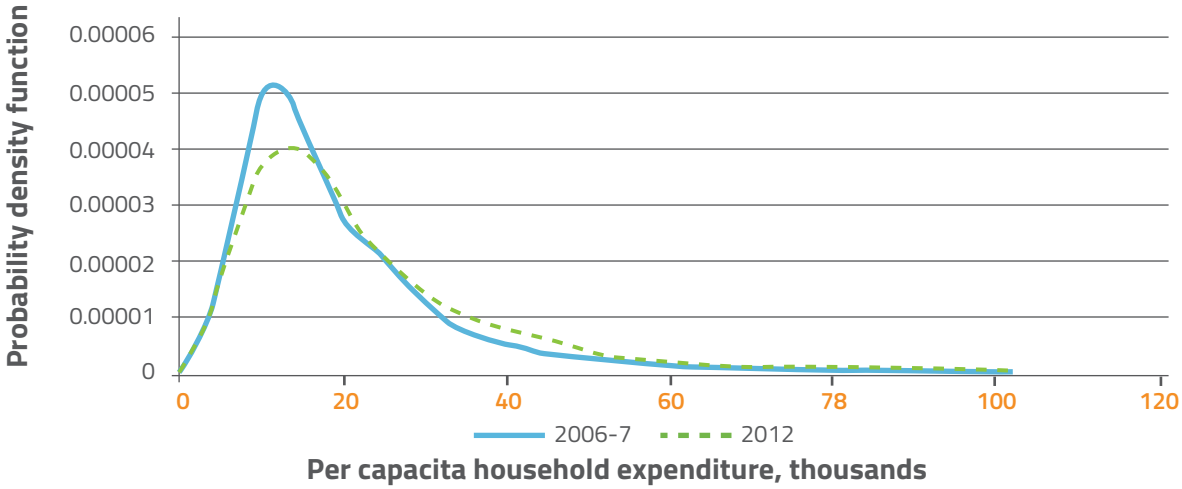
[11] Although the surveys are generally comparable over time, some variables' definitions have changed, leading to difficulties in comparing some results. For example, the definition of employment sectors is among the indicators that have changed.

Figure 8: Consumption distribution in 2007 and 2012



Source: Authors' calculations using HBS 2007 and 2012.

Figure 9: Income distribution in 2007 and 2012

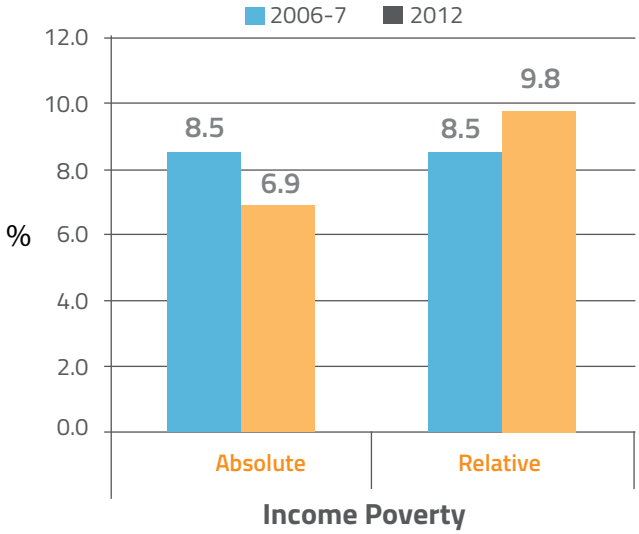


Source: Authors' calculations using HBS 2007 and 2012.

61. **Absolute poverty declined in Mauritius from 8.5 percent in 2007 to 6.9 percent in 2012.** Keeping poverty line in constant prices over time suggests improvement in the well-being of the population.

62. **Relative poverty has increased over time—from 8.5 percent to 9.8 percent.** This reflects the effect of increased inequality, despite the observed economic growth. Pushed by the income gains of the richer households, median income per adult equivalent has grown faster than the incomes of those in the lowest quintiles. Had inequality not increased, relative poverty would have remained at least the same, and the decline in absolute poverty would have been greater.

Figure 10: Poverty in Mauritius over time



Source: Authors' calculations using HBS 2007 and 2012.
Poverty measurement is based on officially adopted methodology.

63. **Mauritius's poverty is low, but its depth has increased.** The headcount poverty rate does not distinguish between those with consumption just below the poverty line and those deeper in poverty. Policies designed to improve the well-being of those at the bottom of the consumption distribution will result in poverty reduction only if benefits are sufficient to cross the poverty line. The poverty gap measures "the depth of poverty, or how far the poor are from the poverty line." The poverty gap, measured against the relative poverty line, was 1.9 percent in 2012, an increase of 0.3 percentage point from 2007. The increase in the poverty gap is associated with the general deterioration of the poor population in the income distribution. Even with this increase, the poverty gap and poverty headcount are significantly lower in Mauritius than in other African countries.

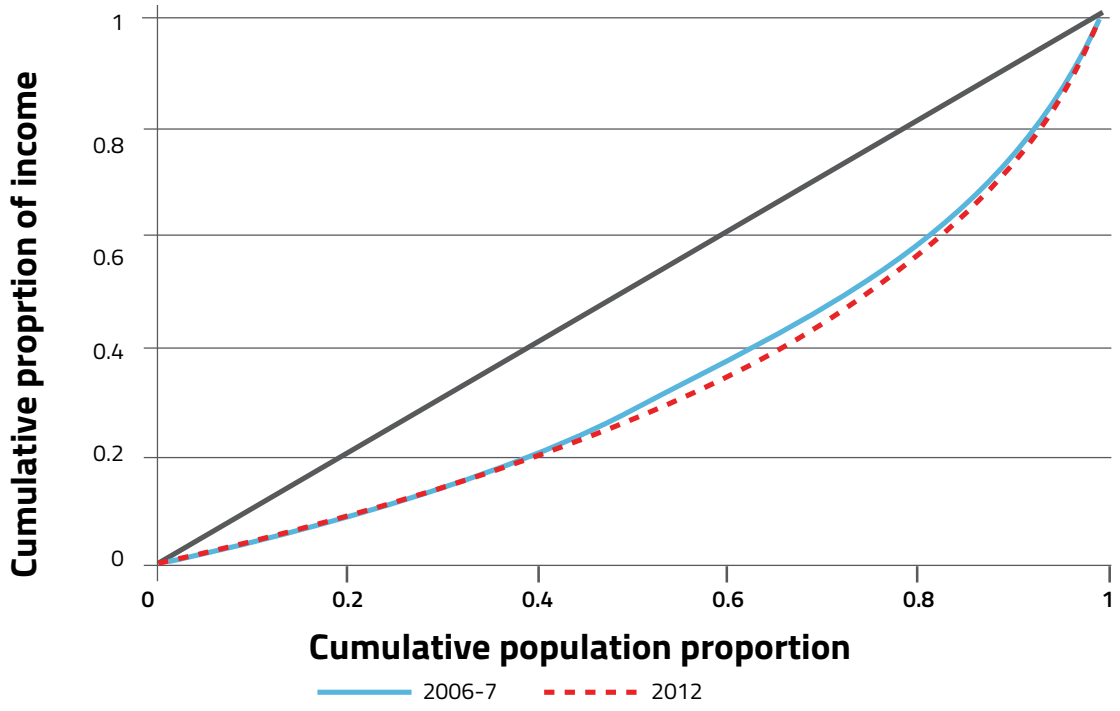
D. Inequality trends in Mauritius

64. **Income inequality has increased in Mauritius.** Initially better off individuals have benefited more from economic growth than their less-advantaged counterparts. Figure 9 showed that the spread of the probability density function has become larger between 2007 and 2012, indicating increased income inequality over time. The observed changes in the Gini inequality index and the Lorenz curve corroborate this finding. Between 2007 and 2012, the Gini index has increased from 0.34 to 0.37.[12] In the same period, the gap between the Lorenz curve and the 45o degree line has widened (Figure 11). This means that, over time, the rich grabbed a larger share of income than the poor. A similar increase in the income inequality is observed when we measure the changes of inequality by other indices.

65. **The growth incidence curve (GIC) offers further evidence of increased inequality in Mauritius.** The GIC looks at how growth in income or consumption expenditures is distributed among various quintiles and shows the interaction between growth, poverty, and inequality. As national income or expenditures rise, the curve helps to address the policy question of whether the income or expenditures of the poor are increasing more or less quickly than the country overall. This is particular interest in Mauritius because of the increased inequalities observed over time.

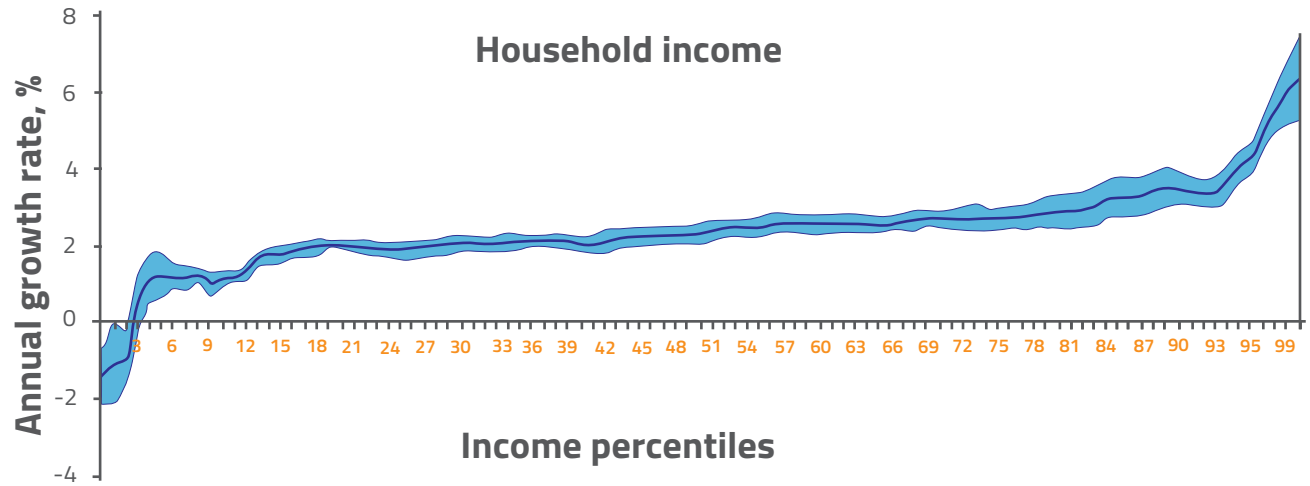
[12] Gini coefficients presented in this report are estimated on an income or consumption per capita basis, while official inequality figures are estimated on total household income or consumption. For this reason, the official inequality estimates are higher.

Figure 11: Lorenz curve over time



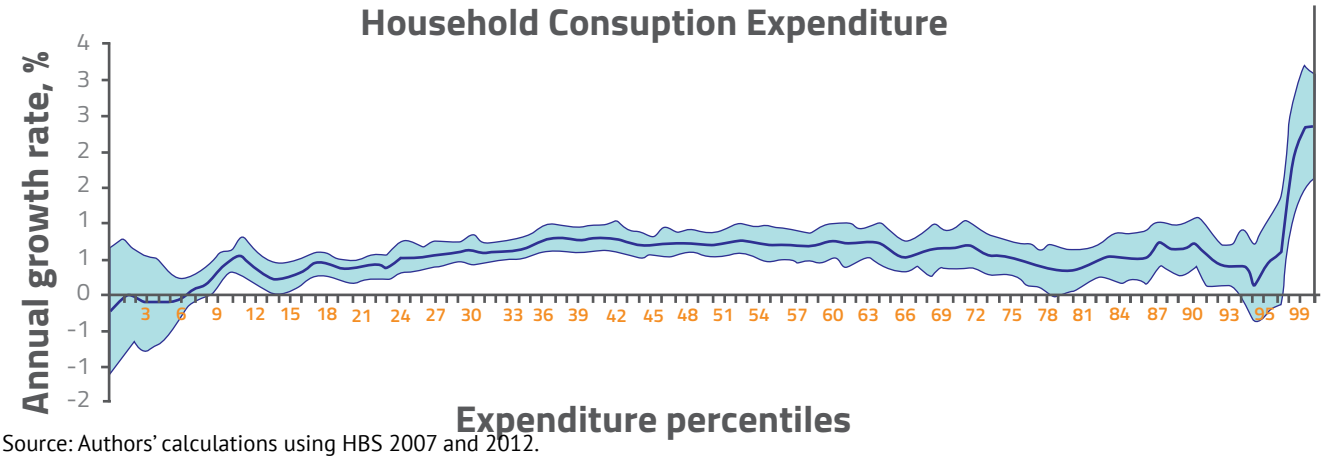
Source: Authors' calculations using HBS 2007 and 2012.

Figure 12: Growth incidence curve of household income



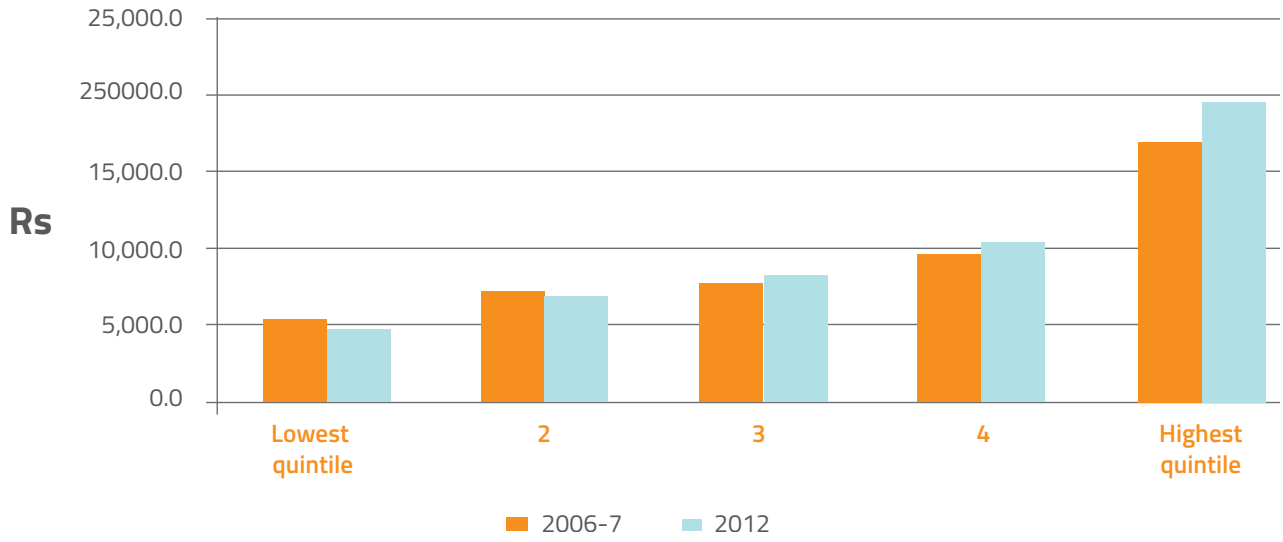
Source: Authors' calculations using HBS 2006-7 and 2012.

Figure 13: Growth incidence curve of household consumption expenditures



Source: Authors' calculations using HBS 2007 and 2012.

Figure 14: Median monthly earnings (Rs)



Source: Authors' calculations using HBS 2007 and 2012.

66. Those in the middle of the distribution and the rich benefited more from growth. Figure 13 and Figure 14 present GICs for household income and household consumption expenditures. The first curve shows that most of the population has experienced positive income growth. Incomes rise less quickly among the poor than in the country as a whole. The poor have experienced a decline in consumption expenditures.

67. **Inequality was high among the employed, and it has tended to increase.** Figure 12 presents median monthly earnings across income quintiles over time. Those in the lowest quintile (the poorest) received a median 5,400 Mauritian rupees (Rs) in 2007 from employment or self-employment. By 2012, median monthly earnings for this group had declined by 11.6 percent. Those in the second income quintile also experienced falling earnings. But earnings have increased over time for the richer population groups. For the highest income quintile, median monthly earnings rose 15.3 percent between 2007 and 2012.

68. **The Gini index indicates that earnings differences were the main source of inequality in Mauritius.** As presented in Table 1, employment income has been the main source of inequality. Furthermore, employment's relative contribution to inequality has increased 69.4 percent in 2007 to 73.2 percent in 2012.

Table 1: Gini inequality decomposition by income sources (Shapley value approach)[13]

YEAR	2007		2012	
INCOME SOURCES	ABSOLUTE CONTRIBUTION	RELATIVE CONTRIBUTION (%)	ABSOLUTE CONTRIBUTION	RELATIVE CONTRIBUTION (%)
Employment income	25.73	69.41	28.54	73.17
Self-employment	5.84	15.77	5.89	15.11
Property income	1.70	4.59	0.88	2.26
Transfers	3.77	10.17	3.67	9.40
Own production	0.03	0.07	0.03	0.07
Total economy	**37.07**	**100.00**	**39.01**	**100.00**

Source: Authors' calculations using HBS 2007 and 2012.

[13] The table uses total household income as the living standards indicator. Thus, total absolute income inequality will differ from the initial Gini index figures, which use per adult equivalent household income.

E. Shared prosperity - why stayed behind

69. **Reducing extreme poverty and fostering shared prosperity are twin core goals Mauritius should pursue to achieve the inclusive growth advocated by the World Bank.** The percentage of people living on less than US$1.25 a day is literally zero, putting Mauritius among the world's relatively developed countries. The second goal focuses on shared prosperity. It pledges to foster real income growth among the bottom 40 percent of the population in every country. The promotion of shared prosperity requires a growing economy and equal redistribution of the gains. It requires both growth and reduction of inequality. This section discusses how Mauritius fared with respect to this goal between 2007 and 2012. As discussed earlier, the nation's economy has been growing continuously since the 1990s. But the GICs presented in Figure 13 and Figure 14 suggest that the well-being of bottom 40 percent grew slower than the overall population in Mauritius.

BOX 3: WORLD BANK'S TWIN GOALS OF ENDING EXTREME POVERTY AND PROMOTING "SHARED PROSPERITY"

The World Bank Group has established ambitious goals to reduce international poverty and boost shared prosperity. These two goals and their respective indicators can be summarized as:

1. End extreme poverty: the percentage of people living with less than $1.25 a day to fall to no more than 3 percent globally by 2030.
2. Promote shared prosperity: foster income growth of the bottom 40 percent of the population in every country.
Ending extreme poverty and promoting shared prosperity are also unequivocally about progress in non-monetary dimensions of welfare, including education, health, nutrition, and access to essential infrastructure as well as enhancing voice and participation of all segments of society in economic, social, and political spheres. Ending extreme poverty within a generation and promoting shared prosperity must be achieved in ways that are sustainable over time and across generations. This requires promoting environmental, social, and fiscal sustainability. The shared prosperity indicator implies a direct focus on the incomes of the less well-off—a departure from the common practice of focusing only on growth in GDP per capita and implicitly relying on the "trickle down" impact to benefit the bottom of the distribution.

To analyze shared prosperity in Mauritius, this section compares the mean annual growth rates of the poorest 40 percent of the population and the total population over five years—i.e., for 2007 to 2012. The annual growth rate is measured using the following formula:

$$idot = \left(\left(\frac{F}{S} \right)^{\frac{1}{y}} - 1 \right) \text{x } 100 \; idot = \left(\left(\frac{F}{S} \right)^{\frac{1}{y}} - 1 \right) \text{x } 100$$

, where idot is the annual growth rate of per adult equivalent income, F is the final value for income, S is the initial value of income, and y is the number of years over which the annual growth rate has been calculated.

70. **Growth was not shared equally in Mauritius between 2007 and 2012**. At the national level, the real income of the bottom 40 percent of the population grew at an annual average of 1.8 percent (Table 1). In contrast, annual average growth for the Mauritian population as a whole was 3.1 percent—more than 1 percentage point faster. The gap between the better off and the worse off has increased over time, indicating that prosperity has not been shared in Mauritius.

71. **Professionals and generally skilled workers have benefited the most from growth (Table 2).** Shared prosperity was higher among the employed than among the unemployed and inactive. Those in trade and services had higher shared prosperity than those in agriculture and industry. Professionals had the highest shared prosperity. As for the gender of household heads, real income for the bottom 40 percent lagged the whole population for both men and women. But the bottom 40 percent living in female-headed households experienced smaller increases in the income gap. It grew by 1.6 percent across female-headed households, compared with 1.8 percent for the nation at large. The comparable figures for male-headed households were 2 percent for the bottom 40 percent and 3.4 percent for the country.

Table 2: Shared prosperity within Mauritius, selected groups

Annual growth rate (2007 to 2012)	Bottom 40 percent (%)	All (%)
NATIONAL	1.8	3.1
ECONOMIC STATUS		
EMPLOYED	1.9	3.0
UNEMPLOYED	1.3	2.1
OUT OF LABOR FORCE	1.8	2.8
SECTOR OF ACTIVITY		
AGRICULTURE	0.4	0.3
INDUSTRY	1.7	2.2
TRADE	2.9	9.7
SERVICE	2.0	3.6
OCCUPATION		
MANAGERS	1.9	2.5
PROFESSIONALS	3.0	1.4
TECHNICIANS	1.7	1.6
CLERICAL WORKER	1.8	1.4
SERVICES/SALES WORKERS	2.0	1.7
AGRICULTURE (SKILLED)	1.1	-0.02
TRADES WORKERS	1.6	1.5
OPERATORS AND ASSEMBLERS	2.3	1.9
ELEMENTARY OCCUPATIONS	1.7	1.7
GENDER OF HEAD		
MALE	2.0	3.4
FEMALE	1.6	1.8

Source: Authors' calculations using HBS 2007 and 2012. Bold type indicates groups with growth of bottom 40 percent above the average.

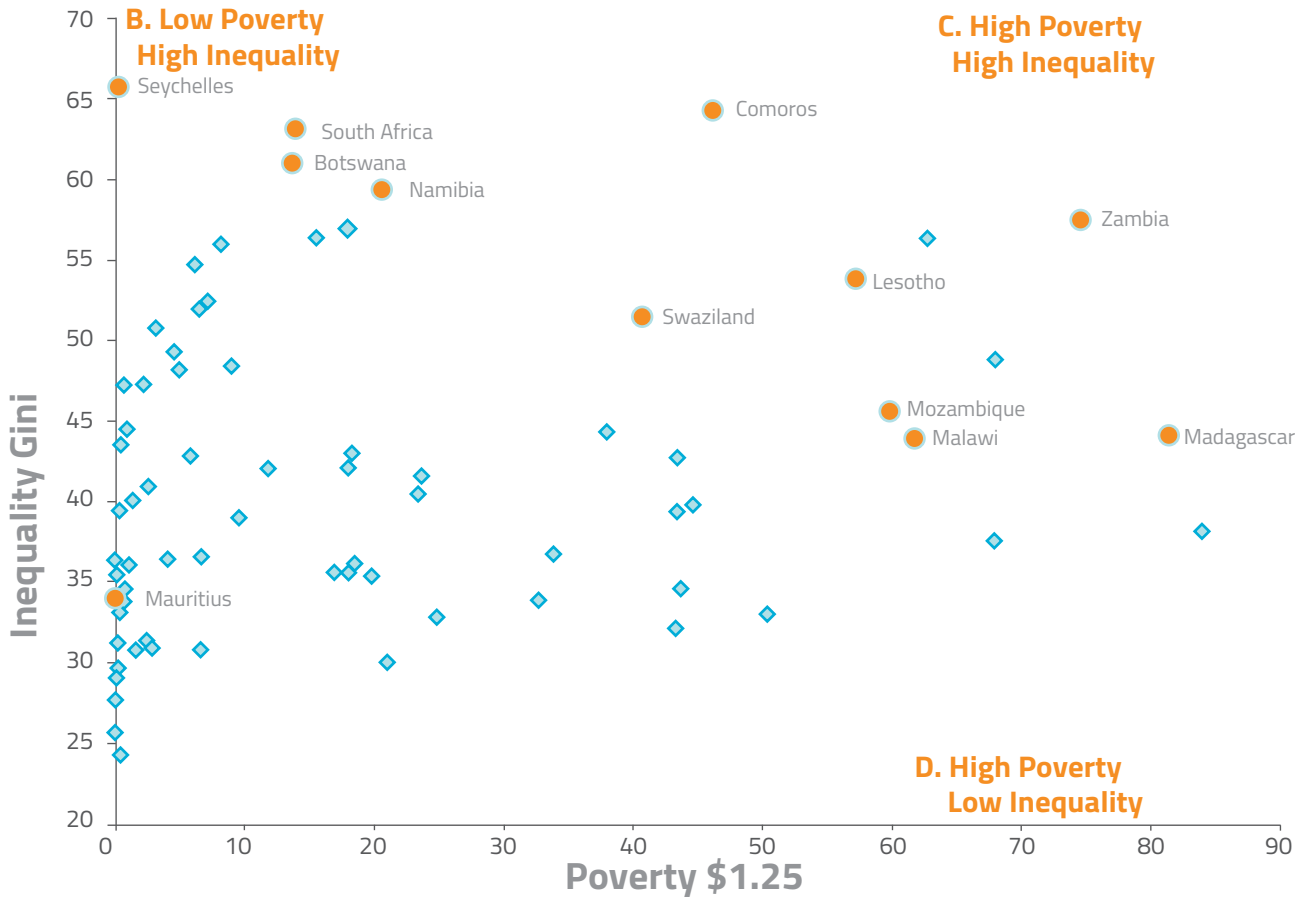
F. International comparison of poverty, inequality, and shared prosperity

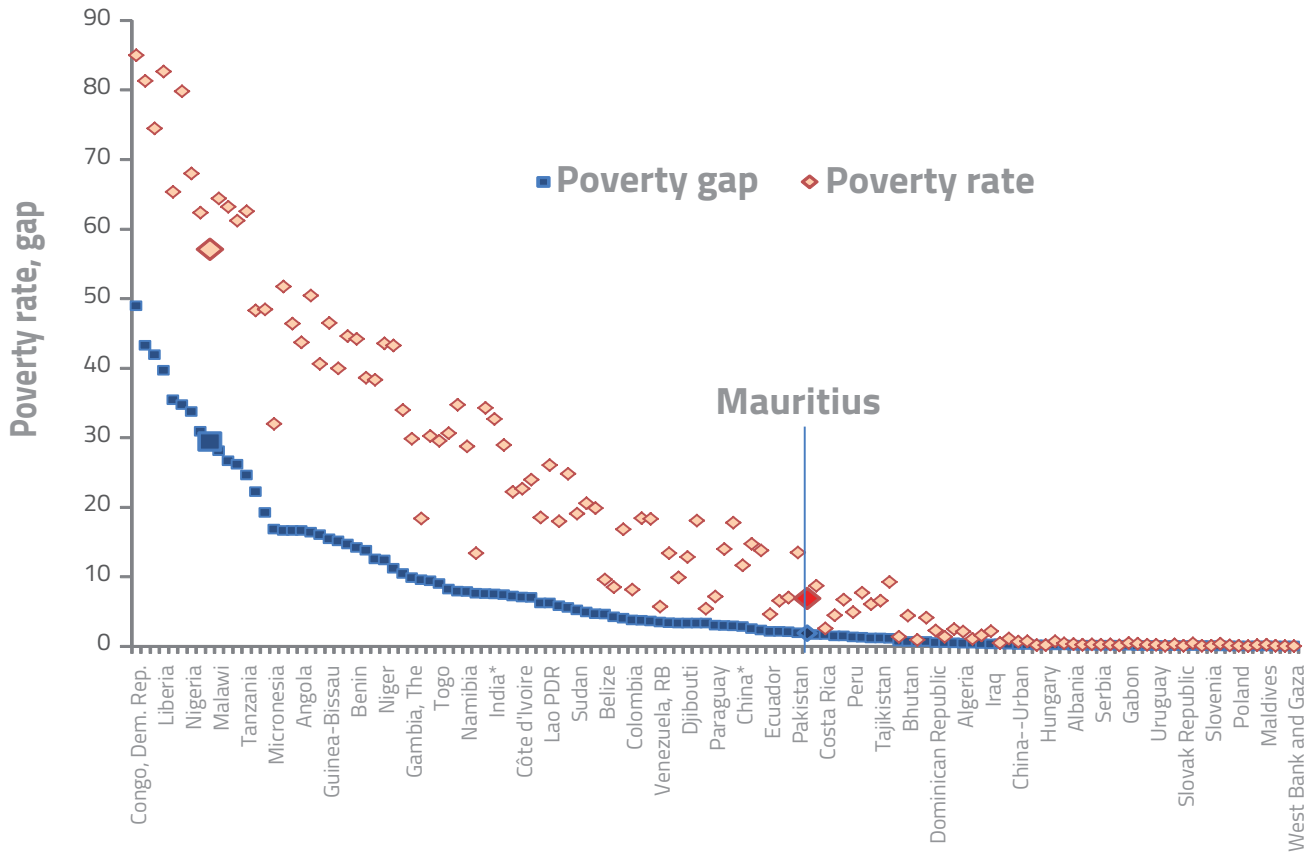
72. To make international poverty comparisons, this section uses the US$1.25 a day per capita poverty line, evaluated at 2005 purchasing power parity. Using this absolute poverty line rather than the national thresholds permits making meaningful comparisons of well-being. For comparisons of inequality, the section uses Gini coefficients.

73. **Mauritius belongs to the group of low poverty and low inequality countries.** It has virtually zero $1.25 dollar-a-day poverty, a rarity in SSA (Figure 15, left chart). Mauritius' "neighbors," such as Madagascar, report over 80 percent of their populations below the international poverty line. In having virtually zero $1.25 headcount poverty, Mauritius compares with Eastern European countries, such as Ukraine, Bosnia and Herzegovina, and Belarus.

74. **In terms of Gini inequality, Mauritius also compares well to its peer middle-income countries.** It does much better than its African "neighbors." Of the 74 countries in Figure 15 (right chart), only 17 are more equal than Mauritius. The 56 other countries show greater inequality than Mauritius, particularly Seychelles, South Africa, Comoros, Botswana, and Namibia.

Figure 15: Poverty and inequality across countries



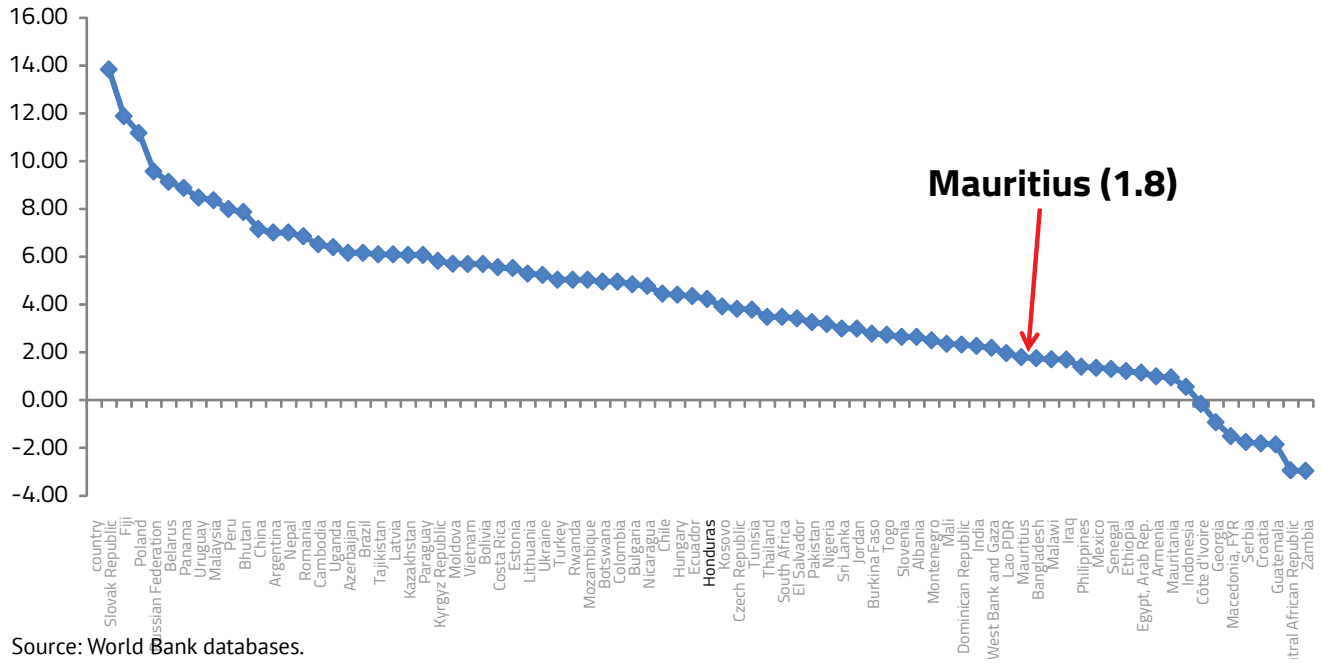


Source: POVCALNET database and authors' calculations.

75. **Despite positive real income growth among the bottom 40 percent, Mauritius did not compare well at the international level.** Looking at the 81 countries Figure 16, Mauritius' bottom 40 percent grew faster than the bottom 40 percent in just 19 countries; 61 countries performed better than Mauritius. The bottom 40 percent's real income growth in the Slovak Republic, the best performing country, was roughly seven times greater than the comparable figure for Mauritius. On average, the real income growth of the bottom 40 percentile in Mauritius was 1.8 percent, compared with 4.1 percent across the comparable countries with available data.

Figure 16: Shared prosperity in Mauritius, international comparison

Consumption annual growth of the bottom 40% of the population, 2006-12



Source: World Bank databases.

Chapter 4

POVERTY, VULNERABILITY AND THE MIDDLE CLASS

Close to 80 percent of Mauritius' population could be classified as middle class. A worrisome trend has been the increase in the relative size of the vulnerable population. Demographically, being in a smaller family or one headed by a male provides better odds of being middle class. Having more education—the key to employment in higher-paying sectors—is a path to middle-class status; so is employment in some of the growing sectors of Mauritius' economy. The relative numbers of poor remained the same between the two HBS surveys and appear to be well covered by various social protection schemes. The highest growth in the vulnerable was among female-headed households, those who receive large amounts of transfer income, and those employed in household services, other low-skilled occupations, and the unemployed.

A. Introduction

76. In recent years, the concept of a middle class has been broadly discussed in socio-economic literature and policy debates. Empirical evidence shows that countries with faster growth in the middle class are associated with better governance, reforms, and even better infrastructure. As people gain middle-class status, they tend to accumulate savings and acquire secondary and tertiary education—i.e., make investments in the future. Members of the middle class are likely to support accountable government, the rule of law, property rights, and better infrastructure, education, and economic stability. Faster growth and poverty reduction is associated with the appearance and growth of the middle class. Mauritius has had considerable economic growth in recent decades, accompanied by significant improvement in many social indicators and a growing middle class by any definition. Policy reforms in the mid-2000s helped alleviate structural challenges and led to continued broad-based growth even during the global financial crisis of the late 2000s.

77. To enhance the policy relevance of this analysis, however, more emphasis should be put on the uneven income distribution, especially now that Mauritius is close to entering the club of developed economies. The issue of distribution will become even more challenging because it will require sustained economic growth and shared prosperity, associated with reduction of economic vulnerability and the rise of the middle class achieved through substantial productivity gains. While the percent of people who are middle class has been increasing in Mauritius, a worrisome sign is that there has also been an increase in the number considered vulnerable.

78. This chapter defines and analyzes the middle class in Mauritius based on two recent household budget surveys. It is structured as follows. The first section reviews the literature on the middle class, including various definitions of the middle class, characteristics of the middle class from other studies, and a discussion of the importance of the middle class for economic growth. This is followed by the main section that defines and profiles the middle class in Mauritius, using a vulnerability-to-poverty approach. The chapter concludes by providing policy recommendations regarding the middle class in Mauritius.

BOX 4: LITERATURE ON THE MIDDLE CLASS

A long and growing literature focuses on the middle class, its characteristics, and its importance to economic growth and stability. The emergence of many of today's high-income countries has often been attributed to the development of a middle class. This group is dominated by people with a vested interest in a stable society, who accumulate savings, invest in education for themselves and their children, and in other ways make investments in human and social capital. They advocate good governance, rule of law, and economic stability. Considerable evidence points to links between faster economic growth and an expanding middle class.

While these intellectual and policy concepts have a long history, no consensus has been reached on how to define and measure the middle class. Easterly (2000),[14] for example, takes a relativist approach, defining the middle class as those between the 20th and 80th percentile of the consumption distribution. Bhalla (2009)[15] takes an absolute approach, defining the middle class as those with annual incomes over US$3,900 in purchasing power parity terms. Banerjee and Duflo (2007)[16] use two alternative absolute measures—those with daily per capita expenditures of US$2 to US$4 and those with daily per capita expenditures between US$6 and US$10. Ravallion (2009)[17] takes a hybrid approach, defining a "developing world middle class," as with a range of incomes between the median poverty line of developing countries and the US, and a "Western world middle class."

Absolute definition the middle class: Many have tried to define and characterize a global middle class and to distinguish it from the global poor. The upper and lower bounds are often defined in an ad hoc manner.[18] Banerjee and Duflo based their two ranges—a lower middle class at US$2 and US$4 a day per capita (adjusted at purchasing power parity) and an upper middle

[14] Easterly, W. (2000), "The Middle Class Consensus and Economic Development," Policy Research Working Paper 2346, World Bank, Washington, DC.

[15] Bhalla, S. (2009), "The Middle Class Kingdoms of India and China," Peterson Institute for International Economics, Washington, DC.

[16] Abhijit V. Banerjee and Esther Duflo, "What is middle class about middle classes around the world?", Massachusetts Institute of Technology, Department of Economics, December 2007.

[17] Martin Ravallion, The Developing World's Bulging (but Vulnerable) "Middle Class," Policy Research Working Paper No. 4816, Development Research Group, The World Bank, January 2009.

[18] Ibid.

class between US$6 and US$10—on a sample of household surveys in 13 low- and middle-income countries.[19] The lower bound of US$2 a day reflects developing-country standards—few people who have incomes above the threshold are considered poor in these economies. However, the upper bound of US$10 a day would still be regarded as poor in developed countries, where the threshold for poverty is about US$13 a day. With economic growth over the past decade and a half, 1.2 billion people in the developing world have joined the ranks of the middle class—by its standard. However, many of them would still be considered poor in the developed world—thus the need for separate middle-class thresholds for the developed and developing worlds.

Relative definitions: In developed countries, a different approach is often adopted—defining poverty on a relative basis, such as people who have incomes less than 60 percent of the mean. In less developed countries, others have adopted a relativist approach—for example, Easterly defined middle class as consumption between the 20th and 80th percentiles.[20] Others define the middle class as those with per capita incomes between 75 percent and 125 percent of median per capita income.[21]

Subjective definitions of the middle class: A long tradition in the sociological literature involves subjective definitions of the middle class, where people are asked how they rank in the income distribution.[22] Much of this research has been done in developed countries, where much more data is available.[23]

Characteristics of the middle class: Once middle class is defined, it is important to analyze the group's characteristics and determine how they differ from the poor in terms of occupation, consumption patterns, family size and household composition, place of residence, education, health, and other variables. Then the direction of causality needs to be determined. Do households with certain characteristics become middle class or do households with "middle class" characteristics adopt different behaviors to stay middle class? In Mauritius, the middle class exhibits some quite distinct social and economic characteristics that are important for policy. Most studies define the middle class based on income or consumption and then compile characteristics of those falling into that class. This study will do the same.

Why the middle class is important: Historical studies have pointed to the importance for overall economic growth of having a middle class that earns a larger share of a country's income. For example, an expanding middle class was a driving force behind the growth of many of today's high income countries in Western Europe. A number of studies have shown that economic growth is higher in countries with larger middle classes. Three reasons are often given for this. First, new entrepreneurs who have delayed consumption create employment and productivity for the rest of society. Second, the middle classes are a source of vital inputs for the entrepreneurial class. Third, the middle classes are willing to pay more for better quality goods, increasing investment levels and raising income levels for the entire society. Another study by Easterly defines a middle-class consensus as a national situation with neither strong classes nor ethnic differences. He shows that lower ethnic polarization and higher income shares held by the middle class are associated with a range of desirable development outcomes—higher incomes, faster growth, better health and education, more political stability, less civil war, and more democratic societies.[24] The opposite of middle-class economies are unequal ones, where wealth flows to a small number of people, and several studies show that high inequality is associated with poor growth outcomes.

[19] Banerjee and Duflo (2007).

[20] William Easterly, The Middle Class Consensus and Economic Development, Journal of Economic Growth, Vol. 6, No. 4, 2001, pp. 317-335.

[21] Nancy Birdsall, Carol Graham, and Stefano Pettinato, "Stuck in the Tunnel: Is Globalization Muddling the Middle Class?" Brookings Institution, Center on Social and Economics Dynamics Working Paper. No.14, 2000.

[22] C. Wright Mills, The Sociological Imagination, 1959, 2000, Oxford University Press.

[23] Reynolds Farley, editor, State of the Union: America in the 1990s. Volume One: Economic Trends, Russell Sage Foundation, New York, 1995. Reynolds Farley, editor, State of the Union: America in the 1990s. Volume Two: Social Trends, Russell Sage Foundation, New York, 1995.

[24] Easterly (2000).

Photo : © Werner Bayer

B. Scope of the vulnerability and middle class in Mauritius

79. **Absolute definition of the middle class using a vulnerability approach:** In Mauritius, the definition of vulnerability and middle class is based on two household budget surveys, one conducted on 2007 and the other in 2012. The framework for defining middle class according to households' vulnerability to poverty follows a regression-based approach to estimate an income threshold associated with a low probability of falling into poverty. The methodology introduced by Lopez-Calva and Ortiz-Juarez envisions a three-stage process for defining the middle class. The first stage identifies the actual characteristics of those moving in and out of poverty. The second stage constructs probabilities of falling into poverty. The third stage identifies the income level associated with that probability.

80. **The vulnerability of the middle class and other income groups is calculated for Mauritius for 2007 and 2012.** Between 2007 and 2012, the overall size of the middle class declined slightly from 79.9 percent to 77.2 percent of the population (Figure 17). The relative sizes of the rich and poor groups remained roughly the same, with a slight reduction in poverty. The upper middle class grew from 49.4 percent to 52.3 percent of the population, while the lower middle class declined significantly from 30.5 to 24.9 percent.

81. **In a worrisome trend, those classified as vulnerable rose from 10.2 percent in 2007 to 12.7 in 2012.** Overall, it seems the income distribution stretched a bit over this period, with people from the lower middle income group moving in equal numbers into the upper middle income and vulnerable groups. That the upper middle class now encompasses more than half the population is a promising trend, but the increased share of those classified as vulnerable is worrisome and the next section looks at the characteristics of this group.

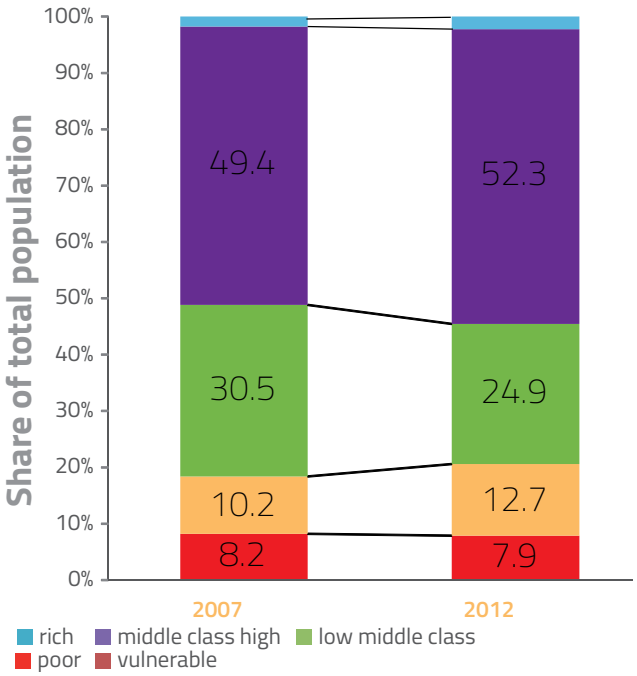
C. Who are the poor in Mauritius

iv. Demographics of poverty

82. **Poverty incidence and the share of the poor tended to increase with household size.** As shown in Figure 18, people in single-member households were poorer than those living in households with two members. But people living in bigger households experienced a greater incidence of poverty, particularly those living in households with seven or more members. Bigger households made up a larger share of the poor—but only up to households with four members. People in households with five or more members accounted for a smaller share of poverty.

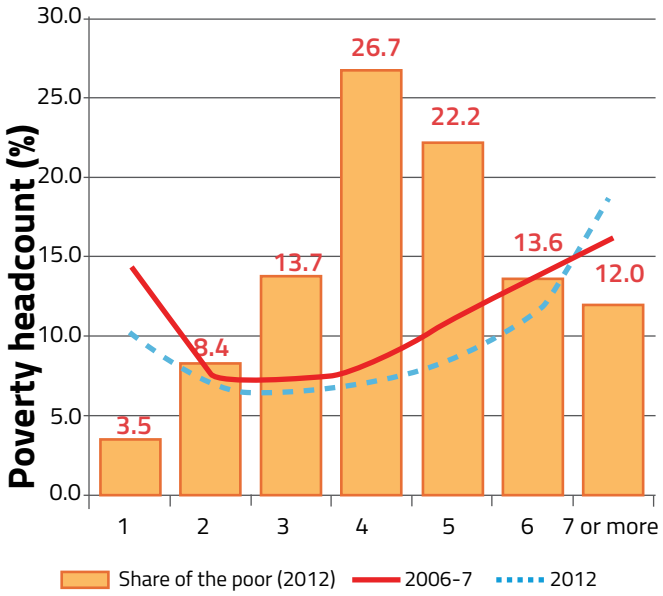
83. **Households with larger age-dependency ratios.** In both 2007 and in 2012, the poor, when compared to the

Figure 17: Middle class in Mauritius, 2007 and 2012



Source: Authors' calculations.

Figure 18: Poverty incidence and the share of the poor by household size

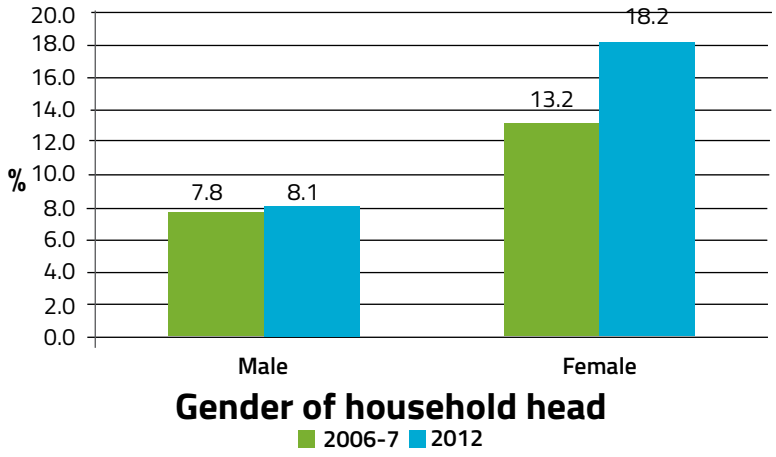


Source: Authors' calculations, using HBS 2007 and 2012.

non-poor, lived in bigger households and with a larger number of children, households with a smaller number of working-age adults, and households with younger members. In other words, the poor tended to live in households with larger age-dependency ratios. In 2012, the share of female heads was 31 percent among the poor and 15 percent among the non-poor.

84. **The incidence of poverty was higher among people living in female-headed households and, for them, poverty has increased sharply over time.** Among those living in male-headed households, poverty remained steady at 8 percent between 2007 and 2012. For female-headed households, however, poverty increased from 13 percent in 2007 to 18 percent in 2012, increasing the gap relative to male-headed households (Figure 19). As will be seen later, labor participation rates among females was significantly low. This fact, in conjunction with the mentioned widowed marital status of female heads, has limited their access to labor income, which is the main source of household income in Mauritius. In Mauritius, most male heads of households were married, but female heads were mostly widowed. Figure 20 compares male and female household heads by marital status over time. In 2007, 92 percent of male heads were married. By 2012, the figure was still large at 91 percent. Only 10 percent of the female heads of households were married in 2007 and 2012. In both periods, over 60 percent of female heads were widowed.

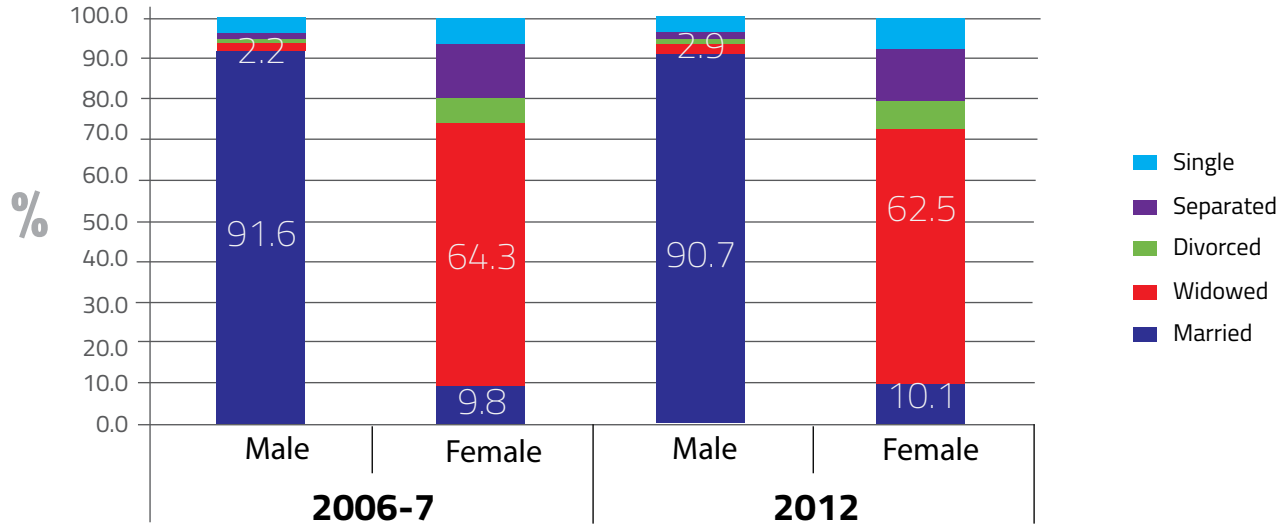
Figure 19: Poverty by gender of head



Only 10 percent of the female heads of households were married in 2007 and 2012.

Source: Authors' calculations using HBS 2007 and 2012.

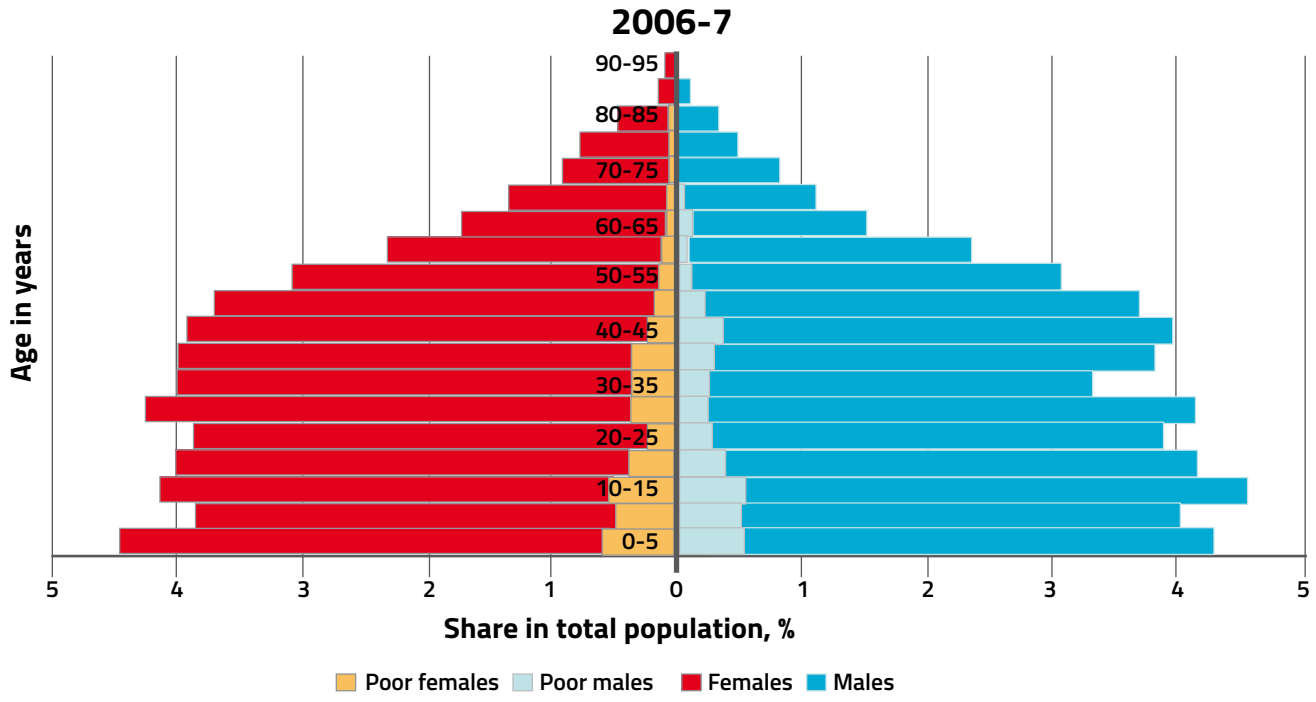
Figure 20: Gender of head and marital status



Source: Authors' calculations using HBS 2007 and 2012.

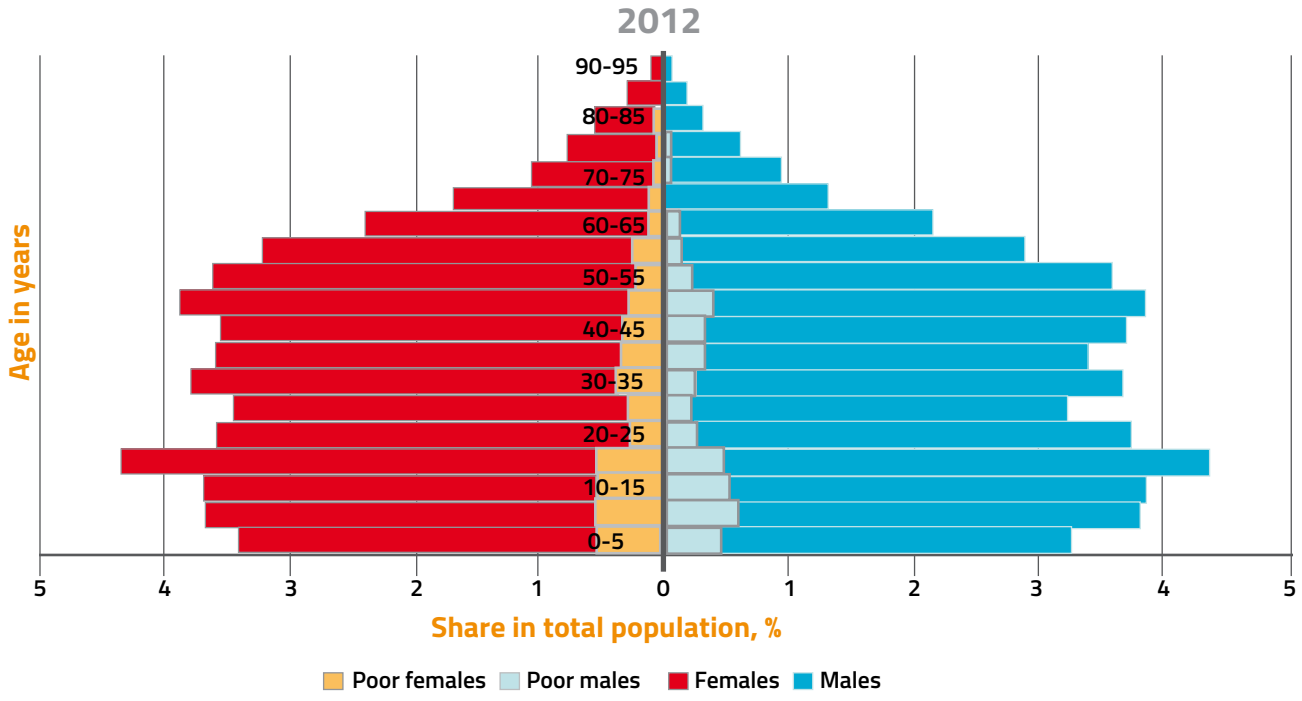
85. **Mauritius' age structure is changing, with predominance of young people gradually diminishing.** Figure 21 and Figure 22 show that the base of the age pyramids became narrower over time. In 2007, 0-5 year olds constituted about 4.5 percent of the population. By 2012, the share of this age cohort had declined by 1 percentage point and became roughly at par with the share of older five-year age cohorts—all the way up to the 55-60 age cohort.

Figure 21: Age pyramid and poverty, 2007



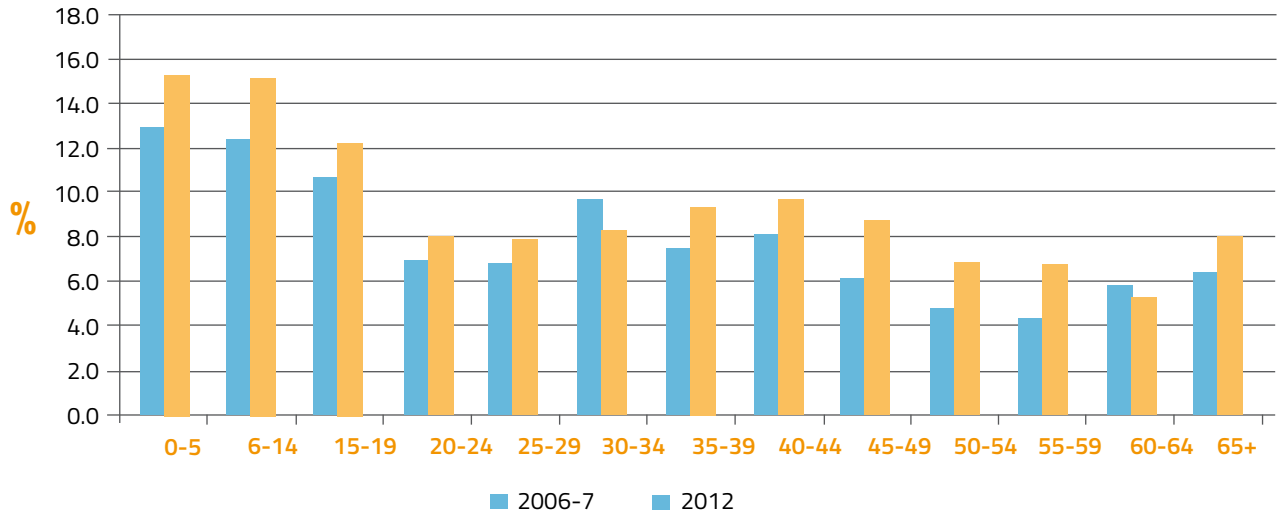
Source: Authors' calculations using HBS 2007 and 2012

Figure 22: Age pyramid and poverty, 2012



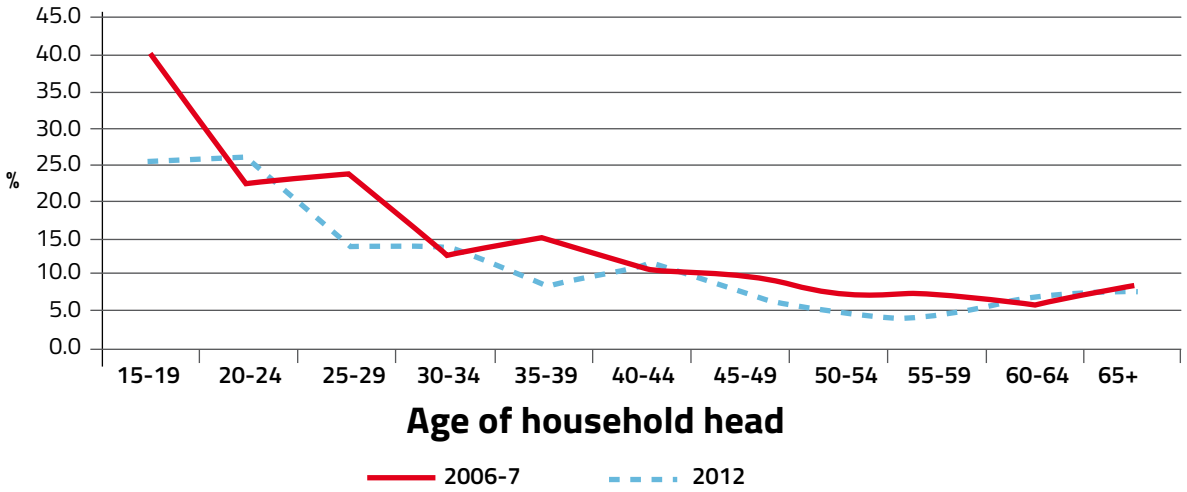
Source: Authors' calculations using HBS 2007 and 2012

Figure 23: Poverty by age groups



Source: Authors' calculations using HBS 2007 and 2012

Figure 24: Poverty by age of head



Source: Authors' calculations using HBS 2007 and 2012

86. **Poverty has a predominantly young face.** Figure 21 and Figure 22 also show that the share of poor males and females declines with age. This can also be seen in Figure 23. Children, those aged under 15 years, experienced the highest incidence of poverty in both 2007 and 2012, and their increase in poverty incidence over time was larger. Poverty incidence was also more evident among individuals living in households headed by younger people, but it tended to subside as heads grew older. In 2012, for instance, the incidence of poverty among people living in households with heads aged 15 to 19 years was above 40 percent. But for those living in households headed by people aged 30 and above, poverty was below 15 percent.

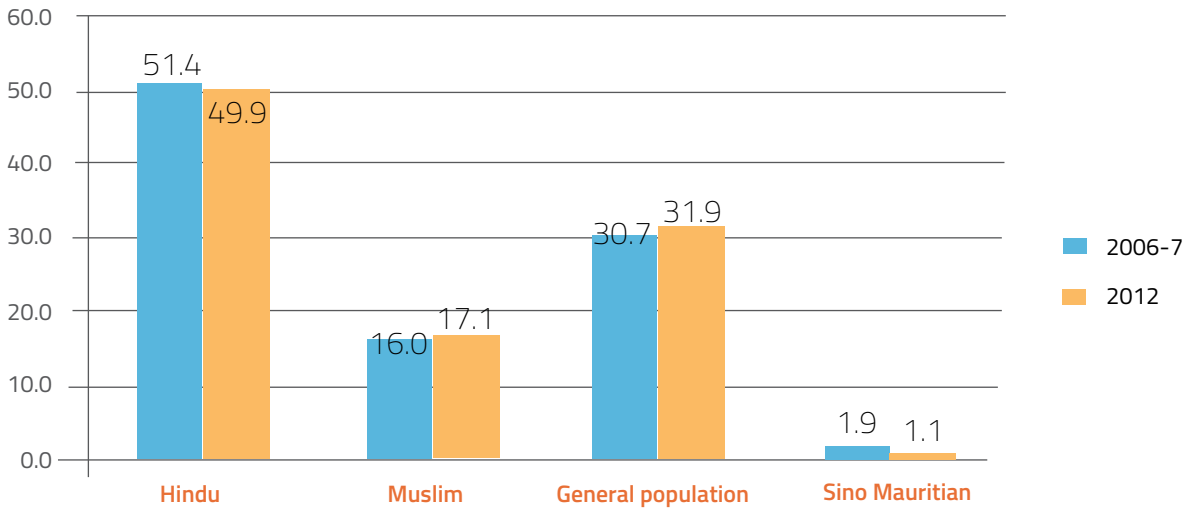
87. **Sino-Mauritians were the least poor ethnic group and experienced a large drop in the incidence of poverty.** Mauritius has four main ethnic groups: Hindus, Muslims, Sino-Mauritians, and the general population (Figure 25). In 2012, the Hindus constituted the biggest share of the population (50 percent), followed by the general population (32 percent), the Muslims (17 percent, and the Sino-Mauritians (1 percent). Figure 26 shows that poverty among Sino-Mauritians fell from 3.7 percent in 2007 to 1.6 percent in 2012. The Hindus and the general population became slightly poorer over time and had the largest share of poor households. Roughly 49 percent of the poor in 2012 were part of the general population and 36 percent were Hindus. Muslims' share of poverty was only 15 percent; the figure for Sino-Mauritians was roughly zero.

88. **The relatively low poverty of the Sino-Mauritians might be partly explained by their educational attainment and labor-market prospects.** Sino-Mauritians had the highest share of people with secondary and tertiary educations; few had no education. They also had the highest proportion of people employed and the lowest proportion unemployed or out of the labor force. Finally, Sino-Mauritians had the highest proportions of people in managerial and professional occupations, and a negligible proportion in elementary occupations. As expected, median monthly earnings among this group were the highest, with the largest percentage increase over time. These characteristics have put Sino-Mauritians in an advantageous position to better benefit from economic growth.

v. Education and poverty

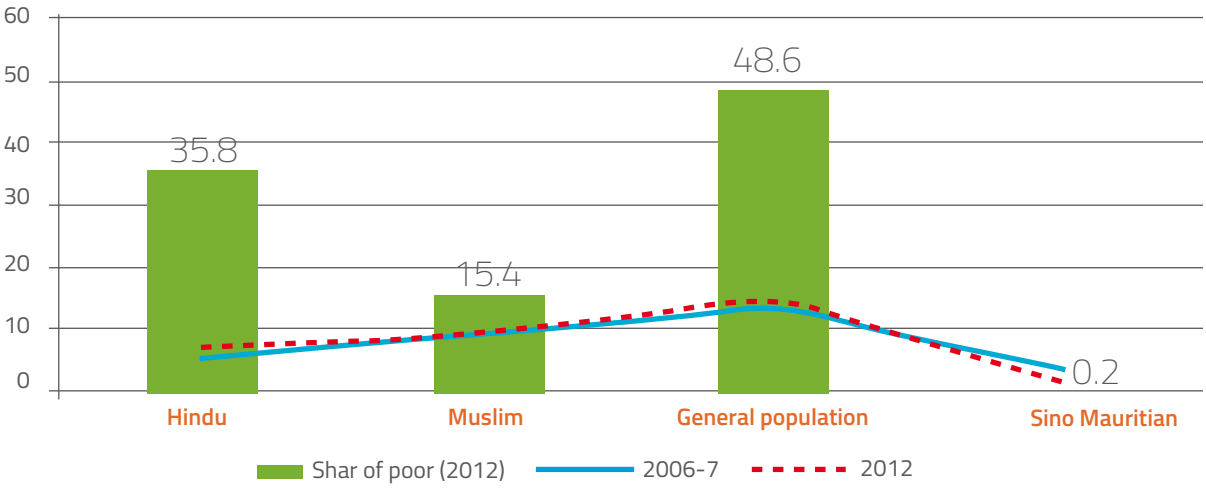
89. **A clear relationship exists between household heads' education and their income.** Those living in households headed by more-educated people had greater incomes than their less-educated counterpart. Figure 27 shows the income quintile composition of four educational levels in 2012. Among people living in households headed by someone woho did not complete any education level, 33 percent were in the poorest income quintile. Only 5 percent were part of the top quintile. Outcomes were more dramatic at the tertiary-education level: 83 percent of people living with heads who completed tertiary education level were part of the richest quintile.

Figure 25: Distribution of ethnic groups



Source: Authors' calculations using HBS 2007 and 2012.

Figure 26: Ethnicity and poverty



Source: Authors' calculations using HBS 2007 and 2012.

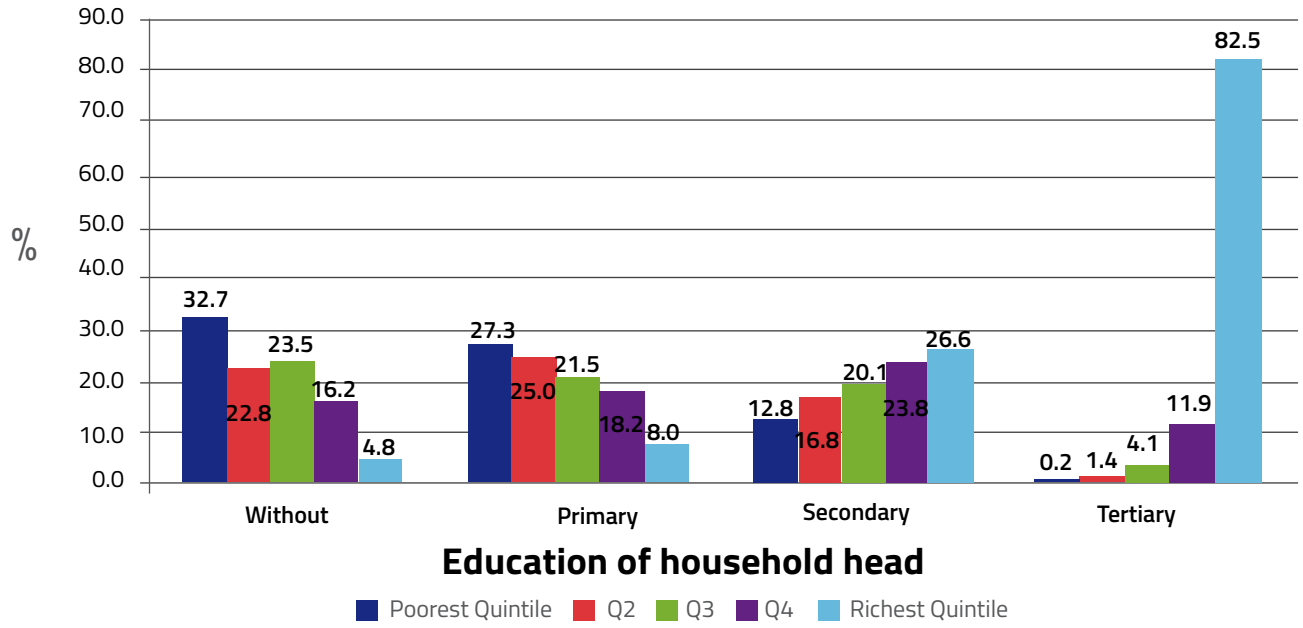
Photo : © Cisco

90. **As a result, poverty was highest among those living in households headed by someone without any education.** Where household heads are uneducated, the poverty headcount rate increased from 14.7 percent in 2007 to 15.5 percent in 2012; however, the group's share of poverty was under 7 percent and tended to decline over time (Figure 39). There was virtually no poverty among people living with a university-educated household head. The rate was under 0.5 percent in both 2007 and 2012; however but their share of poverty increased from 6.1 percent in 2007 to 8.5 percent in 2012. Although it declined over time, the share of poverty was highest among those living with household heads that completed primary or secondary education.

vi. Labor and poverty

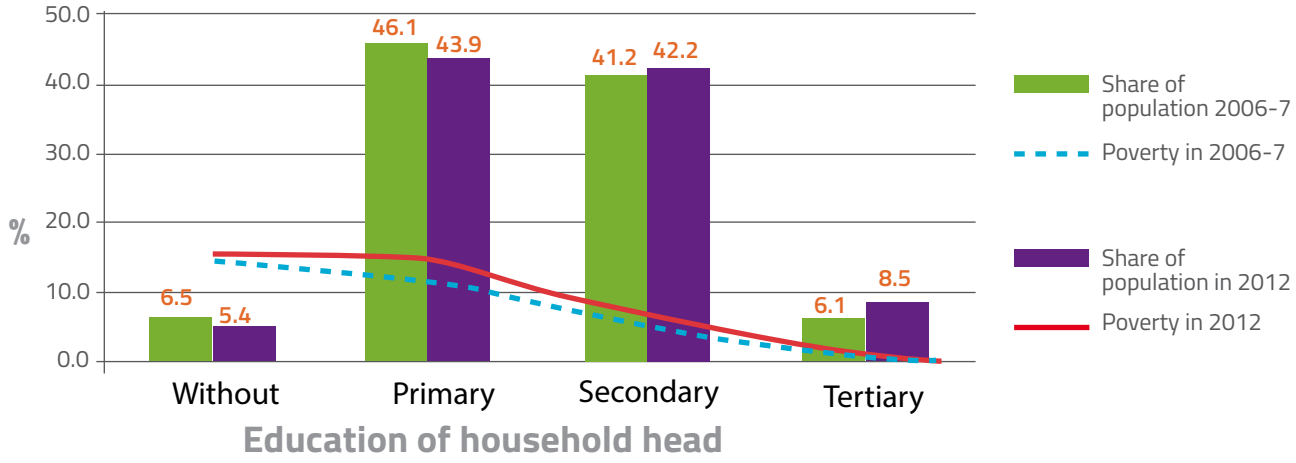
91. **Poverty is highest among the unemployed, but the largest share of the poor is among the inactive group in Mauritius.** In 2012, the poverty rate was highest among the unemployed, reaching 15.6 percent. Employed individuals had the lowest poverty rate at 4.2 percent (Figure 29). In addition, the biggest improvement was among the inactive population, with poverty rates falling from 10.1 in 2007 to 8.3 in 2012. The faster poverty reduction among the inactive is most certainly associated with the growth of social protection benefits, but also reduce incentive to join the labor force, which in turn calls for additional benefits to compensate for lost labor income. As

Figure 27: Education of head by income quintiles in 2012



Source: Authors' calculations using HBS 2007 and 2012

Figure 28: Poverty by education of head



Source: Authors' calculations using HBS 2007 and 2012

Figure 29: Poverty rates, by status of employment

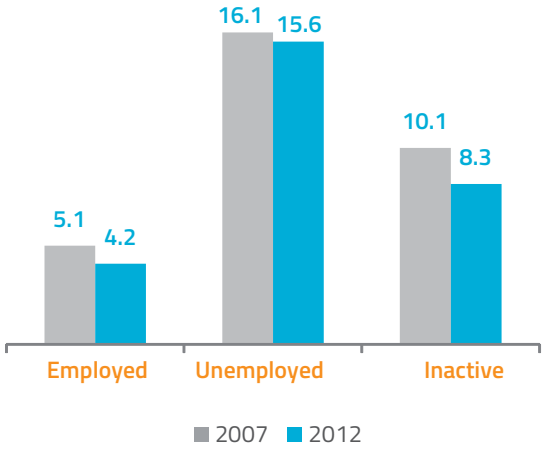
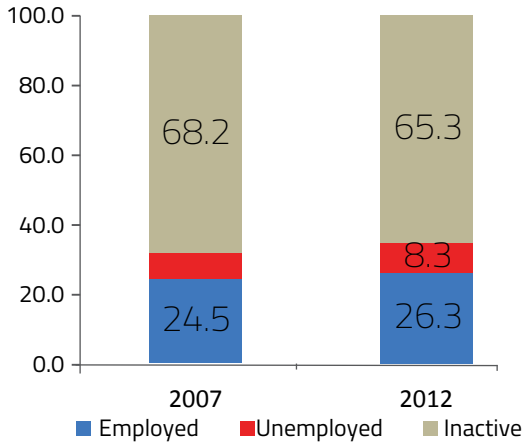


Figure 30: Distribution of poor, by status of employment



Source: Authors' calculations using HBS 2007 and 2012. Children below age 15 are excluded from this analysis.

mentioned earlier, close to 75 percent of the poverty reduction was associated with the social protection benefits. In 2012, the inactive population represented 65.3 percent of the poor. The group's share of poor fell between 2007 and 2012 (Figure 30). Employment does not necessarily eliminate poverty—about 26 percent of the poor were had jobs in 2012. The share of the poor increased for both the employed and unemployed.

92. **Better-educated individuals tend to get the best jobs**, which often provide higher pay than the jobs employing largely less educated people. Some evidence of this hypothesis is provided by the HBS data provides. As shown in Table 3, 56 percent of those who had no education were employed in elementary occupations in 2012. In contrast, 56 percent of those who completed tertiary education were in managerial and professional occupations, with only 1 percent in elementary occupations. This job data help explain why households headed by better educated individuals

Table 3: Occupation and education

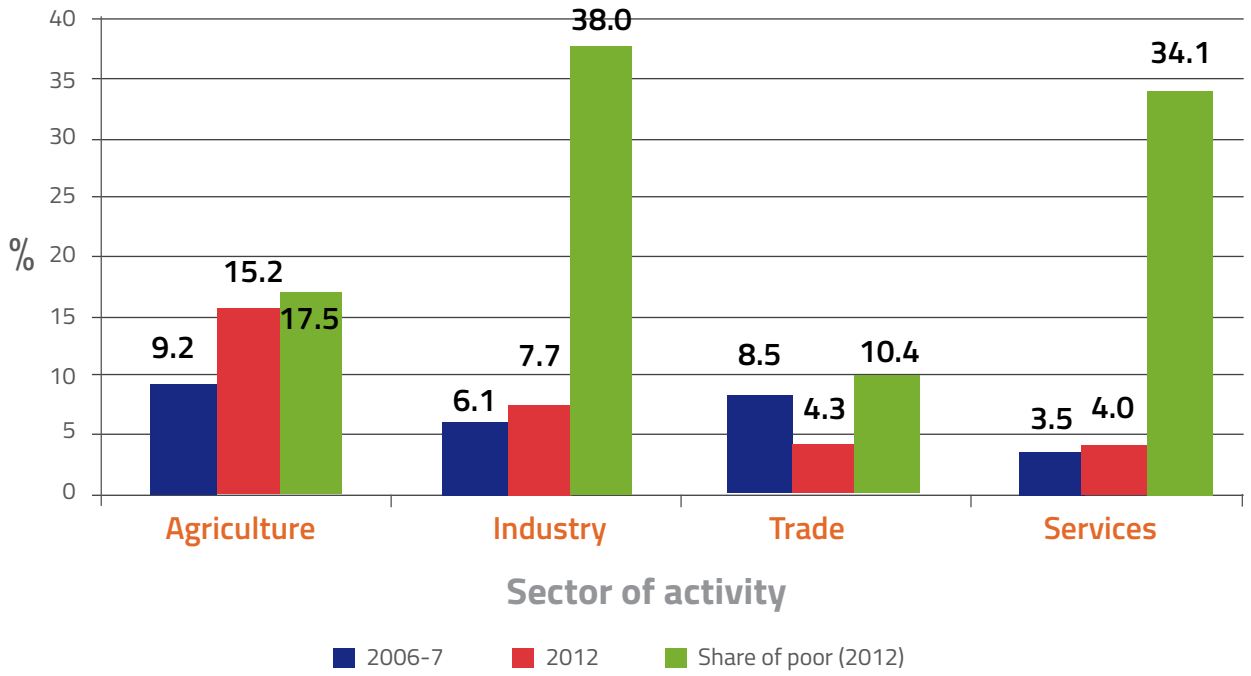
Employment occupation	Without	Primary	Secondary	Tertiary	Total
MANAGERS	0.27	0.69	4.37	15.67	4.70
PROFESSIONALS	0.00	0.31	5.11	40.06	8.31
TECHNICIANS/ASSOCIATE	1.63	2.90	12.26	21.50	10.41
CLERICAL WORKERS	0.00	1.04	12.14	12.97	8.56
SERVICE/SALES WORKERS	18.05	13.26	25.95	6.50	19.14
SKILLED AGRICULTURAL	11.09	7.75	1.94	0.16	3.67
TRADES WORKERS	10.04	28.32	16.36	1.65	18.02
OPERATORS AND ASSEMBLERS	2.98	11.88	9.30	0.47	8.80
ELEMENTARY OCCUPATION	55.94	33.86	12.56	1.02	18.39
Total	**100**	**100.00**	**100.00**	**100.00**	**100.00**

Source: Authors' calculations using HBS 2007 and 2012.

commanded greater incomes than households headed by someone with less education (Figure 38).

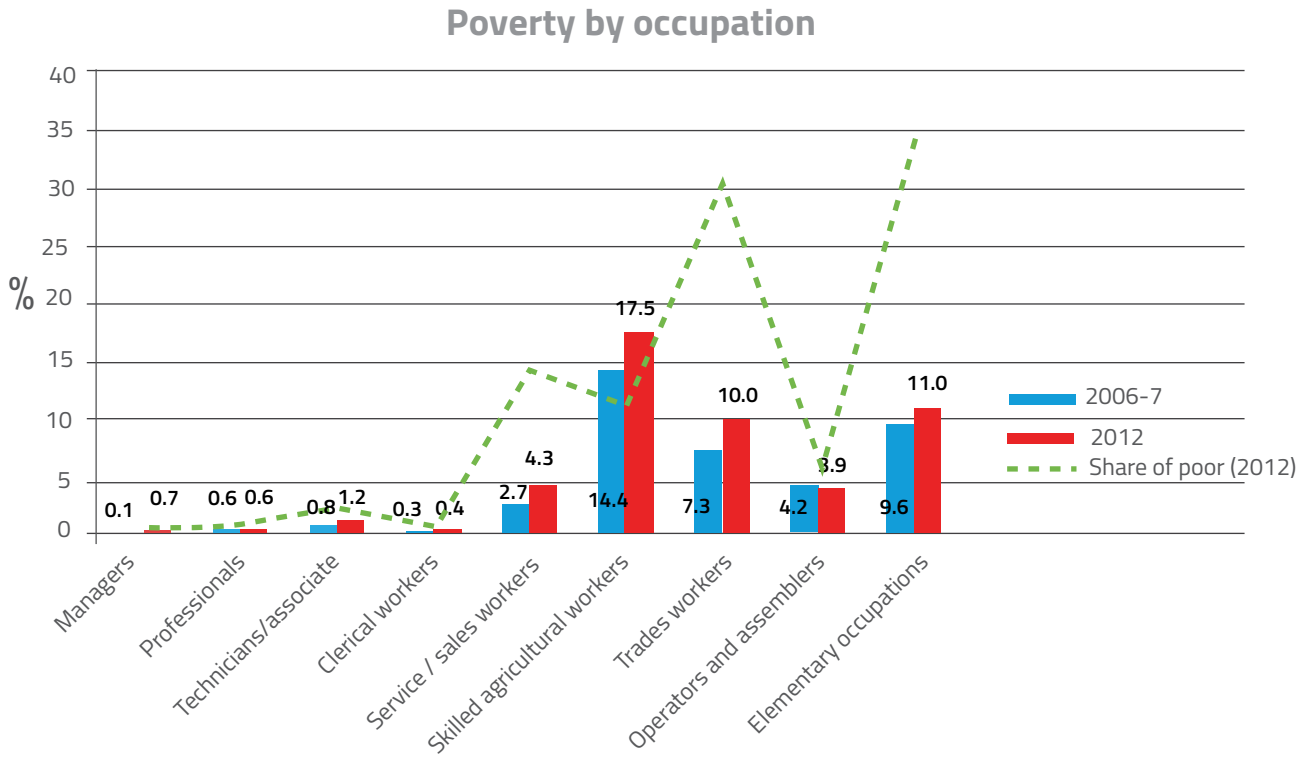
93. **Poverty also varies widely across occupations.** Among those holding white-collar jobs, poverty was low; poverty was quite high and tended to increase over time among those in blue- collar occupations (Figure 42). Among managers, professionals, technicians, and clerical workers, poverty was under 2 percent in both 2007 and 2012 (Figure 32). But for those in other occupations, poverty was higher. Among those in skilled agriculture, for example, poverty was 14.4 percent in 2007, increasing 17.5 percent by 2012. In terms of worsening poverty, those in agriculture were

Figure 31: Poverty by sector of activity



Source: Authors' calculations using HBS 2007 and 2012

Figure 32: Poverty by occupation



Source: Authors' calculations using HBS 2007 and 2012

hit harder than those working in trade and elementary occupations.

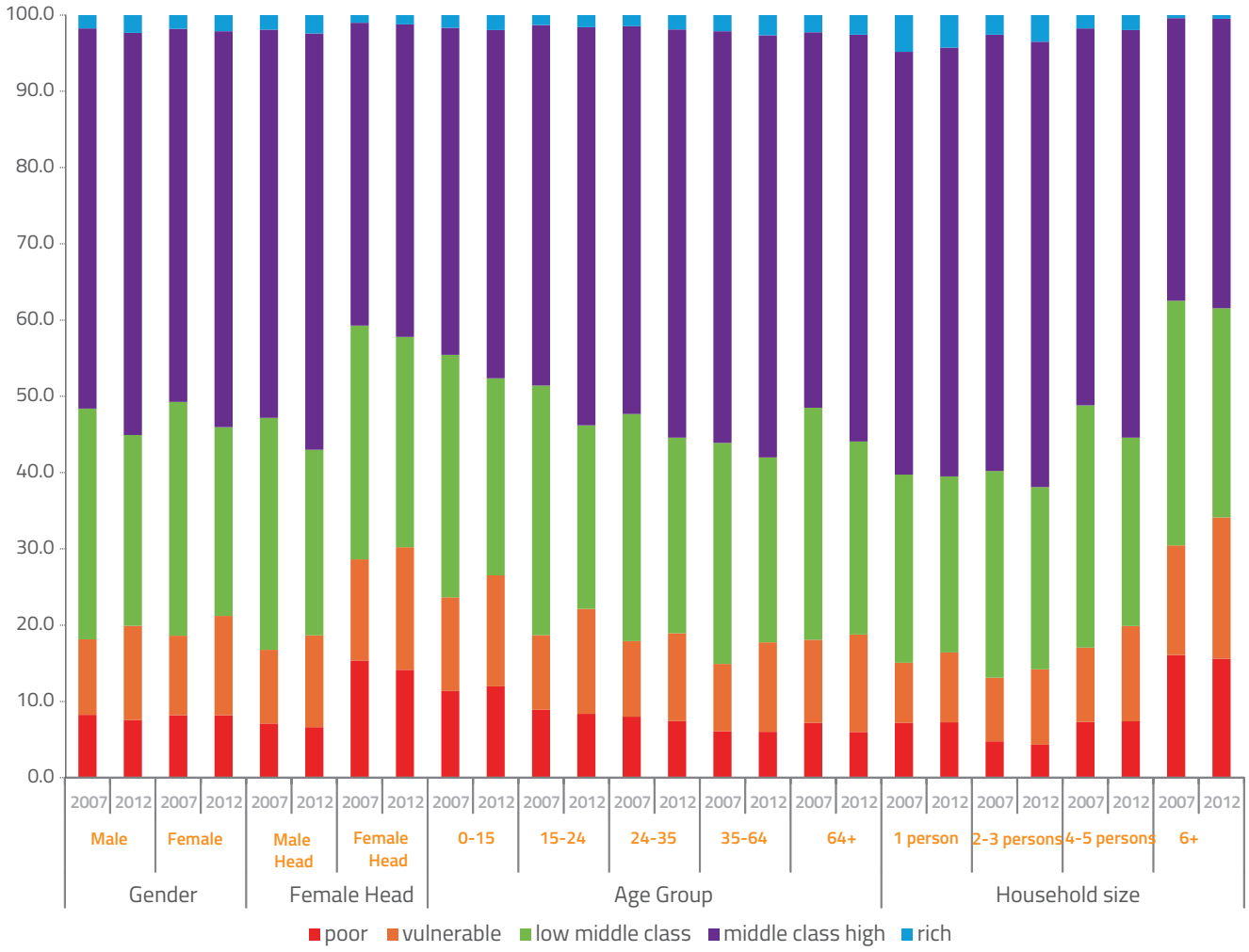
D. Who are the vulnerable and middle class in Mauritius

94. A number of different socio-economic characteristics of the middle and other income classes can be identified, many of which have important policy implications.

95. **Males and females are similar in vulnerability and middle-class status, but there are significant differences between male- and female-headed households.** In 2012, over 30 percent of female-headed households were either poor or vulnerable, compared to just 19 percent for male-headed households (Figure 33). In the middle class, 78 percent of households were male-headed and 67 percent were female-headed households—with a much higher share of male-headed households earning upper-middle class incomes. Of all middle-class households, 84 percent are headed by males and 16 percent by females.

96. **Aging decreased the tendency to be either poor or vulnerable and increased the likelihood of being middle class or above.** Like many other countries, Mauritius has relatively high unemployment among young people aged 20 to 24, delaying their entry into the labor market and their achieving middle-class status. Between 2007 and 2012, all age groups had a similar pattern—declining shares among the lower middle class and increasing shares among the upper middle class or vulnerable groups. The increased shares of the upper middle class always exceeded the share becoming vulnerable. For example, young people aged 15 to 24 had a decline of 8.7 percentage points in the lower middle class, an increase of 4.0 percentage points in those vulnerable, and a gain of 4.9 percentage points in those in the upper middle class. All age groups except for those under age 15 had decreases in the percent poor.

Figure 33: The middle class by selected demographic characteristics, 2012

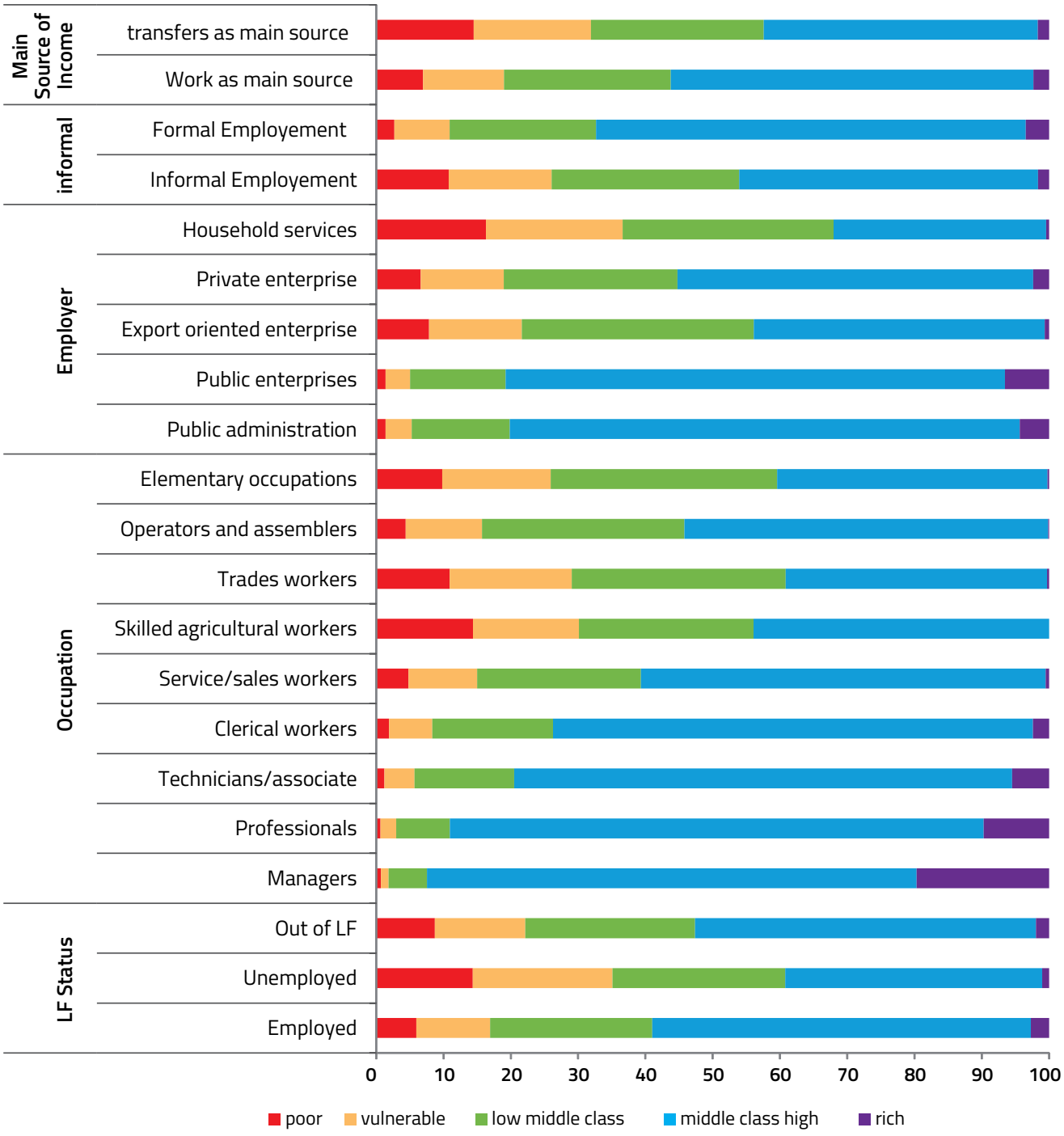


Source: Authors' calculations.

Photo : © Carla Schnetler

97. **Middle-class status fell with increased household size, especially for households exceeding six or more people.** A high share of households with six or more people is poor or vulnerable, and only a small share is rich. The major difference between the vulnerable and the middle class was household size. Of all poor households, 49 percent had four to five persons, and 33 percent had six or more. Of all vulnerable households, 51 percent had four to five persons, and 25 percent had six or more. Large households make up a much smaller portion of the middle class. Between 2007 and 2012, the only discernible trend of middle class status by household size was an overall reduction in average size, especially for large households with six or more people. This structural change likely explains part of the overall increase in the size and share of the middle class. Over time, households with six or more persons had the largest decline in the share among the lower middle class (4.7 percentage points) and the largest increase in the share vulnerable (4.2 percentage points).

Figure 34: The middle class by labor force and employment characteristics, 2012



Source: Authors' calculations.

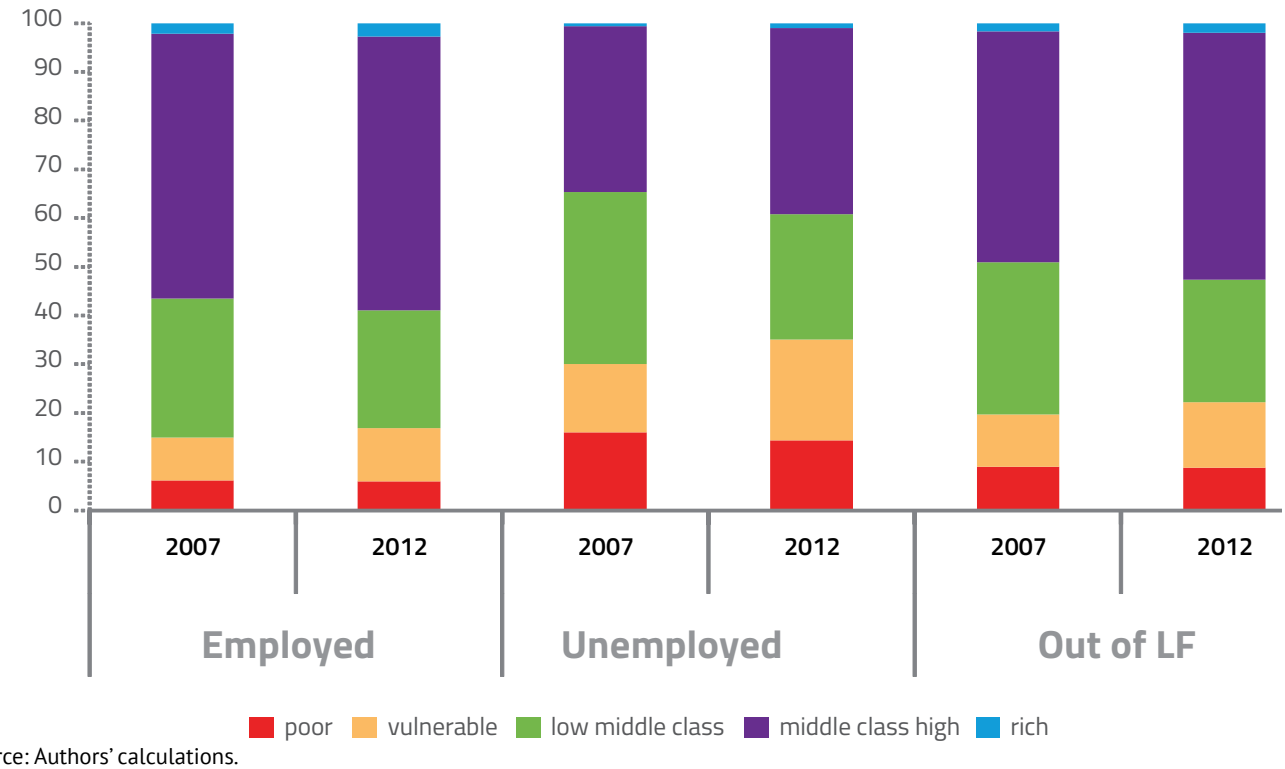
98. **Being employed is obviously a key factor in achieving middle-class status; the unemployed are more likely to be poor or vulnerable.** In 2012, 80 percent of the employed were in the middle class, joined by a surprising 64 percent of the unemployed (Figure 34). This could be explained the country's low rate of unemployment and lack of long-term joblessness. Among the poor or vulnerable, only 17 percent of employed, while 35 percent are unemployed. Between 2007 and 2012, employment increased and more people were in the labor force, which contributed to the growth in the middle class. The employed, unemployed, and those out of the labor force all had declines in the lower-middle class. The share of unemployed among the vulnerable grew since 2007 (Figure 35)

99. **As opposed to receiving the bulk of income in the form of transfers (various forms of government assistance), working definitely leads to higher shares being middle class and lower share being poor or vulnerable.** Among those receiving transfers as their main source of income in 2012, 15 percent were poor and 17 percent were vulnerable. With work as the main source of income, only 7 percent were poor and 12 percent were vulnerable. The shares of the lower middle class were roughly the same for those working and receiving transfer income. However, 54 percent of those who worked were in the upper middle class, compared with 41 percent of those with transfer income as their main source of income.

100. **Employment in public administration or public enterprises is a key to middle-class status, with 75 percent of those working in these sectors being upper middle class, compared with 53 percent in private enterprises, 43 percent in export-oriented firms, and 32 percent in household services.** Looking at type of employer finds a much larger portion of the poor or vulnerable working in low-paying household services. Among those holding these jobs in 2012, 16 percent were poor and 20 percent were vulnerable. By comparison, only 1 percent of those in public administration or public enterprises were poor, and only 4 percent were vulnerable. However, employment in public administration or public enterprises constitutes only a small portion of Mauritius' labor force. Roughly 85 percent of all jobs were in the private sector in 2012, an even higher share than in 2007. In this five-year period, household services saw an increase of 4.4 percentage points in the poor, an increase of 2.8 percentage points in the vulnerable, and a decline in the middle class. All told, people employed in household services seem to be a particularly vulnerable group, and their vulnerability seems to be increasing.

101. **Mauritius is undergoing a long-term structural transformation of its economy away from such primary sectors as sugar and textiles and toward the tertiary sector, mostly the financial services and tourism industries that now dominate the economy. Vulnerability is growing in agriculture and industry** (Figure 36). Being

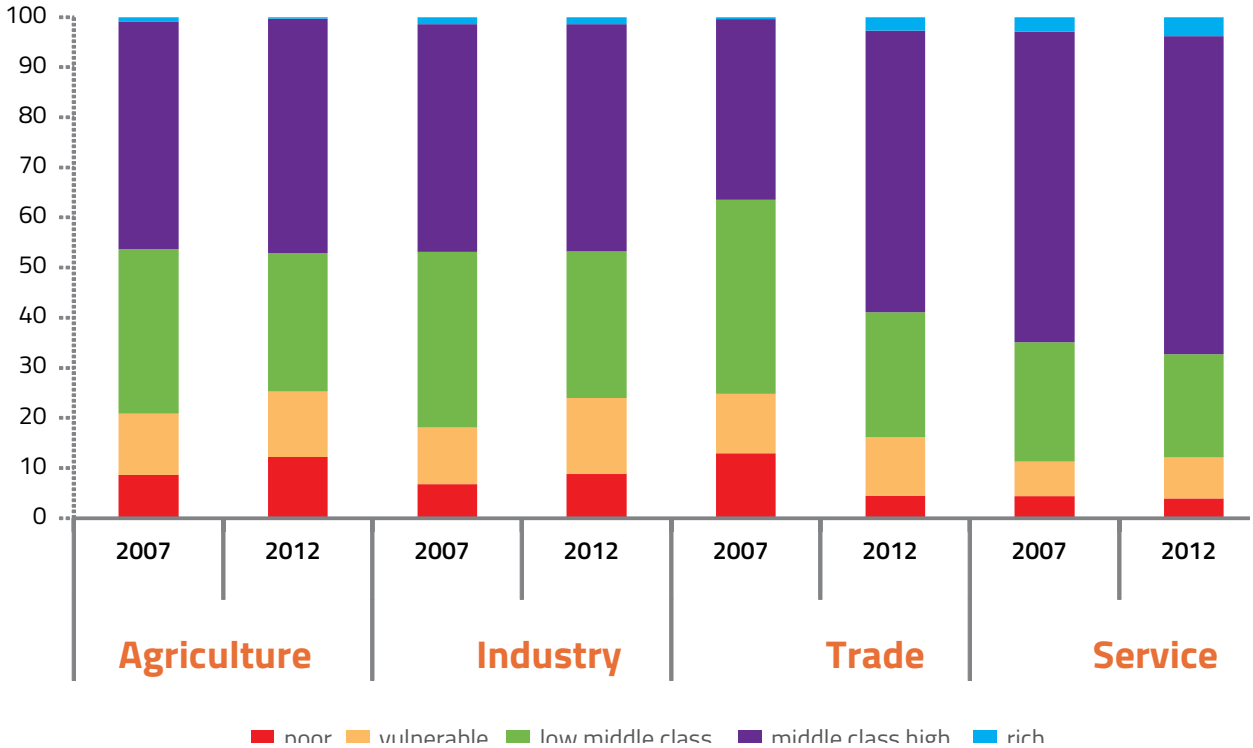
Figure 35: The middle class by labor force status, 2007 and 2012



Source: Authors' calculations.

employed in the growing sectors is a key to middle-class status. Eighty-one percent of those employed in trade and 84 percent of those in services are middle class, compared with 75 percent in agriculture or services. Only 16 percent of those employed in trade and only 12 percent of those in services were poor or vulnerable. Among those employed in agriculture, 25 percent were either poor or vulnerable (12 percent poor, 13 percent vulnerable); among those in industry, 24 percent were either poor or vulnerable (9 percent poor, 15 percent vulnerable). Between 2007 and 2012, those employed in trade made the greatest progress in rising out of poverty, with poverty rates declining 9 percentage points. In addition, trade led in those moving into the upper middle classes, with a decline of 14 percentage points in those in the lower middle classes and an increase of 20 percentage points for those in the upper middle class.

Figure 36: The middle class sector of employment, 2007 and 2012



Source: Authors' calculations.

102. **Having a highly skilled occupation is also key to middle-class status, with more than 70 percent of managers, professionals, technicians/associates, and clerical workers being upper middle class, compared with less than 44 percent of skilled agricultural workers, trade workers, and those in elementary occupations** (Figure 37). Twenty percent of managers and 10 percent of professionals are upper middle class. Evidence points to a structural transformation of the economy between 2007 and 2012. The percent of those employed in elementary occupations and trade declined. Professionals increased—another structural factor possibly contributing to the growth of the middle class. The labor market is becoming bifurcated, with a portion of the lower-skilled and less-educated losing their jobs in such sectors as textiles and labor shortages in the growing IT sectors. This has implications for the size of the middle class, with some people moving into the upper middle class while others with less skills becoming vulnerable.

103. **A clear correlation exists between increased education and making it into the middle class, especially for those with a secondary education or higher (Figure 38).** Among those not completing any education level, 70 percent are middle class and only 41 percent upper middle class. Among those with a primary education, 71 percent are middle class. Moving up to the next levels, the middle-class shares are 82 percent for secondary education and 85 percent for tertiary. The evidence points to the influence of structural factors in reshaping the middle class, with decreases among those without much education or just a primary education and increases among those with a secondary or tertiary education. The importance of increased education to middle-class status will become even stronger in the future as the country continues its transformation from an economy based on the primary sectors to one based on tertiary sectors, such as financial services and IT. The rising sectors require a more educated workforce, often with specific knowledge and skills.

Figure 37: Occupation by income group, 2007 and 2012

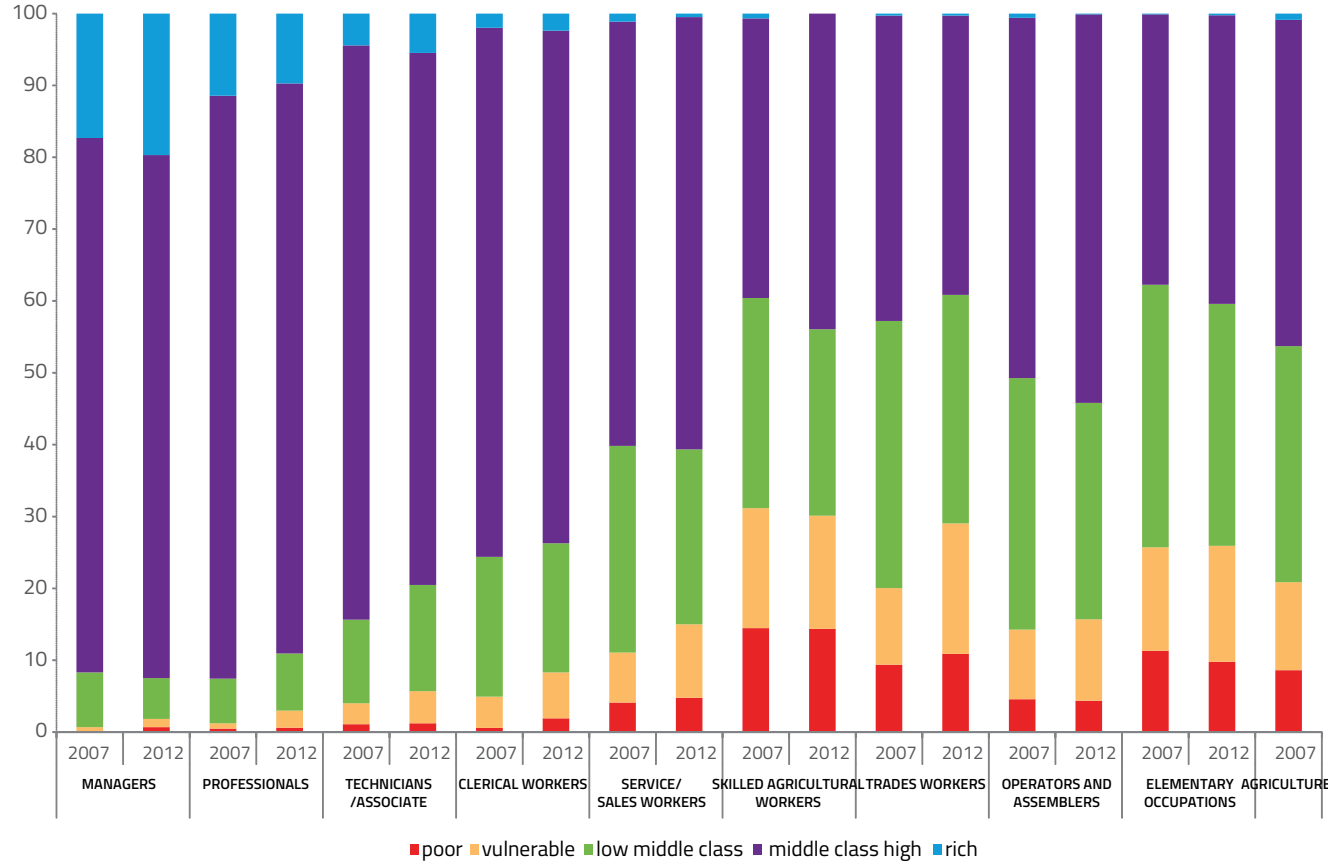
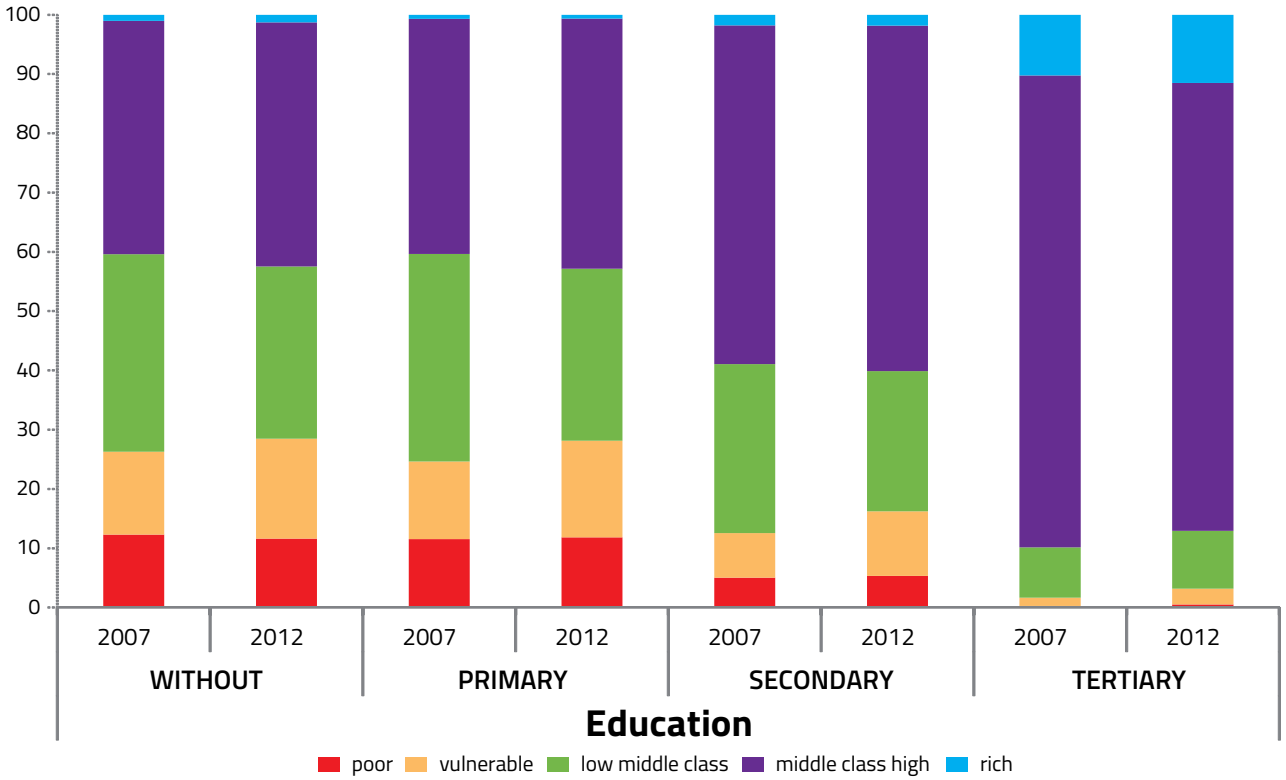


Figure 38: Education by income group, 2007 and 2012



Source: Authors' calculations.

Chapter 5

CAUSES OF POVERTY AND VULNERABILITY CHANGES

Lagging shared prosperity had an adverse impact on poverty in Mauritius. The reduction of poverty would have been almost twice as large and stronger if inequality had not worsened. The most important contributor to poverty reduction was social protection incomes and subsidies, contributing 74.1 percent. Labor Incomes also reduced poverty, but their contribution was 18.2 percent. Demographic changes associated with decreasing household size and lower dependency ratios contributed 17.2 percent. Rising labor and self-employment incomes among initially better-off groups contributed to the increase in the inequality. The deterioration of the traditional agriculture and textile industries and improvement of the trade and services sectors had the most prominent impact on the increase in inequality. Economic growth and diminished inequality are equally important for poverty reduction and its possible eradication in Mauritius. Assuming a neutral growth scenario, 40 percent cumulative growth in consumption per capita would be required to halve the poverty rate from 7.9 percent to 4 percent. Based on these assumptions, it will take close to 15 years to completely eradicate poverty. However, our projections do not suggest inequality will decline, and poverty is not expected to fall fast. Micro-simulation analysis suggests that improved targeting of the social protection, combined with a decline in unemployment could result in significantly lower poverty in Mauritius, measured against a baseline scenario.

This chapter looks at the factors behind the observed poverty reduction and distributional changes in Mauritius. The incidence of poverty fell but inequality increased between 2007 and 2012. We used several methods to quantify the contributions of different factors in poverty reduction. The start with the Datt-Ravallion (1992) standard decomposition method, which analyzed the role played by the growth and redistribution factors in poverty reduction. This analysis determines how growth vs. redistribution affected poverty. Later, we analyze the sources of income and economic forces behind the observed changes. Was the reduction in poverty a result of higher employment, higher earrings, or higher public transfers and remittances? And finally, we attribute the changes to the sectoral wage premiums and social protection. Were these changes a result of improved human capital characteristics or higher returns to education and how are the results associated with changes in the sectoral composition of employment? Finally, we look forward and project changes in poverty and inequality based on macro scenarios.

A. The role of growth and inequality in poverty changes

104. From the previous analysis, we have concluded that inequality has increased in Mauritius; the growth incidence curve had a regressive pattern (downward shape), suggesting relative deterioration among the poorest households. Now, we decompose the absolute poverty changes into growth and redistribution components to quantify their impact on poverty.

BOX 5: MEASURING GROWTH TO POVERTY ELASTICITY

Traditionally, poverty economists project the incidence of poverty as a function of economic growth, using the consumption-to-poverty elasticity, an empirically measured index. It quantifies how much poverty reduction occurs for each 1 percent increase in per capita consumption. The responsiveness of poverty reduction to growth is a function of the number of people living just above poverty line. If the elasticity is high, poverty responds strongly to economic growth. If it is low, even strong growth will be relatively ineffective in reducing poverty.

The impact of growth on poverty can also be captured by estimating the elasticity of growth to poverty, a measure of the reactivity of poverty with respect to changes in the average per capita expenditure. Following Duclos and Araar (2006), we used the following general formula for the elasticity :

$$\eta_G^{\alpha} = \begin{cases} \dfrac{\alpha\,[P(\alpha) - P(\alpha - 1)]}{P(\alpha)} & \text{if } \alpha \neq 0 \\ -\dfrac{z f(z)}{F(z)} & \text{if } \alpha = 0 \end{cases}$$

where $P(\alpha)$ is the Foster-Greer-Thorbecke poverty measure with parameter α f(z) and F(z) denote, respectively, the probability density function and the cumulative density function of per capita expenditure and z is the absolute poverty line.

Growth to poverty elasticity in Mauritius

Mauritius' relatively moderate inequality is associated with relatively high elasticities to growth and inequality, and the elasticity to growth fell over time due to increasing inequality. Mauritius has a relatively high elasticity of poverty to consumption expenditures—at -3.35 in 2007 and -3.10 in 2012 (Figure 41). This corresponds to the elasticity levels of Eastern Europe's middle-income countries (Ukraine and Russian Federation); it is much higher than other middle-income countries in Africa. For example, Botswana's elasticity is about 1 percent.

Elasticity is twice as high in Mauritius than in other countries. This means that a relatively high proportion of the population is living close to the poverty line, and small growth rates lead to rapid poverty reduction. The opposite is true as well; relatively small adverse changes in growth have a strong impact on poverty. The worrisome sign, however, is that elasticity fell between 2007 and 2012 due to the increase in inequality. Mauritius has even higher elasticity of poverty to inequality, and it has remained almost unchanged over time (Figure 40). Inequality really matters, pointing to the importance of developing social and economic policies that foster pro-poor growth.

Figure 39: Elasticity of poverty to consumption growth, 2007-12

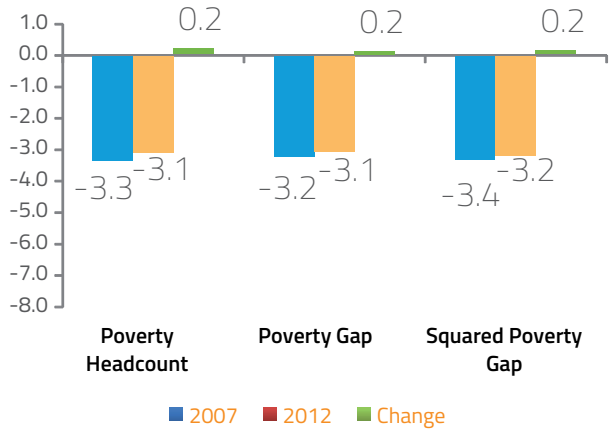
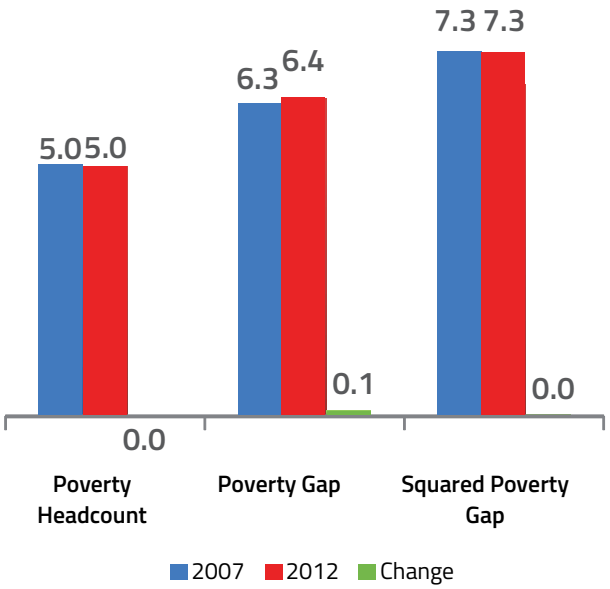


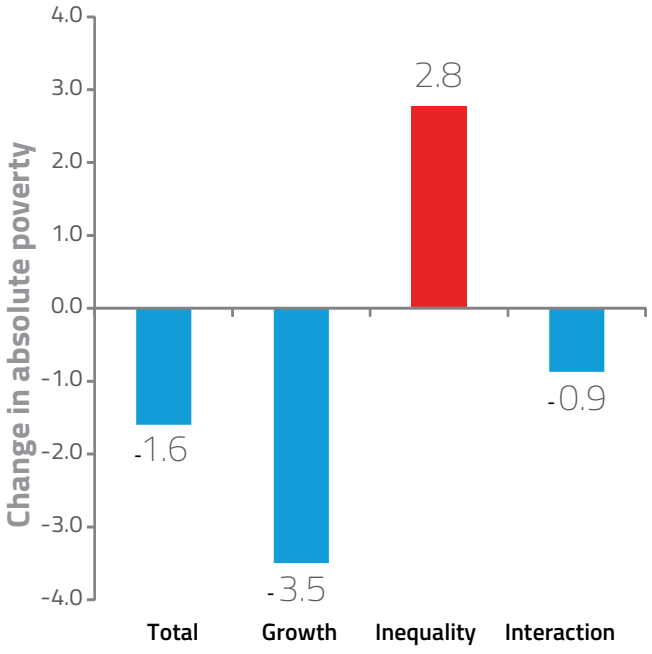
Figure 40: Elasticity of poverty to inequality growth, 2007-12



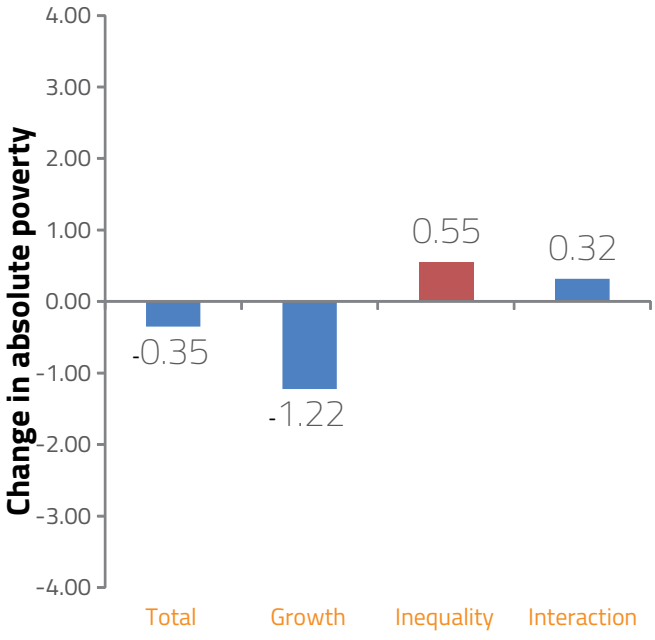
Source: Authors' calculations.

Figure 41: Growth inequality decomposition

a. Income poverty change,2007-12



b. Consumption poverty change, 2007-12



Source: Authors' calculations. Changes in poverty can be decomposed into growth and inequality (or redistribution) components. We used growth-inequality decomposition method introduced by Datt and Ravallion (1992), which quantifies the relative contributions of economic growth and redistribution (e.g., changes in inequality) to changes in poverty. The method decomposes the observed changes in poverty into two components:

(i) the growth component (GC), which identifies the poverty change due to the growth of mean per capita expenditure, and (ii) the inequality component (IC), which identifies the poverty change due to a more equal distribution of income. It is important to emphasize that the redistribution component is not necessarily associated with expansion of government transfers; it measures the impact of general inequality changes on poverty.

Photo : © Haja Faniry Razafimahenina

105. **Poverty reduction in Mauritius would have been much stronger if inequality had not worsened.** As illustrated in Figure 41, the income-based absolute poverty headcount decreased by about 1.6 percentage points between 2007 and 2012. However, the reduction in poverty would be almost twice as large if inequality had not worsened. Focusing on the growth component, the decomposition analysis suggests poverty would have fallen by 3.5 percentage points if other things were unchanged. The redistribution (inequality) component was 2.8 percentage points, suggesting how much poverty would have increased if not for economic growth. Because the growth component was stronger that the redistribution one, the overall effect was a moderate reduction in poverty. Similar conclusion could be reached for absolute consumption poverty (Figure 41B). The growth component reduced consumption poverty, while the redistribution component tended to increase it. As a result, consumption poverty was lowered only slightly between 2007 and 2012. In both cases, the redistribution component associated with changes in inequality had a strong adverse impact on the poverty headcount. Similar results were obtained for the poverty gap and squared poverty gap measures.

B. Drivers of changes in poverty-decomposing poverty reduction[25]

106. This section will further analyze the observed poverty changes by applying decomposition techniques. Was the reduction in poverty a result of higher employment, higher earrings, or higher public transfers? Several methods provide an accounting of how much of the total change in poverty can be attributed to different groups or factors. We used the methodology developed by Azevedo et al. to calculation income poverty decompositions and quantify the contribution of different factors to changes in poverty and inequality (Figure 42 and Figure 43).

[25] Azevedo et al. method was used in this study to decompose poverty changes.

Figure 42: Contribution to poverty reduction in percent, 2007-12

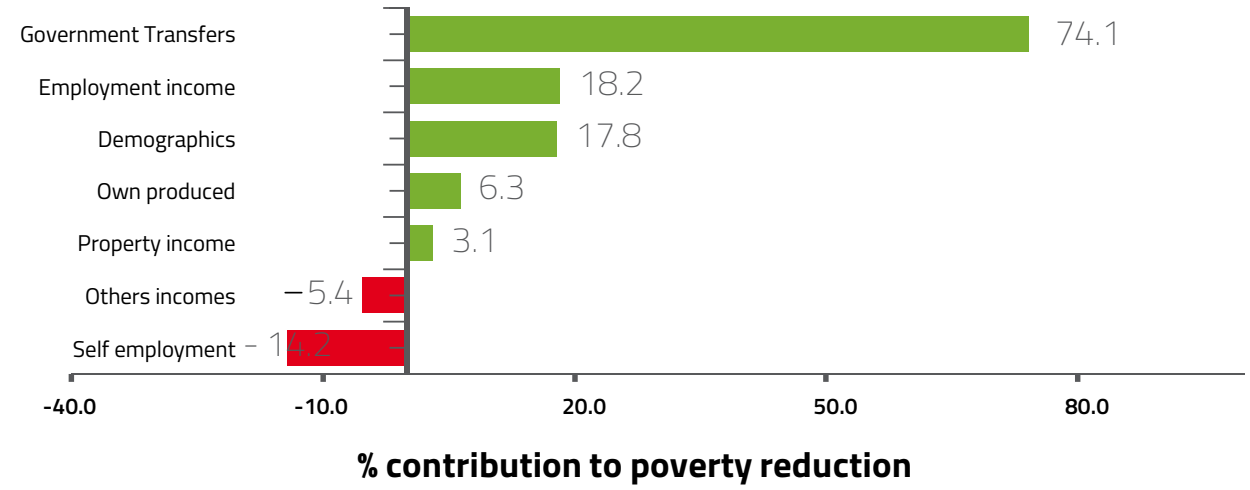


Figure 43: Contribution to inequality increase in percent, 2007-12

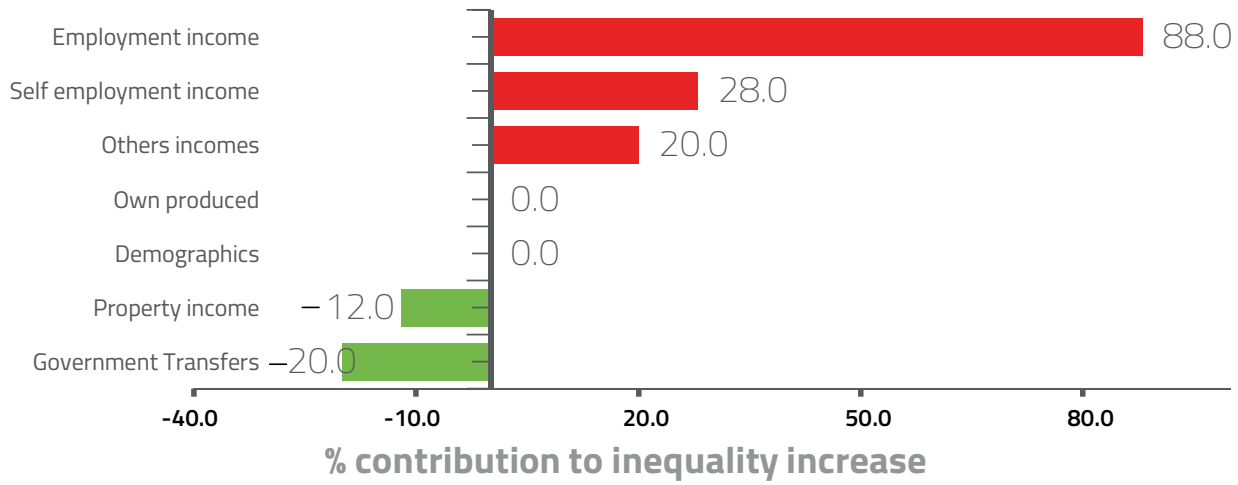
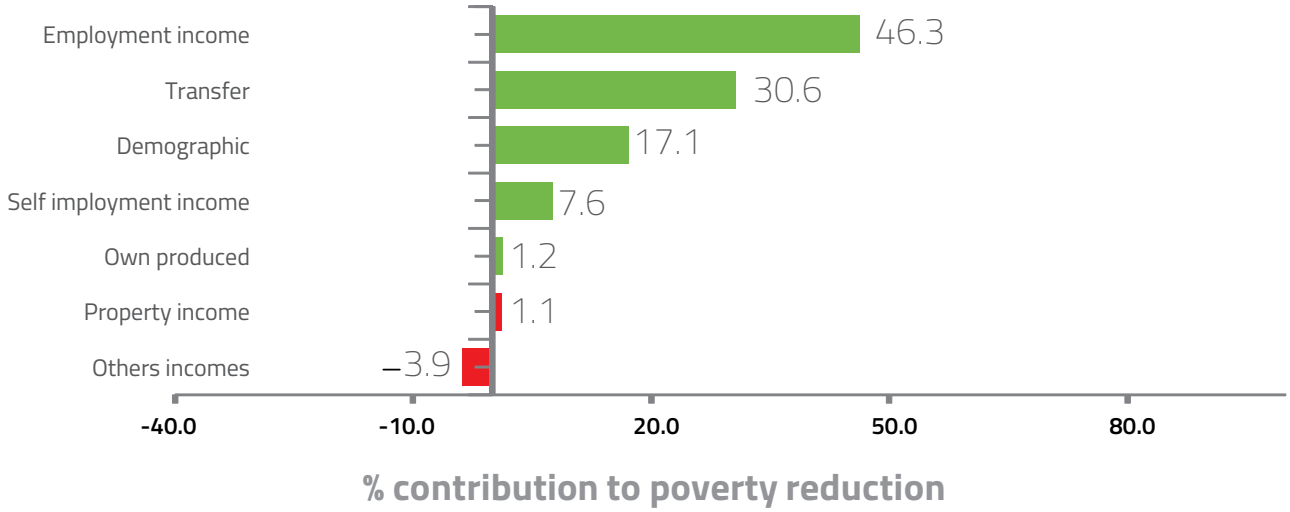


Figure 44: Contribution to reduction in economic vulnerability reduction in percent, 2007-12



Source: Authors' calculations based on micro-decomposition analysis (Azevedo et al.).

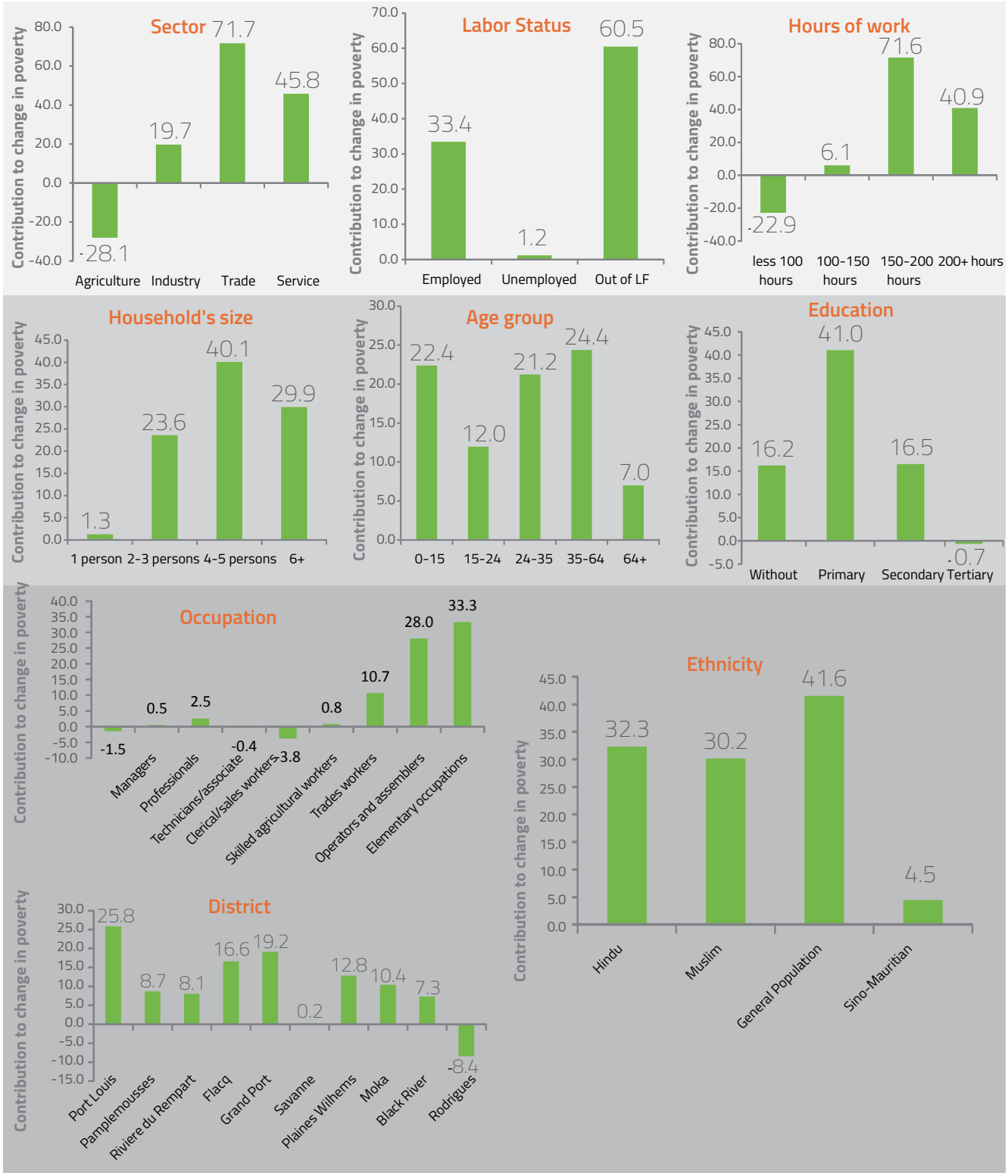
107. **Social protection (SP) had the largest impact on poverty reduction in Mauritius; employment incomes and demographic factors had significant impacts on poverty reduction.** National poverty declined by 1.6 percentage points between 2007 and 2012. The most important contributor was social protection incomes and subsidies, which accounted for 74.1 percent of poverty reduction. Labor incomes also reduced poverty, with a contribution of 18.2 percent. Demographic changes associated with decreasing household size and reduced dependency ratios were at 17.2 percent. Other sources of income had very small impacts on poverty, while self-employment incomes actually increased poverty.

108. **Disproportionate increases in labor and self-employment incomes among the better-off population increased inequality in Mauritius.** As shown in Figure 43, the rising Gini coefficient (inequality increase) was associated with employment income (88 percent of the change) and self-employment income (28 percent of the change). However, government transfers worked in the other direction, reducing inequality. In other words, wages grew among the better off, increasing inequality; meanwhile, social transfers benefited the poorest, but the magnitude was not large enough to offset the impact of higher wages.

Photo : © Haja Faniry Razafimahenina

109. **Relative contributions to poverty reduction differed for the poor and vulnerable groups.** As presented in Figure 44, changes in employment incomes and transfers both played important roles in vulnerability trends. Demographic changes had a very significant impact on both poverty and vulnerability. In other words, the poor rely on the SP system, and the expansion of the transfers significantly improved their welfare and reduced poverty. The vulnerable group, which is a little better off, relied significantly on transfers and labor incomes. In fact, labor incomes had the largest impact on the group's poverty reduction.

Figure 45: Contribution to poverty reduction by groups in percent, 2007-12



Source: Authors' calculations based on micro-decomposition analysis (based on Ravallion and Huppi (1991) methodology).

110. **Labor-market changes associated with the primary sector's deterioration and improving returns in the secondary and tertiary sectors had important impacts on poverty.** Another way to decompose changes in poverty is based on a methodology developed by Ravallion and Huppi (1991), which attributes poverty changes to population groups. We decomposed poverty by households' labor demographic, education, and location characteristics. Figure 44 presents the contribution of each factor to total poverty changes. It is important to emphasize that this analysis looks only at changes in poverty and not at the entire income distribution. Already poor groups have a much stronger impact on poverty, while changes among initially non-poor groups do not impact poverty statistics. For example, highly educated and skilled workers are not among the poor in the first place, and their relative income gains affect income inequality but not poverty reduction. It is important to keep this observation in mind when interpreting the results of the group decomposition analysis. The findings are summarized in the following bullet points:

- **Labor factors.** A decomposition analysis by employment sector shows that a larger share of poverty reduction could be attributed to the trade and services sectors, while agriculture had an adverse impact on poverty. Gains by the employed and those out of the labor force contributed to poverty reduction, while unemployment led to a worsening of poverty. Working more hours contributed to overall poverty reduction. Gains by those in the elementary occupations played a significant role in poverty reduction. However, the impact of wage premiums for the better educated is not reflected in this analysis because highly skilled people are not among the poor (income inequality picks up the impact of these higher incomes).
- **Demographic factors.** Demographic factors played an important role in poverty reduction. Gains by larger households and relatively younger people had a positive impact. However, the elderly group contributed less to poverty reduction. Improvements in the general population had the most important role.
- **Education.** Tertiary-educated people are generally not among the poor, and their advances did not show in the poverty statistics. However, improvements among the group with primary education played an important role in poverty reduction between 2007 and 2012. The reduction would have been even larger if labor productivity and wages would have increased more equally among the less educated. The wage is low because the productivity is very low. Better education, skills and opportunities should help to raise wages for those less educated.
- **Location and poverty.** Mauritius is a small island, and geography did not play a significant role in poverty changes. As the charts show, most districts contributed to poverty reduction, with Port Louis taking the leading role. The small island of Rodrigues was the only location with negative impact on poverty in Mauritius.

C. Linking growth, inequality, and poverty changes-poverty trace analysis

111. **The poverty trace curve (PTC) provides an evocative graphical summary of projected poverty dynamics. The method associates economic growth and changes in income inequality to poverty reduction.**[26] PTC analysis demonstrates how different combinations of economic growth and inequality reduction will affect poverty in Mauritius. PTC analysis has an additional dimension as a way to gauge how proposed policies would impact poverty. It could be used in various areas of distributional analysis. In conjunction with micro simulation, for example, PTC could measure the degree to which a proposed social assistance subsidy could reduce poverty.

BOX 6: POVERTY TRACE CURVE (PTC) ANALYSIS IS A POVERTY APPROACH TO SHARED PROSPERITY

PTC analysis is based on the iso-poverty curve approach that links changes in inequality to the shared- prosperity indicators—particularly, the growth rate of the bottom 40 percent. The common issue related to iso-poverty is the specific mechanism by which the Gini index is linked to the transformation of the income distribution. A reduction of the Gini index can be caused by different changes in the distribution. For example, a transfer of incomes can take place between the extremes of the distribution or between the middle-income groups of the population. The impact on poverty will be much greater in the first case than in the second. PTC model implicitly postulates a strong relationship between changes in the Gini index and their poverty effects by changing the relative income of the bottom 40 percent of the distribution.

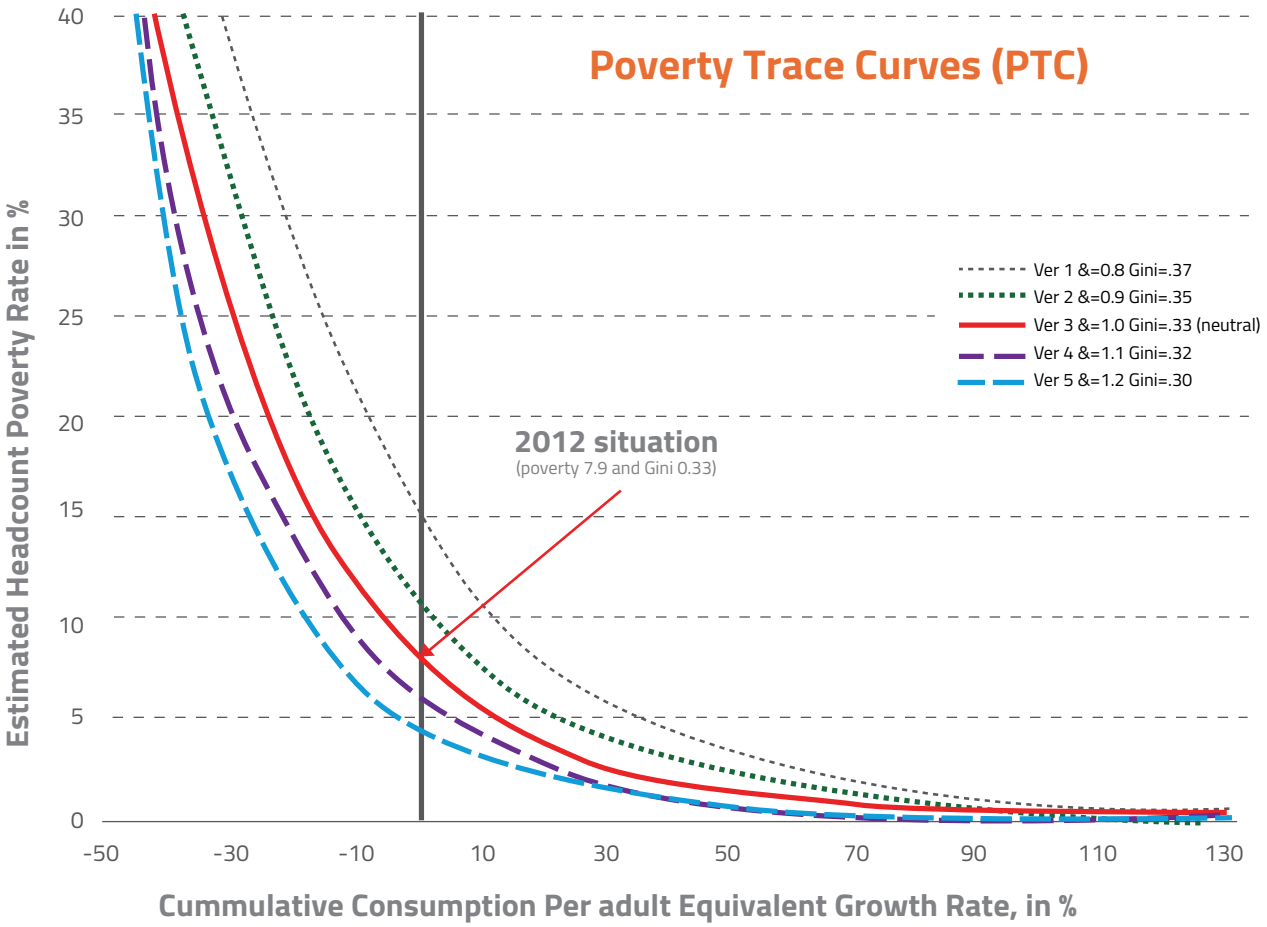
112. **PTCs for Mauritius are presented in Figure 46.** The set of charts illustrates how much the projected growth rate in consumption per adult equivalent will reduce poverty based on the different assumptions of Gini distributional changes associated with various growth rates among the lowest 40 percentile of the income distribution. The official poverty datum line was used

[26] PTC analysis is based on the widely used iso-poverty approach, a statistical decomposition of the economic changes required to achieve a target poverty rate (P*). The iso-poverty breaks down the required changes in mean growth (β) and inequality (α) to achieve the target poverty reduction.

for this analysis. Based on consumption poverty, the current situation corresponds to 7.9 percent poverty and 0.33 inequality. The PTC curves are drawn based on various inequality levels that are associated with alternative growth paths of the bottom 40 percent. The central red line depicts the poverty projections associated with the neutral growth scenario—cumulative changes in the consumption per adult equivalent with constant inequality. The blue lines below the neutral growth scenario are related to reduced inequality and are pro-poor growth. The lines above the neutral growth scenario are associated with the increasing inequality and are anti-poor growth.

113. **The PTCs indicate that economic growth and reduced inequality are equally important for alleviating poverty.** As presented in Figure 46, the neutral-growth scenario (i.e., no change in the aggregate consumption distribution), with an annual growth rate of 4 percent, would take from seven to nine years to halve poverty. The relationship between neutral growth and poverty, however, is not linear, so it would take close to 15 years to further reduce and finally eradicate poverty, based on the neutral-growth scenario. If growth were pro-poor and associated with reduced inequality, however, the poverty could be brought down at a much faster pace. For example, poverty could be halved in four years if growth is associated with a reduction of 2 percentage points in the Gini coefficient. Similarly, growth associated with increasing inequality would result in a deterioration of the poverty situation. PTC analysis suggests that the range of poverty change is wide and depends on inequality changes. Pro-poor growth is essential for fast poverty eradication.

Figure 46: Mauritius poverty trace curves (PTC) (consumption poverty)



Source: World Bank staff calculations. In the analysis, α is the disproportionate ratio of consumption growth of bottom 40 percentile of the consumption distribution; α =1 indicates neutral growth, α<1 indicates increasing inequality, and α>1 suggests reduced inequality. The neutral growth scenario is depicted in the red line. Higher inequality shifts the PTC lines upwards, while lower inequality pushes them downwards. The higher the inequality, the more consumption growth required to reduce poverty.

114. **The main conclusion of the PTC analysis is that the distribution of income plays an important role in the distribution of wealth, and policies geared toward reducing inequality are required to eradicate poverty.** The extent of poverty reduction depends equally on economic growth and inequality changes. The PTC analysis presented considerable evidence that the distribution of income has a significant influence on poverty. More rapid poverty reduction requires more growth and a more pro-poor pattern of growth. Policies geared toward reducing income inequality will result in greater poverty reduction. Some examples of the types of policies that can promote poverty reduction by reducing inequalities follow in the next section.

D. Looking ahead: how to tackle poverty while boosting the middle class

115. This section looks at the possible poverty and inequality outcomes associated with sectoral growth trajectories, changes in demographic characteristics, and labor dynamics. We also simulate trajectories of poverty and distributional changes under a number of policy scenarios. The simulations show that generating more growth would significantly accelerate the pace of poverty reduction, although the income distribution may become more unequal due to sectoral transformations. This is why both human development and redistributive policies may have to be put in place. Such transfers should further reduce poverty and improve the income distribution.

116. **Macro projections suggest further expansion of the tertiary sector.** We analyzed the poverty and distributional changes associated with the macro projections presented in Table 4: Macro projections, baseline scenario. We used the medium fertility variant from UN population projections to simulate changes in the age-gender structure of the population. We used IMF's GDP projections published in the October 2014 World Economic Outlook. We also used time series historical data to model sectorial changes. The macro projections suggest expansion in the tertiary sector and further deterioration in primary and secondary sectors.

Table 4: Macro projections, baseline scenario

	2012	2015 (PROJECTED)	2019 (PROJECTED)
GDP PER CAPITA (CONSTANT PRICES)	149,222	162,775	187,793
CUMULATIVE GDP PER CAPITA GROWTH RATE (2012-100) IN %	base	9.1	25.8
SECTORAL GDP GROWTH RATES IN %			
PRIMARY	base	-0.7	1.1
SECONDARY	base	8.3	23.7
TERTIARY	base	9.7	27.3
SECTORIAL EMPLOYMENT GROWTH RATES IN %			
PRIMARY	base	6.7	5.9
SECONDARY	base	25.5	23.3
TERTIARY	base	67.8	70.9
POPULATION GROWTH RATE, %	base	0.9	2.2
UNEMPLOYMENT RATE IN %	8.0	8.0	8.0

Source: Authors' calculations. The information on sectoral economic growth comes from the World Bank's Lesotho economic projections. The age-gender population growth rates used for the microsimulation are not presented.

BOX 7: ADEPT MICROSIMULATION APPROACH USED TO PROJECT POVERTY AND INEQUALITY

We used a micro-simulation approach to project the distributional impacts of macro shocks in Mauritius through 2019. Micro-simulation is the process by which information on aggregate projected changes in output, employment, and transfers are used to generate changes in labor and non-labor income at the micro level through structural models. The microsimulation is conducted in four main steps.

First, we used population growth projections to adjust for demographic changes between the base year of 2012 and 2015 and 2019. This allowed us to explicitly take into account changes in dependency ratios and adjust for changes in the size of the working-age population.

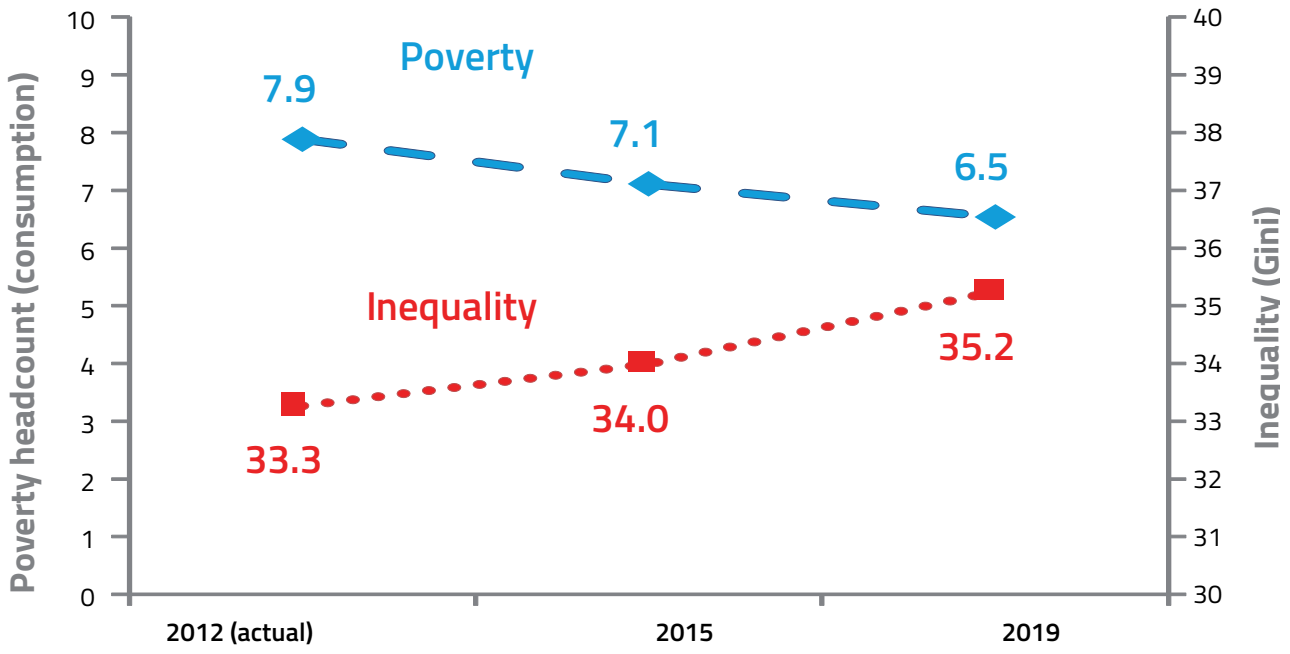
Second, we used the projections from labor-force status and labor earnings models to replicate projected changes in aggregate total and sectoral output and employment. We calculated the total number of individuals that needed to be reassigned between employment and non-employment and across employment sectors to match projected aggregate changes in total and sectoral employment. Initially non-employed individuals could become employed, employed individuals could become non-employed, and individuals could change sectors.

Third, we used the earnings model to predict earnings for two groups of workers: those with no previous earning history and those who change sectors. Earnings are a function of both observable and unobservable individuals. Once all workers were assigned positive labor earnings, total earnings in a sector were adjusted to match aggregate projected changes in output.

Fourth, we simulated the distributional impact to changes in social protection and in sources of non-labor income. We assumed that capital and financial income would grow at the same rate as real GDP, international remittances would remain constant in real terms at 2012 levels, and domestic remittances would change at the same rate as labor income.

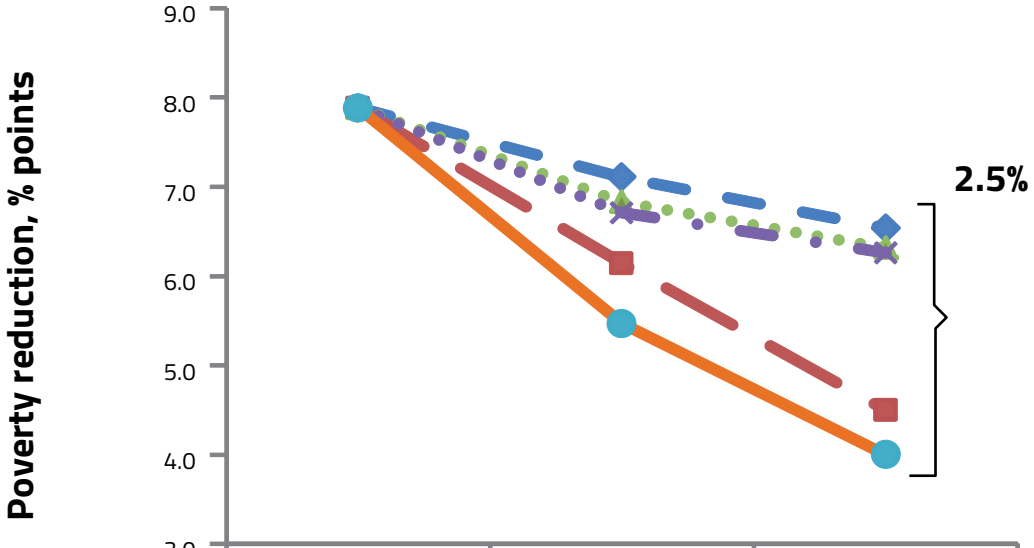
The simulation module of ADePT software was used to conduct microsimulation exercise. The software documentation can be found through this link: https://spark.worldbank.org/groups/poverty/projects/micro-simulations.

Figure 47: Poverty and inequality projections, baseline scenario



Source: Authors' calculations.

Figure 48: Poverty simulations based on selected policy scenarios



	2012	2015	2019
Baseline	7.9	7.1	6.5
SP Expansion	7.9	6.1	4.5
Unemployment reduction	7.9	6.8	6.3
Sectoral Productivity	7.9	6.7	6.3
Combined effect	7.9	5.5	4.0

Source: Authors' calculations.

117. **In the baseline scenario, poverty is expected to gradually decline while inequality increases.** The results of the micro-simulation exercise are presented in Figure 47. Consumption poverty is expected to decline from 7.9 percent in 2012 to approximately 7.1 percent in 2015, falling further to 6.5 percent in 2019.[27] The baseline scenario points to an increase in Gini-measured consumption inequality from 33.3 in 2012 to 35.2 in 2019. The estimated reduction in poverty is primarily driven by cumulative growth in per capita consumption, associated with rapid growth of tertiary sectors. The main driver of the expected increase in inequality is the rising disparity in consumption between sectors and continued relative deterioration of the primary sectors. The projected increase in inequality will have adverse effects on the pace of poverty reduction. To reverse the trend, policies to reduce income inequality will be required.

118. **Targeted policy interventions could boost poverty reduction in Mauritius.** The micro-simulation exercise first enables us to simulate the baseline scenario associated with macro projections and then evaluate the distributional impact of various policy interventions. We analyzed three policy interventions: (1) a gradual 30 percent expansion of social-protection spending without improvements in targeting efficiency; (2) a 20 percent reduction in the unemployment rate by; and (3) an increase in primary and secondary sectors' labor productivity. The three proposed scenarios should be used for illustrative purpose. None of them is an ideal one that could fully respond to the challenges of the increase in inequality the Mauritian economy is currently facing. Figure 48 presents the poverty figures associated with the above scenarios. The analysis suggests that the policy measures could almost double the speed of poverty reduction in Mauritius. The most significant direct impact on poverty could be attributed to the improvement in targeting of the social-protection, but the other measures also have positive impacts on poverty.[28]

[27] Similar trend is observed in case of income poverty.

[28] The analyzed policy interventions are definitely not exhaustive.

119. **Rapid poverty reduction requires more growth and a more pro-poor pattern of growth. Mauritius has one of Africa's highest elasticities of poverty to consumption expenditures.** This means that a relatively high proportion of the population is close to the poverty line and consumption growth rates translate into rapid poverty reduction. This elasticity, however, fell between 2007 and 2012 due to increasing inequality, diminishing the impact of economic growth on poverty reduction. Inequality-reducing polices in conjunction with fast economic growth would accelerate poverty reduction in Mauritius.

120. **A backlash cannot be ruled out if broadly shared economic growth slows down.** The high poverty to consumption expenditures elasticity in Mauritius means that relatively small adverse changes in consumption growth may also have strong impacts on poverty. The majority of households who have escaped poverty remain vulnerable—at risk of falling back into poverty. While the upper middle class has grown to 55 percent of the total population, the lower middle class is struggling to retain its status and some are falling back into the vulnerable group. Ensuring that the progress achieved in reducing poverty and creating a middle class is not reversed will require unlocking the potential to accelerate economic growth, including policies to benefit the bottom 40 percent of the population.

121. The next chapters explore in more detail the potential for moving forward on an agenda for accelerated economic growth that translates into poverty reduction and an expanding middle class, assessing the macro-environment for sustainable growth and the micro-level environment for individuals to take an advantage of that growth for productive employment.

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Chapter 6

SOCIAL PROTECTION IN MAURITIUS

Mauritius' social protection (SP) programs played a significant role in ensuring the poor benefit from economic growth through redistribution of resources. Convergence, average transfers, and generosity of the social protection system all significantly increased between 2007 and 2012. Close to 75 percent of the poverty reduction could be linked to SP expansion in Mauritius. Without the SP system, poverty would be almost three times higher, and inequality would be 12 percent higher. While the majority of poverty reduction is attributable to Social Assistance (SA) schemes, social insurance (SI) programs were responsible for a minor improvement in poverty outcomes. The weak poverty focus of individual SA schemes and a lack of coordination across programs undermine the effectiveness of social safety nets. Proxy means tested SA programs should be developed to reduce inequality and improve the programs' efficiency.

A. Mauritius' social protection system

122. Mauritius has a comprehensive SP system that addresses key risks individuals face over the lifecycle as well as exogenous shocks—price shocks, natural disasters, occupational hazards, etc. The system consists of a diverse mix of contributory social insurance (SI) programs and non-contributory social assistance (SA) schemes.

123. Contributory SI schemes include National Pension Fund (NPF), the National Savings Fund (NSF), and voluntary retirement pensions for employees, civil servants and local government workers. Unemployment benefits are provided through the Transitional Unemployment Benefit program for up to one year. The NSF also provides lump-sum unemployment payments. Empirical analysis of SI schemes focuses on benefits received through the NPF and from former employers (EF).[29]

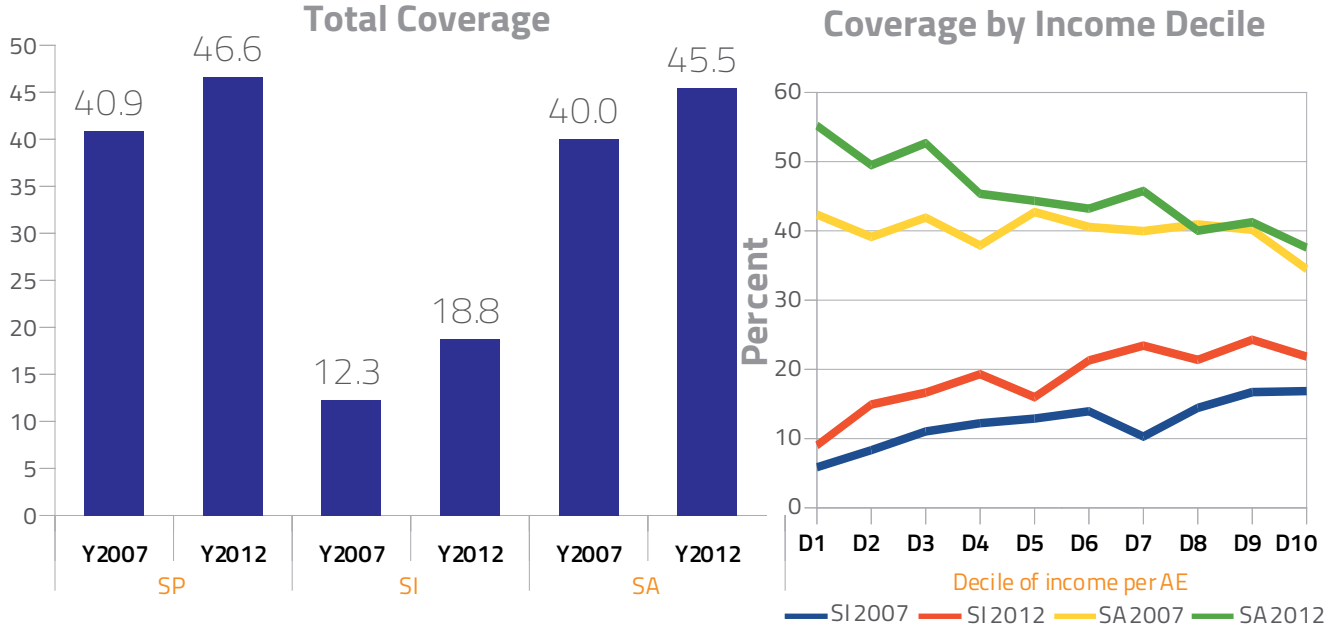
124. SA covers several broad types of programs: cash transfers, in-kind transfers, labor-market activation, community development, and CSO support programs. The empirical analysis of SA covers only the main programs—the non-contributory Basic Retirement Pension (BRP), Widows and Children Pension (WCP), Invalid Pension (IP), Social Aid (SAP), other social pensions, and scholarship grants and subsidies on examination fees, textbooks, etc. The full list of Mauritius' SA programs is provided in Appendix A.

125. **The Government of Mauritius invests considerable resources in SP.** Expenditures were nearly MUR20.3 billion[30] in 2013, accounting for more than 20 percent of total government spending and 5.5 percent of GDP.[31] Excluding public-servant pensions, the Government spends MUR12.8 billion (3.5 percent of GDP) on the remaining schemes, with MUR8 billion (2.2 percent of GDP) allocated to the BRP.

126. **The Government's SP commitment has led to an expansion of coverage of both SI and SA schemes.** From 2007 to 2012, SI coverage grew from 12.3 percent to 18.8 percent while the SA coverage expanded from 40 percent to 40.5 percent. As a result Mauritius has an extensive SP system that reached nearly half of the population in 2012—46.6 percent, counting direct and indirect beneficiaries (i.e. recipients of benefits and their household members).

127. **In the absence of the existing SI and SA schemes—assuming no other changes— poverty in Mauritius would be significantly higher.** The absolute poverty headcount would be 16.4 percent, rather than the current 6.9 percent. The poverty gap would have likely be quadruple the actual rate—6.5 percent and not 1.7 percent. The Gini coefficient—an aggregate measure of the economy's income inequality—would be 0.41 rather than the actual 0.37.

Figure 49: Coverage of social protection, social insurance, and social assistance



Source: Authors' calculations

[29] Health risks are primarily addressed through the public health system used by approximately 85 percent of Mauritians.

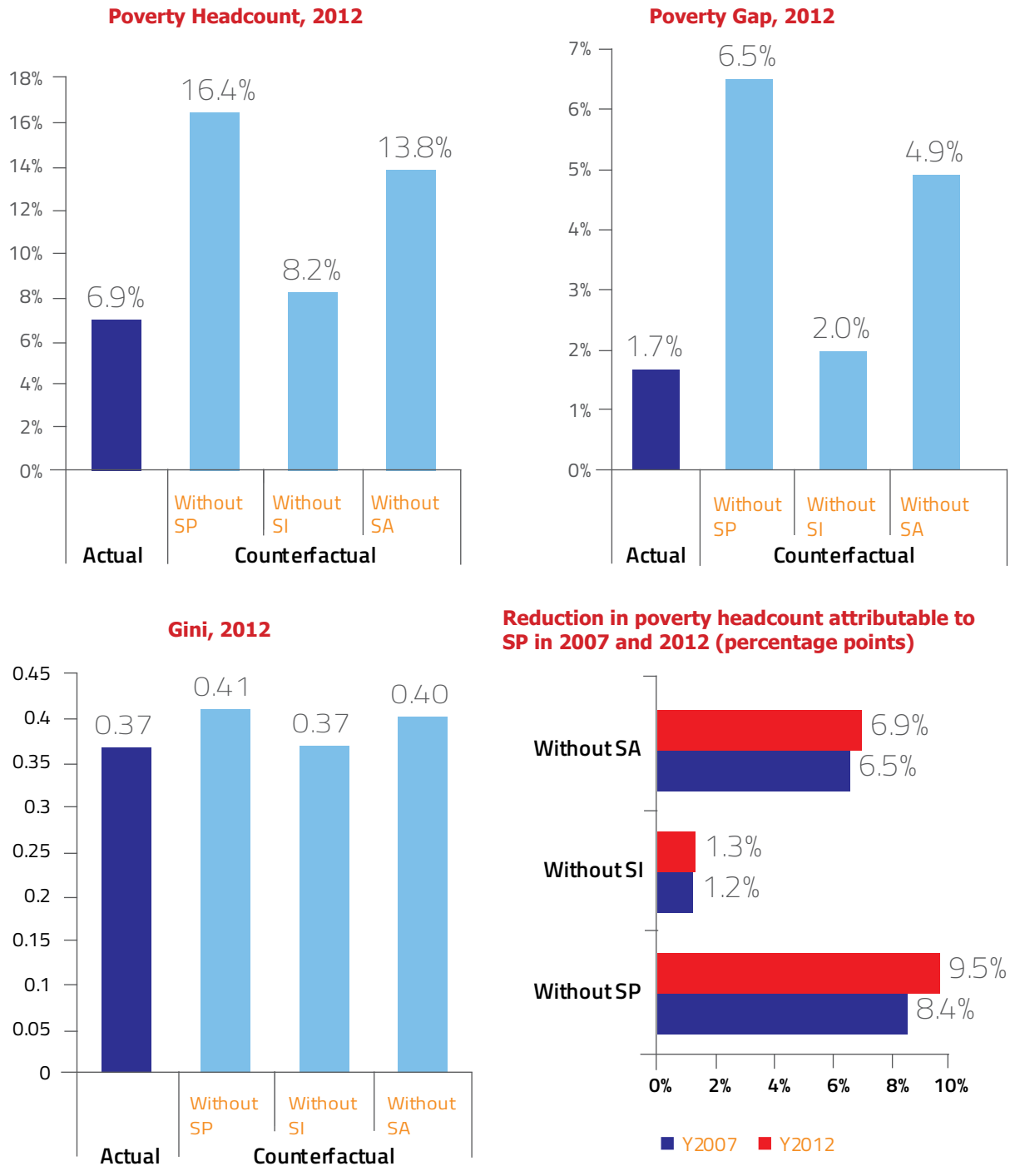
[30] Authors' calculations based on data provided by the Mauritius Accountant General's Office.

[31] Total government expenditures were MUR102.9 billion in 2013. GDP is estimated at 366.5 billion in 2013 (based on the national accounts data published by Statistics Mauritius at http://statsmauritius.gov.mu/English/StatsbySubj/Pages/qna-4qtr13.aspx).

128. **The effectiveness of Mauritius' SP system in reducing poverty has increased over time.** A comparison of the simulated SP poverty impact in 2007 and 2012 indicates that the contribution of SI and SA programs has increased. In 2007, SP programs were associated with a decline of 8.4 percentage points in poverty; in 2012, poverty would by higher by 9.5 percentage points in the absence of SP schemes. Over the same period, the poverty-reducing impact of SA schemes alone has increased from 6.5 to 6.9 percentage points.

129. While SA schemes account for most of the poverty reduction, SI programs also produce minor improvements in poverty outcomes. The coverage of SI schemes among the poorest decile increased from 2007 to 2012, although it remained significantly lower among the poorer population than among the better-off groups.

Figure 50: Simulated poverty and inequality impacts in the absence of SP, SI, and SA programs



Source: Authors' calculations.

130. The improving SP poverty-impact performance suggests that reforms implemented in 2007-12 have been effective, but further gains can be achieved through continued modernization of both SI and SA schemes. The discussion below reviews the performance of key SP programs and their contribution to poverty reduction; it then discusses what can further promote SP's role in inclusive growth.

B. Social assistance

131. The Government allocated MUR13.9 billion (3.8 percent GDP) to SA spending—one of the highest totals for low- and middle-income economies. The SA expenditure has paid off in terms of poverty reduction; however, the poverty-reducing effect could be significantly higher for the amount of financial resources spent. There are several main reasons for it: (a) Mauritius spends majority of its SA budget on programs that do not target the poor; (b) even those interventions intended to benefit the poor tend to be small in coverage and extend a substantial proportion of their benefits to relatively well-off groups; (c) they also remain largely fragmented and lack coordination, which leads to gaps in coverage and/or overlapping coverage.

132. By far, the largest SA scheme is the BRP, a universal non-contributory social pension paid by the Government to persons over age 60 (Table 8).[32] In addition to the retirement benefits, the BRP provides universal invalidity and survivor benefits, plus a host of untargeted allowances for recipients of basic pensions, including career allowances, child allowances, and other benefits. The BRP is intended to provide a basic minimum of protection to the elderly, while contributory schemes provide the "top up." Universal benefits under the BRP account for 80 percent of all social assistance spending, with 58 percent going to retirement benefits alone.

[32] A retirement age of 65 is being phased in. Currently, the new retirement age applies to contributory pensions only. The analysis refers to 2012 and therefore it does not include pension increases granted in 2015.

Table 5: Composition of SA benefits, 2013

Composition of SA benefits, 2013

	Amount, billion	Percent
BRP	**11.23**	**81%**
RETIREMENT BENEFITS	8.03	58%
OTHER BENEFITS	3.20	23%
NON-BRP	**2.64**	**19%**
SA - SOCIAL AID BENEFITS	1.26	9%
OTHER BENEFITS	1.39	10%
Total SA	**13.87**	**100%**

Source: Authors' calculations based on data provided by the Mauritius Accountant General's Office.

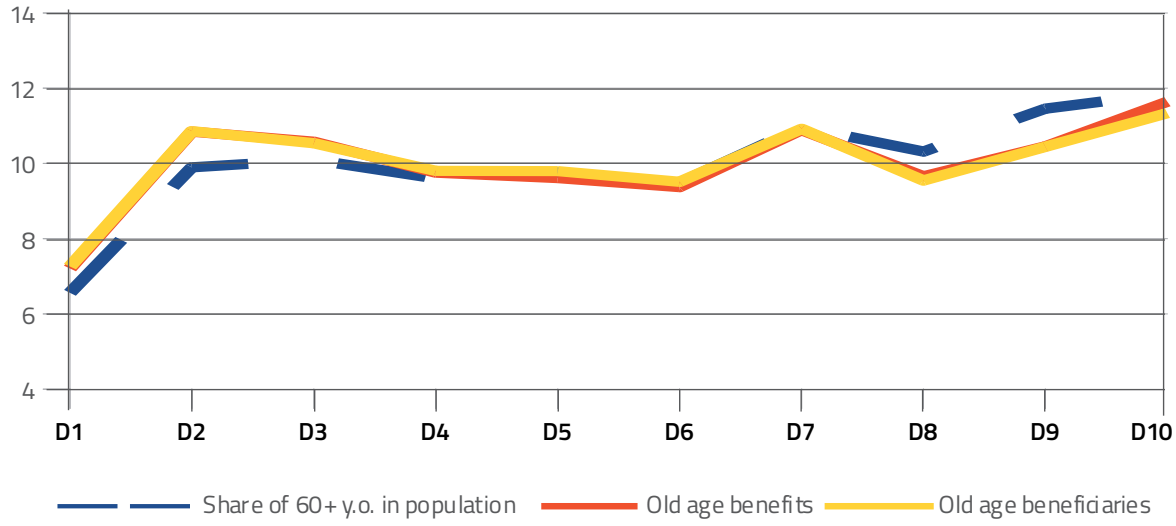
133. **As a universal benefit, the BRP achieves broad coverage and delivers substantial benefits to the poor.** By virtue of being universal, the BRP has a very broad coverage, and 98 percent of all persons over age 60—or 34 percent of the population—receive the old-age pension. An average beneficiary received MUR3,732 per month in 2012, the equivalent of 15 percent of household per capita income in beneficiary households. For the poorest decile of beneficiary households, the old-age pension contributed 44 percent of their per capita income. Assessed against the poverty line, old-age pensions account for 27 percent of the poverty line for the poorest decile.[33] No other scheme come close to this coverage and benefit level.

[33] Poverty line of MUR3821 in 2006 prices

134. **The BRP lacks a focus on the poor because it disproportionately favors well-off households.** The BRP old-age pension extends similar coverage and benefit levels to all elderly, whether well-off or poor. Since the BRP is a universal benefit, it would be inappropriate to view its transfers to the non-poor as leakage, yet the fact remain that BRP lacks a poverty focus and in fact allocates a greater portion of its benefits to better-off households. The coverage of the bottom decile[34] is only 24 percent, compared with 34 percent nationwide. This group receives 7 percent of all BRP old-age pension benefits because a smaller share of the elderly reside in poorer households—e.g., 7 percent in the elderly are in the bottom decile. Furthermore, beneficiaries in the poorest decile received an average benefit that was 16 percent lower than that of the wealthiest half of the population—MUR3,372 versus MUR3,901.

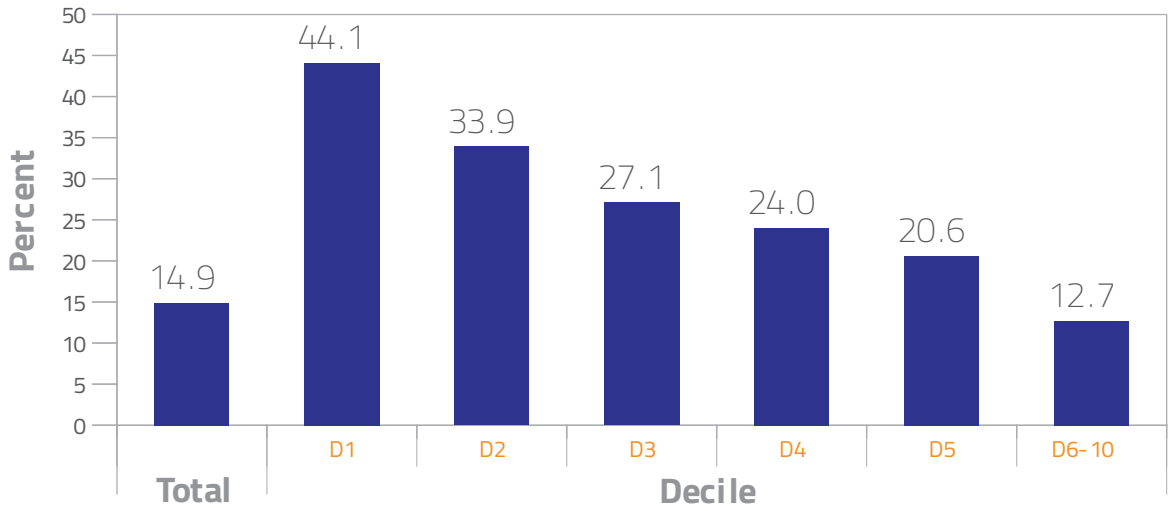
[34] This refers to the decile of post-transfer income per equivalent adult.

Figure 51: Distribution of elderly population, BRP old-age pension beneficiaries and benefits across deciles of income per equivalent adult, 2012



Source: Authors' calculations.

Figure 52: Generosity of BRP old-age pension by decile of income per equivalent adult, 2012



Source: Authors' calculations.

Photo : © Cercle2Confusion

135. **Its sheer size makes the old-age pension the leading contributor to poverty reduction among SA programs, but it is not efficient at reducing poverty.** In the absence of the BRP, poverty would be 11.1 percent rather than 6.9 percent. Yet as a consequence of universal targeting and dilution of benefits, each rupee spent on the old-age pension translates into only 0.28 rupees of poverty-gap reduction. By contrast, each rupee spent in Social Aid, a program specifically targeting the poor, reduces the poverty gap by 0.66 rupee.

136. **With the bulk of SA spending dedicated to the BRP, funding is low for programs specifically intended to benefit the poor, which limits SA's overall impact on poverty reduction.** Programs more closely linked to poverty or its markers—e.g. social pensions that don't fall under the BRP, Social Aid, disability assistance, certain subsidies (on rice, textbooks), school feeding, income support to temporarily unemployed, etc.—receive only less than a fifth of the SA budget.

137. **Social Aid—the only program in Mauritius that specifically targets the poor based on a means test—is small in terms of budget and coverage.** It accounts for only 9 percent of SA budget, and it covers 3.8 percent of population and 15 percent of the poor as direct and indirect beneficiaries.[35] Social Aid's small size is the main reason for its high exclusion error. Given its low total coverage, the program could not reach more than 55 percent of the poor and 38 percent of the poorest decile even if it were perfectly targeted. For eligible households, Social Aid paid MUR555 per capita in 2012[36] (or 11 percent of the poverty line), contributing a meaningful 22 percent to the poorest decile's household budgets.

138. **Despite the limited coverage, Social Aid has a relatively low inclusion error, meaning it is efficient in allocating benefits to the poor.** Each rupee spent in the program translates into a 0.66 rupee reduction in poverty gap, Social Aid has a progressive coverage (Figure 53) and is well targeted by international standards, with 62 percent of beneficiaries in the bottom quintile of the pre-transfer income distribution[37] and 68 percent of benefits going to this group (Figure 56). Conversely, this implies that 38 percent of Social Aid's beneficiaries come from outside of the poorest quintile.

139. **Social Aid's small size and use of categorical targeting offset its relative efficiency, restricting its impact in reducing poverty.** If Social Aid were not implemented, the poverty headcount would only rise to 7.3 percent, up from 6.9 percent. The low overall impact is a function of small size and gaps in targeting. Along with the means test, Social Aid uses categorical eligibility criteria,[38] which lead

[35] Coverage of pre-transfer poor is 19 percent.

[36] In 2012 prices.

[37] Fifty-three percent of Social Aid beneficiaries come from the bottom quintile of the post-transfer income distribution.

[38] Categorical targeting is used to extend benefits to the chronically

Figure 53: Coverage of Social Aid beneficiaries and benefits across pre-transfer per AE income deciles, 2012

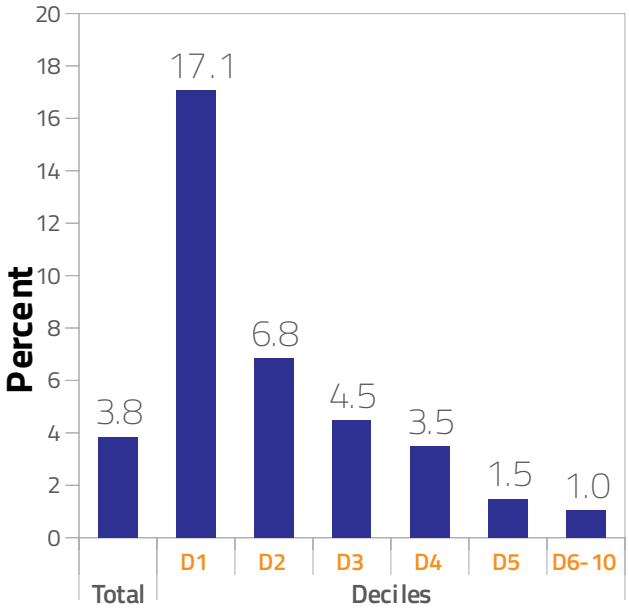
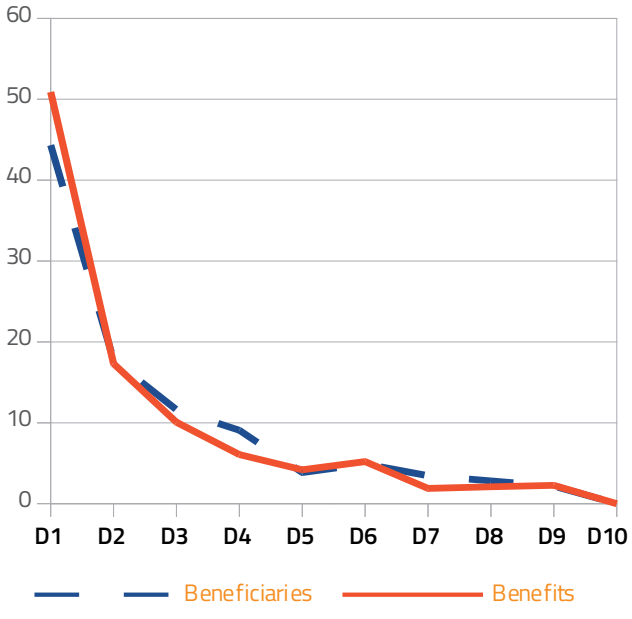


Figure 54: Distribution of Social Aid beneficiaries and benefits across pre-transfer per AE income deciles, 2012



Source: Authors' calculations.

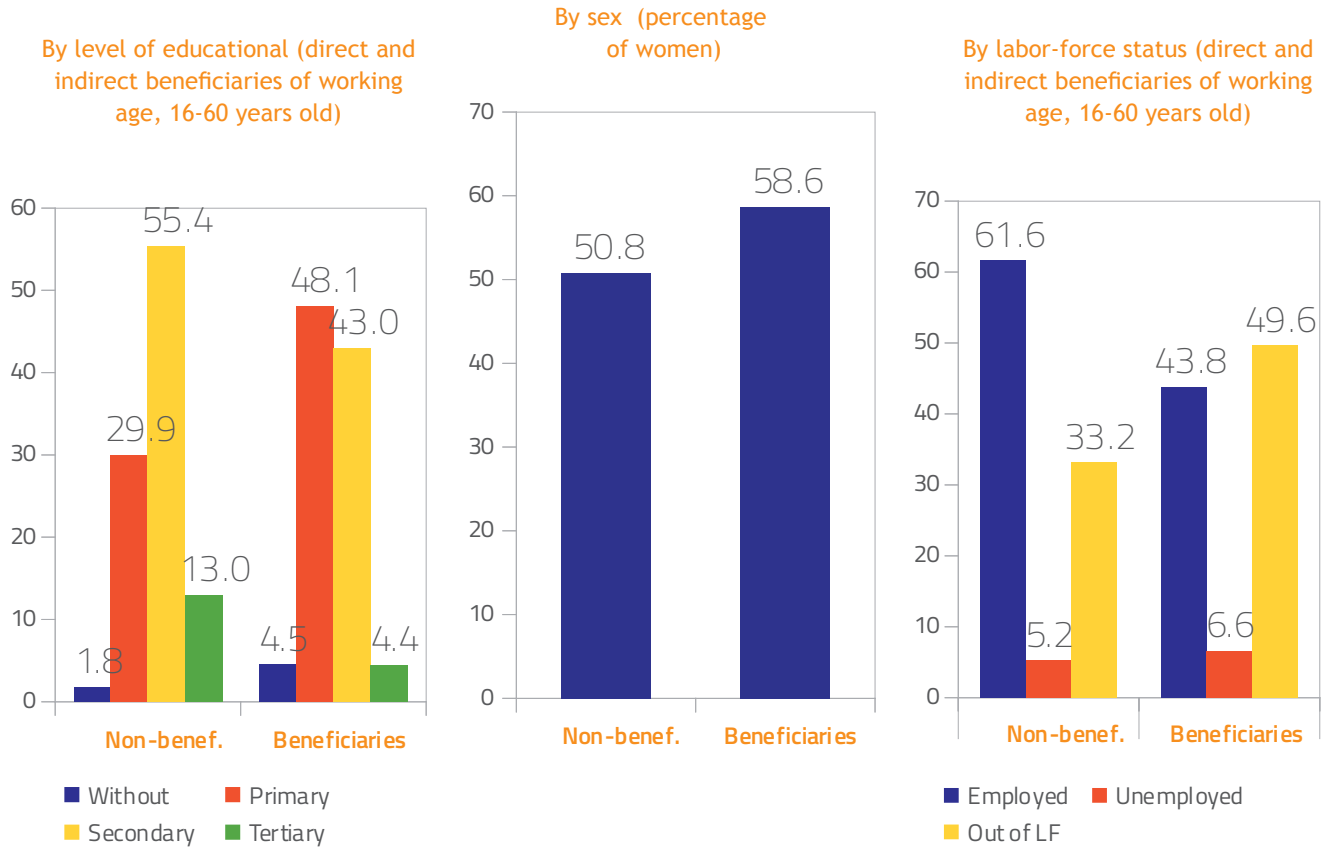
to the acceptance of beneficiaries who would not qualify based on the means test alone and exclude some of those who could conceivably be eligible for benefits on the basis of the means test. As a result, the categorical filters contribute to inclusion and exclusion errors. The New Income Support Program (NISP), introduced in 2014, aims to fill the gaps left by Social Aid's categorical targeting. The fact that the NISP has been introduced as a separate program will further contribute to the complexity of the SA system.

140. **While targeting errors make it difficult for the poor to obtain Social Aid, challenges prevent the exit of households that could potentially graduate from the program.** For instance, 66 percent of beneficiaries who join Social Aid on the basis of a temporary loss of the ability to work stay in the program for more than 19 months. The same holds for 60 percent of "abandoned women" participants. Improved recertification of beneficiaries would be a key step in improving the exit of those no longer eligible. At the same time, steps should be taken to reduce possible disincentives to work and build linkages between Social Aid and active labor-market programs to facilitate the graduation of households. Beneficiary profiles indicate that a larger share of Social Aid beneficiaries of working age are out of labor force or unemployed. They can likely be transitioned to unemployment-based income-support programs—Unemployment Hardship Relief, Temporary Unemployment Benefit, and other schemes that promote labor-force reintegration.

141. **One constraint facing Social Aid beneficiaries is lower education levels than non-beneficiaries.** Among Social Aid beneficiaries, 4.5 percent are without schooling, compared with 1.8 percent for non-beneficiaries (Figure 57). Forty-eight percent of Social Aid beneficiaries have only primary education, compared with 30 percent for non-beneficiaries. Vocational training or re-training programs as well as entrepreneurship programs can useful labor-force activation tools, especially if they include a focus on women, who are overrepresented among Social Aid beneficiaries.

sick and their caregivers, abandoned women and children, single mothers, and dependents of inmates in government institutions.

Figure 55: Profile of Social Aid beneficiaries and non-beneficiaries, 2012



Source: Authors' calculations.

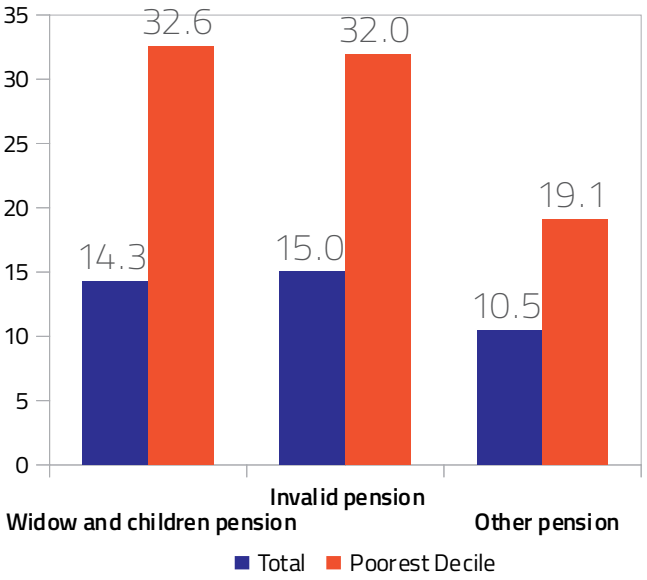
142. **Mauritius has operated a wide range labor-force activation programs for some time, but they are limited in coverage, fragmented, lack robust linkages to Social Aid and have little coordination between each other.** Implemented by multiple agencies, these programs include pre-service training, on-the-job training, job-search assistance, support to micro-entrepreneurs, and life-skills training (see Appendix A).

143. The Widows and Children's Pension, the Invalidity Pension, and other social pensions[39] are pro-poor in terms of the welfare profile of their beneficiaries and the flow of their benefits to the poorer deciles. Nearly one-half of their beneficiaries come from the bottom quintile and a quarter to a third come from the bottom decile (depending on the program). The distribution of benefits is roughly comparable. These schemes make a meaningful contribution to the income of recipient households, especially poor ones. Among beneficiaries from the poorest decile, the women and children's program contributes 33 percent to household income, compared to 14 percent for the nation as a whole (Figure 58). For the disability pension, it is 32 percent versus 15 percent for the nation. The other social pensions, the figures are 19 percent and 10 percent.

144. **Room for improvement in these programs' targeting remains.** Approximately 28 percent of Widows and Children's Pension benefits, 19 percent of Invalidity Pension benefits, and 32 percent of other social pension benefits flow to the wealthiest half of the population. Among the main reasons is reliance on categorical eligibility criteria and delivering a large share of the social pensions (widows and children's benefit, disability, and survivor benefits) as components of the BRP—i.e., to those households that are beneficiaries of the BRP old-age benefits.[40]

145. **The Government operates several education-related transfer schemes, but they have small coverage and—with the exception of textbook subsidies—are only moderately pro-poor in the distribution of their benefits.** A majority of the transfers go to the non-poor. The most significant education-related programs are the scholarship grants program, exam subsidies, and textbook subsidies. The scholarship grants program provides funding for tertiary schooling. The shares of benefits going to the general population and the poorest decile are: 0.2 percent and 0.4 percent for the scholarship grants, 2.2 percent and 4.5 percent for the exam subsidies, and 0.5 percent and 2 percent for the textbook subsidies.[41]

Figure 56: Distribution of benefits (targeting accuracy) of widows and children, disability, and other social pensions, 2012



Source: Authors' calculations.

146. **Among the three education-related programs, the means-tested textbook subsidy does best in targeting the poor.** Based on post-transfer income, it delivers 55 percent of its benefits to the poorest decile. However, the monthly benefit is small at MUR180 per capita.[42] The subsidy is a book loan program that supplies free textbooks to secondary school students who live in needy households.[43] Eligibility is based on a means test, with automatic eligibility extended to the beneficiaries of Social Aid and Unemployment Hardship Relief.

147. **The scholarship grants[44] and exam subsidies provide more generous benefits and they are still pro-poor, but the leakage toward the non-poor is high.** Both schemes target low-income students and involve a means test, with Social Aid-beneficiary households automatically qualifying for the examination-fee subsidy. The scholarship grants proved a per capita monthly benefit of MUR918, and the average for the exam subsidies is MUR382. However, 41 percent of scholarship funds and 29 percent of exam subsidies go to the wealthiest half of the population.

[39] These include Unemployment Hardship Relief, Food Aid, Fishermen's Allowance, etc.

[40] The limitations of the HBS survey do not allow distinguishing fully between social pension benefits received as part of the BRP scheme and those delivered outside the BRP.

[41] Mauritius also implements a school-feeding program that is universal for primary students. The program provides a loaf of bread to more than 100,000 primary students free of charge.

[42] In 2012 prices.

[43] Textbooks are provided free of charge to all primary students, irrespective of income.

[44] The scholarship grants scheme covers the cost of tuition for tertiary schooling.

Photo : © Haja Faniry Razafimahenina

148. **The Government provides a number of other untargeted subsidies, most of which tend to leak benefits toward the non-poor.** Specifically, it subsidizes the price of rice, flour, cooking gas, and transportation for the elderly, disabled, and students. With the exception of the rice subsidy, these subsidies disproportionately benefit the wealthier households (Government of Mauritius, 2010).

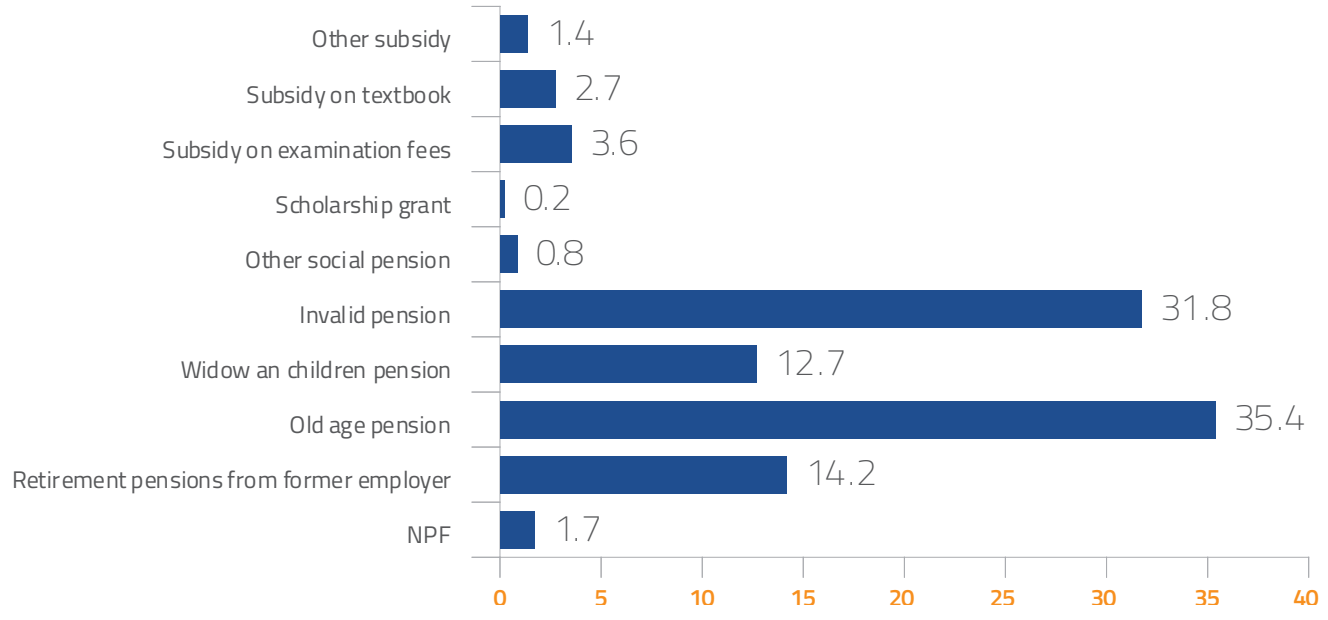
149. **In addition to the weak poverty focus of individual SA schemes, fragmentation and lack of coordination across programs undermine the effectiveness of social safety nets.** The implementation of cash-transfer schemes alone involves five different government entities, while seven agencies participate in implementing in-kind transfers.[45] Many more entities are engaged in the delivery of programs in community development, labor-market activation, and CSO support. Fragmented safety nets run by multiple agencies are difficult to coordinate, leading to the system-wide loss of efficiency due to overlaps and gaps. Some households may receive multiple transfers while others—no less deserving of assistance—may be missed by all or most of these schemes. For the country as a whole, 47 percent of the absolute poor (post-transfer) remained not covered by any of the main social assistance schemes in 2012; under-coverage of the poorest quintile is 48 percent. At the same time, households in the Social Aid program include beneficiaries of various other schemes, as illustrated in Figure 59.

150. **The Government has taken meaningful steps toward greater coordination, but further improvements are needed.** Establishment of the National Empowerment Fund (NEF) in 2009 was an important step toward coordinating several programs: the Program for the Eradication of Absolute Poverty (EAP), the Trust Fund for the Social Integration of Vulnerable Groups (TFSIVG), the Decentralized Cooperation Program (DCP), and the National Committee Corporate Social Responsibility (CSR).[46] To further improve the coordination of social safety nets, the Government introduced the Social Registry of Mauritius (SRM), a unified SP program database and targeting platform, in 2012. SRM is capable of coordinating and harmonizing social assistance. It currently links Social Aid and the NEF databases; in the future, it is expected to store beneficiary data and provide a proxy means test (PMT)-based platform for all targeted SP programs in Mauritius.

C. Social insurance: contributory pensions

151. **Demographic aging is the most significant long-term risk facing Mauritius' SP system.** The country's population is aging. The fertility rate is well below replacement level, and life expectancy is expected to rise to 78 year for men and 81 years for women by 2050.[47] Old-age dependency—expected to rise from its current level of 18 percent to 55 percent by 2050—will increase the burden on the working-

Figure 57: Share of Social Aid beneficiaries who also receive benefits from other



Source: Authors' calculations.

[45] Government agencies implementing cash transfers: MOSS, MOAI-FPS, MoWRCDFW, PMO, municipal governments. Government entities involved in in-kind transfers: MOECHR, MOFEE, MOHQL, MOPILTS, MOHL, MOSS, MOAIFPS

[46] See http://nef.mu/historique.php.

[47] UN Population Projections, 2010.

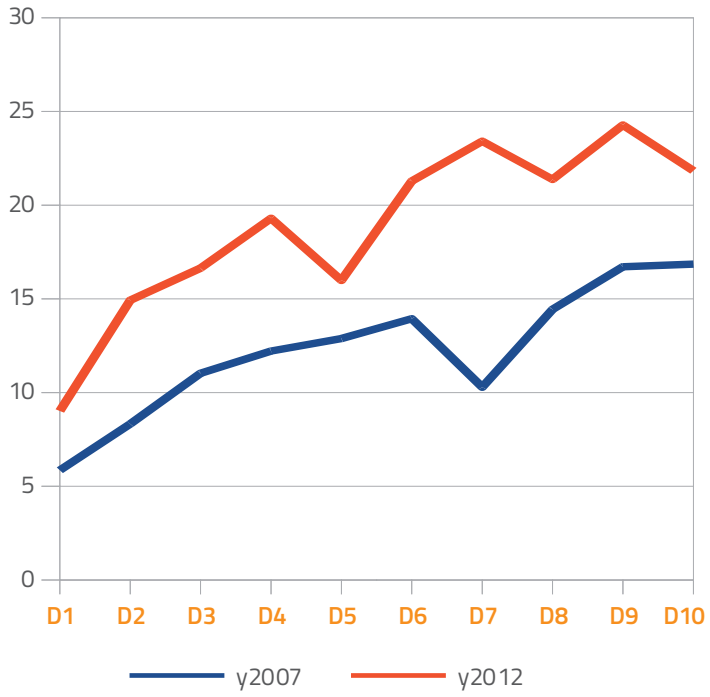
age adults of supporting the elderly. Currently five working-age adults support each person over 65 years of age; in 35 years, fewer than 2 persons will be supporting each elderly individual.

152. The structure of old-age protection, with the non-contributory social pension as the main means of protecting the elderly, is vulnerable to the fiscal pressures associated with an aging population. The pressures increase in proportion to the rising dependency ratio. In Mauritius, the risks associated with aging are addressed through a multi-pillar old-age pension structure. The universal, non-contributory BRP is the primary pillar, and contributory retirement schemes constitute a secondary pillar intended to complement the BRP. As the old-age dependency ratio expands, the already high BRP budget would have to expand proportionately until it exceeds fiscally sustainable levels or forces a reduction in the BRP benefit level. Either way, the protection of the poor will be at risk. The social old-age pension might decline or expanding BRP scheme might draw funds away from other SA programs. Within this system, well-functioning contributory retirement schemes are key to containing the Government's cost of protecting the growing number of elderly and allowing the Government to mobilize fiscal resources for other tasks, such as poverty reduction.

153. **In this context, the admittedly modest expansion of SI coverage among the poorest segments of the population constitutes an important development—a potential move toward a more sustainable SP system.** Contributory schemes are not designed to address the issue of poverty; however, SI is one pillar of SP, and weak SI systems are likely to put additional burdens on other programs. Over the years, contributory pension schemes have improved their coverage, including their coverage of the poorer segments of society. In the poorest quintile, the coverage of contributory pensions increased from 7 percent in 2007 to 12 percent in 2012, but benefit value for this quintile remained nearly constant in real terms.

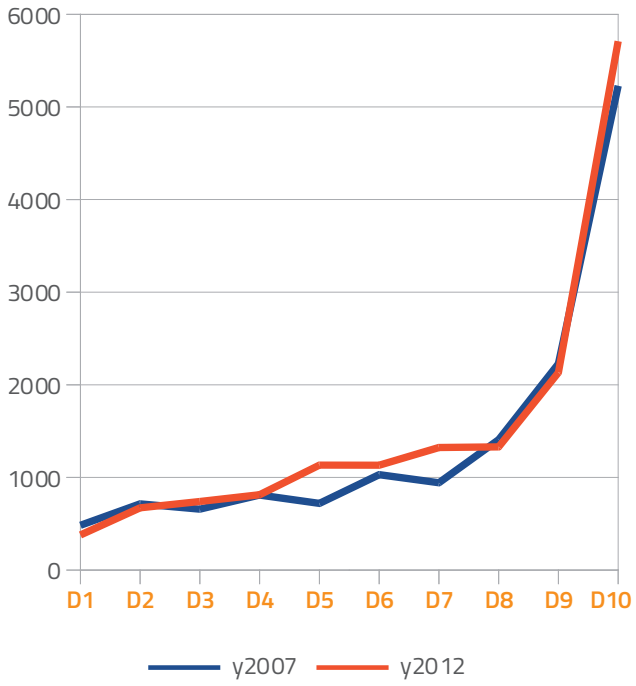
154. **The contributory pension schemes' coverage remains low, especially among the poorer population.** These pensions benefit 53 percent of those in retirement age and deliver benefits to 19 percent of population. Among the poorest quintile, contributory retirement schemes cover only 32 percent of the elderly and 12 percent of population. The coverage of the NPF alone—excluding former civil servants and beneficiaries of optional occupational schemes paid by relatively large employers in the formal private sector—is less than 5 percent of the total population (13 percent of all elderly) and less than 4 percent of the bottom quintile (12 percent of the elderly

Figure 58: Coverage of contributory pensions by post-transfer income decile, 2007 and 2012



Source: Authors' calculations.

Figure 59: Mean benefit amount of contributory pensions by post-transfer income decile, Rs. in constant 2006 prices.



Source: Authors' calculations.

in the poorest quintile). Employer pensions that include civil servants and government employees at all levels extend coverage to 43 percent of all elderly and 20 percent of the elderly in the poorest quintile, reaching 15 percent of population and 8 percent of the bottom quintile.

D. Areas of focused attention - Social protection

155. Mauritian social protection (SP) programs played a significant role in ensuring that the poor benefit from economic growth through redistribution of resources. Convergence, average transfers, and generosity of the social protection system all significantly increased between 2007 and 2012. Close to 75 percent of poverty reduction has been attributed to SP expansion. Without the SP system, poverty would be almost three times higher and inequality would be 12 percent higher. While the majority of the reduction in poverty is attributable to social assistance (SA) schemes, social insurance (SI) programs also made minor contributions to poverty reduction.

156. However, this study has found a weak poverty focus in individual SA programs in Mauritius, and the fragmentation associated with lack of coordination across programs undermines the effectiveness of the social safety nets. Proxy means tested social assistance programs should be developed to reduce inequality and improve SP efficiency.

157. Mauritius has operated a wide range labor force activation programs for some time, but these programs are small in coverage, fragmented, lack robust linkages to Social Aid, and poorly coordinated. The Government has undertaken meaningful steps toward greater coordination, but further improvements in SA coordination are needed. An aging population is the most significant risk facing Mauritius' SP system in the long-term.

158. Despite being the leading contributor to poverty reduction, the Social Aid program could be scaled up and significantly improved. The share of SP programs intended to specifically benefit the poor is low in Mauritius, which limits the overall impact on poverty reduction. Social Aid is the only program that targets the poor based on a means test—and it is small in terms of budget and coverage. Social Aid is efficient in allocating benefits to the poor due to its relatively low inclusion error, but its small size and use of categorical targeting restrict the magnitude of its poverty impact. Social Aid could deliver better results if the program were scaled up and its relative efficiency were further improved. The Government provides a number of other untargeted subsidies, most of which tend to leak benefits toward the non-poor.

Chapter 7

LABOR MARKET CHARACTERISTICS AND CHALLENGES

I. MAURITIUS LABOR MARKET CHARACTERISTICS AND RECENT TRENDS

Major transformations in the labor market led to shifts in employment patterns and increases in wage disparities. The tightening of the Mauritian labor market was associated with growing skills mismatches and a lowering demand for traditional employment. The Mauritian labor market has undergone a shift from such labor-intensive industries as textiles to more knowledge-intensive ones, including finance and tourism. We can already see the increasing, but somehow still marginal, importance of these industries and occupations for the overall economy. From 2007 to 2012, Mauritius' real wages surged by more than 8 percent. Workers in the services sector receive the highest salaries. Tourism and the tertiary sector highlight the ongoing upward trend, with pay around 40 percent higher than agriculture in 2012. STEM and high-hech occupations pay considerably higher salaries.

A. Introduction

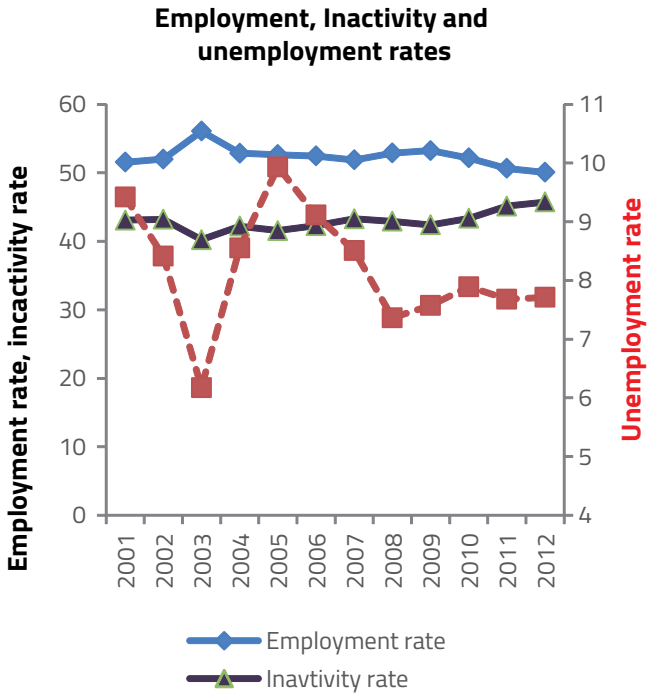
159. As discussed by McDonald and Yao (2003) for the 1991-2002 period, steady economic growth does not necessarily combine with a contemporaneous improvement of labor market conditions in the Mauritian economy. Quite the opposite, the steady economic growth since the beginning of the 1990s has translated in a sluggish labor market that saw unemployment constantly increasing, reaching a peak in 2005. The reasons for this underwhelming performance have been identified as: (a) tight regulations on the wage bargaining process, characterized by highly centralized wage determination; (b) excessive bureaucratization of the government departments responsible for this bargaining, leading to the de facto impossibility of employers relocating their employees; and (c) the extremely high costs companies face for job termination (Porter, 2004). All of these factors were causing a detachment of labor productivity from remuneration. Having realized that these bottlenecks were plausibly responsible for economic growth and job creation below potential, the Mauritian government reacted in the mid-2000 with a series of labor-market reforms.

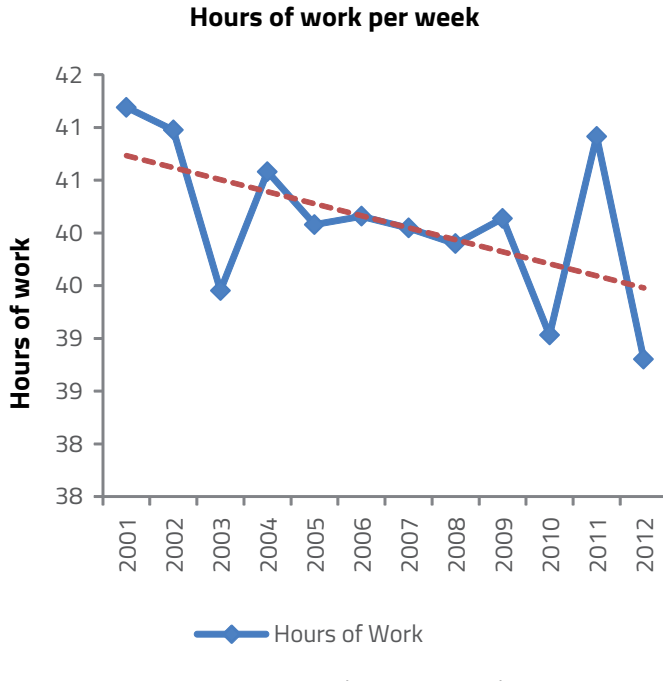
160. In this section, we will show and analyze how some commonly used labor-market indicators have evolved throughout a period that straddles the economic reforms of the 2000s. The indicators are divided in three categories. The first includes the most common measures of labor-market health: unemployment rate, employment rate, and activity rates. We will refer to these as the main indicators. The second category will focus on the segmentation of the Mauritian labor-market structure along three indicative dimensions: high-tech vs. low-tech, agriculture vs. non-agriculture and public vs. private. We will refer to these as the labor-structure indicators. The last set of indicators will consider mean and median total and hourly wages paid in the market—i.e., the wage indicators.

B. Labor market outcomes

161. The main indicators that will be discussed in this section are: employment rate, unemployment rate, and inactivity rate.[48] Three measures are widely disseminated, discussed, and analyzed by policy makers and media, but they suffer from well-known shortcomings. Keeping these caveats in mind, these measurements can serve as a useful preliminary check on the performance of a labor market, and they will be analyzed here.

Figure 60: Labor market: main indicators





Source: World Bank staff calculations, based on CMPHS data.

[48] The exact definitions given for these three rates somehow vary across labor statistics institutions. The one that we have adopted here defines every individual at least 15 years old as economically active.

162. **The analysis of the main labor-market indicators suggests changes in structure, falling demand, and general tightening.** Mauritius' workforce has been shrinking, both in terms of labor-market participation and hours supplied. Beside the blip in 2003, the employment rate was fairly constant until 2009 (Figure 592). A light downward trend was detectable from 2004 to 2007, and the trend went just as gently in the opposite direction from 2007 and 2009. Since 2009, the employment rate has decreased more decisively, reaching its minimum at the end of 2012. The employment decrease has not been matched by simultaneous movements of the unemployment rate, which peaked in 2005. It constantly and markedly diminished in the next three years, reaching a plateau at just below 8 percent. On average, each worker worked almost three hours a week less in 2012 than in 2001.

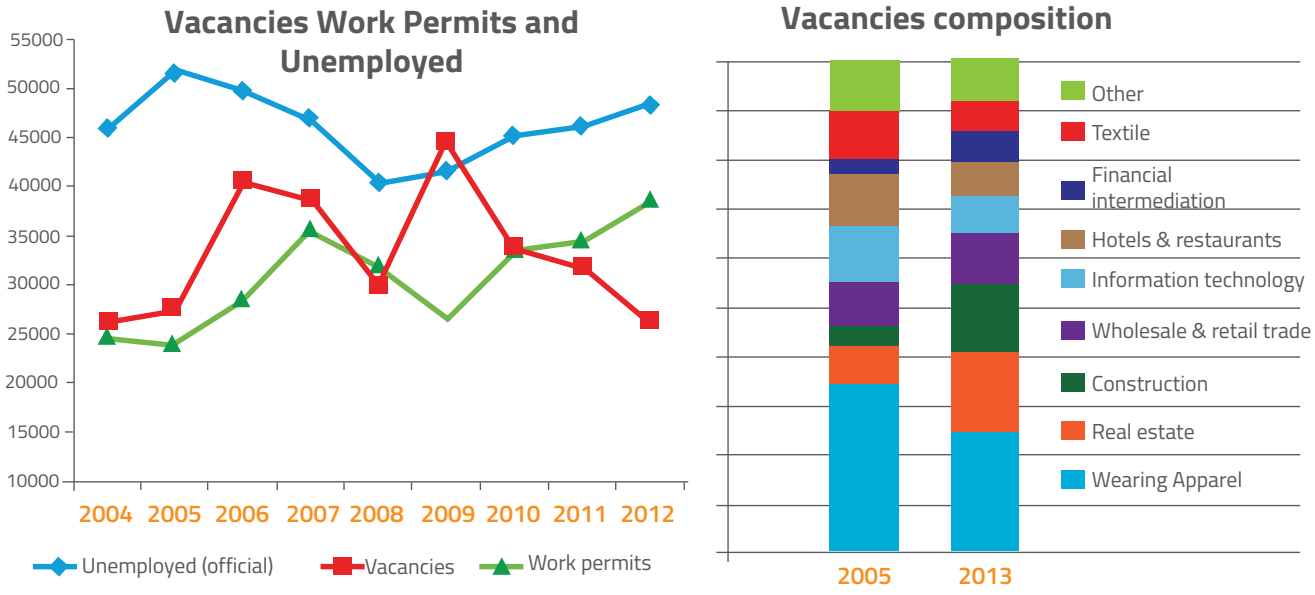
163. **Inactivity rate started picking up in 2009, and it has increased ever since.** The movement out of employment after 2009 has not been into unemployment; rather, it has been out of the active labor force and into inactivity. An increasing inactivity rate[49] is not necessarily worrisome. The rate is a composite, pooling together individuals in very different circumstances. It is therefore very important to understand the composition of the economically inactive.

C. Tightening of the Mauritian labor market and sectoral changes

164. **The Mauritian labor market's tightening is associated with skills mismatches and diminishing demand for traditional employment.** Since 2006, the vacancies statistics have gone down steadily, while the number of unemployed and the number of permits for foreign workers rose. The continuous change in labor demand reflects the construction and real estate boom on one end and the reduction in demand for apparel on the other.

[49] The ILO defines an individual as economically inactive if he is within the working age but does not participate in the labor market. The possible reasons for inactivity are: caring for family, retirement, sickness or disability, school enrolment, discouragement, or no intention to work.

Figure 61: Tightening labor market in Mauritius



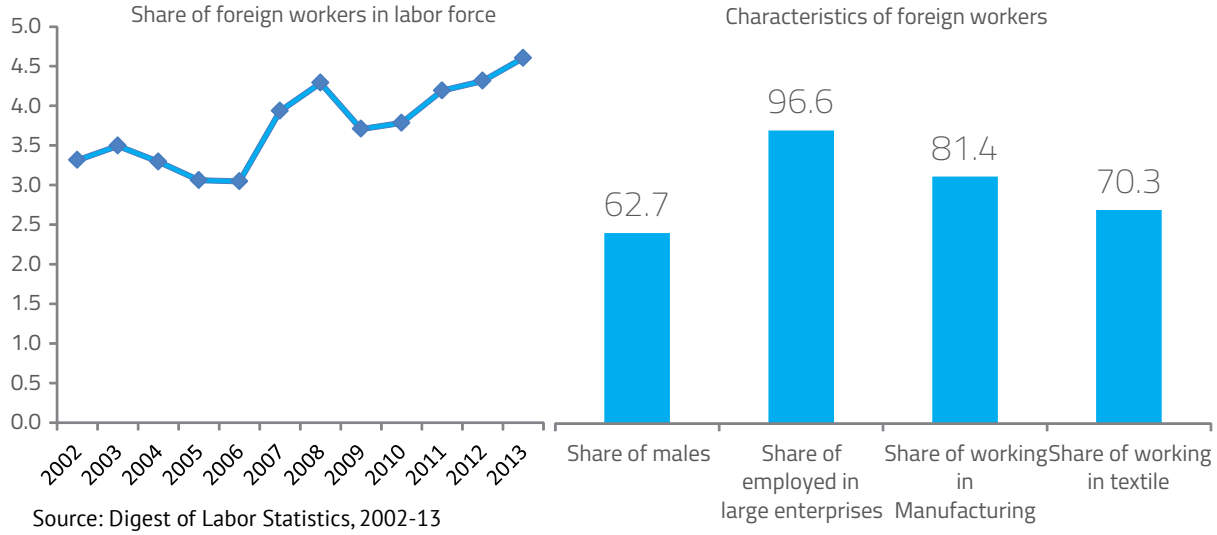
Source: World Bank staff calculations, based on official data from Mauritius Ministry of Labor.

Photo : © tedesco57

BOX 8: SURGE OF FOREIGN WORKERS IN MAURITIUS

Mauritius has experienced a substantial increase in foreign workers—from 3.5 percent of the labor force in 2003 to 4.5 percent of labor force in 2013 (Figure 62). According to Statistics Mauritius, the number of foreign workers has increased from around 17,000 in 2003 to more than 26,300 in 2013. The number of foreign workers has increased by 54 percent during this period, while the labor force grew only 11.3 percent. In addition, the number of work permits has grown significantly in recent years

Figure 62: Role of the foreign workers in Mauritius



Source: Digest of Labor Statistics, 2002-13

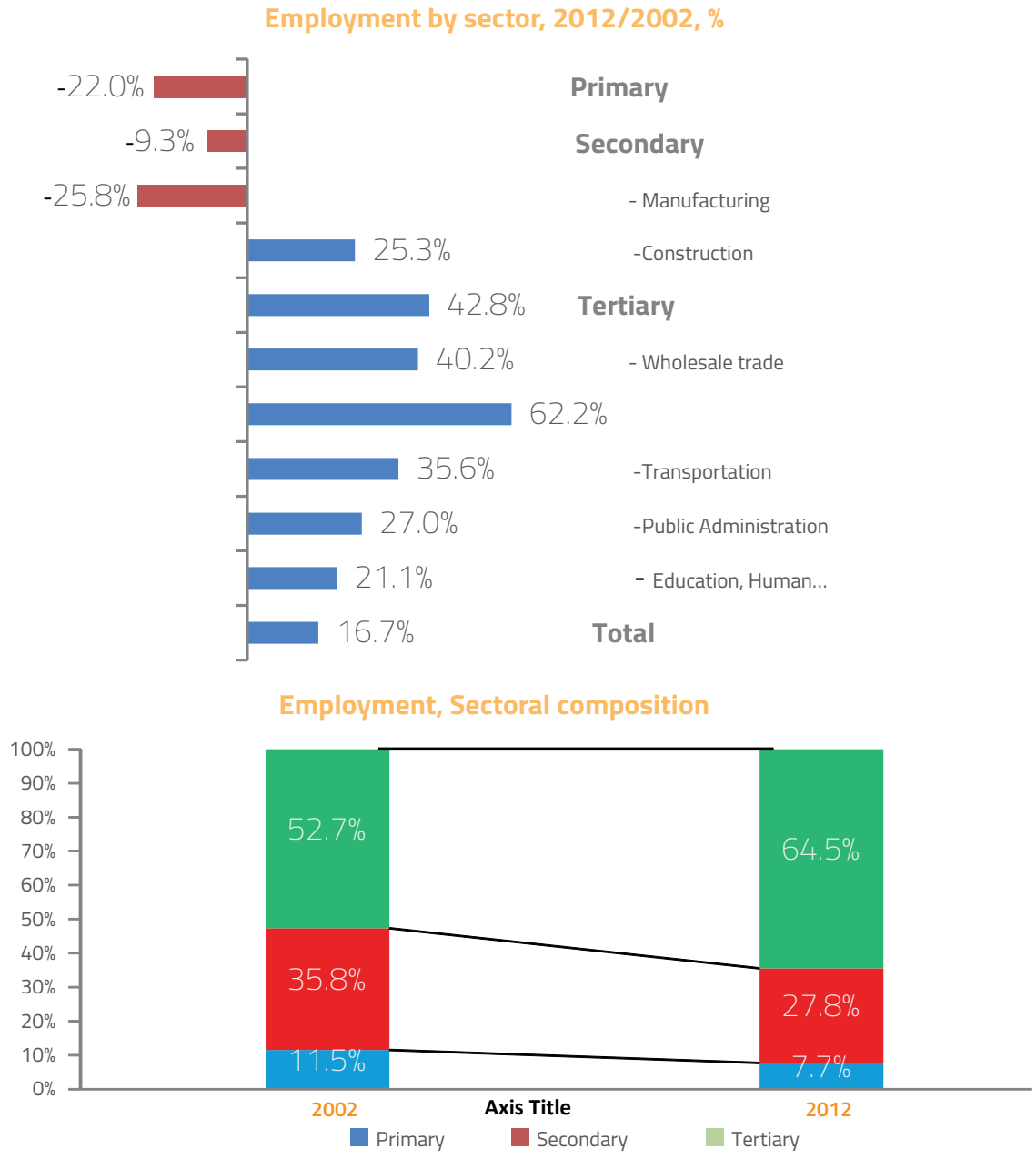
Most of the foreign workers take jobs in lower-skilled occupations, but some are high-skilled. The most frequent professions are machine operators (more than 60 percent), sewers, fish cutters, spinners, thread and yarn Masons, general site managers, production technicians, concrete plant machine operators, bakery product workers, bartenders, stonemasons, construction plasterers, general carpenters, general public relations officers, cooks, and hotel/restaurant employees. Forty percent of the foreign workers come from Bangladesh, with a large increase since 2009. The number of migrant workers has also increased from India, Madagascar, Nepal, Morocco, Lebanon, Korea, Japan, Israel, Indonesia, Haiti, Algeria, Argentina, Burundi, Congo, and Denmark. The share of foreign workers who are males has been steadily growing, reaching close to 63 percent. In 2013, 81.4 percent of the foreign workers were employed in the manufacturing sector, with 70.3 percent in textiles. Almost all (96.6 percent in 2013) work in the relatively large enterprises.

Migrant workers are often filling vacancies for unattractive jobs that no longer appeal to Mauritian job seekers. The increase in demand for foreign workers is associated with skills mismatches and deteriorating wages in the primary sectors, including textiles. Companies turn to foreign workers to alleviate the shortage of skilled labor in the manufacturing and construction sectors.

165. **The Mauritian labor market has undergone a shift from such labor-intensive industries as textiles to more knowledge-intensive ones, including finance and tourism.** The migration from labor-intensive to knowledge-intensive has been noted by McDonald and Yao (2003) and David and Petri (2013). It the declining share of employment in the manufacturing and agriculture sectors and the increased share of labor employed in the tertiary sector and, to a lesser extent, in tourism.

166. **Data confirm the migration from labor-intensive to knowledge-intensive activities.** Between 2001 and 2012, employment decreased 22 percent in the primary sector and 9.3 percent in the secondary sector; in the tertiary sector, meanwhile, it increased roughly 43 percent. The sectoral composition of employment also shifted toward tertiary sector. In 2012, close to 65 percent of employees worked in the tertiary sector, compared with 53 percent in 2002. The primary and secondary sectors decreased proportionally (Figure 63).

Figure 63: Sectoral composition of employment shifts toward tertiary sector



Source: World Bank staff calculations, based CMS data.

167. The deterioration in the primary and secondary sectors is associated with the decline in the agriculture and manufacturing, while booming tertiary sector has been led by accommodations and wholesale trade. The secondary sector would have contracted even more if not for growth in construction. Employment in accommodations grew the most, rising by more than 62 percent between 2002 and 2012. Wholesale trade grew 40.2 percent and transport 35.6 percent. In addition, employment in public administration grew by 27 percent. Over all, the share of the Tertiary sector increased from 52.7 percent in 2002 to 64.5 percent in 2012, while shares shrunk for the primary and secondary sectors.

168. In 2013, around 80 percent of the Mauritian workforce was employed by privately owned enterprises (Figure 64).[50] This number is constant throughout the period.

Figure 64: Public vs. private employment, by shares

Source: World Bank staff elaboration on CMPHS data.

169. In the past 13 years, the Mauritian labor market structure has evolved toward increased importance of the services sector. This sector mainly comprises professions requiring medium to high skill levels. On the other hand, occupations traditionally reserved to low-skilled individuals have either maintained their skill levels (agriculture), or recently increased them (manufacturing). Quite worrisome, the share of individuals occupied in the highly skilled intellectual sector has recently shown a diminishing trend.

[50] No information is available prior to 2003.

D. The role of the high-tech sector

BOX 9: ROLE OF HIGH-TECH SECTOR IN MAURITIUS

In the past decade, the Mauritian labor market experienced a substantial employment shift from manufacturing to the service sector. In a first approximation, this transition might be thought of as a movement from labor-intensive to knowledge-intensive industries. This is not necessarily the case because both sectors are a mix of high and low knowledge-intensity industries. If we are interested in which type of inputs are required in the economy's most dynamic segments, a better distinguishing concept would be the high-tech sector. It transcends the usual distinction between secondary and tertiary sectors and includes both high-technology manufacturing activities and knowledge-intensive services.[51]

It is common to think of these highly specialized sectors as the fundamental engine of growth in modern economies because they generate the high value added products and services that command higher salaries. For this reason, understanding the size and development trajectories of these sections is fundamental to getting a sense of whether growth is sustainable in the near future and whether the sectoral dynamics are in fact hiding a movement along the technological curve.

High Tech employment could be defined in two ways in Mauritius. One method is based on sector of employment and another one is on occupational attainment. Appendix C describes in detail the definition of high tech based on the NSIC4 industry classification.

The NSIC-based definition of high-tech industry combines both workers in high-tech occupations and workers within the high-tech sector who fill low-tech positions. For a complete picture, it is useful to analyze a different aspect of high-tech employment—that of high-tech occupation.

170. **Analysis of both dimensions of high-tech industries point toward an increasing, but somehow still marginal, importance of these industries and occupations for Mauritius' overall economy.** Figure 65 shows the cumulative percentage change in high-tech and STEM (science, technology, engineering and math) jobs as a share of total employment.[52] The base years for calculating gains differ for the two series. The figure clearly shows that high-tech has been an important source of employment growth, starting in 2006. The most recent data show general employment was at

[51] See the appendix for a detailed description of the high-tech sector definition adopted in this study.

[52] The high-tech employment series starts in 2004 because we do not have access to detailed four-digit NCIS coding for 2001 to 2003. For this reason, we were unable to reconcile the coding for these early years with the classification applied in the later ones. The year 2010 is missing for the same reason.

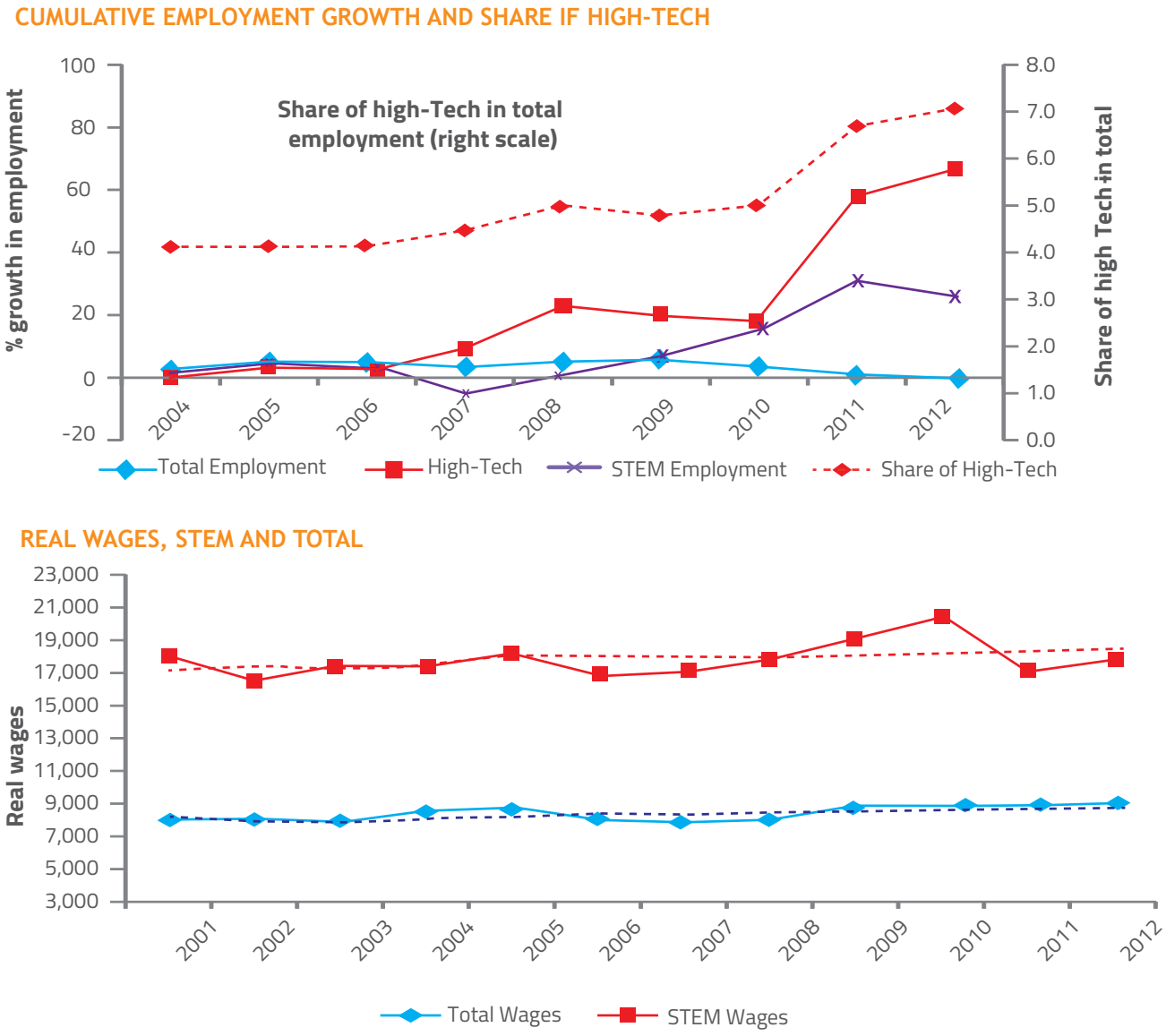
nearly the same level it was 11years earlier, but high-tech employment grew a staggering 70 percent in eight years. As a result of this growth, high tech's share of total employment increased 3 percentage points in eight years; in 2012, it constituted around 7 percent of the economy. Another factor worth noting is that this sector has displayed a very consistent growth with the exception of a slight ebb between 2008 and 2009—at the height of world economic recession. Without the phenomenal performance of the advanced sector, Mauritian employment level would have trended downward over this period, instead of being substantially stagnant.

171. We also show trends in high-tech occupation employment. We use the concept of STEM occupations, which is receiving increasing attention in the scientific literature[53] and among policymakers. To define STEM occupations, we have followed US Bureau of Labor Statistics guidelines.[54] We find that after an initial but feeble downward trend, these high-knowledge industries have expanded their share of the workforce by almost 30 percent since 2001. The downside is that STEM workers' share to total employment is still minor—only 4.6 percent in 2012, compared to 3.6 percent in 2001.

[53] See, for example, Goos, Hataway, Konings and Vandemeyer (2013).

[54] Bureau of Labor Statistics (2012),"Options for defining STEM (Science, Technology, Engineering, and Mathematics) occupations under the 2010 Standard Occupational Classification (SOC) system." The two-digits NASCO occupations defined as STEM are: 21, 22, 31 and 32.

Figure 65: High-tech vs. overall employment and wage changes



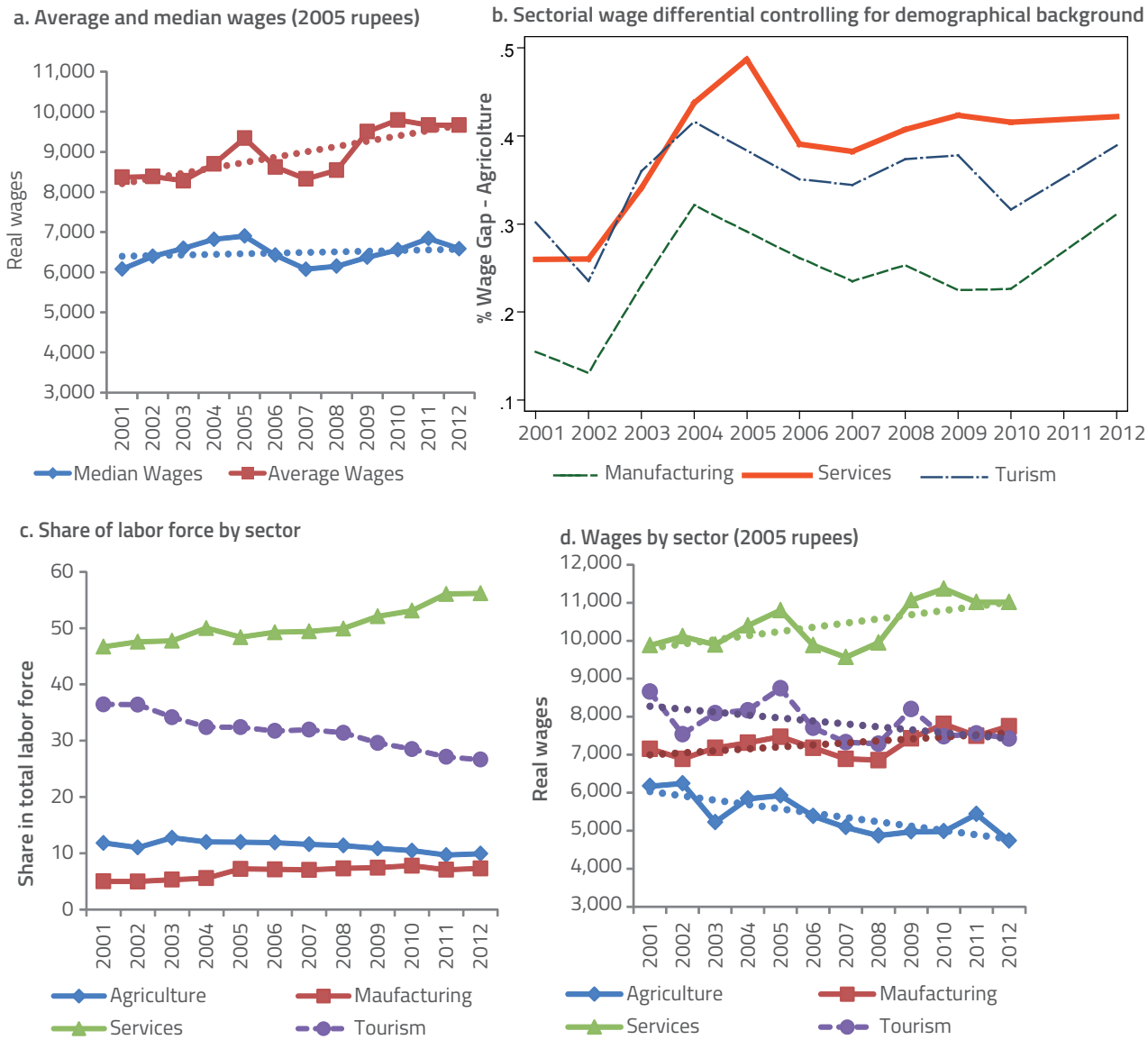
Source: World Bank staff elaboration on CMPHS data.

E. Wages and earnings

172. **Since 2001, real mean wages in Mauritius have surged by more than 8 percent.** The evolution of this increase can be divided in four periods (Figure 63a). A strong hike characterized 2001-05, followed by a substantial retrenchment of more than 10 percent in 2005-07. After 2007, real wages started galloping upward again, more than making up for the previous slump. However, this growth has halted in the past two years. After all the ups and downs, median wages have increased by 8 percent in these 11 years.

173. **Workers in the services sector earn the highest salaries, and the constant influx of workers in this sector has not slowed the upward trend shown in Figure 63d.** This sector's contemporaneous increase in employment share and wages indicates an unmet expansionary potential that could absorb even more workers if the right type of human capital were available. In the same figure, we can see that salaries in manufacturing and tourism are stagnating, while the primary sector, already the lowest one in 2001, saw a decrease in its wage. These different dynamics obviously have many possible explanations. In tourism, stagnating wages coupled with a stagnating employment share (Figure 63c) might be symptomatic of a mature sector with little expansionary potential in the immediate future. On the other hand, stable wages and shrinking employment levels in the secondary sector might indicate an ongoing transition of labor force from this sector to services.

Figure 66: Sectoral composition of employment changes towards tertiary sector



Source: World Bank staff elaboration on CMPHS data.

174. **The tourism and tertiary sectors paid around 40 percent more than agriculture in 2012, while manufacturing salaries were 30 percent more.** Figure 63b clarifies that the differences in payoffs between the primary sector and the rest of the economy are not immediately linked to "quality" differences in human capital employed in various sectors. In this figure, we plotted the behavior of wage premiums from 2001 to 2012 in the secondary, tertiary, and tourism sectors, compared to agriculture. The wage premiums are obtained from a regression[55] in which the log of wages is regressed on sectorial dummies and various individual-level demographic data. The results can be interpreted as the percentage wage difference between the plotted sector and agriculture, keeping constant education, age, potential work experience, gender, and geographical location. Compared to agriculture, wages were higher in 2012 by around 40 percent in the tourism and tertiary sectors and 30 percent in manufacturing. All three differentials have been expanding.

STEM and high-tech occupations pay considerably higher salaries (Figure 67). Mean wages in STEM occupations have consistently doubled other occupations' payoffs. This reflects both the scarcity of highly skilled workers and the high value that these types of workers add to production.

II. Challenges of the Labor Market in Mauritius

The polarization of employment and wages is associated with rapid changes in demand for skilled labor. A rigid system of determining pay increases and complex labor regulations reduces competitiveness and limits the ability of the economy to undergo structural changes.

[55] Full regression is displayed in the appendix.

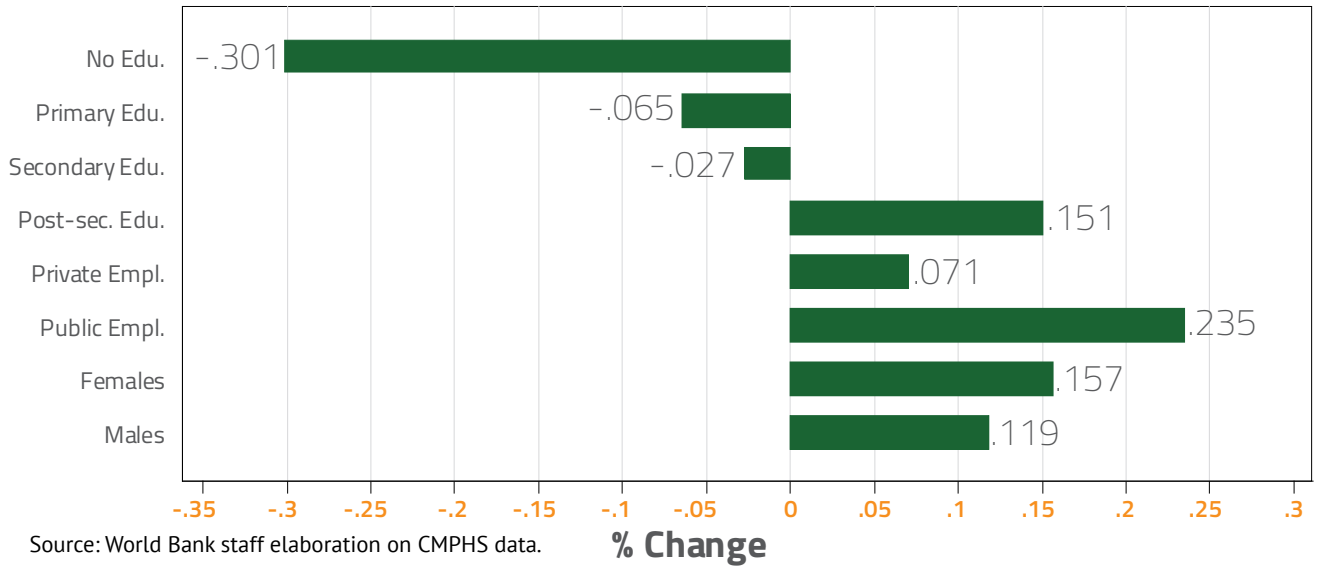
Skills mismatches are associated with rising levels of unemployment and weak job creation in Mauritius. Lack of inter-generational mobility has potentially very adverse effects for the overall economy's growth potential. Mauritian women experience substantially lower employment levels and higher unemployment and inactivity levels than their male counterparts. The gender wage gap is severe and shows no sign of decreasing. In fact, it widened in recent years. If any difference exists, in fact, suggests more, not less, human-capital accumulated by Mauritian women. Young workers between ages 15 and 24 are disadvantaged in terms of unemployment and particularly vulnerable to labor-market fluctuations.

E. Increasing inequality following the deteriorating of low-skilled wages

175. Demand shifts centered on skills are a likely source of changes in the Mauritian wage structure. These changes are rewarding highly skilled individuals, and their wages are rising. **The source of this different dynamics at the two extremes of the schooling distribution is to be attributed to advancements in mechanization and information technology which are complements of highly skilled individuals and substituting lower skilled ones.**

176. **As discussed in the previous chapter, less-educated individuals suffered a substantial decrease in their mean wages.** As shown in Figure 67, individuals with post-secondary education are the only group that saw an improvement in wages. At the other extreme, the average wage of those with no formal education plummeted by more than 30 percent.

Figure 67. Change in average real wages 2001-12



Source: World Bank staff elaboration on CMPHS data.

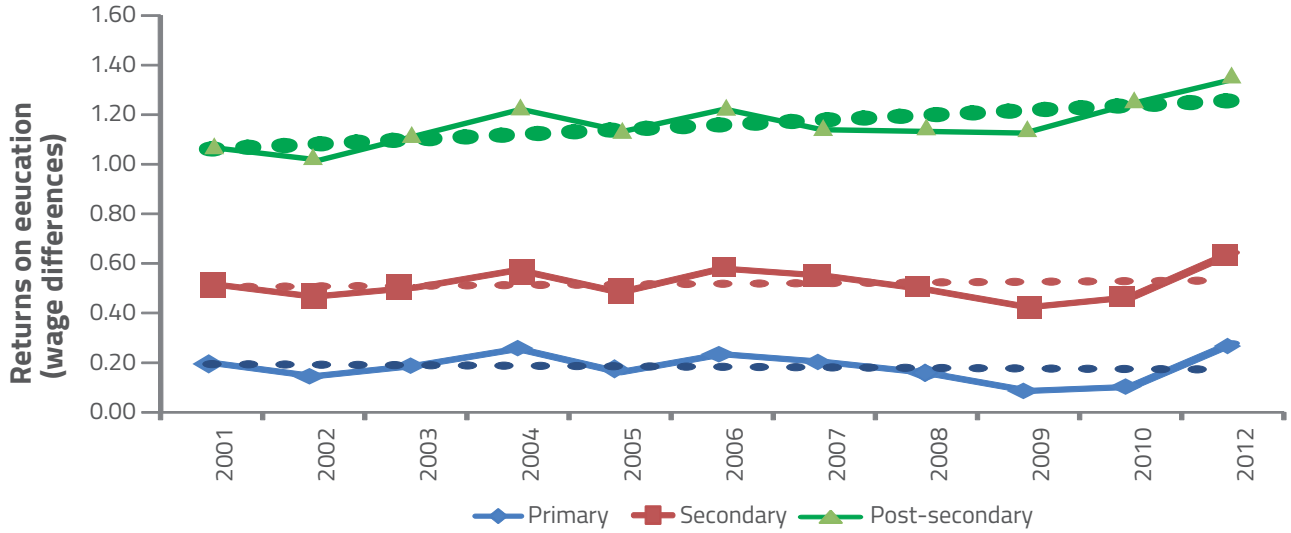
177. **Main labor-market outcomes are worse among the poor, and their situation has deteriorated.** The charts in Figure 70 cover the period of 2007 and 2012, showing that the lowest quintile had higher unemployment rates, deteriorating real wages, and a larger share of low-wage earners. In general, unemployment rates declined among all groups, but the reduction was largest among the richest group. Wages fell by 4.2 percent among the lowest quintile, but they increased 11.4 percent for the top quintile. The proportion of low-wage earners increased among the lowest quintile and fell among the richest, indicating a deterioration in the relative position of the poor. The shares of low earners due to short hours or voluntary low earners have increased among the rich, another sign of the disproportionate improvement among the better off and deterioration or no change among the poor. In sum, the poorer population clearly experienced less favorable changes in their labor incomes.

178. **For the Mauritian economy, a puzzling sign is a disproportionate increase in real wages in the public sector.** The deterioration of low-skilled wages has been accompanied an unbalanced wage determination in the public sector. The public sector had a 23.5 percent increase in wages, compared with only 7 percent in the private sector, where tradable goods are produced. Female workers' 15.7 percent increase outperformed the 11.9 percent increase of their male counterparts.

Figure 68. Labor characteristics by consumption quintiles 2007-12

Source: World Bank staff estimates, based on HBS data.

Figure 69: Returns to educational investment difference from no education



Source: Author's calculations. Coefficient from Mincer regressions, no education is the base.

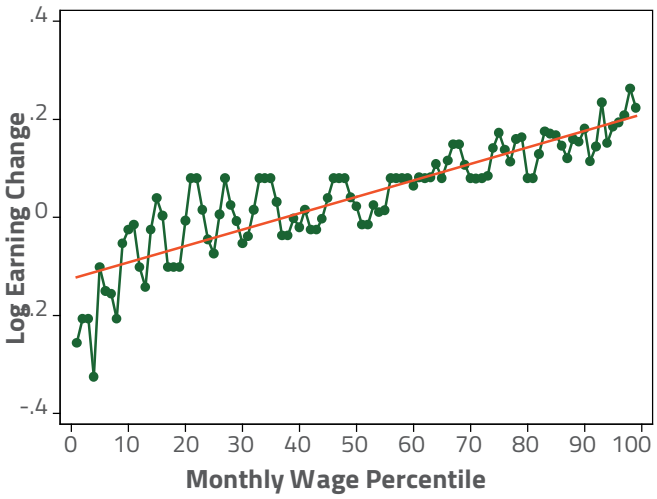
The evidence clearly points toward education's sizable economic advantages in terms of higher payoffs. In Figure 69 we report the coefficients from a wage regression[56] for primary, secondary and post-secondary graduates. These coefficients report the percentage difference in wages for the three categories with respect to the least educated individuals over an 11-year period. They are independent of gender, geographic location, age, and sector of activity. The advantages of education are clearly increasing. In fact, the premium for primary education hovers around 20 percent, and the post-secondary premium varies between 100 percent and 140 percent. Wage premiums for secondary and primary education are constant throughout the period, while those for post-secondary degrees are increasing, especially in recent years. The data point toward the growing importance of human capital in determining wages and suggests a corresponding upturn in the relative demand for skills.

[56] Full regression results are reported in the appendix.

Evidence from developed countries (Autor et al., 2006 and 2008; Acemoglu and Autor, 2011) indicates a secular raising trend in the demand for skills due to their complementarity with new technologies introduced in the workplace. This now popular theory is usually referred to as skill-biased technical change (SBTC), and it attributes increasing wage inequality to technological progress and its differential impact on demand for certain occupations associated with certain skills, according to their technological content and their complementarity or substitutability with new technologies.

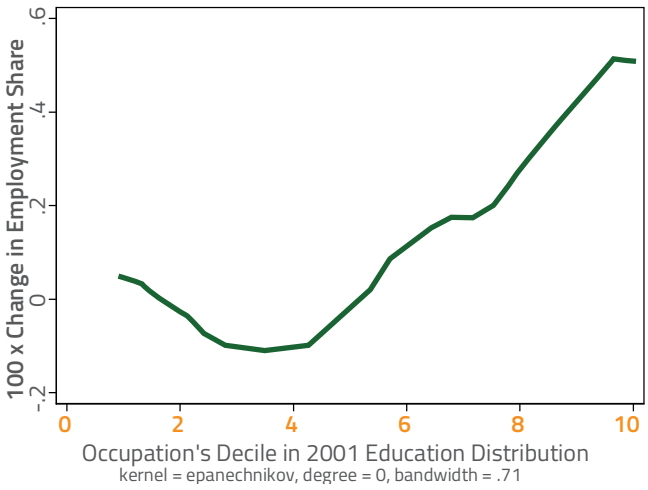
179. **Wages grew significantly more among the relatively better off, widening wage disparities.** We begin by laying out some key facts about Mauritius' wage structure. In Figure 70, we plotted the change in log real monthly wages by percentile for Mauritian workers between 2001 and 2012. It reveals two interesting results. First, an almost linear spreading

Figure 70: Change in log real monthly wage by percentile, 2001 vs. 2012



Source: Authors' calculations.

Figure 71: Smoothed changes in employment by occupation. 2001-09



Source: Authors' calculations.

out of the entire wage distribution took place—the higher the earnings in 2001, the steeper the salary increase over the next 11 years. Second, the tails of the wage distribution show diverging evolutions: the top half has seen an increase in real wages, while the bottom half has seen real wages deteriorate. The discontinuity occurs almost exactly at the 50th percentile.

180. **A polarization of employment has been accompanied by a rapid increase in employment share among top-skill occupations.** In Figure 71, we plot the trends in skill content of Mauritian jobs for 2001-09. As a proxy for skill content, we first calculate the each occupation's mean years of education,[57] and then we then sort these occupations into deciles of the average years of education. Finally, we plot the change in employment share of each occupation between 2001 and 2009 against the skill content of those same occupations. The figure clearly shows a polarization of employment, with modest growth at the very bottom of the skill distribution, declining employment in the middle, and a nearly constant, monotonic, and rapid increase in employment share in the top-half. The pattern of job growth fits well with the previously discussed evidence on increasing wage inequality between top and median wages and increasing post-secondary wage premiums.

181. **The facts emerging from our analysis of Mauritius' wage dynamics over the past decade seem to fit the SBTC framework.** Demand shifts driven by skills are a likely source of changes in the Mauritian wage structure. These changes are rewarding highly skilled individuals with rising wages. The source of the different dynamics at the schooling distribution's extremes is advances in mechanization and information technology that complement highly skilled individuals. They substitute for lower-skilled workers. This ongoing tendency has not been met by a sufficient and contextual expansion of the supply of highly qualified individuals—as indicated by the number of post-secondary graduates in Figure 73. Even if overall inequality in Mauritius does not assume dramatic proportions when measured by Gini coefficients and the other statistics, a trend toward growing inequality at the top end of wage and skill distribution seems to be emerging, especially in recent years.

182. **At the other end of income and skills distribution, inequality between low income earners and the median earner has been kept in check.** This can probably to be attributed to labor market institutions—strong unions, centralized bargaining, and minimum wage legislation—that are serving as effective tools for protecting the most vulnerable workers from falling too far behind.

F. Rigidity of labor regulations

A rigid system of determining pay increases and complex labor regulations reduce competitiveness and limit the ability of the economy to undergo structural changes.

183. **Despite changes in labor regulations, wage determination in Mauritius depends heavily on the non-market forces and collective agreements.** Before 2005, complex labor regulations tended to limit the labor market, and wage-setting was due to non-market bargaining power, hampering the ability of the economy to create new jobs. Under the old system, wage increases were linked to the CPI, and real wages grew much faster than labor productivity in 2000-06. Since 2006, the government has adopted several structural changes that gradually relax labor regulations. However, many regulations still affect Mauritian wage determination and working conditions.

184. There are two complementary minimum-wage support systems in Mauritius: (i) the annual Salary Compensation and the (ii) Remuneration Order system:

i. The annual Salary Compensation is designed as a cost-of-living adjustment mechanism. Each year, the Government issues a decree stipulating increases in minimum wages. It sets a series of thresholds based on the level of earnings, and increases are generally higher for those earning lower wages.
ii. The Remuneration Order system provides pay increases for workers in certain types industries and occupations under the supervision of the National Remuneration Board (NRB), a part of the Ministry of Labor, Industrial Relations, and Employment. The NRB defines minimum wages and other working conditions in the private sector. It issues the 30 Remuneration Orders and regulations currently in force and applicable to different occupational categories in specific economic activities. The orders apply to around 50 percent of the workforce—excluding the civil service, which is governed by separate provisions.

185. **The labor market needs to reward higher productivity.** The Salary Compensation and Remuneration Orders are designed to reduce disparities, but they hardly impact wage determination in the intended way.

[57] We would have liked to extend our analysis to 2012; unfortunately, the CMPHS classification of occupations adopts two different standards for the years before (NASCO) and after 2010 (NASCO-08). With the two-digit occupation classification we were provided, it is impossible to reconcile the two series.

The thresholds are set at very low levels by the international standards—on average, 22 percent of the wage. In addition, the national tripartite negotiations set up in 2010 make it more difficult to maintain competitiveness. In the longer term, an appropriate balance between worker protection and labor market flexibility has to be found in Mauritius.

G. Rising skills mismatches in Mauritius

A sharp increase in skills mismatches characterizes the labor market in Mauritius. The mismatches are growing with increasing demand for skilled labor. The mismatches are associated with rising levels of unemployment, a sign of weak job creation in Mauritius.

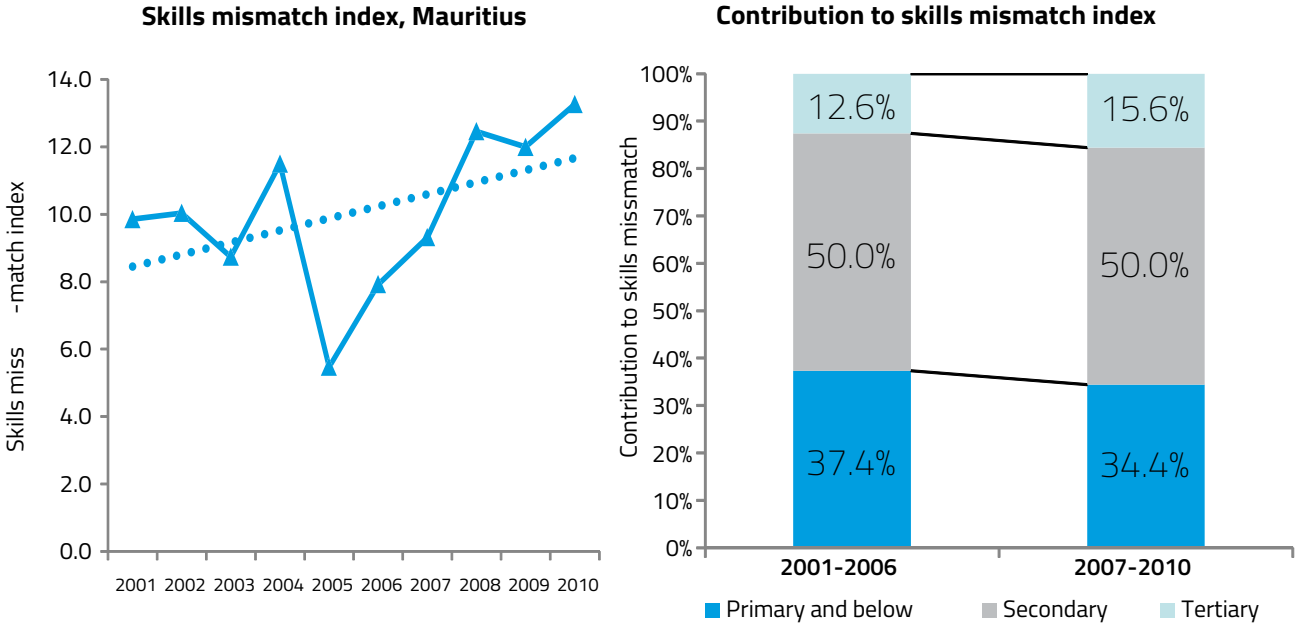
186. **In Mauritius, the contraction of traditional sectors and higher unemployment resulted in workers looking for jobs in other sectors and occupations.** Some workers who lost their jobs were forced to seek employment in sectors more advanced in terms of educational attainment. As a result, the employed share of those with tertiary educations more than doubled in Mauritius. The supply of highly educated workers has not met demand, creating mismatches in the labor market. The mismatches put upward pressure on unemployment rates. In Mauritius, the issue of skills mismatches has received renewed attention in the recent years.

187. **Skills mismatches can be measured by an index recently developed by the ILO.** It focuses on the differences in educational attainment of the employed in comparison with the unemployed.[58] According to ILO publications, the index can be interpreted as a summary measure of the relative position of labor-market groups with different levels of education. If primary, secondary, and tertiary graduates all have the same unemployment rate, the index will have a value of zero; the index would reach a value of 1 (complete dissimilarity) if, for example, all those with primary and tertiary education were employed and all those with secondary education were unemployed.

188. **Between 2001 and 2010, skills mismatches in Mauritius increased by almost 30 percent.** Figure 72 shows that the skills mismatch index grew from 0.09 to 0.13 points. In recent years, the increase was much stronger. Rising mismatches in the late 2000s were associated with rising unemployment. The trends underline the need for policies that ensure the best possible matches in the labor market to curb the negative trend of rising unemployment. The skills mismatch index's level corresponds to that of many developed countries; it is higher the level of the developing economies. According to the ILO

[58] It should be emphasized that this index captures mismatches between the employed and the unemployed in terms of level of education. It does not capture mismatch at more detailed levels of skills. The index also does not capture mismatches between job requirements and labor supply.

Figure 72: Measuring skills mismatches in Mauritius, skills mismatch index



Source: Authors' calculations.

report (2011), the index is less than 10 for most of the developing countries.

189. **Growing demand for highly skilled workers leads to increases in the skills mismatch index.** The right-hand chart of the Figure 72 presents contribution of the index's three main education levels. The main increase is associated with tertiary education. As tertiary education increased its composition, low education decreased.

190. **The growing skills mismatches emphasize growing, unmet demand for skilled workers.** This sharp increase is a sign of weak job creation and growing risks of long-term structural changes in the labor market due to growing skills mismatches. It underscores the need for policies that ensure the best possible matches in the labor market.

H. Human capital is growing but not intergenerational mobility in human capital

Gaps in access to education do not seem to diminish over time. The offspring of well-educated and rich families will invest more in education, increasing the probability of preserving their favorable economic positions; poorer and less-educated parents will not be able to offer these opportunities to their children, reproducing the same social structure over time.

191. Recognizing the central role played by education both in terms of economic development and political and social inclusion, the Mauritian Constitution of 1968 clearly mandates the public provision of education and stresses non-discriminatory access to education. In this section, we will first describe how educational attainments have evolved over time; then we will describe the factors that favor human capital accumulation. In the last part, we will describe the dynamics of the sectoral differences in returns to education and wage premiums over 11 years.

192. **We observed a general trend toward increasing in educational attainments in Mauritius.** Figure 73 shows the shares of the population by highest level of education competed. We include only individuals who have already finished their studies; i.e., young people still in school are excluded. The vast majority (75 percent) of individuals earned either primary or secondary degrees, but the two categories are moving in opposite directions. Primary school is steadily declining while secondary school is steadily

Figure 73: Educational attainment 2001-12

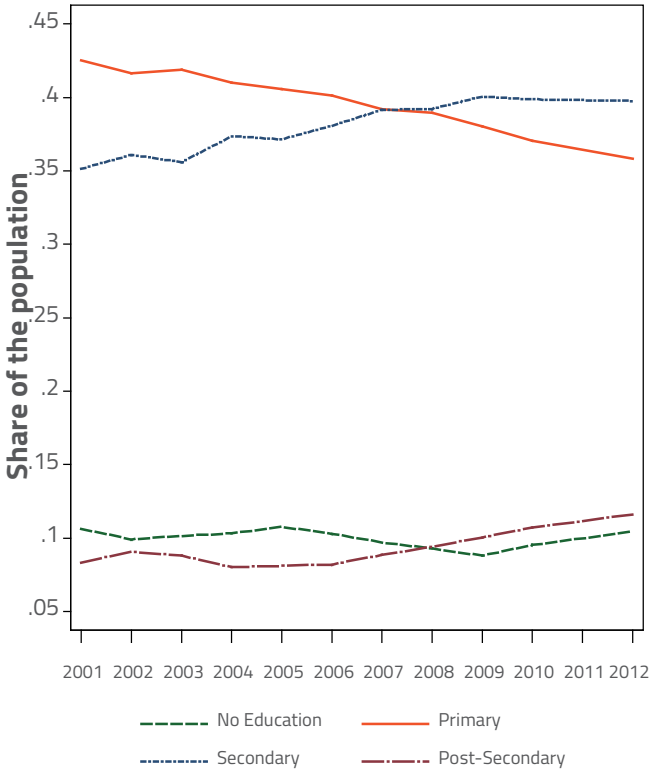
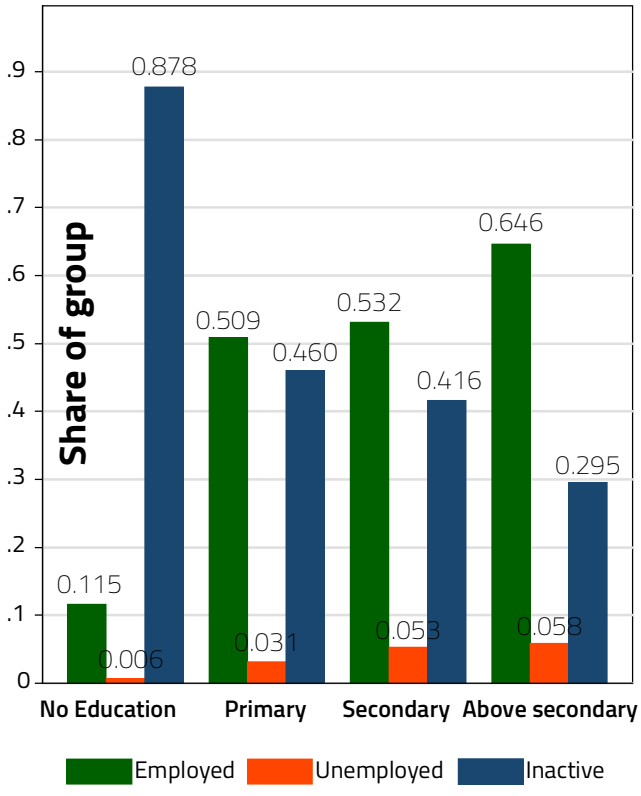


Figure 74: Labor-force status by highest educational level—2012



Source: Authors' calculations

BOX 10: EDUCATIONAL ATTAINMENTS IN MAURITIUS 2001-12

Education in Mauritius is organized in four cycles (UNESCO, 2010): pre-school, primary, secondary, and higher education. Pre-school (ages 0-5) is organized in two separate phases to meet different needs: toddlers (ages 0-3), known as early childhood development (ECD), and early childhood care and education (ECCE, ages 3-5). With the 2008 reform, primary education now lasts six years, divided into three two-year cycles. Primary education is mandatory from age 5. At the end of primary school, all pupils take a standardized national test, the Certificate of Primary Education (CPE). It serves two purposes: measuring achievement and verifying eligibility for admission to secondary education. Secondary education consists of two cycles. The first has two stages: Forms 1-3 provide students a more or less common curriculum and Forms 4-5 prepare students for the O level, covering both core subjects and a wide range of optional modules. The second cycle prepares students for the A level. Higher education is offered by polytechnics and universities. Polytechnics generally offer two-year programs in information technology or business and administration, while universities offer three-year bachelor's degrees, potentially followed by two-year master's degrees in various subjects.

Educational attainment lowers the probability of being inactive and raises the probability of being employed. Figure 74 shows additional evidence of this beneficial link. Looking at the 2012 labor-force status for people in each of the four educational categories allows us to identify two clear points of discontinuity—the first at the end of primary school, the second at post-secondary graduation. Completing the lowest educational level increases the probability of being employed from 11.5 percent to 50.9 percent and almost halves the probably of being inactive from 87.8 percent to 46 percent. The jump between secondary degree and post-secondary education is less abrupt but still considerable, with an increase of 11 percentage points in the share of employed and a decrease of 12 percentage points in the share of inactives. Surprisingly, the proportion of unemployed rises with education, but this is due to the very different share of inactives among the four categories.

The results displayed in Figure 76 suggest three clear messages. First, completing any education level, even the lowest one, substantially diminishes the probability of being out of the labor force. Second, the benefits of obtaining a post-secondary degree have increased over time; between 2001 and 2012, the gap between the probabilities of being inactive with a post-secondary degree and with no degree declined by 10 percentage points. Third, moving from finishing primary school to a secondary degree does diminish the probability of inactivity, but the difference is negligible and fairly constant.

rising, and the gap of almost 10 percentage points in favor of primary in 2001 flipped to a gap of 5 percentage points in favor of secondary in 2012. The general trend toward an increase in educational attainments is also visible in the slow but constant increase in the share of people obtaining post-secondary qualifications. This number jumped from 8.3 percent to 11.6 percent.

193. Given the tangible benefits of education, it is important to understand who is investing in it and the factors influencing the decision to acquire it. People earning tertiary degrees usually belong to families with more advantaged backgrounds. Their parents are better educated and richer than the rest of the country, and these differences are not disappearing over time. Residents of Rodrigues Island, the poorest part of the nation, tend to drop out after the first educational level and very rarely receive tertiary degrees. Time is not mitigating this trend. In going from primary to secondary education, the increase in the probability of tertiary education varies between 5.1 percent and 10 percent for the father's side and between 7.4 percent and 11 percent for the mother's side. Equally evident is the effect that fathers' income plays on sons' education. When compared to having a father in the bottom of the earnings distribution, a father in the second quartile increases the probability of schooling by 5.4 percent to 15.6 percent. The probability for offspring of the richest families over the most economically disadvantaged families is even higher—an additional 12.9 percent in 2012.

194. **This lack of inter-generational mobility has potentially adverse effects for the growth potential of the overall economy.** Established social hierarchies are likely to endure—given that education is the quickest and safest ticket to better-paid positions and family background plays such a decisive role in accessing higher education. The continuation of education and income from one generation to the next might waste valuable human resources by placing able but disadvantaged individuals in low-skilled occupations, dissipating the potential value they could add to the economy if prepared for professions better suited to their talents.

Table 6: Probability of accessing further education—selected variables

	2001	2003	2005	2007	2009	2012
FATHER'S EDUCATION	0.060***	0.103***	0.051***	0.089***	0.073***	0.092***
	(0.014)	(0.014)	(0.010)	(0.011)	(0.012)	(0.011)
MOTHER'S EDUCATION	0.091***	0.074***	0.084***	0.110***	0.101***	0.080***
	(0.013)	(0.014)	(0.011)	(0.011)	(0.012)	(0.012)
FATHER'S INCOME QUARTILE:						
SECOND	0.081***	0.106***	0.156***	0.070***	0.054**	0.074***
	(0.023)	(0.022)	(0.018)	(0.018)	(0.019)	(0.019)
THIRD	0.192***	0.130***	0.202***	0.076***	0.061***	0.089***
	(0.024)	(0.023)	(0.019)	(0.017)	(0.018)	(0.019)
FOURTH	0.271***	0.223***	0.306***	0.129***	0.182***	0.129***
	(0.026)	(0.025)	(0.022)	(0.020)	(0.021)	(0.022)

Note: Standard errors robust to heteroskedasticity in parentheses. */**/*** for significance levels at 10%, 5% and 1% respectively.

Photo : © Haja Faniry Razafimahenina

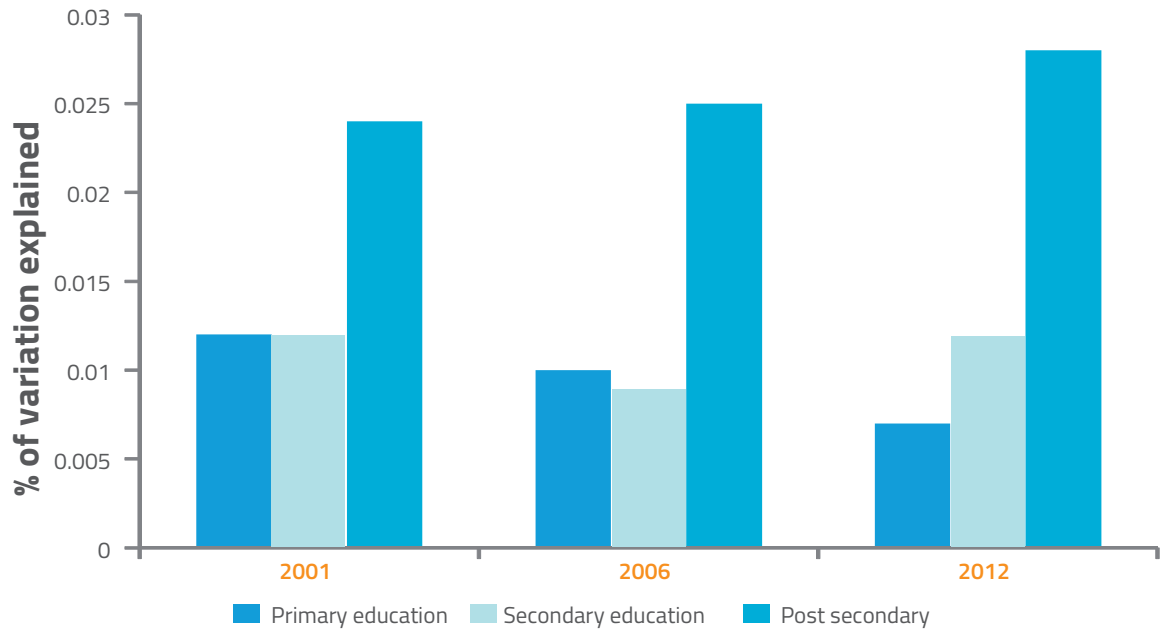
195. **Family background is a stronger influence on post-secondary education than on primary or secondary education.** Figure 75 sheds some light on the past decade's evolution of social mobility in Mauritius. We plotted the percentage variance in children's educational attainment explained by parents' education and fathers' incomes over time. A coefficient of 0 implies that parents' social status has no bearing on kids' educational attainment, while a coefficient of 1 signifies that school achievement is perfectly predictable by parents' socioeconomic status. The numbers on the vertical axis are hard to interpret; rather than looking at the absolute values for each year, attention should be paid to how this measure behaves over time and on its relative importance in explaining school success for the three educational categories. The graph clearly shows family background has a stronger influence on post-secondary education than on primary or secondary education. It is also noticeable how family status increasingly explained tertiary-education success, especially after 2007. For primary and secondary education, family background plays a minor role and very little differences are discernible between the two trends, reflecting the fact that these two schooling categories are compulsory.

196. The measure for inter-generational mobility indicates that social status tends to be preserved and increasingly so. This is particularly true at the highest educational level, the one granting access to the best occupations and where the highest rewards for investments in human capital can be reaped. This is bad news if a fully open society is considered optimal.

I. Disadvantaged position of women in the labor market

Mauritian women experience substantially lower employment levels and higher unemployment and inactivity levels than their male counterparts. Even if we control for other characteristics, ample differences in participation rates persist between men and women, but the downward trend is encouraging. Unlike the gaps related to labor-force status, which are all on downward trends, the gender wage gap is severe and shows no sign of decreasing. In fact, it has widened in the most recent years.

Figure 75: Importance of family background for schooling completed



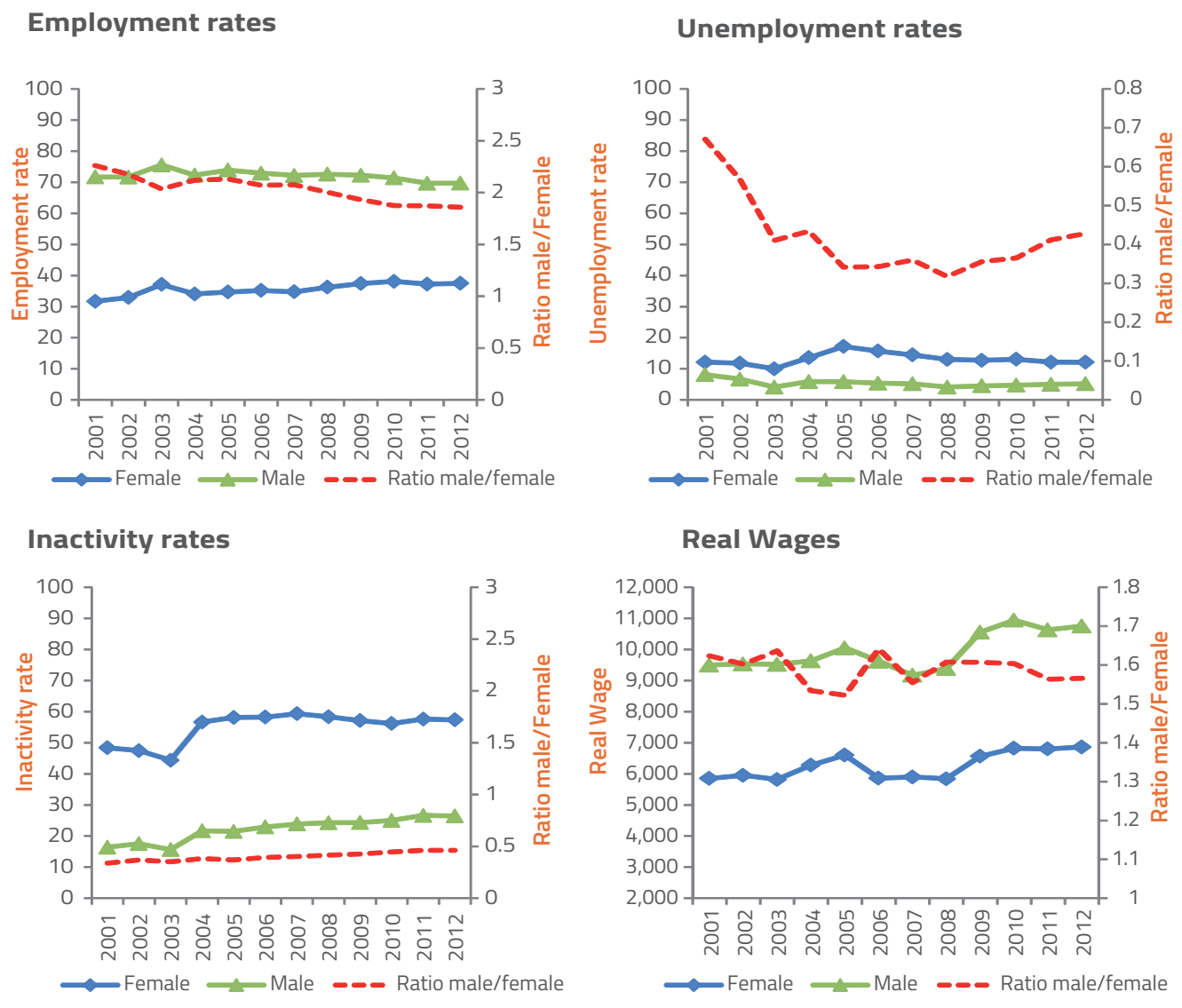
Source: Authors' calculations.

197. Whether Mauritian labor market has offered sufficient opportunities to women for the full deployment of their talents is the important question we address in this section. It is well known (Jaumotte, 2003; Pissarides et al. 2003) that high levels of female labor-force participation are often related to better economic performance on a number of indicators—from GDP growth to welfare systems' sustainability and poverty reduction.

198. **Males outperform women, but we see an encouraging tendency toward convergence.** Using the indicators from the previous section, we focus specifically on women, comparing their performance to men. Figure 7Figure 76 shows that males outperform women in employment, unemployment, and inactivity rates over the 11 years: however, the gaps have been closing. In Table 7, we report initial and final levels of the three rates and their percentage changes for both genders. The employment rate is substantially higher for men, and unemployment and inactivity rates are substantially lower. However, the gaps have been closing—with the exception of the unemployment rate. This was mainly due to the steep decrease in the men's rate, which was not been matched by the women's rate.[59] Almost half of Mauritius' female labor force is still outside the formal market. If these women decided to participate in the labor market, their probability of finding unemployment would be significantly lower than that of men.

[59] If we were to use 2005 as base year, this indicator would also show a tendency toward a narrower gap: the change in men's unemployment rate was -11.84, while the change for women was -31.22 over this shorter period.

Figure 76: Main indicators: gender differences



Source: World Bank staff elaboration on CMPHS data.

Table 7: Main indicators by gender, 2001-12 change

Main Indicators		2001	2012	% Change
EMPLOYMENT	Males	71.72	68.06	-5.1
	Females	31.72	36.51	15.1
UNEMPLOYMENT	Males	8.14	5.2	-36.12
	Females	12.14	11.83	-2.55
INACTIVITY	Males	16.4	22.54	37.44
	Females	48.38	47.33	-2.17

Source: World Bank staff calculations.

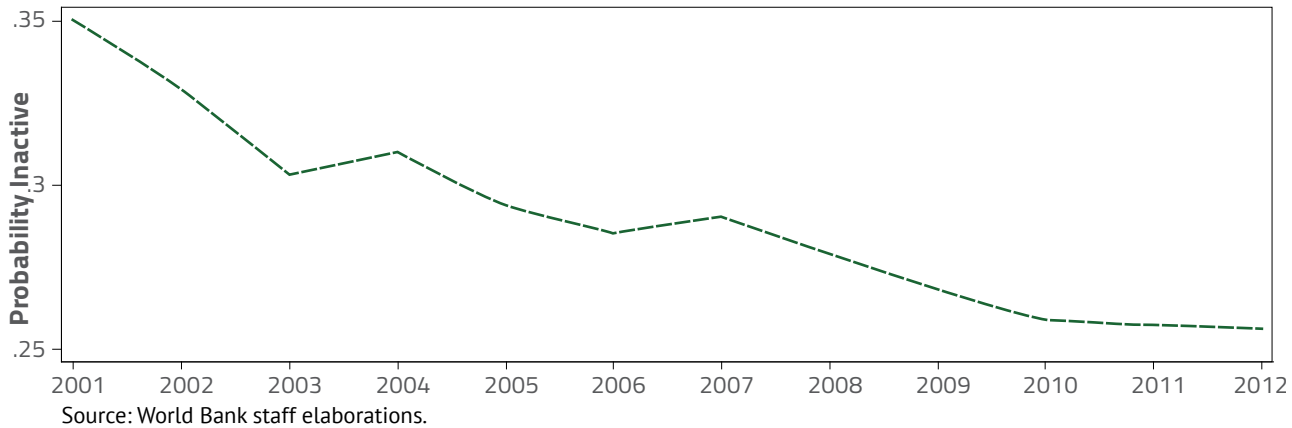
199. **Several factors explain women's low labor-force participation in Mauritius.** Both cultural and economic factors play important roles. As described in the Box 13, a married woman had an almost 59 percent higher chance of being economically inactive than a married man in 2001, a gap that fell to 40 percent in 2012. Larger family size and, specifically, a higher number of children increase the chance of being inactive—but to a lesser extent. Comparing 2001 to 2012, the differential between married men and women decreases steeply, largely because the difference between highly educated individuals now favors women. For the remaining characteristics, the differential probabilities persist and are fairly constant.

BOX 11: FEMALES' INACTIVITY RATE EXPLAINED

Low female labor supply is a phenomenon common to many economies at all stages of economic development.[60] Labor-force participation is influenced by short- and long-term factors. In the short run, it responds to wages and general unemployment levels; in the long run, it fluctuates with cultural expectations and roles, incentives and institutional rules set in the labor market, returns to education, and long-run productivity. The meager women's participation rate might result from lower human capital or social norms, consequent divisions of tasks within the family, or other factors. Simple descriptive statistics such as those in Figure 76 and Table 7 do not capture all these effects. To show obtain more informative results and start to understand the high inactivity rate, we will resort to a simple estimation of the probability of being inactive, given a series of control variables.[61]

In Figure 77, we show the difference in probability of inactivity between men and women for 11 years, holding constant educational levels, age, marital status, and child-rearing duties. We see that women are still substantially less likely to participate in the labor market, but we can also appreciate the dramatic fall in the inter-gender gap.

Figure 77: Females inactivity probability



Source: World Bank staff elaborations.

[60] For an international survey of trends in female labor-market participation, see Mincer (1985).

[61] The full specification for the probit model from which we obtain the coefficient for females' inactivity probability is shown in the appendix.

In Table 8, we clarify what drives both level and rate differentials between the two genders.[62] The coefficients should be interpreted as the difference in probability of being inactive between men and women with the same characteristics.[63]

In terms of levels, getting married exhibits the highest probability differential at both the beginning and end of the period. A married woman has an almost 59 percent higher chance of being economically inactive than a married man in 2001 and a 40 percent higher chance in 2012. An increase in family size and, specifically, the number of children increases the chance of being inactive—but to a lesser extent.

The probability differential monotonically decreases with educational levels. In 2001, female primary-school graduates had an 11 percent higher chance of being inactive; the difference disappeared for post-secondary graduates. In 2012, post-secondary trained women actually had a lower probability of being inactive.

In terms of changes, the differential between married men and women has decreased steeply, largely because the gap between highly educated individuals now favors women. For the remaining characteristics, the differential probabilities persist and are fairly constant.

Table 8: Marginal effects of background characteristics on probability of being inactive

	2001 (1)	2012 (2)	Difference (1)-(2)
MARRIED	0.588***	0.403***	0.184***
	(0.011)	(0.010)	(0.011)
NUMBER OF KIDS	0.014***	0.011***	0.003
	(0.003)	(0.003)	(0.003)
EDUCATION			
PRIMARY	0.109***	0.097**	0.012
	(0.019)	(0.018)	(0.016)
SECONDARY	0.073***	0.093***	-0.019
	(0.019)	(0.017)	(0.016)
POST-SECONDARY	0.012	-0.066***	0.078***
	(0.023)	(0.020)	(0.021)

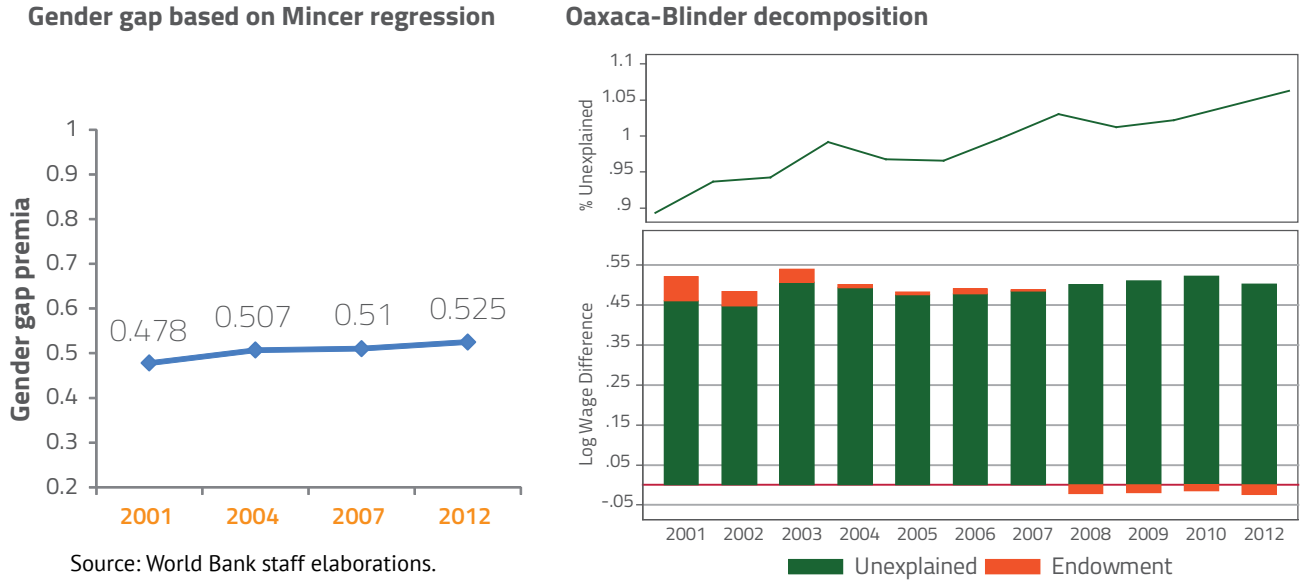
Notes: World Bank staff elaborations. Standard errors in parentheses; * stands for 10 percent level of significance; ** stands for 5 percent level of significance; *** stands for 1 percent level of significance. Marginal effects at the mean. Reference category: men.

[62] The coefficients show here are taken from the regression specified and reported in the appendix. They are the interaction terms between a dummy variable for female and the corresponding characteristic for 2001 and 2012

[63]

200. **Unlike the gaps related to labor-force status, which are on a downward trend, the gender wage gap in Mauritius is severe and shows no sign of decreasing.** In fact, it widened in the most recent years. To gain a better sense on the causes of the gender gap, Figure 78 shows the coefficients of a female dummy regressed on the log of wages, separately estimated for each survey year (a so-called Mincer regression).[64] This line is the percentage wage difference between women and men for each survey year, keeping fixed a series of demographic characteristics, such as education, potential work experience, and geographical location.

Figure 78: Explained and unexplained gender wage gap



Source: World Bank staff elaborations.

201. **Even when comparing men and women with the same education levels, age, potential work experience, and sector of employment, women still earn between 48 percent and 53 percent less than men, depending on the year.** Looking at the raw differentials, no traces of real convergence are emerging—a contrast to the encouraging signs regarding women's labor-market participation. Nonetheless, the dynamic of women's pay might be less bleak than a superficial look at the data suggests. As more women enter the labor force, the average working woman in 2012 will probably be less able and productive than the average working woman in 2001, so the constant gender wage gap might be hiding diminishing labor-market discrimination against female.

202. A commonly used methodology to study labor-market differentials that might be ethnic or gender related is to decompose mean differences in log wages into two components: the explained and the unexplained. The procedure is called Oaxaca-Blinder—from the names of the two economists who first proposed this methodology. The Oaxaca-Blinder procedure separates the existing gaps into what can be "explained" by differences in two groups' productivity characteristics and a residual part—the "unexplained"—that cannot be accounted for by these differences. This "unexplained" component is often regarded as a measure of discrimination because its existence cannot be justified by individual characteristics that could influence labor productivity and compensation. We apply this procedure to our data with the intention of looking for possible discrimination against women in the Mauritius' labor market and determining a rough quantification of its extent. It must be noted that the unexplained component cannot be taken as an exact measure of discrimination because the validity of the decomposition and its interpretation hinges on the assumption that all factors influencing labor market productivity have been included in the linear regression. It is easy to understand how this assumption is seldom respected in reality; however, the numbers in the remainder of this section should be interpreted more as a tendency than a proper quantification of discrimination.

203. **The negative endowment effect is capturing the fact that in recent years Mauritian women have become more educated, on average, than Mauritian men, but this fact has not translated into better wages.** Figure 78 shows the results of the Oaxaca-Blinder decomposition for a period of 11 years. The height of the bars in the right panel (bottom) quantifies the log of hourly wage gap between male to female salaries. The raw differential is basically constant over time. It can be decomposed into what is justified by differences in endowments between the average working man and the average working woman and

[64] The full regression is shown in the appendix.

what remains after the endowment effect has been taken into account—i.e., what cannot be attributed to differences in characteristics between the groups. In this graph, the endowment component is marked in red, while the unexplained component is in green.

204. **Women have the same observable characteristics as men, but their wages are much lower.** It is evident that the unexplained part of wage differential strictly dominates the justifiable part in all of 11 years. The right panel of Figure 78 (top) highlights the trends in the ratio of the explained and not explained in the gender wage differential. It reveals an interesting phenomenon—namely, that the unexplained component exceeds 100 percent of the total wage differential starting in 2008. This is also evident from the right panel (bottom), where the endowment effect turns negative starting in 2008. A negative endowment effect indicates that if women had the same observable characteristics as men—in terms of educational level, age, potential experience, geographical location, and sector of employment—their wages would in fact be lower than what we observe in the raw data.

Females' educational achievements are not different than those of males.

205. In this section, we look at women's educational achievements and consider whether the existing gender gap might be justified by women's investment, or lack thereof, in their own human capital.

206. **The graduation rates for individuals with primary and post-secondary education are fairly similar for men and women.** However, the small post-secondary graduation gap that favors men has been diminishing, a reflection of the improved conditions for Mauritian women. At the zero level, enrollment rates are equal for men and women, and a positive difference indicates a higher incidence of graduation for that schooling category among women and vice versa for a negative difference.

207. **The genders do not differ on graduation probabilities.** To further corroborate our findings of minimal gender educational gaps, we have estimated a linear probability model for the likelihood of completing each of the four education levels, controlling for geographical location, family background, and age.[65] Women display a lower probability of belonging to the two lowest educational categories, a fairly similar probability of being secondary graduates, and a higher, and increasing, probability of obtaining a post-secondary degree.

208. **Even after taking into account all the shortcomings of the method for detecting gender discrimination, this section's striking numbers should raise serious concerns among policymakers about how women seem to be considerably disadvantaged in the labor market.** In the medium to long run, this persistent undervaluation of females' labor input might discourage Mauritian girls from maintaining the favorable secondary and tertiary education enrollment rates they have reached in recent years. The evidence regarding the gender gap and the performance of women in the Mauritian labor market is ambivalent. On one hand, the main indicators point to a manifest gender disparity. Compared to men, women were still 22 percent less likely to be employed in 2012, 6 percent more likely to be unemployed, and 25 percent more likely to be out of the labor market. But all these gaps are closing. The estimated probabilities indicate that the main factors behind remaining disparities are the traditional and deep-rooted norms of family roles. Married women tend to stay home as the main caretakers for children. On the positive side, these norms seem to be evolving toward increased gender parity. The acquisition of human capital might serve as an incentivizing mechanism, pushing women to be economically active, and should be encouraged. In conclusion, the existing gender gaps favoring male workers in unemployment and participation rates do not seem justifiable by differences in acquired skills. In fact, these differences, to the extent they exist, point toward more, not less, human-capital accumulation by Mauritian women.

J. Disadvantaged position of young workers

209. **Young workers between ages 15 and 24 are particularly vulnerable to labor-market fluctuations.** This is not surprising. Economic theory suggests that employers are reluctant to lay off more experienced workers who have acquired both general and firm-specific on-the-job-training and whose severance costs are usually higher.

210. A vast body of literature (Arulampalam, 2001; Holzer and LaLonde, 2000; Khan, 2010; Neumark, 2002) has highlighted how early labor-market experiences shape individuals' future paths. This phenomenon, which has been called the "scarring effect," would imply that difficulties in the school-to-work transition would assign affected individuals to a suboptimal path on which earnings would be lower and the probabilities of unemployment and slipping out of the labor force altogether would be higher. These individuals are often at risk of poverty, and their separation from the labor market should

[65] A complete description of the estimated regression can be found in the appendix.

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not be minimized. Easing this transition seems to be a necessary condition for a well-functioning labor market. How the Mauritian labor market treats its youngest participants is the subject of this section.

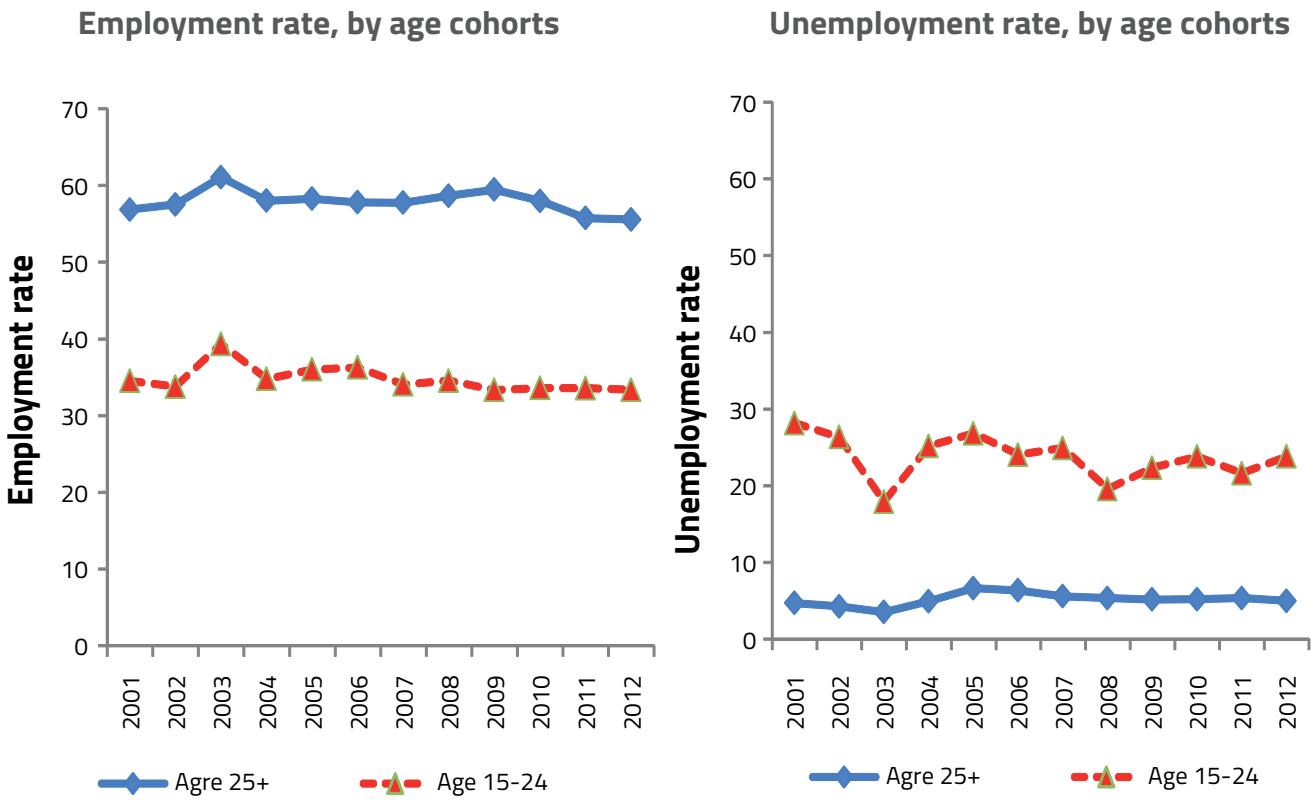
211. **In Mauritius, young people experience substantially worse labor market outcomes than the rest of the population.** Figure 79 shows the main indicators for two subgroups: young workers (ages 15 to 24) and the rest of the population (over age 25). As expected, young people have lower employment rates and higher inactivity and unemployment rates. The magnitudes of these differences are fairly constant from 2001 to 2012. The employment rate gap has decreased slightly in the past two years, mainly because of a decrease among the older group rather than any gains among the young. The unemployment rate gap has been constant, while the inactivity rate gap has been increasing since 2004, mainly due to the uptick in the youth rate. The common element among these three indicators is young workers' greater volatility, reflecting their higher sensitivity to the economic cycle.

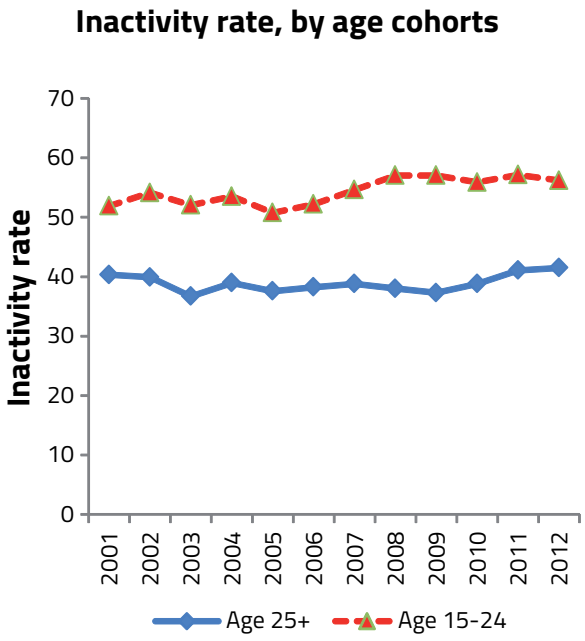
212. The increase in the young workers' inactivity rate might reflect a more complex interplay between the labor market and education. In fact, rising inactivity rates could hide a contemporaneous increase in school enrollment or formal training for this age group. Whether young individuals are out of the labor force as a necessity or by deliberate choice obviously has very different implications. If the rise in inactivity rates can be at least partly attributed to gains in education, we could conclude that this pattern should be encouraged more than feared.

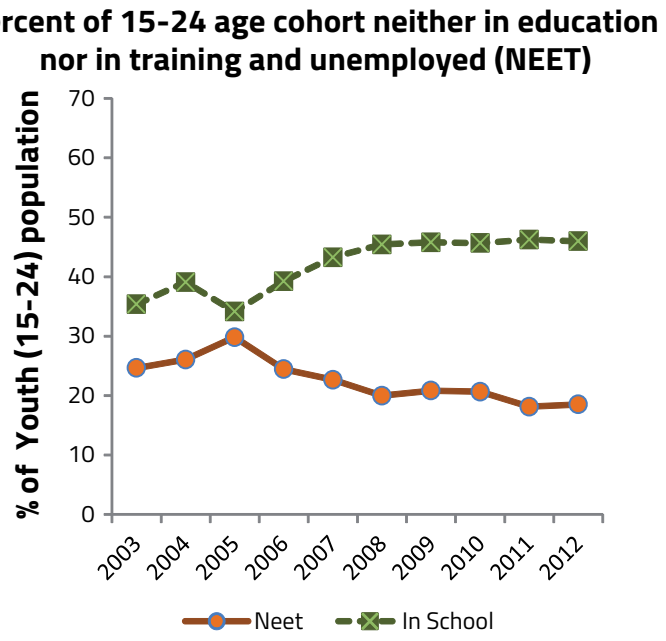
213. **The portion of young individuals who are neither in education nor in training and unemployed (NEET) decreased considerably after 2005, reaching a minimum in the past two years.** The trend reflects an increase of young people in education. Figure 74 showed the pattern of school enrollment for the 15-24 age group, which allows us to deduce that the inactivity rate's post-2006 increase has been primarily driven by more people in education. In nine years, the percentage of people between 15 and 24 in education increased from just above 35 percent in to about 50 percent (Figure 81).[66]

[66] No data available prior to 2003.

Figure 79: Main labor indicators by age group

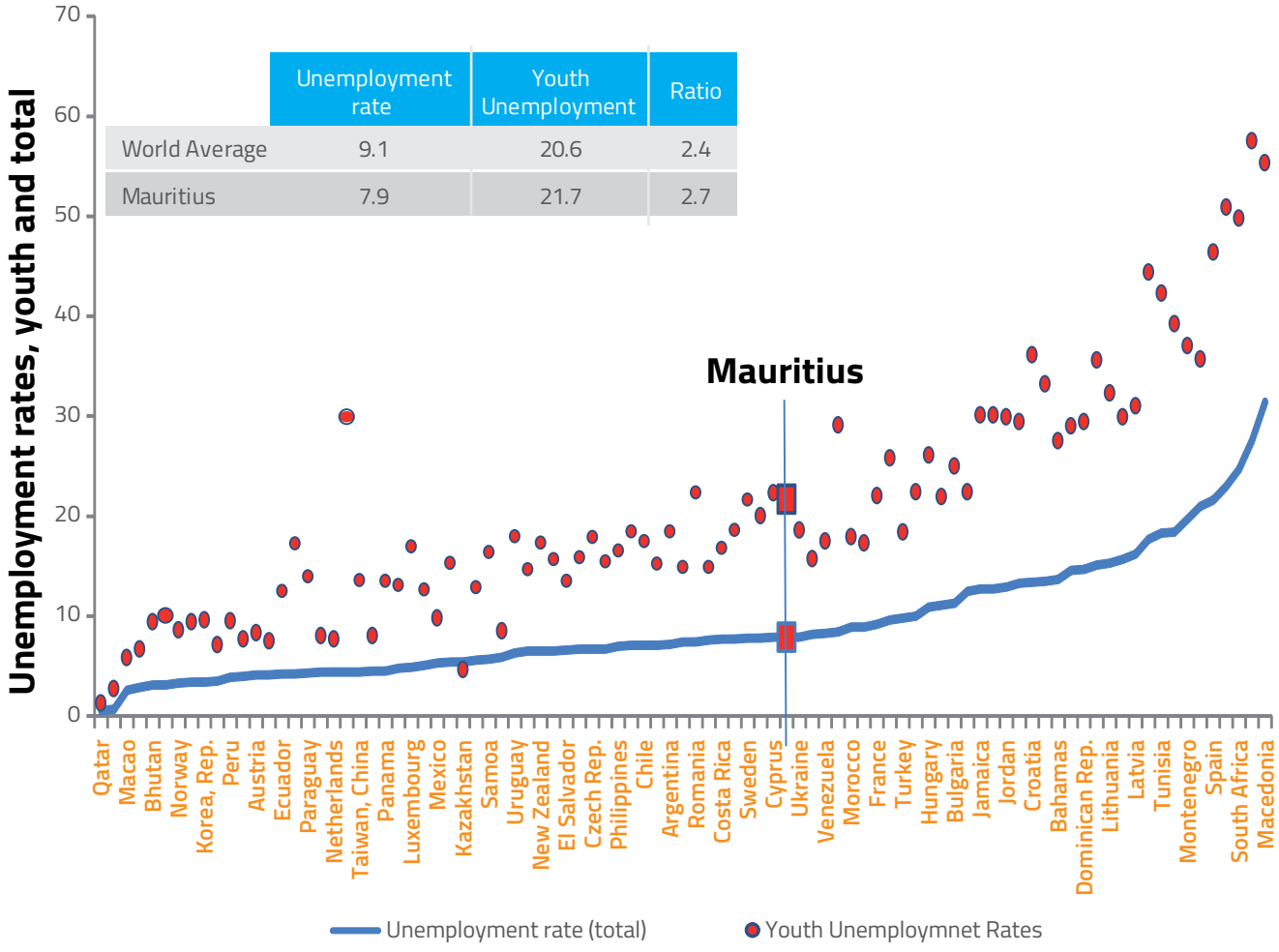






Source: World Bank staff elaboration on CMPHS data.

Figure 80: Youth unemployment rates, international



	Unemployment rate	Youth Unemployment	Ratio
World Average	9.1	20.6	2.4
Mauritius	7.9	21.7	2.7

214. **Youth unemployment is slightly higher in Mauritius than in other counties, but the rates are not extraordinary.** Figure 80 shows Mauritius is 54th among the 92 countries available in the World Bank's databases on youth unemployment. The ratio of youth-to-total unemployment is slightly higher in Mauritius than in other countries.

215. Young individuals aged 15 to 24 experience worse labor-market outcomes in terms of employment, unemployment, and inactivity rates. On the other hand, the increasing number of inactives is due primarily to a dramatic increase in young people in education over the past 10 years. More than 50 percent of the inactives in this age group are enrolled in some kind of formal education or training. Equally impressive is the decline of NEETs among the 15-24 age group, now at a low point.

K. Mauritius labor market -areas of focused attention

i. Boost productivity

216. **The country growth model should be changed to boost productivity.** It is evident that wage increases above productivity gains eroded the competitiveness of traditional sectors and lowered private investment and employment creation. Developing a new growth model for Mauritius will require steps to raise the country's competitiveness by improving productivity at the firm level and easing access to financing. An additional research is required to develop comprehensive model boosting productivity.

BOX 12: DETERMINATION OF NEET EMPLOYMENT—EMPIRICAL MODEL

This box analyses the characteristics affecting youths' probability of being NEETs. In Table 9, we show the impact of selected family and individual demographic characteristics on the probability of falling into this particularly disadvantaged group in 2003 and 2012 and the differences between the two periods. Clearly, parents' education and family income have the largest influence. In 2003, fathers' education decreased the probability of being NEETs by 2.6 percent and mothers' by 3.3 percent. The figures for 2012 suggest a change—now, only fathers' education is negatively related (4.7 percent) to the probability of falling into the NEET category. Family income, represented by fathers' wages, is expressed in log terms and should be interpreted as the percentage change in the probability of being NEETs associated with a 1 percent increase in wages.

The coefficient for females reflects the improved conditions discussed in the previous section. Compared to boys, they had a 10 percent higher chance of being NEETs in 2003, but their comparative situation dramatically improved in 2012, when the coefficient was down to 3.9 percent. The only other factor increasing the probability of being NEETs is the presence of other siblings. This is true only for 2003, while the coefficient for 2012 is quite precisely estimated at 0, expressing a lack of correlation between these two factors in that year. Only two characteristic showed statistically significant changes—the number of siblings (not influencing NEET probability in 2012) and the female covariate. All other variables are fairly constant.

Table 9: Probability of Being NEET (15-24)

Main Indicators	2003 (1)	2012 (2)	Difference (1)-(2)
SIBLINGS	0.023***	0.005	0.018***
	(0.004)	(0.003)	(0.005)
FATHER EDUCATION	-0.026**	-0.047***	0.022
	(0.012)	(0.008)	(0.014)
MOTHER EDUCATION	-0.033*	-0.012	0.012
	(0.011)	(0.008)	(0.022)
LOG FATHER WAGE	-0.017**	-0.008**	-0.009
	(0.006)	(0.004)	(0.007)
MOTHER EMPLOYED	-0.023	-0.035***	0.012
	(0.019)	(0.011)	(0.022)
FEMALE	0.104***	0.039***	0.065***
	(0.0138)	(0.009)	(0.017)

Notes: World Bank staff elaborations. Standard errors robust to heteroskedasticity in parentheses; * stands for 10 percent level of significance; ** stands for 5 percent level of significance; *** stands for 1 percent level of significance.

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ii. Raising incentives and boosting competiveness

217. The most far-reaching phenomena shaping the Mauritian economy is the ongoing transition from an economy based on low value-added manufacturing to one in which technology and innovation will play a major role in future growth. This process is still at an early stage, but enough has happened to suggest that this transition will affect an increasing number of jobs and workers. Unfortunately, the current labor supply seems to be only partly fit for the emerging economy. Even though education achievements are markedly improving and the most common qualification is now a high school degree, the lack of highly qualified labor force might hinder the development of high-tech industries.

218. **The changing labor-market structure tends to reward skills, especially those acquired in tertiary education, and reduce the payoffs of workers without sufficient qualifications.** Our analysis finds an increase in earnings inequality, especially at the top of the wage distribution. A plausible cause is the upsurge of high-tech jobs and the contemporaneous decline of traditional manufacturing occupations. In this regard, promoting tertiary education has the triple virtue of assisting the development of high-tech industries, setting the right environment for future growth, and guaranteeing that inequality stays in check as the high-tech sector takes a larger share of the labor force. Wage income is the main driver of prosperity in Mauritius, yet the most vulnerable struggle to fully reap the benefits of economic growth because some employment opportunities are diminishing and many workers lack adequate skills for today's labor market. The Government has invested substantially in providing widespread and equitable access to basic infrastructure and free health and education for the entire population. Across the board, however, issues related to the quality of these public services explain the diminishing prospects among the most vulnerable and intergenerational inequality.

iii. Easing regulatory burdens

219. At the lower end of wage distribution, inequality seems to be rising at a slower pace. In this regard, the changes in the minimum-wage regulations might contribute to sustaining the incomes of the lowest segment of the wage distribution. They should be kept in place and re-evaluated periodically to maintain the minimum wage's real value. However, the current system of the wage setup and minimum-wage determination only hardly shortchanges the poorest but also imposes other constraints on development.

220. **The wage-settling mechanism fails to keep salary increases in line with sector productivity.** As presented in this chapter, labor-market institutions constrain the economy's capacity to create jobs. Key factors are spillovers from the more dynamic sectors and large public-sector salary increases as well as inertia in determining wage growth in relation to inflation

rather than productivity. As a result, unit labor costs in certain sectors rise too quickly, undermining competitiveness and employment creation. A rigid system of determining pay increases and complex labor regulations tend to limit the ability of the economy to undergo structural changes. Our report also suggests a need for further reform of labor regulations and wage determination in Mauritius.

221. **Dedicated efforts will be needed to raise the quality of the entire education system, including a vocational stream responsive to private-sector demands.** Employment is vital in shaping household income in Mauritius. If not adequately corrected through training later on, inequity in education outcomes results in income inequality, ingraining substantial intergenerational poverty. In the short term, large targeted-training programs could be envisaged to retool the Mauritian labor force in line with current market requirements, boosting employment and income generation.

iv. Improving conditions for women and the youth

222. **The labor-market participation rate is unsatisfactory in general and dramatically low for women.** The low activity rate is mainly driven by people in training, retirees, and women occupied in family care. The first factor should be encouraged, and the second is a result of extension of pension coverage. However, the high women's inactivity rate needs to be reduced. Their feeble participation cannot be attributed to lower human capital accumulation; on the contrary, educational attainment is higher among women than men. In light of the evidence, it is probable that the reasons behind the unfavorable treatment of women in the labor force are deep-rooted and hard to influence by norms. The large salary gap and the extremely high estimated discrimination parameter also reflect the status of women.

223. **Policies with the potential to activate female labor market participation include:** implementation of a special fiscal regimes favoring women's labor, affirmative action measures to discriminate in favor of women in the labor market, and public provision of child care.

224. Employment policies for young people ages 15 to 24 deserve further support. The number of individuals within this age group enrolled in some form of education or training has been increasing in recent years, while the number of individuals neither in school nor working has decreased considerably. Several youth-related policies have been already implemented in Mauritius.

Chapter 8
EVIDENCE FROM FIRM-LEVEL ANALYSIS [67]

[67] This chapter was prepared by Leora Klapper (DECRG-FDP) and Peter van Oudheusden (DECRG-FDP) as material for the analysis "Mauritius Inclusiveness of Growth and Shared Prosperity: Micro Analysis and Labor Productivity Gains." We thank the Mauritian Company Registrar for providing the data used in this analysis.

Mauritius' institutional framework has improved in recent years, and the country performs relatively well compared to other SSA countries when it comes to access to financial services. However, it has mixed ratings on global competitiveness indicators. Small enterprises reported infrastructure and informal sector practices as major impediments, and they continue to face challenges to increasing market share and employment. Small firms are more leveraged than large ones in Mauritius. The large firms indicate shortages of skilled workers and labor regulations are their major challenges.

The entrance of new firms has been stagnant since the global financial crisis. The number of new firms almost quadrupled between 2002 and 2008 but remained unchanged in the subsequent years. Business creation stagnated despite the introduction of the reforms at the end of the 2000s, which made it easier and cheaper to start a company. In 2007-12, the construction and services industries saw the most new firms, while startups were relatively low in textiles and manufacturing. The inequality in firms' revenues has widened in recent years, especially among older firms. On average, SMEs are unprofitable and disadvantaged in terms of growth prospects. Firms in agriculture and textiles are less profitable than those in trade, construction, and services. The number of firms with new loans has increased since beginning of the 2000s, but it dropped after 2009, with the lingering fallout from the financial crisis. Credit increased in trade and services and fell in manufacturing. Financial vulnerability is especially high for small firms and new corporations.

A. Introduction

225. This chapter's objective is to improve the understanding of the private sector's performance and inclusiveness by looking at firms' composition, characteristics, and dynamics. It looks at profitability, access to credit, and vulnerabilities to identify the potential of supportive government policies.

226. After being relatively stable up to the beginning of the 2000s, new incorporations almost quadrupled between 2002 and 2008. In 2007-12, the construction industry saw he most new incorporations. Differences between new firms in terms of turnover, or sales, are large. The smallest 60 percent of new firms only produce a fifth of all sales created by new firms. In general, inequality in sales runs high. Moreover, growth in sales is not concentrated in particular firms, so that the distribution of sales was stable in 2007-12. Sales are higher for older, more established firms.

227. Access to credit is widespread in Mauritius and not concentrated in particular firms. The country's institutional framework has improved in recent years, and Mauritius performs relatively well compared to other SSA countries when it comes to access to financial services. The number of firms with new loans has increased since the beginning of the 2000s but the number dropped in 2009 and subsequent years, with the lingering fallout of the financial crisis.

228. Profitability also varies starkly between firms. Very small firms are more likely to be unprofitable. Compared to the average firm, profitability is relatively low for small firms in agricultural and medium and large firms in the textiles. Although being an older firm or being new incorporation is related to profitability, the relationship is much stronger for firms' financial structure. Unprofitable firms are more likely to have more liabilities relative to their assets, and their current liabilities are more likely to exceed their short-term assets, indicating they may not be able to satisfy their short-term obligations.

229. The rest of this chapter discusses these findings in more detail. Section B talks about the challenges and advantages of the Mauritian labor market. Section C discusses the creation of new firms and their characteristics. Section D discusses the sales and profitability of firms. Section E discusses the financial structure of firms and their access to credit. Section F discusses the financial structure of firms and its relationship to profitability.

B. Challenges and advantages of the Mauritian private sector

230. **Mauritius has mixed ratings on global competitiveness indicators.** The general rating places Mauritius 39th among 144 countries worldwide—a relatively good position. However, Mauritian private-sector development and competitiveness have their advantages and disadvantages (FigureFigure 82). According to Global Competitiveness Index's historical database, Mauritius has many indicators usually associated with highly competitive economies, while other indicators fare much worse. Mauritius has high ratings in trade tariffs, business rules of law, investors' protection, accountability regulations on security, banking, and generally good market efficiency. However, the country is far below average on wage determination, labor regulations, and position of women in the labor market. The country also lags in R&D and capacity for innovations.

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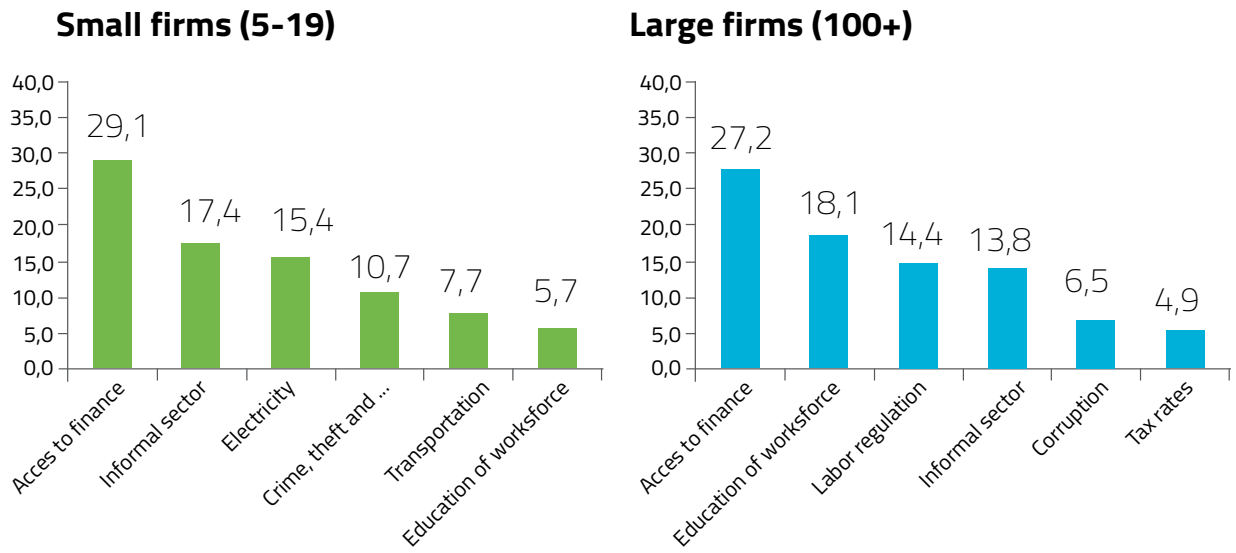
Figure 81: Mauritius competitiveness indicators, country rating (lower is better), 2013/14

Source: World Economic Forum database, Global Competitiveness Index, historical database 2013-14

Photo : © Luke Manhood

231. **Access to financing is a major obstacle for all firms in Mauritius. Small enterprises reported infrastructure and informal-sector practices as major obstacles.** Large firms indicate lack of skills and labor regulations as their major challenges. The analysis of the main obstacles facing Mauritian enterprises is based on data from the Enterprise Surveys. Figure 82 presents a snapshot of the top six business obstacles as identified by small and large firms in Mauritius. Access to financing is the main obstacle for both small and large enterprises. However, larger enterprises identified skills mismatches and inadequately educated workforce as the second obstacle. In addition, larger enterprises gave labor regulations as one of the top most-problematic factors for doing business in Mauritius.

Figure 82: Obstacles of doing business in Mauritius, 2009 [68]



Source: Mauritius enterprise survey, 2009.

232. **SMEs continue to face challenges in increasing market share and employment.** Small establishments that employ less than 10 people represent 90 percent of all businesses in Mauritius, but they employ just 54 percent of the workforce. The top 10 percent of firms account for 40 percent of all sales, while around 60 percent of SMEs generate only a fifth of all sales. This distribution has remained unchanged since 2001 despite efforts to liberalize the economy. Furthermore, around 70 percent of small firms are highly leveraged,[69] compared to roughly 55 percent of medium and large firms. Small and medium companies report a lack of ability to grow and increase their employment.

233. **Limited access to financing may be part of the private-sector challenge.** Mauritian firms face challenges in accessing credit and financing investments. The structure and incentives in Mauritius's financial sector creates biases favoring larger companies. The Mauritian Government is taking steps to address some of the challenges that Mauritian companies face. For the past years, the Government earmarked over MUR6 billion through various types of lending and non-lending instruments. Credit is provided at subsidized rates, with partial state guarantees. While these schemes are in line with the Government strategy of improving the SME operating environment, areas of duplication as well as some gaps continue.

234. **Tertiary-education expansion needs to focus on innovation and R&D.** Mauritius ranks 54th in higher education and training. These ratings reflect low tertiary-education enrollment rates, weak collaboration between universities, research, and industry, and low availability of scientists and engineers. Mauritius needs to attract and retain more talent to meet the need to improve the availability, quality, and relevance of skills. The need to enter into new markets and sectors and increase the knowledge content of existing products will require attracting overseas talent. Employment surveys reveal that it is becoming more difficult to find employees with appropriate experience and proper attitudes. The ICT and the financial sectors report especially large labor and skills shortages.

[68] It is important to emphasize that Mauritius enterprise Survey was conducted in 2009 during the global economic crisis. Access to financing was a major challenge during this period. The situation has improved since then and the results on access to financing should be treated accordingly.

[69] Highly leveraged firms are defined as those with a liabilities-to-assets ratio above two-thirds. In addition, a distinction is made for firms with either short-term liquidity problems or short-term liquidity risks. Firms with short-term liquidity problems have a current ratio below one, meaning their current-liabilities exceed their current assets.

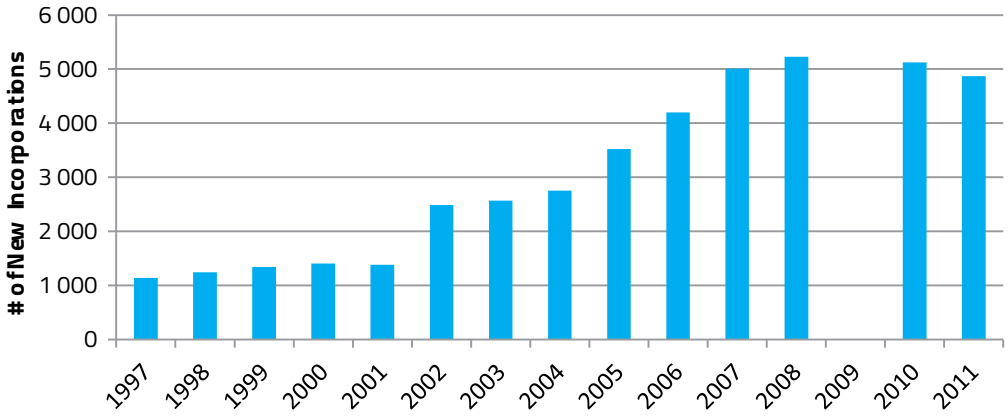
C. Creation of new firms

235. New incorporations were relatively stable up to the beginning of the 2000s and start to increase in the middle of the decade. Figure 83 shows the number of new incorporations of non-financial firms in the Registrar of Companies over a 15-year period, starting in 1997. Average annual new incorporations were around 1,300 before 2002, followed by a steady increase in the mid-2000s, when the number quadrupled to more than 5,200 in the year 2008. Information for 2009 is incomplete, but the numbers for subsequent years show that new incorporations remain high but slightly below 2008.

236. **In 2008, Mauritius made starting a business faster by implementing a centralized database linking the company registry with tax, social security, and local authorities.**[70] Before 2008, it took 46 days to start a business; after that, it dropped to six, greatly reducing the time barrier to register a business (Figure 84). At the same time, the actual cost of starting a business—here measured as a share of income per capita—in 2013 was only a third of that in 2005. In terms of cost and time, it was much easier to start a business at the end of the 2000s than it was in the middle of the decade. The reduction in barriers coincides with the high level of new incorporations illustrated in Figure 84.

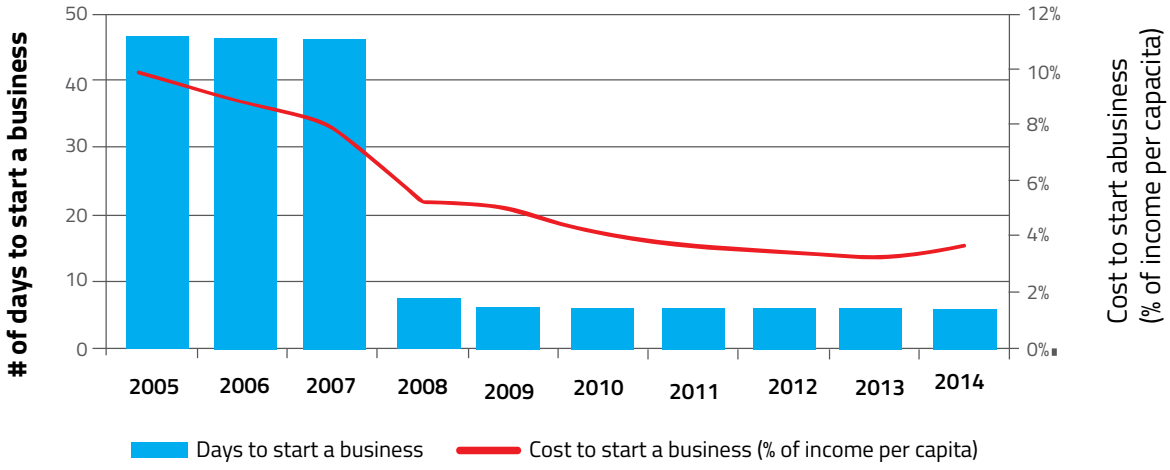
[70] See http://www.doingbusiness.org/reforms/overview/economy/mauritius for an overview of other reforms.

Figure 83: Number of new incorporations over Time



Source: Mauritian Company Registrar and authors' calculations. Notes: The average yearly number of new incorporations 1992-96 was 860. The year 2009 is not shown because data are incomplete. The number of new incorporations in 2009 was 1,699, but no data are available after May of that year.

Figure 84: Ease of starting a business



Source: Doing Business (World Bank) and authors' calculations. Notes: More information is available on the website of Doing Business at http://www.doingbusiness.org/data/exploreeconomies/mauritius. "Days to start a business" is defined as the total number of days required to register a firm. The measure captures the median duration that incorporation lawyers indicate is necessary to complete a procedure with minimum follow-up with government agencies and no extra payments. "Cost to start a business" is recorded as a percentage of the economy's income per capita. It includes all official fees and fees for legal or professional services required by law. The costs exclude bribes.

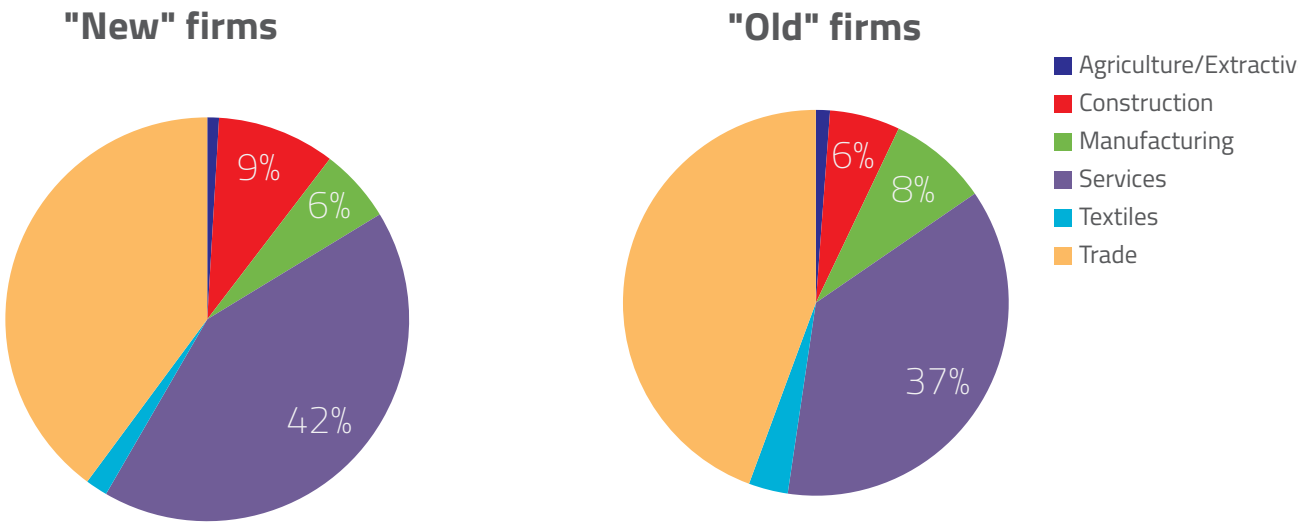
237. New firms are more likely to be in the construction and services industries; construction had the largest relative increase—from 6 percent to 9 percent. In 2007-12, 35 percent of all firms in the Registrar of Companies were new incorporations.[71] Figure 85 shows the firms by industry over this period, where a distinction is made between "new" firms that are new incorporations and established firms, designated as "old." Although the overall share of firms in textiles is small, this industry saw the largest relative decline—from 3 percent to 2 percent. The manufacturing industry also saw a large relative decline.

238. **Around 88 percent of new firms are defined as small, meaning that they have sales of MUR10 million Mauritian or less**. Barely 2 percent of new firms have the MUR80 million or more in sales to qualify as large firms. The remaining 10 percent are medium firms, with sales falling between those of small and large firms. The size of new firms, measured by turnover/sales, does not differ across industries.

239. **Majority of new firms hardly generate much revenue; a small number of firms account for a large share of overall sales.** Although the majority of new firms are small, they do differ in terms of sales. The solid blue line in Figure 86 shows the distribution of sales for new small firms in 2007-12. Sixty percent of these firms generate only a fifth of all sales, while 80 percent generate 40 percent of all sales. Hence, a small number of firms are responsible for a large share of sales, even when looking only at small firms. Indeed, the top 10 percent of firms are good for almost 40 percent of all sales. The corresponding GINI coefficient of sales for small new firms is a relatively high 54.

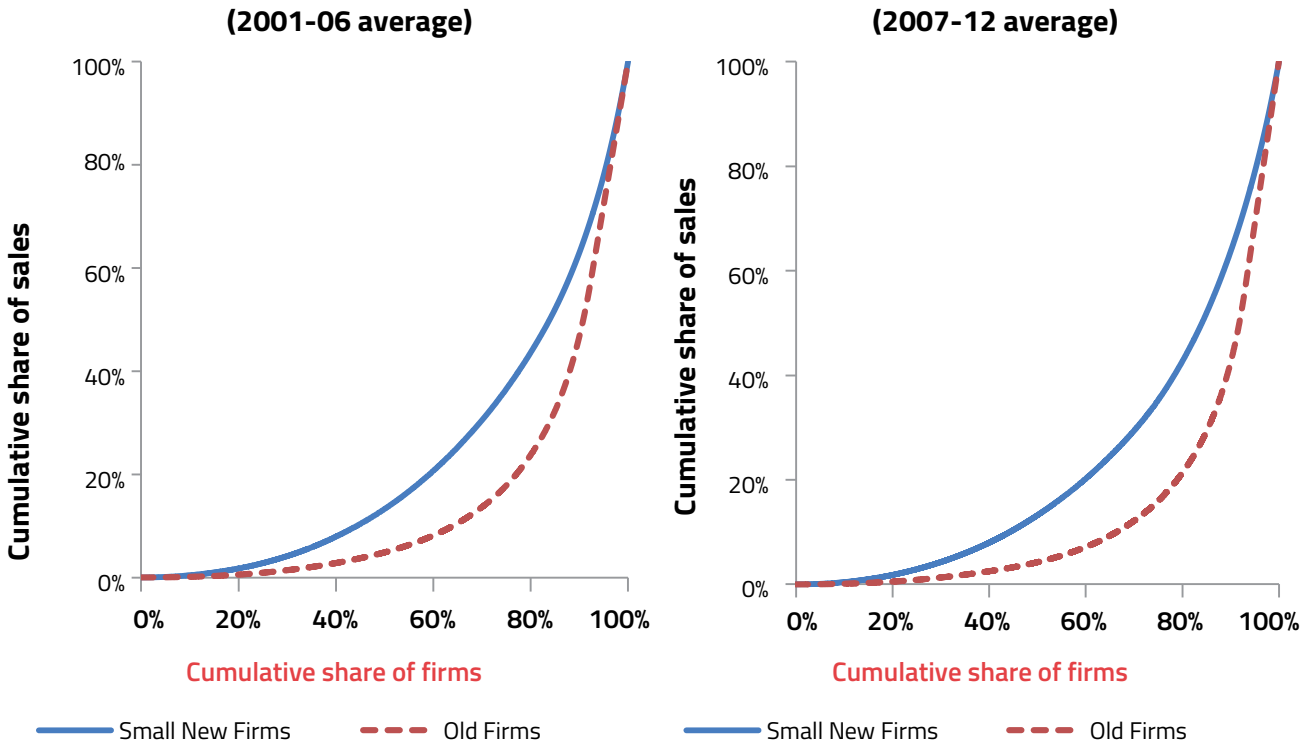
[71] Most of the analyses in this chapter are restricted to 2007-12 due to data availability. On average, there are almost 11,000 yearly observations over this period; the total number of observations in 2001-06 was only 191.

Figure 85: Industry compositions for new incorporations and other firms, 2007-12



Source: Mauritian Company Registrar and authors' calculations. Notes: "New" firms are defined as being a new incorporation in 2007-12, and "old," or established, firms are defined as any other firm in the Registrar of Companies in the period. A caveat is that industrial classifications are based on textual descriptions of the firm, which may not be precise. A firm can belong to multiple industries.

Figure 86: Distribution of sales (2001-12)



Source: Mauritian Company Registrar and authors' calculations. Notes: "New" firms are defined as new incorporations in 2001-12, and "old" firms are defined as any others in the Registrar of Companies in the period. A "small" firm is defined as having MUR10 million in sales or less. Old firms' sales are winsorized at the 5 percent level.

240. **The inequality of sales is lower for small firms, their sales are lower, and they are generally similar.** The inequality in sales increases among larger firms. Figure 86 shows the same information for 2001-06 and 2007-12, facilitating a comparison of the distributions of sales over time. In terms of the distribution of sales, the two periods show very few differences. The GINI coefficients of sales for small new firms are 54 for both periods. The number of unique firms for which information is available increased from roughly 11,000 to 18,000, capturing the increase in new incorporations as shown in Figure 83. Based on the distribution of sales and corresponding GINI coefficients, inequality in sales remained stable over time for small new firms and increased slightly for other firms.

D. Size and profitability of firms

241. In all industries, at least 70 percent of all firms are small, and roughly 20 percent are medium-sized. A notable exception is the services industry, where almost 80 percent of firms are small, with slightly more than 15 percent classified as medium. Manufacturing and textiles have the biggest share of large firms at 10 percent, suggesting these industries have the greatest possibilities to exploit economies of scale. These industries also have the oldest firms. Table 10 illustrates that size is positively associated with age. The typical (median) small firm was nine years old in 2014, while longevity was 12 years for the typical medium and 19 years for the median large firm.

242. **Although profitability is higher for medium and large firms, it is not necessarily related to firms' age.** Regression analyses show that almost 10 percent of all variation in firm size, based on sales, can be explained by firm age alone. For profits, firms' age explains only slightly more than a percentage point of the variation.[72] The variation of average profitability across industries is limited. A notable exception is textiles, where the average small or medium-sized firm has negative profits. Although the textile industry's typical firm performs slightly better, its return on assets (ROA) is much lower than those of firms in the other industries. Overall, textile industry profitability falls short of the average for all firms in Mauritius.

[72] Regressing size on age and a constant gives an R2 of 0.09, while regressing ROA on age and a constant gives an R2 of 0.01. The coefficient of age enters positively with statistical significance in both regressions.

Table 10: Firm size, age, and profitability by industry (2007-12 average)

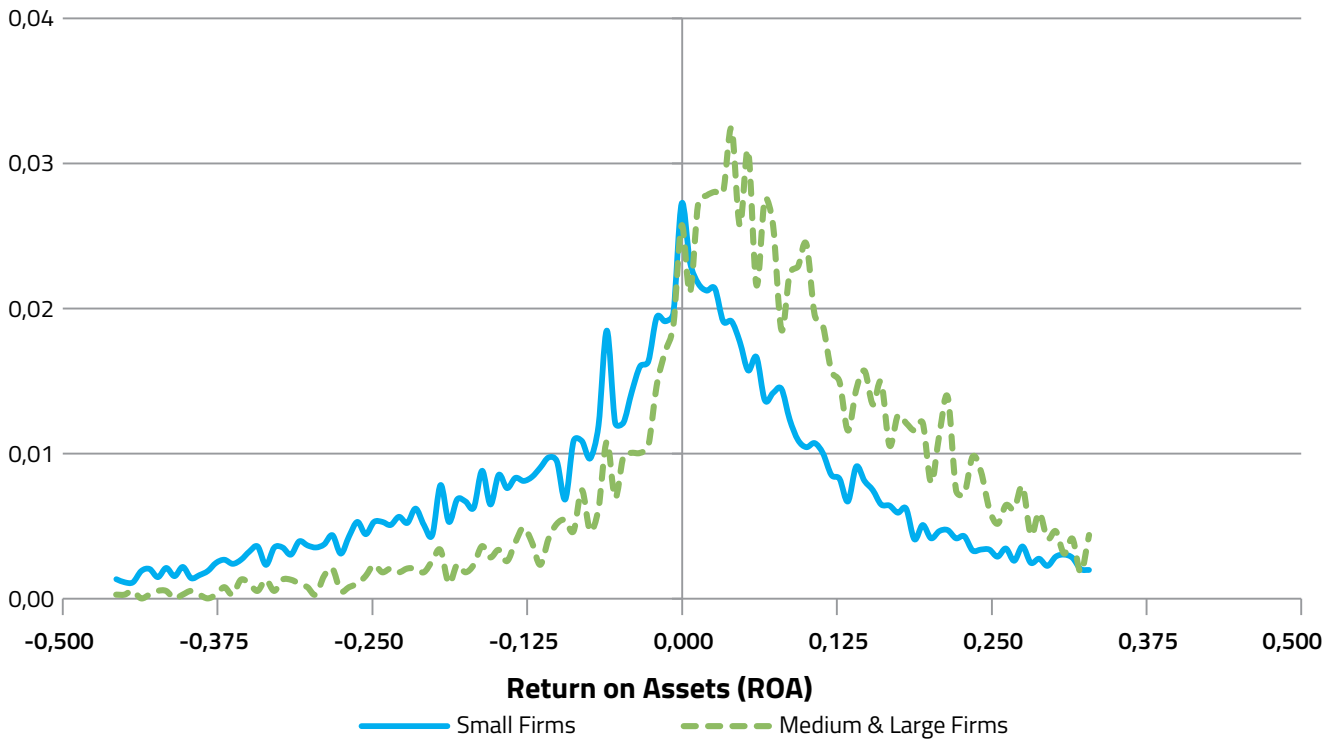
	Construction	Manufacturing	Services	Textiles	Trade
SMALL	76%	70%	78%	72%	77%
MEDIUM	19%	22%	16%	18%	18%
LARGE	5%	9%	6%	10%	5%
SMALL FIRMS					
AGE (AVERAGE)	8.25	11.02	10.26	11.68	10.34
ROA (AVERAGE)	-0.05	-0.06	-0.04	-0.09	-0.05
AGE (MEDIAN)	7	8	8	9	8
ROA (MEDIAN)	-0.02	-0.02	-0.01	-0.06	-0.02
MEDIUM FIRMS					
AGE (AVERAGE)	12.87	17.81	14.73	18.54	14.99
ROA (AVERAGE)	0.08	0.06	0.07	-0.02	0.05
AGE (MEDIAN)	12	15	12	17	12
ROA (MEDIAN)	0.09	0.07	0.07	0.00	0.05
LARGE FIRMS					
AGE (AVERAGE)	24.36	30.44	24.47	23.54	25.15
ROA (AVERAGE)	0.07	0.07	0.08	0.01	0.08
AGE (MEDIAN)	21	26	18	27	21
ROA (MEDIAN)	0.05	0.06	0.06	0.01	0.07

Source: Mauritian Company Registrar and authors' calculations. Notes: A "small" firm is defined as having MUR10 million in sales or less, a "medium" firm as having between MUR10 million and MUR80 million in sales, and a "large" firm as having more than MUR80 million in sales. "Age" is the age of the firm in years in 2014. Return on assets (ROA) is defined as the earnings before interest and taxes (EBIT) divided by total assets. The ROA is a normalized measure of profitability and facilitates a comparison of firms of different size. The ROA is winsorized at the 10 percent level.

243. **Unlike larger firms, small businesses have negative profits.** Indeed, slightly more than half of all small firms in Mauritius have negative profits. In contrast, only 26 of medium-sized firms and 17 percent large firms have negative profits. Figure 87 shows the density plots of profitability for small firms (solid blue line) and medium and large firms (dashed green line). The variation among small firms is much larger than among other firms, which can be partly explained by the much larger absolute number of small firms. For small firms, the pattern persists when new firms are excluded from the analysis, suggesting that factors other than age play a role in explaining the variation in profitability. Moreover, differences across industries are limited. Small firms also have more outliers with large negative profits. For example, only 7 percent of medium and large firms have ROAs of -0.125 or less, while more than 20 percent of small firms do.

Photo : © Fernando LORENTE

Figure 87: Profitability density of firms (2007-12 average)



Source: Mauritian Company Registrar and authors' calculations. Notes: A "small" firm is defined as having MUR10 million in sales or less, a "medium" firm as having between MUR10 million and MUR80 million in sales, and a "large" firm as having more than MUR80 million in sales. Return on assets (ROA) is defined as the earnings before interest and taxes (EBIT) divided by total assets. The ROA is a normalized measure of profitability and facilitates a comparison of firms of different size. The ROA is winsorized at the 10 percent level; these observations are not shown.

244. **SMEs are disadvantaged in Mauritius in terms of growth prospects; over longer periods, larger firms are more likely to grow faster.** This is consistent with the increase in inequality of sales over the period. Profitability not only differs a lot among firms, but also for specific firms over time. Firms' age is not strongly related to profitability, on average; however, a larger share of medium and large firms than small firms are profitable. This holds in all industries except textiles, where average profitability is very low. Other characteristics of firms, such as its financial structure, may provide additional information on profitability.

E. Financial structure and access to credit

245. **Small firms are more leveraged and more risky in Mauritius.** Access to finance by firms is captured by the leverage ratio, or liabilities-to-assets ratio, defined as at the ratio of total liabilities to total assets.[73] In 2007-12, small firms and new incorporations are the most highly leveraged, probably explained by these firms' strategy of financing expansion with debt (Table 11). Debt financing is largest for the average small firm in the textiles industry. Leverage ratios generally decline with firm size—but it varies by industry. For example, debt financing for large firms in construction remains higher than other industries. Differences between average and median firms are largest for small firms, which likely have the largest variation in access to finance. For medium and large firms, this difference is relatively small.

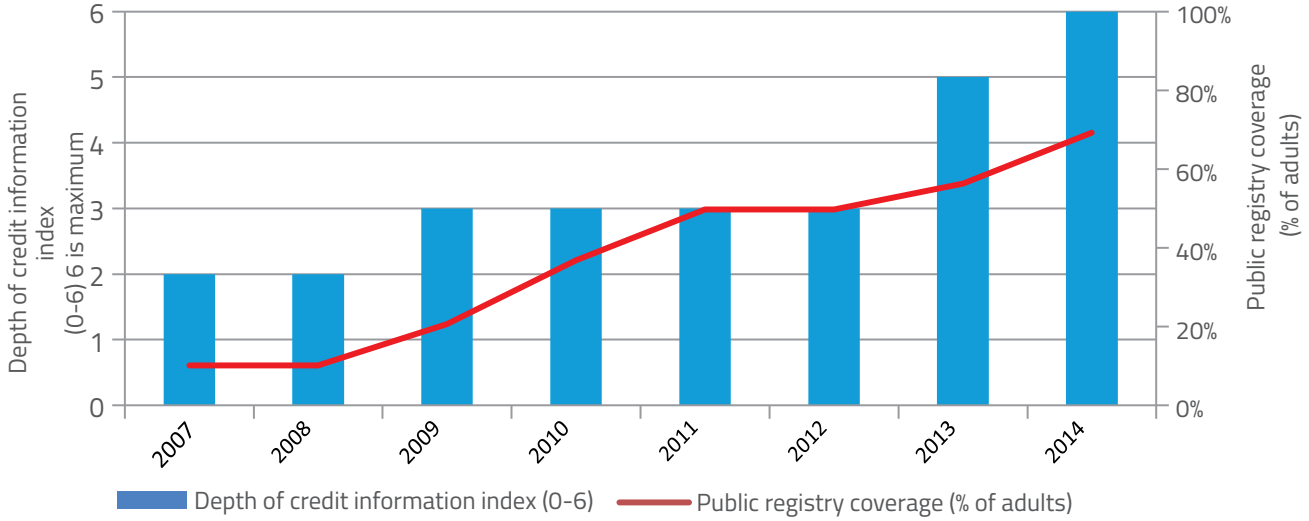
[73] Total liabilities are the sum of current liabilities and total non-current liabilities. Total assets are the sum of total current assets and total non-current assets.

Table 11: Firm size and financial structure by industry (2007-12 average)

	Construction	Manufacturing	Services	Textiles	Trade
SMALL FIRMS					
LIABILITIES-TO-ASSETS (AVERAGE)	1.01	1.01	0.97	1.07	1.01
CURRENT RATIO (AVERAGE)	2.22	2.39	2.43	2.08	2.57
LIABILITIES-TO-ASSETS (MEDIAN)	0.92	0.93	0.93	0.95	0.94
CURRENT RATIO (MEDIAN)	1.18	1.17	1.21	1.21	1.39
MEDIUM FIRMS					
LIABILITIES-TO-ASSETS (AVERAGE)	0.82	0.74	0.75	0.86	0.80
CURRENT RATIO (AVERAGE)	1.73	2.14	2.22	1.86	2.09
LIABILITIES-TO-ASSETS (MEDIAN)	0.80	0.71	0.72	0.76	0.78
CURRENT RATIO (MEDIAN)	1.24	1.38	1.33	1.39	1.39
LARGE FIRMS					
LIABILITIES-TO-ASSETS (AVERAGE)	0.73	0.62	0.62	0.69	0.67
CURRENT RATIO (AVERAGE)	1.54	1.68	1.96	1.56	1.77
LIABILITIES-TO-ASSETS (MEDIAN)	0.77	0.61	0.65	0.67	0.67
CURRENT RATIO (MEDIAN)	1.15	1.31	1.26	1.28	1.27
NEW INCORPORATIONS					
LIABILITIES-TO-ASSETS (AVERAGE)	0.96	1.00	0.97	1.02	0.94
CURRENT RATIO (AVERAGE)	2.34	2.43	2.49	2.24	2.71
LIABILITIES-TO-ASSETS (MEDIAN)	0.92	0.94	0.94	0.93	0.91
CURRENT RATIO (MEDIAN)	1.24	1.13	1.22	1.21	1.40

Source: Mauritian Company Registrar and authors' calculations. Notes: A "small" firm is defined as having MUR10 million in sales or less, a "medium" firm as having between MUR10 million and MUR80 million in sales, and a "large" firm as having more than MUR80 million in sales. The liabilities-to-assets ratio is defined as total liabilities divided by total assets. The current ratio is defined as total current assets divided by total current liabilities. The top 10 percent of observations are winsorized.

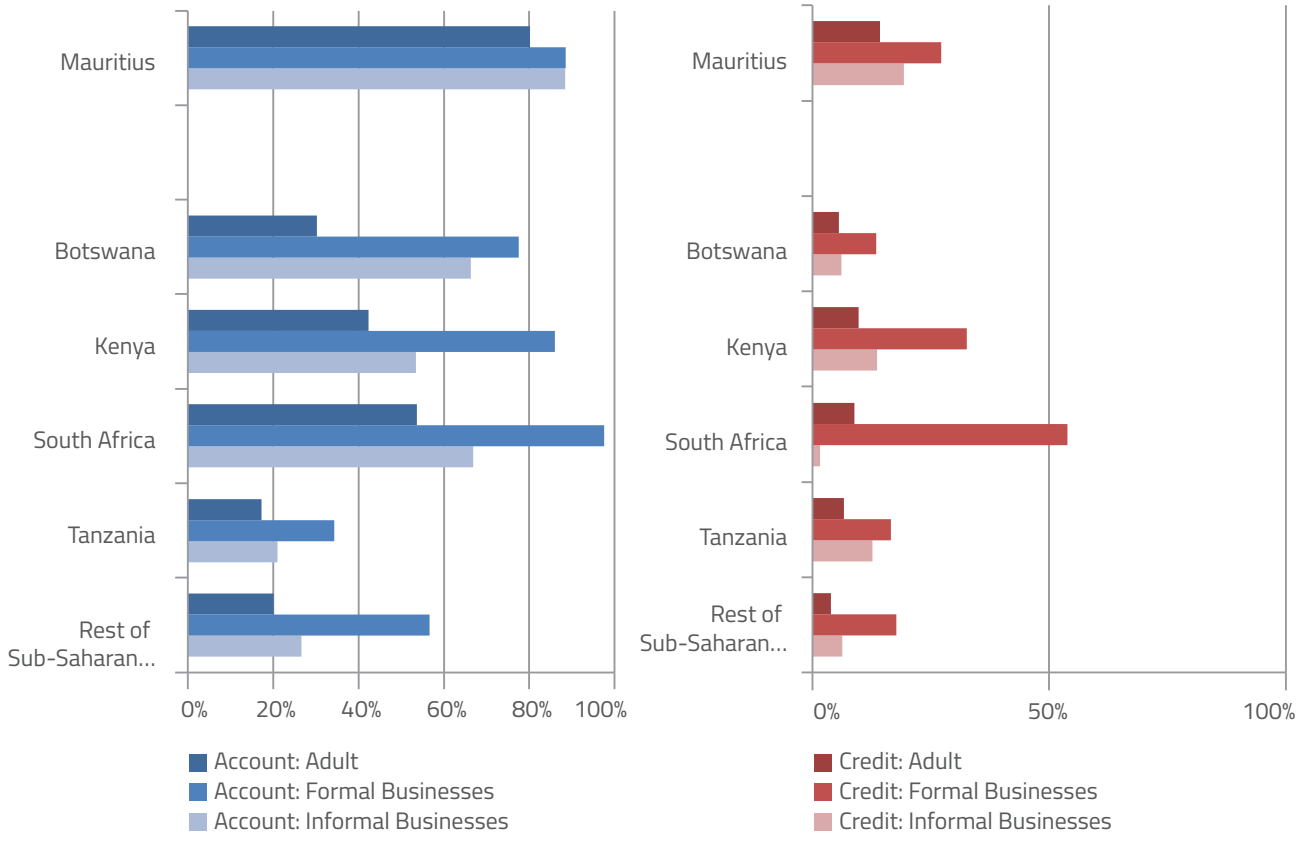
Figure 88: Institutional framework for getting credit



Source: Doing Business (World Bank) and authors' calculations. Notes: More information is available on the website of Doing Business at http://www.doingbusiness.org/data/exploreeconomies/mauritius. "Depth of credit information index" measures rules and practices affecting the coverage, scope, and accessibility of credit information available through either a public credit registry or a private credit bureau; an index value of 6 is the maximum. "Public registry coverage" reports the number of individuals and firms listed in a public credit registry with information on their borrowing history over the past five years.

246. **In the past eight years, credit information increased rapidly.** Figure 88 provides background information on the institutional framework related to access to credit. Currently, both positive and negative information is available for individuals and firms—including retailers, utility companies, and financial institutions. The information is available for more than two years, while borrowers have the right to access their data. At the same time, coverage of individuals and firms increased sevenfold. This improvement in the institutional framework facilitates the provision of credit to firms, creating an environment that fosters business expansion and growth.

Figure 89: Access to financial services



Source: Global Findex (World Bank) and authors' calculations. Notes: More information is available on the Global Findex website at http://www.worldbank.org/Globalfindex. "Account" measures the share of respondents who have an account at a bank or other type of formal financial institution. These are the adult population ages 15 and older, formal business owners, or informal business owners. "Credit" measures the share of respondents that borrowed from a formal financial institution in the past 12 months. All data are from 2011. For more information, see Demirguc-Kunt and Klapper (2013).

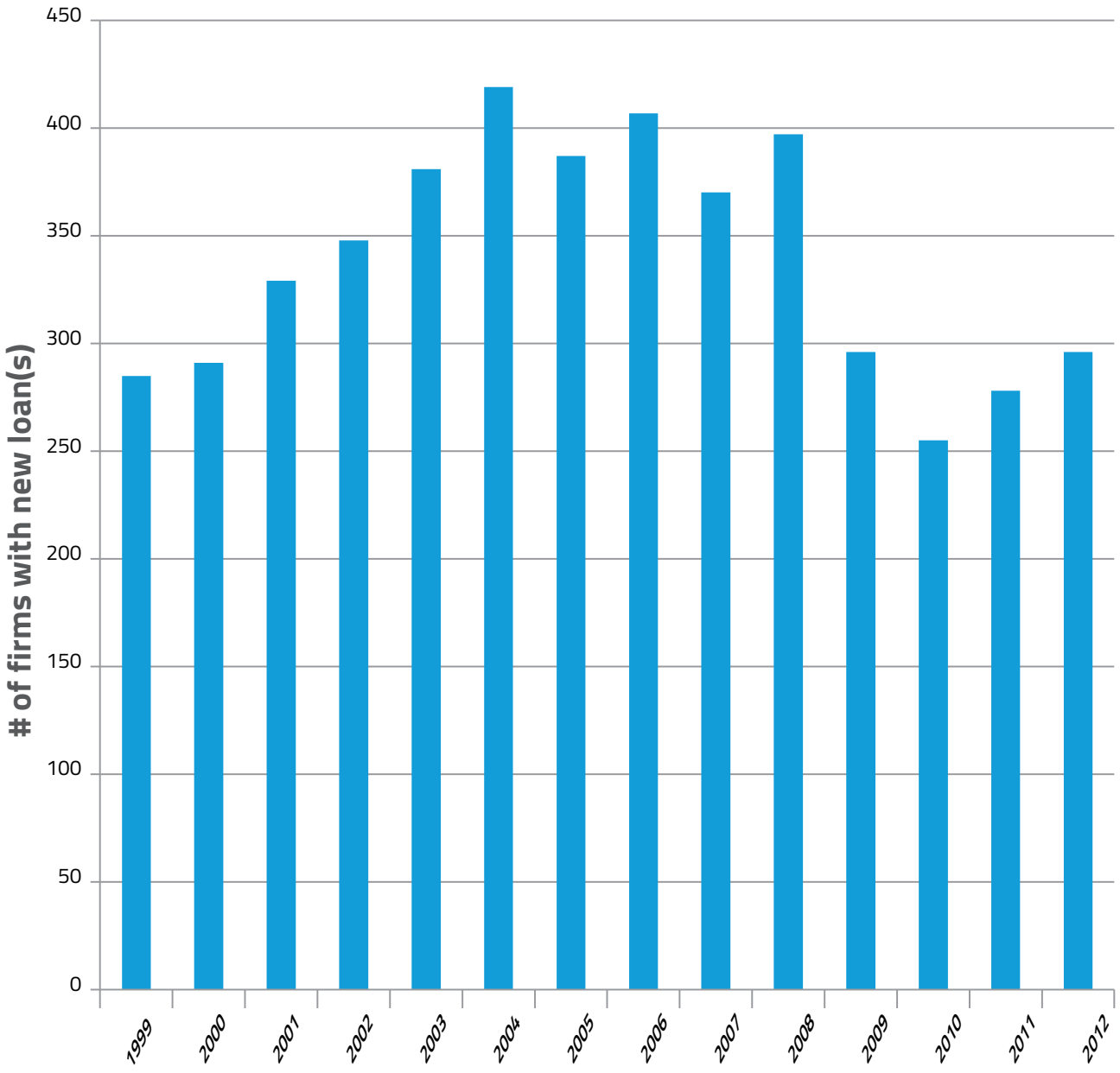
247. **Access to financial services, including account ownership and obtaining credit from formal financial institutions, is relatively broad in Mauritius, compared to some other SSA countries (Figure 89).** Reported account ownership by businesses, both formal and informal, is high relative to the region and comparable to, for example, Kenya and South Africa. Access to credit from formal financial institutions is high for Mauritian adults but relatively low for formal businesses, especially compared to Kenya.

248. **Despite improvements in information and access, amount of credit has declined in the recent years.** The number of firms that obtained loans from financial institutions steadily increased from 1999 to 2004 and stabilized in the following years (Figure 90). In 2009 and 2010, the number of firms that obtained credit declined relative to 2008. This pattern coincides with the start of the financial crisis at the end of 2008 and the subsequent drop in global demand in the following years. Recent years have seen a small recovery, although the number of firms that obtained new credit is roughly the same as it was in 1999.

249. Credit has increased in trade and services and declined in manufacturing. Looking at the industry composition of firms with new loans, we find it similar to that of all firms in the past five years or so.[74] In both the services and trade industries, for example, the share of firms with new credit averaged around 42 percent. These numbers are similar to the share in total firms—38 percent for services and 44 percent for trade. Over time, the share of manufacturing firms with new credit declined, while the share in the trade industry increased. The share of new firms receiving credit—those incorporated within two years of receiving one or multiple loans—is fairly stable over time at around 20 percent. This number corresponds to the average share of new firms in the economy over the past five years or so.

[74] Information is only available for some of the firms that obtained credit in a year. For earlier years, information is available for more than 70 percent of the firms; this share declines to around 50 percent for the more recent years.

Figure 90: New credit for firms over time



Source: Mauritian Company Registrar and authors' calculations. Notes: Firms may obtain multiple loans within a year and from more than one financial institution.

250. The similarity in structures for all firms and firms that obtained credit, whether by industry or new firms, suggest that access to new credit is widespread and not concentrated in particular firms. A similar picture emerges when looking at the stock of liabilities. The average total amount of liabilities 2007-12 is around MUR17 billion. Around 83 percent resides with small firms, 13 percent with medium firms, and the remainder with large firms. Moreover, 35 percent of liabilities reside with firms incorporated in the period. These numbers roughly correspond to the overall composition, confirming that access to credit is widespread. At the same time, it shows that a disproportionally large share of liabilities is concentrated in small and new firms, raising the issue of vulnerability.

F. Relationship between profitability and financial structure

251. Although access to credit is good for business development, too much debt financing may create considerable vulnerability, especially if borrowers are unable to meet their short-term obligations. A measure of this short-term liquidity risk is the current ratio, defined as the ratio of current assets to current liabilities.

252. **The current ratio is especially high for small firms and new incorporations, which on average have more than two times the coverage to meet short-term debt payments (Table 11).** The typical firm, regardless of size and sector, has a current ratio slightly above one. These lower ratios suggest that the typical firm is vulnerable to default in case of unexpected downturns in economic activity or increases in short-term interest rates.

Table 12: Firm size, financial structure, and profitability (2007-12 average)

SMALL FIRMS	Highly leveraged firms (9,942)		Normal leveraged firms (4,239)	
	Profitable	Unprofitable	Profitable	Unprofitable
SHORT-TERM LIQUIDITY PROBLEM	13%	39%	6%	3%
SHORT-TERM LIQUIDITY RISK	13%	12%	13%	4%
OTHERS	10%	14%	58%	16%
MEDIUM & LARGE FIRMS	**Highly leveraged firms (2,221)**		**Normal leveraged firms (1,666)**	
	Profitable	Unprofitable	Profitable	Unprofitable
SHORT-TERM LIQUIDITY PROBLEM	19%	22%	10%	2%
SHORT-TERM LIQUIDITY RISK	36%	10%	27%	2%
OTHERS	10%	4%	55%	4%

Source: Mauritian Company Registrar and authors' calculations. Notes: A "small" firm is defined as having MUR10 million Rs in sales or less, a "medium" firm as having between MUR10 million and MUR80 million in sales, and a "large" firm as having more than MUR80 million in sales. Highly leveraged firms have a liabilities-to-assets ratios above two-thirds. Firms with short-term liquidity problems have current ratios below one, those with a short-term liquidity risk are between one and two, and others above two. The liabilities-to-assets ratio is defined as total liabilities divided by total assets. The current ratio is defined as total current assets divided by total current liabilities. The top 10 percent of observations are winsorized.

253. **Around 70 percent of small firms and roughly 55 percent of medium and large firms are highly leveraged in Mauritius.** Table 12 shows how size, financial structure, and profitability are related. First, we make a distinction between firms that are highly leveraged and those that are not. Highly leveraged firms are defined as those with liabilities-to-asset ratios greater than two-thirds. Second, we identify firms that have either short-term liquidity problems or short-term liquidity risks. Firms that have short-term liquidity problems have current ratios below one—their current liabilities exceed their current assets. Firms with current ratios between one and two have short-term liquidity risks. Unexpected downturns in economic activity or increases in short-term interest rates may leave these firms vulnerable to default on their short-term obligations. Other firms have current ratios above two. For profitability, a distinction is made between firms that are profitable and those that are not, ignoring the extent of their profitability. The table show that around 70 percent of small firms and roughly 55 percent of medium and large firms are highly leveraged. Among highly leveraged firms, only 10 percent are profitable with current ratios above two, regardless of the size of the firm. In contrast, firms with these profit and current ratio characteristics make up more than half of all normally leveraged firms. For firms that are unprofitable and face short-term liquidity problems, a clear distinction emerges between those that are highly leveraged and those that are not. Among normally leveraged firms, around 2 percent to 3 percent have losses and short-term liquidity problems. When looking at highly leveraged firms, these numbers rise to 39 percent for small firms and 22 percent for medium and large firms.

254. More formally, we use regression analysis to explore the relationships between profitability and firm characteristics, including financial structure, age, size, and industry or sector (Table A in the appendix). The analysis looks as both the extensive margin of profitability—i.e., whether a firm is profitable or not—and the intensive margin, or return on assets. Note that the results only highlight relationships and cannot establish causality.

255. **Compared to the services industry, firms are more likely to be unprofitable in agriculture and textiles.** However, this only applies to small firms for the agricultural industry, while it holds primarily for medium and large firms in the textiles industry. In these sectors, ROA is on average 4 to 8 percentage points lower than in the services industry. Some evidence points to lower profitability in manufacturing and trade, buy the differences are relatively small.

256. **Small firms are more likely to be unprofitable than other firms.** While medium-sized firms are also more likely to be unprofitable than large firms, the extent to which this is the case is small compared to small firms. Some evidence suggests that profitability increases with age for small firms and decreases with age for medium and large firms, but the economic significance of these relationships is negligible. Firms incorporated between 2007 and 2011 are also less likely to be profitable and have a lower ROA. Although almost 90 percent of these firms are small, the relationship to profitability is less strong than for small firms in general.

257. **The strongest relationships are related to the financial structure of the firms.** Compared to firms with current ratios of at least two, firms with short-term liquidity problems—i.e., current liabilities exceed current assets—are almost 20 percent less likely to be profitable and, on average, have ROAs that are 10 percentage points lower. These numbers are higher for firms that are highly leveraged—i.e., with liabilities-to-assets ratios greater than two-thirds. Among small firms, the highly leveraged are more than 30 percent less likely to be profitable than the normally leveraged. For medium and large firms, it is 20 percent. The ROA for the average highly leveraged small firm is almost 15 percentage points lower than its normally leveraged counterpart; for medium and large firms, the gap is slightly less than 9 percentage points. Some evidence suggests that a too high current ratio is associated with lower profitability, especially for small firms, but the economic significance is rather small.

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APPENDIX A. SOCIAL PROTECTION

APPENDIX A1: SELECTED SOCIAL ASSISTANCE PROGRAMS IN MAURITIUS

	IMPLEMENTING AGENCY	TARGET GROUP	TARGETING MECHANISM	RS. MILLION 2008/09	US$ MILLION 2008/09	% OF GDP	NUMBER SERVED 2008	BENEFITS PROVIDED
CASH TRANSFERS								
SOCIAL AID	MOSS	Poor and Indigent	Means Tested	371.4	11.9	0.15	44899	Rs 1,055/ month
NON-CONTRIBUTORY PENSIONS	MOSS	Elderly, invalids, widows	Universal	7729.6	248.6	3.08	190,000 (as of August 2009)	Maximum of Rs. 2945
INCOME SUPPORT	MOSS	Poor and Indigent	Electricity consumption	130	4.2	0.05	96000	Rs 115/person/ month
UNEMPLOYMENT HARDSHIP RELIEF	MOSS	Unemployed	Means Tested	1.9	0.1	0	372	Rs 324 /month
BAD WEATHER ALLOWANCE FOR FISHERMEN	MOSS/ MOAIFPS	Fishermen	Universal	60	1.9	0.02	N.A.	Rs 200/day
NATIONAL SOLIDARITY FUND	NSF/MOSS	Vulnerable Families	Means Tested	12.8	0.4	0.01	722	Rs 17,684/ person
FAMILIES IN DISTRESS SCHEME	MoWRCDFW	Vulnerable Families	Means Tested	0.4	0	0	10	Rs3,000-5000
PRIME MINISTER'S RELIEF AND SUPPORT FUND	PMO	Accidents/ severe hardship victims	N.A.	N.A.	N.A.	0	N.A.	Rs 25,000 per applicant as a one-off grant
SMALL PLANTERS WELFARE FUND	MAIFPS	Planters	Universal	3	0.1	0	1000	Various benefits
FISHERMEN'S WELFARE FUND	MAIFPS	Fishermen	Universal	3.5	0.1	0	60	Various benefits
VARIOUS ASSISTANCES TO VULNERABLE GROUPS	Municipal Governments	Various	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
IN-KIND ASSISTANCE								
SCHOOL FEEDING PROGRAMME	MOECHR	Primary Students	Universal	52	1.7	0.02	119000	Loaf of bread
EAP PRE-PRIMARY SUPPORT	EAP/MOFEE	Poor pre-school students	Means Tested	N.A.	N.A.	N.A.	517	Support for pre-schools and enrolment
OVERSEAS MEDICAL CARE	MoHQL	Persons requiring medical care	Universal	32	1	0.01	665	Cost of medical care and travel
TEXTBOOK LOAN SCHEME	MOECHR	Poor secondary students	Means Tested	6.1	0.2	0	N.A.	Textbooks

GRANT SCHEME FOR TERTIARY EDUCATION	Tertiary Council/ MOECHR	Poor tertiary students	Means Tested	5.7	0.2	0	N.A.	Rs3,000 - Rs8,000/month plus Rs10,000 one-off
SCHOOL SUPPLIES	TFSIVG/ MOFEE	Poor primary & secondary students	Means Tested		0.4	0.01	11,000 students	Up to Rs100,500
CORRUGATED IRON SHEET HOUSING	TFSIVG/ MOFEE	Indigent	Means Tested	N.A.	N.A.	N.A.	3,000 to date	Rs.60,000 for housing materials
SOCIAL HOUSING	MHDC/MOHL	Poor and indigent	Means Tested	537.4	17.3	0.2	5000	Casting roof slab; sites and services; housing
BUS SUBSIDY	MOPILTS	Students, elderly, disabled	Universal	792	25.5	0.32	N.A	Free transportation
MODEL VILLAGE - INTEGRATED COMMUNITY DEVELOPMENT	NEP/ MOFEE	Low income families	Geographic	0.2	0	0	200	Housing
PRE-PRIMARY SCHOOL PROJECT	EAP/MOFEE	Poor pre-primary students	Geographic	N.A.	N.A.	N.A.	517 in 2009	Pre-primary expenses
STARTER KITS TO POOR FARMERS	MAIFPS	Poor farmers	Farm acreage	N.A	N.A	0	N.A	
SUPPORT FOR PERSONS WITH DISABILITIES	MOSS	Disabled	Categorical	N.A	N.A	0	N.A	Parking coupons, Bus fare
FRANCOIS SOCKALINGUM SCHOLARSHIP	MOSS	Disabled students	Categorical	N.A	N.A	N.A.	N.A	Rs. 500 - Rs 1,500 monthly
ACTIVE-LABOR MARKET PROGRAMS								
WORKFARE	MOLIRE , MOSS, NEP(1)	Redundant workers	Self-targeted	N.A.	N.A.	N.A.	1,107 (as of August 2009)	Based on salary with minimum of Rs 3,000
NATIONAL TRADE CERTIFICATE FOUNDATION PROJECT	IVTB	Vulnerable youth	Self-targeted	37.4	1.2	0.01	1025	Skills training
NATIONAL TRADE CERTIFICATE LEVEL 3 COURSE	IVTB	Vulnerable youth	Self-targeted	58.3	1.9	0.02	2,039	Skills training
APPRENTICESHIP SCHEME	IVTB	Vulnerable youth	Self-targeted	13.1	0.4	0.01	778	Skills training
SECOND CHANCE PROGRAMME	IVTB	Vulnerable youth	Self-targeted	1.5	0	0	302 (2009)	Remedial education
REMEDIAL AND VOCATIONAL EDUCATION	TFSIVG/MOFEE	Vulnerable youth	Self-targeted	N.A.	N.A.	N.A.	200 to date	Remedial Education and Training
PLACEMENT FOR TRAINING	Empowerment Program/ MOFEE(1)	Job seekers	Self-targeted	36.8	1.2	0.01	6,000 since 2006	On-the-job training

SUPPORT TO SMALL AND MEDIUM ENTERPRISES AND BOOSTER LOANS	NEP/ MOFEE(1)	Entrepreneurs	Self-targeted	99.1	3.2	0.04	N.A.	Microcredit
MICROENTERPRISE SUPPORT	TFSIVG/MOFEE	Entrepreneurs	Self-targeted	N.A.	N.A.	N.A.	N.A.	Microcredit
YOUTH ENTREPRENEURSHIP	MOY	Youth	Self-targeted	N.A.	N.A.	N.A.	N.A.	Training
PARS	MOY	Youth	Self-targeted	N.A.	N.A.	0	N.A.	Education and counseling
COMMUNITY BASED PROGRAMS								
COMMUNITY DEVELOPMENT	EAP/MoFEE	Poor communities	Geographic	N.A.	N.A.	N.A.	N.A.	Community infrastructure
COMMUNITY INFRASTRUCTURE	TFSIVG	Poor communities	Geographic	N.A.	N.A.	N.A.	N.A.	Community infrastructure
SUGAR WELFARE CENTRES	Sugar Welfare Fund	Communities	Geographic	114.6	3.7	0.05	N.A.	Community activities
MOSS COMMUNITY CENTRES	MOSS	Communities	Geographic	8.7	0.27	0	N.A.	Community activities
SUPPORT TO CIVIL SOCIETY ORGANISATIONS								
NGO TRUST FUND	MOSS	NGOS	Not targeted	16	0.5	0.01	30	NGO capacity building
DECENTRALISED PROGRAMME	MoFEE	NGOs	N.A.	190	6.1	0.08	N.A.	Project support
TFSIVG	TFSIVG/MoFEE	NGOs	N.A.	N.A.	N.A.	N.A.	N.A.	Project support
EAP	EAP/MoFEE	NGOs	N.A.	N.A.	N.A.	N.A.	N.A.	Project support
PM'S WOMEN'S AND CHILDREN'S RELIEF FUND	PMO	NGOs	Not targeted	7.6	0.2	0	8 projects	Project support

Notes:
NEP expenditure data for each of its subprograms include the proportional share of the administrative NEP budget, estimated at a total of Rs. 43.1 million in 2008/09.

Expenditure figures are estimates because actual expenditures were not available for all years and all programs in Government's Estimates of Expenditure. Some expenditure data was provided by program managers.

Source: Government of Mauritius (2010). "Mauritius Social Protection Review and Strategy: Final Report," March.

APPENDIX B: GOVERNMENT EXPENDITURE ON SOCIAL PROTECTION

ACTUAL GOVERNMENT EXPENDITURE ON SOCIAL PROTECTION*, 2013

CATEGORY	AMOUNT, MR	% SP	% SA	% GDP
ALL SP	20,265,917,537	100.0%	-	5.5%
SA (SP W/O PUBLIC SERVICE PENSIONS)	13,873,820,603	68.5%	100.0%	3.8%
BRP	11,230,636,616	55.4%	80.9%	3.1%
OLD AGE PENSION UNDER BRP	8,027,384,985	39.6%	57.9%	2.2%
DISABILITY BENEFITS UNDER BRP	1,161,511,066	5.7%	8.4%	0.3%
SURVIVOR BENEFITS UNDER BRP	855,894,974	4.2%	6.2%	0.2%
FAMILY AND CHILDREN BENEFITS UNDER BRP	254,575,623	1.3%	1.8%	0.1%
OTHER BENEFITS UNDER BRP	931,269,968	4.6%	6.7%	0.3%
OTHER SA (NON-BRP)	2,643,183,988	13.0%	19.1%	0.7%
FAMILY AND CHILDREN (NON-BRP)	260,842,092	1.3%	1.9%	0.1%
SOCIAL EXCLUSION (NON-BRP)	1,817,411,211	9.0%	13.1%	0.5%
OTHER NON-BRP	564,930,684	2.8%	4.1%	0.2%

Notes:*
Refers to expenditures classified as "Social Protection" in government accounts.
Source: data provided by the Mauritius Accountant General's Office

APPENDIX C: LABOR ANALYSIS

C1. HIGH-TECH SECTOR

In Chapter 8, we introduced the definition of high-tech sector. This classification exploits data on the sector of economic activity of the individual employer, collected in the CMHPS. The definition of sector of activity follows the NSIC standard, a national adaptation of the ISIC (International Standard of Industrial Classification of All Economic Activities) consisting of a coherent classifications of all economic activities based on a set of internationally recognized concepts and classification rules.

This classification is subject to periodical updates to capture the cyclical transformations of world economy. For this reason, two different revision of the ISIC classification, revision 3.1 and the revision 4, corresponding to revision 1 and 2 respectively in the national adaptation, are implemented in the 12 CMPHS waves analyzed. Revision 1 is used between 2001 and 2010, while the newest revision 2 standard is adopted in the last two waves.

For specific purposes, researchers often need to modify the aggregation provided by the ISIC structure to capture alternative concepts, such as the high-tech sector. Alternative but standardized aggregations have been created. In our analysis, we have exploited the OECD definition of high-tech industries. We have decided to adopt the ISIC revision 4 definition and adapt the earlier waves to the later classification by consulting the UN correspondence tables freely accessible on Internet. Even though we have tried to apply the utmost care, some discrepancies might still occur between the two classifications.

TABLE C.1.1: HIGH-TECH INDUSTRIES OECD CLASSIFICATION

NSIC REV. 2 DIVISION		NSIC REV. 1 DIVISION	
High and Medium Technology Manufacturing		*High and Medium Technology Manufacturing*	
20	Chemicals and Chemical Products	24	Chemical and Chemical Products
21	Pharmaceutical Products	29	Machinery and Equipment n.e.c.
26	Computer, Electronic and Optical Products	30	Office Accounting and Computing Machinery
27	Electrical Equipment	31	Electrical Machinery and Apparatus n.e.c.
28	Machinery and Equipment n.e.c.	32	Radio, Television and Communication Equipment and Apparatus
29	Motor Vehicles	33	Medical Precision and Optical Instruments, Watches and Clocks
30	Other Transport Equipment	34	Motor Vehicles, Trailers and Semi-Trailers
		352	Railway and Tramway Locomotives and Rolling Stock
		353	Aircraft and Spacecraft
		359	Transport Equipment n.e.c.
Knowledge Intensive Services		*Knowledge Intensive Services*	
58-63	Information and Communication	64	Post and Telecommunications
64-66	Finance and Insurance	65-67	Financial Intermediation
69-75	Professional Scientific and Technical Activities	72	Computer and Related Activities
		73	Research and Development

C2. LABOR MARKET PARTICIPATION

We have estimated a multiple regression model via Probit. The estimated equation is:

$$P(y_i=1|x) = \phi(\alpha_i + \beta_1 female + \beta_2 married + \beta_3 kids + \beta_5 age^2 + \beta_6 Rodrigues + \beta_7 primary_{edu} + \beta_8 secondary_{edu} + \beta_9 tertiary_{edu} + E_i$$

Where y_i is a dummy variable assuming value 1 if the individual is inactive, female is a dummy variable for being female, and β_1 is the coefficient of interest. The other variables included as controls are:

- **Married** = 1 if individual is married 0 otherwise;
- **Kids** = number of kids in the family;
- **Age** = age of the individual;
- **Age2** = age squared;
- **Rodrigues** = 1 if individual resides on the island of Rodrigues, 0 otherwise;
- **Primary_edu** = 1 if individual's highest educational level is primary education, 0 otherwise;
- **Secondary_edu** = 1 if individual's highest educational level is secondary education, 0 otherwise;
- **Tertiary_edu** = 1 if individual's highest educational level is tertiary education, 0 otherwise.

The coefficients are the marginal effects at the mean for the covariate female in each of the 11 survey years and can be interpreted as the difference in probability of being inactive attributable to gender only..

Photo : © Haja Faniry Razafimahenina

TABLE C.2.1: MARGINAL EFFECTS AT THE MEAN FOR INACTIVITY PROBABILITY

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2012
FEMALE	0.350***	0.329***	0.303***	0.310***	0.293***	0.285***	0.290***	0.279***	0.269***	0.259***	0.256***
	(0.007)	(0.007)	(0.006)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
MARRIED	-0.063***	-0.111***	-0.084***	-0.102***	-0.143***	-0.154***	-0.174***	-0.177***	-0.184***	-0.184***	-0.194***
	(0.009)	(0.009)	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
NUMBER OF KIDS	0.010***	0.011***	0.011***	0.008***	0.014***	0.007***	0.007***	0.013***	0.016***	0.012***	0.006***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
AGE	0.004***	0.006***	0.005***	0.005***	0.007***	0.006***	0.006***	0.005***	0.004***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
AGE2	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
RODRIGUES	-0.007	0.007	-0.013	-0.006	0.002	-0.015	-0.020	-0.059***	-0.043***	-0.052***	-0.049***
	(0.017)	(0.017)	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.011)	(0.011)
PRIMARY	0.083***	0.060***	0.095***	0.073***	0.070***	0.070***	0.084***	0.081***	0.103***	0.089***	0.075***
	(0.013)	(0.013)	(0.013)	(0.011)	(0.010)	(0.010)	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)
SECONDARY	0.192***	0.163***	0.190***	0.192***	0.199***	0.217***	0.225***	0.225***	0.252***	0.238***	0.222***
	(0.013)	(0.014)	(0.013)	(0.012)	(0.010)	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)	(0.012)
ABOVE SECONDARY	0.270***	0.239***	0.239***	0.134***	0.100***	0.107***	0.143***	0.170***	0.196***	0.186***	0.162***
	(0.016)	(0.016)	(0.016)	(0.015)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.014)
N	22,204	22,240	21,746	29,257	37,196	37,072	37,511	36,714	35,639	35,715	36,006

Note: * p<0.05, ** p<0.01, *** p<0.001. Standard errors in parentheses. Data for 2011 missing.

Labor discusses the results of a linear probability model for the probability of falling into the NEET group given a series of covariates. The model estimated takes the form:

Where y_i is a dummy variable assuming value 1 if the individual is a NEET are two dummy variables indicating the respective years interacted with the following controls:

$$Pr\,(y_i=1|x_i) = 2003 * \phi\,(\beta_1 + \beta_2\, siblings + \beta_3 father_{edu} + \beta_4\, mother_{edu} + \beta_5 father_{log\,(wage)} + \beta_6\, mother_{active} + \beta_7 female + \beta_8\, Rodrigues\,) + 2012 * (\beta_9 + \beta_{10}\, siblings + \beta_{11} father_{edu} + \beta_{12}\, mother_{edu} + \beta_{13} father_{log\,(wage)} + \beta_{14}\, mother_{active} + \beta_{15}\, female + \beta_{16}\, Rodrigues\,) + E_i$$

- **Siblings** = number of siblings;
- **Father_edu** = highest educational level for the individual's father;
- **Mother_edu** = highest educational level for the individual's mother;
- **Father_log(wage)** = individual's father log of monthly wage;
- **Mother_active**= 1 if individual's mother participates in the labor market, 0 otherwise;
- **Female = 1** if individual is a woman 0 otherwise;
- **Rodrigues = 1** if individual resides on the island of Rodrigues, 0 otherwise.

TABLE C.2.2. PROBABILITY OF NEET, AGES 15-24.

	2003	2012
YEAR CONSTANT	0.416***	0.411***
	(0.064)	(0.044)
INTERACTED WITH:		
SIBLINGS	0.023***	0.005
	(0.004)	(0.003)
FATHER_EDU	-0.026*	-0.048***
	(0.012)	(0.008)
MOTHER_EDU	-0.034**	-0.012
	(0.011)	(0.008)
FATHER _LOG(W)	-0.018**	-0.008*
	(0.006)	(0.004)
MOTHER_EMPL	-0.023	-0.035**
	(0.019)	(0.011)
FEMALE	0.104***	0.039***
	(0.014)	(0.009)
RODRIGUES	0.047	-0.037
	(0.025)	(0.021)
R2	0.174	
N	8248	

Note: Standard errors robust to heteroskedasticity in parentheses. */**/*** for significance levels at 10%, 5% and 1% respectively.

TABLE C.2.3. LINEAR PROBABILITY MODEL - INACTIVITY PROBABILITY

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2012
Female	0.406***	0.378***	0.369***	0.359***	0.343***	0.331***	0.332***	0.314***	0.307***	0.293***	0.284***
	(0.007)	(0.007)	(0.007)	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Married	0.087***	0.073***	0.059***	0.053***	0.015*	0.011	0.007	-0.008	-0.015*	-0.006	-0.005
	(0.009)	(0.009)	(0.009)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
No kids	0.004	0.002	0.008**	0.001	0.011***	0.001	-0.000	0.008***	0.011***	0.006**	0.001
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
Age	-0.052***	-0.054***	-0.054***	-0.051***	-0.052***	-0.052***	-0.054***	-0.054***	-0.056***	-0.057***	-0.054***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age2	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Rodrigues	-0.062***	-0.056**	-0.088***	-0.066***	-0.041***	-0.065***	-0.073***	-0.120***	-0.107***	-0.117***	-0.103***
	(0.018)	(0.018)	(0.012)	(0.010)	(0.010)	(0.011)	(0.010)	(0.011)	(0.011)	(0.011)	(0.011)
Primary	-0.056***	-0.093***	-0.036*	-0.071***	-0.081***	-0.061***	-0.049***	-0.041**	-0.028	-0.035*	-0.019
	(0.015)	(0.016)	(0.017)	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)	(0.014)	(0.015)	(0.014)
Secondary	-0.074***	-0.136***	-0.057**	-0.096***	-0.093***	-0.066***	-0.073***	-0.067***	-0.053***	-0.063***	-0.061***
	(0.016)	(0.016)	(0.018)	(0.015)	(0.013)	(0.014)	(0.014)	(0.014)	(0.015)	(0.015)	(0.015)
Above_sec	-0.073***	-0.137***	-0.084***	-0.195***	-0.226***	-0.208***	-0.195***	-0.169***	-0.158***	-0.169***	-0.176***
	(0.019)	(0.018)	(0.020)	(0.017)	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)	(0.016)	(0.016)
Constant	1.135***	1.259***	1.151***	1.196***	1.206***	1.231***	1.289***	1.269***	1.300***	1.340***	1.316***
	(0.032)	(0.032)	(0.033)	(0.028)	(0.025)	(0.025)	(0.024)	(0.025)	(0.026)	(0.026)	(0.024)
r2	0.321	0.311	0.295	0.297	0.301	0.293	0.299	0.295	0.298	0.289	0.280
N	16193	16345	15639	21527	27039	27334	27980	27457	26740	27036	27954

Note: * p<0.05, ** p<0.01, *** p<0.001. Robust standard errors in parentheses. Data for 2011 missing.

C.3.1 WAGE REGRESSION

In section 2.2, we have estimated a wage regression. The estimated equation is:

Where is the monthly wage for the individual i, is a dummy variable equal 1 if the individual's highest degree is for primary

$$log\ (w_i) = \alpha_i + \beta_n x_i + \beta_{n+1} primary_{edu} + \beta_{n+2} secondary_{edu} + \beta_{n+3} tertiary_{edu} + E_i$$

school, is a dummy variable equal 1 if the individual's highest degree is for secondary school, is a dummy variable equal 1 if the individual's highest degree is for post-secondary school. , and are the coefficient of interest indicates a vector of control variables including:

- **Married** = 1 if individual is married 0 otherwise;
- **Kids** = number of kids in the family;
- **Age** = age of the individual;
- **Age2** = age squared ;
- **Rodrigues** = 1 if individual resides on the island of Rodrigues, 0 otherwise;
- **Construction** = 1 if the individual works in the construction sector, 0 otherwise;
- **Trade & Trans** = 1 if the individual works in the trade and transport sector, 0 otherwise;
- **Tourism** = 1 if the individual works in the tourist sector, 0 otherwise;
- **Manufacturing** = 1 if the individual works in the manufacturing sector, 0 otherwise;
- **Finance** = 1 if the individual works in the financial sector, 0 otherwise;
- **Real Estate** = 1 if the individual works in the real estate sector, 0 otherwise;
- **Public Service**= 1 if the individual works in the public sector, 0 otherwise;
- **IT & Com** = 1 if the individual works in the IT and communication sector, 0 otherwise (only for 2012);
- **Prof. Service** = if the individual works in the professional service sector, 0 otherwise (only for 2012);
- **Other** = 1 if the individual works in the residuals sectors, 0 otherwise;
- **Female** = 1 if the individual is a female, 0 otherwise.

C3.2 SCHOOLING EQUATION

In Table 6, we discussed the results of a schooling equation obtained from an estimated linear probability model for the probability of accessing one of the four increasing educational levels given a set of covariates. The exact specification of the model is the following:

Where s = 1,…,4 indicates one of the four possible educational categories (no education, primary education, secondary

$$Pr\ (s_i = 1 | x_i) = \alpha_i + \beta_n x_i + E_i$$

education, post-secondary education) that we have created. i indicates individual i and a vector of control variables including:

- **Female** = 1 if individual is a woman 0 otherwise;
- **Siblings** = number of siblings;
- **Age** = age of the individual;
- **Rodrigues** = 1 if individual resides on the island of Rodrigues, 0 otherwise;
- **Father's education** = father's educational category;
- **Mother's education** = mother's educational category;
- **Father's income quartile 2/4** = 1 if the individual father's work income falls in the second, third or fourth quartile of the distribution, respectively, 0 otherwise:
- **Father (mother) unemployed** = 1 if the individual's father (mother) is unemployed, 0 otherwise;
- **Father (mother) employed** = 1 if the individual's father (mother) is employed, 0 otherwise;
- Father (mother) inactive = 1 if the individual's father (mother) is inactive, 0 otherwise.

Table 6 displays the full specification of this regression for each of the 10 years considered. It only displays a subset of covariates for six selected years.

C3.3 INTERGENERATIONAL MOBILITY

In section 2.3 Figure 75, we have displayed and discussed the evolution of family background and its impact on offspring schooling achievement. The graph shows a plot of the R2 of a linear probability model for each of the four educational categories we used and for each of the 10 years for which we have data.
The specification of the model is:

$$Pr\,(s_i = 1|x_{si}) = \alpha_{si} + \beta_{sn}\, x_{si} + E_{si}$$

Where s = 1,…,3 indicates one of the three possible degrees (primary education, secondary education, post-secondary education) that we have created. i indicates individual i and a vector of control variables including:

- **Father's education** = father's educational category;
- **Mother's education** = mother's educational category;
- **Father's income quartile 2/4** = 1 if the individual father's work income falls in the second, third or fourth quartile of the distribution, respectively, 0 otherwise.

C3.4 FEMALES GRADUATION PROBABILITIES

In section 0 we have discussed Mauritian's women educational achievements and compared it to those of men. These graduation probabilities are obtained via a linear probability model taking the form:

$$Pr\,(s_i = 1|x_{si}) = \alpha_{si} + \beta_1 female + \beta_{s1+n}\, x_{si} + E_{si}$$

Where s = 1,…,4 indicates one of the four possible educational categories (no education, primary education, secondary education, post-secondary education) that we have created. i indicates individual i, female is a dummy variable for being female and the associated slope parameter, β_1, is the coefficient of interest. x_i a vector of control variables including:

- **Siblings** = number of siblings;
- **Age** = age of the individual;
- **Rodrigues** = 1 if individual resides on the island of Rodrigues, 0 otherwise;
- **Father's education** = father's educational category;
- **Mother's education** = mother's educational category;
- **Father's income quartile 2/4** = 1 if the individual father's work income falls in the second, third or fourth quartile of the distribution, respectively, 0 otherwise;
- **Father's (mother's) unemployed** = 1 if the individual's father (mother) is unemployed, 0 otherwise;
- **Father's (mother's) employed** = 1 if the individual's father (mother) is employed, 0 otherwise;
- **Father's (mother's) inactive** = 1 if the individual's father (mother) is inactive, 0 otherwise.

Table C3.1: Wage regression

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2012
PRIMARY	0.200***	0.145**	0.188***	0.256***	0.162***	0.234***	0.203***	0.159***	0.086*	0.103	0.278***
	(0.046)	(0.045)	(0.046)	(0.045)	(0.036)	(0.041)	(0.040)	(0.041)	(0.042)	(0.159)	(0.049)
SECONDARY	0.517***	0.466***	0.503***	0.574***	0.484***	0.580***	0.551***	0.495***	0.424***	0.464**	0.644***
	(0.047)	(0.046)	(0.047)	(0.045)	(0.037)	(0.041)	(0.040)	(0.041)	(0.042)	(0.159)	(0.050)
POST-SECONDARY	1.079***	1.029***	1.093***	1.212***	1.123***	1.212***	1.149***	1.143***	1.128***	1.241***	1.340***
	(0.052)	(0.049)	(0.051)	(0.048)	(0.040)	(0.044)	(0.043)	(0.044)	(0.045)	(0.162)	(0.052)
AGE	0.065***	0.061***	0.067***	0.067***	0.068***	0.070***	0.062***	0.063***	0.070***	0.172***	0.069***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.012)	(0.003)
AGE2	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.002***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
RODRIGUES	-0.441***	-0.328***	-0.335***	-0.271***	-0.278***	-0.299***	-0.383***	-0.264***	-0.293***	-1.550***	-0.368***
	(0.059)	(0.050)	(0.031)	(0.026)	(0.030)	(0.030)	(0.031)	(0.030)	(0.032)	(0.102)	(0.032)
MARRIED	0.156***	0.151***	0.182***	0.135***	0.153***	0.132***	0.137***	0.156***	0.165***	0.103*	0.130***
	(0.017)	(0.017)	(0.017)	(0.014)	(0.014)	(0.013)	(0.014)	(0.013)	(0.014)	(0.044)	(0.014)
N OF KIDS	-0.012*	-0.006	-0.004	-0.003	-0.006	-0.004	0.005	0.005	0.009	-0.037*	-0.001
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.015)	(0.003)
CONSTRUCTION	0.250***	0.211***	0.306***	0.300***	0.260***	0.298***	0.225***	0.330***	0.301***	0.786***	0.285***
	(0.027)	(0.026)	(0.026)	(0.023)	(0.021)	(0.021)	(0.022)	(0.021)	(0.022)	(0.062)	(0.028)
TRADE & TRANS	0.321***	0.315***	0.371***	0.384***	0.384***	0.430***	0.374***	0.438***	0.435***	0.651***	0.382***
	(0.024)	(0.024)	(0.024)	(0.021)	(0.020)	(0.020)	(0.021)	(0.020)	(0.021)	(0.066)	(0.027)
TOURISM	0.390***	0.313***	0.434***	0.410***	0.405***	0.455***	0.378***	0.465***	0.485***	0.585***	0.416***
	(0.034)	(0.032)	(0.031)	(0.026)	(0.025)	(0.025)	(0.025)	(0.024)	(0.025)	(0.086)	(0.030)

MANUFACTURING	0.224***	0.201***	0.274***	0.242***	0.284***	0.344***	0.204***	0.312***	0.283***	0.783***	0.348***
	(0.022)	(0.022)	(0.023)	(0.020)	(0.019)	(0.019)	(0.020)	(0.020)	(0.020)	(0.060)	(0.027)
FINANCE	0.583***	0.632***	0.673***	0.676***	0.692***	0.720***	0.669***	0.790***	0.857***	1.512***	0.767***
	(0.058)	(0.054)	(0.054)	(0.038)	(0.039)	(0.038)	(0.039)	(0.037)	(0.038)	(0.081)	(0.040)
REAL ESTATE	0.371***	0.389***	0.402***	0.404***	0.427***	0.484***	0.404***	0.466***	0.490***	1.141***	0.742***
	(0.041)	(0.039)	(0.039)	(0.033)	(0.030)	(0.028)	(0.030)	(0.028)	(0.029)	(0.070)	(0.097)
PUBLIC SERVICES	0.434***	0.400***	0.494***	0.562***	0.558***	0.563***	0.512***	0.621***	0.671***	1.382***	0.625***
	(0.026)	(0.025)	(0.026)	(0.022)	(0.021)	(0.021)	(0.021)	(0.022)	(0.022)	(0.059)	(0.028)
OTHER	0.286***	0.287***	0.287***	0.292***	0.306***	0.326***	0.306***	0.354***	0.398***	0.895***	-0.018
	(0.036)	(0.039)	(0.042)	(0.033)	(0.030)	(0.032)	(0.032)	(0.029)	(0.031)	(0.085)	(0.034)
IT & COM.											0.668***
											(0.043)
PROF SERVICES											0.401***
											(0.032)
FEMALE	-0.478***	-0.478***	-0.548***	-0.507***	-0.529***	-0.517***	-0.510***	-0.534***	-0.545***	-1.000***	-0.525***
	(0.015)	(0.014)	(0.015)	(0.012)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)	(0.038)	(0.012)
CONSTANT	6.480***	6.665***	6.522***	6.432***	6.605***	6.474***	6.714***	6.768***	6.759***	4.476***	6.786***
	(0.089)	(0.088)	(0.088)	(0.091)	(0.078)	(0.075)	(0.077)	(0.077)	(0.079)	(0.279)	(0.080)
R2	0.444	0.453	0.471	0.492	0.449	0.461	0.439	0.464	0.480	0.239	0.461
N	8,267	8,475	8,560	11,349	13,953	14,128	14,230	14,246	13,917	14,831	14,305

* p<0.05, ** p<0.01, *** p<0.001. Robust standard errors in parentheses. Data for 2011 missing.

TABLE C3.2: SCHOOLING EQUATION

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2012
Female	0.094***	0.075***	0.118***	0.116***	0.065***	0.098***	0.117***	0.110***	0.100***	0.136***	0.131***
	(0.017)	(0.018)	(0.017)	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.014)
Rodrigues	-0.176***	-0.177***	-0.161***	-0.171***	-0.094***	-0.129***	-0.134***	-0.108***	-0.137***	-0.096**	-0.187***
	(0.044)	(0.045)	(0.030)	(0.026)	(0.026)	(0.028)	(0.028)	(0.028)	(0.029)	(0.030)	(0.030)
Siblings	0.052***	0.026***	0.045***	0.051***	0.055***	0.060***	0.069***	0.083***	0.062***	0.059***	0.045***
	(0.008)	(0.007)	(0.008)	(0.007)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.006)
Age individual	0.094***	0.088***	0.099***	0.094***	0.096***	0.093***	0.093***	0.090***	0.091***	0.088***	0.080***
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Father's Edu.	0.060***	0.065***	0.103***	0.058***	0.051***	0.081***	0.089***	0.076***	0.073***	0.098***	0.092***
	(0.014)	(0.014)	(0.014)	(0.012)	(0.010)	(0.011)	(0.011)	(0.011)	(0.012)	(0.012)	(0.011)
Mother's Edu.	0.091***	0.070***	0.074***	0.095***	0.084***	0.098***	0.110***	0.143***	0.101***	0.113***	0.080***
	(0.013)	(0.014)	(0.014)	(0.012)	(0.011)	(0.011)	(0.011)	(0.012)	(0.012)	(0.011)	(0.012)
Father's Income Quartile:											
Second	0.081***	0.065**	0.106***	0.069***	0.156***	0.104***	0.070***	0.056**	0.054**	0.041*	0.074***
	(0.023)	(0.023)	(0.022)	(0.020)	(0.018)	(0.018)	(0.018)	(0.018)	(0.019)	(0.018)	(0.019)
Third	0.192***	0.126***	0.130***	0.142***	0.202***	0.125***	0.076***	0.075***	0.061***	0.058**	0.089***
	(0.024)	(0.023)	(0.023)	(0.020)	(0.019)	(0.019)	(0.017)	(0.019)	(0.018)	(0.018)	(0.019)
Fourth	0.271***	0.207***	0.223***	0.228***	0.306***	0.195***	0.129***	0.157***	0.182***	0.139***	0.129***
	(0.026)	(0.026)	(0.025)	(0.022)	(0.022)	(0.022)	(0.020)	(0.021)	(0.021)	(0.021)	(0.022)
Father's Labor Force Status:											
Unemployed	0.572***	0.427***	0.510***	0.400***	0.467***	0.345***	0.521***	0.392***	0.600***	0.363***	0.368***
	(0.066)	(0.070)	(0.089)	(0.076)	(0.062)	(0.055)	(0.064)	(0.067)	(0.060)	(0.067)	(0.054)
Employed	0.502***	0.428***	0.506***	0.474***	0.390***	0.458***	0.517***	0.492***	0.508***	0.393***	0.322***
	(0.042)	(0.040)	(0.043)	(0.035)	(0.035)	(0.035)	(0.033)	(0.034)	(0.036)	(0.035)	(0.030)
Mother's Labor Force Status:											
Unemployed	0.059	0.016	0.083*	0.081*	0.100***	0.024	-0.006	0.037	0.048	0.036	0.006
	(0.041)	(0.039)	(0.043)	(0.034)	(0.023)	(0.027)	(0.025)	(0.027)	(0.027)	(0.026)	(0.033)
Employed	0.153***	0.135***	0.152***	0.149***	0.152***	0.131***	0.126***	0.105***	0.091***	0.081***	0.104***
	(0.017)	(0.017)	(0.016)	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Constant	0.705***	1.028***	0.570***	0.720***	0.801***	0.692***	0.612***	0.598***	0.799***	0.841***	1.210***
	(0.084)	(0.094)	(0.073)	(0.063)	(0.070)	(0.066)	(0.059)	(0.070)	(0.073)	(0.073)	(0.069)
r2	0.499	0.458	0.533	0.520	0.532	0.505	0.507	0.489	0.491	0.489	0.445
N	9,100	9,074	8,909	11,770	14,938	14,782	14,864	14,631	14,056	14,067	13,866

* p<0.05, ** p<0.01, *** p<0.001

TABLE C3.3: DETERMINANTS OF SCHOOLING—FAMILY BACKGROUND

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2012
					Primary Education						
Father Edu.	-0.033***	-0.022**	-0.046***	-0.027***	-0.030***	-0.025***	-0.022***	-0.040***	-0.024***	-0.021***	-0.032***
	(0.008)	(0.008)	(0.008)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Mother Edu.	-0.008	-0.007	-0.020*	-0.023***	-0.025***	-0.022***	-0.023***	-0.019**	-0.024***	-0.013*	0.000
	(0.007)	(0.007)	(0.008)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Second	0.012	-0.004	0.005	-0.020	0.003	0.013	0.000	0.025*	0.022*	0.061***	0.035**
	(0.014)	(0.014)	(0.014)	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Third	-0.004	-0.028	0.002	-0.005	-0.017	-0.012	-0.021*	0.004	0.008	0.008	0.007
	(0.015)	(0.014)	(0.015)	(0.012)	(0.011)	(0.011)	(0.010)	(0.011)	(0.011)	(0.010)	(0.010)
Fourth	-0.072***	-0.085***	-0.027	-0.067***	-0.044***	-0.042***	-0.061***	-0.033**	-0.035**	-0.039***	-0.026*
	(0.015)	(0.015)	(0.015)	(0.013)	(0.012)	(0.012)	(0.011)	(0.011)	(0.011)	(0.012)	(0.011)
Constant	0.526***	0.489***	0.592***	0.533***	0.536***	0.496***	0.485***	0.515***	0.468***	0.401***	0.387***
	(0.026)	(0.026)	(0.027)	(0.023)	(0.021)	(0.021)	(0.022)	(0.022)	(0.022)	(0.023)	(0.022)
R2	0.012	0.010	0.013	0.012	0.011	0.009	0.010	0.012	0.009	0.010	0.006
N	9100	9074	8909	11770	14938	14782	14864	14631	14056	14072	13866
					Secondary Education						
Father Edu.	-0.014	-0.027***	-0.021**	-0.043***	-0.032***	-0.022***	-0.030***	-0.034***	-0.031***	-0.043***	-0.028***
	(0.008)	(0.008)	(0.008)	(0.007)	(0.006)	(0.007)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)
Mother Edu.	-0.058***	-0.058***	-0.042***	-0.035***	-0.047***	-0.050***	-0.041***	-0.033***	-0.051***	-0.044***	-0.059***
	(0.007)	(0.007)	(0.008)	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)
Second	0.006	0.007	0.018	0.028*	0.034**	0.015	0.015	0.001	0.007	-0.033**	0.008
	(0.013)	(0.014)	(0.014)	(0.013)	(0.011)	(0.011)	(0.012)	(0.011)	(0.012)	(0.011)	(0.012)
Third	0.030*	0.028*	0.025	0.036**	0.064***	0.050***	0.029**	0.003	0.016	0.014	0.013
	(0.014)	(0.014)	(0.014)	(0.012)	(0.011)	(0.011)	(0.011)	(0.012)	(0.011)	(0.012)	(0.012)
Fourth	0.072***	0.050**	0.053***	0.104***	0.116***	0.070***	0.061***	0.042**	0.054***	0.043**	0.022
	(0.015)	(0.016)	(0.015)	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Constant	0.564***	0.640***	0.542***	0.618***	0.615***	0.632***	0.651***	0.641***	0.699***	0.742***	0.750***
	(0.025)	(0.026)	(0.026)	(0.023)	(0.021)	(0.022)	(0.022)	(0.023)	(0.023)	(0.024)	(0.024)
R2	0.012	0.014	0.008	0.011	0.011	0.009	0.008	0.007	0.011	0.012	0.013
N	9100	9074	8909	11770	14938	14782	14864	14631	14056	14072	13866
					Post-Secondary Education						
Father Edu.	0.012*	0.021***	0.027***	0.031***	0.027***	0.021***	0.031***	0.043***	0.036***	0.045***	0.052***
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)
Mother Edu.	-0.000	-0.002	-0.002	-0.009*	-0.002	0.002	0.009*	0.011**	0.016***	0.013**	0.016***
	(0.004)	(0.005)	(0.005)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)
Second	-0.025**	-0.032***	-0.027***	-0.024***	-0.047***	-0.048***	-0.040***	-0.068***	-0.057***	-0.082***	-0.071***
	(0.008)	(0.008)	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)	(0.008)
Third	0.010	-0.012	0.003	-0.002	-0.025***	-0.026***	-0.005	-0.032***	-0.033***	-0.038***	-0.035***
	(0.009)	(0.009)	(0.009)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.007)	(0.008)	(0.009)
Fourth	0.093***	0.086***	0.089***	0.074***	0.044***	0.063***	0.062***	0.050***	0.060***	0.045***	0.024*
	(0.011)	(0.012)	(0.011)	(0.010)	(0.009)	(0.009)	(0.009)	(0.010)	(0.010)	(0.011)	(0.011)
Constant	0.050***	0.038*	0.008	0.005	0.012	0.014	-0.039**	-0.065***	-0.052***	-0.045**	-0.061***
	(0.015)	(0.017)	(0.016)	(0.013)	(0.012)	(0.013)	(0.013)	(0.013)	(0.014)	(0.016)	(0.017)
R2	0.023	0.025	0.028	0.025	0.021	0.026	0.027	0.039	0.035	0.036	0.028
N	9100	9074	8909	11770	14938	14782	14864	14631	14056	14072	13866

* p<0.05, ** p<0.01, *** p<0.001

APPENDIX D. OAXACA-BLINDER DECOMPOSITION

Given two groups of individuals—group a and group b—an outcome variable Y, and a set of predictors x, the Oaxaca-Blinder decomposition decomposes variation in Y between group A and B to a part explained by the set of predictors and a residual part that is unexplained. Formally, the question is establishing how much of the group difference is accounted for by the group difference in the predictors:

$$R = E(Y_a) - E(Y_b)$$

Where E(Y) denotes the expected value of the outcome variable, based on the linear model:

$$Y_i = x'\beta_i + \mathrm{E}_i \, with \, E(\mathrm{E}_i) = 0 \, and \, l \in (a;b)$$

X is a vector containing the regressors and a constant, β contains the slope parameters and E is the error term. The mean outcome difference can be expressed as the difference in the linear prediction at the group specific means of the regressors:

If we want to identify the contribution of group differences in predictors to overall outcome differences, the previous

$$R = E(Y_a) - E(Y_b) = E(X_a)' \beta_a - E(X_b)' \beta_b$$

equation can be rearranged as:

Where β^* is the nondiscriminatory coefficient vector. This formulation can be thought of as being the sum of two components:

Is the part of the outcome differential that is explainable by group differences in the predictors, while the second term of

$$R = \{E(X_a) - E(X_b)\}'\beta^* + \{E(X_a)'(\beta_a - \beta^*) + E(X_b)'(\beta^* - \beta_b)\}$$

the equation:

Is the unexplained part that in labor economic literature on group differential is usually attributed to discrimination. An

$$Q = \{E(X_a) - E(X_b)\}'\beta^*$$

important disclaimer is that the term U captures also all the potential effects that unobservable characteristics play in explaining wage differentials and for this reason estimates of discrimination based on the Oaxaca-Blinder decomposition

$$U = \{E(X_a)'(\beta_a - \beta^*) + E(X_b)'(\beta^* - \beta_b)\}$$

should be taken with caution.

APPENDIX E. FIRM LEVEL REGRESSION ANALYSIS

TABLE E1: REGRESSION RESULTS FOR FIRM PROFITABILITY (2007-2012 AVERAGE)

	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent Variables					
	Profitable firm			Return On Assets		
	All firms	Small firms	Medium & Large Firms	All firms	Small firms	Medium & Large Firms
AGRICULTURE/ EXTRACTIVE	-0.120***	-0.139***	-0.045	-0.053***	-0.059***	-0.028*
	(0.030)	(0.036)	(0.055)	(0.013)	(0.016)	(0.016)
CONSTRUCTION	0.005	-0.007	0.043*	0.003	0.000	0.016*
	(0.013)	(0.015)	(0.024)	(0.006)	(0.007)	(0.008)
MANUFACTURING	-0.034***	-0.040**	-0.009	-0.017***	-0.019***	-0.005
	(0.013)	(0.016)	(0.021)	(0.005)	(0.006)	(0.007)
TEXTILES	-0.129***	-0.098***	-0.202***	-0.054***	-0.046***	-0.073***
	(0.021)	(0.024)	(0.040)	(0.008)	(0.010)	(0.013)
TRADE	-0.023***	-0.030***	-0.000	-0.012***	-0.013***	-0.009**
	(0.007)	(0.008)	(0.013)	(0.003)	(0.003)	(0.005)
SHORT-TERM LIQUIDITY PROBLEM	-0.198***	-0.183***	-0.256***	-0.100***	-0.098***	-0.103***
	(0.008)	(0.009)	(0.017)	(0.003)	(0.004)	(0.005)
SHORT-TERM LIQUIDITY RISK	0.058***	0.066***	0.017	0.010***	0.018***	-0.012***
	(0.008)	(0.010)	(0.013)	(0.003)	(0.004)	(0.004)
SMALL FIRM	-0.221***			-0.079***		
	(0.012)			(0.004)		
MEDIUM FIRM	-0.035***		-0.062***	-0.002		-0.016***
	(0.013)		(0.013)	(0.004)		(0.004)
AGE IN 2014	-0.000	0.001**	-0.001***	-0.001***	0.000	-0.001***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
NEW INCORPORATIONS	-0.088***	-0.079***	-0.071***	-0.037***	-0.036***	-0.010*
	(0.008)	(0.009)	(0.017)	(0.003)	(0.004)	(0.006)
HIGHLY LEVERAGED FIRM	-0.287***	-0.320***	-0.190***	-0.130***	-0.145***	-0.086***
	(0.008)	(0.009)	(0.013)	(0.003)	(0.003)	(0.004)
CONSTANT	1.020***	0.795***	1.020***	0.192***	0.112***	0.187***
	(0.015)	(0.012)	(0.019)	(0.005)	(0.005)	(0.006)
OBSERVATIONS	21,243	16,383	4,860	21,243	16,383	4,860
R-SQUARED	0.223	0.181	0.180	0.262	0.227	0.238

Source: Mauritian Company Registrar and authors' calculations. Notes: OLS regressions. Coefficient is significantly different from 0 at the *** .01, ** .05, and * .10 level. Robust standard errors are in parentheses. The omitted categories are (large) firms that are normally leveraged, have current ratios above two, and were incorporated before 2007, and are in the services industry. Profitable firms have positive earnings before interest and taxes (EBIT), and the return on assets (ROA) is defined as EBIT divided by total assets. Columns (1)-(3) deal with the extensive margin of profitability and estimate a linear probability model. Columns (4)-(6) deal with the intensive margin of profitability.

A "small" firm is defined as having MUR10 million in sales or less, a "medium" firm as having between MUR10 million and MUR80 million in sales, and a "large" firm as having more than MUR80 million in sales. Highly leveraged firms have liabilities-to-asset ratios above two-thirds. Firms with short-term liquidity problems have current ratios below one, those with short-term liquidity risk have one between one and two, and others have one above two. The liabilities-to-assets ratio is defined as total liabilities divided by total assets. The current ratio is defined as total current assets divided by total current liabilities. New incorporations are firms that got incorporated between 2007 and 2011.

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Mauritius is a high middle-income country with low levels of poverty and inequality. The headcount poverty level was 6.9 percent in 2012; measured by the international standard of US$2 per day (PPP), poverty was less than 1 percent. On inequality, Mauritius also fared well compared to its peer middle-income countries. On the negative side, Mauritius' growth has not been equally shared, despite the general improvement in welfare. The economy's polarization was associated with a structural transformation from labor-intensive industries to services and knowledge-intensive industries. Inclusiveness remains the main challenge for the current growth pattern. When Mauritius will be able to become a high-income country will depend on its ability to improve the labor force's skill set, develop infrastructure, and further improve the business environment to attract FDI and generate domestic investment. Reduction in inequality and boost of shared prosperity will require more growth and a more pro-poor pattern of growth. An increase in female labor force participation, reduction of high youth unemployment rates, improving the efficiency of the social protection system will reduce growing skills mismatch facilitating inclusive growth and eradicating poverty in Mauritius.

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