

Women, Work, and Economic Growth

Leveling the Playing Field



Edited by Kalpana Kochhar, Sonali Jain-Chandra, Monique Newiak

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Editors

*Kalpana Kochhar, Sonali Jain-Chandra, and
Monique Newiak*

I N T E R N A T I O N A L M O N E T A R Y F U N D

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Foreword

Women's empowerment is a cause I care about deeply. I am heartened by the significant strides of recent decades—but remain concerned that gender equality is still a long way off. The scale of the challenge is clear. In most countries, women are still less likely than men to have a paid job. When they do find paid employment, they receive less money for similar work and are more likely to be employed informally, lacking social protection. Most sobering of all, women are more likely than men to be illiterate and poor.

The moral case for greater gender equity is clear. So is the economic case. Like a car stuck in second gear, the global economy can never reach its potential while the talents of half its population remain underappreciated and underused. Harnessing the potential of each and every one of our global sisters would provide a transformative boost to global growth, support development, and reduce poverty. It would also help us adapt in the midst of tremendous global change. In rapidly aging economies, for instance, higher female labor force participation can mitigate the negative impact of a shrinking workforce on potential growth.

How to promote women's economic participation? Given the varied and complex drivers at play, it is clear that closing the gender gap requires efforts across many dimensions, tailored to countries' needs and norms. In many advanced economies, for instance, the answers may lie in revising tax codes, providing high-quality and affordable childcare, and establishing well-designed parental leave policies. In many developing economies, better infrastructure in rural areas and increased investment in girls' education will help. More equal laws to reduce discrimination is a virtually universal priority.

With our focus on macroeconomic stability, growth, and prosperity, the International Monetary Fund is committed to helping the efforts of our 189 member countries in promoting women's economic empowerment. What are the impediments to female labor force participation? What can be gained by overcoming these? What policies can help? These are the types of questions we continue to analyze in our research and discuss with our membership.

The failure to unleash women's potential is one of the great tragedies—and missed opportunities—of our time. I remain optimistic, however, that we can work together to help women reach their full economic potential—for themselves, their families, their communities, and the world.

Christine Lagarde
Managing Director
International Monetary Fund

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Preface

Despite progress, wide gender gaps remain: women have fewer economic opportunities than men, more men than women work in most countries, and women often get paid less for similar work. As a result, the tremendous potential economic contribution from women remains untapped in a number of countries. Gender equity is in itself an important social objective, but the lack of it also imposes a heavy economic cost because it hampers productivity and weighs on growth. Gender inequality also has a number of other adverse macroeconomic consequences, such as higher income inequality and lower economic diversification.

This book analyzes various linkages and interconnections between gender inequality and the macroeconomy. The prevalence of gender inequality, particularly the presence of gender gaps in the labor force and in economic opportunities, can weigh on and impede inclusive growth. Several chapters are devoted to analyzing the macroeconomic consequences of gender gaps in labor force participation and entrepreneurship. Conversely, women's decisions to work are partly driven by economic fundamentals and governmental economic policies, as outlined in a number of chapters. Because the causes and consequences of gender inequality differ across regions and countries, this book draws on IMF economists' work to present a number of country studies that highlight the drivers of female economic participation and the cost of gender inequality across various regions. Finally, the book ends with a discussion of the role of policies and their impact on women's economic participation.

The overview chapter (by Kalpana Kochhar, Sonali Jain-Chandra, and Monique Newiak) presents the trends in female labor force participation rates, noting that they hovered around 50 percent for the past two decades, compared with an average of almost 77 percent for men. The chapter shows that these global averages mask significant cross-country and cross-regional differences in both levels and trends. Furthermore, a lack of basic rights, lower literacy rates for women, and gender gaps in access to social and financial services all have implications for women's economic productivity. The overview chapter also contains a literature survey on the potential losses in GDP growth that can be attributed to gender gaps in the labor market.

Chapter 2 (by Sonali Jain-Chandra, Kalpana Kochhar, Monique Newiak, Tlek Zeinullayev, and Lusha Zhang) highlights that there have been tremendous advances in the elimination of gender inequities around the world but that various challenges remain in most countries. In particular, female labor force

participation has been rising in many regions; female literacy has been increasing, rapidly in some places; gender gaps in education have been shrinking worldwide; and the number of women in elected office is rising in many countries. Despite these notable advances, gender disparities persist—and not only as a local phenomenon or only in particular regions of the world. The precise nature of gender gaps varies, but in the majority of countries there are differences between men and women in decision-making power, economic participation, access to opportunities, and social norms and expectations. This chapter introduces a novel index of opportunities, which incorporates different dimensions of disparities in opportunities into a new measure and includes education and health indicators, equality of legal rights, and gender gaps in financial inclusion.

Chapter 3 (by David Cuberes, Monique Newiak, and Marc Teignier) analyzes the effects of gender inequality from a macroeconomic perspective. The analysis shows that gender gaps in pay and in access to resources, occupations, and credit, among other things, not only have negative microeconomic effects on women but also imply large costs for the aggregate economy. The chapter examines two specific gender gaps—participation in the labor force and in entrepreneurial occupations—and simulates an economy-wide model to estimate the costs of country-specific gender gaps and to quantify the income lost relative to a situation without gender gaps.

Chapter 4 (by Christian Gonzales, Sonali Jain-Chandra, Kalpana Kochhar, Monique Newiak, and Tlek Zeinullayev) analyzes the links between two phenomena, income inequality and gender-related inequality, which can interact through a number of channels. First, gender wage gaps directly contribute to income inequality. Furthermore, higher gaps in labor force participation rates between men and women are likely to result in inequality of earnings between sexes, creating and exacerbating income inequality. Differences in economic outcomes may be a consequence of unequal opportunities and enabling conditions for men and women and for boys and girls. The authors find that gender inequality is strongly associated with income inequality across time and for countries at all levels of income and development, however the relevant dimensions of gender inequality may vary.

Chapter 5 (by Romina Kazandjian, Lisa Kolovich, Kalpana Kochhar, and Monique Newiak) focuses on the relationship between gender inequality and economic diversification and shows that gender inequality decreases the variety of goods produced and exported, particularly in low-income and developing countries. This happens through at least two channels: first, gender gaps in opportunity, such as lower educational enrollment rates for girls than for boys, harm diversification by constraining the potential pool of human capital available in an economy. Second, gender gaps in the labor market impede the

development of new ideas by decreasing the efficiency of the labor force. The empirical estimates support these hypotheses, providing evidence that gender-friendly policies could help countries diversify their economies.

The book then turns to in-depth analyses of gender inequality in various regions. Chapter 6 focusses on gender gaps in labor force participation and their drivers in Asia. Chapter 6A (by Chad Steinberg and Masato Nakane) explores the extent to which raising female labor participation can help slow the trend decline in Japan's potential growth rate, which is steadily falling with the aging of its population. Using a cross-country database, the authors find that smaller families, higher female education, and lower marriage rates are associated with much of the rise in women's aggregate participation rates within countries over time but that policies are likely increasingly important for explaining differences across countries. Raising female participation could provide an important boost to growth, but women face two hurdles in participating in the workforce in Japan. First, few working women start out in career-track positions, and second, many women drop out of the workforce following childbirth. To increase women's attachment to work, Japan should consider policies to reduce the gender gap in career positions and provide better support for working mothers.

Chapter 6B (by Sonali Das, Sonali Jain-Chandra, Kalpana Kochhar, and Naresh Kumar) examines the determinants of female labor force participation in India, which has one of the lowest participation rates for women among peer countries. Using extensive Indian household survey data, the authors model the labor force participation choices of women, conditional on demographic characteristics and education, and also look at the influence of state-level labor market flexibility and other state policies. A number of policy initiatives can help boost female economic participation in the states of India, including increased labor market flexibility, investment in infrastructure, and enhanced social spending.

Chapter 6C (by Mai Dao, Davide Furceri, Jisoo Hwang, and Meeyoung Kim) examines trends and determinants of female labor force participation in Korea. It includes an empirical analysis from which important implications can be drawn for reforms that could boost female participation over the medium term. The results suggest that the benefits of comprehensive structural reforms are likely to be considerable over the medium term. In particular, comprehensive policy reforms aimed at reducing labor market distortions that inhibit labor force participation could increase female participation rates by about 8 percentage points over the medium term, which would reduce by one-third the gap between the rates of male and female participation in Korea. These reforms include making the tax treatment of second earners in households

more neutral in comparison with that of single earners, increasing childcare benefits, and facilitating more part-time work opportunities.

Chapter 7A (by Lone Christiansen, Huidan Lin, Joana Pereira, Petia Topalova, and Rima Turk) examines the drivers of and benefits from unlocking female employment in Europe. Increasing the share of women in the workforce could help mitigate the impact of population aging and the associated decline of the labor force and have substantial effects for European potential output. The chapter examines the relative importance of demographic characteristics and policy variables in women's employment decisions. Disentangling the importance of individuals' or household choices from macro-level policies, the chapter highlights that policies matter beyond attitudes toward women's employment decisions and demographics. Moreover, the authors find that greater involvement by women in senior management positions and on boards is positively associated with firms' financial performance.

Two country cases examine labor force participation levels more closely for European countries. Chapter 7B (by Eva Jenkner) shows that Hungary performs very well on a number of factors supporting gender equality, such as educational attainment of women and a neutral tax system, but that gender inequities nonetheless remain a concern. In particular, women are significantly behind in political representation and in the workplace. To boost low female labor force participation, the chapter proposes key measures to expand women's choices to reconcile work and family life, including improvements to the availability of childcare, more work-friendly and equitable leave policies, and steps to reduce the gender gap. Germany also faces a demographic challenge, and Chapter 7C (by Joana Pereira) identifies several measures that can help address that challenge by allowing more women to work full time. These include expanding high-quality, subsidized childcare and after-school programs, narrowly targeting low-income households with other forms of child-related financial support (namely to nonworking parents), moving toward a system of individual taxation, and limiting or eliminating the different treatment of health care insurance beneficiaries across working and nonworking spouses.

Chapter 8A (by Tobias Rasmussen) provides an overview of the drivers of female labor force participation in the Gulf Cooperation Council. Chapter 8B (by Ferhan Salman) examines how, for Pakistan, an integrated set of policy measures could help raise female labor force participation. In addition to policies that touch upon childcare, parental leave schemes, and flexible work arrangements, women's access to labor markets could be facilitated by infrastructure spending in rural areas to increase access to clean water and transportation to reduce the time women spend on domestic tasks.

Chapter 9A (by Dalia Hakura, Mumtaz Hussain, Monique Newiak, Vimal Thakoor, and Fan Yang) shows that income and gender inequality jointly impede growth mostly in the initial stages of development, resulting in large growth losses in sub-Saharan Africa. In particular, the average annual growth of GDP per capita in sub-Saharan African countries could be higher by almost 1 percentage point if income and gender inequality were reduced to the levels observed in the fast-growing Association of Southeast Asian Nations (ASEAN). Chapter 9B (by Corinne Deléchat, Monique Newiak, and Fan Yang) focuses on gender gaps in financial inclusion and finds that unequal access to financial services is strongly associated with higher income inequality, particularly in sub-Saharan Africa.

Chapter 9C (by Stefan Klos and Monique Newiak) quantifies the growth losses from gender inequality in the countries of the West African Economic and Monetary Union and points to inequalities in opportunities, such as gender gaps in education, unfavorable health outcomes, and inequities in legal rights as particular obstacles. For Mali, Chapter 9D (by John Hooley) highlights policy options that could bring greater gender equality but could also help address demographic challenges: more accessible contraception, legal reforms that empower women within the household, and closing gender gaps in education. Chapter 9E (by David Cuberes, Monique Newiak, and Marc Teignier) estimates that real GDP in Mauritius has been 22 to 27 percent lower in the past compared with a situation without gender differences in labor force participation and entrepreneurship. Closing these gender gaps over time could mitigate the drop in economic growth resulting from looming demographic changes. The authors argue that expanding the supply and quality of childcare, extending parental leave to fathers, increasing financial literacy, and promoting flexible work arrangements can complement programs by the Mauritian government to stimulate female labor supply.

Chapter 10A (by Lusine Lusinyan) provides an overview of the constraints to female labor force participation in Chile—where women are 35 percentage points less likely to be in the labor force than men and earn up to 40 percent less. Chapter 10B (by Anna Ivanova, Ryo Makioka, and Joyce Wong) outlines the consequences and causes of gender inequality in Costa Rica, highlighting in particular the importance of information and the physical ability to reach jobs—for example, through ownership of a mobile phone or living in urban areas—which is strongly associated with female labor force participation. This underscores the role of investments in infrastructure and information technology in reducing gender inequities in the labor market.

Chapters 11 and 12 provide general policy recommendations. Chapter 11 (by Benedict Clements and Janet G. Stotsky) focuses on the effect of fiscal policies and examines how tax-and-spending reforms could be used to achieve greater

gender equality. The authors review the evidence on the incidence by gender of taxation and spending programs and suggest that reform priorities differ between developing and advanced economies. In developing economies, policy should be directed toward ensuring equality in opportunities, such as education, health care, and economic empowerment. In advanced economies, gaps in education and health are less prevalent, but gaps in economic opportunities persist. Fiscal policies can help address these gaps, including through income tax and pension reforms that encourage greater female labor force participation. Reforms could also target low-income households, which are predominately headed by women.

The clear policy messages in Chapter 12 (by Christian Gonzales, Sonali Jain-Chandra, Kalpana Kochhar, and Monique Newiak) are that equalizing legal rights between men and women boosts female labor force participation and that the costs of doing so are low. The authors highlight that, although the number of legal restrictions on the books around the world has been decreasing over time, legal inequities persist in the vast majority of countries. Equalizing legal rights—for example, through guaranteed equality in the law, equal property and inheritance rights, and other economic rights, such as a woman’s right to head a household—is associated with smaller gender gaps in labor force participation in a statistically and economically significant way.

Acknowledgments

We would like to thank all former and current colleagues inside and outside the IMF for their contributions to the book and the energy with which they are pursuing analysis on gender equality and macroeconomics.

The material presented in this book benefits and draws from the country experiences of IMF mission teams in a range of countries worldwide at various stages of development. Several departments at the IMF have made their global and specific regional analyses available to us, for which we are most grateful. These include our colleagues from the African; Asia and Pacific; European; Fiscal Affairs; Middle East and Central Asia; Research; Strategy, Policy, and Review; and Western Hemisphere Departments. The chapters have benefited from comments by IMF staff in all these departments, as well as the insights of other institutions and national authorities.

Many thanks to Linda Kean and Joe Procopio in IMF Communications for outstanding work on the production of this book. We are also grateful to John Feldman, who combed through all the chapters several times to ensure that technical jargon is kept to the minimum. Lorraine Coffey copyedited the manuscript, and Heidi Grauel typeset the report.

Finally, we would like to thank all IMF staff who are making the work on gender equality part of their standard work portfolio, thereby helping to expand the understanding of the interactions between equity and macroeconomics for the years to come.

Kalpana Kochhar
Sonali Jain-Chandra
Monique Newiak
Editors

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Overview

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Introduction

KALPANA KOCHHAR, SONALI JAIN-CHANDRA, AND MONIQUE NEWIAK

Women make up a little more than half the world's population but represent only 40 percent of the global labor force (World Bank 2011). Women's contributions to measured economic activity, growth, and well-being are far below their potential, with serious macroeconomic and social consequences. Despite significant progress in recent decades, labor markets across the world remain divided along gender lines, and gender equality remains an elusive goal.

Gender inequality in the economic arena manifests itself in numerous ways: female labor force participation is lower than male participation; women account for most unpaid work; and when women are employed in paid work, they are overrepresented in the informal sector and among the poor (Elborgh-Woytek and others 2013). They also face significant wage differentials vis-à-vis their male colleagues, which, because they generally spend less time in the labor market, result in lower pensions and a higher risk of poverty in old age. In many countries, distortions and discrimination in the labor market restrict women's options for paid work, and among those who do work, few attain senior positions or engage in entrepreneurship. Women also shoulder a higher share of unpaid work within the family, including childcare and domestic tasks, which can limit their opportunity to engage in paid work and constrain their options when they opt to do so.

The challenges of promoting growth, creating jobs, and improving women's participation in the labor force are closely intertwined. Economic growth and stability are necessary to broaden women's employment opportunities, but at the same time, their participation in the labor market is an important driver of growth and stability. In rapidly aging economies in particular, higher female labor force participation can mitigate the negative impact of a shrinking workforce on potential growth. Greater opportunities for women can also contribute to broader economic development, for instance through higher levels of school enrollment, including for girls, given that women are likely to invest more of their income in educating their children. Implementing policies that remove labor market distortions and level the playing field for all will give women more opportunities to

This chapter draws on Elborgh-Woytek and others (2013).

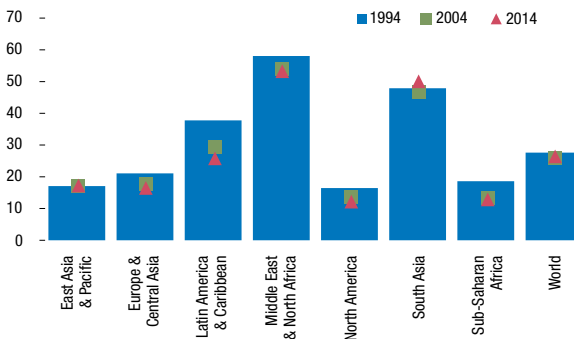
develop their potential and to participate in economic life more fully should they choose to do so.

TRENDS IN FEMALE LABOR FORCE PARTICIPATION

As noted, women comprise about 50 percent of the working-age population but represent only 40 percent of the global labor force. Female labor force participation rates—the proportion of women over age 15 working or actively looking for work—have hovered around 50 percent for the past two decades, compared with an average of almost 77 percent for men in 2014. Of course, global averages mask significant cross-country and cross-regional differences in both levels and trends: In 2014, female labor force participation varied from a low of 22 percent in the Middle East and north Africa to more than 61 percent in east Asia and the Pacific and almost 64 percent in sub-Saharan Africa. In Latin America and the Caribbean, the rates increased significantly during this period, by some 13 percentage points, whereas they declined in south Asia and stayed broadly constant in Europe and central Asia.

Differences between male and female labor force participation rates have narrowed, but the gap remains high in most regions of the world. The average gap has declined since the 1990s, but this is largely due to a worldwide decline in male labor force participation. The gender gap in participation varies strongly by region. In 2014, the highest gaps were observed in the Middle East and north Africa (53 percentage points), followed by south Asia (50 percentage points) and Latin America and the Caribbean (26 percentage points), with much lower gaps seen in North America and sub-Saharan Africa (less than 13 percentage points) (Figure 1.1). In addition, women dominate the informal sector, characterized by

Figure 1.1. Gender Gap in Labor Force Participation
(Percentage points, difference between male and female participation rates, ages 15 and over)



Sources: World Bank, World Development Indicators database; International Labour Organization, Key Indicators of the Labour Market database.

vulnerability in employment status, a low degree of protection, mostly unskilled work, and unstable earnings (ILO 2012; Campbell and Ahmed 2012).

Women contribute substantially to the general economic welfare by performing large amounts of unpaid work, such as child-rearing and household tasks, which is often unaccounted for in GDP. On average, women spend twice as much time as men on household work and four times as much time on childcare (Duflo 2012). This frees up time for male household members to participate in the formal labor force while simultaneously constraining women's ability to do the same. In Organisation for Economic Co-operation and Development (OECD) countries, women spend about two and a half hours more each day on unpaid work (including care work), regardless of the employment status of their spouses (Aguirre and others 2012). Furthermore, men tend to engage in the kind of occasional household work that fits with their formal work schedules, whereas women generally assume responsibility for routine household tasks that must be performed regardless of other work pressures. As a result, both genders tend to spend the same total amount of time working—the sum of paid and unpaid work, including travel time—although more of women's time is uncompensated (OECD 2012). This disparity between market and household work, in combination with women's lower earning potential, tends to reinforce established gender dynamics within households (Heintz 2006).

In most countries, when women do engage in paid employment, their representation in senior positions and their participation in entrepreneurial activities remain low. For example, as of October 2015, in the United States the share of women among chief executive officers in Standard & Poor's 500 companies was 4.4 percent.¹ In 2015, in the member countries of the European Union only about 38 percent of firms had a woman among their principal owners. In 2015, only about 23 percent of national parliamentary seats across the world were held by women. When women do hold higher public office, they are more likely to occupy ministries with a sociocultural focus than with an economic or strategic function (OECD 2012). Moreover, microlevel evidence suggests that gender stereotypes may hamper women's overall ability to win elected political office.²

¹<http://fortune.com/2015/06/29/female-ceos-fortune-500-barra/?iid=sr-link9>. Among a sample of 60 Fortune 500 or similarly sized companies, only 18 percent of entry- or mid-level female staff members aspired to a top-level management position at the company—the “C-suite”—versus 36 percent of male staffers (Barsh and Yee 2012).

²In a field experiment in West Bengal, India, Beaman and others (2009) find that men had a strong prior bias against the effectiveness of women politicians, ranking them significantly worse than male politicians for the same overall performance. However, men who had been exposed to female politicians earlier in their lives were much less biased.

BARRIERS, DISINCENTIVES, AND UNEQUAL OPPORTUNITIES

In many countries, a lack of basic legal rights is the main barrier preventing women from joining the formal labor market or becoming entrepreneurs. Women are sometimes legally restricted from heading a household, pursuing a profession, or owning or inheriting assets. Such legal restrictions significantly hamper female labor force participation and pose a drag on female entrepreneurship (World Bank 2015).

Despite progress in closing gender education gaps, literacy rates remain lower for women than for men, especially in south Asia and the Middle East and north Africa. Educational gaps are higher for older generations even though gender gaps in education have largely closed for the younger generation in many parts of the world: in primary education, female enrollment is 93 percent that of males even in the least developed countries; female to male enrollment averages almost 98 percent in secondary education in middle-income countries; and women are now on average more likely than men to study at the postsecondary level in middle- and high-income countries. Women's access to health care is also constrained in many areas, particularly for maternal health services. Indicators of female health, such as maternal mortality and adolescent fertility, have improved significantly in recent decades, but the death ratios for women in childbirth remained high in south Asia (almost 2 in 1,000) and in sub-Saharan Africa (more than 5 in 1,000) in 2015.

There are also gender gaps in access to social and financial services, which has implications for women's economic productivity. Worldwide, women have less access than men to banking and other financial services. For instance, fewer than 53 percent of women have an account at a financial institution in middle-income countries, compared with almost 62 percent of men (Demirgüç-Kunt and others 2015).

There is a significant gender wage gap, even within the same countries and occupations and when taking into account other possible drivers of the gender wage gap such as education levels. For OECD countries, the gender wage gap—defined as the difference between male and female median wages divided by male median wages—was estimated at 16 percent in 2010 (OECD 2012). The tendency of women to cluster in certain (lower-paying) occupations and to work reduced or part-time hours, combined with disparate work experience, explains about 30 percent of the wage gap on average. The gender wage gap is narrow for young women in OECD countries, but it increases steeply during childbearing and child-rearing years, pointing to a “motherhood penalty,” estimated at 14 percent. Within emerging market and low-income economies, there is greater variation in the size of the gender wage gap. The gap is relatively high in China, Indonesia, and South Africa. It is narrower in the Middle East and north Africa, largely because the few women engaged in wage employment are often more highly educated than their male counterparts. In several countries, the wage gap is more significant between women and men with more education (OECD 2012)

and between women and men who are self-employed or entrepreneurs. One explanation is that women devote less time to their (paid) work.

WOMEN'S VULNERABILITY TO THE ECONOMIC CYCLE

During the global financial crisis of 2007–09, gender-based employment gaps shrank in most OECD countries,³ while women in emerging market and low-income countries were hit particularly hard. In the OECD countries, women benefited because employment stayed more robust in the services sector, where female employment is concentrated, than in male-dominated industries such as construction and manufacturing. For example, in the United States, during 2007–12, male employment losses totaled 4.6 million, almost twice as high as female losses (Kochhar 2011). However, as after previous recessions, the pattern changed when the recession ended: between 2009 and 2011–12, female unemployment continued to rise, while unemployment among men either declined or stayed constant (OECD 2012).⁴

In many low-income countries, women and girls are particularly vulnerable to the effects of economic crises. The global financial crisis disproportionately affected female workers in Latin America and the Caribbean: women accounted for about 70 percent of layoffs in Mexico and Honduras (Mazza and Fernandes Lima da Silva 2011). Many workers—male and female—found it necessary to engage in lower-paid and riskier work in response to the crisis, but women and girls were more likely to take risky, unprotected, and often informal employment (Stavropoulou and Jones 2013).⁵ Youth unemployment rose in many countries as a result of the crisis, and this also disproportionately affected young women. In north Africa, the female youth unemployment rate increased by 9.1 percentage points, compared with 3.1 percentage points for young males (Stavropoulou and Jones 2013).

WHY GENDER INEQUALITY MATTERS ECONOMICALLY

Without doubt, gender equality is in itself an important development goal. But there is also ample evidence that when women are able to fulfill their full labor market potential, broad and significant macroeconomic gains can follow (Loko

³Israel, Korea, Poland, and Sweden were the exceptions.

⁴Based on analysis of U.S. recessions, Stotsky (2006) notes that in general during recessions, unemployment rises faster for men than for women, which reduces the gender gap in unemployment; in economic upturns, men's unemployment drops faster than women's, increasing the gap.

⁵Although evidence on the gender-specific impact of the crisis with respect to child labor is mixed, "girls are more likely to be involved in highly vulnerable forms of work including domestic work and transactional or commercial sex work" (Stavropoulou and Jones 2013, p. 31).

and Diouf 2009; Dollar and Gatti 1999; McKinsey 2015; Cuberes and Teignier 2016). Potential losses in GDP per capita that can be attributed to gender gaps in the labor market can reach an estimated 27 percent in certain regions (Cuberes and Teignier 2012). Aguirre and others (2012) estimate that raising the female labor force participation rate to the level for males would boost GDP by 5 percent in the United States, 9 percent in Japan, 12 percent in the United Arab Emirates, and 34 percent in Egypt. Based on data from the International Labour Organization (ILO), Aguirre and others (2012) estimate that, among the 865 million women worldwide who have the potential to contribute more fully to their national economies, 812 million live in emerging market and low-income nations.

In rapidly aging economies, higher female labor force participation can boost growth and mitigate the impact of a shrinking workforce. For example, in Japan, annual potential growth could rise by about $\frac{1}{4}$ percentage point if female labor participation were to reach the average for the Group of Seven advanced economies, resulting in a 4 percent permanent rise in GDP per capita compared with the baseline scenario (IMF 2012). Higher female labor force participation would also mean a more skilled overall workforce, given women's higher rate of postsecondary education in many countries (Steinberg and Nakane 2012).

Creating more and better opportunities for women to engage in paid work and a greater ability to control their income and assets can also contribute to stronger economic growth in emerging market and low-income economies, and such growth can in turn foster greater improvements in women's disadvantaged conditions (Stotsky 2006). According to the ILO, women's work, both paid and unpaid, may be the single most important poverty-reducing factor in developing economies (Heintz 2006). As noted, women are more likely than men to invest a large proportion of their household income to educate their children. Accordingly, greater labor force participation and higher earnings for women could result in higher expenditures on schooling for children, including girls—potentially triggering a virtuous cycle when educated women become role models for young girls (Aguirre and others 2012; Miller 2008).

Eliminating gender gaps in employment and wages would allow companies to make better use of the available talent pool, with potential growth implications (Barsh and Yee 2012; CAHRS 2011). There is evidence that having women on boards and in senior management positions has a positive impact on companies' performance and profitability.⁶ For example, companies that employ female managers may be better positioned to serve consumer markets dominated by women

⁶In their analysis of companies with a focus on innovation, Dezso and Ross (2011) find that female representation in top management can improve performance. McKinsey (2008) shows that companies with three or more women on their senior management teams score higher on all nine organizational dimensions (including leadership, work environment and values, coordination, and control) that are positively associated with higher operating margins. This result is supported by an earlier study by Catalyst (2004) that finds a positive correlation between gender diversity and financial performance (return on equity and total return to shareholders).

(CED 2012; CAHRS 2011), and more gender-diverse boards may enhance corporate governance by including a wider range of perspectives (OECD 2012; Lord Davies 2013). In financial firms, involving more women in decision-making positions may temper many male traders' tendency to undertake high-risk financial transactions (Coates and Herbert 2008).

POLICIES TO PROMOTE FEMALE LABOR FORCE PARTICIPATION

Providing women with equal economic opportunities and unleashing the full potential of the female labor force, with significant prospective growth and welfare implications, will require an integrated set of policies to promote and support female employment. Research suggests that well-designed, comprehensive policies can be effective in boosting women's economic opportunities as well as their actual economic participation.

Equalizing access to education for women is perhaps the single most important step many countries can take to enhance the participation of women in the economy. Removing gender-based legal obstacles and restrictions is another important policy step to broaden the ability of women to work and receive the same economic rights and opportunities as men. Examples include eliminating restrictions on women's rights to inherit and own property, open and control a bank account and obtain credit, and pursue a profession.

Fiscal policies, including how labor income is taxed and the nature of government spending on social welfare, can be structured to encourage women to enter the workforce, rather than discouraging them as current policies now do in many countries. In many advanced economies, tax systems strongly discourage women from working by means of high tax wedges on secondary earners. These include such family taxation and family-related tax elements as mandatory joint filing, dependent spouse allowances, and tax credits conditional on family income. These are still widespread, although many OECD countries have moved toward taxation of individuals' income rather than of family income in order to prevent the tax wedge applied to secondary earners—often, married women—from being higher than for single, but otherwise identical, women. In short, replacing family income taxation with individual income taxation eliminates the penalty on secondary earners within a family and creates incentives for more women to work. Similarly, policies that subsidize high-quality childcare and encourage paternity leave—not just maternity leave—can make it easier for new mothers to more readily return to the workforce.

Fundamentally, the key to fostering gender equality in the economy is increased involvement of women in the labor market and in positions of responsibility and power. When girls and women expect to be equal partners in the economy, they set their aspirations accordingly, both in the workplace and in the household. Equal employment opportunities and career paths will in turn bring more women into high-level positions of responsibility in the public and private

sectors and will support greater sharing of joint family and household responsibilities among men and women. The entire economy will benefit as a result.

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Gender Inequality around the World

SONALI JAIN-CHANDRA, KALPANA KOCHHAR, MONIQUE NEWIAK, TLEK ZEINULLAYEV, AND LUSHA ZHANG

There have been tremendous advances in the elimination of gender inequities around the world, but various challenges remain. Female labor force participation has been rising in many regions; female literacy has been increasing, rapidly in some places; gender gaps in education have been shrinking worldwide; and the number of women in elected office is up in many countries. Despite these notable advances, gender disparities most certainly persist—and not only as a local phenomenon or in only particular regions of the world. The precise nature of gender gaps varies, but in the majority of countries there are differences between men and women in decision-making power, economic participation, access to opportunities, and social norms and expectations.

WOMEN'S ACCESS TO OPPORTUNITIES

Gender gaps in access to education, health care services, legal rights, financial services, and political power constrain the economic opportunities open to women.

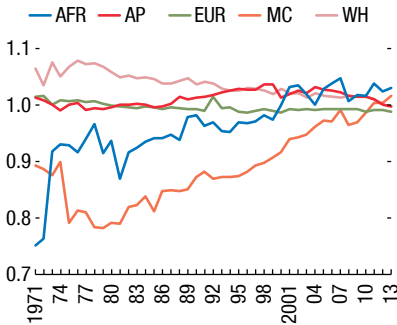
Gaps in education have been shrinking, but challenges remain, particularly in low-income and developing economies (Figure 2.1). Over the past century, the gender gap in education has been steadily shrinking across all regions and all levels of education. In particular, the gap in primary education is almost closed: the ratio of female to male primary school enrollment is now at 93 percent, even in the least developed countries.¹ In secondary education, female to male enrollment averages 98 percent in middle-income countries. In advanced and emerging market economies, the gender gap in education is virtually closed, and women are now more likely than men to be enrolled in postsecondary education.

Nevertheless, women still trail men when it comes to literacy, especially in south Asia, the Middle East, and north Africa. The gender gap in education also

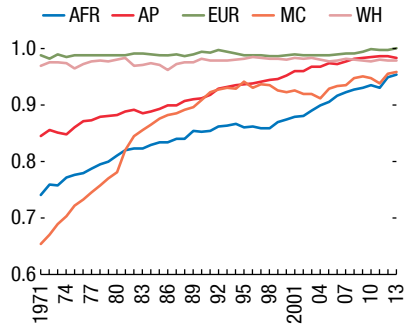
¹The enrollment rate is the ratio of children within the official primary school age who are enrolled in primary school to the total population of that age.

Figure 2.1. Gender Gaps in Education

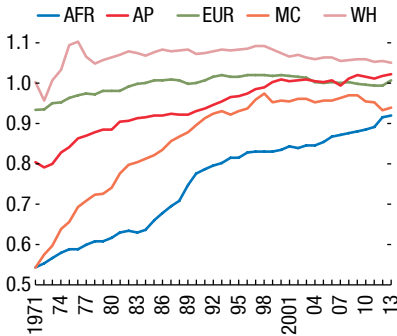
1. Preprimary Education Enrollment
(Female-to-male ratio)



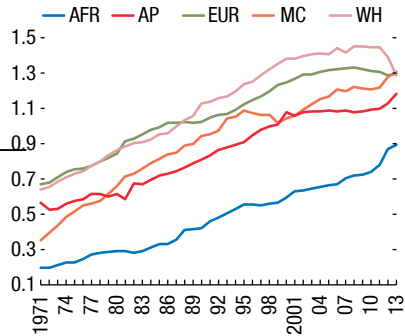
2. Primary Education Enrollment
(Female-to-male ratio)



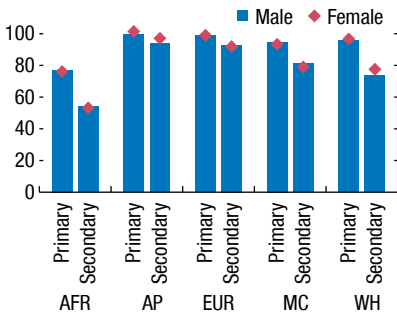
3. Secondary Education Enrollment
(Female-to-male ratio)



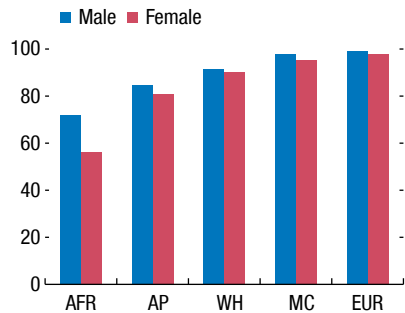
4. Tertiary Education Enrollment
(Female-to-male ratio)



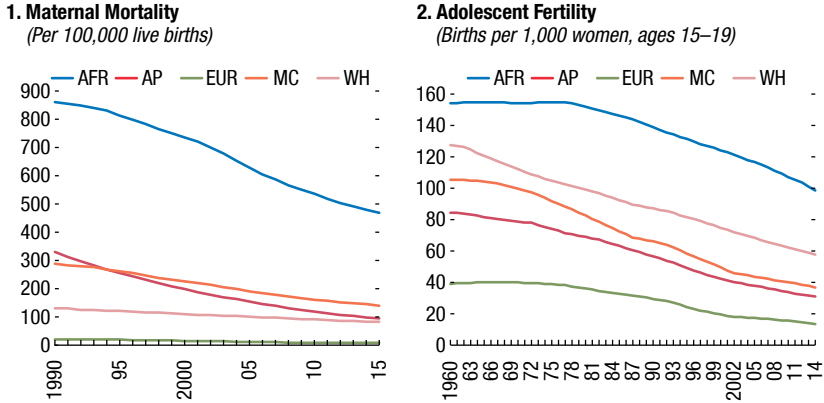
5. Completion Ratio, 2014¹
(Percent of relevant age group)



6. Adult Literacy Rate, 2014¹
(Percent of people age 15 or older)



Source: World Bank, World Development Indicators database.
 Note: AFR = Africa; AP = Asia and Pacific; EUR = Europe; MC = Middle East and central Asia; WH = western hemisphere.
¹2014 data or latest available.

Figure 2.2. Indicators of Women's Health

Sources: Solt 2016; World Bank, World Development Indicators database.

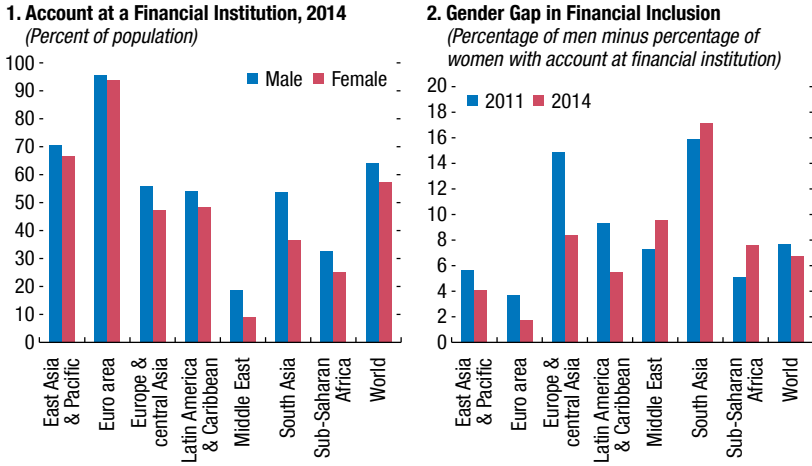
Note: AFR = Africa; AP = Asia and Pacific; EUR = Europe; MC = Middle East and central Asia; WH = western hemisphere.

varies across income groups. In low-income countries, only nine girls are enrolled in secondary education for every 10 boys. Only eight girls are in secondary education for every 10 boys in fragile or conflict-affected countries. Such inequality develops early in life, which makes it particularly profound and conducive to a so-called sticky floor—that is, the inability to advance economically later on.

Disparities in education compound throughout a woman's life and leave her unable to break out of the vicious circle of meager opportunities and unfavorable economic outcomes.

Health indicators have improved globally, but maternal death and adolescent fertility rates remain high in some countries, particularly in sub-Saharan Africa (Figure 2.2). The risk of maternal death has declined in all regions over the past two decades, particularly in south Asia: the lifetime risk of maternal death fell from 2.5 percent in the 1990s to 0.5 percent in 2013. The risk has also decreased a great deal in sub-Saharan Africa (3.5 percentage points), but it was still high at 2.6 percent in 2013. Similarly, death ratios for women in live childbirth remained high in south Asia (almost two in 1,000) and in sub-Saharan Africa (more than five in 1,000) in 2015. In addition to depicting inequity in health outcomes between men and women, these maternal mortality rates measure development more broadly.

Similarly, adolescent fertility rates—the number of births per 1,000 women ages 15 to 19—have declined in all regions; they are highest in sub-Saharan Africa. Adolescent fertility is a broad indicator of health, and when the rate declines, opportunities for girls open up because early motherhood is often associated with higher school dropout rates, and limited employment opportunities later on.

Figure 2.3. Women's Access to Finance

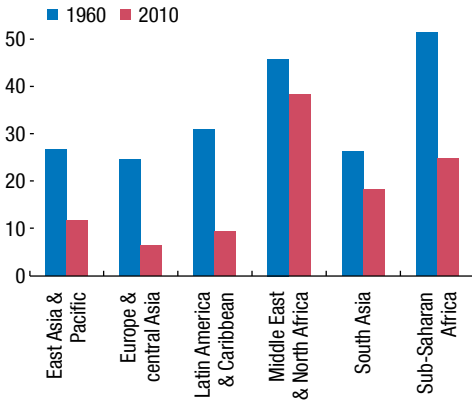
Source: World Bank, Global Findex database.

Access to formal financial services is generally lower for women than for men (Figure 2.3). Over time, access to financial services has increased worldwide, but it remains fragmented across gender lines. Both saving and borrowing services are more accessible to men than to women. The gap is particularly large in south Asia, where only 37 percent of women have an account at a financial institution versus 54 percent of men, and in the Middle East and north Africa, where men are twice as likely as women to have an account (Demirgüç-Kunt and others 2015). In three regions, the gender gap in financial access actually increased between 2011 and 2014 (the Middle East and north Africa, south Asia, and sub-Saharan Africa). More access to financial services would enhance women's income-generating ability and increase their power within the household. And with a safe place to store money, they would be less vulnerable to theft and more able to save and invest in education and businesses.

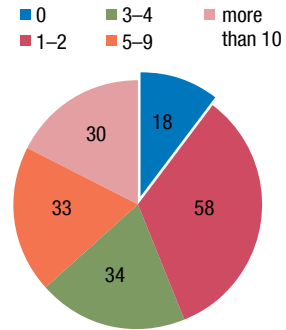
Gender-based legal restrictions are prevalent in a number of countries (Figure 2.4). Despite progress, the World Bank's Women, Business and the Law database points to at least one such restriction in almost 90 percent of the reporting economies (World Bank 2015). Some countries have numerous legal restrictions: in about 28 countries, there are 10 or more restrictions on women's participation. The nature of these restrictions varies. In 79 countries, there are laws that restrict women's participation in specific professions. Other restrictions impede women's property rights and thereby their access to finance. Gender-based restrictions are numerous in particular in the Middle East and north Africa, sub-Saharan Africa, and south Asia. Such restrictions can significantly impede economic activity by women, as is discussed in Chapter 12.

Figure 2.4. Legal Empowerment

1. Evolution of Legal Gender-Based Restrictions, 1960 and 2010
(Percent of total examined restrictions)



2. Legal Gender Differences, 2015
(Number of countries with X more restrictions for women than men)



Source: World Bank, Women, Business and the Law database.

AN INDEX OF GENDER INEQUALITY

A new index of gender inequality, developed for this chapter, seeks to gauge which regions and individual countries perform best on several dimensions of increasing opportunities for women (Box 2.1).

The index offers the following main takeaways:

- The first panel of Figure 2.5 highlights the range of country outcomes in the areas of education, legal empowerment, financial access, and health and survival included in the index: opportunities for women are lower the farther to the right a country appears on the chart.
- The second panel of Figure 2.5 highlights the index’s regional aggregates for the two available cross sections. According to the index, Europe appears to be the most gender-equal region, and it has made further progress over the past couple of years. Asia and the Pacific and the western hemisphere follow. Sub-Saharan Africa and the Middle East have the most gender inequalities when it comes to opportunity.
- Figure 2.6 highlights differences across regions on the overall index and the considerable variation in performance even within regions. In particular, the Middle East and central Asia region are highly diverse. Countries of the former Soviet Union rank high in terms of opportunity, and countries from the Arab world are lagging behind.

Box 2.1. An Index of Opportunities for Women

A large number of gender-related indices focus on specific dimensions of gender inequality. Among them are the Economist Intelligence Unit's Women's Economic Opportunity Index, the Organisation for Economic Co-operation and Development's (OECD's) Social Institution and Gender Index, the World Bank's Country Policy and Institutional Assessments Gender Equality Rating, the World Economic Forum's Global Gender Gap Index (see Stotsky and others 2016 for a comprehensive overview). Most indices have focused on specific elements of gender inequality, such as gaps in education, health, labor force participation, or political representation.

These indices usually combine outcome- and opportunity-related measures of gender inequality, which can give a good overall picture of gender inequality across countries. However, using a combination of outcomes and opportunities makes it difficult to distinguish between inequality that results from women's preferences and inequality that results from an uneven playing field. For example, as many studies rightly point out, women's homemaking and childcare activities, while not included as part of GDP, increase overall welfare in the economy. Sometimes a woman may not join the labor market because of an intrinsic preference for these activities rather than as a result of policies or legal restrictions that restrict her opportunities.

This chapter therefore introduces an index of opportunities. It adds to previous dimensions of gender inequality by incorporating dimensions of opportunity into a new index, on top of education and health indicators captured, for example, by the United Nations' Gender Inequality Index, which already incorporates the dimensions of educational and political empowerment as well as health:

- Equality of legal rights is captured by a comprehensive data set of legal restrictions (World Bank's Women, Business and the Law database), which includes a broad range of economic opportunities for a large number of countries reaching back to 1960.
- The second new dimension is gender gaps in financial inclusion, captured by the Findex database (Demirgüç-Kunt and others 2015) which includes disparity in financial access across demographic groups for two large cross sections (see Annex 2.1 for data sources and methodology). This data set covers more than 140 countries, representing more than 97 percent of the world's population, and gives an overview of how easily people around the world save, borrow, and access financial institutions.

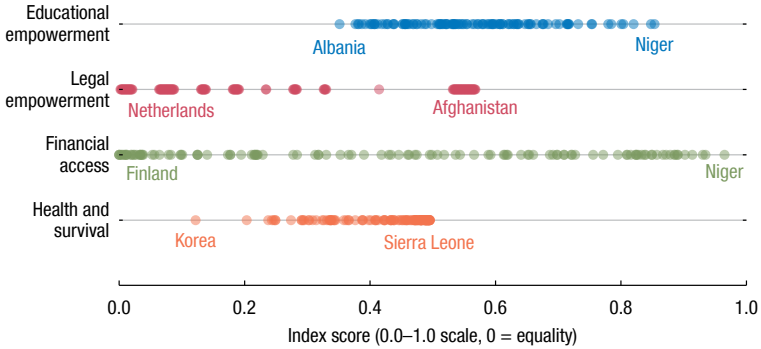
The highest possible score for our index is zero, which indicates that men and women fare equally, and the lowest score is 1, which denotes absolute inequality between them. Each of the four pillars is also bound between zero (equality) and 1 (inequality), which is useful for comparison with an ideal standard of equality. We attach equal weight across categories and indicators, which is a sign of very little redundancy across subgroups and similar importance in explaining variations in the index. Aggregating across four dimensions using geometric and harmonic means, we compute the actual level of inequality. Then we subtract that value from 1, which represents gender parity across all dimensions.

Countries with a lower gender inequality index tend to have more female participation in ownership (Figure 2.7). The index of opportunities is also strongly correlated with a number of development outcomes.

- Lower gender inequality is associated with higher GDP per capita in countries at all levels of development, with the strongest relationship in middle-income countries.

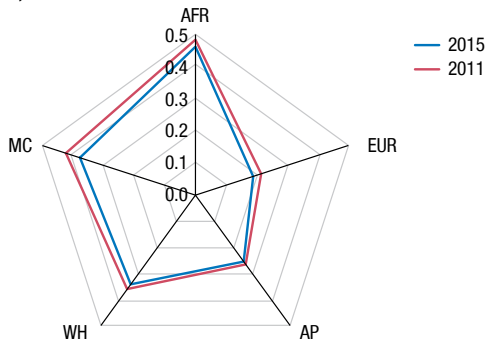
Figure 2.5. Four Measures of Gender Inequality

1. Range of Country Outcomes, 2015



Source: IMF staff estimates.

2. Trend across Regions, 2011–15



Source: IMF staff estimates.

Notes: 0 = equality, 1 = inequality. AFR = Africa; AP = Asia and Pacific; EUR = Europe; MC = Middle East and central Asia; WH = western hemisphere.

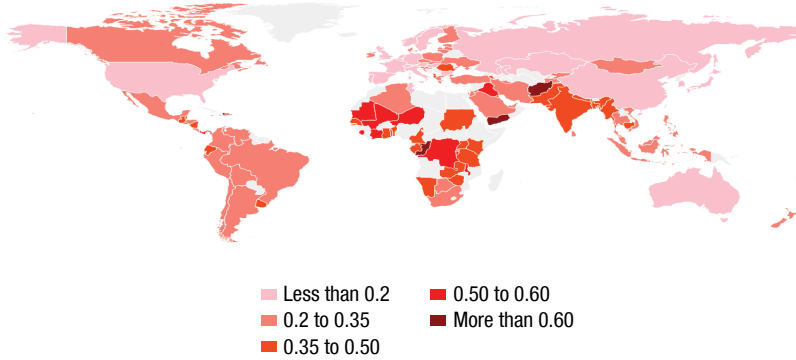
- Countries with higher infant mortality exhibit higher gender inequality, especially low-income countries.
- Lower gender inequality in opportunity goes hand in hand with greater happiness in countries at all income levels.²
- Higher gender inequality is related to lower human development, particularly in low-income countries.³

²The happiness index is extracted from the most recent *World Happiness Report* from 2015. The index measures subjective well-being, which encompasses cognitive evaluation of one’s life and positive and negative emotions.

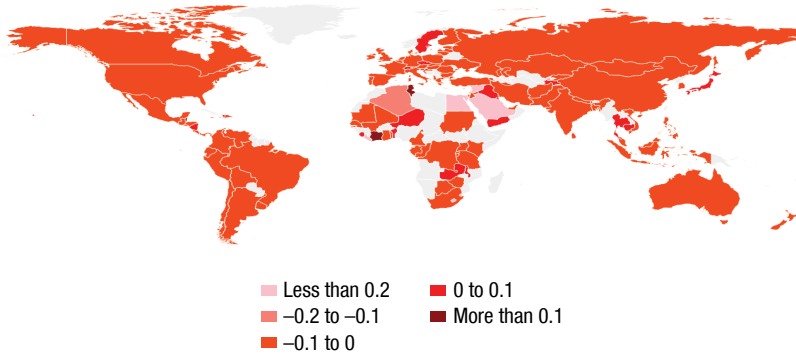
³Human development is measured by the United Nations’ Human Development Index—a summary measure of average achievement in key dimensions of human development such as a long and

Figure 2.6. Gender Inequality Index, 2011–14

1. Constructed Gender Inequality Index across Countries, 2014



2. Constructed Gender Inequality Index, Change between 2011–14



- Less developed countries with higher gender inequality tend to have higher headcount ratios (the proportion of the population that lives below the poverty line).

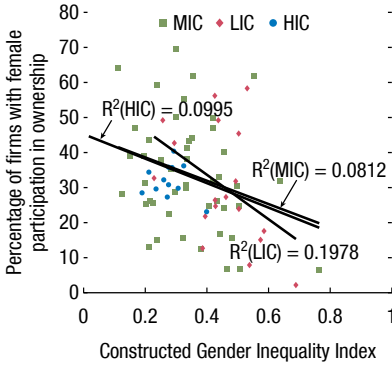
GENDER INEQUALITY IN ECONOMIC OUTCOMES

Labor market outcomes are far from equal across countries, and trends in labor force participation vary significantly. In the past three decades, an increasing number of economic opportunities has attracted more women into the labor force in countries at all income levels and across all regions, except in the Middle East and south Asia. Women now represent 40 percent of the global labor force

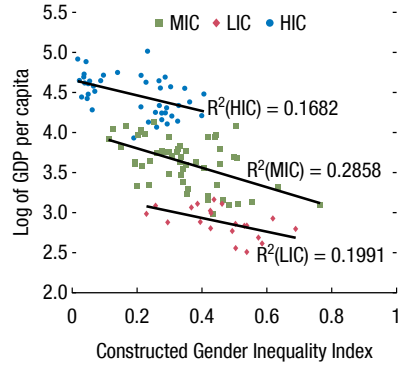
healthy life, being knowledgeable, and having a decent standard of living.

Figure 2.7. Relationship between Gender Inequality and Development

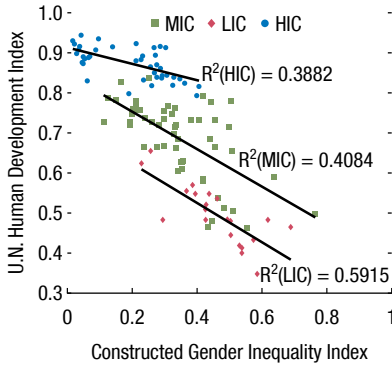
1. Gender Inequality and Entrepreneurship



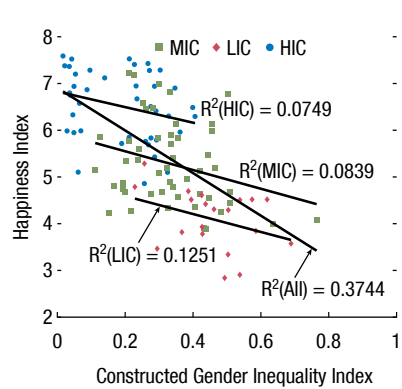
2. Gender Inequality and GDP per Capita



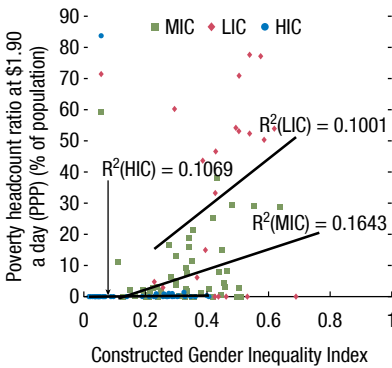
3. Gender Inequality and U.N. Human Development Index



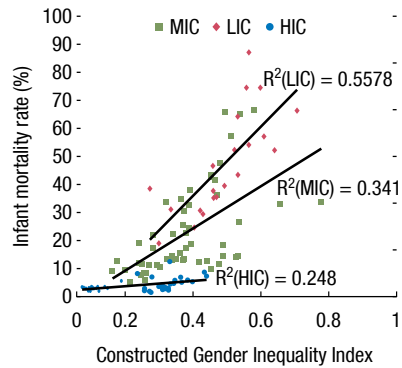
4. Gender Inequality and Happiness Index



5. Gender Inequality and Poverty (US\$1.9)



6. Gender Inequality and Infant Mortality Rate



Sources: U.N. Human Development Index; and IMF staff estimates.

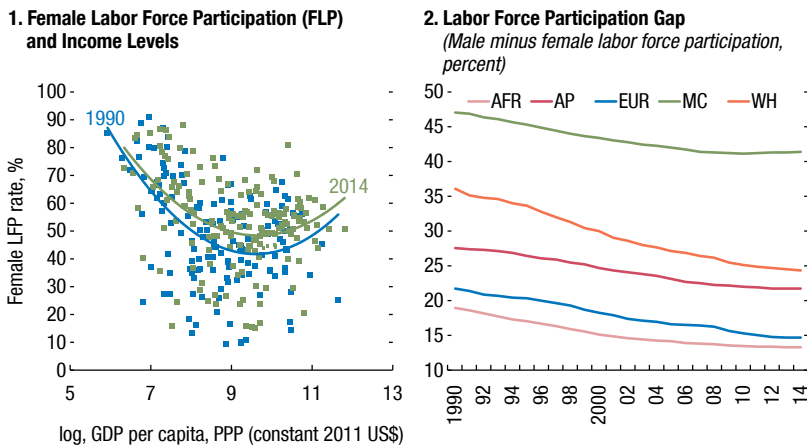
Note: HIC = high-income country; LIC = low-income country; MIC = middle-income country; PPP = purchasing power parity.

(World Bank 2011), but their labor force participation has hovered around 50 percent over the past two decades. The average rate masks significant cross-regional differences in levels and trends. In 2014, female labor force participation varied from a low of 22 percent in the Middle East and north Africa to more than 61 percent in east Asia and the Pacific and almost 64 percent in sub-Saharan Africa. Latin America and the Caribbean experienced a strong increase in female labor force participation of some 13 percentage points over the past two decades, but rates have been declining in south Asia. In Europe and central Asia, the rate has stayed broadly constant.

Female labor force participation varies with income per capita, with evidence pointing toward a U-shaped relationship (Figure 2.8). At lower levels of income per capita, a high participation rate reflects the necessity to work in the absence of social protection programs. When household income is higher and there is more social protection, women can withdraw from the market in order to work in their households and care for children. At advanced-economy income levels, labor force participation rebounds as a result of better education, lower fertility, access to labor-saving household technology, and the availability of market-based household services (Duflo 2012; Tsani and others 2012; World Bank 2011). The U-shaped relationship has been found to remain stable over time and to hold when controlling for country characteristics.

The average gender participation gap—which is the difference between male and female labor force participation rates—has been declining since 1990, largely due to a worldwide fall in male labor force participation rates. The gender gap

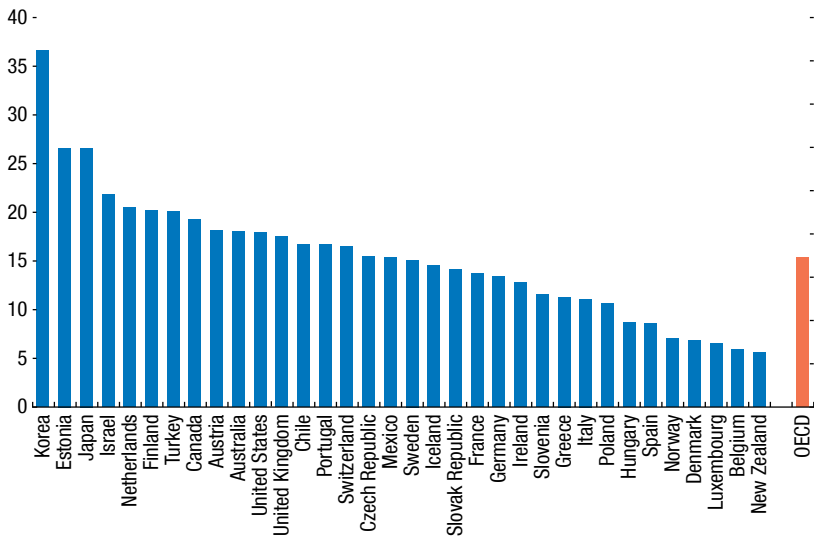
Figure 2.8. Gender Gaps in the Labor Market



Source: OECD 2015.

Notes: AFR = Africa; AP = Asia and Pacific; EUR = Europe; MC = Middle East and central Asia; WH = western hemisphere. PPP = purchasing power parity.

Figure 2.9. Gender Wage Gap, 2013
(Percentage points)



Source: Organisation for Economic Co-operation and Development (OECD) 2015.

varies strongly by region, with the highest gap observed in the Middle East and north Africa (51 percentage points), followed by south Asia and Central America (above 35 percentage points), while the lowest levels are seen in OECD countries and in the Middle East and north Africa (about 12 percentage points).

Variations in the gender gap are significant even among OECD countries. For instance, the gender gap in the Japanese labor market stands at 25 percentage points, compared with just over 10 percentage points on average in the major advanced economies and only 6 percentage points in Sweden. Across the OECD, female employment is concentrated in the services sector, which accounts for 80 percent of employed women, compared with 60 percent for men. Within this sector, women fill a disproportionately high share of occupations in health and community services, followed by education (OECD 2012). An analysis by the International Labour Organization (2012) finds that women are overrepresented in sectors characterized by low status and low pay.

Box 2.2 Fifty Years of Legal Rights for Women

The 50 Years of Women's Legal Rights database tracks changes in a woman's right to access legal institutions and use property for 100 economies over a period of 50 years.¹

Accessing Legal Institutions

Information compiled in this category of the database examines differences in the degree to which women and men have the right to interact with public authorities and the private sector. The information addresses questions in the following areas:

Women's Status and Capacity	Access to the Judicial System	Constitutional Rights
1. Can adult married women become a head of household or head of a family? 2. Can married women get a job or pursue a profession? 3. Can married women open a bank account? 4. Can married women sign a contract?	5. Can married women initiate legal proceedings without their husband's permission?	6. Is equality guaranteed? 7. Is there a nondiscrimination clause covering gender/sex? 8. Is customary law valid under the Constitution? 9. Is customary law invalid if it violates the nondiscrimination clause? 10. Is religious law valid under the Constitution? 11. Is religious law invalid if it violates the nondiscrimination clause?

Use of Property

Questions addressed in this category relate to women's ability to own, manage, control, and inherit property.

Property Ownership	Marital Regimes	Inheritance
12. Do unmarried women have equal property rights concerning immovable property? 13. Do married women have equal property rights concerning immovable property?	14. What is the default marital property regime? ² 15. Is joint titling of property the default case for married couples?	16. Do sons and daughters have equal inheritance regarding immovable property? 17. Do surviving spouses have equal inheritance regarding immovable property?

¹ The database is available at <http://wbl.worldbank.org/methodology/historical-data-methodology>.

² Each of the examined property regimes confers a different degree of financial independence on women. In the full community property regime, all assets and income brought into a marriage as well as acquired during the marriage are treated as jointly owned. At the other end of the spectrum, there is the separation of marital property under which property acquired during or before marriage is not jointly owned. Community property regimes recognize the nonmonetary contributions of women. They allow women to acquire wealth and provide for greater financial security, and they determine how women can buy, sell, or use property as collateral.

There is a significant wage gap associated with gender, even for the same occupations and when controlling for relevant factors such as education. Across OECD countries, the average gender wage gap—the difference between male and female median wages divided by male median wages—is estimated at 16 percent (Figure 2.9). Occupational segregation and reduced working hours, in combination with differentials in work experience, explain about 30 percent of the wage gap on average. While narrower for young women, the wage gap increases steeply during childbearing and childrearing years, pointing to an additional “motherhood penalty,” estimated at 14 percent across OECD countries. Among emerging market economies, wage gaps vary considerably, but they are relatively high in China, Indonesia, and South Africa. Comparatively narrow wage gaps in the Middle East and north Africa are explained by the small share of women in wage employment, who are often more highly educated than their male colleagues. In several countries, earnings differences are even more significant when comparing women and men with higher educational attainment (OECD 2012).

CONCLUSIONS

While gender inequities around the world have decreased tremendously, various challenges remain. Female labor force participation has been rising in many regions; there have been rapid increases in female literacy rates in many regions; and gender gaps in education have been shrinking worldwide and have closed in some regions. In the political sphere, the number of women in elected office has increased in many countries. But despite these notable advances, gender equality in opportunities and outcomes remains an elusive goal, and gender inequality persists not only as a local phenomenon but in various forms around the world. The precise nature of gender gaps varies, but in the majority of countries there are differences between men and women in decision-making power, economic participation, access to opportunities, and social norms and expectations.

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ANNEX 2.1. CONSTRUCTING THE GINDEX

We constructed the Gindex using indicators of educational empowerment, health, legal empowerment, and financial access.

- Educational empowerment is the difference in the percent of completion of secondary education by men and women. And the long-term view of a country's ability to empower women is captured through the proportion of seats held by women in the national parliament.
- Access to health care is captured through maternal mortality and the adolescent fertility rate, given its strong association with heightened health risks for mothers (see also the United Nations' Gender Inequality Index).
- The legal empowerment of women in decision-making processes translates into better development outcomes. To analyze legal empowerment, we look at statutory impediments to women's access to the judicial system, constitutional rights, land and property ownership, and disparity in inheritance law. In 100 countries, women face gender-based job restrictions, which is a call to urgent action.
- Gender gaps in financial access are captured by the percent of women and men ages 15 and older who have an account at a financial institution.

The first two dimensions are captured by the United Nations' Gender Inequality Index, but the index has drawn criticism for not capturing legal empowerment. To this end, we augment the index with information from the World Bank's Women, Business and the Law database by using indicators from two dimensions that are also available back to 1960 in the World Bank's 50 Years of Women's Legal Rights database (World Bank 2013): (1) accessing institutions, which captures the difference in legal treatment of women and men by public authorities and the private sector; and (2) using property, which identifies disparities in women's ability to control, inherit, and manage property.

Each of these subtopics captures a number of questions, and we use a subset of those to construct the index. In particular, we include the average of 12 indicator questions listed in Box 2.2, with a few exceptions. Because of an insufficient number of observations, we do not include four questions relevant to constitutional rights (questions 8–11). We also drop the series on the default property regime (question 14). The subindex value ranges between zero (none of the

measured legal rights present) and 1 (all measured rights present). Since our calculations involve a geometric mean we define a minimum value of 0.1 for all zero values.

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PART II

The Macroeconomic Gains from Gender Equity

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Gender Inequality and Macroeconomic Performance

DAVID CUBERES, MONIQUE NEWIAK, AND MARC TEIGNIER

Economists have extensively studied and discussed the existence, origins, and importance of several types of gender gaps, including in wages, labor force participation, presence in certain occupations, access to inputs, education, and power within the household. This chapter analyzes the effects of gender inequality from a *macroeconomic* perspective. The argument is that gender gaps in pay and in access to resources, occupations, and credit—among other things—not only have negative *microeconomic* effects on women but also imply large costs for the aggregate economy. To make this argument both qualitatively and quantitatively, the chapter focuses on the labor market and examines two gender gaps—participation in the labor force and participation in entrepreneurial occupations.

An economy-wide model, based on Cuberes and Teignier 2016, was simulated to describe the occupational choices of individuals. The chapter presents the benchmark setup, which is used to examine the effects of these gender gaps in advanced Organisation for Economic Co-operation and Development (OECD) countries. The model is extended to capture the different realities of the labor market in developing economies. These models are then simulated to predict the potential market costs associated with these two gaps. Aggregate data are used to estimate the country-specific gender gaps and to quantify the income loss relative to a situation without gender gaps. Dynamic income gains are computed under different scenarios for closing the gender gap in the labor market for a subsample of countries, taking into account the expected evolution of fertility. This is especially important for high-income countries, where fertility rates have been steadily declining for several decades and where the working-age population is projected to shrink in the decades ahead. In the absence of significant immigration in many of these countries, a more efficient use of the female labor force seems a promising strategy to increase labor force participation and mitigate the economic impact of aging.

Finally, the chapter empirically analyzes the relationship between estimated gender gaps in the labor market and the survey-based assessment of societies'

A version of this chapter was previously published as Cuberes and Teignier 2016.

values regarding gender issues as captured by the World Values Survey (WVS). The WVS collects detailed information from nationally representative surveys conducted in almost 100 countries that together comprise almost 90 percent of the world's population. It has been widely used by scientists and policymakers to examine changes in global beliefs, values, and motivations. The topics covered in the questionnaires include economic development, democratization, religion, gender equality, social capital, and subjective well-being. On gender, the WVS measures ask whether interviewees agree with a range of statements such as “when a mother works for pay, the children suffer” or “when jobs are scarce, men should have more right to a job than women.” These indicators are shown to correlate significantly with labor force participation gender gaps but not much with gender gaps in entrepreneurship.

EVIDENCE LINKING GENDER INEQUALITY AND GROWTH

Some important empirical and theoretical papers explore the two-directional link between gender inequality in the labor market and economic growth or aggregate productivity.¹

In the empirical arena, several studies document that economic growth has a positive effect on gender equality in the labor market (Dollar and Gatti 1999; Tzannatos 1999; Stotsky 2006), and even more show through different measures that gender inequality is detrimental to economic growth (Tzannatos 1999; Klasen 2002; Abu-Ghaida and Klasen 2004; Stotsky 2006; Klasen and Lamanna 2009).

Theoretical papers identify several channels through which gender inequality may decrease as countries develop. First, as countries develop, fertility rates fall, and as a result, female labor force participation rises. Becker and Lewis (1973) assume that the *income effect* on a household's fertility—which leads to a desire to have more children—is smaller than the *substitution effect*—which motivates households to have fewer children. This implies that there exists a threshold of income per capita above which a country's fertility starts to decrease. This decline in fertility facilitates the incorporation of women into the labor market and therefore helps reduce the gender gap in labor force participation (Becker 1985).

Another explanation emphasizes the technological progress that almost always accompanies the process of economic growth (Greenwood, Seshadri, and Yorukoglu 2005; Olivetti 2006; Attanasio, Low, and Sanchez-Marcos 2008). In particular, as countries experience technological progress in household production, women—who tend to specialize in the production of household goods—can produce the same amount of goods and services much more efficiently and are able to spend more hours working in the formal labor market, thereby diminishing the gender gap in labor force participation. Medical advances such as the

¹For a more detailed review, see Cuberes and Teignier 2014.

birth control pill (Goldin and Katz 2002; Bailey 2006) and the reduction in postpartum disabilities (Albanesi and Olivetti, 2016) have also helped increase women's participation in the labor market.²

A third popular explanation for the role of economic growth in decreasing gender inequality is that as countries become richer, women enjoy more rights, perhaps because they derive greater benefits from their education. When education results in better jobs and salaries, parents are motivated to educate sons and daughters equally as an investment in future generations (Doepke and Tertilt 2009) or perhaps because that is what other parents are doing (Lagerlöf 2003).

Alternatively, some studies emphasize the effect of labor demand forces that favor women. Many argue that, as countries develop, there is expansion in the services sector, as well as in occupations where physical force is less important, which leads women's employment to increase faster than men's—see Goldin (1990, 2006); Galor and Weil (1996); Weinberg (2000); Rendall (2010); Akbulut (2011); Ngai and Petrongolo (2015); and Buera, Kaboski, and Zhao (2013). Other demand-driven explanations are discussed in Olivetti (2006); Heathcote, Storesletten, and Violante (2010); Black and Spitz-Oener (2010); Gayle and Golan (2012); Beaudry and Lewis (2014); and Goldin (2014b).

Finally, a society's values about women could also explain the rise in female labor force participation. This includes views on married women working (Fernández, Fogli, and Olivetti 2004), how women feel about the effect of their labor market choices on their children (Fogli and Veldkamp 2011), and women's own sense of self (Fernández 2013). A society's views often translate into changes in regulations. For instance, Fernández (2014) suggests that economic development and its associated decline in fertility lead to reforms of property rights in favor of women. Fortin (2005) uses data from the 1990, 1995, and 1999 WVS to study how religious beliefs and gender-role attitudes affect female labor supply and the gender wage gap in 25 OECD countries. She finds that antiegalitarian views display a strong negative association with female employment rates and the gender pay gap, although her results must be taken with caution given the low number of observations. More recently, the World Bank (2013), using later waves of the WVS, shows that for a 10 percent increase in the proportion of people who agree with the statement "scarce jobs should go to men first" there is a reduction in women's employment rate of 5 to 9 percent.

Other articles study theoretically the two-directional link between gender inequality and economic growth. For example, in Galor and Weil (1996), women are found to have a comparative advantage in intellectual activities, while men have the edge in physical tasks. As a result, as an economy develops and the demand for skilled labor increases, wages rise faster for women than for men. This, in turn, reduces women's fertility, as they make the optimal choice to increase their participation in the labor market. Over the long term, the drop in

²A related factor that has contributed to the incorporation of mothers into the labor force is the increasing availability of childcare (Attanasio, Low, and Sanchez-Marcos 2008).

population increases capital per worker and, hence, induces faster growth. In this scenario, if a limit is introduced on the rise in the relative women's wage, perhaps due to discrimination, the optimal choices of women are distorted, and potential output growth is reduced.

Very few papers quantify the efficiency losses associated with specific gender gaps using a theoretical framework. One exception is Cavalcanti and Tavares (2016), who calibrate the Galor and Weil (1996) model assuming the presence of wage discrimination against women. Their results suggest that the aggregate effects of such discrimination are very large and can explain a significant fraction of differences in output per capita across countries.³ Using a similar methodology, Hsieh and others (2013) compute the growth benefits of removing the occupational friction between races and genders in the United States between 1960 and 2008.

A THEORETICAL MODEL TO QUANTIFY THE COSTS OF OCCUPATIONAL GENDER GAPS

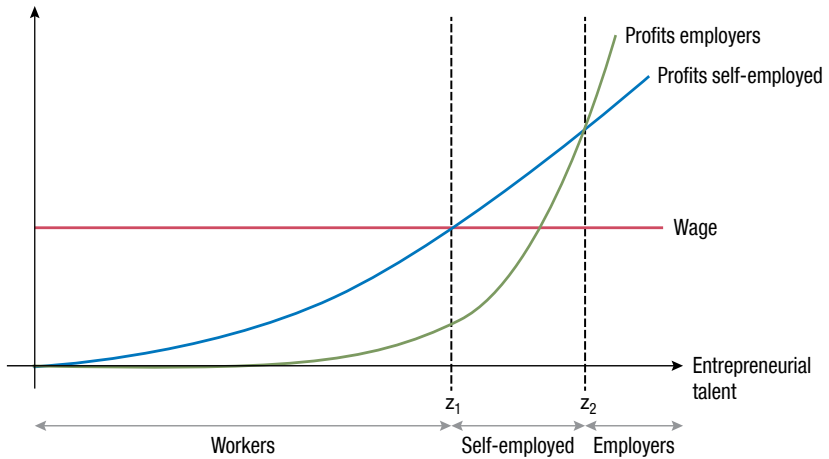
The benchmark theoretical model used in this chapter is a simple extension of the model by Lucas (1978), in which individuals with different innate managerial abilities choose to become workers, self-employed, or employers. In the model, goods are produced using a span-of-control technology that combines managerial talent and other inputs to produce goods. Figure 3.1 displays the occupational choice map predicted by this model.

Individuals with the highest level of entrepreneurial talent prefer to be employers, whereas those with the least prefer to work for someone else's firm and those with intermediate levels of talent gravitate toward self-employment. At the same time, those with more talent run larger firms: the more talented among those who become employers (managers who hire workers to produce goods) manage firms with more workers and capital than the less talented, and those who are self-employed run firms with more or less capital depending on their level of talent.

There are an equal number of men and women in the model, all of whom draw their entrepreneurial talent from the exact same distribution function. This does not imply that every man and woman has the same talent, but instead that they have the same probability of being born with a given level of talent. The only difference between men and women in this model is that the latter are subject to several exogenous constraints on their choices. The model takes these constraints as given—that is, the focus is on explaining their effects instead of their origins. It is entirely possible that women choose not to participate in the labor market and, even if this diminishes the economy's productivity, it may enhance welfare.

The first constraint is that only a fraction of women participate in the labor market. The implicit assumption is that women cannot produce goods outside

³A related paper is Esteve-Volart 2004, which developed a dynamic model with gender gaps in employment and various distortions in the allocation of talent.

Figure 3.1. Occupational Choice Map in the Theoretical Framework

Source: Cuberes and Teignier (2014).

the labor market; thus, if a woman is excluded from the market her productivity is zero.⁴ Second, only a fraction of those women who do participate in the labor market are “allowed” to freely choose their occupation. More specifically, some women are barred from being employers and others are barred from self-employment. All of these gaps are assumed to be random and unrelated to women’s talent. Therefore, it is possible in the model to have a very talented woman who, in a world without frictions or constraints, would become an employer with a large firm but ends up being a worker. As a consequence, an individual with less talent will likely become an entrepreneur, making the average firm’s productivity fall due to the corresponding misallocation of resources.

The main objective of the exercise is to quantify how large these costs are in the model and in each of the countries in the sample. To do this, some additional structure is imposed. Following the existing literature, the initial assumption is that an individual’s talent is drawn from a Pareto distribution. Reasonable values for several crucial parameters of the model were then assumed. In particular, the parameter that captures the span-of-control element of the production technologies is set at 0.790, as in Buera and Shin 2011. This allows the capital share in the production function to be pinned down, at a value of 0.114. Finally, data on the share of employers and self-employed people in the sample of OECD countries

⁴This omits the possibility of women producing some type of good in the household sector or in the informal economy. This topic is discussed at the end of the chapter.

are used to infer the values of two additional parameters of the production function and the distribution of talent.⁵

Table 3.1 shows the results of the most extreme scenario, in which women are entirely excluded from each occupation. In particular, the model shows that the exclusion of all women from becoming employers or self-employed generates an income loss of 10 percent in the short term (when the capital stock is kept constant) and 11 percent in the long term (when the capital stock is adjusted to its new steady-state value). The income loss, which can be interpreted as overall GDP, would be 7.1 percent in the short term and 8.6 percent in the long term if all women were excluded from being employers but not from self-employment; it would be 47.0 percent in the short term and 50.0 percent in the long term if all women were excluded from any occupation in the labor market.

Actual cross-country data are used for 2010 for the male-female ratio of labor force participation, share of employers, and share of self-employed people for the sample of 33 OECD countries.⁶ The average labor force participation ratio is 0.78, which means that only 78 women participate in the labor market for every 100 men in the OECD sample; the average ratio of employers was 0.38; and the average self-employment ratio was 0.65. Therefore, the model indicates an average entrepreneurship gender gap of 0.43 (the fraction of women excluded from becoming employers and self-employed) and an employership gender gap of 0.18 (the fraction of women excluded from employership but not from self-employment).

On average, the income lost because of the entrepreneurship gaps amounts to 5.7 percent, whereas the total cost—the sum of the entrepreneurship and labor force participation costs—is 15.4 percent. Given that the mean GDP per capita in 2010 for OECD countries was \$35,672, eliminating all the labor market gender gaps studied in this chapter would imply an average income increase of

TABLE 3.1.

Potential Income Losses from Gender Gaps (Benchmark Model)
(Percent)

	Short Term	Long Term
Largest possible employership gap	7.1	8.6
Largest possible entrepreneurship gap	10.1	11
Largest possible labor force participation gap	46.8	50

Source: Cuberes and Teignier 2016.

⁵For more details on how these parameters are chosen, see Cuberes and Teignier 2016.

⁶The OECD countries included in the analysis are Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Luxembourg, Mexico, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, South Korea, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.

about \$6,500 per capita in that year. Eliminating the entrepreneurship gender gaps, on the other hand, would translate to an average income rise of about \$2,200 for each OECD inhabitant.

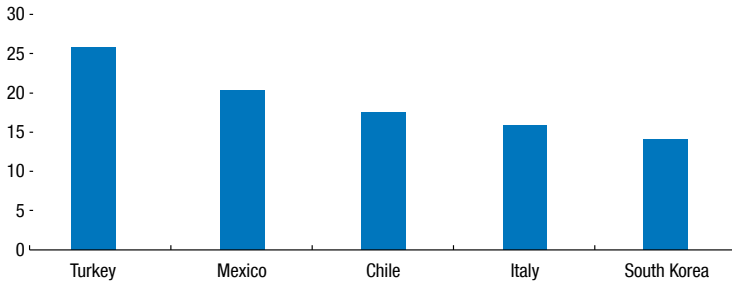
Turkey has the largest income loss due to the labor force participation gender gap (Figure 3.2, panel 1), and Israel has the largest income loss due to gender gaps in entrepreneurship (panel 2). In Turkey, where GDP per capita in 2010 was \$10,111, income per capita would have increased by about \$5,000 if all gender gaps had been eliminated and by about \$800 without the entrepreneurship gender gap. In Israel, on the other hand, GDP per capita in 2010 was \$30,736, which would have meant an income gain of about \$4,900 barring all labor market gender gaps and about \$2,400 without the entrepreneurship gap.

Extended Model

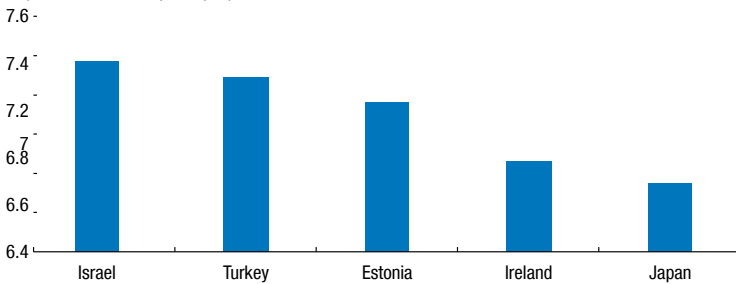
The benchmark model has clear-cut implications for occupational choices: people with the most entrepreneurial talent become employers, the least talented ones

Figure 3.2. Costs to Advanced Economies of Occupational Gender Gaps, 2010

1. Long-Term Costs from Labor Force Participation Gaps
(Percent of income per capita)



2. Largest Long-Term Costs from Entrepreneurship Gaps
(Percent of income per capita)



Source: derived from Cuberes and Teignier (2016)

Note: Sample of 33 Organisation for Economic Co-operation and Development (OECD) countries for 2010.

TABLE 3.2.

Potential Income Losses from Gender Gaps (Extended Model) (Percent)		
	Short Term	Long Term
Largest possible employership gap	3	3.7
Largest possible entrepreneurship gap	33.5	36.1

Source: Cuberes and Teignier 2016.

end up being workers, and those with intermediate talent choose self-employment. However, there is some evidence that, in developing economies, low-skilled workers tend to be self-employed rather than employees (Poschke 2013). To capture this situation, a new friction is introduced into the model: only a (random) fraction of both men and women are allowed to become workers. As before, there is no speculation about the causes of this constraint. The share of this necessity self-employed is then calibrated using data for non-OECD countries from the International Labour Organization for the most recent year available.

Table 3.2 summarizes the potential costs associated with gender gaps in this extended model, assuming that only 25 percent of men and women who want to be workers are allowed to do so. The costs associated with entrepreneurship gender gaps are much larger than in the benchmark model, because most of the women excluded from entrepreneurship are barred from becoming employees. Interestingly, however, the costs associated with gender gaps in employers are now significantly smaller, because the average talent of employers is not as negatively affected—the effective labor supply is now lower and, as a result, the equilibrium wage rate falls by less, which leads to a smaller number of low-talent agents choosing to become entrepreneurs.

Table 3.3 presents the long-term effects of the gender gap in developing economies, grouped in seven regions. The Middle East and north Africa, with a total income loss of 38 percent, is the region with the largest loss, followed by south Asia and Latin America and the Caribbean. South Asia, on the other hand, has the largest income loss due to gender gaps in entrepreneurship, followed by east

TABLE 3.3.

Income Losses from Gender Gaps in Developing Economies (Percent)		
	Entrepreneurship Gaps	All Gaps
Central Asia	7.1	10.1
East Asia and the Pacific	7.8	16.0
Europe	5.4	10.8
Latin America and the Caribbean	5.3	17.3
Middle East and Northern Africa	7.7	37.8
South Asia	9.8	24.9
Sub-Saharan Africa	6.0	12.0

Source: Cuberes and Teignier 2016.

Note: Includes non-Organisation for Economic Co-operation and Development countries using data from the International Labour Organization.

Asia and the Pacific, the Middle East and north Africa, and central Asia. For some low-income countries, the income losses estimated in this chapter may be regarded as low when compared with the average losses for the OECD sample but they are significant in absolute terms. It is important to point out that the model may not capture all of the constraints women face in their labor market choices. More detailed data on employment by industry and type of job would be necessary to quantitatively estimate these restrictions. However, to the extent that they distort the efficient allocation of labor, the actual aggregate losses from gender inequality in the labor market would be larger, and the estimates in this chapter can be interpreted as a lower bound.

THE ROLE OF DEMOGRAPHICS

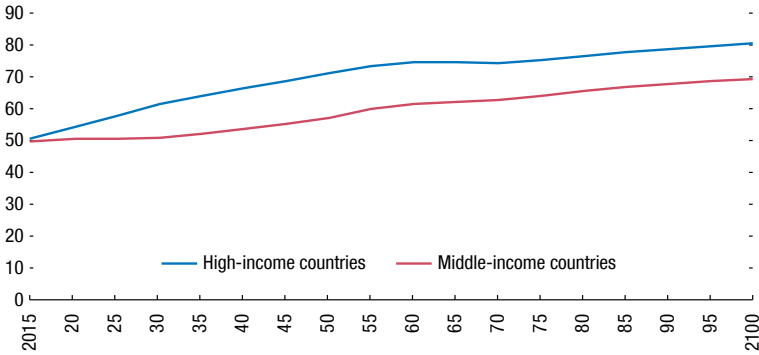
Population growth has stalled in several countries, and the United Nations Population Fund projects that, under an assumption of medium fertility,⁷ in high- and middle-income countries, there will be a rise in dependency ratios, defined as the size of the non-working-age population to the working-age population (ages 15–64) (Figure 3.3). In high-income countries, dependency ratios could increase from slightly above 50 percent in 2015 to almost 75 percent in 2060 and above 80 percent in 2100. In middle-income countries, the dependency ratio could rise from almost 50 percent in 2015 to more than 61 percent in 2060 and almost 70 percent in 2100. With a lower share of the population in the labor force, real GDP per capita growth in these countries could decline. However, as highlighted elsewhere in this chapter, many of the affected countries possess pools of highly educated women, many of whom do not participate in the labor force or are underrepresented in self-employment and among employers.

To model the implications of a (relative) decline in the labor force, the model is augmented by a restriction on both the male and female workforce to capture the increase in the dependency ratio for men and women over time. The effects of these declines are then explored under four scenarios: (1) no change in gender gaps in the labor market; (2) a constant decrease in gender gaps over time, with their elimination in 50 years; (3) a constant decrease in gender gaps over time, with their elimination in 100 years; and (4) a constant decrease in gender gaps over time, with their elimination in 150 years.

The results from this simulation imply that decreasing gender gaps in the labor market could substantially mitigate the economic cost of population aging. Table 3.4 outlines the scenarios in countries for which a change in the dependency ratio, all else equal, would result in GDP per capita losses of at least 5 percent by 2035. The results suggest that even relatively slow decreases in gender gaps in the labor force could significantly reduce the negative effect on GDP from

⁷The medium projection assumes a decline of fertility for countries where large families are still prevalent as well as a slight increase of fertility in several countries with fewer than two children per woman on average.

Figure 3.3. Population Dependency Ratios, 2015–2100
(Population younger than age 15 or older than age 64 as percent of population ages 15–64)



Source: United Nations Population Division.
 Note: Assumes medium fertility.

population aging. In several countries (Chile, Czech Republic, Japan, Lebanon, FYR Macedonia, Malta, Mauritius), continuous steps to eliminate gender gaps in 50 years could overcompensate for the negative effects from an overall declining labor force by 2035, leading to overall GDP gains. In the vast majority of other countries, the effect of rising dependency ratios could be decreased by more than 50 percent if gender gaps were eliminated in continuous steps over 50 years. Policies to speed up gender gap declines would, of course, yield higher gains.

THE ROLE OF ATTITUDES TOWARD WOMEN

One plausible explanation for the adverse labor outcomes of women in a country's labor market is the value that a society places on women. A society's values regarding gender issues, as measured by the World Values Survey, are compared using scatter plots against the gender gaps in employers calculated in Cuberes and Teignier 2016.

This analysis, similar to Fortin 2005 and World Bank 2013, points to a strong negative correlation between gender gaps in labor force participation and attitudes toward women. However, as in these two works, this exercise reflects only correlation and not causation. In particular, this correlation does not prove the existence of discrimination against women; it does, however, suggest that discrimination is a good candidate to explain why it is difficult for women to participate in the labor market in some countries.⁸

⁸See Bertrand 2011 for a detailed discussion of causality.

TABLE 3.4.

	No Change in Gender Gaps	Gender Gap Disappears in 150 Years	Gender Gap Disappears in 100 Years	Gender Gap Disappears in 50 Years
Australia	5.6	3.9	3.1	0.5
Austria	12.2	10.7	10	7.9
Belgium	8.1	6.2	5.2	2.5
Barbados	8.8	6.8	5.9	3.5
Chile	5.7	2.7	1.3	-3.3
Croatia	6.7	5.5	4.9	3.1
Cyprus	5.5	3.7	2.8	0.3
Czech Republic	6	3.5	2.3	-1.3
Germany	13.7	12.1	11.4	9.1
Denmark	7.4	5.7	4.9	2.7
Estonia	5.1	4.4	4.1	3.6
Finland	6.9	5.8	5.3	4
France	5.7	4.2	3.5	1.5
Hong Kong SAR	16	14.4	13.6	11.4
Iceland	6.2	4.9	4.2	2.4
Italy	10.6	7.9	6.5	2.5
Japan	6.3	3.9	2.7	-0.9
Republic of Korea	15.7	13.5	12.4	9.1
Lebanon	5.6	-1.8	-5.8	-18.1
Lithuania	6.1	5.8	5.7	5.7
Luxembourg	9.4	7.2	6.1	2.8
Macao SAR	15.3	13.9	13.3	11.6
Macedonia, Former Yugoslav Republic	7.5	4.1	2.4	-2.7
Malta	9.2	4.7	2.3	-4.8
Mauritius	6.4	2.1	-0.1	-6.9
Netherlands	10.8	9.1	8.2	5.7
New Zealand	6.5	4.9	4.1	1.8
Norway	7.3	5.6	4.8	2.5
Poland	6.8	5.2	4.4	2.1
Portugal	7.1	6	5.6	4.2
Romania	6	4	3	0.5
Singapore	13.9	11.7	10.7	7.5
Slovakia	7.6	5.7	4.8	2.2
Slovenia	11.9	10.4	9.7	7.5
Sweden	5.7	3.8	2.9	0.4
Thailand	8.9	7	6.1	3.8
Switzerland	11.2	9.5	8.7	6.2
United Kingdom	6	4.2	3.4	1
United States	7.6	6	5.2	2.9

Source: Authors' calculations.

As noted, the WVS data set collects detailed information from nationally representative surveys conducted in almost 100 countries that together comprise almost 90 percent of the world's population. The WVS includes the following statements about gender equality, with which respondents are asked if they agree or disagree:

- “When jobs are scarce, men should have more right to a job than women.”
- “If a woman earns more than her husband, it's almost certain to cause problems.”
- “Having a job is the best way for a woman to be an independent person.”
- “When a mother works for pay, the children suffer.”
- “On the whole, men make better political leaders than women do.”
- “A university education is more important for a boy than for a girl.”
- “On the whole, men make better business executives than women do.”
- “Being a housewife is just as fulfilling as working for pay.”
- “It is justifiable for a man to beat his wife.”

Table 3.5 shows how much the extent of agreement with each statement in a given country correlates with that country's gender gap in the labor market, as calculated in Cuberes and Teignier 2016.

It is apparent that the labor force participation gender gaps correlate with the expected sign in all cases. However, somewhat surprisingly, the estimated gender gaps in entrepreneurship show no significant correlation with how women are valued in a society.

Figure 3.4 plots the negative relationship across countries between four of the indicators from the WVS and the labor force participation gender gaps. Clearly, the negative relationship is not driven by any specific outlier. The second striking observation is that there is a tremendous amount of clustering of countries by region. In particular, all of the plots show Middle Eastern and north African countries heavily concentrated in the area with low value placed on women and large gender gaps in labor force participation. Finally, although the relationship between values and gender gaps in the labor market is strong, there is quite a bit of variation around the trend line, implying that other factors, such as policies, may contribute to explaining gender gaps in the labor market.

The way a society values women seems to have a lot to do with low female participation in the labor market, but it is less relevant when it comes to the gap in the share of women in the labor market that are employers. Figure 3.5 shows very low correlation and highlights the possible role of other omitted explanatory variables, such as parental leave policies, labor market arrangements, market competition, and education policies.

TABLE 3.5.

Correlation between Labor Gender Gaps and Views on Women's Rights		
Indicator of Values about Women's Rights	Labor Force Participation Gender Gaps	Employership Gender Gaps
When jobs are scarce, men should have more right to a job than women	-0.60***	-0.07
If a woman earns more than her husband, it's almost certain to cause problems	-0.48***	-0.32**
Having a job is the best way for a woman to be an independent person	0.25*	0.02
When a mother works for pay, the children suffer	-0.72***	-0.07
On the whole, men make better political leaders than women	-0.54***	-0.06
A university education is more important for a boy than for a girl	-0.55***	-0.08
On the whole, men make better business executives than women	-0.54***	-0.12
Being a housewife is just as fulfilling as working for pay	-0.28*	-0.01
It is justifiable for a man to beat his wife	0.22	0.23

Source: Statements from World Values Survey; values reflect authors' calculations.

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

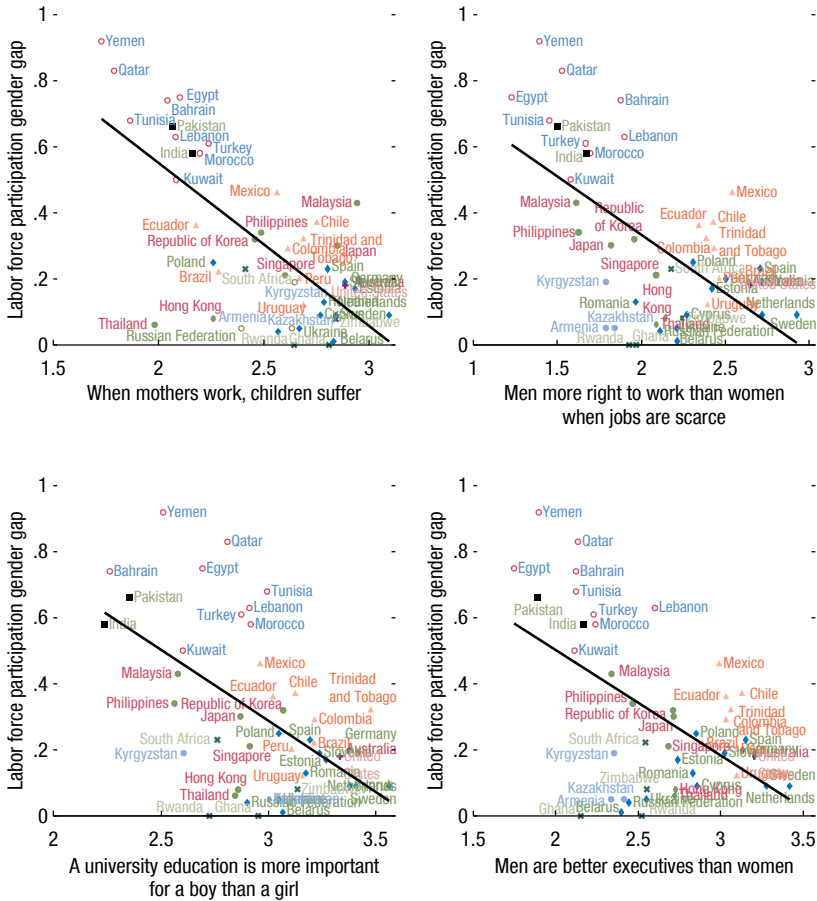
CONCLUSIONS

There are clear macroeconomic effects of gender inequality in the labor market. The quantitative framework provided in Cuberes and Teignier 2016 predicts significant macroeconomic losses from gender inequality; this analysis finds an average income loss due to the estimated labor market gender gaps of 15.4 percent of GDP in the OECD sample of advanced economies and 17.5 percent in the non-OECD sample of developing economies. There are important differences across countries and geographical regions: The Middle East and north Africa had the largest income losses, averaging 38 percent, followed by south Asia and Latin America and the Caribbean, with long-term income losses of 25 and 17.3 percent, respectively.

In terms of demographics, the simulation results suggest that even relatively slow decreases in gender gaps in the labor market could significantly reduce the negative effects on GDP of population aging. In the majority of countries, more than 50 percent of the effect of rising dependency ratios (that is, proportional decreases in the size of the workforce) could be eliminated in 50 years by a gradual removal of gender gaps, and in several countries this scenario could more than offset the negative effects from a declining labor force by 2035, leading to overall GDP gains.

The analysis indicates that differences in social values can only partially explain the heterogeneity in the labor market gender gaps observed across countries. There is a significant negative correlation between how much a country respects women's rights and female labor force participation, but almost no correlation with gender gaps when it comes to the percentage of employers in the labor force.

Figure 3.4. Views on Women's Rights and Gender Gaps in Labor Market Participation

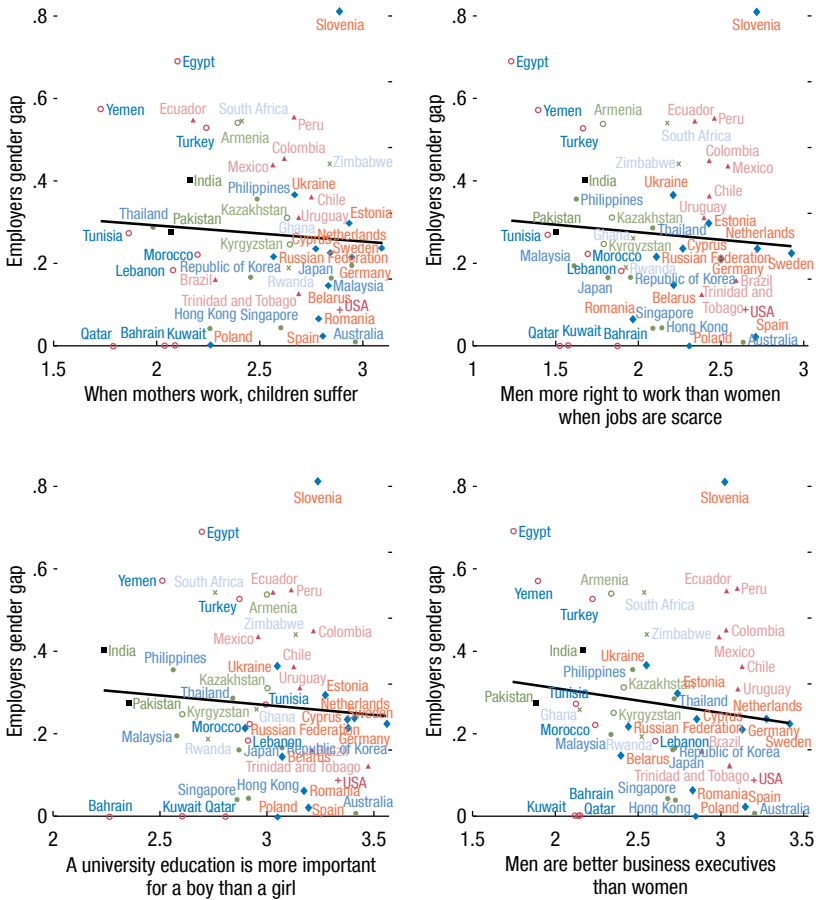


Source: Statements from World Values Survey; values reflect authors' calculations.

In any case, the strong negative association between how women are viewed and their labor force participation suggests that other factors likely play a role, and public policies aimed at reducing these gaps may have an effect. These are some examples of policies that could promote gender equality in the labor market:

- Paid maternity leave and child support
- A gender-neutral legal framework for business
- Reduced administrative burdens on firms and fewer excessive regulatory restrictions

Figure 3.5. Views on Women’s Rights and the Employer Gender Gap



Source: Statements from World Values Survey; values reflect authors' calculations.

- Equal access to financing for female and male entrepreneurs
- Financing programs paired with support measures such as financial literacy training, mentoring, coaching, and consulting services
- Increased access to support networks, including professional advice on legal and financial matters

This analysis focuses on observed gender disparities in access to the labor force and entrepreneurship; it does not take into account other types of gender gaps that exist in many countries' labor markets, such as women's employment in firms

of various sizes, by job type, or by sector.⁹ To the extent that gaps represent additional hurdles faced by women and imply a distortion of efficient labor allocation, actual aggregate losses from gender inequality in the labor market would be larger. In that sense, this chapter's estimates of the costs of labor gender gaps can be regarded as a lower bound, especially in developing economies. On the other hand, the fact that we assume away the possibility of household production may be overstating the costs we calculate.

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⁹A note of caution: It is tempting to interpret gender gaps in female labor force participation as evidence of discrimination against women, but this conclusion can be highly misleading. As is clear from the literature review, supply-driven factors may explain why women participate less actively in the market and would remain even in the absence of discriminatory behavior by firms.

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ANNEX 3.1. LIST OF COUNTRIES BY REGION

Central Asia: Armenia, Kazakhstan, Kyrgyz Republic

East Asia and the Pacific: Australia, Hong Kong SAR, Japan, Malaysia, Philippines, Singapore, Korea, Thailand

Europe: Belarus, Cyprus, Estonia, Germany, Netherlands, Poland, Romania, Russia, Slovenia, Spain, Sweden, Ukraine

Latin America and the Caribbean: Brazil, Chile, Colombia, Ecuador, Mexico, Peru, Trinidad and Tobago, Uruguay

Middle East and northern Africa: Bahrain, Egypt, Kuwait, Lebanon, Morocco, Qatar, Tunisia, Turkey, Yemen

North America: United States

South Asia: India, Pakistan

Sub-Saharan Africa: Ghana, Rwanda, South Africa, Zimbabwe

Tackling Income Inequality

CHRISTIAN GONZALES, SONALI JAIN-CHANDRA, KALPANA KOCHHAR,
MONIQUE NEWIAK, AND TLEK ZEINULLAYEV

Attaining a more equitable society and narrowing gender differences are desirable not just from a social equity perspective but also because doing so will benefit the macroeconomy. The previous chapters discuss various channels through which higher gender inequality can impede growth, productivity, and development outcomes. This chapter highlights a new channel through which gender inequality can interact with the economy—through its effect on income inequality.

Income inequality and gender-related inequality interact in various ways. First, gender wage gaps directly contribute to income inequality. Furthermore, large gaps in labor force participation rates between men and women are likely to result in unequal earnings between the sexes, thereby exacerbating income inequality. These economic outcomes may be a consequence of unequal opportunities and enabling conditions for men and women and for boys and girls.

Several dimensions of gender inequality are associated strongly with income inequality across time and across countries at all income levels. This chapter shows that:

- Gender inequality is strongly associated with income inequality. This intuitive hypothesis was verified in an empirical analysis that controls for the standard drivers of income inequality previously highlighted in the literature and extends the United Nations' Gender Inequality Index (GII) to cover two decades for almost 140 countries. An increase in the multidimensional GII from zero (perfect gender equality) to 1 (perfect gender inequality) is associated with an increase in net income inequality, as measured by the Gini coefficient, which ranges from zero (full income equality) to 100 (full income inequality). This increase in net inequality is almost 10 points.
- Gender inequality exists everywhere, but it varies. These empirical results hold for countries across all levels of development, but the relevant dimensions of gender inequality are different. For advanced economies—where gender gaps in education are largely closed and opportunity across the sexes is more equal—income inequality arises mainly because of differences in economic participation by men and women. In emerging market and

A version of this chapter was previously published as Gonzales and others 2015b.

low-income economies, unequal opportunity (in particular gender gaps in education and health) appears to pose the main obstacle to more equal income distribution.

Improving equality of opportunity and removing legal and other obstacles that prevent women from reaching their full economic potential would give women the option to become economically active, should they so choose.

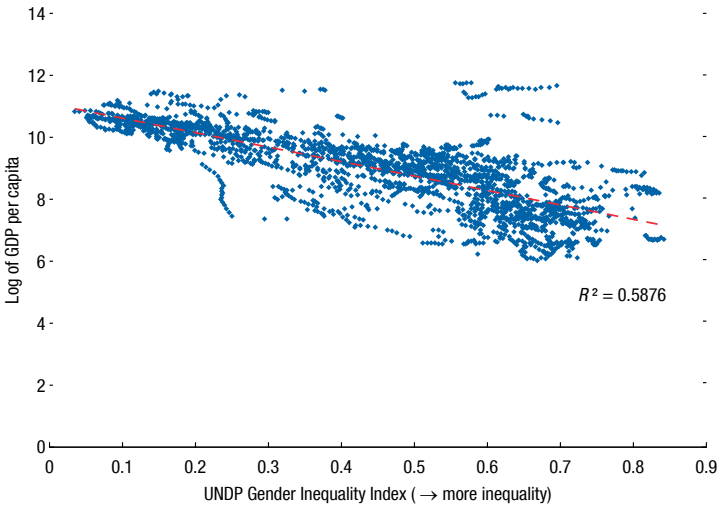
MACROECONOMIC IMPLICATIONS OF INCOME AND GENDER INEQUALITY

Income inequality can impede economic growth in various ways. Higher inequality in income and wealth can lead to underinvestment in physical and human capital (Galor and Zeira 1993; Galor and Moav 2004; Aghion, Caroli, and Garcia-Penalosa 1999). Income inequality has been associated with lower levels of mobility across generations (Corak 2013) and can dampen aggregate demand (Carvalho and Rezaei 2014). On the other hand, inequality can stimulate growth by spurring innovation and entrepreneurship and, in developing economies, by allowing at least a few individuals to accumulate the minimum resources to start a business (Lazear and Rosen 1981; Barro 2000).

While the effect of income inequality on growth is ambiguous in principle, recent IMF studies show empirically that, in fact, a less equal income distribution hurts growth. In particular, lower net income inequality has been robustly associated with faster growth and longer growth episodes (Ostry, Berg, and Tsangarides 2014). Moreover, the distribution of income also matters in its own right. An increase in the income share of the top 20 percent is associated with lower GDP growth over the medium term, whereas an increase in the income share of the bottom 20 percent is associated with higher GDP growth (Dabla-Norris and others 2015). Using U.S. microcensus data, van der Weide and Milanovic (2014) show that income inequality decreases income growth for the poor but not for the rich.

Likewise, the various dimensions of gender-based inequality also have major macroeconomic and development-related implications. Gender inequality can influence economic outcomes through several channels (Elborgh-Woytek and others 2013):

- *Development*—There is a positive association between gender equality and GDP per capita, competitiveness levels, and human development indicators (WEF 2014; Duflo 2012; Figure 4.1). Women are more likely than men to invest a large proportion of their household income in the education of their children; higher economic participation and earnings by women could therefore translate into higher expenditure on school enrollment for children (Aguirre and others 2012; Miller 2008; Rubalcava, Teruel, and Thomas 2004; Thomas 1990).

Figure 4.1. Gender Inequality and GDP per Capita

Sources: United Nations Development Program (UNDP), *Human Development Report*; World Bank, World Development Indicators database; and IMF staff estimates.

- *Economic growth*—Gender gaps in economic participation restrict the pool of talent in the labor market and can thus yield a less efficient allocation of resources and total factor productivity losses and lower GDP growth (Cuberes and Teignier 2016; Esteve-Volart 2004). In a cross-country study, Klasen (1999) shows that 0.4 to 0.9 percentage points of the difference in growth rates between east Asia, sub-Saharan Africa, south Asia, and the Middle East can be explained by differences in gender gaps in education. Figure 4.2 and Box 4.1 highlight that higher gender inequality (as measured by the multidimensional GII) is associated with lower economic growth. This finding is consistent with Hakura and others 2016, which shows that gender inequality is negatively associated with growth, in particular in low-income countries, broadly confirming the findings by Amin, Kuntchev, and Schmidt (2015), which are based on a cross section of countries.
- *Macroeconomic stability*—In countries facing a shrinking workforce, raising economic participation, including by women, can directly yield growth and stability gains by mitigating the impact of a decline in the labor force on growth potential and ensuring stability of pension systems (Steinberg and Nakane 2012).

Box 4.1. Gender Inequality and Economic Growth

Previous studies highlight that gender gaps in labor force participation, entrepreneurial activity, and education impede economic growth (Cuberes and Teignier 2012; Esteve-Volart 2004; Klasen and Lamanna 2009). Cuberes and Teigner (2016) simulate an occupational choice model that imposes several frictions on economic participation and wages of women and show that gender gaps in entrepreneurship and labor force participation significantly reduce income per capita. IMF 2015 finds that legal equality is robustly related to real GDP growth per capita in all countries.

We use the United Nations' Gender Inequality Index (GII), which captures three dimensions of gender inequality, including labor market participation, reproductive health, and empowerment (see Box 4.2 for details on the construction of the index). This multidimensional index is then included in cross-country growth regressions. The results in Table 4.1.1 highlight that higher gender inequality is associated with lower economic growth even when controlling for a number of determinants of growth such as investment, population growth, institutional quality, and education. The results indicate that an amelioration of gender inequality that corresponds to a 0.1 reduction in the GII is associated with almost 1 percentage point higher economic growth. In a similar exercise, IMF 2015 finds that increases in the GII are associated with a decrease in growth in low-income countries, on top of the effect of initial income inequality, as measured by the ratio of the top 20 to the bottom 40 percent of the income distribution.

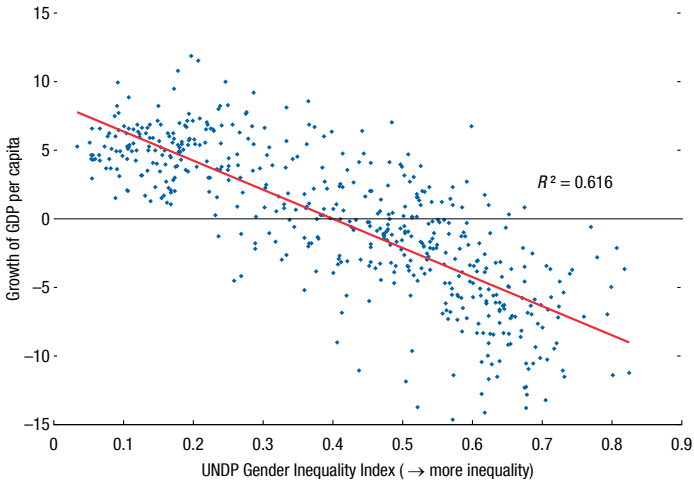
TABLE 4.1.1.

Gender Inequality and Economic Growth				
VARIABLES	Dependent Variable: Growth in GDP per Capita			
	Fixed Effects ¹		System GMM ²	
	(1)	(2)	(3)	(4)
Log (Initial income per capita)	-0.1068*** (0.0116)	-0.0975*** (0.0137)	-0.0539*** (0.0165)	-0.0202*** (0.0049)
UNDP Gender Inequality Index (GII)	-0.1120** (0.0431)	-0.1131** (0.0430)	-0.3818*** (0.1099)	-0.0885* (0.0452)
Log (Investment)		0.0225*** (0.0084)		0.0205** (0.0100)
Log (Population growth)		0.0046 (0.0048)		0.0118 (0.0109)
Log (Total education)		-0.0013 (0.0176)		0.0238 (0.0179)
Large negative terms of trade shock		-0.0004 (0.0049)		-0.0069 (0.0124)
Political institutions		0.0002 (0.0004)		0.0002 (0.0006)
Openness		0.0238*** (0.0079)		0.0113 (0.0121)
Debt liabilities		-0.0081*** (0.0024)		-0.0140*** (0.0040)
Observations (five-year averages)	508	405	508	405
Countries	128	97	128	97

Sources: Barro and Lee 2013; IMF, World Economic Outlook database; Lane and Milesi-Ferretti 2012; Ostry, Berg, and Tsangarides 2014; Penn World Tables; Polity IV; United Nations Development Program, *Human Development Report*; World Bank, World Development Indicators database; and IMF staff estimates.

¹ Estimated using country and year fixed-effects panel regressions with robust standard errors clustered at the country level shown in parentheses, * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

² GMM = generalized method of moments estimation. Estimated using two-step system GMM. Standard errors in parentheses, * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. Standard tests for the joint validity of instruments, as well as AR tests were satisfied. The Windmeijer (2005) finite sample correction for standard errors was used.

Figure 4.2. Gender Inequality and GDP Growth

Sources: United Nations Development Program, *Human Development Report*; World Bank, World Development Indicators database; and IMF staff estimates.

Note: Growth of GDP per capita was regressed on initial income to control for convergence.

TWO SIDES OF THE SAME STORY: HOW GENDER AND INCOME INEQUALITY ARE LINKED

Gender and income inequality have mostly been treated as separate topics in the literature, but they can and do interact through the following channels:

- *Inequality of economic outcomes*—Gender wage gaps directly contribute to income inequality. Moreover, high gaps in labor force participation rates between men and women are likely to result in unequal earnings between the sexes, thereby creating and exacerbating income inequality. Also, women are more likely to work in the informal sector, in which earnings are lower, which widens the gender earnings gap and exacerbates income inequality.
- *Inequality of opportunity*—Inequality of opportunity (such as unequal access to education, health services, financial markets, and resources, as well as differences in political empowerment) is strongly associated with income inequality (Mincer 1958; Becker and Chiswick 1966; Galor and Zeira 1993; Brunori, Ferreira, and Peragine 2013; Murray, Lopez, and Alvarado 2013; Castello-Climent and Domenech 2014). Inequality of opportunity is also strongly associated with gender gaps in opportunity. These unequal enabling conditions for men and women, and for boys and girls, may result in unequal economic outcomes. Specifically,
 - *Education*—Gender gaps in education persist, leading to higher inequality in opportunity (when both boys and girls go to school, opportunities

are more equal than they are when only boys go to school). If one segment of the population is excluded from educational opportunities, future income for this segment will be lower than for the other, resulting in higher income inequality.

- *Financial access and inclusion*—On average, women still have lower access to financial services than men, which makes it more difficult for them to start businesses or invest in education, exacerbating inequality of opportunity and thereby lowering wage and other income for women and worsening income inequality.

We find that several dimensions of gender inequality are associated with income inequality across time and across countries at all income levels. Following the arguments described previously, we empirically examine the effect of differences in outcomes and opportunities for men and women on income inequality.¹ Controlling for the drivers of inequality highlighted in the literature, the results indicate that gender inequality is strongly associated with income inequality. These results hold for countries across all levels of development, but the relevant dimensions vary. For advanced economies—with largely closed gender gaps in education and more equal economic opportunities for both sexes—income inequality arises mainly through gender gaps in economic participation. In emerging market and low-income economies, inequality of opportunity (in particular, gender gaps in education, political empowerment, and health) appears to pose the main obstacle to a more equal income distribution.

The analysis uses existing cross-country data on inequality, which have certain drawbacks. Empirical analysis of the drivers and consequences of income inequality has been impeded by the limitations of existing data sets. The Standardized World Income Inequality database draws from a number of sources with a view to maximizing comparability while ensuring the widest possible coverage across countries and over time. Nevertheless, these data have drawbacks, as missing observations are generated through model-based multiple imputation estimates. Using higher-quality data from the Luxembourg Income Study yields very similar results but restricts the sample to a smaller set of countries.

GENDER AND INCOME INEQUALITY: A WORLDWIDE CONNECTION

Gender inequality in outcomes and opportunity is strongly related to income inequality worldwide. The GII combines the following dimensions of outcome- and opportunity-based gender inequality: the labor market (gap between male

¹These theoretical arguments could be most clearly tested if income inequality were measured at the individual level. However, available data measure income inequality at the household level. Smaller gender gaps could potentially lead to higher income inequality across households if husbands and wives had the same (potential) income. However, in our empirical exercise, we find a strong association between gender inequality and income inequality even at the household level.

Box 4.2. Measuring Gender Inequality

There is no universally accepted compound measure of gender inequality, and so most studies focus on specific elements of gender inequality such as gaps in education, health, labor force participation, and political representation. In 1995, the United Nations Development Program created the related Gender Development Index (GDI) and the Gender Empowerment Measure as first attempts to develop a comprehensive measure of gender inequality. Several improvements to both indices eventually resulted in the creation of the Gender Inequality Index (GII) in 2010.

What the GII Measures

The GII is a composite measure of gender inequality in the areas of reproductive health (maternal mortality ratios and adolescent fertility rates), empowerment (share of parliamentary seats and education attainment at the secondary level for both males and females), and economic opportunity (labor force participation rates by sex). While not directly mapped to the GDI, the higher values of the GII can be interpreted to be a loss in human development. While the GII has drawbacks (such as a complicated functional form and combining indicators that compare men and women with indicators that pertain only to women), it is preferable to alternatives such as the GDI (in which one of the main components is not observed and is imputed). The regressions in this chapter are also run on subcomponents of the GII, with the findings being robust to the inclusion of these subcomponents.

Extending the GII

Previously, the GII index was available for 2008 and from 2011 to 2013. As the underlying data used for the construction of the index are available from 1990 onward, a major innovation of the paper underlying this chapter was to extend the GII from 1990 to 2010 (Gonzales and others 2015b). Data that are available only every five years were linearly interpolated. Because this analysis uses five-year panel regressions, this interpolation is not a major concern, but the nature of the data could be limiting in other types of analysis. There is a close relationship between the actual and constructed GII (correlation of 0.97) (Table 4.2.1).

A large number of gender-related indices have been developed, including the Economist Intelligence Unit's Women's Economic Opportunity Index, the Organisation for Economic Co-operation and Development's Social Institution and Gender Index, the World Bank's Country Policy and Institutional Assessments Gender Equality Rating, and the World Economic Forum's Global Gender Gap Index. However, most of these indices were created recently, which limits time coverage for empirical work. For years for which data overlap, the extended GII is highly correlated with other gender-related indices.

Box 4.2. Measuring Gender Inequality (*continued*)

TABLE 4.2.1.

Correlation between Gender Inequality Index and Other Indices

	GII (Constructed)	GII (Original)
SIGI	(0.89)	(0.88)
WEOI	(0.66)	(0.67)
Gender CPIA	0.50	0.60
GII (constructed)	1.00	0.97
UNDP GII (original)		1.00

Note: Negative signs reflect the fact that higher values for some indices represent higher inequality, whereas others represent higher equality. Time Coverage by Index: SIGI (2009, 2012, 2014), WEOI (2010 and 2012), CPIA (2005–14), GII Constructed (1990–2010), GII Original (2008, 2011–13).

and female labor force participation rates), education (difference between secondary and higher education rates for men and women), empowerment (female shares in parliament), and health (maternal mortality ratio and adolescent fertility). Box 4.2 contains details of the GII and its construction.²

This analysis uses the extended index because it provides a long time series that enables empirical analysis. Figure 4.3, panel 1 shows that the GII varies significantly across countries, with more gender inequality prevalent in south Asia and in the Middle East and north Africa. Encouragingly, gender inequality as measured by the GII has been declining in the majority of countries (panel 2).

The GII is highly correlated with income inequality, with the share of the top 10 percent earners of the income distribution across countries, and with poverty (Figure 4.4). This highlights that gender inequality in outcomes and in opportunity both interact closely with the level of income inequality across countries.

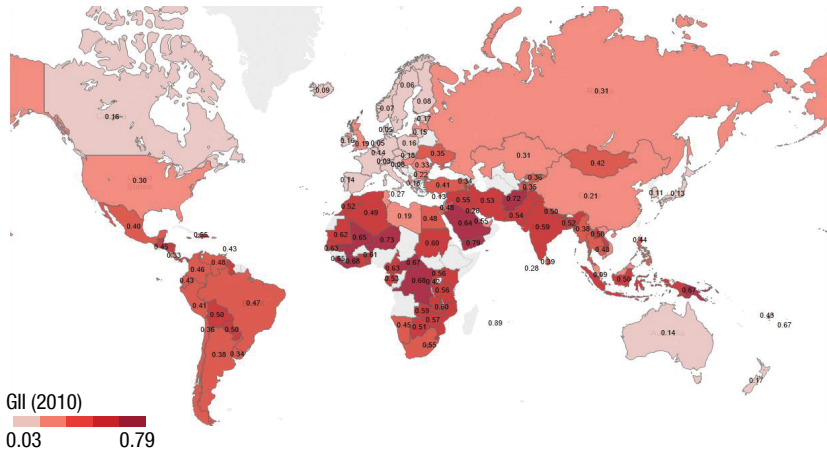
INCOME INEQUALITY AND GENDER GAPS IN LABOR FORCE PARTICIPATION

Large gaps in labor force participation rates between men and women are likely to result in inequality of earnings between the sexes, thereby increasing income inequality (Figure 4.5; Box 4.3). The correlation between gender gaps in labor force participation and income inequality is strongest in high-income countries.

²The GII ranges between zero (equal) and 1 (unequal), with a higher value of the index indicating more gender disparity in health, empowerment, and labor market outcomes. The world average score on the GII is 0.451. Regional averages range from 0.13 percent among European Union countries to nearly 0.58 percent in sub-Saharan Africa. Sub-Saharan Africa, south Asia, and the Middle East and north Africa exhibit the highest gender inequality (with average GII values of 0.58, 0.54, and 0.55, respectively).

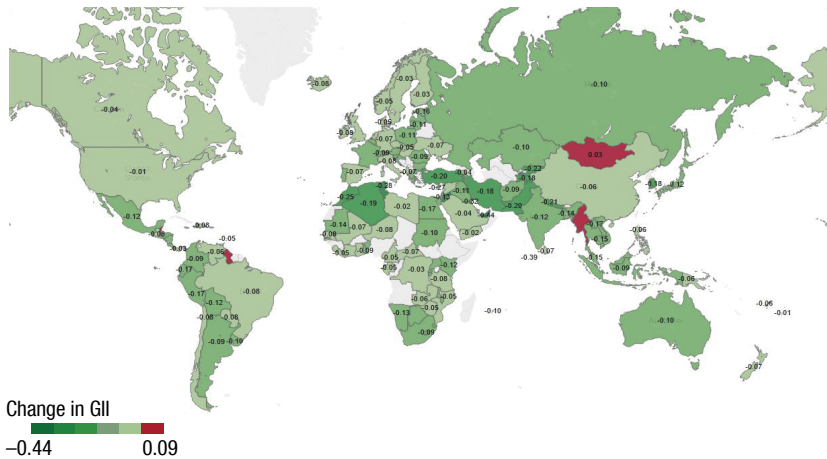
Figure 4.3. Gender Inequality across Countries

1. Gender Inequality Index across Countries, 2010



Source: United Nations Development Program, *Human Development Report*, and IMF staff estimates.
Note: Numbers in the map indicate Gender Inequality Index (0 = all equal, 1 = no equality).

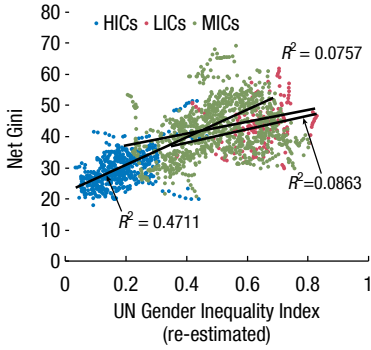
2. Change in Gender Inequality Index across Countries, 1990–2010



Source: United Nations Development Program, *Human Development Report*, and IMF staff estimates.

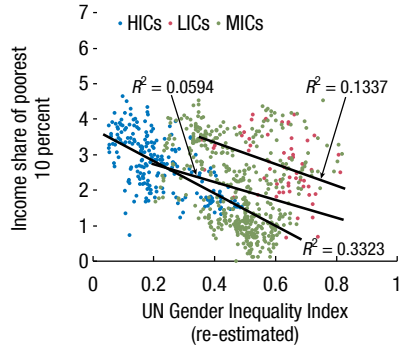
Figure 4.4. Gender Inequality, Income Inequality, and Poverty

1. Income Inequality and Gender Inequality



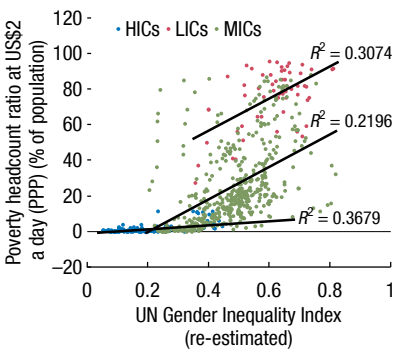
Sources: Solt 2016; United Nations; and authors' estimates.

2. Income Inequality and Gender Inequality



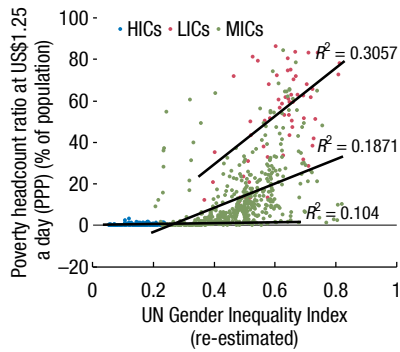
Sources: World Bank, World Development Indicators database; United Nations; and authors' estimates.

3. Poverty (US\$2) and Gender Inequality



Sources: World Bank, World Development Indicators database; United Nations; and authors' estimates.

4. Poverty (US\$1.25) and Gender Inequality



Sources: World Bank, World Development Indicators database; United Nations; and authors' estimates.

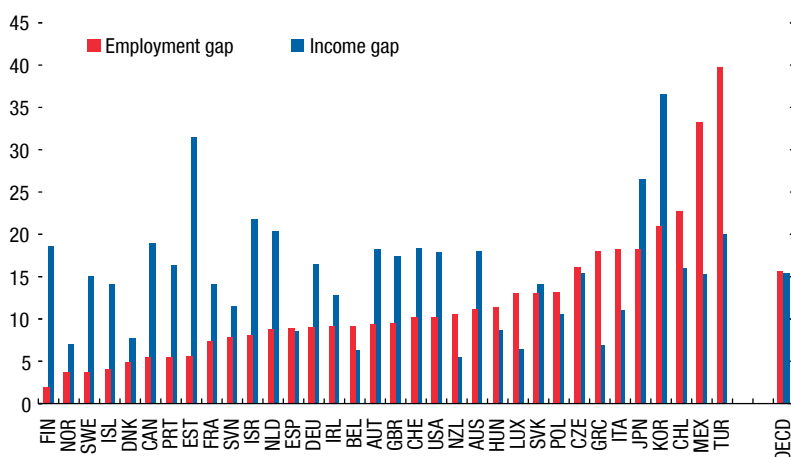
Note: HICs = high-income countries; LICs = low-income countries; MICs = middle-income countries; PPP = purchasing power parity.

Box 4.3. Employment and Income Gaps in Advanced Economies

The gaps between men and women in employment and earnings have been shrinking over the past 20 years in advanced economies (Figure 4.3.1; OECD 2015). Between 1992 and 2013, the gender employment gap decreased by 8 percentage points in the Organisation for Economic Co-operation and Development (OECD) on average, with Spain and Ireland experiencing the highest decline of almost 20 percentage points. However, the increase in men's unemployment as a result of the global financial crisis has been driving these results to a large extent (OECD 2012). The earnings gap between men and women has also declined by 4 percentage points compared with 2000, but men's median incomes remain higher than women's in all OECD countries. Women take home on average 15 percent less than men; they have higher chances of ending up in lower-paying jobs and face a lower probability of being promoted in their careers than men.

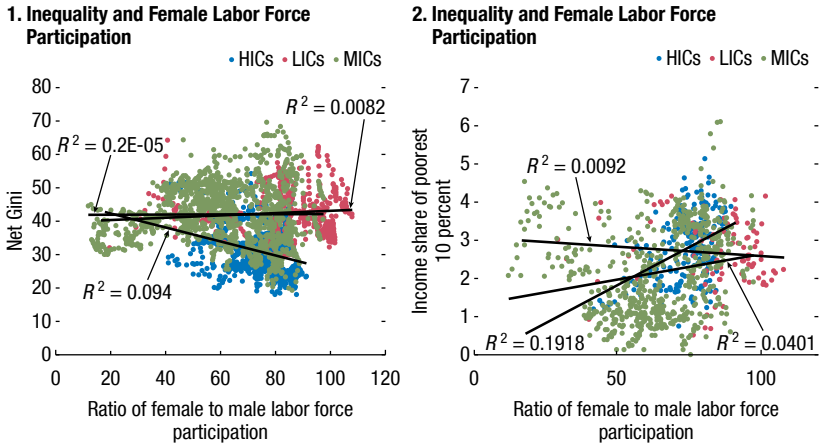
A higher proportion of working women has been associated with lower income inequality in the OECD. In particular, an increase in the proportion of households with working women (from 52 percent in the mid-1980s/early 1990s to 61 percent in the late 2000s), on average, decreased income inequality by 1 Gini point. The increasing work intensity of women was also associated with lower income inequality. Overall, the study finds that having more households with women in paid work, especially full-time work, means less income inequality by about 2 Gini points.

Figure 4.3.1. OECD Employment and Income Gaps
(Male minus female employment and income, percent)



Source: OECD 2015.

Note: Countries are listed using International Organization for Standardization (ISO) three-letter country codes.

Figure 4.5. Gender Gaps in Labor Force Participation and Income Inequality

Sources: Solt 2016; World Bank, World Development Indicators database.

Notes: HICs = high-income countries; LICs = low-income countries; MICs = middle-income countries.

This may be because there are fewer differences in the levels of education and working conditions between men and women in these countries. Also, there tends to be less legal and other discrimination between men and women in employment. In these circumstances, gender gaps in labor force participation would translate directly into differences in earnings for men and women, and thus to increased income inequality. In particular, in Organisation for Economic Co-operation and Development (OECD) countries, an increase in the proportion of households with working women decreased income inequality by 1 Gini point on average, and OECD countries with large gender pay gaps tend to have larger employment gaps as well (OECD 2015; see Box 4.3). In lower-income countries, the correlation between income inequality and gender gaps in labor force participation tends to be lower, as other gender gaps (in education and health) are significant and are key drivers of income inequality.

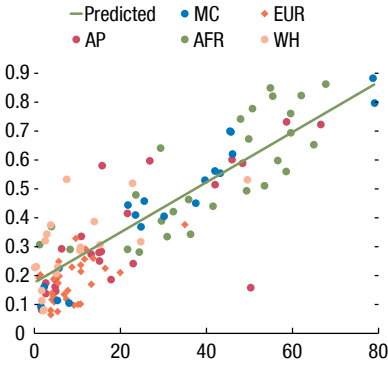
INEQUALITY OF OPPORTUNITY: EDUCATION, FINANCIAL ACCESS, AND HEALTH

Considerable gender gaps in education persist and are closely linked with more unequal access to education and to inequality in outcomes, particularly income inequality.

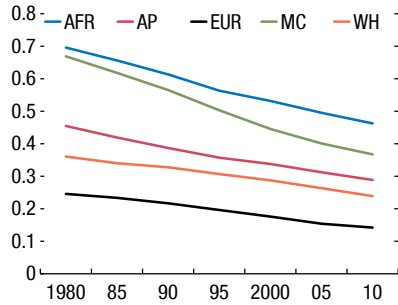
Gender gaps in education (measured by the difference in years of schooling between men and women) are highly correlated with overall inequality in educational attainment across countries, as measured by the education Gini coefficient (Figure 4.6). There appears to be a clear gender dimension in access to education.

Figure 4.6. Education

1. Education Gini and Education Gender Gap
(Correlation: 0.762)

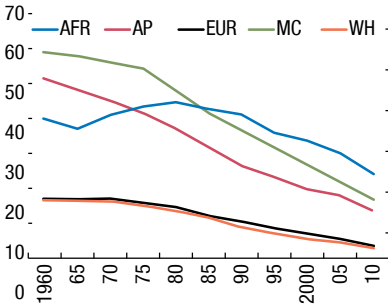


2. Education Gini, 1980–2010
(0 = equal; 1 = unequal)

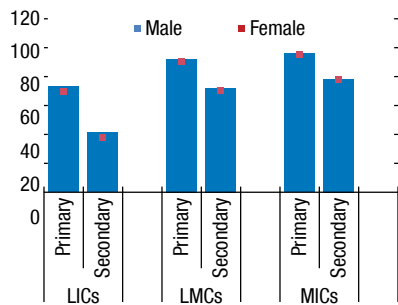


3. Gender Gap in Educational Attainment, 1960–2010

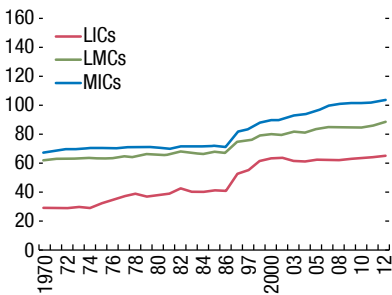
(Five-year averages, gap in male-minus-female years of education over male years of education)



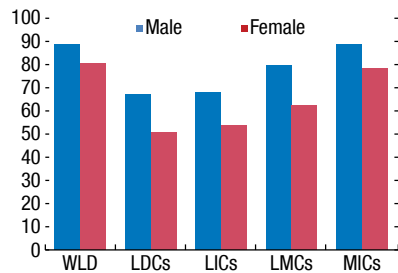
4. Completion Ratio, 2012 or Latest Available
(Percent of relevant age group)



5. Tertiary Enrollment Ratio, 1970–2012
(Female to male, percent)



6. Adult Literacy Rate (2012 or Latest Available)
(Percent of people over age 15)



Source: World Bank, World Development Indicators database, 2015.

Notes: AFR = Africa; AP = Asia and Pacific; EUR = Europe; MC = Middle East and central Asia; WH = western hemisphere; LICs = low-income countries; LMCs = lower middle-income countries; MICs = middle-income countries.

Progress has been made, and gender gaps in education and the education Gini have been declining steadily over the past decades. Sub-Saharan Africa and the Middle East and north Africa exhibit the highest education-related inequality. Gender gaps in literacy rates among adults remain substantial in low- and middle-income countries, likely reflecting a lag that will exist until narrower gender gaps in primary and secondary education translate into higher literacy rates.³

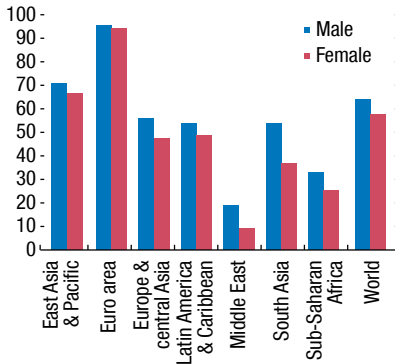
Empirical studies have found that a more equal distribution of education is associated with a more equal income distribution. However, the large decline in education inequality has not coincided with a similar decrease in income inequality over time. This is likely due to growing returns to education, skill-biased technological change, and globalization as offsetting factors (Thomas, Wan, and Fan 2001; de Gregorio and Lee 2002; Castello-Climent and Domenech 2014; Dabla-Norris and others 2015).

Limited financial access can increase inequality, and financial access by income and gender are closely related. Figure 4.7 shows that financial access for women is lower than it is for men, while higher-income households have greater access to financial services. Access to financial services has increased worldwide, but it remains fragmented across gender and income, with women and the poorest 40 percent of the income distribution having a smaller probability of access to financial services in each region of the world. In three regions (the Middle East and north Africa, south Asia, and sub-Saharan Africa), the gender gap in financial access actually increased between 2011 and 2014.

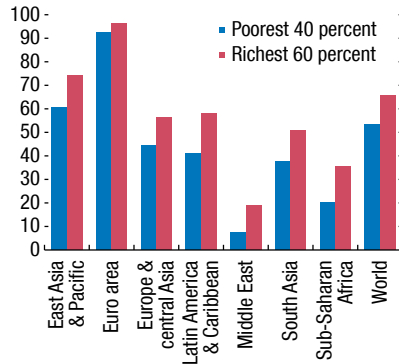
Countries where access to financial services is unequal across income groups also tend to have large gender gaps in access to financial services. This could be because weaker financial access among income groups distorts the allocation of resources, which results in underinvestment in human and physical capital and can thereby exacerbate income inequality (Galor and Zeira 1993). Better access to financial services has been empirically associated with lower Gini coefficients (Honohan 2007). However, theoretically, the effect may be nonlinear. In a micro-founded general equilibrium model, Dabla-Norris and others (2015) find that lowering the cost to financial access may decrease inequality only after a critical share of the population uses these services and that lowering collateral constraints may increase inequality because it favors economies of scale for the most productive businesses.

Inequality in access to health services is widespread in some countries and is associated with higher income inequality. Specifically, maternal health and adolescent fertility are closely related to income inequality and the incidence of poverty. High fertility rates have been associated with less economic activity by women. In particular, high adolescent fertility prevents girls from going to school and subsequently entering the labor market. It also means that women enter the

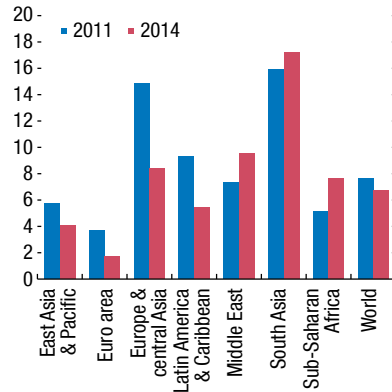
³There is no significant difference in the completion of primary and secondary school rates between boys and girls worldwide. Women's postsecondary school enrollment rates have recently surpassed those of men, on average.

Figure 4.7. Financial Inclusion**1. Account at a Financial Institution, 2014**
(Percent of population)

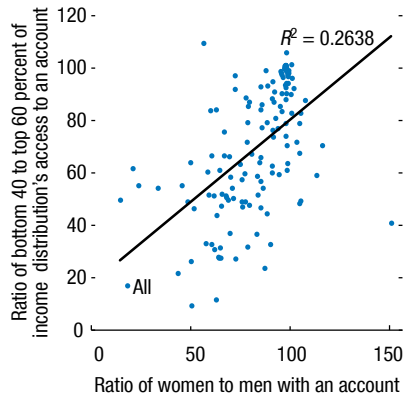
Source: Findex 2014.

2. Account at a Financial Institution, 2014
(Percent of population)

Source: Findex 2014.

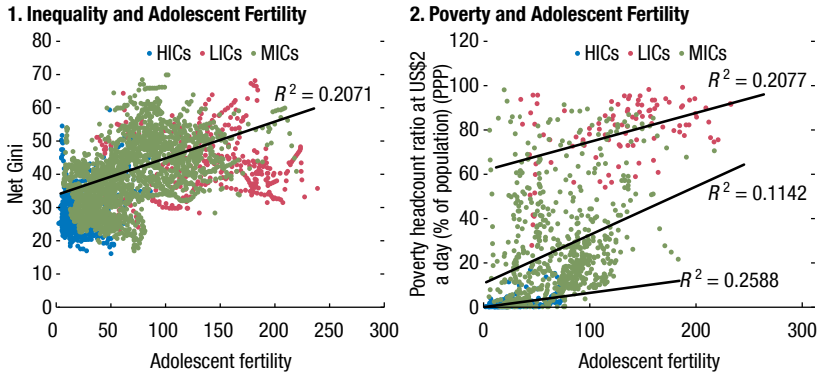
3. Gender Gap in Financial Inclusion
(Percentage of men minus percentage of women with account at financial institution)

Source: Findex 14; Solt 2016.

4. Access Inequality by Gender and Income, 2014

Source: Findex 14; Solt 2016.

labor market with limited skills, which increases inequality in education, economic participation, and pay between men and women. This association is reflected in higher degrees of inequality and higher poverty rates for countries in which adolescent fertility is high (Figure 4.8).

Figure 4.8. Health

Sources: Solt 2016; World Bank, World Development Indicators database.

Notes: HICs = high-income countries; LICs = low-income countries; MICs = middle-income countries; PPP = purchasing power parity.

LINKING GENDER AND INCOME INEQUALITY EMPIRICALLY

The literature posits a number of standard determinants that drive income inequality. Recent analysis by the IMF (Dabla-Norris and others 2015) finds that the drivers of income inequality include technological progress and the resulting increase in skill premiums, globalization, the decline of some labor market institutions, and financial openness and deepening. The relevant drivers differ depending on the level of a country's development: the rise in the skill premium is a key driver in advanced economies, whereas financial deepening (absent commensurate increases in financial inclusion) has driven inequality in emerging market and developing economies.

The main contribution of this analysis is to examine the importance of gender inequality as a source of income inequality. We find that gender inequality drives income inequality above and beyond determinants previously identified in the literature.

The importance of gender inequality is examined as a source of income inequality. The GII, which captures both gender inequality in outcomes (labor force participation gap and share of female seats in parliament) and gender inequality in opportunity (education gaps, maternal mortality, and adolescent fertility), is significantly related to income inequality. An increase in the GII from zero (perfect gender equality) to 1 (perfect gender inequality) is associated with an increase in net inequality by almost 10 points. Alternatively, if the GII falls from the highest level of 0.7 (highest level in the sample, seen in Yemen) to the median level of 0.4 (seen in Peru), the net Gini decreases by 3.4 points, which is similar to the difference in net Gini between Mali and Switzerland.

The analysis also finds that gender inequality has a strong association with the actual distribution of income in an economy (Table 4.1). Higher gender inequality is strongly associated with higher income shares in the top 10 percent income group, possibly because being a woman may undermine earning possibilities disproportionately at the higher end of the income distribution. If the GII increases from the median to the highest levels, the income share of the top 10 percent increases by 5.8 percentage points, which is the difference between Norway and Greece. Gender inequality also goes hand in hand with lower income shares at the bottom of the income distribution. If the GII increases from median to highest levels, the income share of the bottom 20 percent declines by 2 percentage points (which is similar to the difference between Estonia and Uganda).

TABLE 4.1.

Gender Inequality and Income Distribution					
VARIABLES	Dependent Variable: Net Gini and Income Shares				
	(1) Net Gini	(2) Top 10	(3) Top 60	(4) Bottom 40	(5) Bottom 20
United Nations Gender Inequality Index (GII)	9.761* (5.589)	16.81* (8.431)	10.09** (4.444)	-9.367** (4.385)	-5.934** (2.390)
Trade Openness	-0.0109 (0.0140)	-0.00942 (0.0121)	-0.0146 (0.0101)	0.0132 (0.0102)	0.00588 (0.00550)
Financial Openness	0.0422*** (0.0113)	0.0310*** (0.0115)	0.0347*** (0.00967)	-0.0291*** (0.0100)	-0.0141** (0.00544)
Technology	-1.567 (18.53)	25.30 (20.74)	22.83* (12.21)	-22.24* (12.45)	-14.59** (6.187)
Financial Deepening	0.0233** (0.00916)	0.0230*** (0.00785)	0.0208** (0.00809)	-0.0200** (0.00800)	-0.00876** (0.00385)
Financial Deepening × AM Interaction	-0.0286*** (0.0101)	-0.0208** (0.00952)	-0.0315*** (0.00847)	0.0296*** (0.00841)	0.0132*** (0.00408)
Educational Attainment	-0.793** (0.334)	-0.504 (0.318)	-0.481** (0.194)	0.546*** (0.203)	0.292*** (0.109)
Labor Market Institutions	0.688*** (0.197)	0.268 (0.172)	0.331** (0.133)	-0.249* (0.140)	-0.133* (0.0733)
Government Spending	-0.320*** (0.102)	-0.356*** (0.105)	-0.112** (0.0501)	0.132** (0.0533)	0.0660** (0.0256)
Population over the Age of 65	0.361** (0.150)	0.206 (0.175)	0.251* (0.136)	-0.292** (0.134)	-0.140* (0.0709)
Observations (five-year averages)	338	208	244	244	244
Countries	97	66	89	89	89
Adjusted R-squared	0.236	0.421	0.359	0.345	0.305

Sources: Barro-Lee Education Attainment data set; Fraser Institute; IMF, World Economic Outlook database; Solt Database; UNU-WIDER World Income Inequality Database; World Bank, World Development Indicators database; World Economic Forum; and IMF staff estimates.

Notes: AM = advanced market. Estimated using country and year fixed effects panel regressions with robust standard errors clustered at the country level shown in parentheses, * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

The key results of the analysis also support previous findings in the literature that financial openness, labor market institutions, and government spending are significantly associated with income inequality.

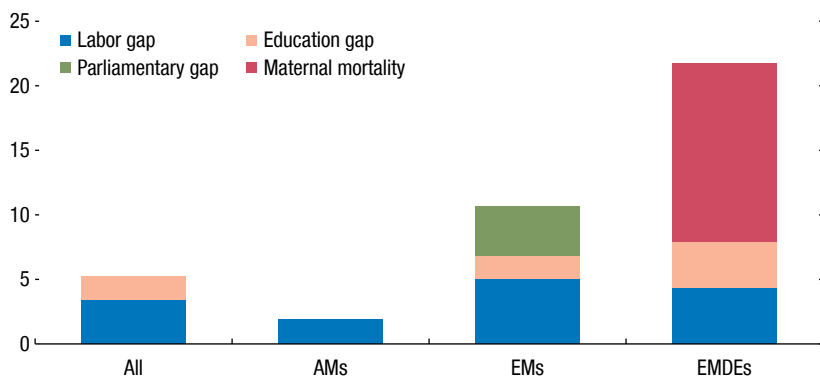
- In particular, greater financial openness is associated with rising income inequality. One explanation is that higher capital flows, including foreign direct investment, are destined for high-skill and capital-intensive sectors, which also lowers the income share of unskilled workers, thereby exacerbating income inequality.
- Consistent with Dabla-Norris and others 2015, technological progress is associated with a decline in the income share of the bottom 10 percent, though unlike in previous findings, the association with the income decline at the top is not statistically significant. Technological advances have driven enhanced productivity and growth but have also been accompanied by a rising skill premium, leading to higher income inequality.
- In line with previous findings, financial deepening is associated with higher income inequality, as credit is often concentrated and financial inclusion does not keep pace with deepening.
- Higher government spending (a proxy for redistribution-related spending) is associated with a decline in income inequality.
- The easing of labor market regulations in favor of business⁴ is associated with greater income inequality and rising income share of the top 10 percent. It also has a dampening effect on the income share of the bottom 10 percent. This result is consistent with Dabla-Norris and others 2015 and Jaumotte and Osorio Buitron 2015, which find that changes in labor market regulations that reduce labor's bargaining power are associated with the rise of income inequality in advanced economies. Specifically, the decline in unionization is related to the rise of top income shares, whereas the reduction in minimum wages is correlated with considerable increases in overall income inequality.

Finally, while there are some common drivers, different aspects of gender inequality matter for different country groups. Figure 4.9 depicts the different drivers across country groups. In all countries, gender gaps in labor force participation and education are the main drivers of income inequality, in addition to standard determinants of income inequality.⁵ For advanced economies, with gaps in the access to health and education largely closed, the gender gap in labor force participation is the key aspect of gender inequality that affects income inequality. For

⁴The indicator pertaining to labor market regulations is drawn from the Fraser Institute. It is a composite index that captures the extent to which regulations govern issues such as minimum wages, hiring and firing, collective bargaining, mandated cost of hiring, and mandated cost of worker dismissal.

⁵For details on the variable sources and on econometric results, including estimation tables, see Gonzales and others 2015b. For a summary of the empirical strategy and the nature of robustness checks, see Annex 4.1.

Figure 4.9. Marginal Effect of Gender Inequality on Net Gini, 2010
(Gini points)



Note: AMs = advanced markets; EMs = emerging markets; EMDEs = emerging and developing economies.

emerging markets and low-income countries, gender gaps in opportunities (education and health) are also found to be important drivers of income inequality. In addition, in low-income countries, women's health is an important driver of income inequality, as inequality in opportunities translates sharply into income gaps.

CONCLUSIONS

This analysis documents the strong association between gender-based economic inequalities and a more unequal overall income distribution. Improving equality of opportunity and removing legal and other obstacles that prevent women from reaching their full economic potential would give women the option to become economically active, should they so choose. Increased gender equity and female economic participation are associated with higher growth, more favorable development outcomes, and lower income inequality.

Redistribution complements but is not a substitute for gender-specific policies geared toward reducing gender and income inequality. Previous IMF work shows that redistribution generally has a benign effect on growth and is only negatively related to growth in the most strongly redistributive countries (Ostry, Berg, and Tsangarides 2014). Therefore, redistributive policies can help lower income inequality directly and, if not excessive, can promote growth. However, in order to alleviate deeper inequality of opportunity—such as unequal access to the labor force, health, education, and financial access between men and women—more targeted policy interventions are needed as a complement to redistribution.

A significant decrease in gender gaps will require work on many fronts. Providing women with equal economic opportunities will require an integrated set of policies, including antidiscrimination laws (Elborgh-Woytek and others 2013) and the revision of tax policies. Some of these policies fall outside the IMF's core area of expertise and require close collaboration with other organizations, such as the World Bank. Moreover, policy changes are, at most, necessary conditions for leveling the playing field, but may not be sufficient. In addition, cultural, societal, and religious norms are also relevant, but on these, this chapter takes no position.

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ANNEX 4.1. ECONOMETRIC METHODOLOGY

For a wider global sample, including advanced economies, emerging markets, and developing countries, a fixed-effects regression model was created by estimating the following relationship over the period from 1980 to 2012:

$$\begin{aligned}
 & \text{Inequality}_{it} \\
 &= \beta' \text{Gendergap}_{it} + \beta_1 \text{Tradeopenness}_{it} + \beta_2 \text{Financialopenness}_{it} + \beta_3 \text{Technology}_{it} \\
 &+ \beta_4 \text{Financialdeepenin}_{it} + \beta_5 \text{Labormarketinstitution}_{it} \\
 &+ \beta_6 \text{Governmentspendin}_{it} + \beta_7 \text{Educationalattainmen}_{it} + \\
 &\beta_8 \mu_{AE} \text{Financialdeepenin}_{it} + \beta_9 \text{Shareofpopulationover65}_{it} + \mu_i + \vartheta_t + \varepsilon_{it}
 \end{aligned}$$

Country fixed effects control for country-specific drivers of income inequality that are not explicitly controlled for in the regressions and if omitted could result in misleading results. The Hausman test indicates that a fixed effects model is appropriate for both sets of panel regressions. We also conduct a number of

robustness checks in which we run regressions with a number of different specifications:

- We use alternatives to net Gini, including the Gini from the Luxembourg Income Study and market Gini. The results still hold using this higher quality income inequality data.
- We use human capital from the Penn World Tables as an alternative to total years of education to capture the skill premium.
- As an alternative to government spending (which is intended to capture redistribution), we use education spending for all countries and social spending for OECD countries.
- We also control for female mortality as an indicator of health provision.
- We control for education Gini.
- To capture the direct effect of gender wage inequality on income inequality, we include the gender wage gap in the regressions on top of inequality in a sample of OECD countries.

While some control variables from the baseline regression were not significant in some of the alternative specifications, the Gender Inequality Index and some subcomponents were always significant, indicating that the results are robust to changes in econometric specification. To address concerns about the direction of causality between gender and income inequality, we employ instrumental variables regressions. We use a novel set of instruments drawing on previous analysis contained in Gonzales and others 2015a. We use various legal restrictions on women's economic participation as instruments for the gender gap in labor force participation as this link has been established in previous IMF work (Gonzales and others 2015a). The legal restrictions related to guaranteed equality under the law and daughters' inheritance rights are the strongest instruments as seen in the first-stage regression. Using these variables to instrument for gender gap in labor force participation, the second-stage regression highlights that a widening of the gender gap in labor force participation leads to greater income inequality. Tests for the validity of the instrument and for overidentification suggest that these are valid instruments. We also use instruments other than the legal restrictions from the World Bank's World, Business and the Law data set. We include (1) the lag of the share of female tertiary teachers, which has been previously used in the literature as an instrument (the rationale being that girls feel encouraged by a female role model); and (2) the lag of the labor force participation gap (as the income distribution is only affected by how many women are on the market right now compared with men and not by the labor force participation gap from five years ago). Both instruments are individually highly significant in the first stage; the Hansen test indicates that they are valid instruments; and finally, both education gap and labor force participation gap are significant in the second stage.

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Empowering Women Can Diversify the Economy

ROMINA KAZANDJIAN, LISA KOLOVICH, KALPANA KOCHHAR, AND
MONIQUE NEWIAK

Gender inequality decreases the variety of goods countries produce and export, particularly for low-income and developing economies. This happens through at least two channels. First, gender gaps in opportunity, such as lower educational enrollment rates for girls than for boys, harm diversification by constraining the potential pool of human capital available in an economy. Second, gender gaps in the labor market impede the development of new ideas by decreasing the efficiency of the labor force. Our empirical estimates provide evidence that gender-friendly policies could help countries diversify their economies.

INTRODUCTION

The sharp decline in commodity prices in 2014–15 is a powerful reminder for countries—especially those rich in resources—of the need to diversify their output and export bases. The drop in oil prices since the end of 2014 and in other commodity prices thereafter has put substantial pressure on many resource-intensive countries, with marked declines in export and fiscal revenues that have slowed growth and created a need for significant macroeconomic adjustment in many of these countries (IMF 2016). Oil prices have increased somewhat from their low of under \$30 a barrel in early 2016, but they remain significantly lower than at their peak in 2013. Prices for other commodities are expected to remain at only a fraction of their high levels in the medium term. As a result, reforms to stimulate product and export diversification have gained renewed importance on policymakers' agendas, particularly in resource-intensive economies.

A long-held tenet of international trade, Ricardo's theory of comparative advantage, proposes that countries should specialize in the production of goods and services with lower relative opportunity costs. Historically, many low-income countries have relied on relatively few trading partners and specialized in commodity and primary products, mainly due to their resource endowments, as

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might be predicted by the Heckscher-Ohlin model. Yet, a lack of diversification is associated with both lower economic growth and higher volatility.

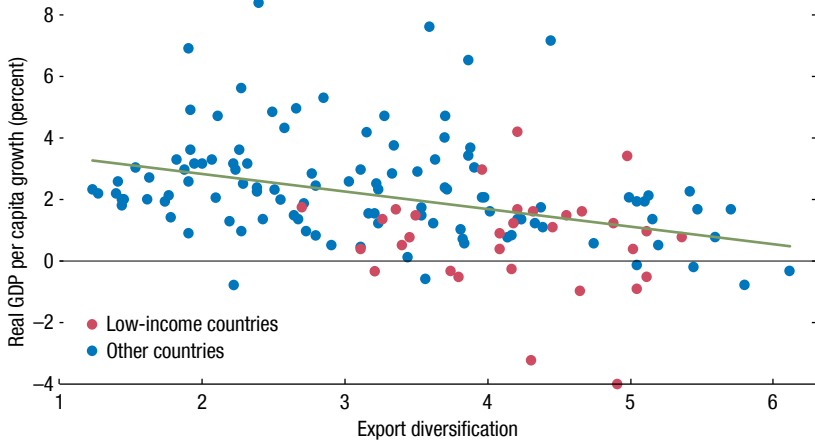
It is now well established in the literature that diversification and structural transformation—continued dynamic reallocation of resources to more productive sectors and activities—are associated with economic growth, especially at the early stages of development (Papageorgiou and Spatafora 2012).¹ Figure 5.1, panel 1, shows that greater export product diversification is associated with higher economic growth, although the relationship is heterogenous. Panel 2 highlights the positive association between diversification—that is, more variety in exports—and less volatile growth, particularly at lower levels of development. (Annex 5.1 describes in detail the measures of diversification used in this chapter.)

A well-educated workforce is a key driver of diversification and structural transformation (Elborgh-Woytek and others 2013; IMF 2014a). Human capital accumulation can foster economic diversification by promoting the development of skill-intensive industries and new technologies and by facilitating technological diffusion between firms (Bal-Gunduz, Dabla-Norris, and Intal forthcoming). Whereas primary and secondary education can enable a country to imitate frontier technology, tertiary education can increase its possibility of innovating (Aghion and Howitt 2006). IMF (2014a) finds that human capital accumulation is not only a determinant of diversification, but it is also strongly associated with quality upgrading, which also stimulates growth.

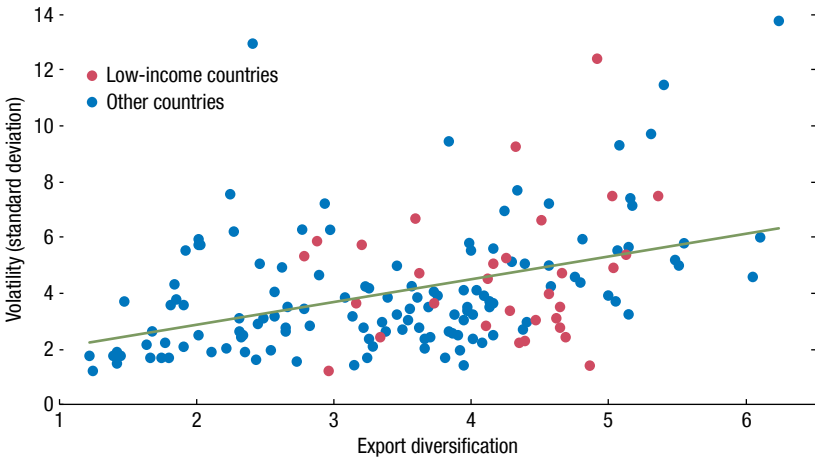
Building on this literature, we introduce gender equality as an additional determinant of economic diversification with two main hypotheses. First, gender gaps in opportunity, such as in education, harm diversification directly by limiting the potential pool of human capital. In particular, the unequal allocation of educational investment leads to suboptimal female human capital accumulation and, as a result, slower technology adoption and innovation (the human capital channel). Second, a gender gap in the labor market shrinks the talent pool from which employers can choose, limits the number of female entrepreneurs (Cuberes and Teignier 2014a; Esteve-Volart 2004; Christiansen and others 2016a; Christiansen and others 2016b), and can impede a country's ability to diversify (the resource allocation channel).

In fact, the data show that gender inequality and economic diversification appear to be interlinked phenomena (Figure 5.2). High levels of gender inequality, as measured by an extended version of the United Nations' Gender Inequality Index (GII), are associated with lower levels of export diversification (a combined measure of export product variety and equality in export shares) (Figure 5.2, panel 1). And they are negatively associated with output diversification (a

¹The process of structural transformation is characterized by two dimensions: horizontal (across sectors) and vertical (within a sector). Diversification into new higher-value-added sectors is the horizontal dimension. Quality upgrading is the vertical dimension and focuses on producing high-quality (and generally higher-priced) products within existing sectors (IMF 2014a).

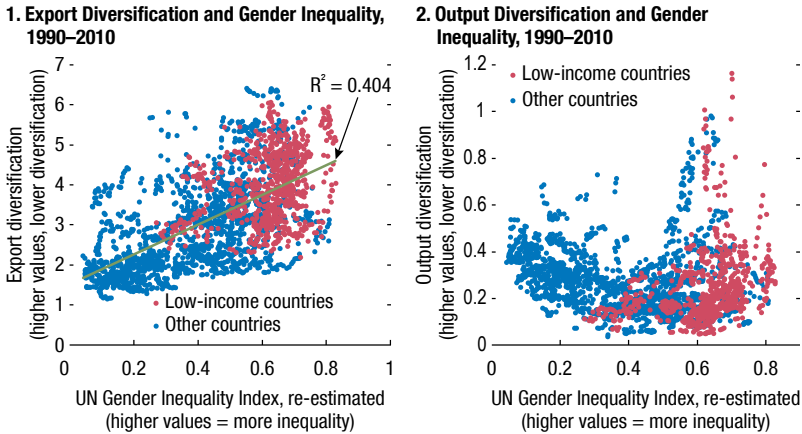
Figure 5.1. The Benefits of Diversification**1. Export Diversification and Output Growth, 1962–2010***(Higher diversification values = less diversification)*

Source: IMF 2014a.

2. Export Diversification and Output Volatility, 1962–2010*(Higher diversification values = less diversification, volatility = standard deviation over 1962–2010)*

Source: IMF 2014a.

Figure 5.2. The Linkage between Gender Inequality and Economic Diversification



Sources: World Bank, World Development Indicators database; United Nations; IMF 2014a; and IMF staff calculations.

measure of equality in contribution of sectors to real output, including services) mainly in low-income and developing economies (Figure 5.2, panel 2).

This analysis contributes to the literature in three ways. First, we demonstrate empirically that gender inequality is negatively associated with both output and export diversification in low-income and developing economies. Second, our results suggest that both inequality of opportunities and lower female labor force participation are associated with lower economic diversification. Third, we provide evidence on causality.

Gender gaps in both opportunity and outcomes are found to be negatively associated with diversification, particularly in low-income and developing economies. This effect is above and beyond the standard drivers of diversification identified in the literature. The negative relationship between inequality of opportunity and diversification supports the hypothesis of the human capital channel, whereas the association between female labor force participation and diversification supports the premise of the resource allocation channel, which reduces the creation of ideas and development of sectors. Finally, because gender inequality and diversification are interlinked, and because diversification may also affect gender inequality, the chapter addresses endogeneity concerns in its empirical specification by introducing novel instruments in the instrumental variable general method of moments (IV-GMM) regressions. This treatment isolates the causal effect of the country-specific degree of gender inequality on output and export diversification.

A BRIEF LITERATURE REVIEW

Diversification, development, and growth are closely interlinked, particularly in low-income countries. Despite significant cross-country variation, greater diversification has been associated with improved macroeconomic performance: higher growth, reduced volatility, and increased resilience to external shocks (Koren and Tenreyro 2007; Cadot, Carrere, and Strauss-Kahn 2011). Singer (1950) demonstrates that a country's initial level of diversification is positively correlated with economic growth. Using an instrumental variable Bayesian model averaging approach to move beyond correlation, IMF 2014a finds that for low-income countries, extensive diversification (introducing new product lines), intensive diversification (creating a more balanced mix of existing products), and the broader process of output diversification are indeed drivers of economic growth. Diversification also involves shifting resources from sectors with high volatility, such as mining and agriculture, to less volatile sectors, such as manufacturing, resulting in greater stability. Countries with more diversified production structures tend to have less volatile output, consumption, and investment (Moore and Walkes 2010; Mobarak 2005). There is a nonlinear, U-shaped relationship between diversification and development (Imbs and Wacziarg 2003). As countries develop, they diversify until they reach a critical point beyond which they start specializing in low-volatility sectors (Imbs and Wacziarg 2003; Koren and Tenreyro 2007; Cadot, Carrere, and Strauss-Kahn 2011).

Another strand of the literature documents a strong negative link between growth in real GDP per capita and gender inequality. On a macro level, the relationship between gender inequality and economic growth has been a topic of increasing interest in the academic and policy literature in recent decades. Dating back to the early 1990s, a special issue of *World Development* was dedicated to introducing a gender lens to macroeconomics (Cagatay, Elson, and Grown 1995). Since then, abundant scholarship has developed on the topic of gender inequality and its connection to economic development and growth (see, for example, World Bank 2012).

Economic development has been shown to decrease gender inequality, whereas persistent discrimination against women can adversely affect development (Goldin 1995; Hill and King 1995; Dollar and Gatti 1999; Tzannatos 1999; Stotsky 2006; Cuberes and Teignier 2014b). This analysis focuses on the latter direction of causality, but many other studies have explored the former (for example, Galor and Weil 1996; Fernandez 2007; Alesina, Giuliano, and Nunn 2011; Duflo 2012 for both directions). The following results demonstrate some of the channels through which gender inequality can negatively affect macroeconomic performance:

- *Education*—A number of studies confirm the negative effect of gender disparity in education on growth (Hill and King 1995; Engelbrecht 1997; Forbes 1998; Dollar and Gatti 1999; Klasen 1999; Knowles, Lorgelly, and Owen 2002; Klasen and Lamanna 2009; Seguino 2010). Dollar and Gatti

(1999) find that gender inequality in education negatively affects growth in countries where female education is high. Klasen (1999) demonstrates that the negative effect is present in all economies.² Berge and Wood (1994) support the hypothesis that an educated female labor force is a determinant of manufacturing exports growth. Using measures of gender inequality beyond education gaps, a recent study by Amin, Kuntchev, and Schmidt (2015) confirms its strong negative impact on economic growth, but only in poor countries. We hypothesize that these negative effects of gender inequality in educational opportunities affect growth at least in part by obstructing the economic diversification process.

- *Occupation*—Occupational choice models are based on the assumption that men and women have the same distribution of talent (Cuberes and Teignier 2012; Esteve-Volart 2004). Gender gaps in entrepreneurship distort the efficient allocation of talent and access to educational opportunities (Cuberes and Teignier 2012). Because a certain percentage of women are prevented from becoming entrepreneurs, they are forced to work as employees, which increases the labor supply, causing equilibrium wages and aggregate productivity to fall. Gender gaps in labor force participation are modeled as preventing a fraction of women from supplying labor to the market, hence decreasing income per capita.³ Esteve-Volart (2004) makes explicit the negative endogenous effect of gender gaps in education on growth: the suboptimal allocation of managerial talent explicitly leads to lower female human capital accumulation and thus slower technology adoption and innovation, which reduces aggregate output and obstructs economic growth. The negative effects of gender discrimination in managerial talent allocation are more serious for sectors where high-level skills are needed, such as the nonagricultural sector, whereas restricted female labor force participation in general affects all sectors, including agriculture. We explore whether the channels posited in these models affect growth via their effects on the dynamic process of diversification and structural transformation of the economy.
- *Aggregate measures of gender inequality and growth*—Recent empirical evidence, using an extended version of the UN's GII shows that several dimen-

²Earlier studies show somewhat different results: Barro and Lee (1994) and Barro and Sala-i-Martin (1995) find that female secondary education has a negative impact on growth, as low female educational attainment signifies “backwardness” and hence higher growth potential. Klasen (1999) and Lorgelly and Owen (1999), however, suggest that the finding may reflect multicollinearity problems resulting from the inclusion of both female and male education variables in the regression analysis and the disproportionate influence of a few outlier countries.

³Cuberes and Teignier (2014a) present an updated version of the model in which women have the choice to become self-employed, in addition to being entrepreneurs and workers. In this version of the model, women face two additional exogenous restrictions: only a fraction can become self-employed, and those who become workers receive lower wages than men. The main results are not qualitatively different.

sions of gender inequality are strongly associated with lower growth, particularly in low-income countries (Gonzales and others 2015b; Hakura and others 2016). In this chapter, we test whether measures of gender inequality are also related to lower export and output diversification.

- *Gender wage inequality*—It has had a positive effect on export-led growth in semi-industrialized, export-oriented economies (Seguino 2000), but it has had a negative effect in low-income agricultural countries (Seguino 2010). On the other hand, accounting for the different productivity of male and female workers, Schober and Winter-Ebmer (2011) do not find support for the hypothesis that increased gender inequality contributes to growth, but argue that it may indeed hamper it. Finally, using a model of endogenous savings, fertility, and labor market participation, Cavalcanti and Tavares (2016) show that an increase of 50 percent in the gender wage gap could lead to a decrease in income per capita by 35 percent. Given the lack of extensive and reliable data on wage inequality, this chapter focuses instead on gender inequality in education, reproductive health, women’s empowerment, and labor market participation, the subcomponents of the multidimensional GII.

Structural transformation has been shown to coincide with episodes of decreases in gender inequality, particularly in the services sector. Several studies examine the relationship between women’s economic participation and structural transformation. These studies focus predominantly on the influence of the services sector (Akbulut 2011; Olivetti and Petrongolo 2014; Ngai and Petrongolo 2014; Rendall 2013). Rendall (2013) finds that structural transformation has been important in reducing gender inequality by decreasing the labor demand for physical attributes (“brawn”). Economies with lower brawn requirements offer better labor market opportunities because they allow women to take advantage of their comparative advantage in less physical (“brain”) attributes. Cavalcanti and Tavares (2007) link increases in female labor force participation to increases in government expenditures, leading to higher demand for services provided by the government. This in turn further encourages female labor force participation, especially when the public sector typically employs more women. These studies emphasize the direction of causation from the structural transformation of the economy to women’s economic participation. The novelty of this analysis is to explore the reverse relationship, namely whether greater gender equality can enhance and support the process of structural transformation.

EMPIRICAL STRATEGY AND RESULTS

There are no theoretical studies on the impact of gender inequality in opportunities and outcomes on output and export diversification. Most theoretical studies of gender inequality and growth examine the causal channels of fertility and the education of children (Galor and Weil 1996; Lagerlöf 2003; Cavalcanti and Tavares 2007; Doepke and Tertilt 2008; Agénor, Canuto, and da Silva 2010). The

TABLE 5.1.

Explaining Export Diversification				
	(1)	(2)	(3)	(4)
Gender Inequality				
Gender Inequality Index	0.703** (0.273)	0.776*** (0.277)	1.381*** (0.282)	0.665** (0.264)
in low-income developing countries	1.014** (0.431)	1.113** (0.435)	0.120 (0.440)	0.630 (0.426)
Structural Factors				
Log(Population)	-0.707*** (0.133)	-0.568*** (0.136)	-0.222 (0.145)	-0.101 (0.147)
Lag Human capital index	0.0460 (0.109)	0.0743 (0.110)	0.0309 (0.111)	0.0887 (0.103)
Log(Real GDP per capita)	-1.838*** (0.294)	-1.712*** (0.308)	-0.970*** (0.311)	-0.971*** (0.328)
squared	0.114*** (0.0174)	0.103*** (0.0182)	0.0605*** (0.0188)	0.0516*** (0.0191)
Mining as share of GDP	0.00937** (0.00396)	0.0119*** (0.00416)	0.0119*** (0.00407)	0.0236*** (0.00472)
Policies				
1. Institutions				
Fraser Institute Sum. Index	-0.116*** (0.0137)			-0.0700*** (0.0178)
2. Openness				
Freedom to trade		-0.0646*** (0.00858)		-0.0219* (0.0114)
3. Infrastructure				
Log(landlines/1000 workers)			-0.129*** (0.0177)	-0.110*** (0.0180)
4. Macro/Cyclical Factors				
Terms of Trade				0.00427*** (0.000440)
Log(REER)				0.305*** (0.0490)
Constant	11.90*** (1.201)	10.78*** (1.273)	6.928*** (1.284)	5.712*** (1.436)
Observations	1,841	1,836	1,726	1,583
Countries	100	100	89	84
Country fixed effects	YES	YES	YES	YES
Time fixed effects	YES	YES	YES	YES
R ²	0.181	0.174	0.136	0.271
Adjusted R ²	0.120	0.113	0.0742	0.213

Sources: Barro and Lee 2013; Gonzales and others 2015b; IMF 2014b; Penn World Table 8.1; Stosky and others 2016; World Bank, Women, Business and the Law database; and IMF staff calculations.

Note: Positive values indicate negative association with diversification. Standard errors in parentheses, * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. All specifications include country and time fixed effects. REER = real effective exchange rate.

empirical investigation in this study is therefore broadly based on the theoretical occupational choice models of Cuberes and Teignier (2012) and Esteve-Volart (2004), which examine the effects of gender discrimination on aggregate output and economic growth. We explore whether the channels posited in these models are similarly at play in the dynamic process of economic diversification. To test for the effect, we include gender inequality as a determinant of diversification, along with other potential drivers of diversification previously highlighted in the

literature. Annex 5.1 gives an overview of the data, and Annex 5.2 presents technical details on the empirical strategy.

To determine the direction of causality between gender inequality on diversification, we use a large data set of legal restrictions on women's economic activity as instruments for gender inequality. Restrictions on women's economic participation have been shown to limit women's access to finance (Demirgüç-Kunt, Klapper, and Singer 2013), employment (Amin and Islam 2014), labor force participation (Gonzales and others 2015a), asset ownership and wealth (Deere and others 2013), property rights (Razavi 2003), and adoption of new technologies (Quisumbing and Pandolfelli 2010). Specifically, using extensive panel data of gender-related legal restrictions, a recent study by Gonzales and others (2015a) demonstrates that restrictions on women's rights to inheritance and property, as well as legal impediments to economic activity, such as the right to open a bank account or to freely pursue a profession, significantly exacerbate gender gaps in labor force participation. This analysis uses the results from this stream of the literature to argue that gender-based legal restrictions are valid instruments to address endogeneity concerns in the analysis of the impact of gender inequality on diversification: legal restrictions exacerbate gender inequality, which, in turn, impedes output and export diversification. (As noted, Annex 5.2 lays out the details of the empirical strategy.)

Results on Export and Output Diversification

Gender inequality is strongly and negatively associated with export diversification in low-income and developing economies, even after accounting for the other standard drivers of diversification, discussed in Annex 5.1. Table 5.1 presents the baseline estimation, which includes time and country fixed effects, along with a large set of structural country characteristics, policies, and cyclical factors. In particular, we find the following:

- Gender inequality, as measured by the extended version of the UN's GII, is strongly associated with export diversification. In particular, moving from a situation of absolute gender inequality to perfect gender equality (as measured by the index) could decrease the Theil index of export diversification (that is, increase export diversification in low-income and developing economies), by 0.6 to 2 units. The magnitude of this effect is equivalent to up to about two standard deviations of the index across low-income and developing economies. The results also show that higher levels of gender inequality are significantly associated with lower levels of export diversification across all levels of development.
- The effect of gender inequality comes on top of structural characteristics previously highlighted in the literature. Our results confirm the U-shaped relationship between export diversification and development (Dabla-Norris and others 2013), in which countries diversify until they reach a certain level of development but reconcentrate thereafter. A higher share of mining in output is associated with a less diversified export base. In line with a larger

pool of talent, population size (in most of our specifications) and human capital (in some specifications) are associated with higher export diversification.

- The impact of gender inequality remains when controlling for policies associated with export diversification. In particular, institutions—including creating a better business environment, as measured for example by the Frasier Summary Index of Institutions, or legal systems and property rights—are significantly and positively associated with higher levels of diversification. A higher degree of openness in international trade expands the possible pool of trading partners and demand for exports, and our results confirm a positive and significant relationship with export diversification. Better infrastructure is also strongly associated with higher degrees of export diversification.
- Finally, macroeconomic factors also appear to play a role. Real exchange rate appreciation and terms-of-trade improvement are associated with lower degrees of export diversification, possibly reflecting the effect of lower price competitiveness in the short term and higher quantities of exports of the main sectors when their prices are high.⁴

Gender inequality is negatively associated with output diversification in low-income and developing economies. To capture the role that the services sector may play in the economy, we examine output diversification in a similar empirical setup. The results for structural characteristics and policies are broadly comparable to the ones on export diversification described elsewhere in this chapter. Gender inequality in low-income and developing economies is negatively associated with output diversification in all our specifications.⁵ However, we find mixed results on gender inequality for the remainder of countries. There is a significant and positive association of gender inequality and output diversification in some of the regressions for these countries, likely reflecting the fact that low gender inequality may result in greater participation of women in the services sector, in which countries tend to reconcentrate production as they develop.

In addition, our results provide evidence on two main channels through which gender inequality inhibits economic diversification, the human capital channel and the resource allocation channel. To test for the contribution of different dimensions of gender inequality, we include female labor force participation, gender gaps in education, female representation in parliament, and indicators of female health (maternal mortality and adolescent fertility) simultaneously into our regressions. The results in Table 5.2 highlight that there is some evidence for the human capital channel—a higher female-to-male enrollment ratio is significantly and positively related to export diversification, particularly in low-income

⁴The results hold when real GDP per capita growth is used as an alternative to capture cyclical effects. Several measures of income inequality were included in the regressions but did not yield significant results.

⁵For the complete set of results, see Kazandjian and others 2016.

and developing economies. In addition, there is evidence for the resource allocation channel, as higher female labor force participation rates are associated with higher export diversification levels in low-income and developing economies. The results also provide some evidence that better health outcomes, in terms of lower maternal mortality ratios and adolescent fertility rates, are positively associated with export diversification. The results are broadly similar for output diversification, where higher female labor force participation and higher educational enrollment ratios for girls relative to boys in low-income and developing economies are associated with higher output diversification when controlling for policies and institutions (see Kazandjian and others 2016).

Finally, we also find evidence for causality in the specifications by instrumenting gender inequality with legal rights. Table 5.3 highlights gender inequality as a significant determinant of export diversification,⁶ even after including legal rights for women, such the right to be the head of a household or full community marital property rights, as instruments for gender inequality in generalized method of moments (GMM) regressions. The instruments we use pass standard econometric and rule-of-thumb tests. Each of the instruments is individually significant in the first-stage regressions and the F-statistics of the IV regressions are well above the rule-of-thumb threshold value of 10, providing evidence that the instruments are not weak. In addition, in specifications with two or more instruments, the *p*-values of the Hansen J statistic do not allow us to reject the joint null hypothesis that the instruments are uncorrelated with the error term, supporting our hypothesis that the excluded instruments are indeed correctly excluded from the estimated equation, that is, that they are exogenous. These results suggest that gender inequality may be indeed a cause of lower economic diversification.

CONCLUSIONS

This analysis presents, to the best of our knowledge, the first empirical evidence that gender inequality impacts both export and output diversification. Using a multidimensional index to capture gender inequality, as well as individual indicators of gender inequality, we show that gender inequality, both in outcomes and in opportunities, negatively impacts export and output diversification in low-income and developing economies. This analysis provides evidence that both gender equity in opportunities as well as outcomes matter for economic diversification. In particular, we show that both gender inequality in opportunities, such as education, and lower female labor force participation, are negatively associated with diversification. The former supports the hypothesis of inequality constraining the level of human capital, which limits diversification—and could be tested along generalized inequality of opportunity in future research. The latter supports the theory of an inefficient allocation of resources leading to suboptimal creation of ideas and development of sectors.

⁶The results are similar for output diversification; see Kazandjian and others 2016.

TABLE 5.2.

Explaining Export Diversification: Dimensions of Gender Inequality				
	(1)	(2)	(3)	(4)
Gender Inequality				
Female labor force participation rate in LDCs	0.473 (0.472)	0.758 (0.468)	0.859* (0.462)	-0.0324 (0.423)
Secondary enrollment ratio in LDCs	-2.748*** (0.844)	-2.935*** (0.851)	-3.111*** (1.004)	-2.092** (1.066)
Women in parliament in LDCs	-0.00603 (0.281)	0.0444 (0.283)	-0.328 (0.270)	0.316 (0.247)
Maternal mortality ratio in LDCs	-0.986** (0.480)	-1.034** (0.484)	-0.167 (0.456)	-1.590*** (0.590)
Adolescent fertility rate in LDCs	-0.00265 (0.00278)	-0.00271 (0.00292)	-0.00292 (0.00283)	0.00444 (0.00277)
	0.00691 (0.00482)	0.00606 (0.00493)	0.00800* (0.00459)	0.00578 (0.00471)
	0.00142** (0.000695)	0.00151** (0.000700)	0.00104 (0.000692)	0.00169*** (0.000629)
	-0.000415 (0.000735)	-0.000411 (0.000741)	-1.73e-05 (0.000733)	-0.00111 (0.000672)
	0.000586 (0.00271)	-0.000966 (0.00277)	0.00231 (0.00265)	0.00341 (0.00254)
	-0.00143 (0.00409)	-0.000821 (0.00411)	0.00393 (0.00461)	0.0122** (0.00535)
Structural Factors				
Log(Population)	-0.0711 (0.234)	0.181 (0.236)	0.340 (0.238)	0.667*** (0.238)
Lag Human capital index	-0.358** (0.155)	-0.392** (0.157)	-0.288* (0.152)	-0.387*** (0.139)
Log(Real GDP per capita) squared	-2.059*** (0.609)	-2.051*** (0.622)	-1.626*** (0.610)	-0.848 (0.617)
Mining as share of GDP	0.125*** (0.0356)	0.120*** (0.0363)	0.101*** (0.0358)	0.0495 (0.0362)
	0.0114** (0.00566)	0.0151** (0.00607)	0.0151*** (0.00565)	0.0390*** (0.00629)
Policies				
1. Institutions				
Fraser Institute Sum. Index	-0.115*** (0.0221)			-0.124*** (0.0245)
2. Openness				
Freedom to trade		-0.0516*** (0.0149)		-0.00345 (0.0168)
3. Infrastructure				
Log(landlines) per 1000 workers			-0.0499* (0.0271)	-0.0532** (0.0261)
4. Macro/Cyclical factors				
Terms of Trade				0.00485*** (0.000607)
Log(REER)				0.236*** (0.0759)
Constant	12.64*** (2.540)	11.78*** (2.583)	8.703*** (2.588)	3.450 (2.704)
Observations	1,033	1,032	989	927
Countries	96	96	86	81
R ²	0.203	0.194	0.175	0.354

Sources: Barro and Lee 2013; Gonzales and others 2015b; IMF 2014b; Penn World Table 8.1; Stosky and others 2016; World Bank, Women, Business and the Law database; and IMF staff calculations.

Note: Positive values indicate negative association with diversification. Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All specifications include country and time fixed effects. + = negatively associated with diversification. LDCs = low-income developing countries; REER = real effective exchange rate.

TABLE 5.3.

Explaining Export Diversification: Instrumental Variable GMM		
	(1)	(2)
Gender Inequality Index	5.785*** (1.942)	3.534** (1.739)
Log(Population)	-0.976*** (0.214)	-0.252 (0.271)
Lag Human capital index	0.0251 (0.196)	0.420*** (0.162)
Log(GDP per capita)	-1.307*** (0.337)	-0.666* (0.343)
squared	0.0931*** (0.0201)	0.0360* (0.0196)
Mining as share of GDP	0.0318*** (0.00710)	0.0105 (0.00659)
Fraser Institute Sum. Index		-0.0498 (0.0363)
Freedom to trade		-0.0405*** (0.0141)
Log(landlines) per 1000 workers		-0.0919*** (0.0281)
Terms of Trade		0.00427*** (0.000609)
Log(REER)		0.301*** (0.0588)
Constant	5.515*** (2.046)	3.438 (2.466)
Observations	1,552	1,204
<i>p</i> -value of Hansen	0.296	0.248
J statistic		
Instrument F-test	13.27	12.85

Source: IMF staff calculations.

Notes: Positive values indicate negative association with diversification. Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All specifications include country and time fixed effects. REER = real effective exchange rate.

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Our empirical work provides support for causality between gender inequality and diversification. The effect of gender inequality on diversification can be separated from the effect of diversification on gender inequality thanks to our empirical estimation strategy, which uses country-specific laws and regulations as instruments for gender inequality. These legal restrictions, such as a woman's inability to receive equal inheritance compared with men, to be the head of a household, or to have joint titling of property, skew the efficient allocation of resources by impeding women's economic participation and preventing households from giving the same opportunities to daughters and sons.

By linking gender inequality to lower economic diversification—which is widely acknowledged to be a source of sustainable growth—we highlight a new channel through which gender equality boosts growth.

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ANNEX 5.1. DATA

Export Product Diversification

We use the Theil index of export diversification from IMF (2014b) which follows Cadot, Carrere, and Strauss-Kahn (2011). The index can be decomposed into a “between” and a “within” subindex:

$$\begin{aligned} \textit{Theil Index} &= \frac{1}{N} \sum_i^N \frac{\textit{Export Value}_i}{\textit{Average Exp. Value}} \cdot \ln \frac{\textit{Export Value}_i}{\textit{Average Exp. Value}} \\ &= \textit{Theil}_{\textit{between}} + \textit{Theil}_{\textit{within}} \end{aligned}$$

in which i is the product index and N the total number of products. The “between” Theil index captures the extensive margin of diversification, that is, the number of products, while the “within” Theil index captures the intensive margin (product shares). Lower values of the Theil index indicate higher levels of export product diversification. The index is available for 188 countries from 1962–2010.

Output Diversification

As services are not included in the calculation of export product diversification, we additionally use the output diversification Theil index in our regressions to account for the impact of changes in the services sector. Following the methodology used for the export Theil index described above, the output diversification index was constructed for the real subsectors from the UN’s sectoral database in IMF 2014b. The index covers 188 countries from 1970 to 2010.

Gender Inequality Index

The gender inequality index (GII) is the extended version of the United Nations Gender Inequality Index (Gonzales and others 2015b; Stotsky and others 2016), which captures gender inequality across areas of health (maternal mortality ratios and adolescent fertility rates), empowerment (share of parliamentary seats and education attainment at the secondary level for both males and females), and labor force participation (rates by sex). While the GII has drawbacks (such as a complicated functional form and a combination of indicators that compare men and women with indicators that pertain only to women), it is preferable to alternatives such as the United Nations Development Program’s related Development Index (GDI, in which one of the main components is not observed and is imputed). The index spans values between 0 and 1, with higher values indicating higher gender inequality. The index is available for 141 countries from 1990–2013.

Controls

The vector of controls includes the log of expenditure-side real GDP at chained purchasing power parity (in millions of 2005 U.S. dollars) and its square, the log of population (in millions), and an index of overall human capital accumulation

per person based on years of schooling and returns to education (five-year lag, from Barro and Lee 2013), all from Penn World Table 8.1. We control for measures of institutions including legal systems and property rights (from the Fraser Institute); globalization (from the KOF Index of Globalization); infrastructure, including the share of paved roads and length of landlines (from the Calderon-Serven database); financial development (an index of financial reform, interest rate controls, and private sector credit to GDP as robustness checks); and the scale of investment in the economy (investment in percent of GDP and per worker). In addition, we test whether being resource-rich exhibits a negative effect on diversification by introducing the share of mining in GDP or the share of fuel exports into the regressions.

Legal Restrictions as Instruments

We use the World Bank/International Finance Corporation Women, Business, and the Law database, which tracks various legal restrictions on women's economic rights in 100 countries from 1960 to 2010 for our instrumentation strategy. See Kazandjian and others 2016 for a complete set of summary statistics.

Countries Included in the Sample

Low-Income and Developing Countries

Bangladesh, Benin, Bolivia, Burundi, Cambodia, Cameroon, Central African Republic, Democratic Republic of Congo, Republic of Congo, Côte d'Ivoire, Ghana, Honduras, Kenya, Kyrgyz Republic, Lao People's Democratic Republic, Lesotho,* Liberia, Malawi, Mali, Mauritania, Moldova, Mongolia, Mozambique, Nepal, Niger, Rwanda, Senegal, Sierra Leone, Sudan, Tajikistan, Tanzania, Togo, Uganda, Republic of Yemen, Zambia, Zimbabwe (* denotes data available for output diversification only).

Other Countries

Albania, Argentina, Armenia, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Croatia, Denmark, Dominican Republic, Ecuador, Arab Republic of Egypt, El Salvador, Estonia, Finland, France, Germany, Greece, Guatemala, Hungary, India, Indonesia, Islamic Republic of Iran, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Latvia, Lithuania, Malaysia, Mexico, Morocco, Namibia,* Netherlands, New Zealand, Norway, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Saudi Arabia, Singapore, Slovak Republic, Slovenia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Syrian Arab Republic, Thailand, Tunisia, Turkey, Ukraine, United Kingdom, United States, Uruguay, Venezuela (* denotes data available for output diversification only).

ANNEX 5.2. EMPIRICAL SPECIFICATION

We analyze the effect of gender inequality on diversification together with determinants previously highlighted in the literature. To obtain unbiased estimates, we control for unobservable variables that differ across countries, as well as common effects over time in the following relationship for the period 1990–2010 in our baseline estimations:

$$Diversification_{it} = \beta_1 GenderInequality_{it} + \beta_2 GenderInequality_{it} \cdot LIDC + \gamma' StructuralCharacteristics_{it} + \delta' Policies_{it} + \phi' Institutions_{it} + \tau' CyclicalFactors_{it} + \mu_i + \theta_t + \varepsilon_{it}$$

in which

- *Diversification_{it}* represents the measure of either export or output diversification as defined in Annex 5.1 for country *i* at time *t*.
- The main contribution of our paper is to test whether gender inequality exhibits a significant effect on diversification. *Gender Inequality_{it}* tests for this effect at two levels: first, to account for the combined effect of several dimensions of gender inequality, we use the extended version of the United Nations Gender Inequality Index, that is, a combination of gaps in labor force participation, education, and reproductive health, as well as female seats in parliaments as described in Annex 5.1. In a second step, to test for the effect of individual measures of gender inequality, the index is replaced by the female-to-male gross enrollment ratio in secondary school, the female labor force participation rate, the share of female seats in parliament, the adolescent fertility rate, and the maternal mortality ratio. As the relationship between diversification and gender inequality may vary across levels of development, we include a low-income and developing country interaction term (*LIDC*) in our main regressions.
- *Structural Characteristics_{it}* may significantly impact a country's ability to diversify. We therefore include real GDP per capita and its square in the regression to account for the overall level of development, as well as the turning point after which countries reconcentrate their export or output structure (IMF 2014b; Dabla-Norris and others 2013). The baseline regressions also include population size to capture the pool of workers potentially able to produce different products in a country, along with an index of human capital to account for a country's ability to generate and implement new ideas. In addition, we test whether being resource-rich exhibits a negative effect on diversification by introducing the share of mining in GDP or the share of fuel exports into the regressions.
- *Institutions_{it}* shape the environment in which businesses operate and the ease of entering a market to implement an idea or to produce a new product. To account for this impact, our regressions use both general institutional quality (for example, the Frasier Institute Summary Index), as well as specific dimensions of the regulatory environment (for example, legal systems and property rights).

- *Cyclical Factors*_{it} may boost or compress a certain sector in the short term, therefore impacting diversification over time. We therefore introduce macroeconomic variables, such as terms of trade, real effective exchange rates, and real GDP growth into our regressions, in addition to time fixed effects.
- *Policies*_{it} may foster economic diversification. Here, we test for several policy dimensions, such as more openness to trade (through an index of globalization, the degree of freedom to trade internationally, and average tariff rates), financial development (an index of financial reform, interest rate controls, and private sector credit to GDP as robustness checks), the scale of investment in the economy (investment in percent of GDP and per worker), and infrastructure development (density of landlines and length of road network).
- To capture other factors over time and by country we include μ_i and θ_t , that is, country fixed effects and time fixed effects into our baseline regressions. ε_{it} represents the error term.

In addition to the fixed effects specifications, we address the endogenous relationship between economic diversification and gender inequality by using the instrumental variable generalized method of moments (IV-GMM) technique.⁷ Gender inequality in outcomes and opportunities may cause lower levels of export and output diversification, but lower levels of diversification may lead to larger gender inequalities in outcomes and opportunities. Therefore, to determine the direction of causality, we use IV-GMM in addition to the fixed effects specifications as highlighted elsewhere in this chapter.⁸ In particular, the instrumental variables approach isolates the causal effect of the country-specific degree of gender inequality, as measured by the GII, on export and output diversification.

We introduce legal rights for women as instruments into our specifications. To be valid, an instrument needs to fulfill two criteria: (1) not have a direct impact on export and output diversification (be uncorrelated with the error term of the regression), and (2) be highly correlated with gender inequality, the endogenous regressor of interest. Similar to the institutions and growth literature, we draw from a large dataset of legal restrictions on women's economic activity. We argue that gender-based legal restrictions—the mere existence of laws on the books of a country—do not exert a direct impact on export and output diversification, thus fulfilling the first condition of exogeneity, which we confirm with the Hansen statistical test. Legal rights have been shown to have a direct and strong impact on gender inequality, supported by various strands of the literature, which makes them good candidates to fulfill the second condition of relevance of the instrument in theory and which we also confirm in the empirical results.

⁷See Bandiera and Natraj 2013 for a discussion of panel regressions and the endogenous relationship between gender inequality and growth.

⁸All regressions are estimated using heteroskedasticity-robust Huber-White standard errors.

PART III

Tackling Gender Inequality around the Globe

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Tackling Gender Inequality in Asia

A. JAPAN

Chad Steinberg and Masato Nakane

B. INDIA

Sonali Das, Sonali Jain-Chandra, Kalpana Kochhar, and Naresh Kumar

C. KOREA

Mai Dao, Davide Furceri, Jisoo Hwang, and Meeyeon Kim

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Japan

CHAD STEINBERG AND MASATO NAKANE

Japan's potential growth rate is steadily falling with the aging of its population. Against this backdrop, to what extent can raising female labor participation help slow this trend—that is, can women save Japan?

Japan is growing older faster than anywhere else in the world. After experiencing a demographic dividend of a rapidly growing labor force and a falling birth rate from the 1960s to 1980s, Japan is now facing the consequences of a rapidly aging society. Population projections suggest that the share of the population over age 65 will rise from 9 percent in 1980 to 36 percent in 2040 (Figure 6.1). Other Asian countries—such as Korea and Taiwan Province of China—are not far behind and will likely look to Japan for ways to cope with the economic and social consequences of a rapid rise and subsequent decline in population.

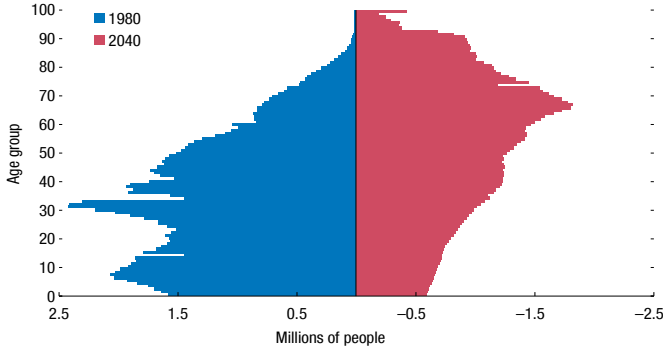
The consequence of this rapidly aging society is the sharpest labor force decline among advanced economies. The size of Japan's working-age population, ages 15–64, will fall from its peak of 83 million in 1995 to about 51 million in 2050 (Figure 6.2). This is approximately the size of the workforce at the end of World War II. Unless output per worker rises at a faster rate to offset the decline in the number of workers, Japan's GDP is likely to fall behind that of many of its neighbors. Japan has already ceded second place in global economic size to China, and India is not far behind.

Yet there is much Japan can still do to help mitigate the decline in the size of its workforce. Both immigration and female labor force participation rates are well below Organisation for Economic Co-operation and Development (OECD) country averages (Figure 6.3). Attitudes and political sentiment about immigration, however, do not change quickly. In the near term, there is much Japan can do to encourage its highly educated female population¹ to participate more actively in the workforce. Getting more women in the workforce would mean not only a larger labor force but possibly a more skilled labor force given that Japanese women on average have completed more years of education than their male counterparts.

A version of this analysis was published as Steinberg and Nakane 2012.

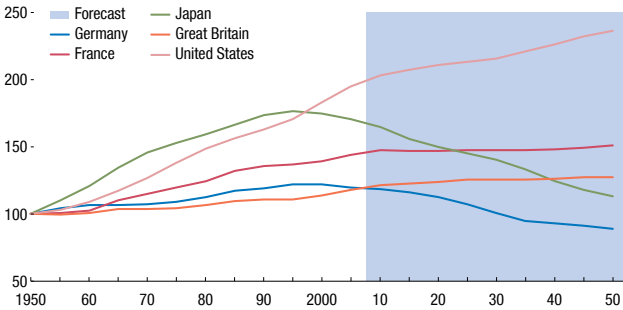
¹Japan's younger generation of women is more educated than their female peers elsewhere. In 2010, the cohort in their late twenties had on average 14.3 years of schooling, surpassed among advanced economies only by New Zealand.

Figure 6.1. Demographic Changes in Japan, 1980–2040
(Millions of people)



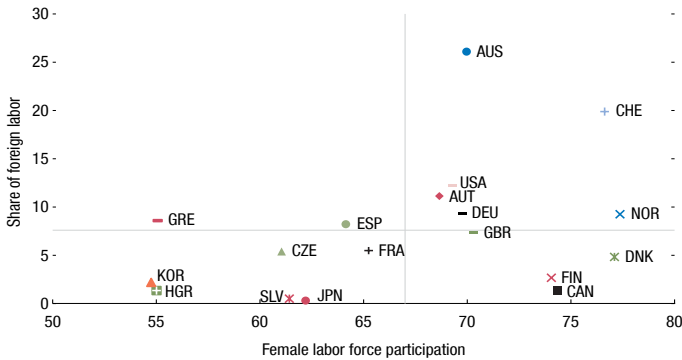
Sources: Japan Ministry of Internal Affairs and Communication; and Japan National Institute of Population.

Figure 6.2. Changes in Japan's Working-Age Population Change, 1950–2050
(Index 1950 = 100)



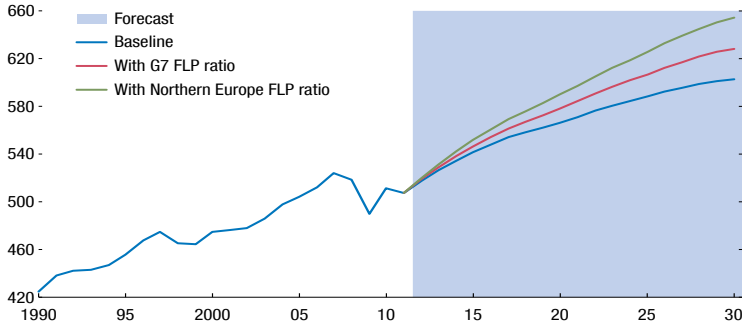
Source: United Nations.

Figure 6.3. Immigration and Female Labor Force Participation in Advanced Economies
(Percent)



Source: Organisation for Economic Co-operation and Development.
Note: Data labels use International Organization for Standardization (ISO) country codes.

Figure 6.4. Japan's Real GDP: Policy Scenario with Higher Female Participation
(Trillions of yen)



Sources: IMF, World Economic Outlook database; and IMF staff estimates.

We estimate that if Japan were to raise its female labor force participation rate to the level of the Group of Seven countries (excluding Italy and Japan), GDP per capita would be permanently higher by approximately 4 percent than under the baseline scenario (Figure 6.4). These back-of-the-envelope calculations assume a rise in the rate from 63 percent in 2010 to 70 percent in 2030.² Raising the rates further—to the level of northern Europe, say—could increase GDP per capita by an additional 4 percent. The impact of these two scenarios on potential GDP growth (in the transition years) would be about 0.2 percentage point under the first scenario and 0.4 percentage point under the second scenario. A transformation of this magnitude is not without precedent: the Netherlands, for example, experienced a similar dramatic increase in female labor force participation rates in the past few decades.

Female labor force participation is positively associated with a more neutral tax treatment of second earners, childcare subsidies, and paid maternity leave. According to OECD statistics, Japan provides much fewer of all these benefits than other OECD countries.³ Thus, the focus of this analysis is to identify barriers to increasing female labor force participation in Japan, drawing on shared experiences across countries where women face similar challenges in managing work and family life. At the same time, the analysis is agnostic on country differences that may arise due to existing work and cultural preferences.

Both demographics and policies matter in explaining female labor force participation rates. Among demographic variables, family size and education explain

²The effect on growth reflects the impact of the increase in labor input and does not include any additional increase in productivity from, perhaps, better reallocation of resources. Thus, these estimates can be considered to be a lower bound of the possible impact.

³Spending on maternity and parental leave benefits per child is less than one-half the OECD average, with Japan in the bottom quarter of the distribution. Similarly, Japan is also in the bottom quarter of the distribution for public expenditure on childcare and early education services.

many of the changes within countries over time, whereas family-friendly policies, like the provision of childcare, are important in explaining differences across countries.

We argue that Japan needs to do two things. First, it must end the gender gap in hiring and promotion practices. Japan has by far the lowest rate of female managers among advanced economies. Increasing the number of women role models would influence women's career choices. Second, Japan must do more to support working mothers. A more flexible work environment and better childcare facilities would help stanch the outflow of women from the workforce after childbirth. These policies would also be effective in reducing the high incidence of poverty among single mothers.

To achieve these changes, the following measures could be considered:

- Reallocate public resources away from monetary benefits to in-kind benefits, such as childcare facilities, which would help support working mothers.
- Deregulate the childcare industry to help increase the number of facilities.
- Extend the duration and broaden the coverage of parental leave policies.
- Eliminate institutional exemptions on spousal income in the social security and tax systems.
- Reduce disparities between part-time and full-time workers.
- Encourage firms to adopt more flexible work environments.
- Ensure that current promotion and employment policies are enforced equitably to help increase the number of female career employees.
- Introduce a new, more flexible labor contract for career employees that would reduce hiring risks for firms.
- Possibly establish new rules for the number of female directors on corporate boards.
- Eliminate the employer's spouse allowance, which is given to households with low spousal income.
- Reduce working hours, especially for full-time workers.
- Introduce a new human resource management system that provides clear responsibilities for work and encourages career advancement at an earlier stage.

JAPAN AND OTHER ADVANCED ECONOMIES

The main focus of our empirical analysis is on labor force participation rates in the advanced economies of the OECD for women between the ages of 25 and 54 (for more details, see Box 6.1) Female labor force participation rates have indeed risen across the OECD, with the mean of the distribution increasing from 61.2 to 76.9 percent between 1985 and 2005 (Figure 6.5). At the same time, female participation rates have started to converge, with the width of the distribution

Box 6.1. Explaining Differences in Female Labor Force Participation in Advanced Economies

We apply a difference-in-difference econometric approach to help explore the role of demographics (D) and policies (Z) in explaining the differences in female labor participation rates across member countries of the Organisation for Economic Co-operation and Development (OECD) and within countries over time. Our econometric specification is:

$$\Delta fip_{it} - \Delta mlp_{it} = \alpha + \Delta D_{it}\beta^1 + \Delta Z_{it}\beta^2 + \varepsilon_{it}$$

in which fip_{it} and mlp_{it} are the female and male prime-age labor participation rates in country i at time t . D and Z are vectors for demographic and policy control variables, respectively, which vary by country and over time. The parameter α is a constant, and ε is the error term.

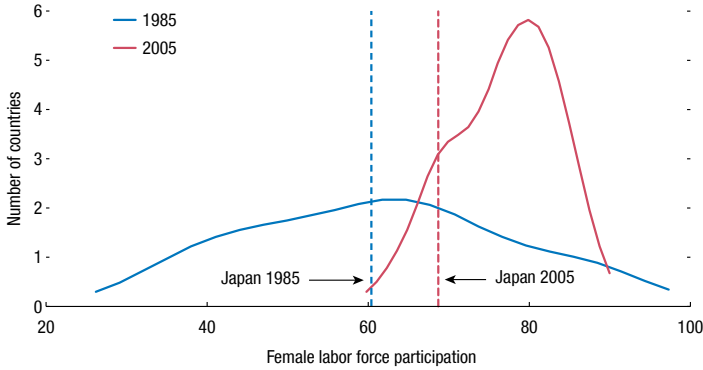
Our econometric results confirm that demographics are a powerful explanatory variable for changes over time in labor participation rates. Our analysis focuses on three variables of interest: marriage rates, the number of children per woman, and education levels. Lower marriage rates and fewer children reduce the opportunities for home production and therefore increase the attractiveness of market work, whereas a higher level of education strengthens the attachment of women to the labor market by increasing their potential earnings. The econometric results show that demographics have changed hand in hand with female labor force participation over time (see also Figure 6.5).

The increase in female labor force participation in Japan from 56.7 in 1980 to 70.3 in 2008, for example, is in large part linked to the decline in the number of children per woman. A key factor driving this decline in the average number of children is the higher percentage of Japanese women choosing to remain single. In the past 20 years the percentage of unmarried women between the ages of 25 and 29 has more than doubled, to 59 percent in 2010 from 24 percent in 1980. As a result, there has been a steady rise in single-person households in Japan (Matsui 2010).

While demographic factors are important, they are relatively less important in explaining differences across countries. This is noticeable in the relationship between the number of children per woman and female labor force participation. In 1980, a cross-section of countries shows a somewhat negative correlation, consistent with our regression estimates. But in 2008, the correlation turns seemingly positive. What this may highlight is that the importance of demographics diminishes or changes as countries' demographics converge. The corollary to this finding, however, is that the onus for closing gaps between countries may now be on policies.

However, there is no policy silver bullet. Policy can make a difference, but the results are varied and are not as robust or as economically significant as the previous demographic results. Furthermore, a 1 standard deviation change in any of the policies we tested is associated with less than a 1 percentage point increase in the female labor force participation rate. Still, our analysis allows us to make some normative statements. First, wage gaps between men and women and expenditure on childcare seem to be robust predictors of cross-country differences. Second, women have strong preferences for part-time work: female labor force participation is significantly higher in countries with a higher share of part-time workers, which allows women to balance market work and family responsibilities. Third, parental leave policies must be generous to be effective.

Figure 6.5. Female Labor Force Participation in 22 Advanced Economies

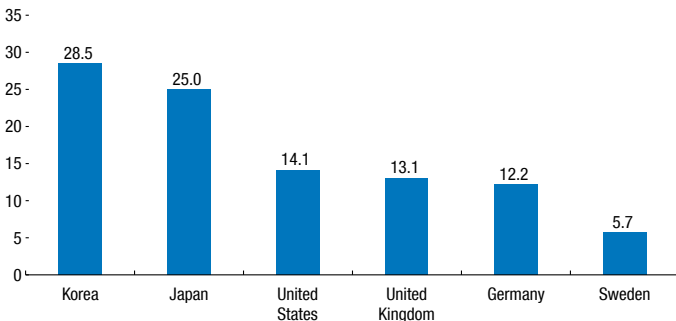


Source: Organisation for Economic Co-operation and Development.

narrowing considerably. In Japan too, rates increased from 60.3 to 68.8 percent between 1985 and 2005, but at a much slower pace compared with the median OECD country. As a result, within the distribution Japan has lost ground to many of its peer countries.

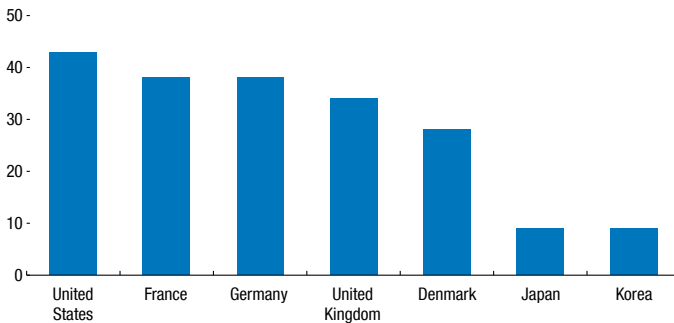
This gap compared to other countries is particularly noticeable in a comparison of male and female labor participation rates (Figure 6.6). The labor participation rate for females in Japan is 25 percentage points lower than for males. Korea is the only country in the OECD with a higher difference, with most countries showing differences of about 10 percentage points. In some northern European countries, where support for working mothers is very generous, the differences are as low as 5 percentage points.

Figure 6.6. Gender Differences in Prime-Age Labor Force Participation Rate (Percent, 2009)



Sources: Organisation for Economic Co-operation and Development; and IMF staff estimates.

Figure 6.7. Female Managers
(Percent of total, 2009)



Source: United Nations Development Program.

POLICIES TO RAISE FEMALE LABOR FORCE PARTICIPATION IN JAPAN

One of the more striking characteristics of Japan's labor force is the paucity of female managers, with the ratio of female managers at just 11 percent in 2013 compared with 43 percent in the United States (Figure 6.7). The trend is a result not only of low female participation rates, but also of current hiring practices, promotion policies, and lack of public and private sector policies that promote work-family balance. Korea—with similar hiring practices—is the only country that shares a similar disparity.

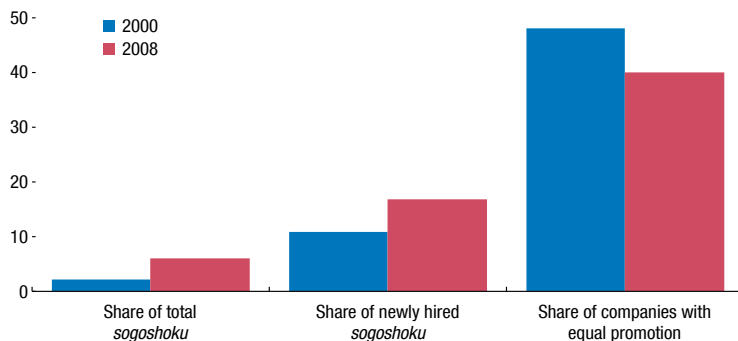
Hurdle 1: Employment and Promotion Policies

A potential challenge to higher female labor force participation is limited opportunity to enter career positions. The most important individual labor market decision in Japan is typically made following graduation from postsecondary school, when jobs with implicit lifetime employment guarantees are filled. As a result, most employees do not make substantial job shifts during their prime working years, and therefore decisions made at this early juncture lead to the many inequities that exist in the current employment system. This includes not only the low level of female career employees but also the increasing number of nonregular workers among the young.⁴

For women, the key decision at this juncture is often between noncareer positions (*ippanshoku*) and career positions (*sogoshoku*) at large corporations. Career positions pay more and usually include significant investment in human capital over a lifetime of employment at a corporation. Noncareer positions, in contrast, are filled predominantly by women, pay less, and usually include less-demanding

⁴Nonregular workers are those who work part time, as day-laborers, for a fixed duration, or under agency contracts.

Figure 6.8. Women in Career Positions (*Sogoshoku*) in Japan
(Percent, 2000 and 2008)



Source: Japan Ministry of Health, Labour, and Welfare.

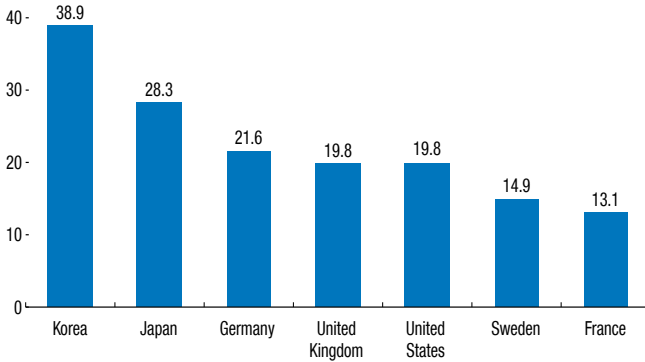
tasks, with little investment in human capital development. Corporations begin their selection processes for long-term career advancement soon after this initial hiring decision and give long-term binding employment contracts. Potential employees also use this occasion to signal their long-term intentions about employment with the corporation. From the corporation's perspective, the aim of the system is to minimize the risk of early retirement of women (Yamaguchi 2008).

The result of this hiring system is that there are very few women in career positions within large corporations (Figure 6.8). A small-sample, nonrandom government survey in 2010 found that women make up just 6 percent of career employees, which is consistent with the low level of female managers overall. The share of women in these categories has been on the rise (up from 2.2 percent in 2000) because a higher share of women is being recruited into these positions at the start of their careers (12 percent in 2010), but the level remains very low by international standards. Moreover, for women who do enter career positions, the path to promotion is not always easy. The same survey found that at more than half the firms in the sample, top-performing male employees were one or more steps ahead of top-performing female employees in the promotion cycle.

This two-track system has also led to a significant wage gap between men and women (Figure 6.9).⁵ Although the size of the gap has declined over time, from 42 percent in 1980 to 27 percent in 2013—as measured by the difference in median wages between men and women—it is still significant by international standards. Japan's gap is nearly twice that of Sweden but still smaller than that of Korea. Researchers using micro panel data sets have also found that the wage gap

⁵The higher share of women in nonregular positions has also likely contributed to this gap, with 52 percent of women holding nonregular positions relative to 17 percent of men.

Figure 6.9. Gender Wage Gap in Japan
(Female median wages as a percent of male median wages, 2009)



Source: Organisation for Economic Co-operation and Development.

between men and women cannot be explained by differences in productivity levels and that the gap remains unreasonably large (Abe 2005; Kawaguchi 2007).

Clearly, increasing both women's wages and the number of women in career positions would increase women's attachment to market work. Achieving this, however, will likely require efforts on multiple fronts:

- *Corporations' employment and promotion policies must be more equitable.* The government first became actively involved in the resolution of discrimination against women at work in the 1980s with the passage of the Equal Employment Opportunity Act in 1986, which banned gender discrimination in vocational training, welfare, retirement, and dismissal. A 1999 revision added hiring and promotion, and a 2007 revision added further protections for pregnant women. Penalties were introduced in 1999, including the disclosure of noncompliant companies, and these were further elaborated in 2007. The reality, however, is that for similar work, Japanese women typically get paid significantly less, and the government needs to better enforce these laws in terms of wages, employment, and promotion discrimination (Matsui 2010).
- *Corporations need more flexible employment contracts to reduce hiring risks.* Introducing a new, more flexible labor contract could increase incentives for hiring regular workers and allow a greater number of young and female workers to enter mainstream career paths with established firms. One possible option is to modify regular work contracts to include phased-in employment protection. Such a new regular work contract would gradually increase the dismissal costs to employers over the course of a worker's tenure. This would help reduce the hiring risks attendant to uncertainty about new workers' skills (or, more important, the length of their tenure) while maintaining employment protection for tenured employees.

- *Promote diversity; to provide role models to women.* In part, the reason so few women are in career positions is that few of them opt for this career path in the first place. This self-selection process appears to begin early, with top universities continuing to show gender bias. At the University of Tokyo, for example, where entrance is based on test outcomes, less than 20 percent of the student body is female. Raising the number of women in high-profile career positions would encourage more women to choose career positions. There are some signs that this is beginning to take hold, with the Bank of Japan appointing its first female branch manager; Daiwa Securities placing four women on its board in 2009; and Shiseido Co., Seven & I Holdings Co., and Sampo Japan Insurance, Inc. setting a goal of raising the number of female managers to 30 percent by 2020 (Matsui 2010). The Act to Advance Women's Success in Their Working Life, which came into effect in April 2016, requires large employers with more than 301 employees to disclose their plans to promote female employees, although there was no introduction of numerical targets for female managers due to strong opposition from the industrial lobby. Further progress perhaps could be made by establishing new rules for the minimum number of female directors on company boards, following the lead of European countries including France, Norway, and Spain.

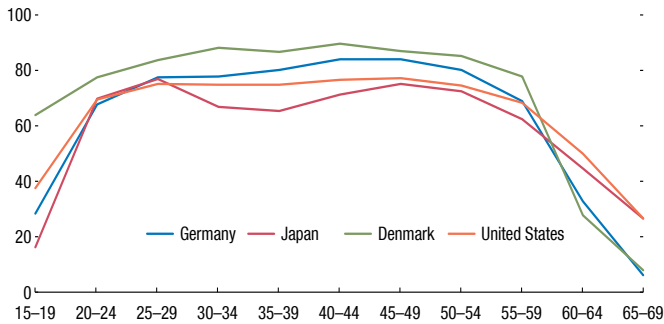
Hurdle 2: Balancing Family Responsibilities with Work

The second hurdle to a woman's career is usually returning to work after childbirth. Japan has female labor participation rates similar to comparable countries for women in their early twenties, but the rate drops off sharply for women in their late twenties and thirties, Japan's so-called M-curve (Figure 6.10). The unfortunate reality is that roughly 60 percent of Japanese women quit working after giving birth to their first child. This partly reflects women's weaker attachment to the labor market due to the issues already discussed, including lower wages and fewer opportunities for career advancement, but it also reflects a weak support system for working mothers.

Three policies can change this environment: (1) leave policies that allow women to retain their current positions, (2) childcare policies to reduce the time burden of family responsibilities, and (3) flexible work arrangements to allow both men and women to better balance market work with family responsibilities. These family-friendly policies would positively affect not only labor force participation but also fertility rates, an important policy angle for any aging society.

- *Parental leave policy*—Japan's leave provisions are near OECD averages but generally less generous than those of the major European countries. Japan's system includes maternity leave, which was established in 1947, and childcare leave for children under age one, which was established in 1991 along with measures that increased child-related leave from 14 to 58 weeks, bringing Japan broadly in line with the OECD averages. Working parents are also entitled to 67 percent of their previous income up to an income ceiling of

Figure 6.10. Japan's "M Curve": Female Labor Participation Rate by Age
(Percent, 2009)



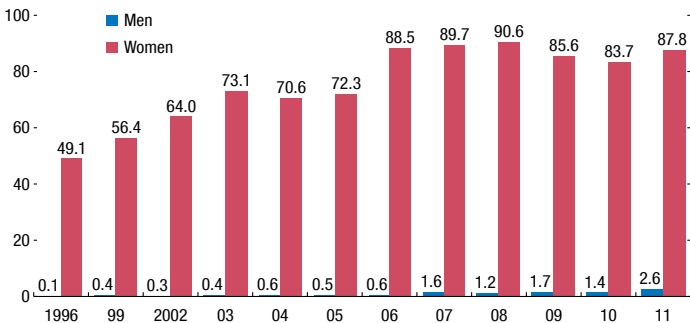
Source: Organisation for Economic Co-operation and Development.

52 weeks. The Act on Parental Leave was further revised in 2005 to extend the benefit to some nonregular workers, but their share in the total remains low (4.3 percent in 2007; Oishi 2011).

Use of leave policy increased following the introduction of childcare leave, but few males make use of it (Figure 6.11). The proportion of eligible female workers taking childcare leave increased from 49 percent in 1996 to 88 percent in 2011; however, the impact of the policy change may have been dampened by the increase in the share of ineligible nonregular workers. Meanwhile, fewer than 3 percent of fathers make use of childcare leave (relative to 70 percent in Sweden).

Evidence using micro data sets in Japan tends to confirm that the length of leave policy has a beneficial impact on women returning to work

Figure 6.11. Use of Parental Leave in Japan, 1996–2011
(Percent)



Source: Japan Ministry of Health, Labour, and Welfare.

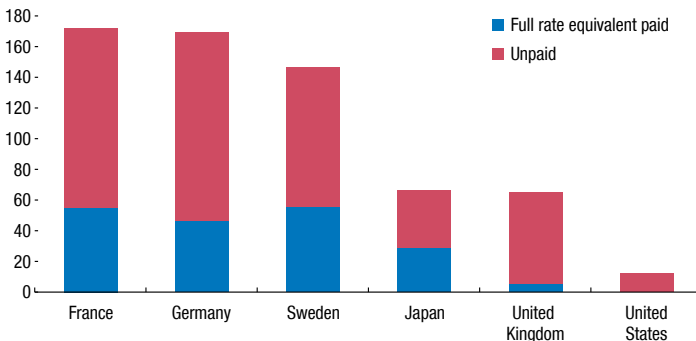
following childbirth. Waldfogel, Higuchi, and Abe (1999), for example, examine the impact of family leave on women's employment in Japan, the United Kingdom, and the United States. They confirm that longer parental leave increases the probability that mothers will return to their jobs after childbirth in all three countries and that the effect is particularly strong in Japan. Shigeno and Ohkusa (1998) and Suruga and Cho (2003) also confirm that women working at companies that support parental leave are more likely to have a baby and return to their jobs (22 percent, according to Suruga and Cho 2003).

Our own cross-country results tend to confirm that to be effective leave policy must be longer. This is particularly true in Japan, where the probability of finding full-time work after a career interruption is very low: 18 percent for university-educated women and 12 to 13 percent for less-educated women. Thus, consideration should be given to extending the duration of leave policy to levels similar to those in France, Germany, and the Scandinavian countries (Figure 6.12). At the same time, efforts could be made to encourage more males to use parental leave.

- *Childcare*—Use of childcare and early educational services in Japan is still low by international standards (Figure 6.13). The system is also fragmented between daycare centers and kindergartens. Daycare centers provide full-day childcare for working mothers with children up to age 6 and are regulated and funded by the Ministry of Health, Labour, and Welfare. Kindergartens, in contrast, usually provide childcare for only part of the day for children ages 3 to 6 and are largely intended for traditional single-earner households. They are regulated and subsidized by the Ministry of Education.

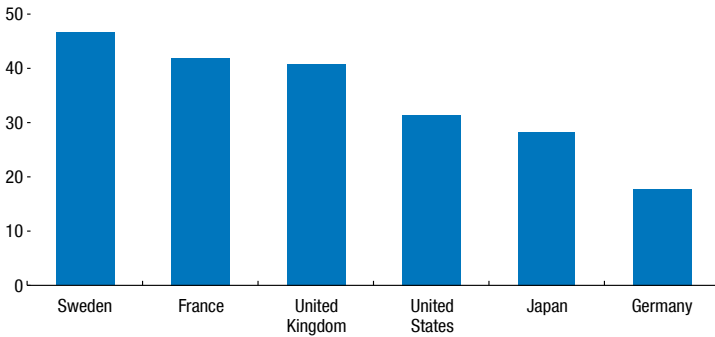
Figure 6.12. New Mothers' Maternity Leave in Selected Countries

(Weeks per childbirth, 2008)



Sources: Gauthier 2011; and IMF staff estimates.

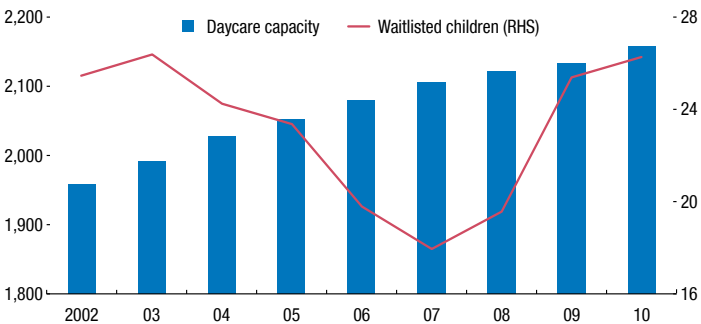
Figure 6.13. Enrollment of Small Children in Formal Childcare in Japan
(Percent of children under age 4, 2008)



Source: Organisation for Economic Co-operation and Development.

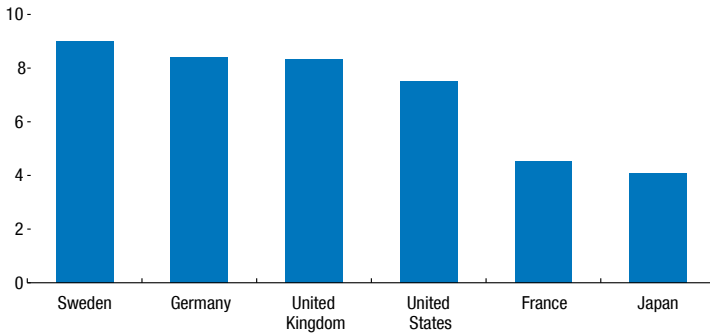
The demand for daycare centers has increased with the rising number of two-earner households, with demand largely outstripping supply (Figure 6.14). The number of waitlisted children emerged as a defining social issue in the early 2000s, with the Koizumi government eventually targeting an increase in capacity from 203,000 to 215,000 children by 2009. This goal was met, but because of steady increases in female employment, the number of children on daycare waiting lists has largely remained unchanged at about 25,000 children. Informal reports suggest that potential unmet demand could be as high as one-third of current childcare capacity (Nikkei 2011). Kindergartens, meanwhile, remain underutilized

Figure 6.14. Japanese Daycare Supply and Demand, 2002–10
(Thousands)



Source: Japan Ministry of Health, Labour, and Welfare.

Figure 6.15. Time Spent on Childcare by Men in Selected Countries
(Percent of men with two or more children)



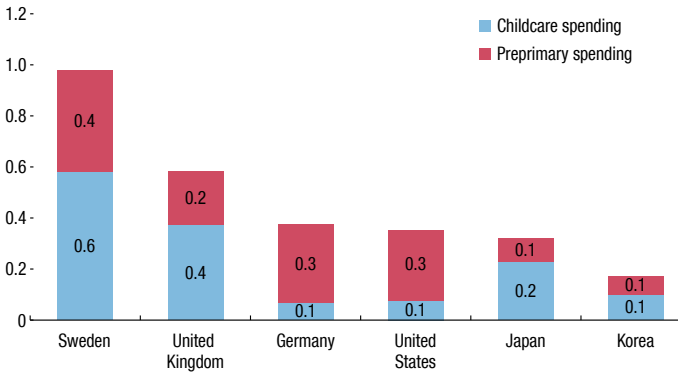
Source: Organisation for Economic Co-operation and Development.

(approximately 70 percent of capacity) because the population has aged and an increasing number of families requires full-day childcare.

Evidence using micro data sets in Japan also confirms that women's participation decisions are indeed dependent on the time they must devote to childcare. Waldfogel, Higuchi, and Abe (1999) estimate that having an infant child reduces participation rates by about 30 percent. Meanwhile, Sasaki (2002) finds that mothers living in the same house as their parents or in-laws are more likely to participate in market work, because these women can reduce their child-rearing responsibilities with support from the older generation. In contrast, women often report receiving little support from men in the household even after returning to work, likely reducing participation rates overall. Recent studies by Murakami (2007) and Sakamoto (2008) find that the time men spend on childcare is the same regardless of whether or not the spouse works. Thus, market work represents an additional burden for women. This is also borne out in cross-country comparisons (Figure 6.15).

Increasing the supply of childcare facilities should help reduce women's childcare burdens and support an increase in labor force participation. Increasing the supply of childcare, however, will require focus on a variety of policy options, including deregulation and merging the two childcare systems. "One of the stumbling blocks continues to be excessive regulation of the daycare industry. Currently, a myriad of regulations—ranging from the floor space of the facility to the stringent licensing process—means that the supply of facilities remains limited relative to demand. Given constrained public finances, it is necessary to deregulate in order to encourage more private sector entrants into the sector" (Matsui 2010, 15). The government has also started the process of unifying the two systems, but progress is likely to be slow given different ministerial oversight responsibilities.

Figure 6.16. Public Expenditure on Support for Children in Japan
(Percent of GDP in 2005)



Source: Organisation for Economic Co-operation and Development.

Finally, some consideration could be given to a small reallocation of spending toward childcare: Japan's spending (as a percent of GDP) is still somewhat lower than in comparator countries (Figure 6.16).

- *Flexible work arrangements*—Finally, there is a growing need for a more flexible work environment. Inflexible working hours and a lack of support for women in the workplace are often cited by women who drop out of the workforce after having their first child. In one survey, working hours was the second-highest reason given for not participating in the workforce, behind only the additional burden of housework (Table 6.1). As Japan ages, this will become increasingly important, because more time will need to be devoted to the care of elderly parents at home. Employers have recently responded to some of these concerns by creating a new career position that does not require relocation,⁶ but more needs to be done.

Adopting elements of the Dutch model, with its emphasis on part-time but equal work, could be appropriate for Japan. This could include, for example, equal hourly wages and other full-time benefits such as parental leave and employment protection. Japan already has a large number of non-regular workers and a high share of female workers in these positions. In the survey that explored women's reasons for staying out of the labor market, 87 percent of respondents indicated that if they were to participate in the labor force they would be interested mainly in part-time work. This is also largely consistent with the findings that suggest the availability of part-time work

⁶Career employees are usually expected to relocate at the company's request, with the relocation occurring as often as every five years.

TABLE 6.1.

Japanese Women's Reasons for Staying Out of the Labor Market	
Reason	Percent
Housework	33.9
Working hours	14.2
Health	12.1
Location	7.9
Job Characteristics	3.6
Others	28.2

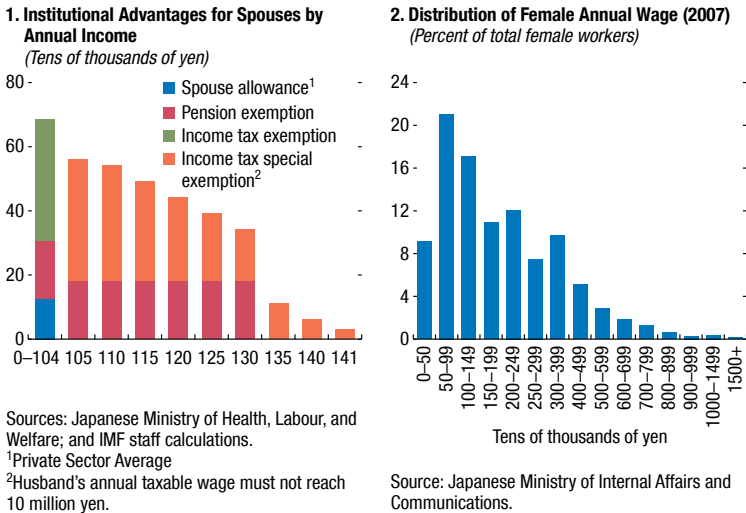
Source: Japanese Ministry of Internal Affairs and Communications, 2010.

is significantly correlated with higher female labor participation rates. Achieving this, however, will require either closing the benefit gap between nonregular and regular work or by making regular work more flexible. The government is already making efforts to increase protection of nonregular workers, but over the long term it may be very difficult to equalize benefits between these two streams of work. Efforts instead could be made to make regular work more flexible. In the Netherlands, employees who have worked for more than a year can change their working hours; in Sweden the regulations are more closely tied to child-rearing, with parents eligible to work shorter hours until their child's eighth birthday.

SPECIAL ISSUES FOR LOW-INCOME HOUSEHOLDS

As discussed, both the tax system and family allowances can play a role in determining labor market participation, but these benefits decrease as the average education level of women improves. For Japan, with its high level of educational attainment, these monetary incentives—including Japan's child-rearing allowance—may not be effective at raising overall rates of female labor force participation. Nonetheless, they could be quite important for low-income households. Our analysis here focuses on the tax system and Japan's child-rearing allowances.

Japan's tax system, like that of many other advanced economies, has implicitly compensated women for not fully participating in the workforce. This is because tax systems were originally designed to treat families equally, rather than as individuals. In Japan, for example, before 2004 a head of household was able to claim both a dependent exemption and a special dependent exemption of ¥380,000, as long as the spouse's annual income was less than ¥1.03 million. This is also the income level that many private companies set for benefits on pensions and spouse allowances. As such, ¥1.03 million is often referred to as the "barrier to full-time female employment," so that at pay levels above this level, many housewives prefer part-time to full-time work. A histogram of annual wages of female workers indeed indicates that just under a third of workers earn less than the ¥1.03 million threshold (Figure 6.17).

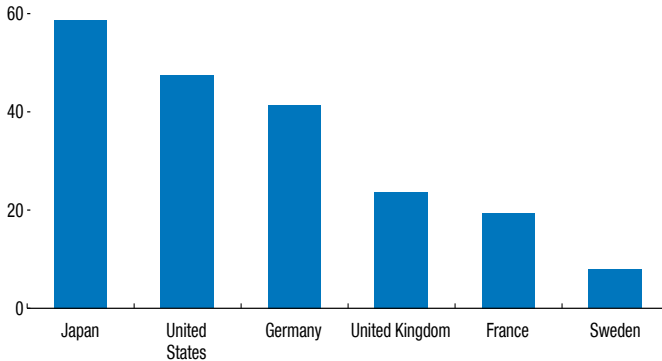
Figure 6.17. Taxation and Wages in Japan

In 2004, one of the special dependent exemptions was eliminated as part of a package of reforms implemented following the passage of the Basic Law for a Gender-Equal Society in 1999 (which provides general guidelines for the promotion of gender equality in society but does not stipulate penalties). In addition, eliminating both the pension exemption and the other dependent exemption is currently under review. Reducing these tax distortions could encourage more married women to seek full-time employment. This would have the additional benefit of reducing tax expenditures.

The short-term impact of removing tax disincentives on the female labor supply may not be large if implemented as a stand-alone measure. Analyses of micro data sets largely find a minimal impact from these distortions. Ishizuka (2003) finds that eliminating the distortions would lead to a small increase in regular full-time employment but at the same time lead to a decrease in overall labor force participation. Murakami (2008), meanwhile, finds that the 2004 reforms had no discernible impact on participation choices in the short term. Given other constraints to female labor force participation, this outcome does not seem surprising.

Japan started providing child allowances in the early 1970s to help pay for child-rearing costs as the number of working mothers increased and the number of multiple-generation households declined. Until 2010, monthly ¥5,000 or ¥10,000 child allowances were paid for children in elementary school or below and were conditional on income levels. In 2010, the Democratic Party of Japan renamed this allowance the “child-rearing allowance” and increased the overall benefits. The amount was increased to ¥13,000 a month, eligibility was raised to include junior high school students, and the new system was no longer

Figure 6.18. Poverty Rates for Single-Parent Households in Selected Countries
(Percent of single-parent households living with children)



Source: Organisation for Economic Co-operation and Development.

conditional on income levels in 2010. In 2012, after the Liberal Democratic Party came into power, the benefit was raised to ¥13,000 a month for children less than 3 years old, but was reduced to ¥10,000 per month for children in junior high schools, and the income threshold was reintroduced.

The effectiveness of these allowances on participation rates, however, is ambiguous. Our results suggest that they are effective only for low-income households; thus, if households' liquidity is constrained, an increase in income could lead to higher female labor force participation. However, in-kind benefits, such as child-care, are likely to be more effective. Moreover, Jaumotte (2003) finds a negative effect from tax benefits and argues that this is likely due to income effects.

Thus, perhaps a better rationale for child-rearing allowances is equity concerns and this benefit's impact on lowering child poverty. In fact, the relative poverty rate for single-parent households with children in Japan was the highest among OECD countries, and its proportion is 10 percent higher than in the United States (Figure 6.18).

CONCLUSIONS

Japan is growing older faster than any other country in the world, and one consequence is the sharpest labor force decline among advanced economies. To keep the potential growth rate from steadily declining, Japan must find new ways to increase labor force participation, including female labor force participation. Demographic changes explain many of the changes in aggregate participation rates within countries over time. But more recently, policies have become increasingly important in explaining differences across countries.

Japan must make two changes to achieve higher female labor force participation rates. First, Japan should consider policies to increase the number of

career-track female employees. Japan has by far the lowest share of female managers among advanced economies. Increasing the number of women role models would help steer women toward market work. Second, Japan should provide better support for working mothers. A more flexible work environment combined with better childcare facilities and longer leave policies would help reduce the number of women who exit the workforce after childbirth.

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India

**SONALI DAS, SONALI JAIN-CHANDRA, KALPANA KOCHHAR, AND
NARESH KUMAR**

Among emerging market and developing economies, India has one of the lowest female labor force participation rates—typically measured as the share of women who are employed or seeking work as a share of the working-age female population. India's rate, at about 33 percent in 2012, is well below the global average of about 50 percent and the east Asia average of about 63 percent. India is the second-most populous country in the world, with an estimated population of 1.26 billion at the end of 2014. Accordingly, a female labor force participation rate of 33 percent implies that only 125 million of the roughly 380 million working-age Indian females are seeking work or are currently employed.

Moreover, at 50 percent, India's participation gender gap is the one of the widest among Group of Twenty economies. Furthermore, female labor force participation has been on a declining trend in India, in contrast with most other regions, particularly since 2004–05. Drawing more women into the labor force, along with other important structural reforms that could create more jobs, would be a source of future growth for India as it aims to reap the “demographic dividend” from its large and youthful labor force.¹

It has long been understood in the literature that gender equality plays an important role in economic development. Various studies highlight how lower female labor force participation or weak entrepreneurial activity drag down economic growth and that empowering women has significant economic benefits in addition to promoting gender equality (Duflo 2012; World Bank 2012). The World Economic Forum's 2014 *Global Gender Gap Report* finds a positive correlation between gender equality and GDP per capita, the level of competitiveness, and human development indicators. Seminal work by Goldin (1995) explored the U-shaped relationship between female labor supply and the level of economic development across countries. Initially, when the income level is low and the

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¹The demographic dividend refers to the potential benefits to a country from an increase in the working-age population relative to the number of dependents, with the latter defined as those less than 15 years old or over 65 years old. The falling fertility rate in India will result in an increase in the working-age population share in that country, as well as in its share of the population, through approximately the next 35 years.

agricultural sector dominates the economy, women's participation in the labor force is high, due to the necessity of working to pay for basic goods and services. As incomes rise, women's labor force participation often falls, only to rise again when female education levels improve and, consequently, the value of women's time in the labor market increases. This process suggests that, at low levels of development, the income effect of providing additional labor dominates a small substitution effect, whereas as incomes increase, the substitution effect comes to dominate.² Gaddis and Klasen (2014) explore the effect of structural change on female labor force participation using sector-specific growth rates. They find a relationship consistent with a U pattern but small effects from structural change.

Against this backdrop, this analysis revisits the determinants of female labor participation in India, analyzes how labor market rigidities affect female labor force participation, and examines the drivers of formal and informal sector employment. It assesses whether India's largest public employment program, resulting from the enactment of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in 2005, has resulted in higher female labor force participation.³ Launched as one of the world's largest employment programs, the MGNREGA offers 100 days of guaranteed wage employment in every financial year for all registered unskilled manual workers (both women and men). The MGNREGA includes multiple provisions that are supportive of women in the workplace. These include requiring that at least 33 percent of participating workers are women; stipulating that equal wages be paid for men and women; and providing for facilities, such as worksite childcare, that reduce barriers to women's participation (Government of India 2014). The MGNREGA includes other provisions aimed at making work attractive for women, such as the stipulation that work is to take place within five kilometers of an applicant's residence.

INDIAN FEMALE LABOR FORCE PARTICIPATION

The main data set used in this analysis is detailed household-level data from five employment and unemployment surveys conducted by India's National Sample Survey Office (NSSO) covering the years 1993–94, 1999–2000, 2004–05, 2009–10, and 2011–12. Following detailed data gathering and organization, the analysis presents stylized facts from all five survey rounds; the empirical estimation of the determinants of labor force participation is conducted on the most

²The income effect is the change of hours of work of an individual with respect to a change in family income. The substitution effect is the change in hours of work of an individual with respect to a change in his or her wage, holding income constant.

³The Act took effect in February 2006 and was implemented in phases across the country. During Phase I it was introduced in 200 of the country's most underdeveloped districts; during Phase II it was implemented in an additional 130 districts, during 2007–08; and during Phase III it was implemented in the remaining rural districts of the country, beginning on April 1, 2008. All rural districts in India are now covered under the MGNREGA.

recent round of the survey (68th round, July 2011 to June 2012).⁴ The employment and unemployment surveys of the NSSO are the primary sources of data on various labor force indicators at national and state levels. NSSO surveys, with large, nationally representative sample sizes, have been conducted every five years all over the country. The survey period spans more than a year, and the sample covers more than 100,000 representative households in each of the five surveys. The number of households surveyed in the latest round of the survey (68th round) was 101,724 (59,700 in rural areas and 42,024 in urban areas), and the number of persons surveyed was 456,999 (280,763 in rural areas and 176,236 in urban areas). This makes India's NSSO surveys among the world's largest employment surveys.

According to NSSO definitions, individuals are classified into various activity categories on the basis of activities that they pursue during specific reference periods. Three reference periods are used in NSSO surveys: (1) one year, (2) one week, and (3) each day of the reference week. The activity status determined on the basis of the reference period of one year is known as the "usual activity status" of a person, the status determined on the basis of a reference period of one week is known as the "current weekly status" of the person, and the activity status determined on the basis of the engagement on each day during the reference week is known as the "current daily status" of the person.

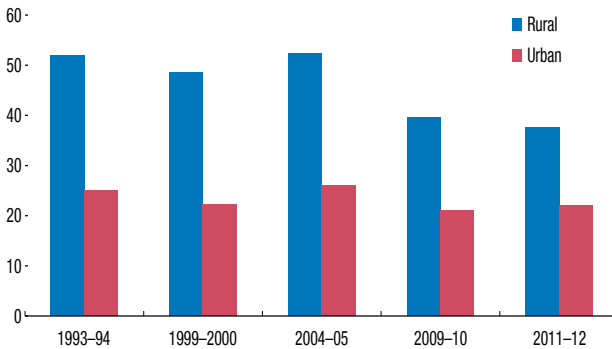
Under the usual activity status a person is classified as belonging to the labor force if he or she had been either working or looking for work during the longer part of the reference year. For a person already identified as belonging to the labor force, the usual activity status is further divided into "usual principal activity status" and "usual secondary activity status." The activity status on which a person spent relatively longer time during the 365 days preceding the date of the survey is considered the usual principal activity status of the person.

A person whose usual principal status is determined on the basis of the major time criterion may have pursued some economic activity for 30 days or more during the reference period of 365 days preceding the date of survey. The status in which such economic activity is pursued during the reference period of 365 days preceding the date of survey is the "subsidiary economic activity status" of the person. In case of multiple subsidiary economic activities, the major activity and status based on the relatively longer time spent criterion are considered.⁵

In this context, the labor force is measured through the usual principal activity status, which is more suitable to the study of trends in longer-term employment. Generally, government programs and policies are focused toward generating more stable jobs and encouraging a shift from informal-sector to formal-sector jobs.

⁴Labor force participation rates based on usual principal activity status are presented throughout, unless otherwise specified.

⁵The Report of the Committee of Experts on Unemployment Estimates submitted to the Planning Commission in 1970 states that "In our complex economy, the character of the labor force, employment and unemployment, is too heterogeneous to justify aggregation into single-dimensional magnitudes."

Figure 6.19. Female Labor Force Participation Rate in India

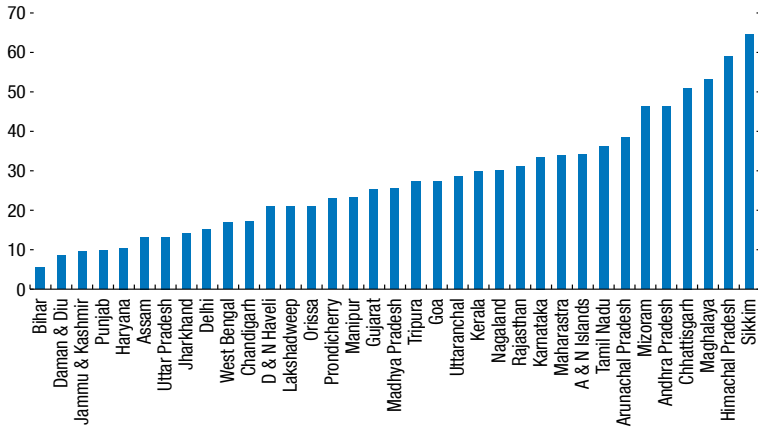
Sources: NSS Employment and Unemployment Surveys; and IMF staff calculations.

Moreover, a reference period of just one day or one week may capture well the employment intensity for that particularly short period but may not reflect the overall pattern and level in terms of months or days worked throughout the year. Therefore, each of the smaller reference periods, except the long (one-year) reference period, may not be completely representative of the employment patterns and incidence for the concerned year, and moreover, may not be suitable for comparison across reference periods of varying lengths over time.

The following stylized facts emerge from the household survey data:

- Female labor force participation varies widely between urban and rural areas. It is much higher in rural areas than it is in urban areas (Figure 6.19). Over time, the gap between urban and rural areas has narrowed moderately, with most of the convergence being driven by the fall in participation rates in rural areas. As a result, taken together, female labor force participation rates nationwide have fallen since the mid-2000s.
- There is a wide range of female labor force participation rates across Indian states (Figure 6.20), with states in the south and east of India (such as Andhra Pradesh, Tamil Nadu, and Sikkim) generally displaying higher participation rates than those in the north (such as Bihar, Punjab, and Haryana).
- There is a growing gap between male and female labor force participation rates (Figure 6.21). These gender gaps are particularly pronounced in urban areas, where they are wider and average 60 percentage points. In rural areas, participation gaps between males and females average about 45 percentage points.
- There is a U-shaped relationship between education and female labor force participation rates (Figure 6.22). With increasing education, labor force

Figure 6.20. Female Labor Force Participation Rates Across Indian States
(Percent, 2011/12)

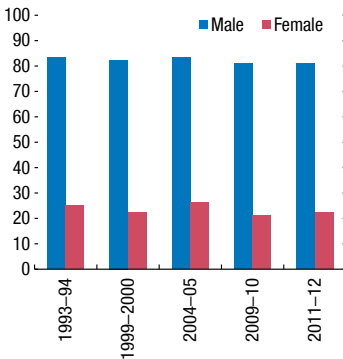


Sources: India's National Sample Survey Office; and IMF staff calculations.

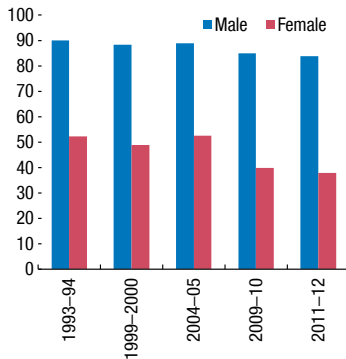
participation rates for women first start to decline and then pick up among highly educated women (particularly university graduates) who experience the pull factor of higher-paying white-collar jobs. There is still an education gender gap in India, but it has been narrowing over time. As the gender gap in education closes further, particularly at higher education levels, female labor force participation can be expected to rise. In addition to raising labor

Figure 6.21. Urban and Rural Labor Force Participation in India

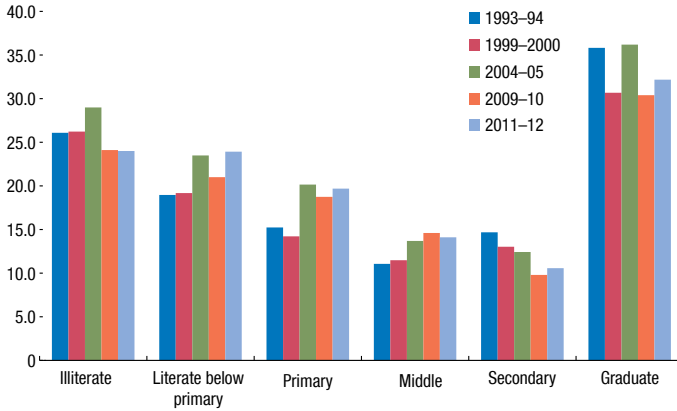
1. Urban: Labor Force Participation Rate
(Percent)



2. Rural: Labor Force Participation Rate
(Percent)



Sources: India's National Sample Survey Office; and IMF staff calculations.

Figure 6.22. Urban Female Labor Force Participation in India by Education Level*(Percent)*

Sources: India's National Sample Survey Office; and IMF staff calculations.

input, the resulting accumulation of women with the requisite skills, knowledge, and experience for labor force participation should boost potential output.

- Income has a dampening effect on female labor force participation, with participation rates higher among low-income households, due largely to economic necessity (Table 6.2).⁶ With rising household incomes, participation rates for women start to drop off.

LABOR MARKET FLEXIBILITY

It has been widely noted that relatively inflexible labor markets have weighed on employment generation in India (Dougherty 2009; Kochhar and others 2006), affecting firm hiring decisions (Adhvaryu, Chari, and Siddharth 2013) and resulting in lower productivity (Gupta, Hasan, and Kumar 2009). Moreover, there is considerable cross-state heterogeneity in labor market rigidities.

To gauge the differences in flexibility of labor markets in Indian states, the analysis uses a state-level index produced by the Organisation for Economic Co-operation and Development (OECD). The OECD's Employment Protection Legislation index is based on a survey of labor market regulations. The index covers 21 of India's 29 states, which comprise 97.5 percent of India's 2011-12

⁶This analysis uses monthly consumption per capita as a proxy for household income.

TABLE 6.2.

Determinants of Labor Force Participation in India						
<i>Dependent variable = 1 if in labor force</i>						
	Female			Male		
	All	Urban	Rural	All	Urban	Rural
Predicted wage	0.001 (0.041)	0.153** (0.064)	0.038 (0.051)	0.270** (0.091)	-0.022 (0.129)	0.410*** (0.119)
Married	-0.452*** (0.038)	-0.787*** (0.057)	-0.374*** (0.050)	2.651*** (0.061)	2.647*** (0.076)	2.659*** (0.081)
Children	-0.155*** (0.035)	-0.167*** (0.052)	-0.077* (0.045)	-0.115** (0.046)	0.041 (0.067)	-0.204*** (0.063)
Illiterate	-1.221*** (0.067)	-0.845*** (0.105)	-1.315*** (0.086)	-1.813*** (0.103)	-1.163*** (0.156)	-2.026*** (0.129)
Some education	0.631*** (0.064)	0.493*** (0.100)	0.706*** (0.083)	1.663*** (0.062)	1.432*** (0.085)	1.774*** (0.083)
Post-secondary education	1.240*** (0.073)	1.271*** (0.106)	1.034*** (0.108)	1.071*** (0.075)	1.299*** (0.097)	0.859*** (0.107)
log(Expenditure per capita)	-1.126*** (0.384)	-2.461*** (0.510)	-0.841 (0.565)	0.159 (0.562)	-0.093 (0.682)	0.513 (0.927)
log(Expenditure per capita) squared	0.045 (0.026)	0.141*** (0.033)	0.035 (0.039)	-0.037 (0.036)	-0.019 (0.043)	-0.067 (0.063)
log(SDP per capita)	1.090 (0.038)	0.546 (0.051)	1.351 (0.048)	0.226 (0.054)	0.138 (0.071)	0.276 (0.074)
Observations	133,220	52,509	80,711	133,947	53,890	53,890

Source: Authors' calculations.

Robust standard errors in parentheses, clustered at household level, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

NSSO-measured population of 1.21 billion.⁷ The index is constructed by counting amendments to regulations that are expected to increase labor market flexibility. These includes amendments to four key pieces of labor market regulation: the Industrial Disputes Act, the Factories Act, the Shops Act, and the Contract Labor Act.

With the Industrial Disputes Act, for example, the index would take a higher value for states that require a shorter amount of time for employers to give notice to terminate an employee; have made amendments allowing certain exemptions to the Act; have lowered the threshold size of the firm to which chapter V-B applies;⁸ exclude the complete cessation of a certain function from the definition of retrenchment; have instituted a time limit for raising disputes; or have instituted other amendments to the procedures for layoffs, retrenchment, and closure that should ease planning for firms. The OECD's Employment Protection Legislation index also captures differences in the ease of complying with regulations (for example, rules on dealing with inspectors, registers, and filing of

⁷The 21 states covered are: Andhra Pradesh (which refers to the undivided state comprising the present states of Andhra Pradesh and Telangana), Assam, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand, and West Bengal.

⁸Chapter V-B of the Act requires firms employing 100 or more workers to obtain government permission for layoffs, retrenchments, and closures (as of 1984).

returns). As in Dougherty 2009, the index is scaled, taking values from 14 to 28, by its maximum value, thus ending with a variable that ranges from 0.5 to 1.

The analysis uses three alternative classifications to identify which workers in the sample are in the formal or informal sector and creates an indicator variable equal to one when the conditions for each of these classifications hold. The employment and unemployment survey conducted in the 68th round of the NSSO, from July 2011 to June 2012, asked workers for information on various characteristics of the enterprises in which they were employed (for example, type of enterprise⁹ and number of workers in the enterprise), and questions on the conditions of employment of the regular wage and salaried employees (for example, whether an individual has a job contract or is eligible for paid leave).

Categorization of formal sector jobs is based on these questions about conditions of employment. Because there is no explicit question on the existence of informality, its existence is inferred using three different methods. The first categorization of formality refers to jobs where the worker has a formal contract or is eligible for paid leave. The second categorization variable indicating formal employment is based on the location of the workplace. For example, workers who work on “the street with a fixed location” would be classified as informal sector employees. The third categorization of formality comes from India’s Ministry of Statistics and Programme Implementation (2014), which classifies workers in either proprietary or partnership enterprises (small firms, usually owned by individuals, family members, or their close associates) as employed in the informal sector.

Labor force participation rates can also be influenced by wage differentials facing women. As expected, wages in the informal sector are lower than in formal sector jobs. The NSSO survey data contains information on wage and salary earnings, from which a daily wage can be calculated for about 15,000 female workers and 54,000 male workers. In the sample, the daily wage for women in formal jobs is over four times as high as for women in informal jobs. Notably, there is a gender wage gap in both the formal and informal sectors, with male workers earning a higher wage on average in both sectors.

The empirical analysis asked the following three questions: What are the determinants of female labor force participation in India in both urban and rural areas? Is female labor force participation higher in Indian states with less stringent labor market regulations? Do these factors affect whether employment occurs in the formal or informal sectors?

Following is a summary of the answers to those questions, based on the analysis:

⁹This includes proprietary, partnership, government/public sector, public/private limited company, cooperative societies/trusts/other nonprofit institutions, employer’s households (such as private households employing maid, servant, watchman, cook), and others.

- Married women are less likely to be in the labor force, whereas married men are more likely to be in the labor force.
- Both women and men with young children are less likely to be in the labor force.
- Illiterate individuals of both sexes are less likely to be in the labor force, and the probability of being in the labor force increases with higher levels of education for both sexes.
- Consistent with the stylized facts, females in households with higher spending per capita, which is a proxy for income, are less likely to be in the labor force. However, this negative effect is nonlinear and decreases as income increases. This nonlinear relationship between income and participation appears to be driven by urban females.
- The chance of being employed in the formal sector, as opposed to the informal sector, also increases in more flexible state labor markets.
- Female labor force participation is higher in states with relative higher spending on social services and education.
- Poor infrastructure has a dampening effect on female labor force participation. Women living in states with greater access to roads are more likely to be in the labor force, and those in states with less reliable state power utilities are less likely to be in the labor force.
- In rural areas, both women and men who hold an MGNREGA card are more likely to be in the labor force; the probability is higher for women than for men, possibly due to the female-friendly provisions of the Act.

CONCLUSIONS

Female labor force participation in India is lower than it is in many other emerging market economies and has been declining since the mid-2000s. Moreover, there is a large gap in the labor force participation rates of men and women. This gender gap should be narrowed to fully harness India's demographic dividend. In addition, related literature also finds that greater economic participation of women leads to higher economic growth.

A number of policy initiatives could be used to address this gender gap in Indian labor force participation. These include increased labor market flexibility (which could lead to the creation of more formal sector jobs) allowing more women—many of whom are working in the informal sector—to be employed in the formal sector. In addition, supply-side reforms to improve infrastructure and address other constraints to job creation could also enable more women to enter the labor force. Finally, higher social spending, including investment in education, could also lead to higher female labor force participation by boosting the number of women with the requisite skills, knowledge, and experience.

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Korea

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Unemployment rates have decreased in Korea over the past decade despite a slow-down in the quantity of goods and services produced there. The overall unemployment rate declined from about 4½ percent in 2000 to about 3½ percent in 2014. The Korean unemployment rate is currently among the lowest in Organisation for Economic Co-operation and Development (OECD) countries. However, the existence of a two-tiered labor market (which includes a high share of nonregular workers) and the underemployment in some segments of the population (notably, youth and women) are important labor market challenges which contribute to lower potential growth.

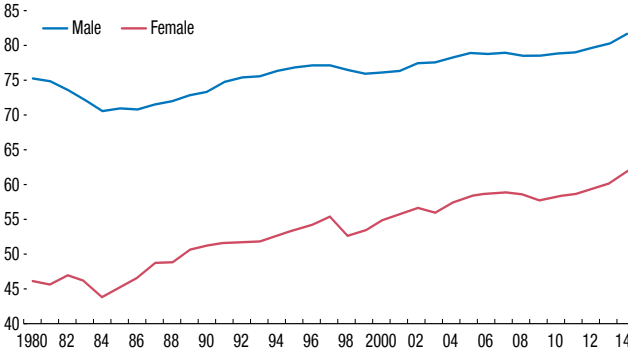
This analysis focuses on the underemployment of women, provides an analysis of trends and determinants of female labor force participation in Korea and other OECD countries, and includes an empirical analysis that points toward reforms that could boost female participation over the medium term. Based on the results, the benefits of comprehensive structural reforms are likely to be considerable over the medium term. In particular, comprehensive policy reforms aimed at reducing labor market distortions that inhibit labor force participation could increase female participation rates by about 8 percentage points over the medium term, which would reduce by a third the gap between the rates of male and female participation. Examples of such reforms include making the tax treatment of second earners in households more neutral in comparison with that of single earners, increasing childcare benefits, and facilitating more part-time work opportunities.

KOREA'S FEMALE LABOR FORCE PARTICIPATION RATE

Female labor force participation has increased markedly in Korea over the last two decades, from about 50 percent in 1990 to 62 percent in 2011, but significant gender differences persist (Figure 6.23). In particular, male participation rates are still 20 percentage points higher than those for females, with the gender gap

A version of this analysis was published as Dao and others 2014.

Figure 6.23. Trends in Korean Labor Force Participation Rates, 1980–2014



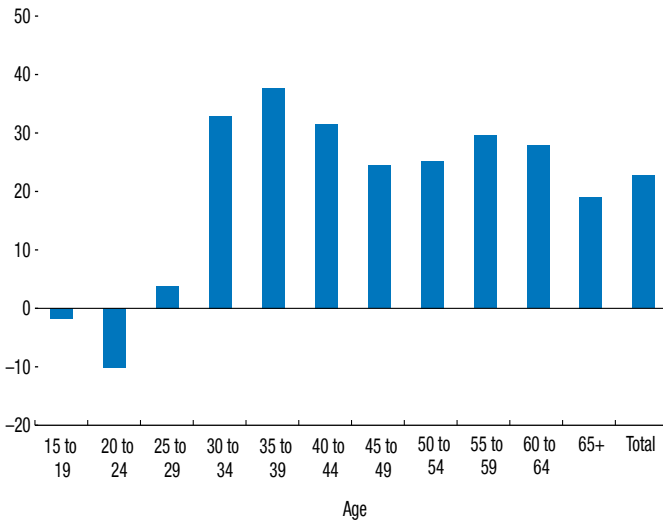
Source: Organisation for Economic Co-operation and Development.

particularly high—above 30 percent—for prime working-age groups (ages 30–34, 35–39, and 40–44) (Figure 6.24).

Female participation rates are not only low compared with those for men in Korea, but are also low compared with female participation rates in other OECD

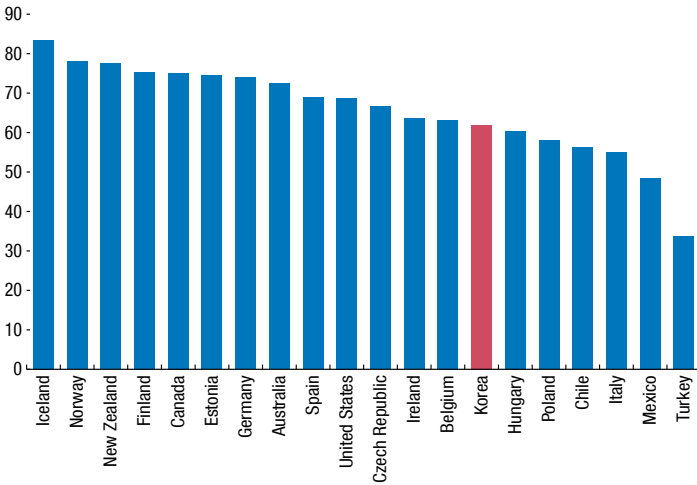
Figure 6.24. Korea's Labor Force Participation Gender Gap, 2014

(Percent)



Source: Organisation for Economic Co-operation and Development.

Figure 6.25. Female Participation Rates Across Countries, 2014
(Percent)



Source: Organisation for Economic Co-operation and Development.

countries. In fact, female labor force participation rates in Korea are among the lowest in the OECD (see Figure 6.25) and almost 20 percentage points below those prevailing in the best performing countries—Denmark, Finland, Iceland, Norway, and Sweden.

Removing policy distortions that prevent female participation is key to fostering growth and reducing inequality, even if part of the cross-country differences in participation rates may simply mirror differences in sociocultural factors. First, higher female participation rates can increase the labor supply, offsetting downward pressures from population aging and thereby boosting potential output over the medium term. Second, as preferences for female participation tend to be higher than the actual female participation rates, removing market distortions that inhibit female participation can lead to a higher level of aggregate income and welfare. Third, reducing the gap between male and female participation can help to reduce inequality.

The next section assesses the roles of various factors determining the pattern of female participation rates in Korea compared with other OECD countries, focusing on policy instruments that can be used to reduce market distortions and raise the female participation rates.

DETERMINANTS OF FEMALE LABOR FORCE PARTICIPATION IN KOREA

The determinants of labor force participation in Korea compared with other OECD countries are estimated using panel regressions for an unbalanced sample of 30 OECD countries over the period 1985–2011. In detail, the following difference-in-difference equation is estimated:

$$LPR_{it} = \alpha_i + \tau_t + \beta' X_{it} + \varepsilon_{it} \quad (6.1)$$

in which LPR indicates the female labor force participation rates; α_i are the country fixed effects, which capture unobserved factors including sociocultural ones; τ_t are time fixed effects which capture the impacts of common and country-specific unobserved shocks affecting the participation rates; and X is a set of policy variables that have been found in the literature to be robust determinants of female participation (Jaumotte 2003). In order to make the results country specific for Korea, all variables are considered as deviations with respect to Korea's ones. The set of explanatory variables include: (1) the tax wedges between second earners and single individuals (computed as the ratio of the tax on second earners to the average tax rate of a single individual with the same gross income), (2) childcare benefits (calculated as the increase in household disposable income from childcare benefits), (3) tax incentives to part-time work, (4) public spending on preprimary education, (5) social expenditures on families,¹ (6) the female and male unemployment rates, (7) the wage gaps between males and females, (8) the degrees of employment protection legislation, (9) the numbers of children per woman (measured by the ratios of children ages 0–14 to women ages 15–64), (10) the female tertiary education rates, and (11) the logs of GDP per capita. Additional variables found to be typically associated with female participation rates, such as child subsidies and paid parental leave, have not been included due to limited time series availability for Korea.²

The results from the estimation of equation 1 are reported in Table 6.3. The first column of the table presents the results for the baseline specification, which includes both time and country fixed effects and focuses on the key policy

¹Public expenditure on families is composed of (1) child-related cash transfers to families with children: child allowances, with payment levels that in some countries vary with the ages of the children, and public income support payments during periods of parental leave; (2) public spending on services for families with children: direct financing and subsidizing of providers of childcare and early education facilities, public childcare support through earmarked payments to parents, public spending on assistance for young people and residential facilities, and public spending on family services including center-based facilities and home help services for families in need; and (3) financial support for families provided through the tax system: tax expenditures toward families including tax exemptions (for example, income from childcare benefits that is not included in the tax base), child tax allowances (amounts for children that are deducted from gross income and not included in taxable income), and child tax credits (amounts that are deducted from tax liabilities).

²Jaumotte (2003), based on a sample of 20 OECD countries (excluding Korea), finds that childcare subsidies and parental leave have positive effects on female participation rates.

TABLE 6.3.

Determinants of Female Labor Force Participation in Korea							
Independent variable	Baseline			Robustness Checks			
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII) ¹
Tax second earner	-0.182** (-2.12)	-0.339*** (-3.73)	-0.230** (-2.46)	-0.189** (-2.43)	-0.264*** (-3.19)	-0.309** (-2.25)	-0.350*** (-4.20)
Childcare benefits	0.389** (2.18)	0.448** (2.06)	0.467** (2.30)	0.263* (1.81)	0.359** (2.18)	0.811*** (3.15)	0.559*** (3.45)
Tax incentive to part time	0.281* (1.68)	0.372* (1.80)	0.179 (0.98)	0.216* (1.76)	0.032 (0.22)	-0.513 (-1.06)	—
Public spending on preprimary education (log)	-0.002 (-0.45)	-0.005 (-0.77)	-0.002 (-0.58)	—	—	-0.005 (-0.22)	—
Public expenditure on family (log)	0.005 (0.40)	0.011 (1.37)	-0.051 (-0.84)	—	—	0.015 (0.57)	—
Male unemployment (log)	-0.030** (-2.34)	-0.041*** (-3.56)	-0.046*** (-4.24)	-0.046*** (-3.88)	—	-0.038* (-1.78)	-0.041** (-2.34)
Female unemployment (log)	-0.025** (-2.24)	-0.011 (-0.91)	-0.006 (-0.52)	-0.015* (-1.07)	—	0.001 (0.03)	—
Number of children (log)	0.068 (0.57)	0.041*** (3.67)	0.290*** (4.10)	—	—	0.324 (0.88)	—
Employment protection legislation (log)	—	—	—	—	—	-0.024 (-0.23)	—
Wage gap (log)	—	—	—	—	—	-0.002 (-0.17)	—
Female tertiary education (log)	—	—	—	—	—	-0.085 (-0.82)	—
GDP per capita (log)	—	—	—	—	—	0.051 (1.11)	—
Country-specific time trends	No	Yes	No	No	No	No	No
Time fixed effects	Yes	No	No	Yes	Yes	Yes	Yes
N	237	237	237	333	333	66	66
Adjusted R ²	0.99	0.99	0.99	0.99	0.98	0.99	0.99

Sources: Organisation for Economic Co-operation and Development; and IMF staff calculations.

Note: Country fixed effects included but not reported. T-statistics based on robust standard errors in parentheses, * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

¹Results based on stepwise regression.

determinants typically found in the literature to affect female participation (Jaumotte 2003). The main results are that: (1) the wedge between the tax rates of second earners and single individuals has a negative impact on female labor force participation,³ (2) an increase in childcare benefits has a statistically significant and large impact in boosting female participation rates, (3) tax incentives to part-time work tend to increase female participation, and (4) an increase in the probability of being employed (proxied by unemployment outcomes for both males and females) tends to improve participation. In contrast, public spending on preprimary education and on families does not have a significant impact on female labor force participation in Korea compared with other countries. The results, particularly for the tax wedge and childcare benefits, are robust to different specifications, different sets of controls, and step-wise regression (columns II through VII).⁴ Finally, while endogeneity may be an issue, particularly for the measures of unemployment rates, the results are robust to endogeneity checks and instrumental variable regression (Table 6.4).

The results presented in Table 6.5 suggest that the effects of these variables vary across different age groups. First, these policies do not seem to significantly affect participation for those ages 55–64. Second, while the tax wedge and childcare benefits affect female participation in all other age groups, part-time regulations seem to significantly affect participation only of women ages 25–39.

Finally, it is important to stress that although policy actions can in principle boost female participation rates in Korea, much of the cross-country variation in female labor force participation is captured by country fixed effects, suggesting that unobserved factors including differences in sociocultural factors and institutional features play the most important roles. The compelling question then is: What would be the potential impact of reforms aimed at reducing labor market distortions?

POLICY SIMULATION

In order to illustrate the potential impact of policy measures on female labor force participation, a number of policy scenarios can be simulated using the results of the estimated equation presented in the previous section. Before turning to the

³The tax wedge is computed as the ratio of *Tax second earner* to *Tax single individual*. The tax second earner is calculated as:

$$\text{Tax second earner} = \frac{1 - (\text{Household Net Income})_B - (\text{Household Net Income})_A}{(\text{Household Gross Income})_B - (\text{Household Gross Income})_A}$$

in which *A* represents the case in which the wife does not earn any income and *B* the case in which the wife's gross earnings are 67 percent that of the average production worker. The tax single individual is computed using the same formula, although in this situation the household is only made up of the individual. Note that the specification with time fixed effects is equivalent to a regression in which all variables are demeaned from Korea's. The results presented in column II, which do not consider time fixed effects, are qualitatively similar, even though the effects of the tax wedge, childcare benefits, and tax incentives to part-time are larger in absolute values.

TABLE 6.4.

Determinants of Korean Female Labor Force Participation, OLS versus IV		
Independent variable	Ordinary Least Squares	Instrumental Variable ¹
	(I)	(II)
Tax second earner	-0.339*** (-3.73)	-0.196** (-1.99)
Childcare benefits	0.448** (2.06)	0.426** (2.49)
Tax incentive to part time	0.372* (1.80)	0.329* (1.94)
Public spending on pre-primary education (log)	-0.005 (-0.77)	-0.009 (-1.00)
Public expenditure on family (log)	0.011 (1.37)	0.001 (0.06)
Male unemployment (log)	-0.041*** (-3.56)	-0.026 (-1.06)
Female unemployment (log)	-0.011 (-0.91)	-0.029 (-1.00)
Number of children (log)	0.041*** (3.67)	0.064 (0.52)
Kleibergen-Paap statistic (<i>p</i> -value in parentheses)	—	19.864 (0.02)
Hansen J statistic (<i>p</i> -value in parentheses)	—	5.946 (0.65)
Country-specific time trends	Yes	No
Time fixed effects	No	Yes
<i>N</i>	237	237
Adjusted <i>R</i> ²	0.99	0.99

Sources: Organisation for Economic Co-operation and Development; and IMF staff calculations.

Notes: Country fixed effects included but not reported. T-statistics based on robust standard errors in parentheses, * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

¹Public expenditures on preprimary education and family, number of children, and unemployment rates instrumented by their Jagged values (up to 3 lags), as well as all exogenous variables of the model.

TABLE 6.5.

Determinants of Korean Female Labor Force Participation by Age Group				
Dependent variable	15–24	25–39	40–54	55–64
Tax second earner	-0.955*** (-2.05)	-0.151* (-1.72)	-0.289** (-2.52)	-0.457 (-1.61)
Childcare benefits	2.603** (2.15)	0.474** (2.06)	0.523* (1.93)	-0.472* (-1.86)
Tax incentive to part time	0.300 (0.41)	0.462* (2.26)	0.217 (0.92)	0.950 (1.32)
Male unemployment (log)	-0.031 (-0.53)	-0.047*** (-4.47)	-0.038** (-2.20)	0.003 (0.07)
Female unemployment (log)	-0.020 (-0.20)	-0.003 (-0.21)	-0.009 (-0.59)	-0.086* (-1.83)
Time fixed effects	Yes	Yes	Yes	Yes
<i>N</i>	212	212	212	212
Adjusted <i>R</i> ²	0.97	0.99	0.99	0.29

Sources: Organisation for Economic Co-operation and Development; and IMF staff calculations.

Notes: Country fixed effects and the controls presented in Table 6.3 included but not reported. T-statistics based on robust standard errors in parentheses, * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

analysis, however, it is important to highlight the limitations of this approach. First, the results are sensitive to the uncertainties associated with the estimates of the effects of structural policies on labor force participation. Second, the simulations assume it is possible to disentangle the effects of specific reforms, abstracting from the complementarity of these reforms and the appropriate sequence of implementation. Third, financing requirements associated with the simulated policy changes may imply a need for significant increases in (other) tax rates with repercussions on labor force participation. These general equilibrium effects have not been taken into account in the simulations, which therefore may give a biased picture of the effects of policy reforms (Jaumotte 2003). With these caveats in mind, this analysis can still provide some indication of the magnitude of the effects of such reforms in boosting female labor force participation in Korea over the medium term.

The effects of structural reforms on Korea's female labor force participation are computed by simulating a convergence of policy settings toward those prevailing in benchmark countries, identified as those with the lowest restrictions. In detail, the potential female participation gains (g_i) from these structural reforms are simulated as:

$$g_i = \beta_i (I^k - I^b) \quad (6.2)$$

in which β_i is, for each indicator I , the estimated parameter of the effect of structural reform on female labor force participation reported in the first column of Table 6.2, and I^k and I^b are the values of the indicators in Korea and in the benchmark countries, respectively.

The average participation gain from a reform in the tax treatment of second earners is about ½ percentage point. Policies aimed at reducing unemployment would lead to an increase of about 1.4 percentage points. Reform of the tax incentives to part-time work would result in an increase of about 2 percentage points. Finally, reforms aimed at closing the gap between Korea and the benchmark countries in terms of childcare benefits would result in a significant increase in participation of about 4 percentage points. Combining these scenarios, the results suggest that a comprehensive set of reforms aimed at reducing the distortions captured by these indicators would lead to an increase in female participation rates of about 8 percentage points over the medium term, which would imply a reduction of the gap between male and female participation of about 33 percent.

CONCLUSIONS

After a period of exceptional growth, there has been a gradual slowdown in Korean economic growth since the mid-1990s. Although this slowdown has not translated into rising unemployment rates (which have continued to decline and

are among the lowest among OECD countries), labor market segmentation and the underemployment of some segments of the population, notably women, are important labor market challenges that also contribute to lower potential growth. Boosting Korea's female labor force participation requires a comprehensive set of structural reforms aimed at:

- Increasing investment in public childcare and childcare benefits
- Improving work-life balance by facilitating more part-time work opportunities
- Making the tax treatment of second earners in households more neutral compared with that of single earners
- Addressing the two-tiered labor market to improve job opportunities for women

This analysis suggests that the benefits of such reforms are likely to be considerable over the medium term. In particular, comprehensive policy reforms aimed at reducing labor market distortions that inhibit labor force participation could increase female participation rates by about 8 percentage points over the medium term, which would reduce by a third the gap between the rates of male and female participation. Examples of such reforms include making the tax treatment of second earners in households more neutral in comparison with that of single earners, increasing childcare benefits, and facilitating more part-time work opportunities.

Indeed, these measures are consistent with the Korean authorities' broad reform agenda for tackling labor market duality and boosting the employment rate to 70 percent by 2017. This "70 Percent Roadmap" shifts the focus of job creation from the current male, manufacturing, and conglomerate orientation toward females, services, and small- and medium-sized enterprises.

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Tackling Gender Inequality in Europe

7A. UNLOCKING FEMALE EMPLOYMENT POTENTIAL IN EUROPE

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7B. HUNGARY

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7C. GERMANY

Joana Pereira

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Unlocking Female Employment Potential in Europe

LONE CHRISTIANSEN, HUIDAN LIN, JOANA PEREIRA, PETIA TOPALOVA,
AND RIMA TURK

WHY IS INCREASING FEMALE LABOR FORCE PARTICIPATION RELEVANT?

Europe's population is aging, and productivity growth has declined. Potential output growth in Europe has declined markedly in the aftermath of the global financial crisis (IMF 2015), owing in particular to slower growth in employment and productivity. In addition, the working-age population is expected to continue to shrink over the coming decades, with fewer people entering the labor force and old-age dependency ratios rising. To the extent the recent slowdown in productivity is not fully explained by cyclical factors, concerns about continued subdued productivity growth also linger.

Gender gaps in participation and senior positions are prevalent in Europe. Women remain less active participants in the labor force than men. In 2014, only 89 women were working for every 100 men of prime working age. Furthermore, in many countries, working women supply significantly fewer hours of work than men. Gender gaps are even more glaring in senior corporate positions. As of April 2015, for every 100 corporate board members of large publicly listed firms, only 23 were women.¹

Gender equality in the labor market is an important social and development goal and can bring significant macroeconomic benefits (World Bank 2011; European Commission 2011; Elborgh-Woytek and others 2013; Gonzales and others 2015a). This operates in particular through two channels:

- *Increasing labor supply*—In the context of a rapidly aging population, increasing the share of women in the workforce could help mitigate the impact of a shrinking labor force. Closing the gender participation gap by increasing the number of women in the labor market would raise the

A version of this analysis was published as Christiansen and others 2016a.

¹Computed based on European Commission data (http://ec.europa.eu/justice/gender-equality/gender-decision-making/database/business-finance/executives-non-executives/index_en.htm).

European labor force by 6 percent. The impact could be as large as 15 percent if the gap in hours worked by men and women were also eliminated (Figure 7.1).² In turn, the resulting increase in labor input could have sizable effects on Europe's measured potential output. According to the Organisation for Economic Co-operation and Development (OECD), closing the gender participation gap could raise GDP by 12 percent over the next 15 years (OECD 2012).

- *Improving firm financial performance*—Greater involvement of women in senior management and in the board room could help strengthen firms' performance by broadening the talent pool and better representing the changing demographics of the workforce (OECD 2012).³ To the extent that higher representation of women in senior positions improves corporate sector profitability, it would help support corporate investment and productivity, mitigating the slowdown in potential growth.

This analysis contributes to the debate by addressing two important questions: First, what can be done to boost female employment and close gender gaps in the labor force? Second, are there gains from greater female representation in senior corporate positions?

- *Increasing labor supply*—After taking stock of the evolution of female labor force participation and its key drivers in Europe, the analysis revisits the relative importance of various demographic characteristics and policy variables in women's employment decisions. A key contribution of the analysis is the ability to disentangle the effects on women's employment decisions arising from individual (or household) choices and from macro-level policies.⁴ The analysis highlights the significant role of demographics and attitudes in driving women's employment decisions, and it confirms that policies matter as well.
- *Improving firm financial performance*—Using data from more than 2 million firms in Europe, we investigate whether firms benefit from more gender diversity in senior positions and provide new empirical evidence on women's representation in senior positions and firm financial performance. There is a strong positive association between female representation and firm performance, particularly in high-tech and knowledge-intensive sectors and in sectors where women represent a large share of the workforce.⁵

²This is an illustrative exercise, which assumes that the population and unemployment rate of both genders as well as the male labor force participation rate and number of hours worked for men remain constant. This exercise also abstracts from the cohort dimension of participation gaps.

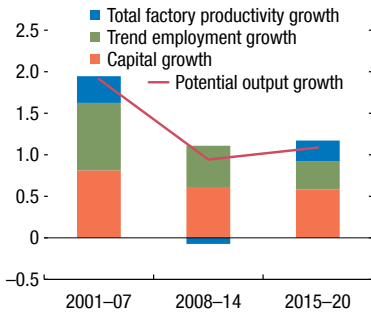
³The goal of bringing greater gender equality at the higher rungs of the career ladder, along with the potential benefits this may bring, has prompted many countries to institute quotas for women on the boards of publicly listed companies. The EU has also called for actively recruiting qualified women to replace outgoing male board members (European Commission 2012).

⁴We use "individual choice" and "personal choice" interchangeably and acknowledge that personal choice may be the result of household decision.

⁵We use "industry" and "sector" interchangeably when discussing firm financial performance.

Figure 7.1. Europe's Economic Challenges

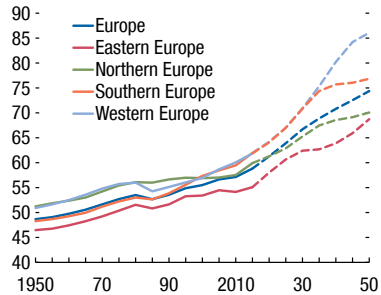
1. Potential Growth
(Percent)



Source: IMF 2015.
Note: Includes Germany, Italy, Spain, Turkey, and the United Kingdom.

2. Old-Age Dependency Ratio

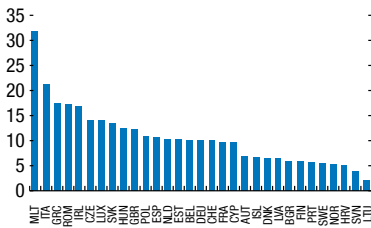
(Ratio of population ages 0-19 and 65+ per 100 people)



Source: United Nations Population Division.

3. Labor Force Participation Gap, Male-Female, 2014

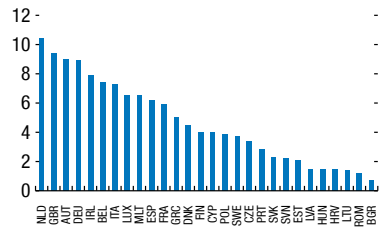
(Percentage points, ages 25-54)



Sources: Eurostat; and IMF staff calculations.

4. Gap in Hours Worked, Male-Female, 2014

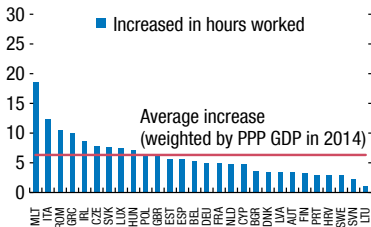
(Average hours per week, ages 25-54)



Sources: Eurostat; and IMF staff calculations.

5. Gains from Eliminating the Gender Gap in Participation

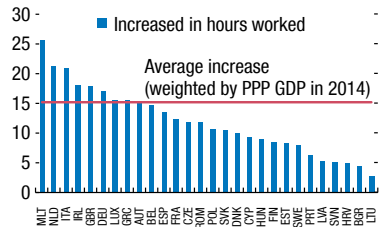
(Percent)



Sources: Eurostat; and IMF staff calculations.
Note: PPP = purchasing power parity.

6. Gains from Eliminating the Gender Gap in Participation and in Hours

(Percent)



Sources: Eurostat and IMF staff calculations.
Note: PPP = purchasing power parity.

Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.

HOW HAS WOMEN'S LABOR SUPPLY EVOLVED?

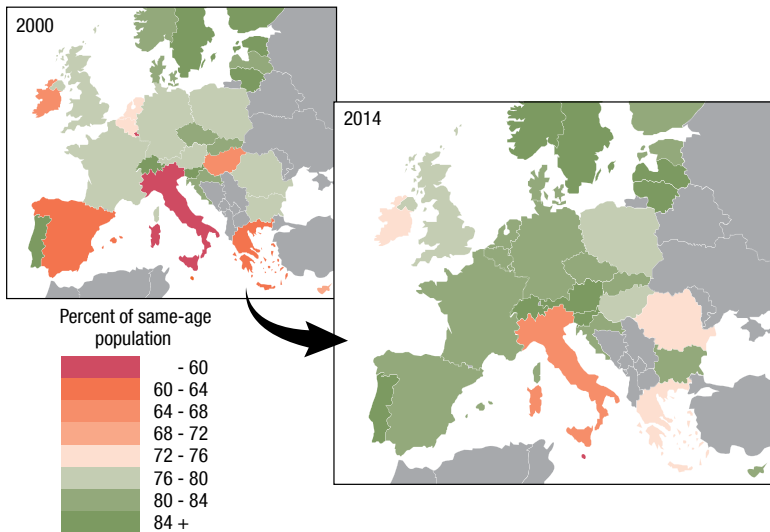
More Women in the Labor Force

During the past few decades, European female labor force participation has increased substantially but progress has been uneven across countries and has stalled in recent years. From participation rates of about 40 percent in the early 1980s in a number of advanced European countries, including Spain and Ireland (where participation rates were then below 40 percent), most advanced economies now stand at about 80 percent for women ages 25–54—the European Union (EU) 2014 average. As a result, European female labor force participation is now almost on par with that of North America and east Asia (Figure 7.2). However, labor force participation among prime working-age women in some emerging and northern European countries has traditionally been about 80 percent or higher, leaving less space for further significant increases. In fact, most of these countries have remained at broadly unchanged levels during the past two decades, and participation in Romania has declined moderately.

Although there has been a marked increase in female labor force participation rates, they remain well below male participation rates, and many working women are employed at less than full time. As of 2014, the gender participation gap was above 10 percentage points in a majority of countries, above 20 percentage points in Malta and Italy, only around 5 percentage points in Sweden and Norway, and virtually closed in Lithuania. The gender gap also varies across age groups and education levels. In Italy, it is most prevalent among people older than age 30, whereas in Poland it narrows for people in their forties and fifties, when women are past their prime childbearing years. Gender gaps also tend to narrow at higher education levels. The average number of hours worked each week has remained broadly stable over the past decade for the average EU country, with substantial variation across countries. In the Netherlands, a high female labor force participation rate coincides with a considerable gap in hours worked between women and men, as more than half of women between the ages of 25 and 54 are employed part time. In Germany, women work around 30 hours a week and men work nearly 40 hours a week, whereas in Bulgaria, they work equally long work weeks. Although part-time work can lift participation rates through a reconciliation of family life and employment, part-time employment may also result from policy-induced constraints to taking up full-time work (such as high taxation of second earners in a household or underprovision of childcare).⁶

⁶For European countries, part-time work has been found to be more prevalent when fertility rates are higher, employment regulation is more favorable, and employment protection is stricter for permanent contracts. The share of the services sector in the economy and of young adults in tertiary education are also important determinants. Part-time work can also allow employers to adjust hours worked to cyclical conditions, although the responsiveness is higher for male workers (Buddelmeyer, Mourre, and Ward 2008). Finally, tax incentives to work part time also seem to have a significant effect on part-time participation rates (Thévenon 2013).

Figure 7.2. (Uneven) Progress in Female Labor Force Participation
(Percent of same-age population)



Sources: Eurostat; and IMF staff calculations.

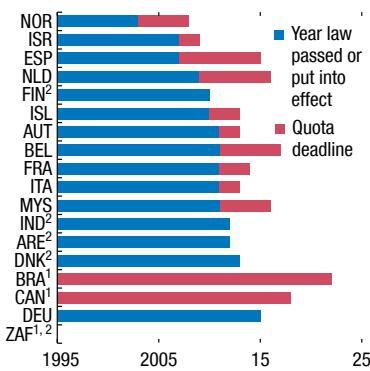
Few Women in Corporate Leadership Roles

More European women have entered corporate board rooms, but most countries are still a long way away from gender parity in senior corporate positions. Since 2003, when Norway passed a law mandating 40 percent representation of each gender on the board of publicly listed companies, many European countries have followed suit (Profeta and others 2014). Germany passed a law requiring publicly listed companies to have 30 percent of supervisory seats occupied by women as of 2016. Overall, the introduction of quotas has supported a substantial rise in the share of women on the boards of Europe's largest publicly listed companies (Figure 7.3). While legal requirements have boosted the share of women in the board room to about 19 percent, only 14 percent of executive positions among Europe's 620 largest listed companies were held by women in 2015. In the broader corporate sector, women have made greater strides. Analysis of the gender composition of senior positions—both in management and on corporate boards—of more than 2 million companies in 34 European countries reveals that almost a quarter of such positions are held by women.⁷ However, the

⁷The analysis relies on the Orbis database, compiled by Bureau van Dijk. The reported figure refers to the simple mean of the average share of women in senior positions in the 34 countries considered.

Figure 7.3. Women in Senior Positions

1. Legal Quotas for Female Board Members

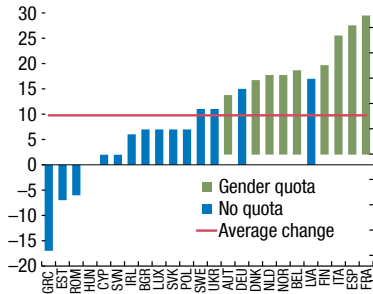


Sources: Deloitte 2013; Bertrand and others 2014 (Norway); National Bureau of Statistics (UAE); Spiegel Online (Germany).

¹Law passage is pending. ²No quota deadline.

2. Share of Women on the Boards of Large Companies

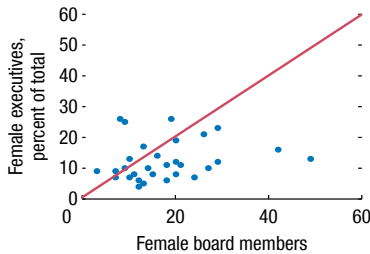
(Change between 2003 and 2015; percentage points)



Sources: Eurostat; and IMF staff calculations. Note: Based on a sample of about 620 large listed companies.

3. Female Executives vs. Female Board Members, 2013

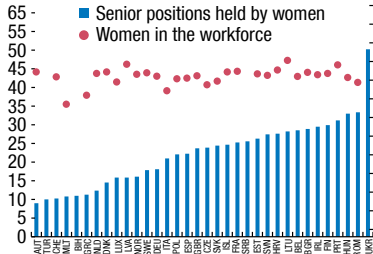
(Percent of total)



Sources: Eurostat; and IMF staff calculations. Note: Based on a sample of about 620 large listed companies.

4. Women in Senior Positions and in the Workforce, 2013

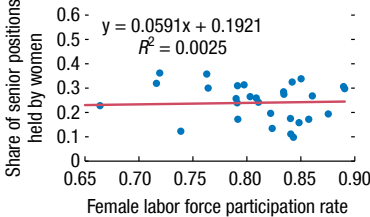
(Percent of total)



Sources: Eurostat; Orbis; and IMF staff calculations.

5. Share of Women in Senior Positions and Female Labor Force Participation, 2013

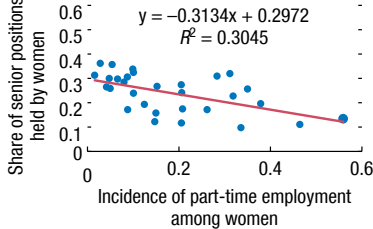
(Percent)



Sources: Eurostat; Organisation for Economic Co-operation and Development; Orbis; and IMF staff calculations.

6. Share of Women in Senior Positions and Female Part-Time Employment, 2013

(Percent of total)



Sources: Eurostat; OECD; Orbis; and IMF staff calculations.

Note: Data labels use International Organization for Standardization (ISO) country codes.

cross-country variation is large. Furthermore, in all countries, there is still a sizable gap between the gender composition of the workforce and that of senior positions.

DO POLICIES MATTER?

Both individual characteristics and policies likely affect a woman's decision to work (Figure 7.4).⁸

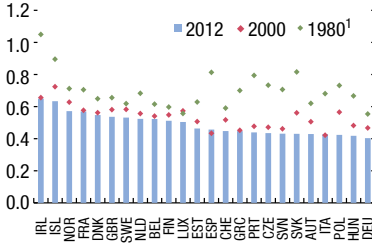
- *Individual characteristics*—When making the decision whether or not to join the labor force, women compare the value of home production relative to the return to working outside the house (Becker 1965). For example, the return from household work increases with the number of children, and higher education strengthens incentives for labor force participation through higher potential earnings. Gender attitudes or beliefs about women's role in society are also important as they determine the disutility of market work from violating personally held beliefs or social norms (Fernandez 2013).
- *Policies*—Policies can create substantial (dis)incentives for women to work, in particular for women with children. First, the tax system can create disincentives to work, or to work full time, for the second earner in a household (often a woman) through a relatively high marginal tax rate (Bick and Fuchs-Schündeln 2014; Dao and others 2014; Colonna and Marcassa 2015). However, there has been no clear direction of change in this area, and taxation for married couples across countries varies from completely joint to separate. In contrast, specific family-oriented policies have generally moved in the direction of supporting women's participation in the workforce (Carta and Rizzica 2015). Public spending on early education and childcare has increased in most countries since the early 1990s, facilitating mothers' return to work (Jaumotte 2003; Steinberg and Nakane 2012; Thévenon 2013). At the same time, family allowances in the form of cash lump-sum transfers have been generally reduced. Although parental leave policies are adjusted only infrequently, a number of countries, including the United Kingdom, Ireland, and Slovak Republic, now provide more than 30 weeks of maternity leave for women, further supporting the return of mothers to work (Ondrich and others 2003; Edin and Gustavsson 2008).

Our analysis confirms that both individual characteristics and policies are important for understanding women's employment decisions (Figure 7.5). A substantial literature examines the drivers of female labor force participation. However, without microlevel data it is difficult to fully account for individual

⁸The structure of the economy also likely affects the level of female labor force participation through expansion of sectors which have historically been much more likely to employ women, such as the services sector.

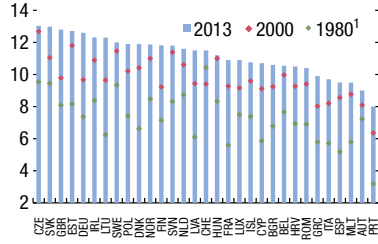
Figure 7.4. Gender-Related Characteristics and Policies

1. Number of Children (under age 14) per Woman



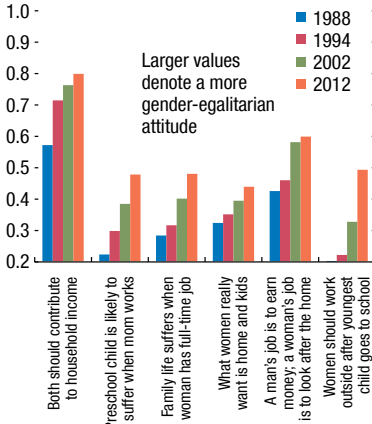
Source: Organisation for Economic Co-operation and Development (OECD).
¹Or earliest available data point.

2. Female Education
(Average number of years of schooling)



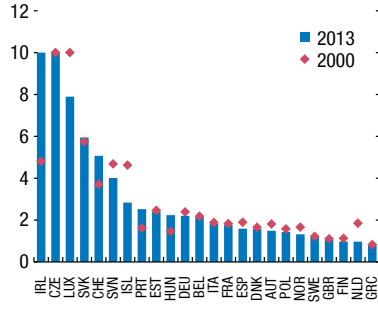
Source: Organisation for Economic Co-operation and Development (OECD).
¹Or earliest available data point.

3. Attitudes toward Gender Roles
(Share of respondents)



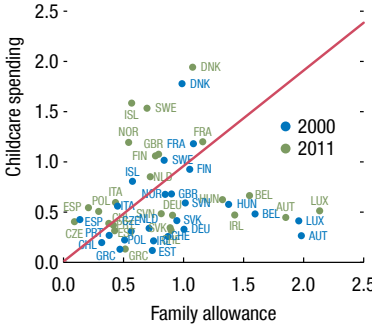
Source: International Social Survey Programme.

4. Relative Tax on the Second Earner
(Ratio)



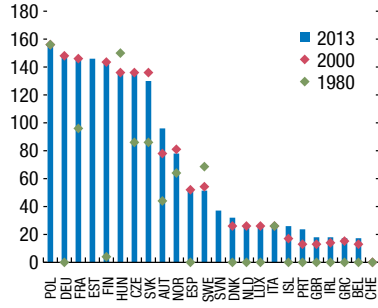
Sources: Thévenon 2013; OECD; and IMF staff calculations.
 Note: Tax rate on the second earner relative to the average tax rate on a single earner.

5. Family Allowance and Childcare Spending
(Percent of GDP)



Source: Organisation for Economic Co-operation and Development (OECD).

6. Parental Leave with Job Protection
(Weeks)



Source: Organisation for Economic Co-operation and Development (OECD).
 Note: Data for 1980 and 2000 are not available in EST and SVN.

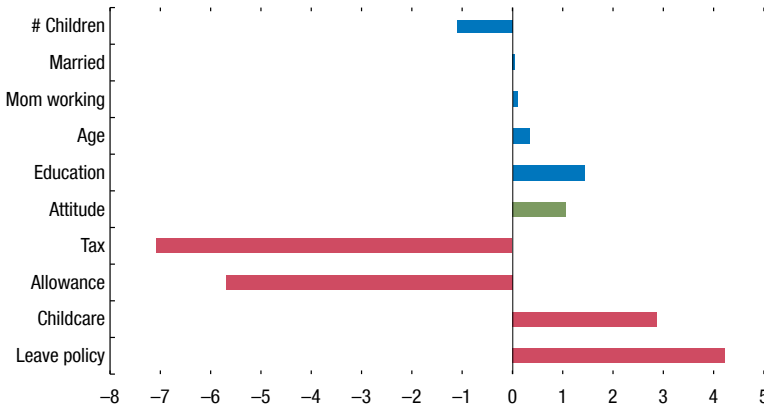
attitudes and choice and establish the role of changes in policies. Using such data on individuals, Christiansen and others (2016b) examine the role of both individual characteristics and policies.⁹ Specific policy recommendations would vary, however, depending on each country's circumstances.

- *Individual characteristics*—The analysis highlights that although more education is associated with a higher probability of a prime-aged woman working, education does not help explain the extent of full-time versus part-time work. In contrast, although marriage in itself does not significantly alter women's employment decisions, among working women, the data reveal that married women do tend to work shorter weeks than unmarried women, and each additional child is associated with a lower probability of a woman working. A woman's self-reported attitude toward working, which helps capture her personal employment choice, is a strong predictor of whether or not she is working. Likewise, intergenerational patterns should not be dismissed: women who grew up with working mothers are more likely to work themselves, suggesting that the gender gap can be gradually closed over time to the extent that policies do not discriminate against women working today.
- *Policies*—As working women often earn the secondary income in a family unit, higher relative tax rates on the secondary earner discourage women from participating in the labor force (particularly in advanced European economies) and from working full time. However, the positive association between the probability of employment and public spending on childcare and early childhood education (particularly in emerging European economies) supports the hypothesis that public spending can facilitate the return to work after childbirth. In contrast, lump-sum cash transfers may lessen the necessity for a woman to work, given the associated increase in nonwage household income. Excessive parental leave may deter a woman from returning to work at full time, but more parental leave is associated with a higher likelihood of employment. Finally, changes in these policies matter more for women than for men, which underscores that removing disincentives created by policies can help narrow the gender participation gap.

Recent changes in policies have supported female employment in a number of countries. A decomposition of the actual change in employment rates across countries between 2002 and 2012 suggests that the positive evolution of attitudes toward women working have helped lift women's employment rates (Christiansen and others 2016b; Figure 7.6). However, even after accounting for demographics

⁹As noted in Christiansen and others 2016b, a causal interpretation of the correlations documented here is difficult. Policy changes may simply reflect changes in social norms and preferences, they may be put in place in response to the rise of female labor force participation, or may be correlated with other factors that influence women's decisions to work but are not accounted for in our empirical framework. Similarly, women's attitudes could be driven by their participation in the labor market rather than the reverse.

Figure 7.5. Marginal Effects of Individual Characteristics and Policies on Female Employment
(Percentage points)



Source: Christiansen and others 2016b.

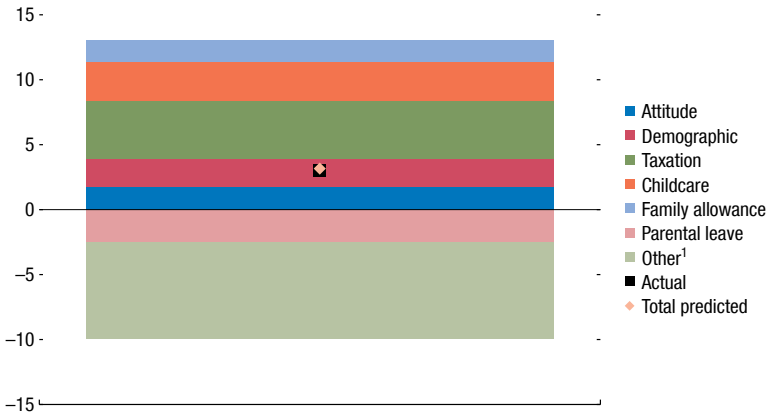
Note: Impact per one-standard-deviation increase (during 2002–12 across countries) in the given variable. Coefficient on “Married” is insignificant.

and personal choices, policies have had significant influence. In particular, lower taxes on the second household earner in a number of countries, including Norway and the United Kingdom, have helped support female employment. Across a number of countries, including the Czech Republic, Poland, and Norway, increased spending on childcare and reduced family allowance have also positively contributed.

Corporate Performance May Improve

Policies that strengthen women’s attachment to the labor force could help build the pipeline of women for senior corporate positions. One of the potential causes of the persistent gender gaps in senior positions is the limited supply of women willing and/or able to take on these positions. Indeed, across European countries, there is a strong negative correlation between the share of women employed on a part-time basis and the presence of women in senior corporate positions. While part-time employment is a useful entry point to the labor market for women whose labor supply is constrained by family responsibilities, policies that boost the overall labor supply of women and facilitate their eventual transition from part-time to full-time employment could help narrow gender gaps at the higher rungs of the career ladder.

In turn, greater gender equality in senior positions could generate significant benefits at the firm level. Diversity might improve corporate productivity to the extent that it fosters complementarities in skills, generates knowledge spillovers,

Figure 7.6. Decomposing the Change in the Female Employment Rate, 2002–12*(Percentage points; based on data for countries with both years in regressions)*

Source: IMF staff calculations.

¹Captures time dummy and other macro controls.

stimulates critical and creative thinking, makes the workplace more enjoyable, or stimulates demand.¹⁰ Given the existing differences in preferences and behavior along gender lines, important complementarities arise between the managerial style of men and women.

Moreover, the economic returns to gender diversity in senior positions may have risen.

- *More women in the labor force*—Over the past three decades, millions of women have joined the labor force in Europe, but senior corporate positions continue to be held mostly by men. Bridging the widening gender gaps between those who hold senior positions in the corporate world and the workforce could improve firm performance.¹¹ Women in leadership positions may be more likely to support family-friendly changes in corporate policies or serve as role models for other women, thereby raising the productivity of female workers. Women's leadership style may also be more effective in female-dominated or female-oriented settings (Eagly, Karau, and Makhijani 1995).

¹⁰Female managers could be better positioned to serve consumer markets dominated by women (CED 2012; CAHRS 2011). Greater gender diversity would increase the heterogeneity in values, beliefs, and attitudes, which would broaden the range of perspectives (OECD 2012) and stimulate critical thinking (Lee and Farh 2004).

¹¹Giuliano, Levine, and Leonard (2006) document large negative effects of demographic differences between managers and subordinates in terms of subordinates' rate of quits, dismissals, and promotions.

- *High-tech and knowledge-intensive sectors*—Relative to traditional industries, sectors characterized by complex tasks and innovative output stand to benefit more from greater diversity—including along gender lines—to the extent that it increases the set of ideas and potential solutions.¹² At 40 percent of GDP, high-tech and knowledge-intensive sectors now account for a sizable fraction of economic activity in Europe.

Nevertheless, existing evidence on the impact of gender diversity on firm performance is inconclusive, often relying on small sample sizes.^{13,14} Influential work by McKinsey (2007, 2009) and Catalyst (2007) documents a strong positive association between the representation of women on the boards of Fortune 500 companies and corporate performance. However, later studies, which plausibly identify the causal impact on firm performance of raising the share of women in corporate boards, challenge the early evidence (see, for example, Ahern and Dittmar 2012). Common to all studies is an important limitation: data availability typically constrains the analysis to publicly listed companies in individual countries.¹⁵ The resulting small sample sizes make it hard to detect a statistically significant effect of gender diversity, particularly if its magnitude is small.

The empirical evidence we present here suggests a strong positive association between firms' financial performance and gender diversity in senior positions. Using a large sample of both listed and unlisted firms in Europe, we compare financial outcomes of firms within narrowly defined sectors based on the gender diversity of the senior management team and the corporate board (Christiansen and others 2016c). Firms with a larger share of women in senior positions have higher return on assets (Figure 7.7). Adding one more woman in senior management or on the corporate board, while keeping the size of the board unchanged, is associated with an 8- to 13-basis-point higher return on assets, about 3–8 percent.¹⁶

¹²Prat (2002) and Jehn, Northcraft, and Neale (1999) examine the role of sectoral characteristics, such as complexity of tasks, in shaping optimal labor diversity. Garnero, Kampelmann, and Rycx (2014) provide empirical evidence on the heterogeneous effects of workforce diversity across sectors in Belgium.

¹³See Rhode and Packel 2014 for a survey of the literature on the gender composition of boards and financial performance.

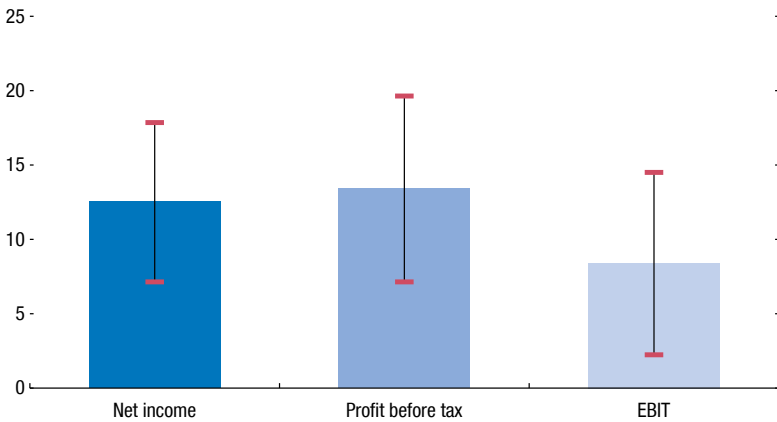
¹⁴We refer to “increased gender diversity” and “greater female representation” interchangeably because an increase in female representation from current levels will lead to increased gender diversity.

¹⁵Studies that use the introduction of quotas for women on corporate boards as an exogenous source of variation to gender diversity understandably focus only on publicly listed companies, for which the legal requirement is binding (see, for example, Matsa and Miller 2013 and Bertrand and others 2014).

¹⁶In Christiansen and others 2016c, we look for the presence of nonlinearities between the share of women in senior positions and firm performance and establish that indeed there is an inverted U-shaped relationship between the two, with the marginal return to raising female representation turning negative beyond a certain point.

Figure 7.7. Female Representation in Senior Positions and Firms' Financial Performance

(Estimated change in return on assets from one additional woman in a senior position, basis points)



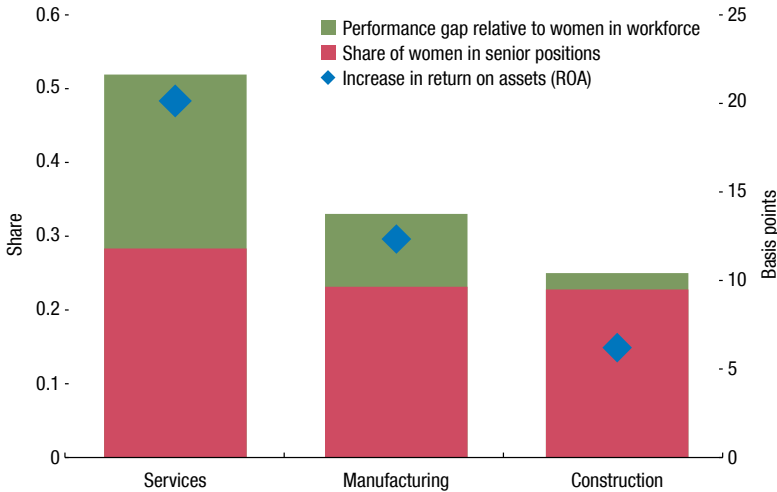
Sources: Orbis; and IMF staff calculations.

Note: Point estimate and 95 percent confidence interval. Return on assets computed using net income, profit before tax, and earnings before interest and taxes, respectively.

Greater female representation could shape firm performance through two channels. Because firm performance and gender composition of its board and senior management are jointly determined, it is difficult to give a causal interpretation to the positive association. To shed light on the underlying mechanisms, we examine how sectoral characteristics shape the consequences of gender diversity. As discussed, the effect of greater female representation in senior positions is expected to be more pronounced in sectors with a larger share of women in the workforce and in sectors that demand greater creativity and innovative capacity, such as high-tech and knowledge-intensive industries. We find evidence for both of these channels at work.

- Women in the labor force*—The positive correlation between gender diversity and firms' financial performance is more pronounced in sectors where women form a larger share of the labor force (Figure 7.8). In the services sector, where more than 50 percent of employees are women and there is a large gap between the gender composition of senior positions and the labor force, changing the composition of the board or management to include one more woman is associated with a 20 basis point higher return on assets. At the other end of the spectrum, in the construction sector, where there are relatively few women both in the labor force and in senior positions, changing the composition of the board or management to include one more woman is associated with about a 6-basis-point higher return on assets—an estimate that is not statistically different from zero.

Figure 7.8. Correlation between Gender Diversity and Firm Financial Performance in Light of Women’s Share of the Workforce by Sector



Sources: Orbis; and IMF staff calculations.

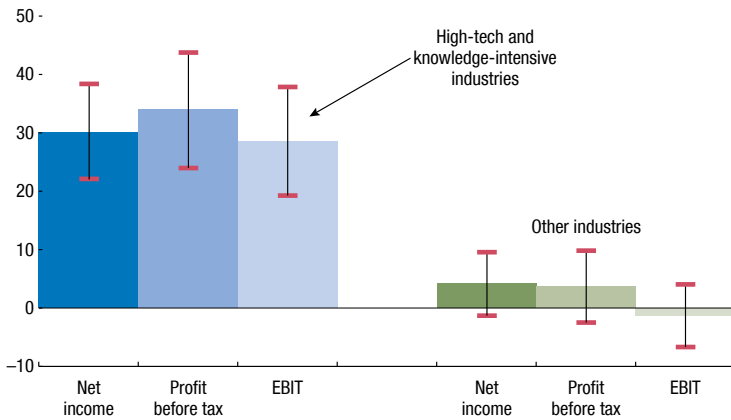
Notes: Gap represents the share of women in sectoral work force less the share of women in senior positions. The diamond denotes the estimated increase in return on assets (ROA) from an additional woman in a senior position. ROA is computed using net income.

- *High-tech and knowledge-intensive sectors*—The positive association between gender diversity and firm performance is significantly higher in high-tech and knowledge-intensive sectors. For firms operating in these sectors, improving gender balance in senior positions is associated with a much larger increase in profitability (Figure 7.9).

POLICIES SHOULD FOCUS ON LEVELING THE PLAYING FIELD

For women in Europe, whether or not to work is not just a personal choice—policies do have an influence. Our study shows that more education, lower birth rates, exposure to working mothers, and favorable attitudes toward women working are all important drivers of women’s decisions to work outside the household. But even after accounting for all these factors that influence personal choice, we find that supportive policies matter. Specifically, the tax policy for the second earner in a household could strongly shape incentives for or against work and therefore should be carefully designed. Public spending on childcare may support

Figure 7.9. High-Tech and Knowledge-Intensive Sectors versus Other Sectors
(Estimated change in return on assets from an additional woman in a senior position, basis points)



Sources: Orbis; Eurostat; and IMF staff calculations.

Notes: Point estimate and 95 percent confidence interval. Return on assets (ROA) computed using net income, profit before tax, and income before interest and taxes, respectively. Following Eurostat, industries are classified as high-tech (based on research and development expenditures) and knowledge-intensive (based on the share of workers with tertiary education).

mothers' return to work, while lump-sum cash allowances may deter women from working through the income effect.¹⁷

Having more women in the labor force paves the way for greater diversity in senior corporate positions and higher firm performance. Our empirical evidence suggests a strong positive association between firms' financial performance and gender diversity in senior positions. Such correlation is more pronounced in sectors where women form a larger share of the labor force (such as the services sectors) and where complementarities in skill and thinking and greater creativity and innovative capacity are in high demand (such as high-tech and knowledge-intensive sectors). To the extent that higher involvement by women in senior positions improves firm profitability, it may also help support corporate investment and productivity, mitigating the slowdown in potential growth.

Moreover, policies should aim at removing disincentives for full-time employment. For many women, part-time employment is a useful entry point to the labor market, as it allows them to combine labor force participation with family responsibilities. However, it may reduce their prospects of reaching the higher

¹⁷Although female-employment-friendly policies can entail a fiscal cost in the short term, there would be long-term (fiscal) benefits through the support to women's long-term attachment to the labor force, to full-time employment, and thereby to households' income levels (which would be taxed).

rungs of the corporate ladder where their participation could have important positive spillovers on corporate performance. The strong positive association between the incidence of full-time employment among working women and the share of women in senior positions suggests that the current low representation of women in the board room or senior positions may be partly due to the scarcity of candidates who are willing and/or able to take more responsibilities at work.

Finally, this analysis considers the potential role of boosting female labor participation in raising measured GDP but abstracts from other implications. Whereas leveling the playing field could be welfare enhancing (for example, removing tax distortions), this analysis abstracts from effects on overall welfare arising from women's switch between household work and labor force participation. It does not take a normative stance on women's participation in the labor force (Gonzales and others 2015b). Rather, it lays out the importance of leveling the playing field through policy actions and providing services to allow women to reach their full employment potential if they so choose.

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Hungary

EVA JENKNER

Hungarian women are more educated than men on average and do not face discriminatory legal restrictions when it comes to owning property, starting businesses, or participating in the labor force (Gonzales and others 2015). Also, as in most of Europe, proportionally more women than men hold tertiary degrees.

Despite these relative advantages, women in Hungary are significantly behind others in Europe when it comes to employment and earnings, as well as representation in decision-making bodies in business and politics (Figure 7.10). For example, only 12 percent of board members of the largest companies are women, compared with a European Union (EU) average of 20 percent; and Hungary's share of female lawmakers (at 10 percent) is the lowest in the EU.¹

Female labor force participation in Hungary is below EU and Organisation for Economic Co-operation and Development (OECD) averages and also lags participation rates in peer countries in Eastern Europe. Across the EU, the impact of parenthood on labor market participation is very different for women and men—only about two-thirds of women with children under age 12 work, as opposed to more than 90 percent of men (European Commission [EC] 2015). However, even against this backdrop, employment of mothers with small children is extremely low in Hungary. For instance, barely 10 percent of mothers with children under age three were employed in 2007 (OECD 2011a; Figure 7.11).

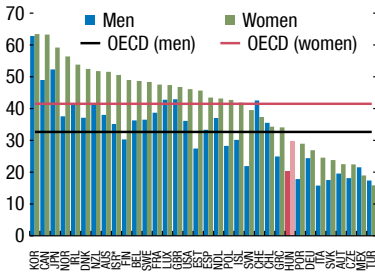
In addition—unlike in most of Europe—Hungarian women have been losing ground in recent years. In politics, women in Hungary have been practically shut out of the government: the share of women among government ministers dropped to zero between 2009 and 2012 and again at the middle of 2014 (EC 2014a). In the workplace, Hungary has been one of only a few countries where the gap in earnings between women and men went up (based on various metrics) between 2009 and 2012 (Figure 7.12). Hungarian households defied the almost universal European trend toward greater earnings equality by becoming more reliant on male sole-income earners between 2007 and 2010 (EC 2014b).

A version of this analysis was previously published as Jenkner 2015.

¹On average, women accounted for almost 30 percent of members of the single or lower houses of parliaments in the EU countries—almost three times as much as in Hungary.

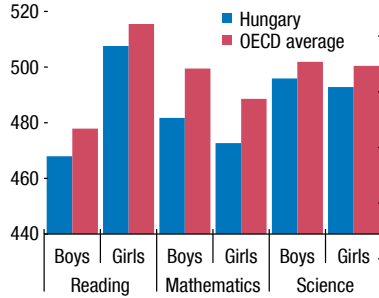
Figure 7.10. Hungary: Gender Gaps in Education, Business, and Politics

1. Proportion of the Population with Tertiary Education, 2009
(Ages 24–35)



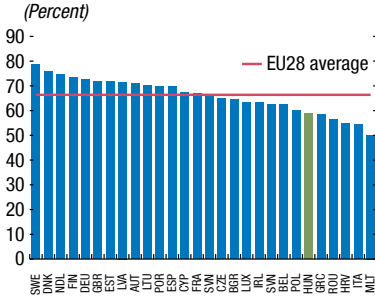
Source: Organisation for Economic Co-operation and Development 2012.

2. Student Performance by Gender, 2012
(Mean score PISA)



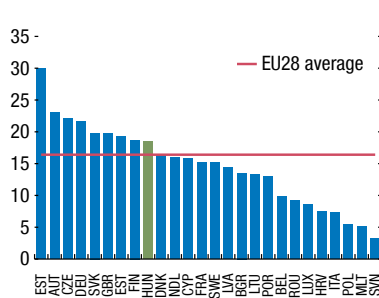
Source: Organisation for Economic Co-operation and Development 2015.

3. Female Labour Force Participation Rate, 2013
(Percent)



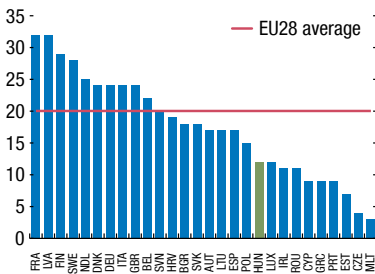
Source: Organisation for Economic Co-operation and Development.

4. Gender Pay Gap
(Unadjusted, percent)



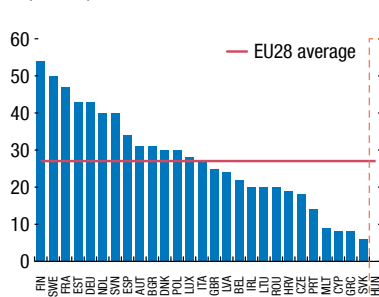
Source: Eurostat.

5. Proportion of Women in Political and Economic Decision-Making: Board Members of Largest Publicly Listed Companies, 2013
(Percent)



Source: European Commission.

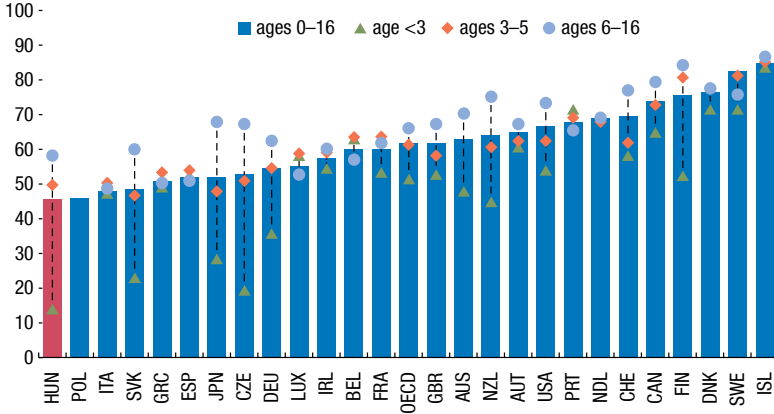
6. Proportion of Women in Political and Economic Decision-Making: Cabinet, 2013
(Percent)



Source: European Commission.

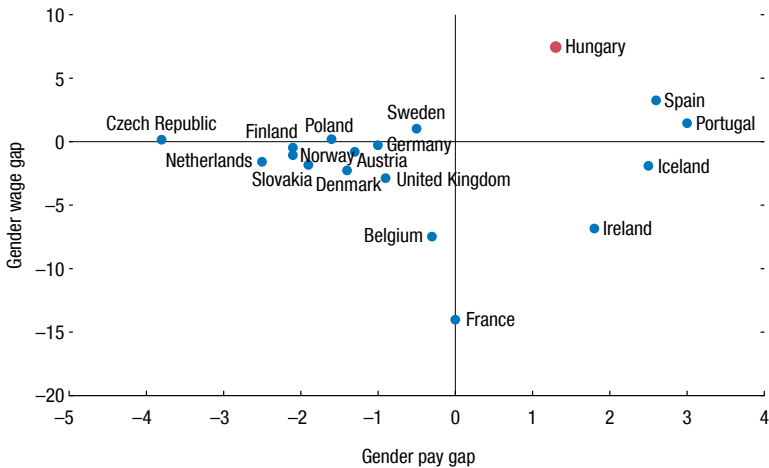
Notes: Data labels use International Organization for Standardization (ISO) country codes. PISA = Programme for International Student Assessment.

Figure 7.11. Maternal Employment Rates by Age of Youngest Child, 2007
(Percent)



Source: Organisation for Economic Co-operation and Development (OECD) 2011a.
Note: OECD figure is average of 26 member countries. Data labels use International Organization for Standardization (ISO) country codes.

Figure 7.12. Gender Gaps in Earnings in Hungary
(Difference between 2009 and 2012, percent)



Sources: Eurostat; Organisation for Economic Co-operation and Development.
Notes: The gender pay gap (unadjusted) represents the difference between average gross hourly earnings of male paid employees and of female paid employees as a percentage of average gross hourly earnings of male paid employees. The gender wage gap (unadjusted) is measured as the difference between male and female median earnings expressed as a percentage of male median earnings.

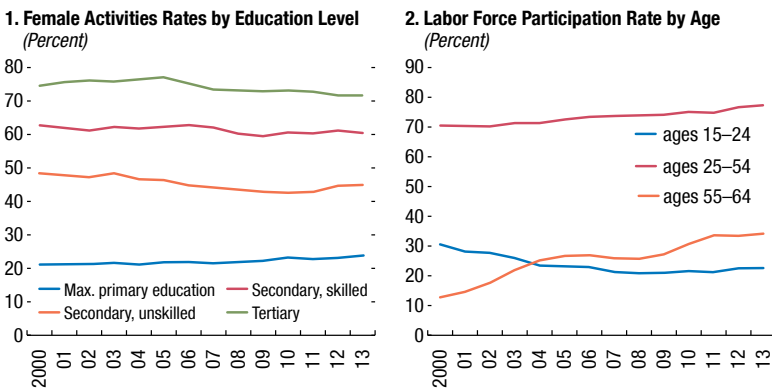
These trends are worrisome, including in light of the fact that increasing female participation in the labor force is essential to promoting long-term growth in Hungary. With an aging population and low fertility rates, Hungary faces the prospect of a shrinking labor force—and thus reduced economic growth potential—in coming decades unless a greater share of women enters and stays in the workforce.

WOMEN AND THE LABOR MARKET: EXPLAINED AND UNEXPLAINED FACTORS

Although the female labor force participation rate picked up over the past decade, this aggregate trend masks important differences across education levels and age groups. Analyzing trends in participation rates for each level of educational attainment separately shows that, between 2000 and 2013, the rate increased only among women with a primary education (Figure 7.13). In contrast, the labor force participation rate of women with tertiary or secondary degrees declined overall. In terms of age groups, participation rose most significantly in older cohorts (between ages 55 and 64), while the participation of women under age 24 trended down.

Figure 7.14 helps explain how the headline participation rate improved while important subgroups of the female workforce actually decided to participate less. It shows that, during 2008–13, the overall increase of 2.8 percentage points in the female labor force participation rate was driven primarily by the growing share of women with higher education among the working age population (or “demographics”). Young entrants to the female labor force are better educated, on

Figure 7.13. Trends in Hungarian Female Labor Force Participation, 2000–13



Source: Labor Force Survey.

Source: Organisation for Economic Co-operation and Development.

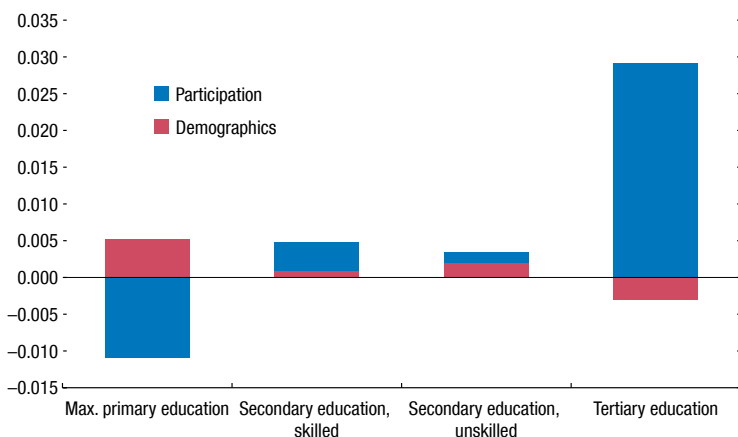
average, than cohorts that left to retire. As the likelihood of working increases with the level of education more generally, this demographic shift provided the most significant boost to the aggregate labor force participation rate—despite the apparent paradox that the share of highly educated women taking up employment declined over those years.

The decomposition of factors underlying recent trends in female labor force participation indicates that the impact of recent activation policies has been uneven. Specifically, activation policies seem to have induced a significant increase in participation among women with a primary education or less: whereas the share of women with a primary education in the female labor force decreased substantially, their participation rate went up significantly, possibly induced by measures such as tightened access to social benefits and participation requirements in the public works program. At the other end of the spectrum, the participation rate of women with higher education decreased. While more research is needed, this may call into question the efficacy of activation policies aimed at the higher end of the income spectrum, including tax incentives.

WHAT IS HOLDING WOMEN BACK?

A number of policies can affect women's participation in the labor market. Common obstacles to female labor force participation in both advanced and emerging market economies include financial incentives inherent in the tax system, lack of flexible work options, lack of affordable childcare options, and

Figure 7.14. Drivers of Change in Hungarian Female Labor Force Participation
(Decomposition of the change in participation between 2008 and 2013 by education level, controlling for changes in labor force composition)



Sources: Hungarian Statistical Institute; and IMF staff calculations.

poorly designed parental leave policies. For example, women are found to be more responsive to financial incentives than men in their labor supply decisions (OECD 2011b). As a result, the high second-earner tax wedge in tax systems that are based on family income (instead of individual income) can act as a strong deterrent for women to enter the labor market (Jaumotte 2003).

In Hungary, disincentives to work predominantly arise from the design of parental leave policies and a shortage of affordable childcare; these primarily affect mothers. The Hungarian tax system works on an individual basis and is therefore relatively neutral in its impact on female labor force participation (OECD 2014). In addition, there is a tax reduction for employers that reemploy mothers of small children under the Job Protection Act,² and the revised labor code offers more flexible employment options. However, a number of obstacles to female labor force participation are inherent in the design of family policies and practices in the workplace (Figure 7.15).

- *Parental leave*—Paid leave policies are generally found to boost female labor force participation, but extended leave periods beyond 24 months tend to have a negative impact, including by weakening mothers' attachments to the labor market and putting them at a disadvantage from a prospective employer's point of view (OECD 2012; EC 2014b). Evidence shows that long periods of parental leave are also associated with a wider pay gap (Arulampalam, Booth, and Bryan 2007). In Hungary, parents can take up to three years of leave, and the overwhelming share of caregivers are women (Korintus 2014). Moreover, benefits are tilted toward mothers of young children staying at home: maternity leave and the insurance-based childcare benefit known as "GYED" can be taken by mothers only until the child's first birthday, and a parent receiving childcare benefits cannot work until the child's first birthday.³
- *Extended parental leave*—Options tend to coincide with low availability of formal childcare, severely constraining women's ability to take up paid employment outside the house (OECD 2012; Blau and Kahn 2013). This phenomenon is especially prevalent in Hungary: more than 70 percent of children below age three are cared for only by their parents, representing the second-highest prevalence in the EU (Eurostat 2014).⁴ At the same time, there is a significant shortage of affordable childcare facilities for children under age three (EC 2014a).

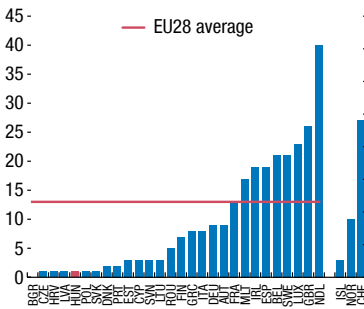
²With the objective of "balancing out" the advantage that men hold because they "leave their work-related duties less frequently than mothers" (Prime Minister Orban, quoted in Nacsa 2014)

³There are two types of childcare benefits: GYES is universally available (and equal to the minimum old-age pension); GYED is insurance-based (and equal to 70 percent of average daily earnings, capped at 70 percent of twice the minimum daily wage).

⁴The average across all 28 EU members is 50 percent; Bulgaria has the highest share at 80 percent (Eurostat 2014).

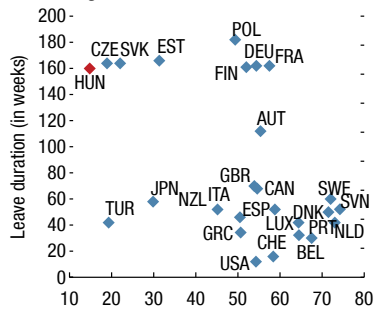
Figure 7.15. What Is Holding Hungarian Women Back?

1. Formal Childcare under Age Three, 2013¹



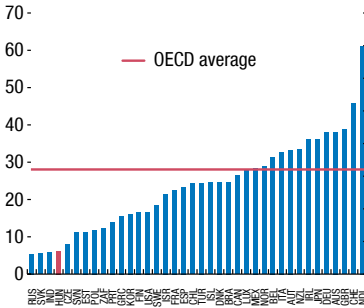
Sources: Eurostat, Statistics on Income and Living Conditions (SILC) database.
¹2012 data for Lithuania.

2. Employment Rates for Mothers with Children under Age Three and Leave Duration



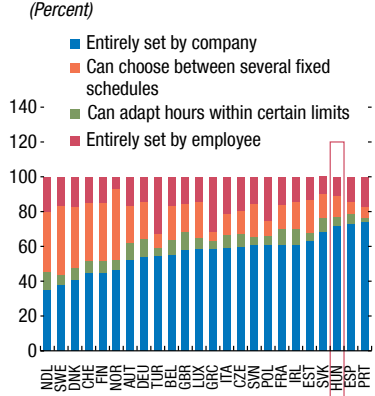
Source: Organisation for Economic Co-operation and Development.

3. Share of Women in Part-Time Employment, 2013²



Source: Organisation for Economic Co-operation and Development.
²Brazil, India, Russia, and South Africa are not OECD members. 2012 data for Russia.

4. Proportion of Employees with Set Work Times, 2009 (Percent)



Source: Organisation for Economic Co-operation and Development.

Note: Data labels use International Organization for Standardization (ISO) country codes.

- *Job flexibility*—Job flexibility, including the availability of temporary part-time employment, can have a strong positive impact on female labor force participation (OECD 2012). Although the Hungarian labor code promotes flexibility in theory, workplace practices still seem to lag behind, with workers reporting to have little control over their hours. Also, few women take advantage of part-time work opportunities to stay more connected to the

labor market while their children are small; Hungary has one of the lowest rates of part-time employment in the EU.⁵

There are also obstacles to the employment of older women. Their activity rates are constrained by domestic obligations: apart from grandchildren, they often care for sick elderly relatives in light of the limited availability of long-term care. Also—in contrast to highly successful efforts to roll back early retirement schemes in general—a new early retirement program for women was established in 2011.

HONING IN ON THE PAY GAP

The large unexplained component of the gender pay gap in Hungary points to the presence of biases against women in the workplace. Throughout the EU and OECD countries, women tend to earn only 84 cents on each euro earned by men (EC 2014a). Up to a degree, differences in pay between men and women can be explained by differences in occupations, experience, education, and hours worked; with education almost always reducing the pay gap in favor of women. For example, as Figure 7.16 illustrates, the large share of women employed only part time in the Netherlands or Germany explains a significant part of the pay gap in these countries. However, the large disparity in earnings that cannot be explained illustrates a persistent bias against women (Duflo 2012). Although the absolute level of Hungary's gender pay gap is low in cross-country comparison, it has the second highest unexplained component in the OECD.

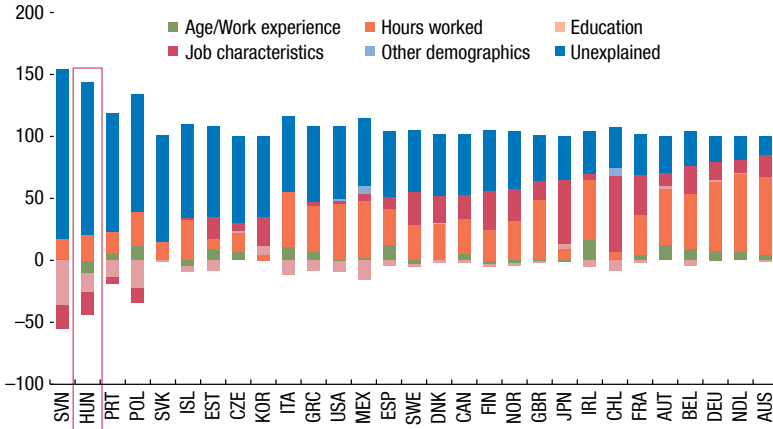
Surveys confirm that traditional views on gender roles are still very much espoused in Hungary:

- *A woman's place*—Along with other European countries, such as Germany or Poland, Hungary espouses a traditional view of gender roles: more than half of Hungarian parents with children under 15 agree or strongly agree that “women should be prepared to cut down on paid work for the sake of the family” (European Social Survey 2010). As a reflection of unequal expectations on housework and childcare, Hungarian women do more than twice as much unpaid work as men (Miranda 2011).
- *Unequal expectations for girls and boys*—Also, there is a significant gap between parents' expectations for boys and girls, with more than half of male students expected to be working in science, technology, engineering, and mathematics (STEM) occupations versus less than a fifth of girls (OECD 2015; Figure 7.17).⁶ Although the share for girls is relatively high in absolute terms, the gap in expectations can undermine girls' confidence

⁵Temporary part-time employment can help parents stay connected to the labor market; at the same time, targeted measures should facilitate the transition back into full-time work.

⁶Expectations are unrelated to actual performance (OECD 2015).

Figure 7.16. The Large Unexplained Component of the Pay Gap in Hungary
(Percent)



Source: Organisation for Economic Co-operation and Development 2012.
 Note: Countries are arranged from left to right in descending order of the proportion of the unexplained gender pay gap. Data labels use International Organization for Standardization (ISO) country codes.

vis-à-vis their male peers and exacerbate their relatively weaker performance in STEM subjects.

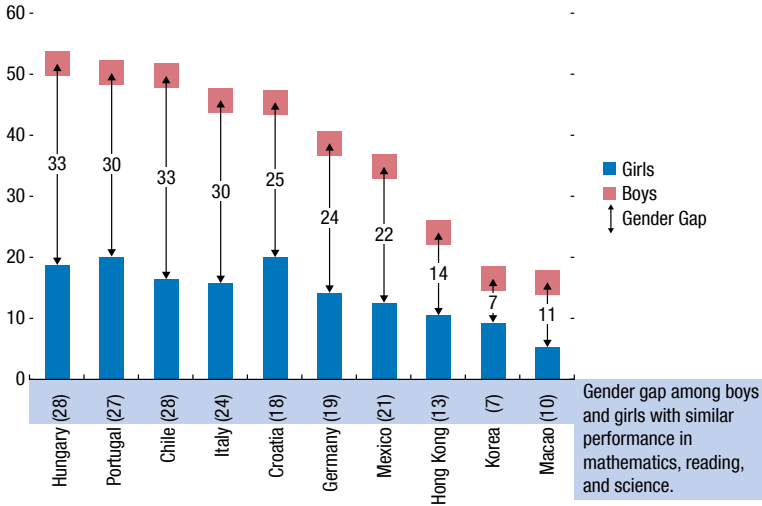
Attitudes and behaviors are drivers of policymaking (Kamerman and Moss 2009; Lewis 2009), but they can also reinforce and permeate gender inequities even where policy changes open a window of opportunity. This is reflected in low take-up rates for paternity leave, for instance, and in the unequal burden in unpaid work and childcare responsibilities that continues to hold back women at the workplace (Moss 2014).

IMPLICATIONS FOR GROWTH

Improvements in gender equality can affect growth outcomes through three main channels: labor, human capital, and total factor productivity.⁷ First, traditional gender roles and women’s disproportionate share of domestic unpaid work hamper their ability to participate in paid labor (Miranda 2011). This constrains their productivity and the size of the active labor force. Second, discrimination against women and girls can affect human capital accumulation: women may have less access to higher levels of education, and lower female contributions to household earnings further reduce female bargaining power in families, potentially resulting in less being spent on human capital accumulation (Sen 1990; Klasen and Wink

⁷Based on a basic growth decomposition framework. This sets aside reverse-causation arguments.

Figure 7.17. Parents' Expectations for Their Children's Careers
(Percentage of students whose parents expect them to work in STEM occupations)



Source: Organisation for Economic Co-operation and Development 2015.

Notes: All gender differences are statistically significant. STEM = science, technology, engineering, and mathematics. Countries and economies are ranked in descending order of percentage of boys whose parents expect that they will work in STEM occupations when they are 30 years old.

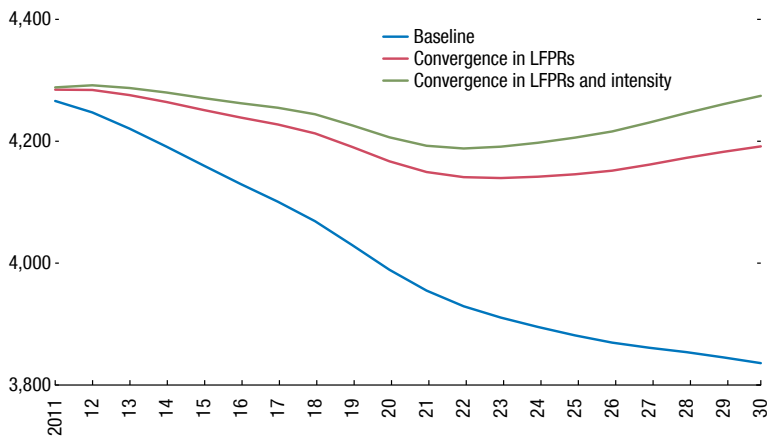
2003; Duflo 2003).⁸ Third, the efficiency of overall resource allocation and total factor productivity in the economy is expected to rise once women can fully develop their human capital and participate more fully in the labor force and the political process (Stotsky 2006; Cuberes and Teignier 2012).

Increasing female labor force participation is a key priority for shoring up long-term growth in Hungary. In many advanced and emerging market economies, population aging and low fertility rates are compressing the size of active labor forces. This issue is also very acute in Hungary. Taking into account current trends, Hungary's labor force will shrink by about 10 percent by 2030 (Figure 7.18). Increasing low female labor force participation rates will be essential to help offset these adverse trends and boost long-term growth. The OECD estimates that full convergence in participation rates by 2030 can increase average annual growth rates per capita in Hungary by 0.6 percent (OECD 2012).

In addition, keeping a large share of highly productive workers out of the labor market is economically inefficient. Family policies that favor extended career interruptions and discontinuous employment of mothers are likely to have a negative impact on overall productivity. In this regard, the drop in labor force

⁸In addition, this can perpetuate inequality, as male children may be favored over female ones. Outside crises, evidence of this phenomenon is mixed, however (Duflo 2012).

Figure 7.18. The Effect of Converging Labor Force Participation Rates (LFPRs) between Men and Women on the Size of the Labor Force
(Thousands)



Source: Organisation for Economic Co-operation and Development.

participation by women with tertiary degrees described earlier is a particular concern; and higher employment of women with primary education or less in workfare programs is unlikely to compensate in terms of contributions to long-term growth.

Further research needs to determine how women's weakened positions in households and government may be affecting resource allocation. As described, household surveys indicate that women's shares of household earnings have declined, and female representation in the executive and legislature is exceptionally low. Further analysis should explore the extent to which these shifts may have affected policy priorities and resource allocations—with potential repercussions for human capital accumulation and productivity, and, as a result, Hungary's long-term growth potential.

TOWARD A MORE LEVEL PLAYING FIELD

Significant gender gaps, in particular in the labor market, need to be addressed more effectively. Although Hungary fares relatively well on a number of indicators—including its legal framework, women's education and the neutrality of the tax system—growing gender inequities are a source of concern. In particular, policies to encourage female labor force participation (such as the option to receive childcare allowances while working) appear to have only had partial success, and de facto workplace flexibility remains constrained. Also, despite the

government's commitment to expand the availability of childcare facilities, significant geographical gaps remain.

Key measures should aim at expanding women's choices in reconciling work and family life. This could be done in a fiscally neutral manner as savings in universal leave benefits are used to expand childcare options:

- *Childcare*—Affordable childcare for children under age three should be made widely available.
- *Work-friendly leave policies*—The work prohibition for recipients of childcare benefits should be lowered further, and the total duration of leave that parents can take (including maternity, paternity, and parental leave) should be capped at two years.
- *Equitable parental leave policies*—GYED should be made fully gender-equitable—that is, it should be made available to fathers before the child's first birthday.
- *Flexible employment options*—Workplace flexibility should be promoted in support of women's continuous employment and career progression.

Progress will also require creating a more level playing field and tackling biases that reinforce the gender division of labor:

- *Reduce the pay gap*—A shortening of leave periods and greater availability of childcare, as recommended here, should have a positive impact on the disparity in earnings. In addition, equal pay provisions should be strictly enforced, and public awareness of antidiscrimination laws and pay transparency should be strengthened.
- *Encourage fathers to take advantage of parental leave options*—More fathers should be encouraged to take parental leave, including by reserving a share of parental leave for exclusive use by fathers (as done in Iceland, Sweden, and Norway) or bonus parental leave if fathers take up a minimum amount (Germany, Portugal).⁹

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⁹As a result of these policies, the proportion of fathers taking parental leave increased to about 25 percent in most of these countries (OECD 2012). Evidence shows that fathers who took time off after the birth of their child were also more likely to care for the child later on (Nepomnyaschy and Waldfogel 2007).

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Germany

JOANA PEREIRA

The German population is expected to decline markedly in coming decades. Eurostat numbers project the decline in Germany's population to be 7½ percent by 2050—the third-largest in western Europe, after Greece and Portugal. Without immigration, the natural decline would be almost 19 percent. At the same time, the population will also age rapidly. According to the latest Federal Statistical Office projections, the old-age dependency ratio—the ratio of the number of people ages 65 or more to the number of people ages 15 to 64—is set to rise from the current 32 percent to about 53 percent by 2050 (and broadly stabilize thereafter). By then, Germany's working-age population (ages 15–64) is expected to be 14 percent (about 9½ million) lower than today.

Potential GDP growth is expected to decline concomitantly, and fiscal expenditures on pensions and health care should show a significant rise. Using a simple analysis that assumes two-thirds of production inputs are attributable to labor and employment rates remain constant, the decline in the working population alone would reduce yearly potential growth by 0.4 percent on average through 2050. This contrasts with the current potential growth estimate of 1.3 percent. Aging may also affect productivity and composition of demand. Furthermore, the shift in the old-age dependency ratio will put pressure on public finances. Using similar population projections, the authorities estimate old-age-related spending to rise between 2½ and 5½ percent of GDP by 2050 (depending on labor market and other economic assumptions), which, if unaddressed, will eventually lead to higher social security contributions, reductions in other government spending, or a steep rise in debt.

How can these trends be mitigated? This analysis focuses on how increasing female labor force participation can counteract the economic impact of aging in Germany, apart from the relative importance of complementary factors such as immigration, elderly labor participation, and fertility. Based on labor force statistics and insights from existing analytical studies, policy options to boost female labor force participation are presented and discussed.

A version of this analysis was previously published as Pereira 2015.

FEMALE EMPLOYMENT: HIGH PARTICIPATION, LOW HOURS

Female labor force participation rates are relatively high in Germany. In 2015, about 73 percent of working-age women in Germany either had or were actively searching for a job, compared with a participation rate of 82 percent for men (Figure 7.19, panel 1). Within western Europe, the rates are higher only in the Scandinavian countries, Switzerland, and the Netherlands. Starting at about 61 percent in 1995, German female labor participation has been increasing steadily, with some acceleration in the mid-2000s. By contrast, male participation rates have been mostly stable.

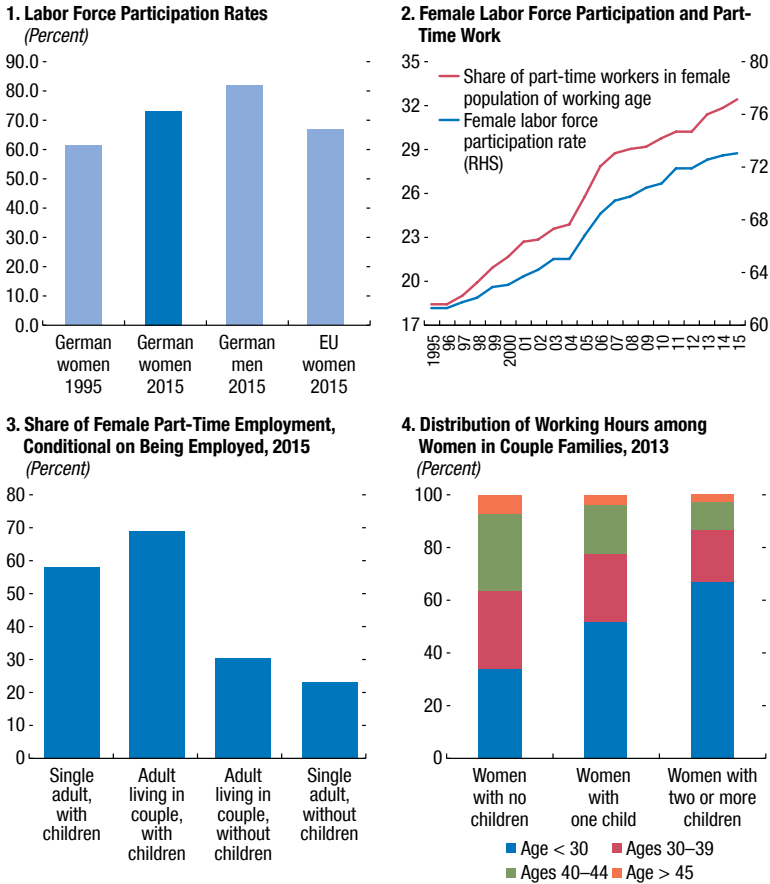
Average working hours are relatively low for women, however, particularly for those with family responsibilities. About 46 percent of female workers are not employed full time. Consequently, women work on average 30.4 hours a week, compared with 39.3 hours for men. Unlike the labor force participation rate, average working hours by women have declined since reunification (though they have stabilized at current levels since 2008), with the share of part-time workers having increased over time. Indeed, the rise in participation rates over the last two decades coincided with an ever-larger share of part-time female workers (Figure 7.19, panel 2). One explanatory factor seems to be the expansion of mini-jobs¹ since the mid-2000s, as two-thirds of exclusive minijobs workers are women. Other possible reasons include the increased availability of childcare facilities—encouraging previously nonworking women to work part time—and some structural shifts in the economy toward services (which are more favorable to part-time work arrangements).

The gender gap in working hours develops early in women's careers and has a persistent impact over time for married women with children. The average number of hours worked by childless married women remains broadly constant through their working life, but for married mothers it is cut by almost half when the age 30–39 cohort is compared with the under-age-30 cohort. The number of working hours for older married mothers falls even further (Figure 7.19, panel 2). Thus, part-time employment is estimated to contribute to half of the 22 percent gender wage gap in Germany (OECD 2014b).

Fiscal disincentives deter stronger female labor force participation. Germany has the third-highest marginal effective tax rates on secondary earners among advanced economies—lower only than those of the Netherlands and Switzerland, where the number of hours worked by women is even smaller. The German marginal effective tax rate for secondary earners is over 50 percent, leading to a tax wedge—the difference between gross income and after-tax income—disparity

¹Minijobs are jobs exempted from social security contributions, including for health care insurance, which are defined by a certain monthly wage cap (currently 450 euros). They thus entail only a few hours of work a week.

Figure 7.19. Germany: Selected Female Labor Force Indicators



Sources: Eurostat; and Organisation for Economic Co-operation and Development.

between primary and secondary earners of 21 percent (Hüfner and Klein 2012; OECD 2013, 2014a).²

The high burden on secondary earners is explained by two factors: the system of joint taxation among married couples (which leads to a larger marginal tax rate for the second earners than a single person with the same income would face³)

²This marginal rate refers to net income loss for a couple in which the primary earner receives the average wage and the secondary earner moves to working from not working. The difference in the tax wedge is calculated by comparing single tax payers receiving the average salary and secondary workers receiving two-thirds the average salary.

³The higher marginal tax rates on the second earner is a consequence of the constitutional provision for income splitting among couples, known as *Ehegattensplitting*. The German constitution

and the loss of free health care insurance for nonworking spouses when they work in any jobs other than minijobs. A recent report prepared for the Ministries of Finance and Family Affairs evaluated the socioeconomic effects of various family public policies in Germany. The report estimated that the overall effect of the joint tax filing on labor supply—as opposed to fully individual taxation—is equivalent to the loss of 161,000 full-time equivalent (FTE) working women (the effect on male labor supply is positive but much lower, at 33,000 FTEs).⁴ The report found that the loss of health insurance for second earners causes an equally sizable loss in labor supply. For women with children, the cost of childcare is an additional disincentive to take up work, even though subsidized childcare is provided by the government. Other elements of the tax/benefit system, in particular child benefit payments for nonworking parents, contribute to income stability through early childhood, when parents (typically mothers) may wish to spend more time off work.

While subsidized childcare is provided by the government, an insufficient supply of childcare services and after-school programs is another important constraint to workforce participation. There is a widespread perception that the supply of high-quality childcare services is insufficient to meet demand. The lack of after-school programs is another important factor discouraging women with children from working full time. Under the current tax/benefit system, 11.5 percent of currently employed women (a quarter of part-time workers) would like to work longer hours, according to a recent government report.⁵ According to the Organisation for Economic Co-operation and Development (OECD) Social Expenditure Database, preprimary (childcare plus preschool) education spending in Germany was 0.5 percent of GDP in 2011, below the OECD average of 0.8 percent. Less than 0.1 percent of GDP was allocated to childcare. Although this allotment has recently increased (by an estimated 0.15 percent of GDP through 2015), it is still much lower than the 2011 average in the rest of the OECD (0.4 percent of GDP).⁶

foresees that each person in a married couple is entitled to half of the couple's earnings. Thus, the relevant income tax bracket for a couple is the one that generally applies to half of the total income of husband and wife. Given the progressivity of the personal income tax code, the couple's total tax burden is reduced (relative to separate tax filing), but the marginal tax rate for the second earner is higher than for a single person with the same income. Correspondingly, the primary earner's marginal tax rate is lower than for singles with the same income, but this is unlikely to stimulate labor supply since these workers are typically already employed full time.

⁴The report can be found at: <http://www.bmfsfj.de/BMFSEJ/familie,did=209192.html>. Various academic studies have also studied this issue, with consistent conclusions. See, for example, Bick and Fuchs-Schündeln 2015, and Thévenon 2013.

⁵*Fortschrittsbericht 2014 zum Fachkräftekonzept der Bundesregierung*. www.bmas.de/DE/Service/Publikationen/a758-14-fortschrittsbericht-fachkraeftekonzept.html.

⁶Comparisons made on the basis of spending per child (in purchasing-power-parity terms) present a similar picture. Although spending in preprimary education is at about OECD average, spending on childcare is less than half the average.

The enrollment rate of children under age three in formal childcare was about 29 percent in 2013, compared with 35 percent on average in the OECD country. The government report mentioned elsewhere assesses positively the labor supply impact of publicly subsidized childcare in Germany, estimating the total gain as the equivalent of 100,000 FTEs—that is, a 2 percentage point increase in the participation rate and a 16 percent increase in hours worked of mothers with children under 12 years—with an annual cost of slightly less than 0.1 percent of GDP. The vast academic literature on this subject points to similar conclusions. (For example, see Wrohlich 2008, 2011 and Bick 2016⁷ for Germany, and Thévenon 2013 for the OECD.)

CAN WOMEN SAVE GERMANY'S FUTURE GROWTH?

A menu of options is available for raising the female labor supply in Germany.

- *Expand high-quality, publicly provided childcare and after-school programs*—This may be preferable to a policy of simply offering more generous subsidies, as the estimated impact on labor supply would be larger (Wrohlich 2011), in particular among higher-income households.
- *Target other forms of child-related financial support (namely to nonworking parents) narrowly to low-income households*—Doing this would also tilt incentives in favor of seeking or retaining full-time employment and would allow parents to preserve skills, thereby accruing more income in the long term.
- *Move toward a system of individual taxation*—This would encourage more labor supply by secondary earners, most of whom are women. Although pure individual taxation may not be compatible with the German constitution, a system of tax credits for secondary (or lower-paid) spouses that are phased out as individual income increases, as proposed in Hüfner and Klein (2012), could be an alternative option.
- *Limit or even eliminate the different treatment of health care insurance beneficiaries*—This would also reduce incentives for women to stay out of the labor force (or to stay in minijobs). Options range from equalizing contribution rates for all insured persons, regardless of work status, to introducing some differentiation in single contribution rates according to the number of family members insured. Targeted support could be provided for low-income households.

Policies needed to address disincentives to women working in full-time jobs are complementary. Both fiscal disincentives for secondary earners and the under-supply of childcare and after-school programs constitute important barriers to

⁷Bick (2016) argues that the impact of expanding subsidized childcare on the labor participation rate of mothers (extensive margin) would probably be limited; however, a larger share of working mothers would shift to full-time jobs (intensive margin) with greater access to subsidized childcare.

increasing the number of hours worked by women. Lifting just one of these restrictions may have only a limited impact. Therefore, addressing both problems in tandem is important for broadening the choices available to women. For example, the success of Scandinavian countries, most notably Sweden, in sustaining relatively high fertility rates, together with a large share of female full-time workers, has been attributed to the combination of a relatively low tax wedge for secondary earners and comprehensive support for working couples with young children (including high per child government spending).

TWO GAME-CHANGING SCENARIOS

Assuming constant labor market structures—in terms of the share of working men and women and the average number of hours worked—the projected 14 percent decline in the working-age population by 2050 represents an equally large fall in total hours worked. Reducing the share of women who work part time while keeping or raising current female participation rates would significantly lessen the economic impact of the aging population.

What would happen if by 2050 German women were working at the same rate as Swedish women (80 percent participation, with a weekly average of 34 working hours) or as many hours as German men? Either scenario would undo the expected decline in Germany's working-age population.⁸

As a group, Swedish women work 23 percent more hours than German women (the joint effect of higher participation rates and more average working hours per woman), while there is a 29 percent difference between female and male average working hours in Germany. Considering that 47 percent of jobs are currently held by women in Germany, the two scenarios would lead to, respectively, a 9 or 12 percent increase in total hours worked, largely mitigating the effect of demographics. The benefits would go beyond the mechanical impact on potential growth. For example, increased contributions to social security would help finance the expected increases in pension and health spending, and provide a better balance overall between the coverage of beneficiaries and contributors.

These policies might entail a limited cost, but one that would be recouped over time. To assess the relative merit of these types of policies, their cost-effectiveness, as well as how the supply of women in the labor market might be affected, must be measured. Results of previous research vary, so it is impossible to provide a definitive conclusion. Nevertheless, as an illustration, Wrohlich (2011) estimates that expanding the availability of childcare while making access conditional on the mother taking up work increases the female labor supply by 16 percent (hours worked by 12.4 percent and participation rate by 3.9 percent).⁹

⁸The exercise abstracts from potential differences in productivity across groups, and assumes constant employment rates over time.

⁹The impact is slightly smaller than the one implied by the report discussed elsewhere here.

This comprises more than half of the total gap between Swedish and German women—and entails an annual fiscal cost of 0.1 percent of GDP.¹⁰

Removing the current tax disincentives for full-time work does not necessarily imply a revenue loss, and may often generate a direct fiscal gain. Bick and Fuchs-Schundeln (2015) estimate that changing the tax code so that married couples file separately instead of jointly would result in a strong labor supply response among married women, with 16 percent higher participation and 9 percent more hours worked. They also estimate that reforming the system for providing health insurance coverage to married couples does not necessarily imply an overall revenue loss.

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¹⁰In the case of after-school programs (which have been less well studied), education spending per child would increase steeply with age, but the cost of after-school programs is likely not as high as that of regular instruction.

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Tackling Gender Inequality in the Middle East

8A. GULF COOPERATION COUNCIL

Tobias Rasmussen

8B. PAKISTAN

Ferhan Salman

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Gulf Cooperation Council

TOBIAS RASMUSSEN

Across the world, female labor force participation has increased as women have become more educated and have had fewer children (Table 8.1). This change can be explained as the result in part of labor supply decisions, where women choose how to allocate their time based on an evaluation of the relative costs and benefits, as in Becker's (1965) time allocation framework. In this framework, women choose between leisure, supplying labor to home production (such as child rearing), and supplying labor to the market and earning a wage (that is, being part of the labor force). The outcome will depend on the return to market labor, which will tend to increase with education levels, and the costs and quantity of home production, which will tend to decrease with fewer children.

Observed drivers of female labor force participation in other countries are also at play in the Gulf Cooperation Council (GCC) member countries. Based on analysis of detailed data for Organisation for Economic Co-operation and Development (OECD) countries covering 1960–2008, Steinberg and Nakane (2012) estimate the impact on female labor force participation from a series of explanatory variables. Applying their coefficients to GCC data indicates that increased schooling and the declining number of children explain the bulk of the increase in female labor force participation in the GCC since 1990. The fit of the model is generally fairly good, with comparatively small unexplained residuals for most GCC countries. For Saudi Arabia, however, the actual increase in female labor force participation has been considerably smaller than predicted.

The model also explains some—but not all—of the difference between female labor force participation rates in the GCC countries and the OECD mean (Table 8.2). This gap currently ranges from 19 percentage points in Qatar to 53 percentage points in Saudi Arabia. The part of the gap that is explained by differences in schooling and the number of children per woman ranges from 14 percentage points in the United Arab Emirates to 24 percent in Saudi Arabia (Figure 8.1). In all countries, however, there remains an unexplained residual, which indicates that there are additional factors, such as different cultural norms, that stand behind the GCC's low female labor force participation rates and that these factors have remained relevant over time.

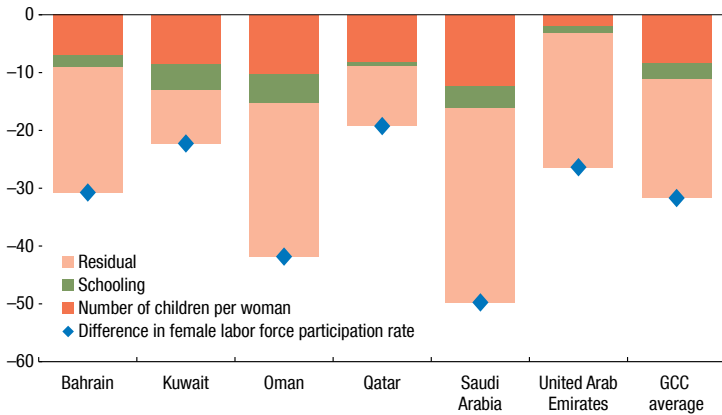
A version of this analysis was previously published as Rasmussen 2013.

TABLE 8.1.

Global Female Labor Force Participation by Region, 1990–2014 (Percent, ages 25–54, regional averages)			
	1990	2000	2014
Gulf Cooperation Council ¹	33.1	39.4	46.0
Organisation for Economic Co-operation and Development	67.2	71.9	77.6
Africa	62.0	66.0	69.6
Americas	56.6	62.9	69.3
Asia and the Pacific	59.7	62.7	65.4
Europe and Central Asia	71.3	73.4	76.7

Source: International Labour Organisation, KILM database.
¹Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates.

Figure 8.1. Explained Differences in Gulf Cooperation Council Female Labor Participation Rates, 2014
(Percent)



Sources: International Labour Organisation, KILM database; UN Human Development Report database; and IMF staff estimates.

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Steinberg, Chad, and Masato Nakane. 2012. “Can Women Save Japan?” IMF Working Paper 12/248. International Monetary Fund, Washington.

TABLE 8.2.

Select Labor Market Indicators, 1990–2014
(Percent, unless otherwise indicated)

	1990	2000	2014
Labor Force Participation, Females Ages 25–54			
Gulf Cooperation Council (GCC)	33.1	39.4	46.0
Organisation for Economic Co-operation and Development (OECD)	67.2	71.9	77.6
Years of Schooling, Females Ages 25+			
GCC	5.2	6.8	8.6
OECD	8.6	9.8	11.0
Number of Children per Woman			
GCC	1.63	1.29	0.88
OECD	0.67	0.59	0.53

Sources: International Labour Organisation, KILM database; and UN Human Development Report database.

Notes: Averages across country groupings. Number of children per woman is the ratio of children ages 0–14 to females ages 15–64.

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Pakistan

FERHAN SALMAN

Women make up half of Pakistan's population, but their contribution to household income is far below its potential. Addressing the issue of gender inequality will continue to be a gradual process because its roots lie to a large extent in Pakistan's culture. Nonetheless, the potential gains from greater inclusion of women in the economy are large: closing the gender gap in Pakistan could boost GDP by about 30 percent (Cuberes and Teignier 2016; Figure 8.2).

Pakistan has made significant progress in promoting gender equality (Figure 8.3). And female labor force participation has increased by about 10 percentage points since 1990. But there remains ample scope for further progress: Pakistan's female labor force participation rate in 2012 remained low at 24 percent, compared with 32 percent for South Asia and 69 percent in low-income countries (World Bank 2014a).

Historically, women's labor force participation has been lower than men's (Figure 8.3), and women account for most unpaid work—64 percent of female employment is in unpaid family work, double the south Asia average. They also face significant wage differentials of 18 percent vis-à-vis their male colleagues.

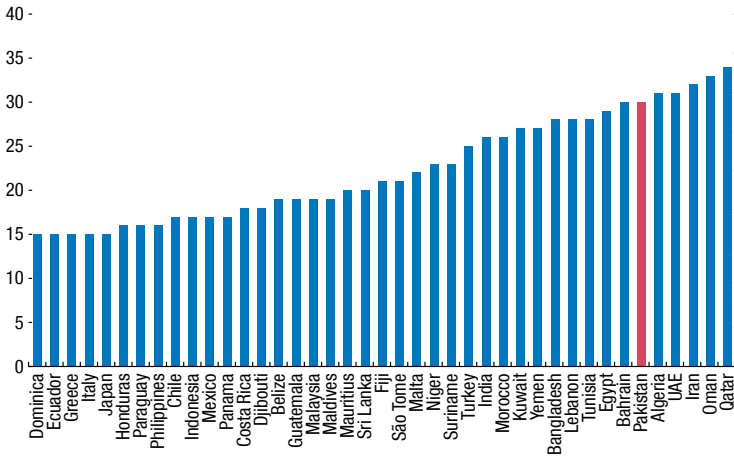
Pakistan ranks second-to-last in the World Economic Forum's Global Gender Gap Index.¹ The index examines the gap between men and women in four categories: (1) economic participation and opportunity (labor force participation, wages, senior managerial, and technical positions); (2) educational attainment (literacy and educational enrollment); (3) health and survival (sex ratio at birth and healthy life expectancy); and (4) political empowerment (parliament seats, ministers, and length of heads of states). The gender gap in Pakistan is particularly stark in economic opportunities and participation, education, and health (Figure 8.4).

There is a particularly large gap in Pakistan's government and public service sector. The share of female legislators, senior officials, and managers is only 3 percent of the total, compared with a world average of 29 percent. However, female representation in the Pakistan National Assembly has increased (due to a

A version of this analysis was previously published as Salman 2016.

¹The Global Gender Gap Index was first introduced by the World Economic Forum in 2006 as a framework for capturing the magnitude of gender-based disparities and tracking their progress (World Economic Forum 2014).

Figure 8.2. GDP Losses Due to Economic Gender Gaps in Selected Countries
(Percent of GDP)¹



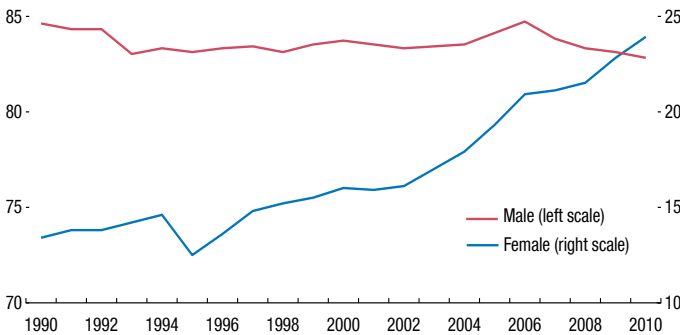
Source: Estimates by Cuberes and Teignier 2016.

¹Losses are estimated for a particular year for each country and can thus be interpreted as a one-off increase in GDP if gender gaps were to be removed.

quota), in line with the increasing world trend—outperforming the world average and the south Asian countries (Figure 8.5).

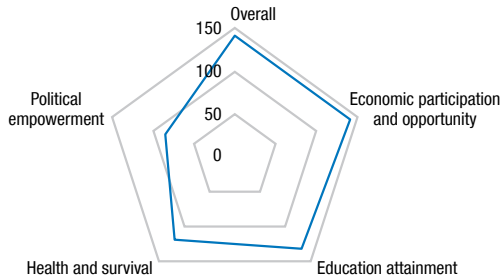
Gender gaps in education have been declining in Pakistan, and the ratio of girls to boys enrolled in primary and secondary education is 82 percent

Figure 8.3. Pakistan's Labor Force Participation Rates
(Percent)



Source: Gonzales and others 2015.

Figure 8.4. Pakistan's Global Gender Gap Rankings
(Out of 142 countries)

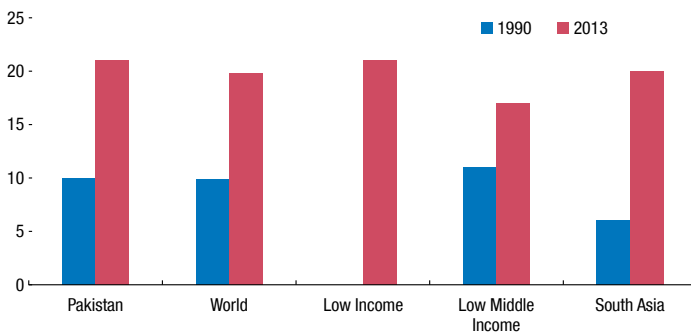


Source: World Economic Forum 2014.

(Figure 8.6). However, there is room for improvement, as Pakistan still remains well below the low-income country average of 93 percent.

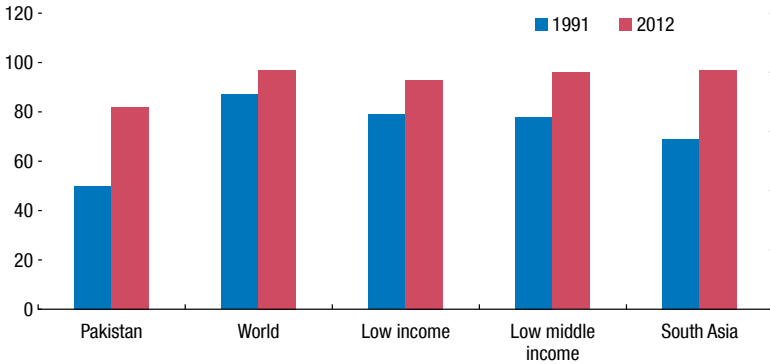
Income, education, marital status, household size, and being the head of a household are good predictors of female labor force participation (IMF 2016, 33–34). In Pakistani families with higher household income and large household size, female labor participation declines in both urban and rural areas. Women with higher levels of education are more likely to participate in the labor force in urban areas but not in rural areas. In rural areas, married women are less likely to work outside the home, but if they are the head of a household, that likelihood increases. Having a higher level of education significantly increases women’s participation in the labor force in both urban and rural areas (Sen 2001). However,

Figure 8.5. Women in Parliaments by Region
(Percent of total seats)



Sources: World Bank, World Development Indicators database; and IMF staff calculations.

Figure 8.6. Pakistan's Gender Gap in Primary and Secondary Education
(Ratio of girls' to boys' enrollment; percent)



Sources: World Bank, World Development Indicators database; and IMF staff calculations.

the impact is more pronounced in urban areas compared with rural areas. In rural areas, women who have less than a high school education are more likely to stay out of labor force.

POLICY RECOMMENDATIONS

An integrated range of revenue, expenditure, and legal measures could be used to promote greater female labor force participation in Pakistan, with significant prospective growth and development implications (Sen 2001). Comprehensive policies can be effective in boosting women's economic participation (Revena and Shetty 2012; Aguirre and others 2012; Duflo 2012). Reducing government debt and deficits can free up resources for higher infrastructure spending (Elborgh-Woytek and others 2013) and higher investment in education. And business climate reforms will help advance financial inclusion for women.

Among expenditure measures, increased social spending under the Benazir Income Support Program provides women unconditional cash transfers, which do not require any prior action by the recipient. The transfers will promote continued female school attendance through conditional cash transfers (World Bank 2011, Section C). Budgetary resources could be allocated to provide access to comprehensive, affordable, and high-quality daycare services (Jaumotte 2003), which would free up time women now spend caring for children and the elderly, and thus facilitate female labor force participation (Gong, Breunig, and King 2010; Kalb 2009; Antonopoulos and Kim 2011). In addition, publicly financed parental leave schemes, parity in paternity and maternity leave, and flexible work arrangements can also complement policies to balance family and work

responsibilities (Jaumotte 2003; Aguirre and others 2012; World Bank 2012). Infrastructure spending on rural access to clean water and transportation could also reduce the time women spend on domestic tasks and facilitate their access to markets (Koolwal and van de Walle 2013).

Impediments to women's access to finance could be removed to help to raise the productivity of enterprises owned and managed by women. Pakistani women are entitled to obtain bank loans and other forms of credit, and a number of credit institutions target women. However, their access is limited by their inability to provide the required collateral.² To raise the productivity of enterprises owned and managed by women, access to finance should be improved and training and support networks among female entrepreneurs should be developed (OECD 2012; World Bank 2011; Blackden and Hallward-Driemeier 2013). Swift operationalization of a credit bureau also would be crucial.

Efforts to mitigate resource restrictions can also increase female labor force participation in Pakistan. Finding opportunities to strengthening female inheritance rights on immoveable property can enhance economic opportunity for women.

Finally, establishing quotas for senior positions could help boost female labor force participation. In both private and public sectors, targeted searches for female candidates for senior positions can provide opportunities for and acceptance of women in positions of leadership (Barsh and Yee 2012).

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²Section 18 of the Constitution grants all citizens the right to conduct any lawful trade or business, and the government reported that all of the services of the formal banking sector are available to women.

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Tackling Gender Inequality in Sub-Saharan Africa

9A. GENDER INEQUALITY AND GROWTH IN SUB-SAHARAN AFRICA

Dalia Hakura, Mumtaz Hussain, Monique Newiak, Vimal Thakoor, and Fan Yang

9B. GENDER GAPS IN FINANCIAL INCLUSION AND INCOME INEQUALITY

Corinne Deléchat, Monique Newiak, and Fan Yang

9C. WEST AFRICAN ECONOMIC AND MONETARY UNION

Stefan Klos and Monique Newiak

9D. MALI

John Hooley

9E. MAURITIUS

David Cuberes, Monique Newiak, and Marc Teignier

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Gender Inequality and Growth in Sub-Saharan Africa

DALIA HAKURA, MUMTAZ HUSSAIN, MONIQUE NEWIAK, VIMAL THAKOOR, AND FAN YANG

Income inequality and gender inequality remain high in sub-Saharan Africa. Income inequality has changed little and remains the second highest in the world behind Latin America and the Caribbean region (Figure 9.1), although there is quite a bit of variation across countries (Bhorat, Naidoo, and Pillay 2015; Beegle and others 2016). Despite significant declines in income inequality in some countries, such as Niger and Sierra Leone, in a third of sub-Saharan African countries for which data are available, cumulative growth during 1995–2011 was associated with increases in income inequality. Similarly, gender inequality in sub-Saharan Africa remains one of the highest, just behind the Middle East and north Africa (Figure 9.2). It has declined slower than in other regions despite shrinking gender gaps in education, improving health outcomes, female labor force participation rates that are on average the highest in the world, and greater progress in eliminating legal gender-based restrictions (Demirgüç-Kunt, Klapper, and Singer 2013).

Have these high levels of income and gender inequality been impeding economic growth? This analysis tests for the joint effects of both income and gender while also testing whether the growth-inequality relationship varies for low-income countries. To this end, it extends recent empirical work that has mainly focused on the effect of one dimension of inequality at a time (Ostry, Berg, and Tsangarides 2014; Gonzales and others 2015b) and has not specifically examined the implications for sub-Saharan Africa. A number of studies also note that the growth-inequality link is likely to be nonlinear at different levels of development (Castello-Climent 2010), and previous empirical work tends to find a negative association between growth and income inequality only below a certain threshold of income per capita (Neves and Silva 2014). To account for this possible nonlinearity, we allow for the relationship to be different between low-income countries and the other countries in the sample.

Income and gender inequality are found to jointly impede growth, mostly in the initial stages of development and resulting in large growth losses in sub-Saharan Africa. In particular, the average annual GDP growth per capita in these countries could be higher by as much as 0.9 percentage point if income and

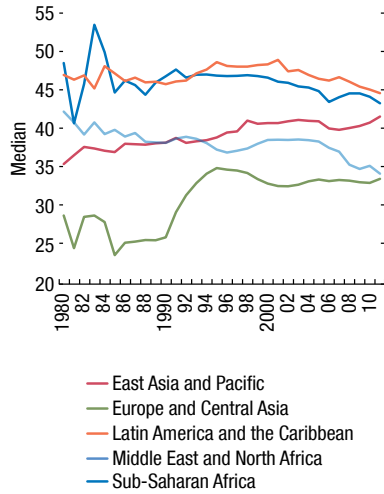
gender inequality were reduced to the levels observed in the fast-growing economies of the Association of Southeast Asian Nations (ASEAN). By contrast, the growth shortfall of Latin American and Caribbean economies vis-à-vis ASEAN is mainly explained by income inequality.

INEQUALITY AND GROWTH REVISITED

There is growing evidence that income inequality hampers growth through various channels. Lower net income inequality has been robustly associated with faster growth and longer growth spells for a large number of advanced and developing economies (Berg and Ostry 2011; Ostry, Berg, and Tsangarides 2014). Similarly, increases in the income share of the poorest 10 percent have been associated with higher growth (Dabla-Norris and others 2015). With imperfect credit markets, the ability of low-income households to invest in education and physical capital is impaired, which limits income mobility (Galor and Zeira 1993; Corak 2013). High inequality can reduce private investment due to sociopolitical instability and poor governance. In contrast, inequality can spur growth by enabling rich households to invest more due to their higher marginal propensity to save; it can also create incentives for innovation and entrepreneurship; and differences in rates of returns to education may encourage more people to seek higher education (Cingano 2014).

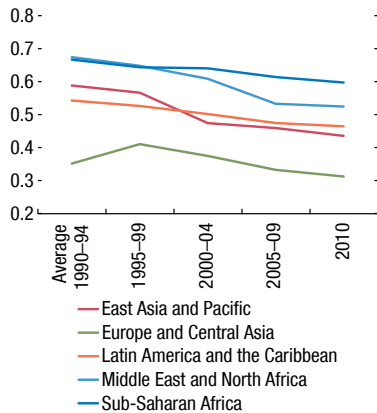
Some of the channels by which income inequality hampers growth may have a stronger impact at early

Figure 9.1. Gini Index of Net Income Inequality by Region, 1980–2011



Source: Solt 2016.

Figure 9.2. Gender Inequality Index by Region, 1990–2010



Sources: United Nations; and Gonzales and others 2015b.

stages of development—for example, the extent of credit-constrained households, the impact of imperfect credit markets, or the extent of poverty and the resulting political implications of high inequality (Barro 2000). Our analysis therefore distinguishes between countries at different stages of development when exploring the association between income inequality and economic growth.

Gender inequality has also been associated with GDP losses across countries of all income levels. Losses from gender gaps in economic participation result from a less efficient allocation of resources due to a restricted talent pool (Cuberes and Teigner 2015; Esteve-Volart 2004). Mitra, Bang, and Biswas (2015) report that a greater presence of women in legislative bodies may alter the composition of public expenditures in favor of health and education, which can raise potential growth over the medium to long term. Education inequality affects the average quality of human capital and reduces growth (Klasen 1999). Female education contributes to improvements in children's health, reductions in fertility rates, increases in labor force participation rates, and better quality of human capital of future generations (Mitra, Bang, and Biswas 2015). Restrictions on women's rights to inheritance and property and legal impediments to economic activity are strongly associated with larger gender gaps in labor force participation (Gonzales and others 2015a).

Less well understood are the effects of various gender gaps on growth, especially after controlling for income inequality. Most studies examine the effects of different dimensions of gender inequality in separate regressions (Klasen and Lamanna 2009; Elborgh-Woytek and others 2013). A few studies that explore the association between growth and a variety of gender gaps do not explore the possibility that income inequality could also capture other dimensions that impact economic growth such as the rural-urban income divide (see, for example, Mitra, Bang, and Biswas 2015; Amin, Kuntchev, and Schmidt 2015).

INEQUALITY AND GROWTH IN SUB-SAHARAN AFRICA

An empirical analysis for 115 countries of the relationship between inequality and growth yields the following results (see Annex 9.1 for model specifications):

- Income inequality is robustly related to lower growth in low-income countries, irrespective of the measure of income inequality. The negative association between growth and income inequality among low-income countries holds for various measure of inequality—the Gini coefficient, the income gap between the top 20 percent and the poorest 40 percent of the population, or the income share of the middle class (the 40 to 80 percentiles of population in the income distribution) (Table 9.1, Models 1–3). A 1 percentage point reduction in the initial Gini coefficient in low-income countries is associated with a 0.15 percentage point cumulative increase in growth over a five-year period.

TABLE 9.1.

Growth, Inequality, and Gender Inequality in Sub-Saharan Africa	(1)	(2)	(3)	(4)	(5)	(6)
Measures of Inequality						
Initial income inequality (top 20 to bottom 40) ¹	0.006					-0.188***
Initial income inequality (top 20 to bottom 40) × low-income countries (LICs) ¹	-0.207***					
Initial income inequality (net Gini) ¹		-0.009				
Initial income inequality (net Gini) × LICs ¹		-0.030***				
Initial income share of middle class ²			0.081**			
Gender inequality (lagged)				-0.017		0.005
Gender inequality × LICs (lagged)				-0.029***		-0.020**
Female legal equity (index)					0.256**	0.296**
Female legal equity (index) × LICs						
Other Control Variables						
Initial income per capita (log)	-1.234***	-1.347***	-1.081***	-1.746***	-1.184***	-1.608***
Fixed capital investment (% of GDP)	0.134*	0.184***	-0.014	0.093*	0.113	0.028
Schooling (years)	0.119	0.068	0.159*	0.045	0.102	0.154*
Dependent population growth (%)	-0.356**	-0.293**	-0.539***	-0.224	-0.303**	-0.286**
Infrastructure index	0.238*	0.194	0.270*	0.294*	0.241	0.334**
High Inflation (0.15%)	-1.583***	-1.627***	-1.621***	-1.228***	-1.549***	-1.552***
Terms of trade (percent change)	0.068**	0.076***	0.091***	0.098***	0.063**	0.094***
Institutional quality (index)	0.047***	0.063***	0.040**	0.080***	0.064***	0.054***
Constant	4.117*	4.087**	3.171	7.889**	1.302	6.840
Number of instruments	15	15	14	15	14	17
Serial correlation (<i>p</i> -value)	0.071	0.025	0.202	0.209	0.167	0.274
Hansen test (<i>p</i> -value)	0.210	0.335	0.319	0.445	0.963	0.700
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time (period) fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	344	384	237	419	304	240
Number of countries	110	106	104	115	78	78
of which: sub-Saharan African countries	23	23	23	23	20	20

Source: IMF staff calculations.

Notes: The dependent variable is real GDP growth per capita, averaged over nonoverlapping five-year periods, for 1995–2014. Statistical significance: ****p* < 0.01 (1 percent), ***p* < 0.05 (5 percent), and **p* < 0.1 (10 percent). Low-income countries (LICs) group include countries classified as low-income and lower-middle income groups by the World Bank. Robust two-step system general method of moments (GMM) estimator is used and all models include country and period effects. The *p*-values for second order serial correlation and Hansen test (for overidentifying restrictions) are reported.

¹Income inequality is measured by net Gini and ratio of income shares of top 20 percent to bottom 40 percent of population.

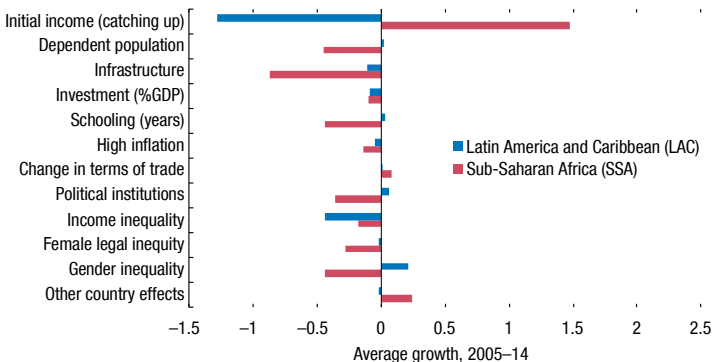
²Income share of middle class is percent share of income attributed to the third and fourth quintiles of population.

- Growth is also negatively associated with the multidimensional index of gender inequality, particularly in low-income countries and more generally with gender-related legal restrictions. A 1 percentage point reduction in gender inequality in low-income countries is associated with higher cumulative growth over five years of 0.2 percentage points in low-income countries, a result in line with previous estimates (Amin, Kuntchev, and Schmidt 2015; Table 9.1, Models 4–6).
- The results highlight that inequality of income and gender affect growth individually and possibly through separate channels. For example, higher gender inequality may adversely impact gender gaps in educational attainment. Similarly, other aspects of household income inequality that are unrelated to gender inequality may be affecting growth in low-income countries such as rural-urban income inequality or inequality arising from countries' dependence on natural resources exports whose revenues are appropriated by a few individuals.

THE IMPLICATIONS OF INEQUALITY

A growth decomposition analysis suggests that addressing high inequality could significantly affect growth in sub-Saharan Africa (Figure 9.3). Compared with the ASEAN-5 countries (Indonesia, Malaysia, Philippines, Thailand, Vietnam),

Figure 9.3. Growth Differentials between Sub-Saharan Africa, Latin America and Caribbean, and ASEAN-5
(Percentage points)



Sources: IMF, World Economic Outlook database; PRS Group; World Bank, World Development Indicators database; and IMF staff estimates.

Notes: The annual average growth differential with the ASEAN-5 (Indonesia, Malaysia, the Philippines, Thailand, Vietnam) is 1.5 percent for SSA and 1.7 percent for LAC. The estimated regression coefficients of Model 6 in Table 9.1 are applied to the differences between the average values of the factors associated with growth for the past 10 years for SSA and LAC and comparator ASEAN-5, respectively. A bar with a negative value denotes what share of the growth shortfall in SSA is explained by a particular variable.

which have a strong track record in terms of growth, sub-Saharan Africa's average annual real GDP growth per capita has been about 1½ percentage points lower over the past decade. Weaker infrastructure, lower levels of investment in fixed and human capital, higher dependency ratios, and lower quality of institutions were key factors explaining this growth shortfall. But the contribution of inequality is also substantial. More precisely, reducing the three inequality indicators to the level currently observed in the ASEAN-5 countries could boost the region's annual GDP growth per capita by on average about 0.9 of a percentage point, roughly the same order of magnitude as the impact on annual growth per capita from closing the infrastructure gap between the two regions. Moreover, compared with Latin America and the Caribbean, which has a growth differential with the ASEAN-5 of a similar order of magnitude as sub-Saharan Africa, the growth effects from reducing gender inequality and legal gender-related restrictions are sizable for sub-Saharan Africa. Notwithstanding its higher levels of income per capita relative to the ASEAN-5, income inequality is found to be a key factor holding back growth in Latin America and the Caribbean—not surprising given that the region has the highest levels of income inequality.

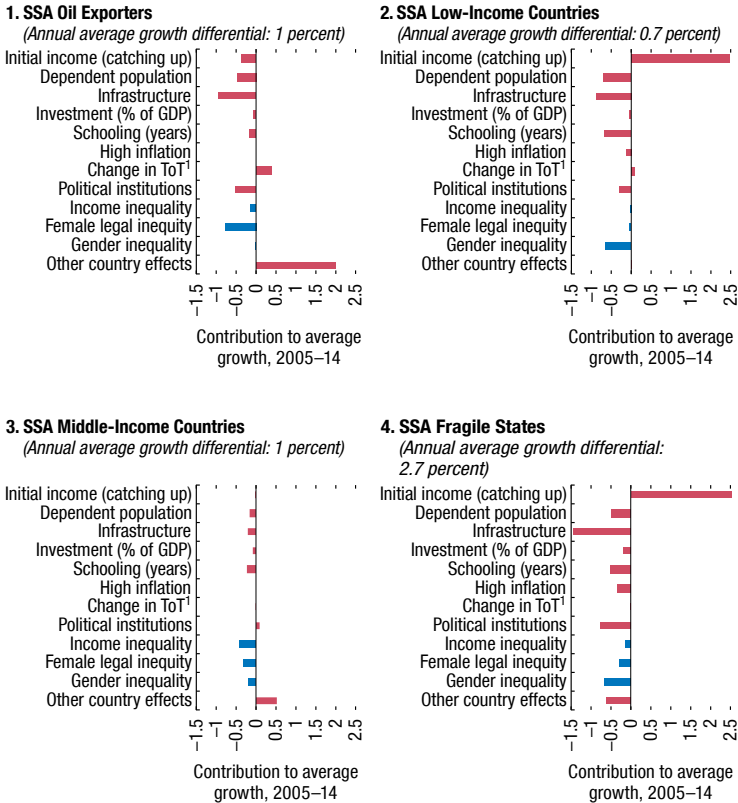
The impact of income and gender inequality on growth varies across sub-Saharan Africa (Figure 9.4). Using the same approach as for the whole region, the growth decomposition analysis for the subgroups yields the following additional lessons:

- In low-income countries (excluding fragile states) the catch-up effect from a low initial income relative to the ASEAN-5 countries contributes about 2½ percentage points of real GDP growth per capita. However, this catch-up effect is more than undone by weak infrastructure and lower human capital accumulation. Gender inequality accounts for ¾ percentage point of the growth differential.
- For fragile states, the lower quality of infrastructure and political institutions explains the largest fraction of the growth differential. Reducing gender inequality could boost annual GDP growth per capita by ⅔ percentage point, whereas the potential effects of a reduction in income inequality and legal gender-based restrictions are smaller.
- For middle-income countries—where infrastructure and educational attainment gaps tend to be smaller—and for oil-exporting countries, reducing income inequality to the levels observed in ASEAN-5 countries is an important factor to raise growth. The growth payoff from removing legal gender-related restrictions also appears particularly strong for oil-exporting sub-Saharan African countries.¹

¹The finding that the removal of gender-related restrictions affects growth positively in the oil-exporting countries may reflect correlation rather than causation given that oil-exporting countries can, if conditions are right, grow without much labor effort as oil and minerals are capital intensive. This would be the case if gender equality is correlated with other conditions, such as better property rights or a greater integration with developed-country capital markets, that make it easier for foreign companies to exploit mineral reserves.

Figure 9.4. Growth Differentials with the ASEAN-5 for Subgroups of Sub-Saharan African (SSA) Countries

(Percentage points)



Sources: IMF, World Economic Outlook database; PRS Group; World Bank, World Development Indicators database; and IMF staff estimates.

Notes: The estimated regression coefficients of Model 6 in Table 9.1 are applied to the differences between the average values of the factors associated with growth for the past 10 years for SSA and comparator ASEAN-5 countries (Indonesia, Malaysia, the Philippines, Thailand, Vietnam). Blue bars represent the three inequality indicators included in the regression. A bar with a negative value denotes what share of the growth shortfall in SSA is explained by a particular variable.

¹Terms of trade.

CONCLUSIONS

Income and gender inequality impede growth in particular in countries at earlier stages of development, with large growth losses for sub-Saharan Africa. Examining the effects of gender inequality and income inequality jointly in a large global panel over the last two decades shows that further progress in reducing income and gender inequality could deliver significant sustained growth dividends, particularly for low-income countries. The fact that both gender inequality and income inequality matter for growth implies that gender inequality affects growth via different channels than income inequality. The implications for sub-Saharan Africa are particularly striking. Despite some progress in the last 20 years, there remain comparatively high levels of income and gender inequality in the region. The empirical analysis highlights that annual economic growth in sub-Saharan African countries could be higher by as much as 0.9 percentage point if gender and income inequality were reduced to the levels observed in the fast-growing countries of ASEAN, with variations across country groups. This contrasts with the findings for Latin America and the Caribbean, where gender inequality does not appear to be a main contributor to the region's growth differentials with ASEAN.

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ANNEX 9.1. MODEL SPECIFICATIONS

The econometric analysis relating growth in GDP per capita involves a sample of 115 countries and indicators of income and gender inequality as well as commonly used growth determinants.² Annex Table 9.2 provides exact definitions of the variables and data sources, but two dimensions are worth highlighting.

- The Standardized World Income Inequality Database (Solt 2016) provides the broadest country coverage over time by incorporating a number of data sources to maximize the comparability and coverage across countries over time. However, missing observations are generated via model-based multiple imputation estimates. While the available data gives an indication of the trends across countries and regions, it should be interpreted carefully since household surveys in sub-Saharan Africa are less frequent and often are not comparable.
- Gender inequality is measured by the United Nations' Gender Inequality Index (GII), which captures gender inequality in health (maternal mortality ratio and adolescent fertility rate), empowerment (gap in secondary education and share of parliamentary seats), and economic participation (gap in labor force participation rates). In addition, we construct a female legal inequity index as the sum of six legal indicators representing women's legal rights to earn and hold income and wealth: (1) unmarried women have

²This paper uses the World Bank's classification of countries. However, the group of low-income countries includes lower-middle income countries, given their many similarities.

TABLE 9.2.

Variables and Data		
Variable	Description	Source
Initial income inequality (top 20/ bottom 40) ¹	Ratio of income distribution at the top 20 relative to that of the bottom 40 percent of population.	World Development Indicators (WDI) database, augmented by the UNU-WIDER database.
Initial income inequality (Gini) ¹	The traditional Gini measure of inequality. In this paper, we use “net” Gini but find similar results with “market” Gini.	Standardized World Income Inequality database (Solt 2016).
Initial income share of middle class	The sum of income shares of the third and fourth quintiles of population.	WDI database, augmented by UNU-WIDER database.
Lagged gender inequality ¹	Index calculated using the United Nations methodology, which covers the 1990–2010 period.	IMF staff estimates and others (2015b).
Female legal inequity ¹	The sum of six binary indicators representing existence of restrictions on selected women’s legal rights. Takes on value of 0 (no restrictions) to 6 (all selected restrictions on rights).	World Bank’s Women, Business and the Law (WBL) database.
Initial income per capita	The logged real GDP per capita in the first year in each five-year period.	Penn World Tables (PWT v.8.0).
Fixed capital investment	Gross fixed capital formation in percent of GDP, averaged over five-year periods.	PWT, augmented by World Bank, WDI database.
Schooling	Average years of schooling (in each five-year period) for the population ages 15 and above.	Barro and Lee 2003.
Dependent population growth	Average annual percentage change in the non-working-age population (under 15 or above 64).	UN Population database.
Infrastructure index	Composite index based on electricity consumption, access to water, and access to any type of phones. A higher value corresponds to an overall greater level of infrastructure.	Electricity consumption is taken from the International Energy Association database. Access to water and telephones are taken from WDI.
High inflation	A dummy variable with value 1 if average annual inflation in consumer prices over a given five-year period is more than 15 percent.	IMF, World Economic Outlook database.
Change in terms of trade	The average annual change in the terms of trade over the five-year period (constant local currency units).	WDI database.
Institutional quality	A composite index of political risk; higher values of the index (ranging 0–100) imply better quality of institutions and hence lower risk.	This is the political risk index from the International Country Risk Guide.

¹Interactions of these variables with a low-income country (LIC) dummy variable are also included in selected models.

equal property rights for immovable property, (2) married women have equal inheritance rights, (3) joint titling of property is default for married couples, (4) married women can get a job or pursue a profession, (5) adult married woman can open a bank account, and (6) married woman can sign contracts.

Key considerations in the empirical strategy were to include as many sub-Saharan African countries in the sample and address endogeneity concerns. Given data availability, the regressions were estimated for the 1995–2014 period and rely on nonoverlapping five-year averages to abstract from business cycle fluctuations in growth rates and deal with data gaps in certain years (for example, in the education and inequality measures). To account for possible endogeneity of the inequality and investment variables, the estimations use two-step system generalized methods of moments (system-GMM) and initial levels of inequality for each five-year period. We use various specification tests to ensure that the assumptions of no second-order serial correlation in the errors and that of the validity of the instruments hold. To show no second-order serial correlation, we use the Arellano–Bond test statistic, which fails to reject the null hypothesis of zero correlation. Moreover, since the Arellano–Bond (system GMM) estimators generate large numbers of instruments, this can lead to over-identification. To see whether this is a concern, we applied the Hansen J statistic to test for over-identification. In our model specifications, this statistic passes the criteria for no over-identification problem, leading us to conclude that the problem of excessive instruments is not too serious in our specification.³

³The `Xtabond2` package for STATA (Roodman 2009) is used to estimate the system-GMM regressions.

Gender Gaps in Financial Inclusion and Income Inequality

CORINNE DELÉCHAT, MONIQUE NEWIAK, AND FAN YANG

One aspect of gender inequality that may increase income inequality is the gender gap in financial inclusion. An analysis of the relationship between the two concepts is particularly relevant for sub-Saharan Africa, where both gender and income inequality are significantly higher than in other regions and where access to formal financial services is low compared with other regions, particularly for women (Demirgüç-Kunt and others 2015; IMF 2015; IMF 2016).

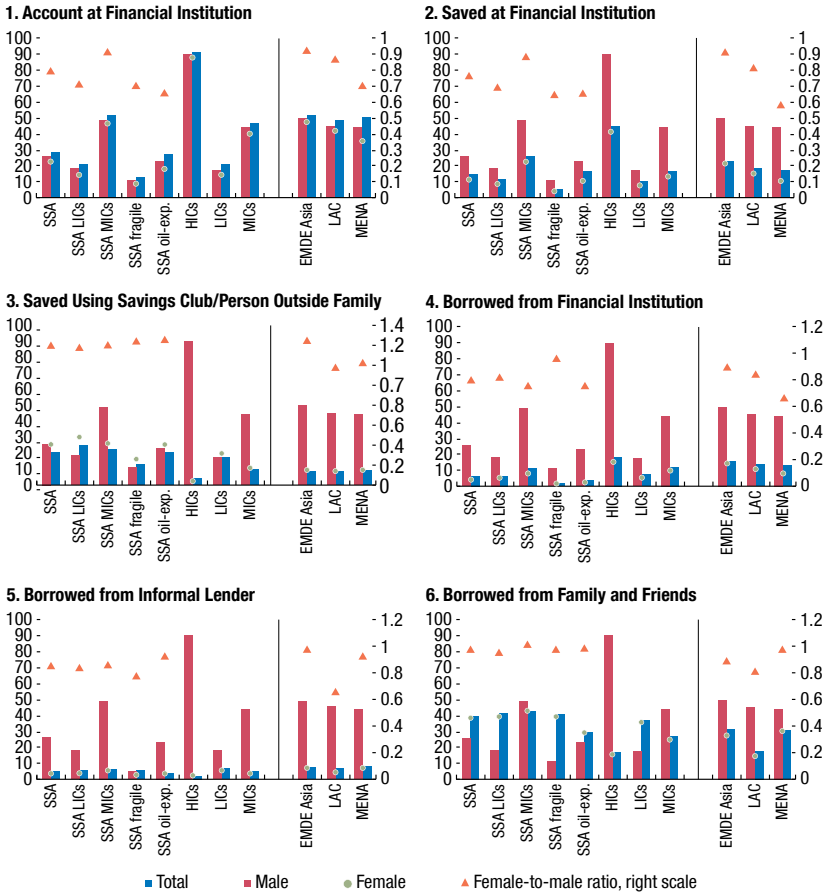
Sub-Saharan Africa lags behind other developing regions in overall access to financial services—defined here as having an account at a formal financial institution—as well as in gender equality for financial inclusion, which also indicates the affordability of financial services (Figure 9.5). The region's fragile states are exceptions only in that access levels are equally low for both genders. The gender gap is lower for informal activities, with more women than men in a savings club or saving with a person outside the family and with men and women equally likely to borrow from family and friends.

Narrower gender gaps in financial inclusion are associated with both higher economic development and lower income inequality (Figure 9.6):

- More equal access for women and men to financial services is closely correlated with higher economic development, as measured by higher GDP per capita or lower poverty rates.
- More equal opportunities for men and women are associated with a more equal income distribution (lower net Gini coefficient).
- More equal labor force participation rates between men and women have been previously associated with higher growth (Cuberes and Teignier 2015) and a more equal income distribution (Gonzales and others 2015).

These stylized facts hold for a multidimensional measure of financial inclusion and for a large sample of 144 countries. The relationship between gender inequality in financial inclusion and income inequality is examined further here.

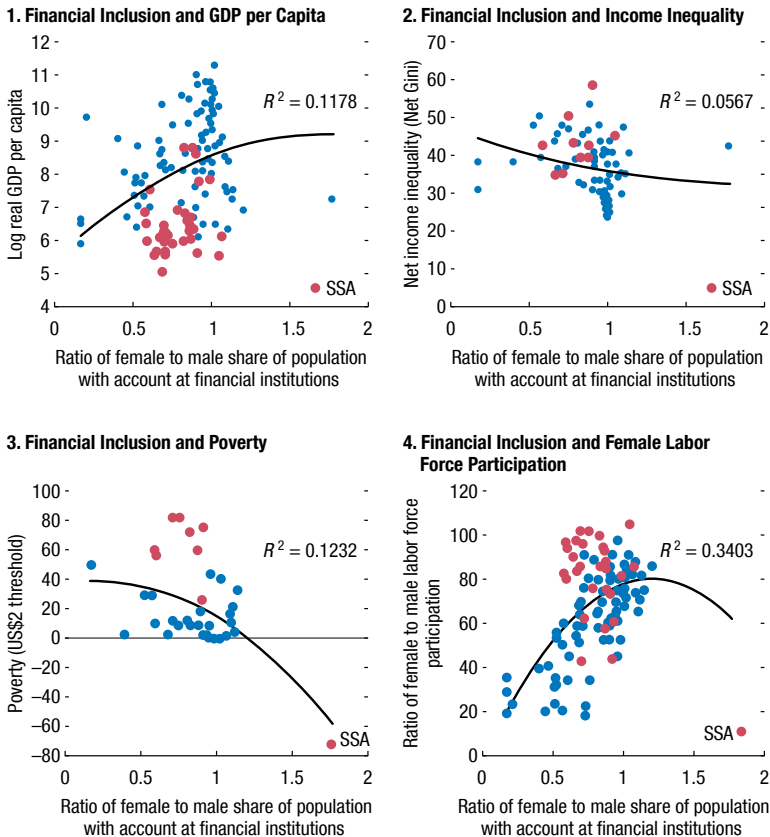
Figure 9.5. Indicators of Financial Inclusion in Sub-Saharan Africa, 2014
(Percent of male and female population, ages 15 and above)



Source: World Bank, Global Findex 2014.
 Note: EMDE Asia = Asian emerging market and developing economies; HICs = high-income countries; LICs = low-income countries; MICs = middle-income countries; LAC = Latin America and the Caribbean; MENA = Middle East and north Africa; SSA = sub-Saharan Africa.

LINKING GENDER GAPS IN FINANCIAL INCLUSION TO INCOME INEQUALITY

More equality in financial inclusion between men and women is significantly associated with lower income inequality, even when accounting for other determinants of inequality (Table 9.3). Lower financial access among different groups of the population distorts the allocation of resources because it restricts investment in human and physical capital to the wealthier parts of the population (Galor and Zeira 1993; Honohan 2008). Using a broader index of formal

Figure 9.6. Gender Equality in Financial Inclusion and Macroeconomic Outcomes

Sources: Solt 2016; World Bank, Global Findex 2014; and World Bank, World Development Indicators.
 Note: SSA = sub-Saharan Africa.

financial inclusion in a cross section of countries,¹ higher gender equality in financial inclusion is associated with lower income inequality. This effect comes on top of standard drivers of income inequality such as the structure of the economy, government expenditures, financial depth, and the level of economic development.

¹We construct an index of formal financial inclusion using data from the World Bank, Global Findex database, using a principal components approach. The index covers the following dimensions, defined as ratio of female to male, as a share of the total population ages 15 and older: having a bank account at a formal financial institution, having a debit card, having a credit card, saving in a formal financial institution, and borrowing from a formal financial institution.

TABLE 9.3.

Determinants of Income Inequality					
Variables	(1)	(2)	(3)	(4)	(5)
Financial inclusion gap	-16.038*** (5.52)	-15.874*** (5.56)	-12.577** (5.02)	-12.628** (4.96)	-9.828** (4.81)
GDP per capita	-4.065*** (0.75)	-5.043*** (1.18)	-3.801*** (1.1)	-6.923*** (2.22)	-7.994*** (2.14)
Financial development		4.449 (4.77)	15.149*** (4.96)	14.029*** (4.95)	14.461*** (4.7)
Financial development × advance economies			-13.615*** (3.24)	-11.488*** (3.46)	-7.248** (3.62)
Agriculture share of GDP				-0.359 (0.22)	-0.529** (0.22)
Government consumption expenditure					-0.524*** (0.19)
Constant	89.459*** (7.58)	96.596*** (10.04)	80.421*** (9.75)	113.097*** (22.45)	129.694*** (22.12)
Observations	70	69	69	69	69
R-squared	0.42	0.43	0.55	0.57	0.62

Source: IMF staff estimates.

Standard errors in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Gender equality in financial inclusion may be influencing income inequality through its effect on female labor force participation. Theoretically, financial inclusion can empower women economically and therefore contribute to higher female labor force participation. An account at a financial institution provides women with a place outside the home to store money safely (CGAP 2015), and access to borrowing can allow women to start a business, thus contributing to increases in entrepreneurship and self-employment. These channels are particularly important in sub-Saharan Africa where women are overrepresented in the informal sector, with a large part of the overall population in nonwage employment.

Indeed, the results from an empirical cross-country analysis suggest that greater gender equality in financial inclusion is significantly and positively associated with equality in labor force participation rates (Table 9.4):

- Narrowing the gender gap in financial inclusion by 10 percentage points is associated with a decrease in gender gaps in labor force participation by 2 to 3 percentage points globally. This finding holds when controlling for previously identified determinants of female labor force participation, such as the level of development (Duflo 2012; Tsani and others 2012), the gender gap in education (Eckstein and Lifshitz 2011; Steinberg and Nakane 2012), fertility rate (Bloom and others 2009; Mishra and Smyth 2010), the male-female age differential at the time of the first marriage (a proxy for a society's attitude toward women), and an index of women's rights (Gonzales and others 2015; IMF 2015).

TABLE 9.4.

Determinants of Female Labor Force Participation

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Financial inclusion gap	0.491*** (0.068)	0.399*** (0.075)	0.319*** (0.078)	0.220*** (0.077)	0.235*** (0.078)	0.241*** (0.078)	0.260*** (0.070)	0.211*** (0.075)
GDP per capita	-0.483*** (0.15)	-0.67*** (0.159)	-0.489*** (0.157)	-0.708*** (0.166)	-0.736*** (0.171)	-0.678*** (0.191)	-0.468 (0.177)	-0.529*** (0.188)
GDP per capita squared	0.025*** (0.008)	0.034*** (0.009)	0.023*** (0.009)	0.036*** (0.009)	0.037*** (0.009)	0.034*** (0.01)	0.023** (0.01)	0.026*** (0.01)
Education gap		0.324*** (0.1)	0.168 (0.104)	0.219** (0.101)	0.202* (0.102)	0.206** (0.103)	0.013 (0.101)	0.087 (0.105)
Marriage age differential			-0.044*** (0.013)	-0.022 (0.014)	-0.031** (0.014)	-0.033** (0.015)	-0.042*** (0.013)	-0.04*** (0.014)
Equal rights to get a job (dummy)				0.177*** (0.047)				
Female legal rights index					0.045*** (0.013)	0.049*** (0.014)	0.033** (0.013)	0.039** (0.014)
Fertility rate						0.014 (0.02)	-0.05** (0.022)	-0.029** (0.023)
SSA (dummy)							0.266*** (0.055)	
SSA × Financial inclusion gap								0.223*** (0.071)
Constant	2.564*** (0.662)	3.339*** (0.7)	3.003*** (0.692)	3.719*** (0.713)	3.663*** (0.72)	3.292*** (0.902)	2.765*** (0.816)	2.936*** (0.868)
Observations	137	122	107	99	99	99	99	99
R-squared	0.34	0.40	0.40	0.44	0.43	0.43	0.54	0.49

Source: IMF staff estimates.

Note: SSA = sub-Saharan Africa. Standard errors in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

- Likely driven by the region's labor market structure, the relationship between financial inclusion and labor force participation is stronger in sub-Saharan Africa than for the global sample, with a 10 percentage point reduction in female labor force participation being associated with a more than 4 percentage point decrease in labor force participation gaps.

CONCLUSIONS

This analysis suggests that policies targeted at improving women's financial inclusion would help enhance both gender equality in labor force participation and income inequality. In turn, more equal labor force participation rates would unlock growth benefits and contribute to reducing income inequality. However, the results should be interpreted with caution. The associations among different gender gaps are complex, and further work and more data on financial inclusion across countries and over time are needed to make more definitive statements about the direction of causality at the macroeconomic level.

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ANNEX 9.2. DATA SOURCES AND DESCRIPTION

Variable	Description	Source
Income inequality	The traditional Gini measure of inequality. In this paper, we use “net” Gini but find similar results with “market” Gini. This is the dependent variable in the analysis on the gender determinants of income inequality. A value of 0 represents perfect equality.	Solt 2016: Standardized World Income Inequality Database
Labor force participation	The ratio of labor force participation rate of females to males. A value of 1 represents perfect equality.	World Bank, World Development Indicators (WDI) database
Financial inclusion gap	The result of a principal components analysis (PCA) estimate on five FINDEX time series variables: (1) has an account at a financial institution, (2) has a credit card, (3) has a debit card, (4) saved at a financial institution, and (5) borrowed from a financial institution. Each variable is disaggregated by gender. We first calculated ratios of female to male inclusion for each component before performing PCA on these ratios; the final variable is the fitted value using the principal component. A value of 1 represents perfect equality.	World Bank, Global FINDEX 2014
GDP per capita	The logged GDP per capita (in constant 2011 international dollars).	World Bank, WDI database
Financial development	This is an index published in an IMF Staff Discussion Note (SDN) that aims to measure financial development. The index takes on values in the continuum between 0 and 1, where 1 represents maximum development. Please refer to the SDN for details on the methodology.	Sahay and others (2015)
Financial development × advanced economies	An interaction term of financial development with a dummy variable that takes on value 1 for advanced economies, as defined by the IMF.	Sahay and others (2015)
Agriculture share of GDP	The value-added share of agriculture as a percentage of GDP.	World Bank, WDI database
Government consumption expenditure	Government consumption expenditure as a percentage of GDP.	World Bank, WDI database
GDP per capita squared	The squared value of the GDP per capita variable.	World Bank, WDI database
Education gap	The difference between the mean years of schooling for females and males across all educational attainment levels. A positive value represents more female schooling. The source data are from the 2013 United Nations’ <i>Human Development Report</i> (UN 2013).	Barro and Lee 2013; UNESCO Institute for Statistics 2013; and United Nations 2013
Marriage age differential	From the UN World Marriage database, we extract the singulate mean age at marriage (SMAM), which is the average length of single life expressed in years among those who marry before age 50. We take the difference of this between male and female SMAM, such that a positive value is how much (on average) older the male spouse is compared with the female.	United Nations, Department of Economic and Social Affairs, Population Division, World Marriage Data 2012

(continued)

ANNEX 9.2 (continued)

Variable	Description	Source
Equal rights to get a job (dummy)	This is a dummy variable that takes on value 1 when the answer to the World Bank, Women, Business and the Law (WBL) database question "Can a married woman get a job or pursue a trade or profession in the same way as a married man?" is "yes."	World Bank, WBL database
Female legal rights index	The sum of 10 binary indicators representing existence of selected (unmarried and married) women's legal rights. Takes on value of 0 (no rights) to 10 (all selected rights). Rights include obtaining identification, signing contracts, inheritance, ownership of property, and favorability of the default marital regime.	World Bank, WBL database
Fertility rate	The number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of the specified year.	World Bank, WDI database
Sub-Saharan Africa (SSA) (dummy)	A dummy variable with value 1 for SSA countries, as defined by the IMF.	IMF staff estimates
SSA × financial inclusion gap	An interaction term of the financial inclusion gap with the SSA dummy variable.	IMF staff estimates

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West African Economic and Monetary Union

STEFAN KLOS AND MONIQUE NEWIAK

Gender inequality in the eight member nations of the West African Economic and Monetary Union (WAEMU)¹ is among the highest in the world and is impeding the macroeconomic performance of the region. The United Nations' Gender Inequality Index shows that the WAEMU performs worse than most of the rest of the world. In particular, in contrast with two groups of fast-growing benchmark countries,² the Gender Inequality Index in the WAEMU is much higher and has declined more slowly (Figure 9.7, panel 1). With the global evidence pointing to gender inequality as an impediment to a more equal income distribution, lower poverty rates, and sustainable growth (Figure 9.7, panels 2–4), the WAEMU's high levels of gender inequality could have significant macroeconomic consequences.

GENDER AND INCOME INEQUALITY IN THE WAEMU

Labor force participation rates have increased on average in the region but remain very low in several countries (Figure 9.8). The gender gap in labor force participation has declined significantly in the region over the last two decades from more than 30 percentage points in 1990 to about 20 percentage points in 2013. This reduction was driven mainly by large reductions in these gaps in Benin, Côte d'Ivoire, and Niger, with the latter two having started from very high levels. However, the gap remains higher than in the fast-growing Asian benchmark group, where the average gap is less than 17 percentage points, and substantially higher than the African benchmark group's gap of only about 6 percentage points. However, female labor force participation is very low in some of the WAEMU countries even at very low levels of income per capita (Mali, Niger). At these levels of income, countries usually observe higher labor force participation rates by women, as they need to work for subsistence. When they do participate in the

¹Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, and Togo.

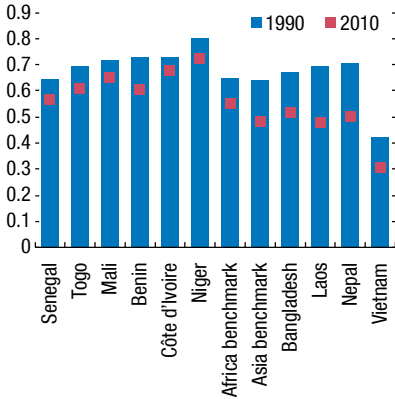
²African benchmark countries are Ghana, Kenya, Lesotho, Rwanda, and Tanzania. Asian benchmark countries are Bangladesh, Cambodia India, Lao P.D.R., Nepal, and Vietnam.

Figure 9.7. Gender Inequality and Macroeconomic Outcomes

Gender gaps in outcomes and opportunities have declined more slowly compared to benchmark countries, and remain high ...

1. Gender Inequality Index

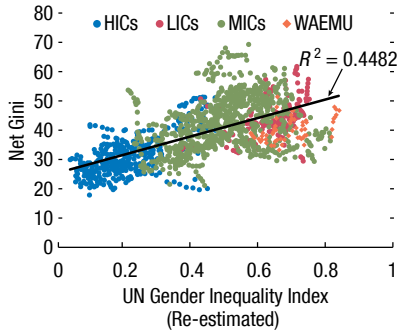
(Higher values = higher gender inequality)



Sources: United Nations; and Gonzales and others 2015b.

... indeed, among the highest in the world. Gender inequality is associated with higher income inequality ...

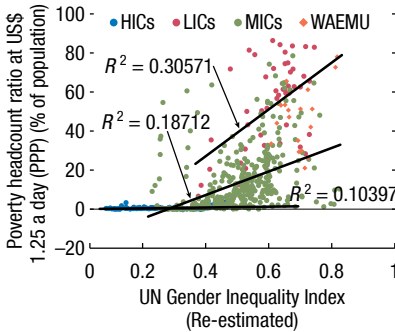
2. Income Inequality and Gender Inequality



Sources: Solt 2016; United Nations; and IMF staff estimates.

... higher poverty levels ...

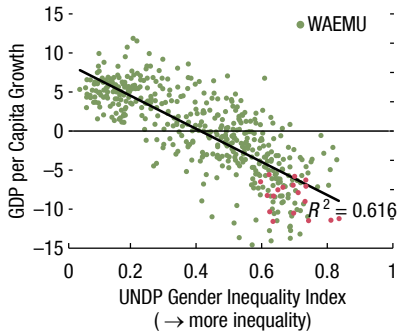
3. Poverty (US\$1.25) and Gender Inequality



Sources: World Bank, World Development Indicators database; United Nations; and IMF staff estimates.

... and lower growth.

4. Gender Inequality and Growth of Real GDP per Capita



Notes: Data labels use International Organization for Standardization (ISO) country codes. HICs = high-income countries; MICs = middle income countries; LICs = low-income countries. PPP = purchasing power parity; WAEMU = West African Economic and Monetary Union.

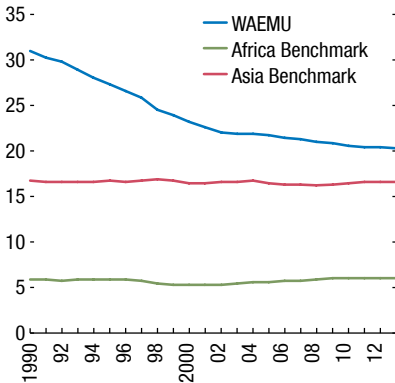
labor market in Côte d'Ivoire and Mali, women are more likely than men to work in the informal sector.

Figure 9.8. Gender Gaps in Labor Force Participation

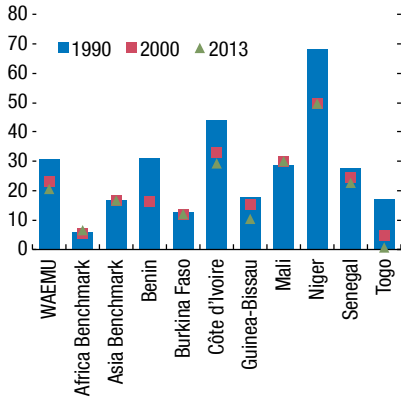
The gender gap in labor force participation has declined substantially over the last decades, but remains comparatively high.

The gap remains particularly high in Niger, Côte d'Ivoire, and Mali.

1. Labor Force Participation Gaps, 1990–2013
(Male minus female labor force participation rates, percent)



2. Labor Force Participation Gaps, 1990–2013
(Male minus female labor force participation rates, percent)

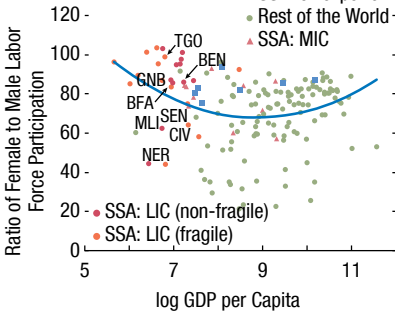


Sources: World Bank, World Development Indicators database; and ILO KILM.

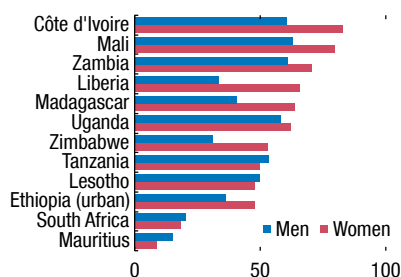
In these three countries, female participation rates are significantly below the ones implied by the countries' level of development.

If in the labor market in Mali and Côte d'Ivoire, women are more likely to be in the informal sector.

3. Female Labor Force Participation and Development, 2013



4. Persons Employed in the Informal Sector
(Percent of nonagricultural employment)*



Sources: World Bank World Development Indicators database; and IMF 2015.

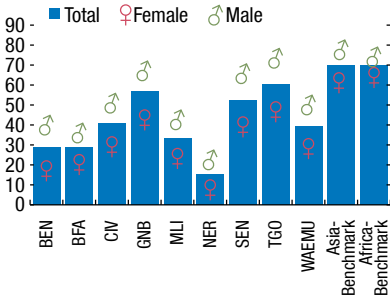
Sources: ILO KILM; and Women in Informal Employment: Globalizing and Organizing database.
*2010 or latest available.

Notes: ILO KILM = International Labour Organization, Key Indicators of the Labour Market database. SSA = sub-Saharan Africa; WAEMU = West African Economic and Monetary Union.

Figure 9.9. Educational Inequality in the WAEMU

Gender gaps in literacy rates remain high compared to other regions...

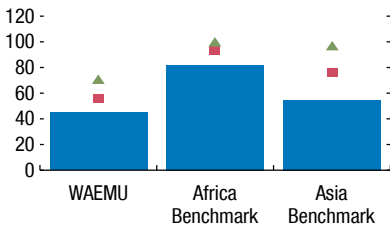
1. Adult Literacy Rates, 2012 or Latest Available
(Percent of population)



Source: UNESCO Institute of Statistics.

...and, with only seven girls enrolled for each 10 boys, the gender gap is significantly wider for secondary education.

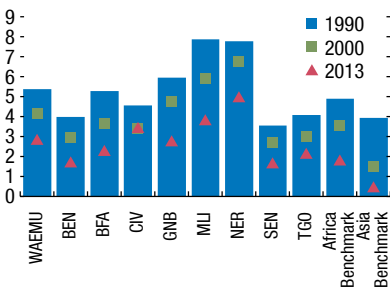
3. Ratio of Female to Male Secondary Enrollment, 1990–2013
(Percent)



Source: World Bank, World Development Indicators database.

Health indicators remain poor, especially in Mali and Niger.

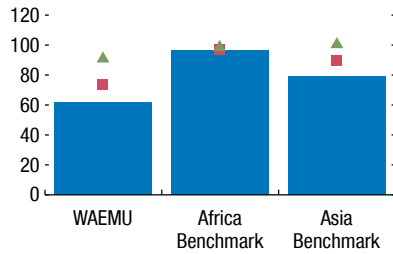
5. Lifetime Risk of Maternal Death
(Percent)



Source: World Bank, World Development Indicators database.

...and although primary enrollment gaps have almost closed, they are still wider than in benchmark regions.

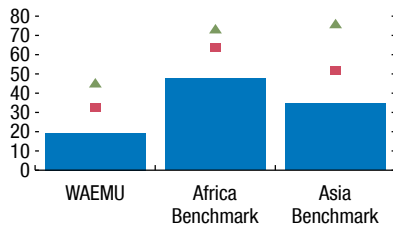
2. Ratio of Female to Male Primary Enrollment, 1990–2013
(Percent)



Source: World Bank, World Development Indicators database.

Men are more than twice as likely to be enrolled in tertiary education as women.

4. Ratio of Female to Male Tertiary Enrollment, 1990–2013
(Percent)

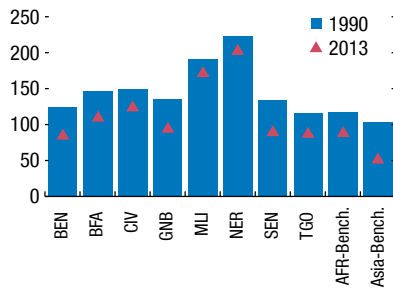


Source: World Bank, World Development Indicators database.

Adolescent fertility rates have declined but remain relatively high.

6. Adolescent Fertility Rate

(Number of births per 1000 women ages 15–19)



Source: World Bank, World Development Indicators database.

Notes: Data labels use International Organization Standardization (ISO) country codes. HICs = high-income countries; MICs = middle-income countries; LICs = low-income countries. PPP = purchasing power parity; WAEMU = West African Economic and Monetary Union.

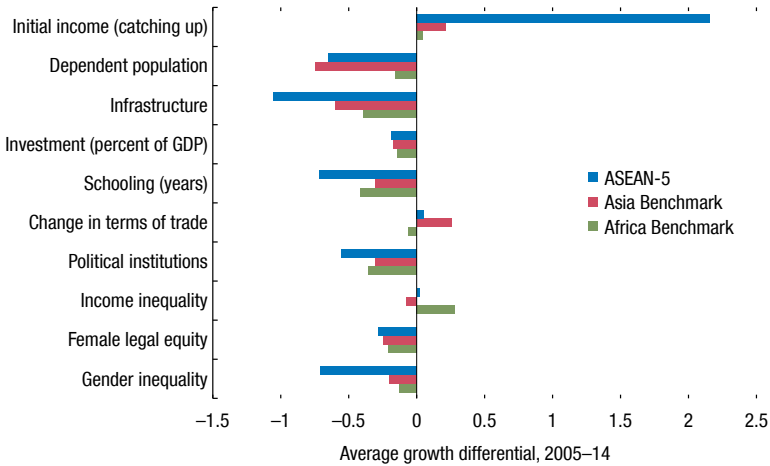
WAEMU countries are also outperformed by benchmark countries in boys' and girls' educational equality, and health indicators (Figure 9.9). Adult literacy rates, generally lower in most WAEMU countries compared with benchmark groups, remain particularly low for women. Gender gaps in primary education have shrunk but are not closed in the majority of WAEMU countries. In Benin, Côte d'Ivoire, Mali, and Niger fewer than nine girls are enrolled in primary education for every 10 boys, implying that these countries lag behind Sustainable Development Goal #4 for inclusive and equitable quality education. Only seven girls are in secondary education for every 10 boys, and women are less than 50 percent as likely to be enrolled in tertiary education. Health indicators remain poor in several WAEMU countries. The risk of maternal death is much higher in WAEMU countries, especially in Mali and Niger, as compared with the benchmark groups, as are adolescent fertility rates.

Finally, women face a number of legal restrictions in the region. Legal inequities between men and women have been shown to put a heavy toll on women's labor force participation and thus growth (Gonzales and others 2015a). According to the World Bank (2015), in at least half of the WAEMU's countries women cannot be the head of a household the same way as men, and no WAEMU member countries have legislation that prohibits gender-based discrimination in access to credit. In Niger, where female labor force participation is particularly low, there are restrictions on women's ability to get a job on par with men. In Côte d'Ivoire and Senegal, men and women are treated differently in property rights. In at least half of the countries, women are not protected legally from domestic violence.

GROWTH EFFECTS OF GENDER AND INCOME INEQUALITY

Given that income inequality in the region is a concern and that gender inequality is among the highest in the world, this analysis addresses whether these inequalities affect economic performance in the region. This follows the approach taken in IMF 2015 to decompose the differences in average real GDP growth per capita in the WAEMU and the two groups of African and Asian benchmark countries, which have experienced about 2½ and 3½ percentage points higher real GDP growth compared with the WAEMU in the past decade.

WAEMU's real GDP growth per capita could significantly benefit from realistically implementable decreases in gender and income inequality (Figure 9.10). In addition to large effects on growth from overall educational and infrastructure gaps, income and gender inequality can explain about 0.5 percentage point of the WAEMU's real GDP per capita income shortfall compared with the Asian benchmark group. The effect for a reduction of gender inequality and legal inequality to the level observed in the fast-growing five ASEAN countries (Indonesia, Malaysia, Philippines, Thailand, Vietnam) alone could boost real GDP per capita rates by 1 percentage point.

Figure 9.10. WAEMU's Growth Differential with Benchmark Countries

Sources: IMF, World Economic Outlook database; PRS Group; World Bank, World Development Indicators database; and IMF staff estimates.

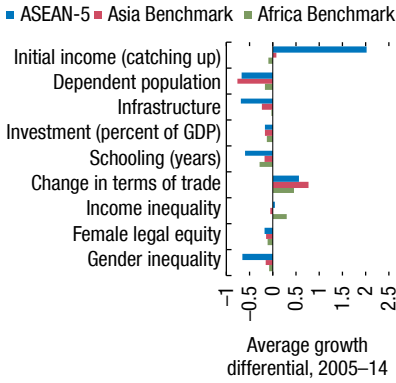
Notes: ASEAN = Association of Southeast Asian Nations. ASEAN-5 = Indonesia, Malaysia, Philippines, Thailand, and Vietnam.

Income and gender inequality have significantly contributed to the growth shortfall of all WAEMU countries relative to benchmark groups, but the magnitudes of these effects varies (Figure 9.11). For instance, in Burkina Faso, income and gender inequality have been lower than in benchmark groups, which has positively affected growth in Burkina Faso vis-à-vis the benchmarks. In Mali and Niger, which have a high share of the population living in poverty, income inequality is relatively low. However, gender inequality is high in both absolute and relative terms. In particular, in Mali, a reduction of gender inequality and an increase of legal equality between men and women to the levels observed in the ASEAN-5 alone could have resulted in a boost of the growth rate of real GDP per capita of 1¼ percentage points.

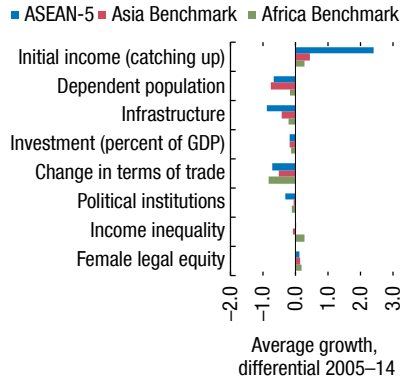
The analysis confirms existing policy priorities. Decreasing income inequality and gender inequality may be desirable not only as a political preference or from a human rights perspective but also because of the potentially significant gains in real GDP per capita. The large potential growth gains suggest that policy moves should be implemented in a shorter timeframe. In addition, the decomposition exercise confirms that earlier policy priorities, such as boosting the region's infrastructure, increasing the level of schooling (including through more education for girls), and improving the institutional environment could be associated with stronger growth in the region.

Figure 9.11. Differential Effects of Closing the Gaps in Income and Gender Inequality

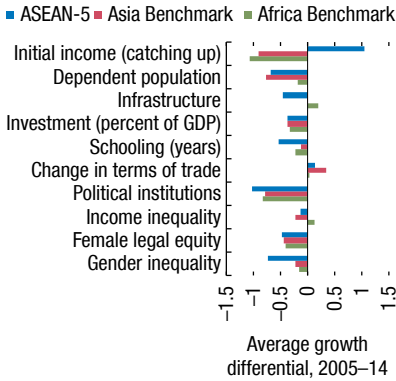
1. Benin



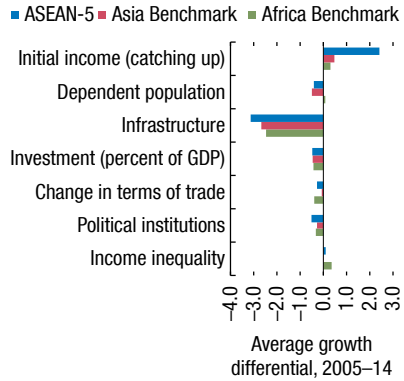
2. Burkina Faso



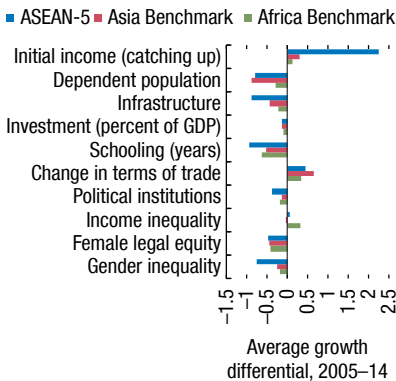
3. Côte d'Ivoire



4. Guinea-Bissau



5. Mali



6. Niger

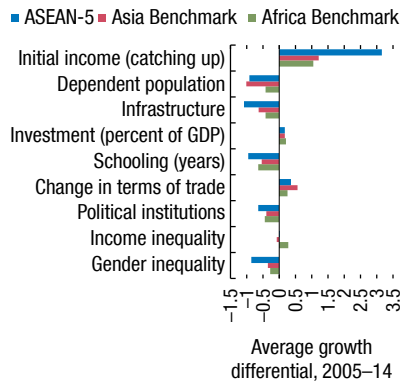
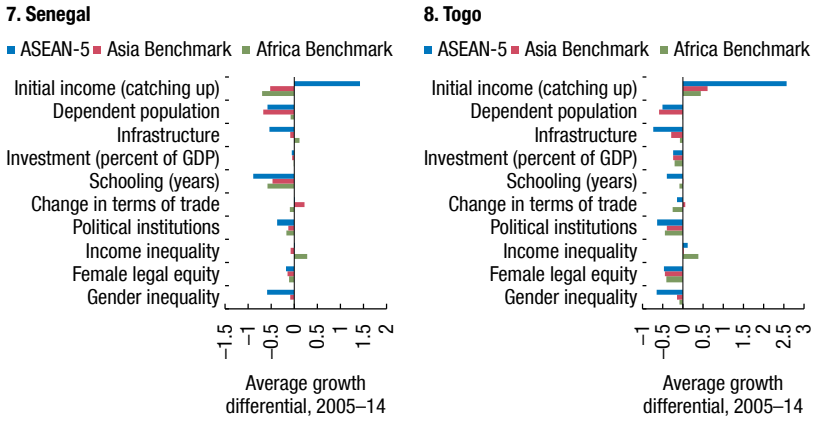


Figure 9.11. Differential Effects of Closing the Gaps in Income and Gender Inequality (continued)



Sources: IMF, World Economic Outlook database; PRS Group; World Bank, World Development Indicators database; and IMF staff estimates.

Notes: ASEAN = Association of Southeast Asian Nations. ASEAN-5 = Indonesia, Malaysia, Philippines, Thailand, and Vietnam.

CONCLUSIONS AND POLICY RECOMMENDATIONS

Lower income inequality and lower gender inequality could boost real GDP growth per capita in the WAEMU. Gender inequality of outcomes and opportunities is very high in the region, and policies to mitigate these inequalities are promising. In particular, closing gender gaps in education would not only stimulate growth from a more efficient allocation of resources but would also increase total education in the region, further boosting growth. The region could benefit from boosting infrastructure and human capital and strengthening institutions.

The following policies could help reduce income inequality and gender inequality (Gonzales and others 2015a, 2015b; IMF 2015; Elborgh-Woytek and others 2013; World Bank 2011):

- *Remove legal inequalities between men and women.* For example, Namibia equalized property rights for married women and granted women the right to sign a contract, head a household, pursue a profession, open a bank account, and initiate legal proceedings without their husband's permission in 1996. In the decade that followed, Namibia experienced a 10 percentage point increase in its female labor force participation rate. Lower gender gaps in female labor force participation, in turn, have also been associated with lower income inequality.
- *Foster education.* This could not only increase productivity through a more efficient allocation of resources but also boost overall education levels, a prerequisite for sustained growth.

- *Boost infrastructure, including through improving access to water and increased electrification of the region.* This could not only boost growth directly but could also free women's time to go to school and join the labor market since girls and women are in most cases the main providers of household work.
- *Reduce the regressivity of fiscal spending and taxes.* In particular, replace across-the-board subsidies with well-targeted social transfer schemes.
- *Foster financial inclusion, including for women.*

In promoting policies to reduce gender and income inequality, these recommendations pose no normative judgment on any countries' social and religious norms but instead argue for a level playing field for all agents in the economy to have an opportunity to explore their economic potential if they so choose.

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Mali

JOHN HOOLEY

Mali has one of the highest levels of gender inequality in the world. The World Economic Forum ranks Mali 138th out of 142 countries for gender equality, and its score has worsened over the past decade. The United Nations ranks Mali 151st out of 155 countries on its Gender Inequality Index, and the Organisation for Economic Co-operation and Development ranks it 105th out of 108 countries on its measure of discrimination against women in social institutions. And on all three measures, Mali scores significantly worse than the average for Muslim-majority countries, sub-Saharan Africa, and low-income countries overall (Figure 9.12).

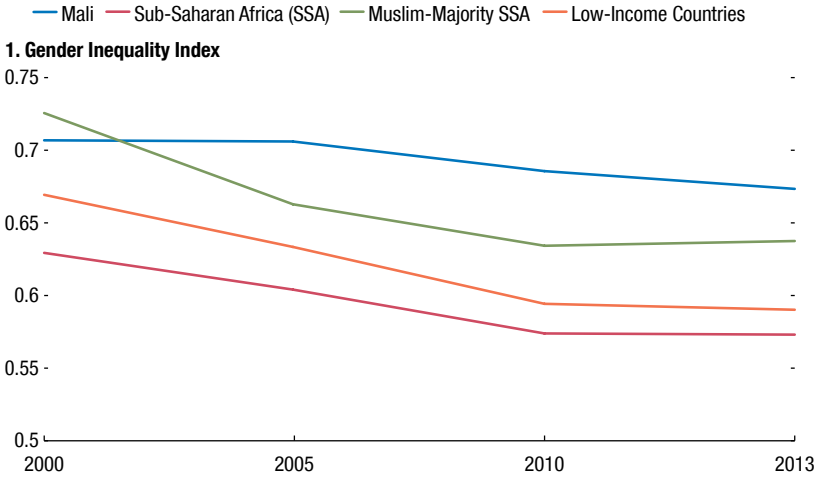
The major macroeconomic gender-related issue in Mali is underrepresentation in the labor market. In 2015, female labor force participation was only 35 percent, about half that of sub-Saharan Africa as a whole (Figure 9.13, panel 1). And the gap with men is also more than twice as big as in the rest of Africa (Figure 9.13, panel 2). Alarming, this gap has actually increased over the past decade as rates of labor force participation have risen for men but stagnated for women. Moreover, once in employment, women are more likely to be employed on a temporary basis or as apprentices and less likely to be firm owners or managers (Figure 9.13, panel 3).

Low participation by women in the labor force is holding back economic growth in Mali (see Chapter 3 about the growing evidence of a positive link between female labor force participation rates and economic growth). Failure to tap such a large number of potentially productive workers is a huge waste of resources and is particularly lamentable for a country as poor as Mali.

Two of the most binding constraints in terms of greater female labor market access relate to education and demography (Figure 9.14). Enrollment in education is low for women (only 64 percent receive primary schooling) and significantly lower than for men (for example, twice as many men as women go to university), and women who do enroll in school are less likely to complete their education.

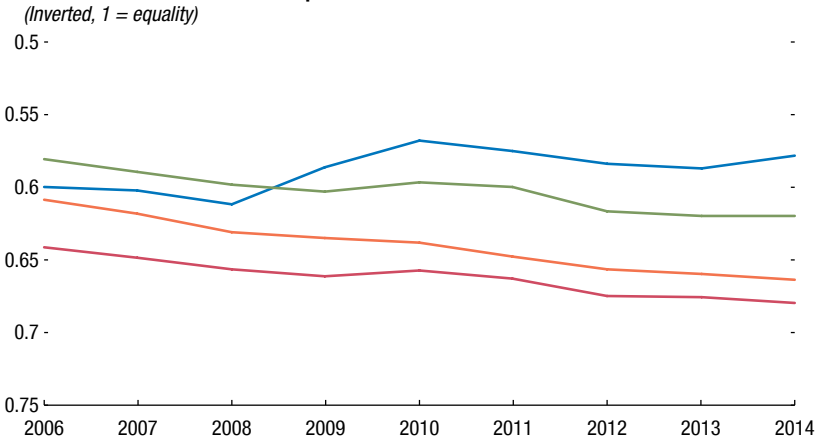
Literacy rates are also extremely low in general and are significantly lower for females than males (25 percent versus 43 percent). Mali's fertility rate is among the highest in the world, at 6.7 births a woman. High fertility rates and gender imbalances are mutually reinforcing drivers of Mali's poverty dynamics. Having a large number of children affects women's health and productive capacity as well

Figure 9.12. Gender Inequality in Mali



Source: United Nations Development Program, Gender Inequality Index.

2. World Economic Forum Gender Gap Index



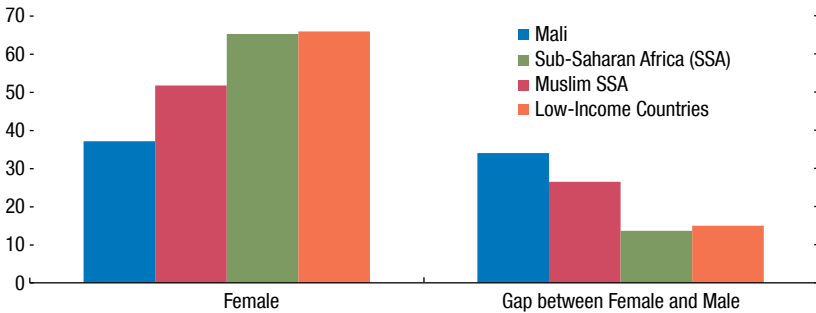
Sources: United Nations Development Program; and World Economic Forum.

as the amount of time they can devote to looking for and engaging in employment (Figure 9.15).

Policymakers aiming to improve women’s access to the labor market should prioritize measures that are also likely to have the biggest macroeconomic impact. Policies should not only help alleviate gender imbalances but also tackle the challenges posed by rapid population growth and in particular by poor economic

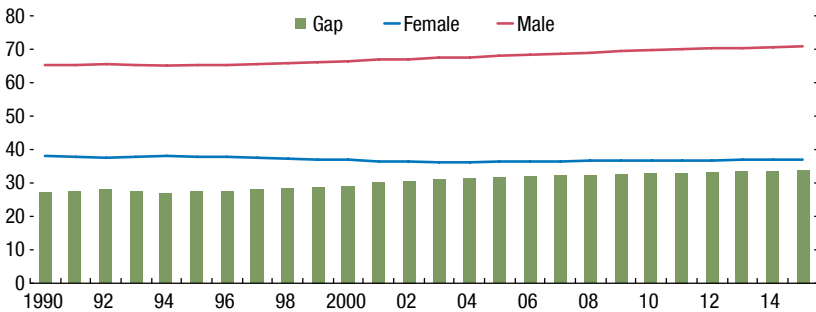
Figure 9.13. Labor Force Participation in Mali

1. Labor Force Participation Rates in Mali and Other Countries, 2015
(Percent of labor force, ages 15 and above)



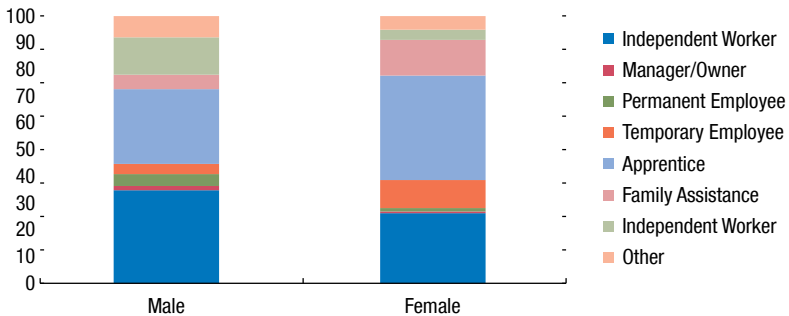
Source: International Labour Organization.

2. Male and Female Labor Force Participation
(Percent of labor force, ages 15 and above)



Source: International Labour Organization.

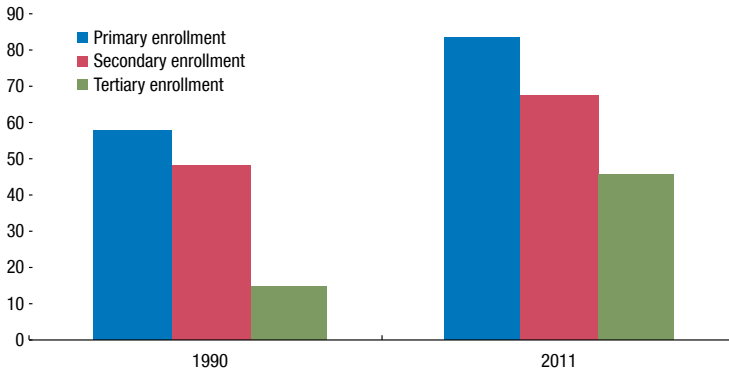
3. Type of Employment by Gender, 2009
(Percent of total employment)



Source: Malian authorities.

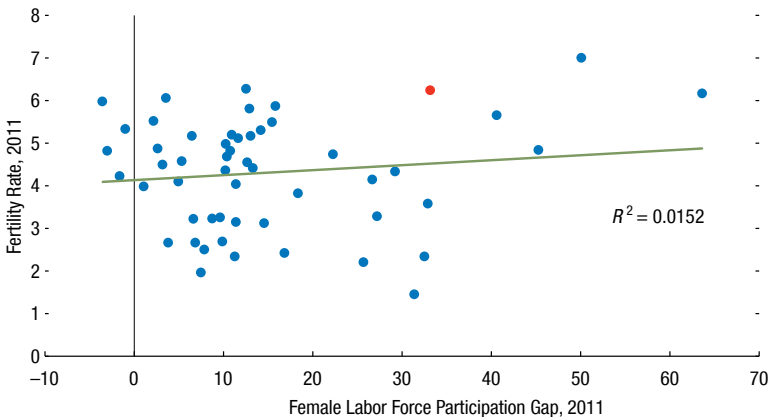
Figure 9.14. Educational Enrollment in Mali

1. Ratio of female to male enrollment
(Percent)



diversification. Managing the fertility rate—for example, through more accessible contraception—and legal reforms that empower women within the household must be priorities. Policies targeting increased female access to education should take into account the types of skills likely to be in short supply in Mali in an economy with an expanded manufacturing and services sector. Rural areas, where economic diversification is lowest and fertility and gender inequality are highest, should be a key focus.

Figure 9.15. Fertility and Labor Force Participation
(Percent)



Source: International Labour Organization.

Mauritius

DAVID CUBERES, MONIQUE NEWIAK, AND MARC TEIGNIER

Potential growth in Mauritius could decline in coming decades as a result of a stall in population growth and a rise in dependency ratios (the percentage of the population that is not of working age). However, Mauritius possesses a large pool of educated women who currently do not participate in the labor market. Real GDP in Mauritius has been an estimated 22 to 27 percent lower in the past compared with a situation in which there were no such gender differences in labor force participation and entrepreneurship. Closing these gender gaps over time could mitigate the drop in economic growth resulting from demographic changes. Evidence from microlevel data suggests that awareness of employment programs in Mauritius is positively associated with both female and male labor supply, as are demographic characteristics, education levels, and expected wages. Policies to expand the supply and quality of childcare, extend parental leave to fathers, increase financial literacy, and promote flexible work arrangements can complement programs by the Mauritian government to stimulate female labor supply.¹

DEMOGRAPHIC CHALLENGES

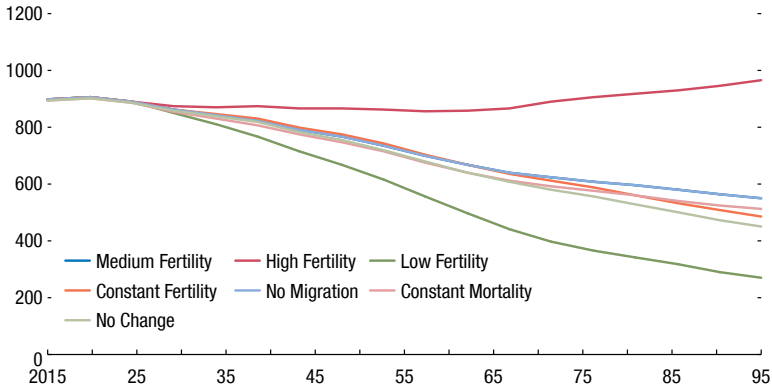
Mauritius could face a rapid decline in its labor force in coming decades (Figure 9.16). Population growth has already stalled, due in part to a significant decline in fertility below the global replacement rate of 2.3 births per woman. With little migration and continued low fertility, the United Nations Population Division estimates that Mauritius's population could face a rapid decline in the next decades, with large implications for the potential labor force and significant increases in the dependency ratios.

With substantial gender gaps in economic participation, Mauritius already loses out on potential growth; closing gender gaps may help address the demographic challenges as well. Gender gaps in education have closed in Mauritius, but the gaps in labor market participation remain high. Women already in the labor market are more likely than men to be unemployed, earn less on average,

We thank Lisa Kolovich for her contribution of Box 9.1.

¹The chapter uses data provided by Statistics Mauritius. The views expressed in this chapter are solely those of the authors and are not necessarily shared by Statistics Mauritius.

Figure 9.16. Labor Force Projections for Mauritius, 2015–2100
(Thousands of people, ages 15–64)



Source: United Nations 2013.

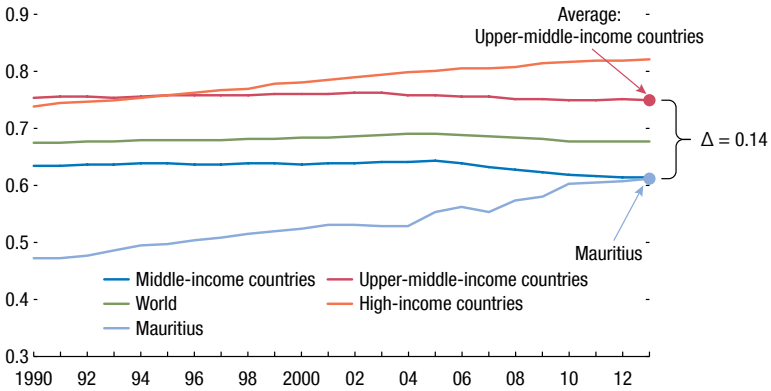
and are less likely to work as an entrepreneur. A number of studies have highlighted that such gender gaps are associated with worse growth and development outcomes (WEF 2014; Cuberes and Teigner 2016; IMF 2015; Elborgh-Woytek and others 2013; Gonzales and others 2015b). Indeed, during the past decade, GDP per capita in Mauritius has been lower by about one-quarter compared with a situation without gender gaps. Closing these gaps is also a possible solution to meet the demographic challenge, as shown in this analysis based on the calibration of an occupational choice model.

GENDER GAPS IN MAURITIUS

The gender gap in economic participation has been decreasing but remains relatively high (Figure 9.17). Female labor force participation has increased relative to males in recent decades and is now in line with that of the average middle-income country. Young women have increasingly joined the labor market, which has driven this trend. In general, labor force participation rates in Mauritius are highest for women up to 30 years of age, with the gap between female and male participation increasing with age. However, the female participation rate remains around two-fifths lower than for men and thus well below the world average. The ratio of female to male labor force participation in Mauritius is also 14 percentage points lower than for other upper-middle-income countries.

Mauritius may be facing the middle-income female labor force participation challenge: at lower levels of income per capita, work may be a necessity in the absence of social protection programs, whereas women at higher levels of income can withdraw from the market in favor of household work and childcare. At advanced-economy income levels, labor force participation generally rebounds as

Figure 9.17. Labor Force Participation in Mauritius, 1990–2013

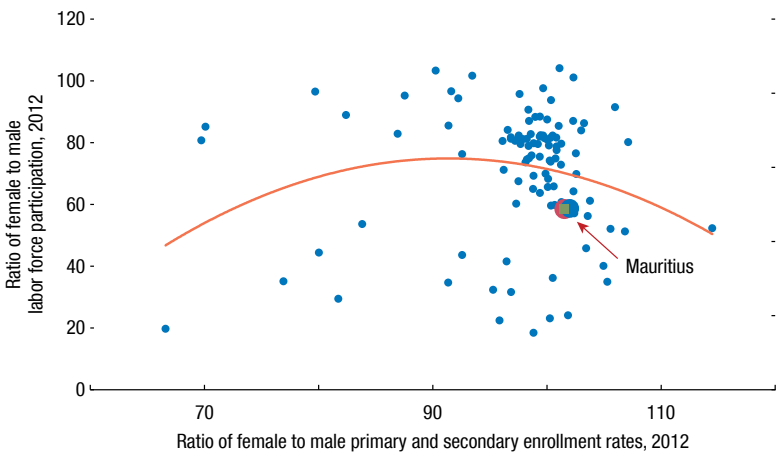


Sources: World Bank, World Development Indicators; and International Labour Organization.

a result of better education, lower fertility rates, access to labor-saving household technology, and the availability of market-based household services (Duflo 2012; Tsani and others 2012; World Bank 2011).

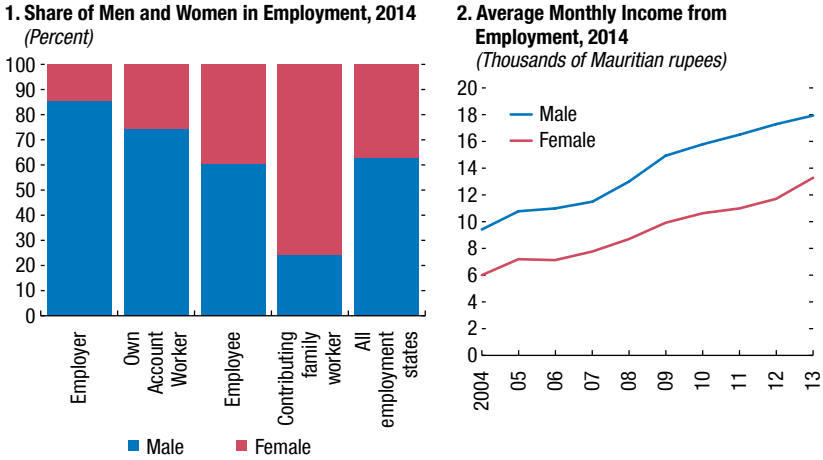
Most of the factors triggering a rebound in female labor force participation are present in Mauritius, particularly concerning education (Figure 9.18). Fertility rates are below the average for high-income countries, and there are no gender gaps in education—that is, primary and secondary school enrollment rates are

Figure 9.18. Labor Force Participation and Education in Mauritius



Sources: World Bank, World Development Indicators; and IMF, World Economic Outlook database.

Figure 9.19. Gender Gaps by Occupation and Income in Mauritius



Source: Statistics Mauritius.

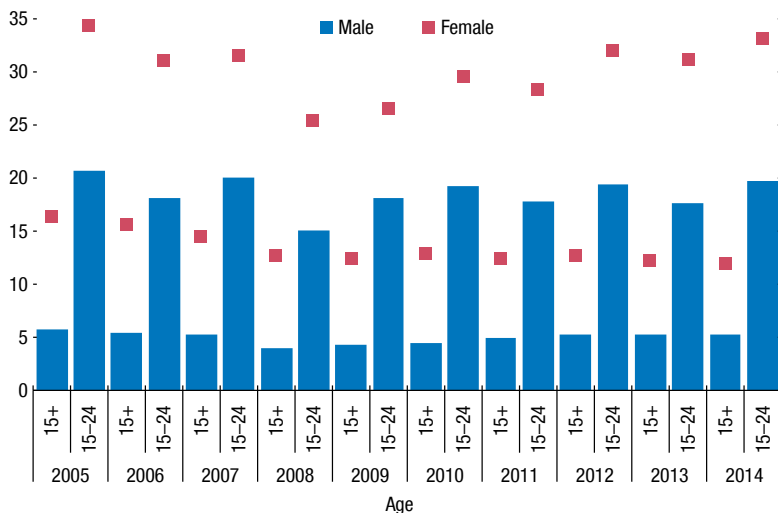
Source: Statistics Mauritius, CMPHS Survey.

virtually the same for boys and girls. Moreover, girls outperform boys in primary and secondary education; in particular, they are less likely to repeat a class than their male peers and more likely to complete the higher school certificate. In recent years, female tertiary enrollment rates have been higher than for males.

Men represent the majority of those who are employed, but gender gaps vary across occupations. When employed, women are four times less likely to be entrepreneurs than men (Figure 9.19). The only employment category in which women are overrepresented is as contributing family workers, where they often contribute to businesses run by their husbands. Employed women work on average six fewer hours a week than men in all other occupations. Less than one-fifth of employers are female; accordingly, men are more than five times more likely to borrow to start or operate a business. Women also earn less in similar occupations, particularly in the primary sector or in self-employment. They are overrepresented among the poor and more likely to head poor households.

Unemployment is also higher among women than men (Figure 9.20). The largest share of unemployed women is between the ages of 16 and 30 years. One-fifth of unemployed women possess a tertiary education, and the percentage of those unemployed has increased significantly and faster for women than for men over the past five years. The Ministry of Labor explains low employment rates for women as a result of a male orientation of jobs in the business processing and textile sectors, with women often not willing to take such jobs because of odd hours of work and perceived bad working conditions. One-third of women looking for a job have no former work experience compared with one-fourth of men.

Figure 9.20. Unemployment Rates by Age, 2005–14
(Percent)



Source: Statistics Mauritius.

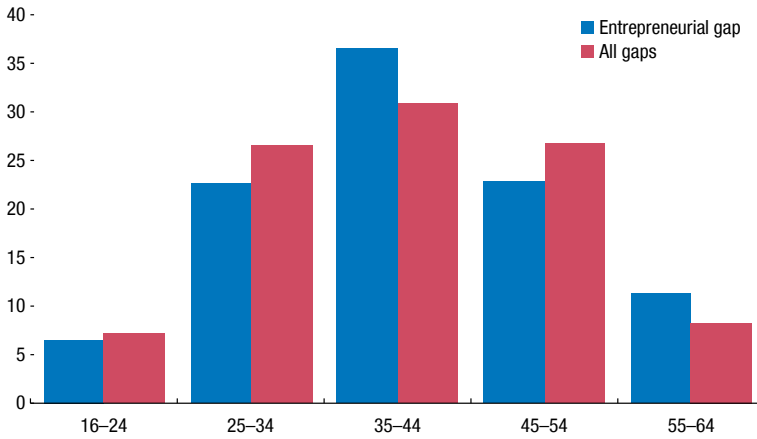
When unemployed women do have work experience, it is most likely in trade or manufacturing.

MODELING THE IMPLICATIONS OF GENDER INEQUALITY FOR GROWTH

The general equilibrium occupational choice model by Cuberes and Teigner (2016) helps quantify the current GDP losses due to potential misallocations of women in the labor force. Agents are endowed with a random entrepreneurship skill that determines their optimal occupation (see also Chapter 3).² Agents choose to work as either employers, self-employed, or workers. However, female labor market frictions prevent women from making an optimal choice among these activities. In particular, only a fraction μ of women can freely choose their occupation, while a share $1-\mu$ is excluded from becoming an employer. Among those that cannot become an employer, only a fraction μ_0 can choose to be self-employed. Finally, only a fraction λ can join the labor market in general, while a share of $1-\lambda$ of women is excluded from all occupations. These frictions may reflect discrimination, differences in the optimal choices of women, or other supply and demand factors. The parameters μ , μ_0 , and λ are chosen to match the

²The model is based on the span-of-control framework in Lucas (1978), with the extension of self-employment as a possible occupational choice.

Figure 9.21. Mauritian Gender-Gap-Related GDP Losses by Age Group, 2004–13
(Percent)



Source: IMF staff estimates.

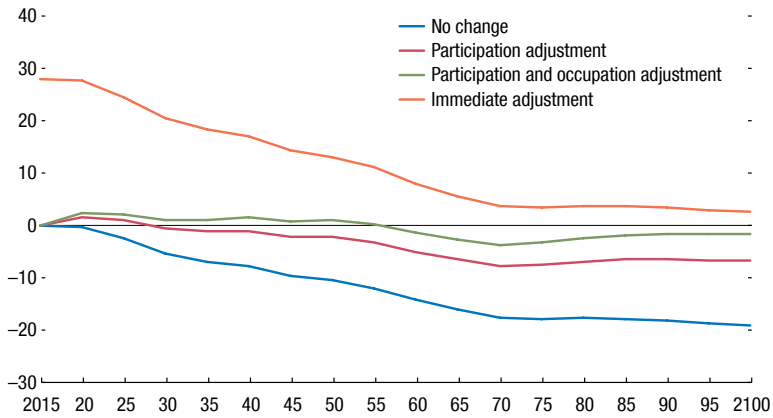
ratio of female to male employers, female to male own-account workers, and the number of women and men in the labor force from 2004 to 2013.

The results of the calibration imply that Mauritius is losing out on a substantial share of GDP due to gender gaps in labor force participation. While losses implied by these three labor market frictions have declined since 2004, in line with a decline in the gender gap in labor force participation, the implied losses from gender gaps in labor force participation and occupation account still for more than 22 percent of GDP compared with a situation with no such gaps. Gender gaps in entrepreneurship have remained relatively stable, with implied losses of 6.6 percent of GDP in 2013, down only slightly from 7 percent in 2004.

Gender gaps and occupational choices vary strongly by age group (Figure 9.21). Occupational choices across age groups vary substantially as well. Following Cuberes and Teigner (2016), the GDP losses from labor force participation and occupational choices are calculated for different age cohorts. The relative contribution to the GDP loss depends on the size of the gap in labor force participation and occupation in a given age group but also on the size of this group relative to the total population. The results imply that the cohort between ages 35 and 44 accounts for about 31 percent of the losses from overall participation gaps and 36.5 percent of the losses from entrepreneurial gaps.

Closing gender gaps in labor force participation and occupation could mitigate the effects of projected demographic changes on growth. To model the implications of a shrinking workforce, the model is augmented by a restriction on both male and female workforce to capture the increase in the dependency for men and women over time. Figure 9.22 uses the United Nations Population

Figure 9.22. Mauritian GDP Losses under Different Gender Gap Scenarios
(Percent of GDP loss; medium-fertility assumption)

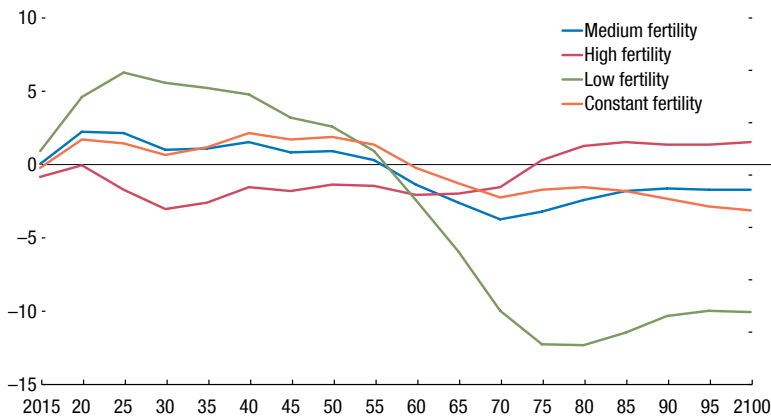


Division's medium fertility population projections and projects four scenarios for the evolution of gender gaps:

- *No change scenario*—Gender gaps in labor force participation and occupational choice are set at their 2004–13 average, and the size of the working of the population contributing to production is projected to shrink in line with the projected change in the dependency ratio. The projected loss in GDP compared with a situation with constant dependency ratios would be almost 7 percent by 2035, about 16 percent by 2065, and more than 19 percent by 2100.
- *Participation adjustment scenario*—Gender gaps fall by about 2 percent a year (in line with the average decline observed during 2004–13). This development could mitigate the GDP losses from rising dependency ratios to 1 percent in 2035, about 6.5 percent in 2065, and less than 7 percent in 2100.
- *Participation and occupation adjustment scenario*—In addition to the assumptions in the previous scenario, the occupational gender gaps also decline by about 2 percent a year on average in this scenario. The GDP losses from the shrinking labor force would be overcompensated by the close in the gender gaps until 2055, and GDP losses afterward would remain small (less than 2 percent by 2100).
- *Immediate adjustment scenario*—In this scenario, gender gaps close instantly, resulting in GDP gains of double-digit percentages GDP gains until 2055 and continued gains in the long term.

Finally, the impacts on GDP vary substantially with different assumptions about fertility (Figure 9.23). The net effect of changes in dependency ratios and a gradual adjustment of gender gaps in labor force participation and occupation (the third scenario) vary according to the assumptions on fertility. In the

Figure 9.23. Mauritian Gender-Gap GDP Losses under Various Fertility Scenarios
(Percent of GDP loss)



low-fertility scenario, gains in GDP per capita would initially increase because low fertility decreases the dependency ratios. Over time, however, these gains decrease and turn negative because lower fertility rates also imply a smaller working-age population after some time. The dynamics are reverted with lower bounds for the high-fertility scenario. The effects under the constant- and medium-fertility scenarios are broadly similar, with relatively small variations if gender gaps are gradually closed.

DETERMINANTS OF FEMALE LABOR FORCE PARTICIPATION AND EMPLOYMENT IN MAURITIUS

The determinants of female labor force participation are analyzed using microlevel household data. The approach follows Das and others (2015) as follows:

- First, each individual’s expected wage is estimated according to:

$$w_i = \theta_1 + \theta_2 Z_i + \eta_i \rightarrow E(w) = \hat{w} \tag{9.1}$$

- In which w is the log of the monthly income from the main job, Z includes individual and household characteristics, such as age and age squared, dummy variables for educational attainment, marital status, and presence of children below age 16 and below age 4.
- In the second step, the probability of being in the labor force is estimated as follows:

$$\Pr\{L_i = 1\} = \alpha + \beta_1 \hat{w} + \beta_2 X_i + \beta_3 P_i + \varepsilon_i \tag{9.2}$$

In this equation, $L_i = 1$ represents that the individual is in the labor force, \hat{w} is the log of monthly wage, and X captures other individual characteristics, such as marital status, educational attainment, age and age squared, the presence of children under age 4 or under age 16 in the household, and the household's total expenditure to proxy for total household income. Finally, P captures the influence of policies, such as awareness of the employment information center.

Tables 9.5 and 9.6 highlight the determinants of wage and the probability to participate in the labor force for women and men.

- *Wages*—The gain from secondary education appears to be more than 50 percent larger for women than for men. Married men tend to have higher incomes, whereas marital status has no significant effect on women's wages. The presence of children in the household is associated with lower wages for both men and women. However, the "wage penalty" is more than three times higher for women than for men.
- *Labor force participation*—Household expenditure and age have a significant effect on whether both men or women join the labor force. Marriage decreases the probability that women will join the labor market, but it increases the probability that men will do so. There is a direct and positive effect of having young children in the household on men's labor force participation, whereas children appear to impact women's participation only through the effect on wages. The marginal effect of having a tertiary education is larger for women than for men. The examined factors explain less than 16 percent of the variation of participation for women but more than 35 percent for men, suggesting that other factors could also explain female labor force participation.

TABLE 9.5.

	Wages	
	Female	Male
Age	0.0842***	0.0777***
Age squared	-0.0010***	-0.0008***
Married	0.0161	0.2557***
Children below age 4	0.0203	-0.0013
Children below age 16	-0.1282***	-0.0362**
Less than primary education	-0.3435***	-0.3765***
Secondary education	0.8178***	0.5298***
Tertiary education	0.6812***	0.5198***
Constant	6.8756***	7.3609***
Number of observations	5699	10135
Adjusted <i>R</i> -squared	0.370	0.317

Source: IMF staff estimates.

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Several other factors constrain female labor force participation. About three-fifths of economically inactive women list homemaking activities as the main reason they do not join the labor force (Statistics Mauritius 2015), a reason barely mentioned for men. A lack of flexibility in working hours, the (un)availability of high-quality childcare, and the cost of childcare may also contribute. The Ministry of Labor suggests there also may be gender bias on the part of employers who may hold women's reproductive role against them in their careers. In addition, women's occupations are tilted toward "traditional" female occupations that are less valued in the labor market, and women are often not aware of training opportunities.

POLICY OPTIONS

Several supporting policies are in place or have been adopted by the government:

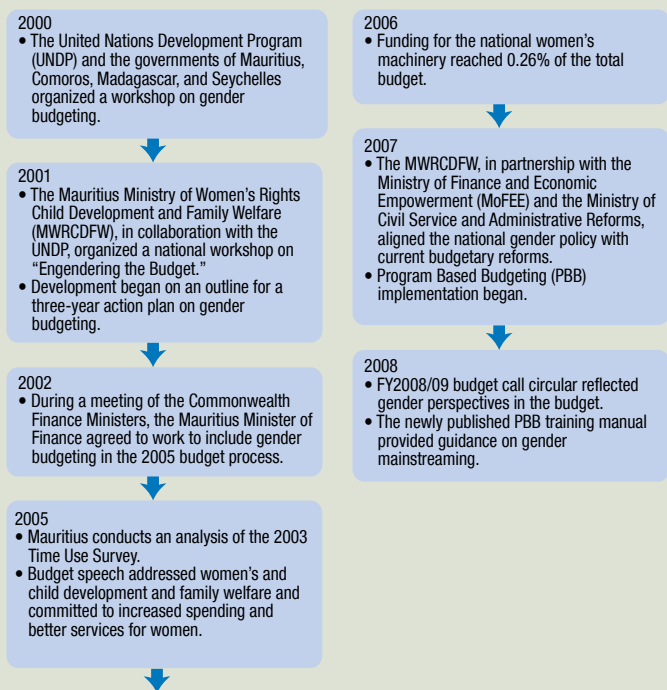
- *Childcare*—The government of Mauritius instituted one-time cash grants of up to \$6,530 to existing childcare centers in 2013 and 2014. Companies with a Corporate Social Responsibility Fund can contribute monthly up to \$50 to the cost of nurseries and kindergartens for the children of employees with a monthly basic salary of up to \$390.
- *Maternity leave and protection*—The duration of maternity leave has been extended from 12 to 14 weeks. Employers must fully pay for two weeks of leave in the case of miscarriage, independent of the employee's length of service. Employers cannot give a notice of dismissal to women on maternity leave, and employment cannot expire during this time, except in the case of redundancy.
- *Child benefits*—The maternity allowance has been standardized to 3,000 Mauritian rupees (MUR) (about \$85) across sectors, from the previous range of MUR 300 to 2,000 (about \$9–\$56). The limit of payments to a maximum of three children in certain industries is gradually being removed.
- *Training opportunities for women*—These are offered in several areas, including the manufacture of jute products, food catering, garment making, agro-processing, and information and computer technology.
- *Gender budgeting*—Box 9.1 gives an overview of the milestones achieved by the Mauritian government concerning gender budgeting.
- *Support to female entrepreneurs*—About 5,000 women are currently registered with the Women Economic Council, which provides capacity-building services such as writing a business plan and preparing for interviews.

Box 9.1. Gender Budgeting in Mauritius

Government budgets and fiscal measures can be useful tools for promoting women's development and gender equality. Budgeting at the local, state, and/or national level using a gender lens allows governments to identify important gender issues and allocate resources to address gender gaps or development goals. Gender budgeting originated in Australia in the 1980s and by the 1990s had spread to South Africa, Canada, and the United Kingdom and has now been applied in some form in more than 80 countries, including Mauritius.

Mauritius does not produce a separate budget for women but instead analyzes public expenditures and revenues from a gender perspective and identifies budgetary impacts for women and girls compared with men and boys. Since the start of gender budgeting in Mauritius in 2000, eight pilot ministries have formulated sector-specific gender policies: (1) Education, Culture, and Human Resources; (2) Youth and Sports; (3) Labor, Industrial Relations, and Employment; (4) Women's Rights, Child Development, and Family Welfare; (5) Finance and Economic Empowerment; (6) Social Security, National Solidarity, and Senior Citizens Welfare and Reform Institutions; (7) Agro-Industry, Food Production, and Security; and (8) Civil Service and Administrative Reforms. Mauritius produces a National Gender Policy Framework as a way to recognize past achievements and promote future work toward gender equality and women's empowerment. Figure 9.1.1 shows a timeline of key milestones in Mauritius's progress.

Figure 9.1.1. Gender Budgeting Timeline in Mauritius¹



Prepared by Lisa Kolovich.

Three employment programs work to mitigate skills mismatches in the labor market for both men and women.³

- The newly introduced Back to Work Program places women over age 30 in a job for a period of six months with the payment of a stipend of MUR 5,000 (about \$141) and the opportunity for training in a registered institution. Employers are refunded the training cost up to a maximum of MUR 7,500 (about \$211) per woman and the stipend for the placement period.
- The Youth Employment Program places unemployed men and women between ages 16 and 30 in an enterprise with training for one year, with a possible additional year in another enterprise. The government refunds 50 percent of the monthly stipend (for nongraduates MUR 6,000–8,000, and for graduates MUR 10,000–15,000—or about \$282 to \$423) and up to MUR 7,500 of training costs to the employer.
- The Dual Training Program allows unemployed Mauritians to follow a diploma or degree course with a tertiary institution in fields required by the labor market while at work in an enterprise. The government refunds the monthly stipend of MUR 3,000 for a maximum of three years and the annual course fees up to 40 percent or MUR 45,000 (about \$1,268), whichever is lower.

These measures are welcome and should be continued. Others could be expanded or complemented by additional policies:

- *Childcare*—Continuing to increase the availability and affordability of quality childcare would help boost female labor force participation, but the design of such services is critical. In line with previous initiatives, the authorities should continue measures to upgrade all childcare centers to minimum quality standards.
- *Maternity leave and protection*—Longer maternity leave increases female labor force participation, but only if it is not too long. The 14 weeks provided in Mauritius appears to be in the range of positive effects. However, if fully paid by the employer and unaccompanied by additional measures, maternity leave can bias the hiring decisions toward men. The government could consider extending parental leave to fathers, for example, by extending the total time of parental leave if a certain part is taken by the father.
- *In-work tax credits*—These benefits can increase labor force participation by individuals with lower incomes and thus stimulate female labor supply. These in-work tax credits could be phased out as incomes rise to continue the marginal benefit of entering or staying in the labor force.

³Information from the Ministry of Labor, Industrial Relations, Employment, and Training: http://www.mauritiusjobs.mu/read_news/VFZSUmR3PT0%3D

- *Financial literacy*—Continue and upgrade measures to provide training in financial literacy to micro-entrepreneurs, a large share of whom are women.
- *Flexible work arrangements*—Promote these beyond current provisions for part-time work.

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Tackling Gender Inequality in the Western Hemisphere

A. CHILE

Lusine Lusinyan

B. COSTA RICA

Anna Ivanova, Ryo Makioka, and Joyce Wong

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Chile

LUSINE LUSINYAN

The gender gap in the labor market remains relatively large in Chile despite the important progress made in adding women to the labor market: women currently comprise 40 percent of Chile's labor force, up from less than one-third in 1990. But Chile's female labor force participation, at 55 percent, remains below the average across both the member countries of the Organisation for Economic Co-operation and Development (OECD) and other countries in Latin America (Table 10.1). It is significantly lower than the participation rate for men (80 percent) and is particularly low among low-income households. Furthermore, there is a significant wage gap with men, with women earning 30–40 percent less for the same level of education, reflecting job characteristics (Sánchez 2014) but primarily gender discrimination (INE 2015).

A combination of several factors can help explain Chile's gender gap:

- *Low coverage of childcare and early childhood education:* Family responsibilities are cited as the main reason for inactivity by one-third of women.
- *Mandated provision of childcare services by firms with more than 20 female employees:* This increases the relative cost of employing women and is shown to reduce starting wages of women by 10–20 percent (Prada, Rucci, and Urzúa 2015).
- *A strict approach to flexible working hours and poor-quality part-time work:* Although part-time work is common, it is mostly informal (leading to lower wages and greater risk of poverty) and involuntary (Fagan and others 2014; Sánchez 2014).
- *Long commutes and high transportation costs:* Transportation is constrained by limited connectivity (Chile lags the OECD average for kilometers of road by 60 percent), and transportation costs represent almost 10 percent of the net wage of a part-time worker in Santiago (6.5 percent for a full-time worker) (Rau Binder 2010; Fagan and others 2014).
- *Gender-based legal bias:* Even with prevailing cultural norms in mind, women are economically less independent in terms of ability to access and use property, and Chile is one of the very few countries in the world where the husband has by default the right to administer the joint marital property (although opt-out clauses exist) (World Bank 2015).

TABLE 10.1.

Gender Gaps and Childcare Support in Chile			
	Chile	OECD	LA-6 ¹
Female labor force participation rate ²	55.3	62.6	60.8
Labor force participation gap ³	24.3	17.0	23.5
Gender wage gap ⁴	16.0	14.8	..
Coverage of early childhood education ⁵	17.6	32.6	..
Public expenditure on childcare and preschool ⁶	0.4	0.8	..

Sources: Organisation for Economic Co-operation and Development; World Bank, World Development Indicators database; and IMF staff calculations.

¹LA-6 = Argentina, Brazil, Colombia, Mexico, Peru, and Uruguay.

²Percent of female population ages 15–64.

³Difference between male and female labor force participation rates.

⁴Difference between median earnings of men and women in percent of median earnings of men.

⁵Average enrollment rate of children under age three in formal childcare.

⁶Percent of GDP.

Narrowing the gender gap would lead to important economic gains for Chile. A growing literature highlights that gender gaps in labor force participation, entrepreneurial activity, and education impede economic growth (Elborgh-Woytek and others 2013; Gonzales and others 2015). Teignier and Cuberes (2014) estimate that GDP losses due to economic gender gaps amount to 17 percent of GDP for Chile, compared with the average of 12 percent for Argentina, Brazil, Colombia, Mexico, Peru, and Uruguay (the LA-6). Looking at the labor force participation gap, we estimate that closing the current gap with the LA-6 (by increasing female participation by 1¼ percent a year during 2015–20) would result in a cumulative GDP gain of about 3 percent by 2020, relative to the baseline.

Reforms enacted in recent years are likely to make Chile's labor market more inclusive. These reforms include the extension of early childhood education and childcare services (since 2006, *Chile Crece Contigo*); the introduction of employment bonuses for low-income women (in 2012, *Ingreso Etico Familiar*, expanded in the 2015 and 2016 budgets); the extension of maternity leave, with a possibility to share leave with fathers (in 2011); the training program *Más Capaz*, launched in 2015 with an objective to train 450,000 youth and women during 2015–18 and facilitate their entrance into the job market; and education reform (IMF 2015).

Even so, there is a need to broaden the recent reforms and increase their usage. It is too early to evaluate most of the recent policies, but the empirical evidence about the impact of past policies (particularly, greater childcare provision) on Chile's female participation is mixed. Further efforts should focus on the following:

- Extending early childhood education and childcare services. The administration is planning to open 4,500 new childcare institutions for children under age three by 2018, including through longer hours of care and out-of-school care services.

- Removing the mandated employer-provided childcare (as currently considered).
- Improving flexibility in hours of work and promoting a better transition to full-time, permanent jobs, including through strengthening workers' rights to request changes in working hours and the possibility to "reverse" from part-time to full-time hours, as in other countries (for example, France, Germany, the Netherlands, and Poland), and more generally addressing labor market duality.
- Investing in transportation infrastructure. The authorities nearly doubled the expenditure on transportation in 2015 relative to 2014, although this still represents a small fraction of the entire investment plan for the year.
- Ensuring greater usage of policy measures, such as by making paternal leave nontransferable "take it or lose it" (as in Norway) and facilitating access to available subsidies for female workers.
- Reducing occupational segregation by gender through education and job training policies that would contribute to improving gender equality in the labor market.

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Costa Rica

ANNA IVANOVA, RYO MAKIOKA, AND JOYCE WONG

Costa Rica ranks low on economic participation and opportunities for women, despite the high educational attainment of women. Costa Rica boasts a number-one ranking in the World Economic Forum's Gender Gap Index on the subcomponent of women's educational attainment, reflecting a large gender education gap where women outperform men (Figure 10.1). Nonetheless, it ranks 105th out of 142 countries in the same index on the subcomponent of economic participation and opportunity for women. This poor ranking reflects the gender wage gap and low female labor force participation, which is much lower than in other emerging market economies even where the male participation rate is at almost the same level. In particular, the female labor force participation rate is 10 percentage points lower than the average for Brazil, Chile, Colombia, Mexico, and Peru (known as the LA-5; Figure 10.2). The differences are particularly pronounced among professional and technical workers. Stagnating female labor force participation rates in Costa Rica over the past decade are all the more surprising given a pronounced increase elsewhere in Latin America during this period.

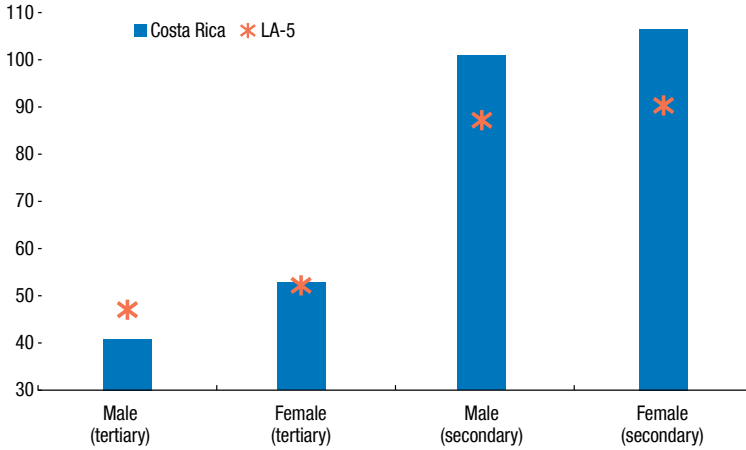
Higher female labor force participation could help raise productivity and spur growth in Costa Rica, given women's high levels of education. It could also help mitigate the impact of a shrinking workforce in the face of forthcoming demographic pressures. Indeed, Costa Rica has the highest life expectancy among Latin American and Caribbean countries (79 years versus 75 years for the region as a whole), and as a result, the percentage of Costa Ricans ages 65 and above is expected to double from 6.5 percent in 2010 to 14.1 percent by 2030.

To better understand possible actions that could be taken to raise female labor force participation in Costa Rica, this analysis addresses the following questions: (1) What are the main determinants of female labor force participation rates? (2) Why are these rates relatively low in Costa Rica compared with the LA-5 countries? (3) Is Costa Rica different from other upper-middle-income countries, and if so, why?

One potential explanation for Costa Rica's relatively low female labor force participation rates is its status as a middle-income country. The literature finds a U-shaped relationship between the level of economic development (for example,

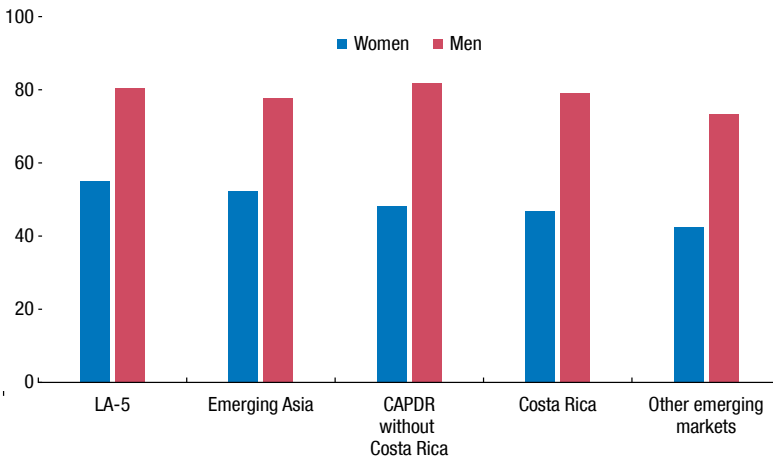
A version of this analysis was previously published as IMF 2015.

Figure 10.1. Educational Enrollment by Gender in Costa Rica
(Percent)



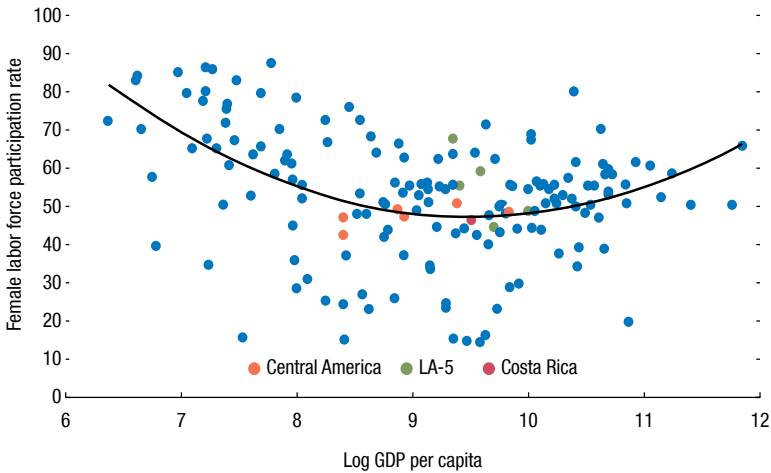
Sources: World Bank, World Development Indicators database; and IMF staff estimates
Note: LA-5 = Brazil, Chile, Colombia, Mexico, and Peru.

Figure 10.2. Emerging Market Labor Force Participation Rates
(Percent of population over 15 in the labor force, 2013)



Sources: World Bank, World Development Indicators database; and IMF staff estimates.
Notes: LA-5 = Brazil, Chile, Colombia, Mexico, and Peru. CAPDR = Central America, Panama, and Dominican Republic.

Figure 10.3. The Relationship between Economic Growth and Female Labor Force Participation



Sources: Goldin 1994; and IMF staff estimates.

Note: LA-5 = Brazil, Chile, Colombia, Mexico, and Peru.

GDP per capita) and female labor force participation (Goldin 1994; Figure 10.3). When a country is poor, women work out of necessity, mainly in subsistence agriculture or home-based production. As income rises, activity shifts from agriculture to industry, where jobs are further away from the home, which makes it more difficult for women to juggle their responsibilities for home production and children with a market job.

As education levels rise, fertility rates fall, and social stigma weakens, women shift into the services sector, which appeals more to women's comparative advantages (Rendall 2010). At the household level, these changes can also be described with a neoclassical labor supply model: as the husband's wage rises, there is a negative income effect on the supply of women's labor. Once wages for women start to rise, however, the substitution effect increases the incentives for women to increase their labor supply, and eventually this effect dominates the negative income effect.

Income level does not explain everything, however. There is a large variation in female labor force participation rates even among upper-middle-income countries. For example, countries with similar GDP per capita as Costa Rica have female labor force participation rates ranging from 20 to 80 percent, suggesting the importance of factors other than income. In fact, Costa Rica actually enjoys several conditions found to be associated with higher rates, including a low fertility rate, high educational attainment, and a services-dominated production structure. (Bloom and others 2007; Klasen and Pieters 2015; Gaddis and Klasen 2014).

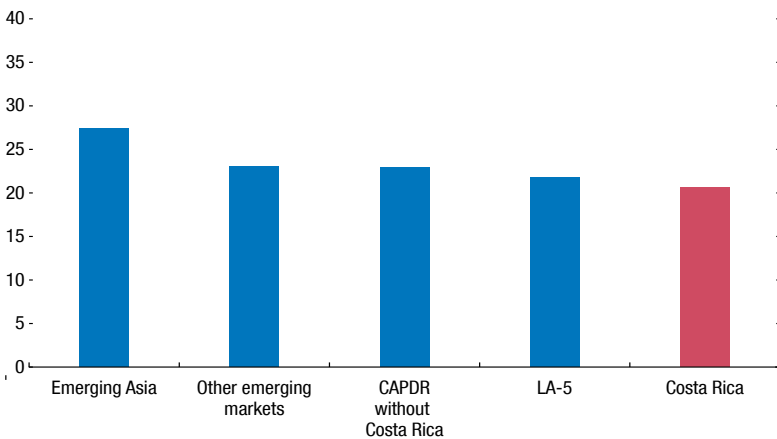
COSTA RICA'S ECONOMY

Costa Rica has a relatively large services sector but low overall investment—factors considered important in determining female labor force participation. In 2012, the services sector accounted for almost 70 percent of total GDP, with manufacturing and agriculture each accounting for about half the remainder. This share of services is relatively high compared with other countries with similar levels of income per capita, such as Malaysia and Thailand where the size of the services sector is close to 50 percent. On the other hand, investment in Costa Rica has been relatively low at about 20 percent of GDP during 2010–14, ranking behind other emerging market economies (Figure 10.4).

The number of internet users per 100 people in Costa Rica is at the LA-5 average. Labor market efficiency rated at 4.5 out of 7, a little above the LA-5 average but lagging the world maximum. Interestingly, the fraction of urban residents in Costa Rica is lower than in other LA-5 countries, at 74 percent versus 81 percent, despite its relatively small size, high level of GDP per capita, and high educational attainment.

As in many advanced economies, female labor force participation rates in Costa Rica differ significantly between women who have children and those who do not, particularly for women between the ages of 20 and 40, which is also a prime age for accumulating work experience. There is a similar but larger difference in labor force participation between married and unmarried women, and the differences reach nearly 20 percentage points for women between the ages of 20

Figure 10.4. Total Investment, 2010–14
(Percent of GDP)



Sources: IMF, World Economic Outlook database; and IMF staff estimates.

Notes: LA-5 = Brazil, Chile, Colombia, Mexico, and Peru. CAPDR = Central America, Panama, and Dominican Republic.

and 40. Both of these trends have also been extensively documented for the United States (see, for example, Attanasio, Low, and Sanchez-Marcos 2008).

EMPIRICAL ANALYSIS

In an analysis using microdata from a household survey, many of the usual drivers of female labor force participation rates identified in the literature are shown to be operative in Costa Rica: education, marital status, and urbanization are important drivers for female labor force participation (Table 10.2). Higher educational attainment, ownership of cell phones and computers, and living in an urban area are positively and significantly associated with higher female labor force participation. These results indicate the importance of information and physical ability to reach jobs. As shown in the literature, being married has a negative and significant association with female labor force participation, as do the presence in the household of young children and the elderly, although to a lesser degree.

Cross-country regression results are mostly consistent with the microdata findings (Table 10.3). In particular, the importance of investment in infrastructure, the presence of children proxied by higher fertility rates, higher education levels, and internet access is confirmed by the cross-country regressions. However, in contrast with the microdata evidence for Costa Rica, the share of urban residents has a negative and marginally significant coefficient. Intuitively, urbanization may have two opposing effects on female labor force participation: although increased access to services jobs helps increase female participation, the need for urban women to commute may impair their availability to work compared with women in rural areas where work is much closer to home. These factors, combined with the importance of the services sector and higher education levels for women in Costa Rica (both of which tend to cluster jobs in urban centers) and the relatively low levels of urbanization in Costa Rica, help explain why urbanization has positive and significant effects on labor force participation for Costa Rican women.

Differences in investment explain a large portion of Costa Rica's lower female labor force participation rates as compared with other LA-5 countries (Figure 10.5). Low investment in telecommunications and transportation are the most important factors. Another is total GDP per capita. Finally, the contribution of the residuals to the difference between Costa Rica and the LA-5 is negative and could reflect factors that are not captured by the model, possibly including social stigma about women working and cultural elements.

POLICIES TO CLOSE THE GAP

Policies to close the female labor force participation gap in Costa Rica vis-à-vis the LA-5 could include higher investment and measures to support working women with children. One obvious choice would be to increase investment, not

TABLE 10.2.

Drivers of Female Labor Force Participation in Costa Rica: Microdata Results						
Dependent Variable	All Women			All Married Women		
	(1)	(2)	(3)	(4)	(5)	(6)
Independent variable	Dummy on labor force participation					
Education						
Less than secondary	0.202*** (0.019)	0.059*** (0.018)	0.090*** (0.021)	-0.019 (0.030)	-0.027 (0.033)	-0.030 (0.038)
Less than university	0.283*** (0.019)	0.104*** (0.019)	0.140*** (0.022)	0.038 (0.031)	0.025 (0.034)	0.051 (0.040)
University and more	0.509*** (0.020)	0.278*** (0.021)	0.289*** (0.024)	0.271*** (0.034)	0.263*** (0.037)	0.302*** (0.043)
Age		0.036*** (0.001)	0.065*** (0.002)	0.016*** (0.002)	0.025*** (0.003)	0.024*** (0.004)
(Age) ²		-0.0004*** 0.00001	-0.001*** (0.00002)	-0.0002*** (0.00002)	-0.0004*** (0.00004)	-0.0004*** 0.00005
Cellphone		0.035** (0.016)	0.050** (0.019)	0.003 (0.027)	0.017 (0.031)	0.036 (0.038)
Computer		0.014 (0.009)	0.006 (0.009)	0.061*** (0.014)	0.049*** (0.014)	0.074*** (0.016)
Urban		0.054*** (0.008)	0.058*** (0.008)	0.057*** (0.013)	0.060*** (0.013)	0.063*** (0.014)
Married		-0.120*** (0.008)	-0.157*** (0.009)			
With children ages 0-6			-0.005 (0.009)		-0.097*** (0.014)	-0.104*** (0.015)
With children ages 6-12			-0.055*** (0.009)		-0.058*** (0.013)	-0.061*** (0.014)
With elderly > ages 70			-0.027* (0.014)		-0.018 (0.026)	-0.051 (0.035)
Log head income						-0.044*** (0.008)
Observations	15256	15251	14164	6454	6162	5344
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Source: IMF staff calculations.

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

TABLE 10.3.

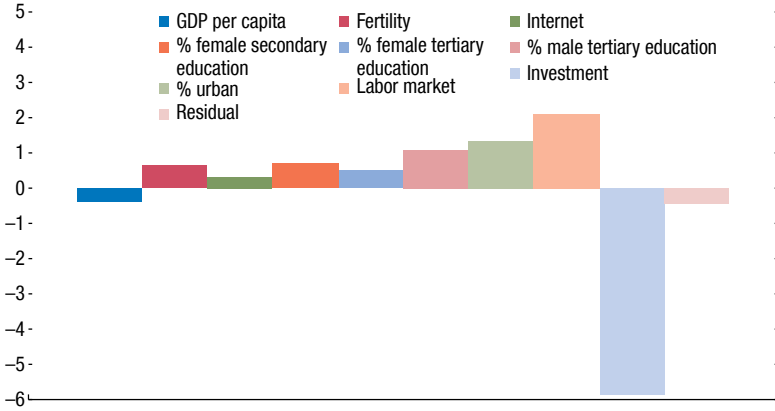
Drivers of Female Labor Force Participation in Costa Rica: Cross-Country Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)*	(7)	(8)
Dependent variables	Independent variable: Female labor force participation rate							
Log GDP per capita	-46.918*** (11.909)	-52.519*** (13.460)	-54.902*** (11.701)	-55.646*** (11.391)	-69.790*** (12.611)	-66.596*** (14.006)	-92.947*** (19.612)	-113.19*** (32.321)
(Log GDP per capita) ²	2.511*** (0.641)	2.757*** (0.719)	2.845*** (0.619)	2.944*** (0.605)	3.638*** (0.672)	3.525*** (0.758)	4.623*** (0.987)	5.963*** (1.857)
Fertility rate per 100		-1.881 (1.282)	-1.949 (1.352)	-2.267* (1.368)	-2.171 (1.506)	-0.831 (1.728)	-0.695 (1.840)	-2.051 (1.955)
Internet users			0.077 (0.052)	0.096* (0.049)	0.110** (0.053)	0.317*** (0.077)	0.049 (0.066)	-0.071 (0.107)
Share of urban residents				-0.102* (0.060)	-0.116 (0.079)	-0.105 (0.090)	-0.135 (0.094)	-0.203 (0.132)
Share of female secondary education					0.023 (0.050)	0.003 (0.064)	0.086 (0.078)	0.039 (0.093)
Share of female tertiary education					0.182*** (0.061)	0.066 (0.101)	0.147** (0.066)	0.342*** (0.146)
Share of male tertiary education					-0.228*** (0.071)	-0.127 (0.135)	-0.091 (0.06)	-0.416** (0.204)
Labor market efficiency							9.012*** (2.053)	9.424*** (2.499)
Invest in transportation and telecoms								1.461* (0.776)
Observations	4073	4069	3514	3514	1789	1789	592	303
R squared	0.495	0.502	0.507	0.513	0.556	0.458	0.692	0.710

Source: IMF staff calculations.

Notes: * = Female labor force participation rate among those under age 25. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Figure 10.5. Contributors to Female Labor Force Participation in Costa Rica and Five Other Latin American Countries



Source: IMF staff calculations.

Note: Height of bar indicates the contribution to female labor force participation in Costa Rica minus the contribution in other LA-5 countries (Brazil, Chile, Colombia, Mexico, Peru).

only in physical infrastructure but also in promoting the development of information technology and telecommunications.

One factor that constrains investment is implementation capacity. Policies to improve implementation could thus serve not only to increase female labor force participation but also to take advantage of the large pool of educated women in the country. Costa Rica has a relatively low fertility rate—1.8 children a woman, compared with 2.5 for Panama—and in 2013, the fertility rate in Costa Rica reached the lowest in its history. These low fertility rates combined with low female labor force participation rates could signal a weak system of childcare, whether public, private, or family-based, although other explanations such as cultural norms are also possible.

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TECHNICAL ANNEX: REGRESSION SPECIFICATIONS

Evidence from Microdata

We first estimate a model containing many of the drivers of female labor force participation identified in the literature, using a 2012 Costa Rican household survey. The following regression is run using Costa Rica's household survey (the Encuesta Nacional de Hogares, ENAHO) of 2012:

$$\begin{aligned} labor_force_{ir} = & \alpha + \beta_1 prim_second_edu_{i} + \beta_2 second_tertiary_edu_{i} + \\ & \beta_3 more_than_tertiary_edu_{i} + \beta_4 urba_{i} + \beta_5 marrie_{i} + \beta_6 age_{i} + \beta_7 (age_{i})^2 + \\ & \beta_8 cellphone_{i} + \beta_9 computer_{i} + \beta_{10} kid_0to6_{i} + \beta_{11} kid_6to12_{i} + \beta_{12} old_more- \\ & than_70_{i} + \beta_{13} \log(headincom_{i}) + \gamma_{i} + \varepsilon_{ir} \end{aligned} \quad (10.1)$$

where $prim_second_edu_{i}$, $second_tertiary_edu_{i}$, and $more_than_tertiary_edu_{i}$ are dummy variables for the woman i 's final educational attainment level, and $urba_{i}$, $married_{i}$, $cellphone_{i}$, and $computer_{i}$ are dummy variables for the location of the household in urban area, household being a married couple, and household having a cell-phone. kid_0to6_{i} , kid_6to12_{i} , and $old_morethan_70_{i}$ are equal to one if a household has a member in these categories, respectively. $\log(headincom_{i})$ is the log of income of a household head. Regional fixed effects are also included.

Cross-Country Evidence

In order to understand the differences between the main drivers of female labor force participation in Costa Rica and those of other countries, cross-country data is examined next. A panel is constructed for 184 countries from 1990 to 2013, mostly using World Development Indicators complemented by labor market

efficiency data from the Global Competitiveness Report. The following regression is estimated following Bloom and others 2007:

$$FLFP_{irt} = \alpha + \alpha_1 \log(GDP_{capita}_{it}) + \alpha_2 [\log(GDP_{capita}_{it})]^2 + \beta_1 fertility_{it} + \beta_2 internet_{it} + \beta_3 sharefemalesecondaryedu_{it} + \beta_4 sharefemaletertiaryedu_{it} + \beta_5 sharemaletertiaryedu_{it} + \beta_6 urban_{it} + \beta_7 labormarketquality_{it} + \beta_8 investment_{it} + \delta_r + \gamma_t + \mu_{rt} + \varepsilon_{irt} \quad (10.2)$$

where $\log(GDP_{capita}_{it})$ and $\log(GDP_{capita}_{it})^2$ control for the countries' GDP per capita levels, $FLFP_{irt}$ is the female labor force participation rate for country i in region r at year t , $fertility_{it}$ is the fertility rate, and $internet_{it}$ is the number of internet users per 100 people. $sharefemalesecondaryedu_{it}$, $sharefemaletertiaryedu_{it}$, and $sharemaletertiaryedu_{it}$ are the ratios of total female (male) enrollment for secondary and tertiary education levels to the total female population (male population). $urban_{it}$ is the percentage of urban residents out of the total, $labormarketquality_{it}$ is an indicator for labor market efficiency, and $investment_{it}$ is the log of investment in telecommunications and transportation with private participation.¹ Dummies include the regional dummy δ_r , the year dummy γ_t , and the year-region dummy μ_{rt} . Error terms ε_{irt} are clustered at the country level.

Cross-country regression results are consistent with many of the findings in the microdata. Results for these regressions are reported in Table 10.2. The importance of investment in infrastructure, the presence of children proxied by higher fertility rates, higher education levels, and internet access are all supported by the cross-country regression results. These factors have also been found to be important in the literature (see, for example, Jensen 2012 and Klasen and Pieters 2015). Investments in transportation and telecommunications have positive and significant coefficients, as do coefficients on internet access. In the latter case, the effect is stronger when labor force participation of women under the age of 25 is considered, suggesting perhaps the importance of technology for the younger cohorts. The share of female tertiary enrollment also has positive and significant coefficients, whereas that of male tertiary educational attainments is negative and statistically significant, in line with the results from microdata on the impact of husband's earning capacity on female labor force participation. Fertility rates, which serve as a proxy for the effect of children on women's decision to work, also have negative and marginally significant coefficients.

In addition, cross-country regressions also help shed light on the importance of development levels, urbanization, and labor market efficiency for female labor force participation. First, the polynomial of the log of GDP per capita is statistically significant and generates the well documented U-shaped relationship

¹Investment in telecoms with private participation is the value of telecom projects that have reached financial closure and directly or indirectly serve the public, including operation and management contracts with major capital expenditure, greenfield projects, and divestitures. Investment in transport with private participation is the value of transportation projects that have reached financial closure and directly or indirectly serve the public, including operation and management contracts with major capital expenditure, greenfield projects, and divestitures.

between female labor force participation and the level of economic development (see, for example, Goldin 1994 and Gaddis and Klasen 2014). The polynomial fit is quite good and Costa Rica is located at the bottom of the U shape. Second, measures of labor market efficiency are positively and significantly related to labor force participation rates. Finally, and in contrast with the microdata evidence for Costa Rica, the share of urban residents has negative and marginally significant coefficient. Intuitively, urbanization has two contradictory effects on female labor force participation. While increased access to services jobs helps female labor force participation, the need to commute may impair women's availability to work when compared with rural areas where women work much closer to home. These factors, combined with the importance of the services sector and higher education levels of women in Costa Rica (both of which tend to cluster jobs in urban centers), together with relatively low levels of urbanization in Costa Rica, may explain why urbanization has positive and significant effects on female labor force participation in Costa Rica specifically.

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PART IV

Policies to Level the Playing Field

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Tax and Spending Policies to Achieve Greater Gender Equality

BENEDICT CLEMENTS AND JANET G. STOTSKY

Fiscal policy is the main means by which governments can redistribute resources and income or wealth and address different forms of inequality, including gender inequality in opportunities and outcomes. Through taxation and spending policies and incentives for the private sector, governments can influence household incomes and welfare—today through taxes, public services, and income transfer programs; tomorrow by helping build human and physical capital.

Here we address the somewhat more limited issue of how tax and spending reforms could be used to achieve greater gender equality. We focus on two questions: First, what do we know about the incidence by gender of taxation and spending programs? Which spending programs, for example, most benefit women and girls? This knowledge can provide guidance on how changes in the composition of spending and taxes could help achieve greater gender parity. Second, how can reform of government taxation and spending help foster greater female labor force participation? Women's labor force participation trails that of men in all regions even though gaps have narrowed in most countries in recent years.¹ Policies that provide greater employment opportunities for women and more support to women in the workforce, including through more equal wages, will be essential for supporting their incomes and autonomy. This approach will ultimately lead to more equitable outcomes when comparing women and men or female- and male-headed households.

Many fiscal policy reforms have the capacity to boost the opportunities, incomes, assets, and employment of women and men. Even measures that are on the surface gender neutral can have a disproportionate effect, either positively or negatively, on women (Elson 2006, World Bank 2011, IMF 2012). Such measures might include improved public pensions for the aged, which disproportionately benefit women because they tend to live longer and have less of a work history. They might also support low-income households through the tax code,

This analysis draws on Elborgh-Woytek and others 2013 and Stotsky 1997, 2016. The authors would like to thank Era Dabla-Norris, Marina Marinkov, Marialuz Moreno-Badia, and Philippe Wingender for useful comments on an earlier draft.

¹See Stotsky and others 2016.

which also disproportionately benefits women because single-female-headed households are a sizeable share of the poor, and these women face barriers to work because of the high costs of childcare relative to their earnings.

This analysis focuses on how spending and tax policies can be used to improve gender equality and boost female labor force participation. We provide a brief overview of research findings that support sound policymaking in this area and provide some examples of fiscal policies in support of gender equality.² We limit our analysis to the structure of fiscal policies rather than including fiscal policies in their macroeconomic context, although this is an important topic in its own right.

THE GENDER INCIDENCE OF SPENDING AND TAX POLICIES

Expenditure Policies

Most studies of expenditure incidence in a sex-disaggregated framework focus on education and health care, two large and essential components of public spending. This focus is especially relevant in developing economies because even while gender gaps have narrowed, women and girls remain at a disadvantage, especially in lower-income households. Assessing the incidence of spending programs by gender is a less straightforward approach when applied to government services that are provided jointly to households or even communities, including most infrastructure provided to households such as running water or electricity. Several studies have also explicitly examined the interaction of gender inequality and poverty, in particular, how gender inequality in public spending varies by income class.

Theoretical considerations

To understand why the incidence of government services may vary by gender for education spending, it is important to look at gender-based differences in behavior with regard to education decisions within the household. An extensive literature examines the economics of education decisions from a developing economy perspective (Behrman 1999; Schultz 2002; Glick, Saha, and Younger 2004; Duflo 2012). Gender inequalities in education are a result of supply and demand factors that interact to limit the opportunities for females to gain an education.

In the standard formulation, demand for education reflects price, income, and taste or culture variables, and the price is composed of both direct and indirect components of cost. The direct costs of education have several components, including the direct monetary costs and the opportunity cost of time. The monetary costs may be the same for males and females in some contexts, but they may differ in others, for instance, the costs of uniforms or materials required for

²OECD (2012) examines policymaking to close gender gaps in a more general setting.

school. The opportunity costs of time generally differ between males and females, especially when children play an important economic role in the household. For instance, in many cultures, girls are expected to help care for younger siblings, and both boys and girls may be required to help with home chores; thus, there may be varying opportunity costs to the time they spend in school.

The direct costs of education vary depending on the ability of the country to fund public education. These costs are often prohibitive, especially in the poorest countries where even relatively low monetary costs may discourage households with little excess cash income. The education of girls may often be a lower priority to parents for economic reasons, especially because in many traditional societies, sons are seen as providing old-age security to parents. Schultz (1995) notes that parents may not make ideal investments in education for their children because they expect the private rate of return on this education to be low relative to the rate of return on other investments. Even if they perceive the expected return to be competitive with alternative investments, they may not choose an efficient level of education because of risk aversion or credit constraints that limit their ability to borrow to pay for their children's education. There may also be social and religious reasons that dampen parental incentives to educate their daughters.

Women and men also have different preferences for spending on goods and services in the home. The evidence suggests that women have a stronger preference than men for spending on goods and services that contribute to the human capital of their children, implying that within a household, women gear spending more toward education, food, and health care for children (Blumberg 1988; Thomas 1997; Mason and King 2001; Quisumbing 2003). Women and men may have different preferences for spending on male and female children within the household (Deaton 1989; Alderman and Gertler 1997; Quisumbing and Maluccio 2003; Kingdon 2005). Here the differences seem to vary widely across cultures. In some cases, women may have a preference for spending relatively more on male children, while in others this tendency may be less pronounced or even reversed. As a result, price and income elasticities of demand may vary depending on the decision-making process in the household as well as the gender of the children involved.

The supply of education reflects the availability of schools, teachers, and other facilities and includes both public and private alternatives. Where the public sector is well funded, schools are typically one of the major expenditures of government. However, in poorer countries, public spending on education may be relatively modest compared with the burgeoning population of school-age children. Private alternatives exist in most countries, but these are usually affordable only for a small group of higher-income households.

From a social perspective, there are also significant external benefits derived from educating females. Higher levels of education for females are associated with better health and nutrition, as reflected in longer life expectancies and reduced child mortality, even while male education is also beneficial. Glewwe (1999) and Christiaensen and Alderman (2004) find evidence of the beneficial effect of

mother's education on their children's health. Female education also tends to promote reduced fertility and interacts with other cultural factors to encourage parents to invest more in the human capital of their children. Weir and Knight (2004) find, in the context of Africa, that the benefits of education diffuse through social networks. They find, using survey data from Ethiopia, that the majority of farmers say they were influenced in their decision to adopt modern inputs by someone of the same gender, thus suggesting that the positive externalities from education are enhanced when social networks facilitate greater diffusion of this knowledge. The evidence is thus clear that the benefits of increased education, although internalized to a large extent, also spill over to society as a whole. Unfortunately, the external benefits are hard to quantify, but they form a critical part of the argument for using public policies—taxes, subsidies, or regulations—to reduce gender inequalities. Schultz (2002) concludes that there is “mounting empirical evidence from around the world that the social returns to the years of schooling of females are greater than the returns to males.” Further, he notes that the regions of the world that have achieved the most economic and social progress over the past several decades are those—among other things—that have most successfully promoted equal educational achievements for males and females.³ Klasen and Lamanna (2009) also find that addressing inequality in female education is beneficial to national growth.

Gender inequalities in investments in health are harder to measure because biological differences between males and females could lead to different nutritional requirements and different needs regarding the use of health services. For instance, women in their childbearing years generally require more health care than men. Schultz (1995) notes that there was a significant advance in female longevity relative to male longevity in the 20th century in most countries, reflecting reduced inequalities in health care access. However, girls and women are still disadvantaged in some countries where gender inequalities in health persist, including most notably India and China, where ratios of mortality for children younger than age five, girls relative to boys, remain well above international norms (Stotsky and others 2016).

Survey of empirical studies on education, health, and infrastructure⁴

In one of the earliest such studies, Demery and others (1995) use discrete choice modeling techniques to estimate the incidence of education and health spending in Ghana, disaggregated by gender and income. They combine estimates of the cost-of-service provision with information on household use of services from the Ghana Living Standards Surveys. They find marked gender inequalities in education spending, with girls receiving less benefit than boys. With regard to health expenditures, Demery and others (1995) find, for outpatient services, an even split between males and females and little variation across the expenditure

³See also World Bank (2001) and Abu-Ghaida and Klasen (2004).

⁴See also Greenspun and Lustig (2015) for a comprehensive survey.

distribution. But for inpatient care, they find substantial differences, with females receiving less than half the total share in the lowest quintile and more than half in the other quintiles, suggesting more of a disadvantage for lower-income females.

In a comprehensive international comparison, Filmer (1999) analyzes gender differences in school enrollment using data from 41 countries in the 1990s. Ranking households by wealth, he finds both gender inequalities and income inequalities in school enrollment. Gender inequalities in school enrollment rates tend to be greater for the poor than for the rich; in no country was the opposite true. He also finds similar patterns between the rich and poor for mortality of children younger than age five, where in contrast with access to schooling, females enjoy a natural advantage over males. In about two-thirds of countries, the female advantage is smaller for the poor than for the rich.

Sahn and Younger (2000) examine cumulative shares of benefits across the expenditure distribution for eight African countries. They find that for primary education, in only one country do aggregate benefits differ significantly by sex, and in that country, the degree of inequality is relatively constant across the expenditure distribution.

Glick and others (2004) assess the distribution of public expenditures, focusing on education and health services, water supply, and public employment. They examine data for nine countries in different regions of the world, including a sample of transition economies and countries in sub-Saharan Africa, Latin America, the Middle East, and southeast Asia. They break down the data for each country by quintiles using per capita household expenditures as a measure of welfare and by gender (hence there are 45 comparisons by gender for the nine countries). With regard to education, a majority of their comparisons for primary education show a gap in favor of boys, rising slightly over the second period of their observation. The largest gaps are in Ghana, Pakistan, and Uganda. The results for secondary education are similar. For public medical visits, the gender gap favors women in every country and virtually every quintile in their sample. These results are stable over time. Since the results may be influenced by the differentially greater need of women in childbearing years, they also examine the number of medical care visits for people outside the childbearing years and find no gender gap. Public vaccinations also show no gender gap.

More recent evidence shows some evolution in spending patterns over time. Demery and Gaddis (2009) assess the incidence of public spending on education and health care in Kenya. They find that per capita spending on education favors boys at all levels—primary, secondary, and tertiary. However, primary education spending is progressive measured against income, whereas secondary and tertiary spending is regressive. They also assess marginal, as opposed to average, benefits from additional spending and show that primary spending has a higher marginal benefit for low-income girls. With regard to health care, they find that women and girls benefit more than men and boys but that higher-income females receive more benefit from spending than those in lower-income households. As with

education, primary health care spending has a higher marginal incidence for poor females.

Austen and others (2013) assess public spending in Timor-Leste, one of the world's youngest nations. They find that public education spending benefits boys more than girls at each level of education and that rural students are at a disadvantage compared with those in urban settings. They also undertake demand analysis to examine determinants of public school enrollment and find that the education of mothers is a key determinant of greater school attendance, suggestive of the need to consider externalities and the medium term in assessing the benefits of interventions to equalize gender inequalities.

These findings on primary education and health care are important because they validate the common policy orientation of much of the international aid efforts in recent years to focus on these components of public spending. The higher marginal spending incidence for poor females suggests that targeting these components of spending to lower-income households is a particularly effective public policy both for closing gender and income gaps.⁵

To sum up, the research on education and health suggests that, in general, educational inequalities exist between boys and girls and that they are more pronounced at higher levels of education, for poorer families, and in poorer countries. However, there is considerable variation across countries, and certain regions of the world show the greatest inequalities, especially sub-Saharan Africa, the Middle East and north Africa, and south Asia. Inequalities exist in some areas of health care, such as vaccinations, especially for poorer households and in poorer countries, but are less evident for others. The trend is toward a reduction of these inequalities, although progress has been uneven. The relative paucity of such studies suggests a need for more work in this area.

This survey neglects advanced economies because the differences in spending on education and health care for women and men are largely equalized. In fact, in many advanced economies, women now attain tertiary education at higher rates than men, and so if anything, they derive more benefit from public spending on education. Similarly, the benefits from public spending for health care for women may typically exceed those for men, largely because of their longer life expectancies (Cylus and others 2011).

A number of studies also focus on measuring the incidence of government infrastructure spending and government services such as training and education of farmers. Government infrastructure poses a problem in that many services are consumed jointly in the home. However, because women and men typically have different roles, there is still scope to assess differential incidence, even with jointly consumed services, including through time-use surveys. For instance, in many developing economies, where households lack running water, bringing water to the household is a task for women and girls, and so they benefit both from the

⁵See Clements and others (2015) for a similar conclusion on the importance of targeting spending to reduce inequality.

provision of the government service and the time savings. Sahn and Younger (2000) find that for time spent collecting water, there is a significant gender gap in both Madagascar and Uganda.

In an interesting attempt to capture this differential incidence, Mogues, Petracco, and Randriamamonjy (2011) examine the distribution of rural services in Ethiopia broken down by gender and income level. They find that agricultural extension services are skewed in favor of men and that the public works component of the Food Security Program favors male-headed households, whereas the direct support component favors female-headed households. Female-headed households have more access to safe water and travel further to access safe water. Mogues (2013) finds a similar bias in the benefit of agricultural extension services to men.

These results, though few in number, provide some clear policy implications for the use of fiscal policies to address gender inequality. They suggest that properly targeted and structured public spending can contribute to reducing gender inequalities in education, health, and water and other infrastructure and government services. These studies highlight the importance of looking at incidence not only disaggregated by sex but also broken down by type of government spending and income levels. The studies on education and health care suggest that focusing on primary education and health care for girls, especially in lower-income households, is particularly beneficial and that the indirect benefits of closing gender gaps among men and women may yield external benefits that go beyond the direct beneficiaries and extend into the medium term. Recent research on infrastructure is well worth further investigation, especially as the poorest countries in the world, including those in Africa, attempt to address their critical infrastructure gaps through ramped-up spending.

Tax Policies

On the revenue side, tax incidence analysis entails a set of considerations similar to those in expenditure analysis. Rather than focusing on programs, however, we focus on policies—tax and related revenue policies, including fees and tariffs. There are many inherent gender biases—explicit and implicit—in tax systems (Stotsky 1997). Taxes are typically either income or wealth based (that is, direct taxes) or sales based (that is, indirect taxes).

The empirical work on tax policy in some cases takes into account the combined effects of tax and social benefit systems and in some cases the general equilibrium effects. This is especially true for research in advanced economies, where social benefits, like taxes, can have disincentive effects on labor supply. These issues are tackled more fully in the section on policies to increase female labor force participation. In addition, recent work on the incentive effects and incidence of taxation look at human capital and other factors in a lifecycle framework (Keane 2011).

Explicit gender discrimination in the personal income tax may take several different forms, including the rules governing the allocation of shared income

(such as nonlabor income and income from a family business); the allocation of exemptions, deductions, and other tax preferences; and the setting of tax rates and legal responsibilities for paying the tax. Implicit gender bias is often seen as the result of increasing marginal tax rates that may discourage secondary workers in a household from working (Feenberg and Rosen 1995; Blanchard, Jaumotte, and Loungani 2014).

Indirect taxes may also contain gender biases, although explicit biases are less likely since the tax is impersonalized. However, implicit biases exist in several forms. For instance, under sales taxes, differential application or rates may be applied to different commodities. If taxes apply less heavily to necessities or products predominantly purchased by women, this creates a certain implicit gender bias. Similarly, because taxes on international trade are also impersonal, one rarely finds explicit gender bias, but implicit biases are built into the definition of the base, the structure of tax rates, and other features of the tax system.

Grown and Valodia (2010) explore these issues in depth in a volume that presents case studies on a mix of eight advanced and developing economies from around the world. The book applies the same methodology to the analysis of the incidence of both direct and indirect taxes broken down by gender. With regard to direct taxes, they focus on personal income tax, which is based on individual filing in these countries and thus lends itself better to a breakdown by gender than systems based on household filing. The studies examine the different ways in which these taxes incorporate explicit and implicit discrimination and how the statutory incidence of the tax varies by gender. Although explicit discrimination was once commonplace, fewer income taxes now have this characteristic as countries reform their tax systems.

Budlender, Casale, and Valodia (2010) assess gender equality and taxation in South Africa, noting that after the transition to democratic rule in 1994, the government addressed explicit discrimination against women in taxes and other areas of the government budget.⁶ Other tax systems still retain elements of unequal treatment of women, including Morocco's, in which women are considered dependents of men. Chakraborty and others (2010) point out that at one time, India's personal income tax had provisions that favored women, although only a tiny fraction of workers in India pay income tax (because the threshold is high relative to typical income), so that this favorable treatment had little effect. Many tax systems have implicit biases. In Argentina, Rodríguez Enríquez, Gherardi, and Rossignolo (2010) find that components of income more typically earned by women face a higher effective rate than those predominantly earned by men. In African tax systems, where most income tax derives from wage income, implicit bias tends to be against men because they earn higher incomes on average and thereby face higher effective tax rates under progressive marginal tax schedules.

⁶See Hartzenburg (1996) and Smith (2002) for earlier work on this topic.

With regard to indirect taxes, the studies in Grown and Valodia (2010) focus on the value-added tax and excises. They make use of the division of households into gender types. They test sensitivity to defining household type by a majority of adults of one gender in the household and also by the household breadwinner, whether individual or shared. The studies find that the incidence by gender varies across the different tax systems. Many indirect tax systems have an implicit bias against men because of the high rates of taxation on goods favored by men, including alcoholic beverages and tobacco products, although to the extent that these are seen as demerit goods, one might question whether this is really a bias or whether these higher rates correct for negative externalities stemming from the consumption of these goods. For value-added taxes, the incidence depends greatly on the pattern of the rate structure (whether there is one rate or a reduced rate for certain necessities such as essential food and children's goods) and on the pattern of zero-rating and exemptions. Pérez Fragoso and Cota Gonzalez (2010) find that the incidence of Mexican indirect taxation falls more heavily on male-headed households.

Two studies examine the gender dimensions of the incidence of tariff liberalization. Using South African expenditure data, Daniels and SALDRU (2005) evaluate the differential impact of tariff reductions on male- and female-headed households in South Africa during 1995, 2000, and 2004. This study finds that male-headed households almost always bear a greater share of tariff incidence, mainly because of their greater consumption of some highly taxed goods, such as alcohol.

Siddiqui (2009) models the gender-differentiated general equilibrium impact of Pakistan's trade liberalization. The model simulations show that revenue-neutral trade liberalization increases women's employment in unskilled jobs and increases women's real wage income more than men's for all labor types but maintains the division of labor biased against women. Women in the poorest households face an adverse effect of liberalization by increasing their work and their relative poverty. Women in the richest households, in contrast, face a gender-neutral or favored result.

User fees are another important component of revenue, especially at the local level and in developing economies. In assessing the appropriate use and scope of user fees to recover the costs of providing government services or products, it is also useful to consider whether the structure creates any disparate impact on women. The use of fees for cost-recovery purposes has been advocated as a means to strengthen revenue systems and generate a more efficient use of public services. However, their use has also been criticized for what are seen as adverse equity effects by reducing access to certain essential services such as primary education and health care.

Like direct taxes, fees can be personalized (different people are charged different amounts). Nanda (2002) examines the use of user fees in terms of its effect on women's utilization of health services in Africa and finds that these fees discourage use. Hillman and Jenkner (2004) suggest, however, that it is also essential to assess the purposes for which these fees are used. They argue that school fees

may, at times, increase access to schooling for poor children by augmenting the ability of the government to provide schools and improve their quality and also by enhancing the ability of parents to control the flow of finances to schools. This stands in contrast to more general taxes, which support public services that may not provide the same benefit to families.

Figari and others (2011) examine the effect of tax and benefit systems in nine countries of the European Union on gender disparities in net income within households. They combine an analysis of the incidence of personal income taxes, contributions to social security, and cash transfers for various purposes on income shares, disaggregated by gender, and focus on within-couple shares of income before and after application of taxes and benefits. The extent of within-couple income equalization varies greatly across the countries, with Austria, Finland, and the United Kingdom achieving the most and Greece and Italy the least.

Browne (2011) analyzes the effect of tax and benefit reforms by gender focusing on the United Kingdom. The data are disaggregated to the household level, thus the study does not examine the differential impact of tax and benefit changes within the household as do Figari and others (2011). Instead, the study examines the differential impact by single adult households, whether male or female, and couple and multi-family households. The paper draws some conclusions for reforms of the British tax and benefit system under consideration at that time, concluding that those proposed in 2010 to be phased in through 2014–15 would cause a larger loss for households with a single adult female than for those with a single adult male, among other observations.

Fiscal Policies Undertaken in Support of Gender Equality

Governments have created a range of initiatives to address gender equality and forward the advancement of women, many of which are initiatives referred to as “gender budgeting.”⁷ We present here a few examples from regional surveys of gender budgeting efforts throughout the world, but we refer the reader to the full surveys for discussion of a wider range of countries.

Chakraborty (2016) provides a number of examples of the application of gender budgeting in Asia. In India, gender budgeting has long been used as a tool for fiscal policy to address gender equality and girls’ and women’s development objectives in education, health, and access to infrastructure, among other government services. It presents a particularly interesting application because India has a federalist system of government and the decentralization of many important public services to state governments. Reflecting this decentralization, gender budgeting was adopted not only at the federal level but also in the majority of Indian states, and some of the most substantive measures were adopted at the state level. For example, the state of Kerala introduced a statement on gender budgeting into its budget documents in 2008/09, with associated policy commitments. The state

⁷Stotsky (2016) provides an overview of these measures.

budget targeted additional spending for infrastructure to support women's greater involvement in economic and public life.

Other countries in the region that have prominent gender budgeting efforts include the Republic of Korea and the Philippines. In Korea, there was a focus on increasing women's labor force participation, an important objective in a country with a rapidly aging workforce. In the Philippines, the initiative evolved over time from one in which government departments were each required to allocate 5 percent of their funds to gender-oriented goals to one in which government departments were allowed to take a more flexible approach in seeking the highest priority uses of funds. Like India, the Philippines initiative extended to subnational governments.

Christie and Thakur (2016) provide a look at an effective application in Timor-Leste in their study of gender budgeting efforts in the Caribbean and Pacific Islands. Gender budgeting was given legal status by the nation's parliament. The initiative focused on ensuring that a gender perspective was introduced in the planning and analysis of government programs and the setting of specific targets. Government agencies are asked whether their programs have considered the different needs of women and men, whether the government's goals are consonant with international agreements on gender equality, and how government policies and programs will contribute to gender equality. Some examples of gender-oriented policies and programs include those to (1) increase access of girls and women to education and implement teaching practices and a scholarship program that addresses inequality in girls' and women's enrollment in higher education; (2) identify and create more opportunities for women in growing economic sectors, such as tourism, commerce, and industry; and (3) improve women's access to legal aid services and related measures necessary to more effectively fight violence against women. The frequency with which gender budgeting was seen as a mechanism to address violence against women—across the world and not only in the South Pacific region—was one of the most interesting findings of the global survey of gender budgeting.

Pérez Fragoso and Rodríguez Enríquez (2016) report on the efforts underway in Latin American countries to develop gender budgeting. Mexico provides an example of a country in which gender-oriented fiscal efforts were undertaken at both the federal and state levels. At the federal level, the efforts began with health. In collaboration with nongovernmental organizations, the Ministry of Health diagnosed the health needs of women, assessed whether existing programs were adequate to address these needs, allocated budgetary resources to meet those needs, and designed indicators to measure whether the needs were being met. Evidence suggests that Mexico has made progress on women's health issues, including a drop in maternal mortality and a rise in life expectancy. Federal budget reforms supported the institutionalization of this approach more broadly in government ministries. In Mexico City, a similar initiative was undertaken where parts of the government were tasked to identify where gender was relevant to their programs. One tangible outcome was changes in public transportation to provide safer options for women.

In several countries, including Ecuador and El Salvador, gender budgeting focused mainly on ensuring that gender-oriented goals were integrated into budgetary classification schemes, which is important for tracking spending in accordance with approved budgets. However, it was more difficult to identify what success the gender budgeting initiatives had in influencing the budget and the goals of fiscal policies. Bolivia was another example of a country with gender budgeting efforts at the national and subnational levels.

Kolovich and Shibuya (2016) examine the experiences in the Middle East and central Asia, where gender budgeting has faced difficulty. Among the Middle Eastern countries, Morocco has been a leader in trying to put in place an initiative, although the results are still somewhat ambiguous. As part of its gender budgeting efforts, Morocco assessed the needs of women and girls in education, health, the judicial system, infrastructure, and employment and sought to develop fiscal and other policies to ensure their equal access to education and health care while expanding women's labor market opportunities. Various legal reforms that accompanied the gender budgeting efforts have strengthened women's rights in family law and other areas of civic, political, and economic life. In 2014, changes to the organic budget law required gender equality to be considered when defining performance objectives, results, and indicators in all parts of the budget and that a gender report be included as part of each year's finance bill. Morocco's efforts were recognized by the international community with the Ministry of Economy and Finance receiving the United Nations Public Service Award in 2014.

Afghanistan also has sought to put in place gender budgeting to address some of the world's worst indicators on female education and health. Over the course of its efforts, Afghanistan appears to have made progress in improving female developmental indicators, but it is unclear how much of the progress can be attributed to gender budgeting in view of the significant involvement of external donors in Afghanistan's budget process and their provision of substantial budget support.

Stotsky, Kolovich, and Kebhaj (2016) review gender budgeting efforts in sub-Saharan Africa. The commitment of countries to addressing gender inequality and women's development is evident in the number of countries in the region that have tried gender budgeting. However, in the majority of cases, the efforts are relatively new or were integrated into budget processes in only a superficial way. However, two clear exceptions were Uganda and Rwanda. In both countries, the government sought to ensure that gender-oriented goals were well identified and that budgeting addressed these goals in important areas of public services. Rwanda presents a particularly interesting example in that the authorities made a point of ensuring that the gender budgeting efforts were put in place as a complement to the implementation of a program-budgeting framework. In Uganda, the role of parliamentarians and nongovernmental organizations in pushing for gender budgeting is notable and may have contributed substantially to the effectiveness of the initiative. In both countries, gender budgeting was also extended

to local governments, where similar efforts were made to integrate gender-oriented goals into local government budgets.

In both Uganda and Rwanda, assessments from within and outside of the government affirmed that gender budgeting had spurred government efforts to address gender inequality and women's development goals. Stotsky and others (2016) obtained similar results, using associative analysis comparing Uganda and Rwanda to regional peers before and after gender budgeting was put in place.

In Uganda, priority sectors included education; health; agriculture; roads and works; water and sanitation; and justice, law, and order. Some tangible achievements were an increased allocation in the budget to monitor efforts to improve educational equality and participation and retention of girls in school. The Ministry of Education was empowered with tracking the reasons girls drop out of school, including pregnancy, marriage, lack of good sanitary and hygiene facilities, and violence against women. Another part of their efforts focused on empowering women economically, particularly in the agricultural sector where most Ugandans work.

In Rwanda, the government initially chose four sectors as pilots—health, education, agriculture, and infrastructure—to emphasize the importance of extending gender budgeting concerns beyond social sectors. Ultimately, gender budgeting was rolled out to all sectors of the government. All sectors followed the approach of relying on an analysis of the problems and policy implications, an assessment of how these policies could be incorporated into the budget, monitoring of execution and achievement of outputs, and an evaluation of outcomes. Rwanda eventually adopted an organic budget law that included gender budgeting as a fundamental principle, echoing the same commitment found in budgetary reforms in Austria. Another important part of Rwanda's program was the establishment of a Gender Monitoring Office with a substantive role to ensure that the budgetary commitments were being met.

Although gender budgeting in sub-Saharan Africa has focused largely on spending issues, there have been some tax reforms motivated by gender-oriented concerns, both within and outside existing gender budgeting efforts. Most notably, in South Africa, in 1995, the government undertook a comprehensive reform of the tax system, one goal of which was to equalize tax rates on all taxpayers, addressing explicit bias in the income tax. Previously, married women were taxed at a higher rate than men or single women. In another instance, South Africa reduced the value-added tax on paraffin (kerosene), a household fuel that plays a particularly important role for poor households which are predominantly female-headed in that country.

Quinn (2016) provides an extensive look at gender budgeting in Europe. In this region, the integration of gender was made a fundamental part of national-level budgeting, and gender budgeting was given legal status by national parliaments. Austria presents an interesting example—as part of recent reforms, in 2007, it introduced gender equality as a clear objective of the government. In addition, Austria has undertaken fundamental tax reform which had one aim of ensuring that the tax system provides greater incentives for women to work.

In 2007, the Belgian parliament passed a law that required the integration of a gender dimension into all federal policies, including budgeting. The law requires the ministries of government to identify gender equality objectives and then to link these objectives to their budget programs. For instance, the Ministry of Civil Service commits to integrate a gender perspective into its consideration of more flexible work terms for civil service employees. The Ministry of Justice commits to examine gender-oriented goals with respect to prison policies. Further, the Belgian law requires the discussion of the budget in parliament to include gender equality actions and for all government policies and laws to be subject to an assessment in terms of the potential differential impact on women and men. Another important part of the law is to mandate the collection and use of sex-disaggregated data.

The emerging market economies of Europe are also adapting gender budgeting efforts to programs of governmental reform. Ukraine's approach draws upon Austria's leadership in Europe, and in particular, the integration of gender-oriented objectives into programming of the budget.

FISCAL POLICIES TO BOOST FEMALE LABOR FORCE PARTICIPATION

Both tax and expenditure policies affect female labor force participation. Taxation of labor income and government spending on social welfare benefits and pensions affect female labor force participation and the labor market in a similar manner: by weakening the link between labor supply and income, they influence the decision to participate in the labor market. Therefore, the appropriate design of benefits is important to avoid disincentives to work.

Expenditure Measures

The design of family benefits can influence the decisions of parents to participate in the labor market (Jaumotte 2003). The impact of these benefits on labor force participation is complex. On one hand, these benefits (especially for maternity and paternity leave) can help maintain a connection to the labor market and facilitate the return to paid employment. In Organisation for Economic Co-operation and Development (OECD) countries, publicly financed maternity leave is available in all countries except the United States (Table 11.1). The average duration of paid leave (in terms of the full-time-equivalent salary) is 27 weeks. On the other hand, if parents stay out of the labor market for too long, reentry can be more difficult. Christiansen and others (2016), for example, find that parental leave longer than 140 weeks can reduce female labor force participation. This suggests that countries with relatively long periods for parental leave could consider shortening them. Other policies that can help facilitate reentry to the labor market include reducing discrimination and providing greater parity in maternity and paternity leave.

The design of child and family allowances also has a bearing on female labor force participation. Generous child benefits can discourage parents from returning to paid work. Christiansen and others (2016) find that higher public spending on family allowances reduces female labor force participation. Reducing benefit levels for older school-aged children and linking benefits to labor force participation can increase incentives to rejoin the labor market (IMF 2012). A more productive use of public funds to spur female labor force participation lies in subsidizing childcare. Gong, Breunig, and King (2010) and Kalb (2009) review in total 31 studies in 10 different countries and find that the elasticity of female labor supply with respect to the price of childcare is usually between -0.13 and -0.2 .⁸ Hence, if subsidies reduce the price of childcare by 50 percent, labor supply of young mothers will rise by between 6.5 and 10 percent.

Pension systems can also influence the labor force participation decisions of women. In many countries, retirement ages for women are well below those of men—up to five years in several OECD countries (Elborgh-Woytek and others 2013). At the same time, life expectancy for women often exceeds that of men. Raising retirement ages to those of men could thus provide a significant fillip to female labor force participation. Reforms that strengthen the link between contributions and benefits can also provide better incentives for women to remain in the labor market. These reforms, however, would need to address a number of equity issues. Given childcare responsibilities, for example, women often have shorter work histories than those of men and are thus eligible for lower benefits (Takayama 2014). Because of this, many countries provide special credits to women with children (such as Chile, France, Germany, and Sweden).

In developing economies, spending on rural infrastructure and the education of women has the potential to raise female labor force participation. Improving access to clean water, for example, can reduce the time spent by women and girls for collecting water for household use and free up time for income-generating activities (Agenor and Canuto 2012; Koolwal and van de Walle 2013). Similarly, improving transportation services can also facilitate participation in the labor market. Improving the educational attainment of women can also boost female labor force participation—in Latin America, for example, about half of the rise in female labor force participation can be attributed to this (World Bank 2011). In many countries, ensuring that higher spending leads to significantly better educational outcomes will require efforts to reduce inefficiencies in spending, which are substantial.⁹ Better educational attainment for girls can also be facilitated by cash transfer programs that make benefits conditional on families sending their girls to school (World Bank 2011).

⁸For other recent empirical studies, see Thévenon (2011) and Christiansen and others (2016). For a broader analysis of the positive effects of childcare and early childhood education, see OECD 2006.

⁹See Grigoli (2014) for a quantitative assessment of inefficiencies in education spending in developing countries.

Table 11.1. Family Benefits and Female Labor Force Participation

Country	Total Family Benefits ¹ Spending in 2011 (percent of GDP)	Parental Benefits 2014		Total Children Benefits Spending in 2011 (Percent of GDP)	Child Benefits 2011		Female Labor Participation Rate in 2014 (Present)
		Paid Leave (weeks)	Full-Rate Equivalent (weeks)		Childcare spending as percent of GDP	Pre-primary spending as percent of GDP	
Advanced Economies							
Australia	2.8	18.0	7.3	0.6	0.3	0.3	58.7
Austria	2.7	60.0	40.8	0.5	0.5	...	54.7
Belgium	2.9	32.3	13.0	0.7	0.1	0.6	47.6
Canada	1.2	52.0	27.0	...	...	...	61.4
Czech Republic	1.6	110.0	55.9	0.4	0.0	0.4	51.3
Denmark	4.0	50.0	26.7	2.0	0.7	1.3	58.7
Estonia	2.3	160.3	84.9	0.3	...	0.3	56.3
Finland	3.2	161.0	42.6	1.1	0.8	0.3	55.4
France	2.9	42.0	20.8	1.2	0.6	0.7	50.3
Germany	2.2	58.0	34.7	0.5	0.1	0.4	53.7
Greece	1.4	43.0	23.4	...	...	...	44.1
Iceland	3.5	26.0	16.8	1.6	0.9	0.7	70.3
Ireland	3.9	26.0	9.0	0.5	...	0.5	53.1
Israel	2.2	14.0	14.0	0.9	0.2	0.7	57.7
Italy	1.5	47.7	25.2	0.6	0.2	0.4	39.7
Japan	1.4	58.0	35.8	0.4	0.3	0.1	48.7
Korea	0.9	64.9	26.0	0.8	0.7	0.1	50.1
Luxembourg	3.6	42.0	26.2	0.5	0.5	...	50.6
Netherlands	1.6	42.0	20.7	0.9	0.5	0.4	58.3
New Zealand	3.3	14.0	6.5	1.1	0.1	1.0	61.9
Norway	3.1	87.0	36.6	1.2	0.9	0.4	61.2
Portugal	1.2	30.1	20.4	0.4	0.0	0.4	54.9
Slovak Republic	2.1	164.0	52.8	0.4	0.0	0.3	51.2
Slovenia	2.2	52.1	48.4	0.5	...	0.5	52.2
Spain	1.4	16.0	16.0	0.6	0.6	...	52.5
Sweden	3.6	60.0	38.1	1.6	1.1	0.5	60.2

(continued)

Table 11.1. Family Benefits and Female Labor Force Participation (continued)

Country	Total Family Benefits ¹ Spending in 2011 (percent of GDP)	Parental Benefits 2014		Total Children Benefits Spending in 2011 (Percent of GDP)	Child Benefits 2011		Female Labor Participation Rate in 2014 (Present)
		Paid Leave (weeks)	Full-Rate Equivalent (weeks)		Childcare spending as percent of GDP	Pre-primary spending as percent of GDP	
Switzerland	1.4	14.0	7.9	...	...	...	61.8
United Kingdom	4.0	39.0	12.1	1.1	0.4	0.7	55.8
United States	0.7	0.0	0.0	0.4	0.1	0.3	56.3
Average	2.4	54.6	27.2	0.8	0.4	0.5	54.8
Emerging Economies							
Chile	1.3	30.0	30.0	0.4	0.2	0.2	49.4
Hungary	3.3	160.0	70.3	0.6	0.1	0.5	44.9
Mexico	1.1	12.0	12.0	0.6	0.1	0.5	45.1
Poland	1.3	26.0	26.0	0.5	0.1	0.4	48.9
Turkey	0.0	16.0	10.6	...	...	...	29.3
Average	1.4	48.8	29.8	0.5	0.2	0.4	43.5

Sources: Organisation for Economic Co-operation and Development, Social Expenditure database and Family database; and World Bank, World Development Indicators.

Note: Full-rate equivalent is defined as duration of leave in weeks x average payment (as percent of average wage earnings) received by the claimant.

¹ Total family benefits are comprised of family allowances, maternity and parental leave, other cash benefits, day care/home-help services, and other benefits in kind.

Tax Measures

In many economies, tax systems impose strong disincentives for female labor force participation through high tax wedges on secondary earners. If taxes are imposed on family income rather than individual income, the tax wedge applied to secondary earners—often married women—will be higher than for a single but otherwise identical woman. Family taxation and family-related tax elements (such as mandatory joint filing, dependent spouse allowances, and tax credits conditional on family income) are still widespread, although many OECD countries have moved toward individual taxation. Government benefit programs in many countries also result in disincentives for female labor force participation.

Replacing family income taxation with individual income taxation would boost female labor force participation. Empirical studies indicate that the female labor supply is more responsive to taxes than the male labor supply (Keane 2011; IMF 2012). However, when assessing female labor supply, it is important to differentiate the female labor force participation decision from hours worked, conditional on working, where elasticities tend to be lower. Thus, reducing the tax burden for (predominantly female) secondary earners by replacing family taxation with individual taxation can potentially generate efficiency gains, both from improved participation and more hours worked.¹⁰ Countries with potential to reduce the secondary earner tax wedge significantly include France, Portugal, and the United States.

Tax credits or benefits for low-wage earners can be used to stimulate labor force participation, including among women.¹¹ These so called “in-work” tax credits reduce the net tax liability—or even turn it negative for low-wage earners—thereby increasing the net income gain from accepting a job, and are usually phased out as income rises. In countries that emphasize the income support objective, credits are generally phased out with family income and are often conditional on the presence of children in the household.¹² However, the phasing out of the credit with family income results in high marginal tax rates for both the primary and the secondary earner in a family, creating strong adverse labor supply effects among secondary earners. By contrast, in countries that emphasize labor force participation, credits are usually phased out with individual income (the preferable policy to increase female labor force participation) as the marginal tax rate applied to the secondary earner will generally remain lower.¹³

¹⁰Some papers, including Christiansen and others (2016), compute the tax on the secondary worker by means of a simulated outcome, comparing one-earner and two-earner families. In this case, the higher tax on secondary earners may not be a marginal but rather an average effect.

¹¹See Piketty and Saez (2013) for further discussion on taxation and labor supply.

¹²This is the case in Canada, France, Ireland, Korea, New Zealand, the Slovak Republic, the United Kingdom, and the United States.

¹³This approach is followed in Belgium, Finland, Germany, the Netherlands, and Sweden.

SUMMARY AND CONCLUSIONS

A useful first step in assessing how fiscal policies can influence gender equality requires an understanding of the incidence and efficiency effects of government spending and taxation. Most incidence studies have focused on public services that can be disaggregated by gender, such as education or health care, whereas personal income taxation has attracted the most attention on the revenue side. Some public services, however, do not lend themselves to gender disaggregation because they are received by households (or even by communities, in the case of pure public goods). Even with services that cannot be disaggregated, there may still be differential incidence by gender, chiefly because these services have different implications for the time of the beneficiaries. For example, water infrastructure in developing economies relieves the time burden on women and girls, who generally are tasked with provisioning water to the household. Similarly, even with taxes that are impersonalized (levied on a purchase or sale, asset, or corporation), there may be differential incidence by gender because of the nature of production and consumption or asset holdings.

Typically, these assessments make the assumption that statutory incidence is the same as economic incidence. There is scope, however, for relaxing this assumption without overcomplicating the analysis by using empirical estimates of elasticities to achieve a measure of economic incidence. Future research could benefit by moving in this direction. These assessments have also typically relied on simplifying assumptions on the nature of public service consumption within the household. Some studies develop more fully specified economic models of the household to try to better expose the underlying structure and make use of differential inputs such as time to household production and consumption.

Similarly, the incentive effects of public services and taxes can be differentiated by gender. A large literature looks at the differential effect of taxes on women's and men's labor supply and other activities. A growing literature also looks at spending programs or combined tax and spending policies and outcomes.

There are differences in reform priorities in developing and advanced economies for achieving greater gender equality. In developing economies, the empirical evidence on spending incidence suggests that the priority is often appropriately directed to ensuring equal opportunities and meeting international goals in education and health care, especially for females in the lowest income groups. In this sense, the priorities for reducing gender inequality and income inequality are broadly similar. Other economies are focused on improving infrastructure services as a means to greater gender equality, with one important goal being to reduce the unpaid care burden on women. Similarly, governments have looked at ensuring that women have equal economic opportunities by providing a more level playing field in access to resources, including financial credit; addressing constraints on their participation, including unsafe work environments; and supporting their specific training for growing industries. In advanced economies, there is less evidence of gaps in the incidence of education and health spending between females and males, and in fact, some gaps weigh in favor of females today.

However, there is still a gap in economic opportunities, which fiscal policies can help address.

With regard to tax policies, there is a clear need to remove from legislation in the personal income tax code discrimination against female taxpayers where it still exists. The implicit aspect of discrimination with regard to impersonalized taxes is more difficult to address through tax changes and risks burdening tax codes with too many objectives. Tax reforms that affect low-income households, which are predominantly headed by women, should be a focus of any tax reforms, be they with regard to personal income or other taxes.

With a particular focus on policies to encourage more female labor force participation, a separate but related literature also concludes that policies that shift basic services to women that replace unpaid labor in the home will not only generate more gender equality through higher labor force participation but will also have positive effects on allocative efficiency and ultimately economic growth. In all countries, increasing mandatory retirement ages for women is also important where they are significantly lower than that for men.

In advanced economies, reforms of social benefits that affect labor supply decisions will also be critical. These include reform of family benefits to encourage female labor force participation; reform of child support benefits that increase incentives to work; and better access to comprehensive, affordable, and high-quality childcare. Tax reforms are also important. Modeling that takes a simultaneous account of tax and benefit packages shows that disaggregation by gender is fruitful in assessing the effect of fiscal policies and can help steer public policies to address women's advancement and gender equality. Priorities include replacing family income taxation with individual income taxation and greater use of tax in-work credits or benefits to stimulate labor force participation.

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Equal Laws and Female Labor Force Participation

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AND MONIQUE NEWIAK

When men and women are subject to different laws, women typically face institutions that are stacked against them. This chapter assesses whether these differences can explain the gap between male and female labor force participation, specifically whether such legal differences in treatment have an impact on female labor force participation rates over and above the widely discussed determinants of women's participation, including demographic characteristics, educational gaps, and family policies.

LEGAL RIGHTS: DEVELOPMENTS AROUND THE WORLD

Our empirical analysis is enabled through use of the World Bank's Women, Business and the Law (WBL) database, which focuses on how laws and regulations differentiate between men and women and, in turn, alter incentives to join the labor force.¹ The WBL database is based on existing laws (*de jure*) and does not take into account how laws are put into practice (*de facto*). As a result, in the absence of comprehensive data on the practical application of laws across countries, this chapter relates existing legal restrictions to gender gaps in participation.

The WBL database provides detailed information on legal and regulatory barriers to women's economic participation and entrepreneurial activity in 173 countries. It also focuses on seven indicators of gender-related differences in the legal and institutional framework:

- *Accessing institutions*—Women's legal ability to interact with public authorities (for example, the acquisition of national identity cards)

A version of this analysis was previously published as Gonzales and others (2015).

¹The WBL database and the accompanying report are available at <http://wbl.worldbank.org>.

- *Using property*—A woman's legal rights to own, control, and inherit property
- *Getting a job*—Restrictions on women's work (for example, restrictions on night shifts for women)
- *Providing incentives to work*—Tax considerations (such as tax credits and deductions available to women relative to men)
- *Building credit*—Access to finance
- *Going to court*—Access to small claims court and the weight provided to a woman's testimony
- *Protecting women from violence*—The strength of laws to prevent violence against women

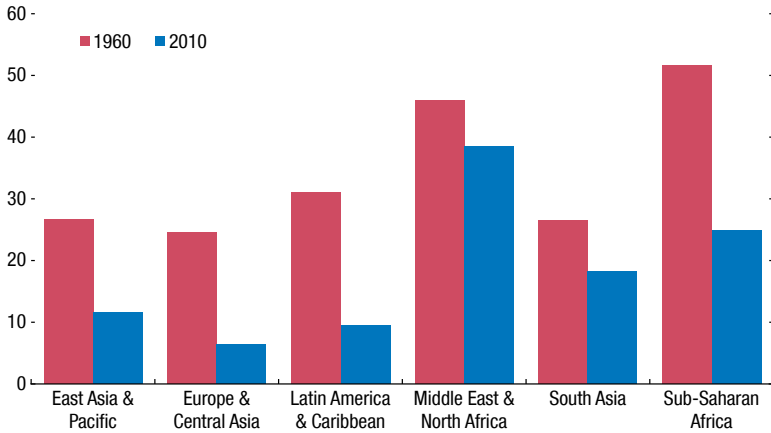
Some countries have numerous legal restrictions, with 30 countries having in place 10 or more restrictions on women's participation. Only 18 economies were found to have no legal differences in the treatment of economic rights for men and women. In contrast, the WBL data suggest that almost 90 percent of the economies have at least one restriction on economic activity by women.

The nature of the restrictions varies across countries. In 18 countries, husbands can prevent their wives from working, and laws or regulations in 100 countries restrict nonpregnant and nonnursing women from pursuing the same economic activities as men. Other restrictions impede women's property rights and thereby their access to finance. Specifically, the World Bank and International Finance Corporation (IFC) (2015) show that in countries with property rights more favorable to women, there is greater financial inclusion of women (10 percentage points more bank accounts owned by women). Gender-based differences in property rights also make it more difficult for women to deploy immovable property as collateral in order access credit.

There has been a steady easing of legal restrictions against women and thereby a gradual leveling of the playing field in most countries (Figure 12.1). For two WBL indicators—accessing institutions and using property—the data set provides detailed information for 100 economies spanning the period from 1960 to 2010 (see Chapter 2 for details on the questions covered). The data show that more than half the restrictions in accessing institutions and using property in place in 1960 had been removed by 2010. In particular, 280 changes took place in the gender-based legal framework, mostly in the areas of introducing a nondiscrimination clause based on gender, female property rights, and the legal ability of married woman to get a job and pursue a profession. The restriction on married women working (for example, needing their husbands' permission) was removed in 23 countries (for example, by Turkey in 2001 and in South Africa and Guatemala in 1998). Restrictions on married women opening a bank account were relaxed in 20 countries, including by Mozambique in 2004 and Lesotho in 2006.

The progress has continued in the recent years, with several countries passing or changing their laws in favor of more gender inequality since May 2013. For

Figure 12.1. The Evolution of Legal Gender-Based Restrictions, 1960–2010
(Percent of total observations)



Source: World Bank, Women, Business and the Law database.

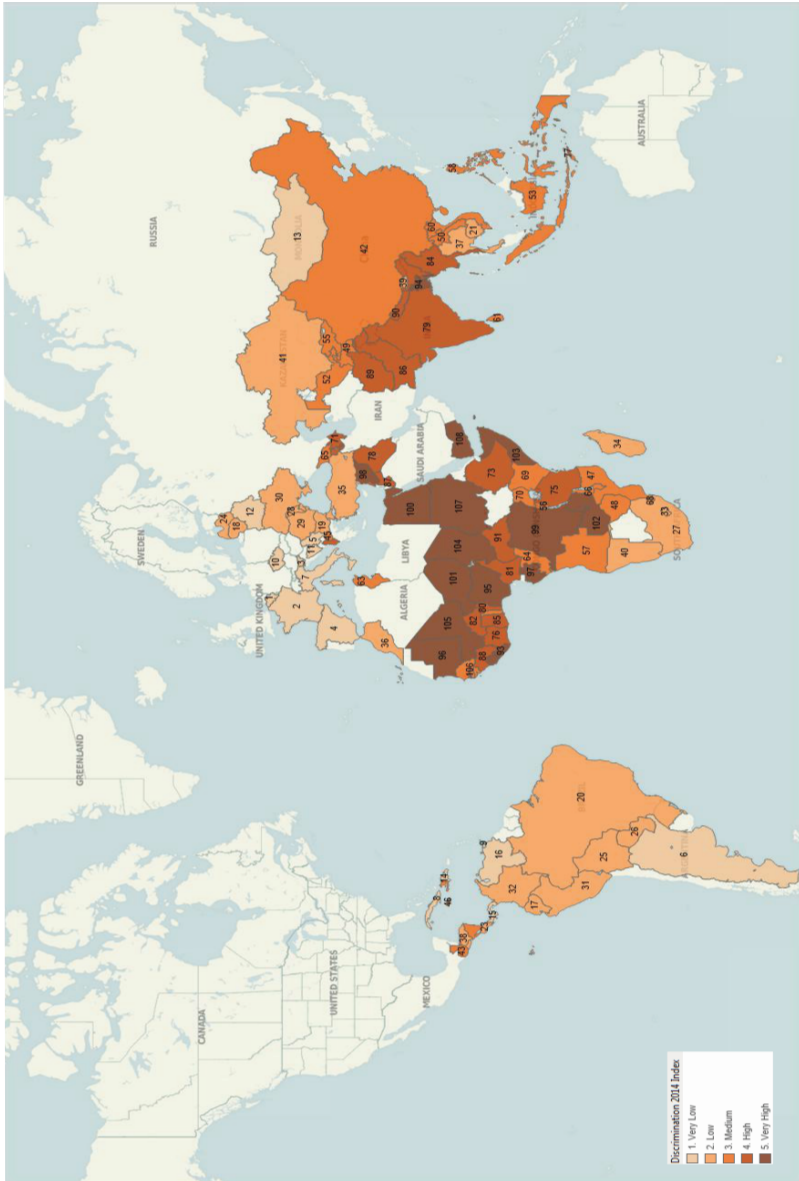
instance, Egypt's new constitution features "sex" as a new category in its nondiscrimination clause (World Bank and IFC 2015). In Belarus, the number of professions in which work by women is prohibited was reduced from 252 to 182. In Nicaragua and Togo, men and women now have equal rights to be the head of household. In Kenya, a new law on matrimonial property gives both spouses equal rights to administer joint property. But despite this progress, there are still many gender-related restrictions in place, particularly in the Middle East and north Africa, sub-Saharan Africa, and south Asia.

The continued prevalence of gender bias in jurisdictions is confirmed by rankings from related databases as well (Figure 12.2). One of these is the Social Institutions and Gender Index (SIGI) of the Organisation for Economic Co-operation and Development (OECD), which is highly correlated with a number of subcomponents of the WBL, including equal inheritance rights and the rights of women to get a job or pursue a profession. Similarly, country rankings in the World Economic Forum's Global Gender Gap Index are highly correlated with those in the WBL and SIGI databases (WEF 2014).

Legal Restrictions and Female Labor Force Participation

The data suggest a strong relationship between legal restrictions and labor market participation rates for women across countries. Figure 12.3 shows that, for a sample of almost 100 countries, more equitable property rights and more equal rights to obtain a job or pursue a profession are associated with lower gender gaps in labor force participation, without significantly affecting male participation

Figure 12.2. Gender-Based Restrictions across Countries, 2014



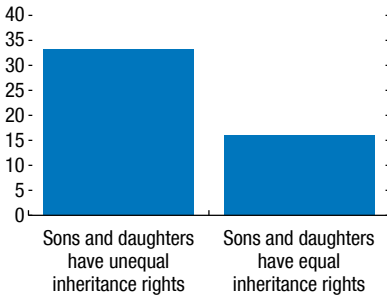
Source: Organisation for Economic Co-operation and Development, Social Institutions and Gender Index (SIGI). <http://www.genderindex.org/>.

Note: Numbers in the map indicate SIGI ranking (1 = very low degree of discrimination in the lightest color, 5 = very high degree of discrimination in the darkest). Numbers inside countries denote countries' rank among all assessed countries (1 = best).

Figure 12.3. Gender Gaps in Economic Participation and Legal Restrictions, 2010

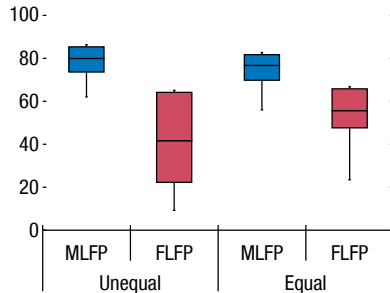
Gender gaps in labor force participation are only half the size in countries without gender-based differences in inheritance rights....

1. Labor Force Participation Gaps
(Male minus female participation, in percent)



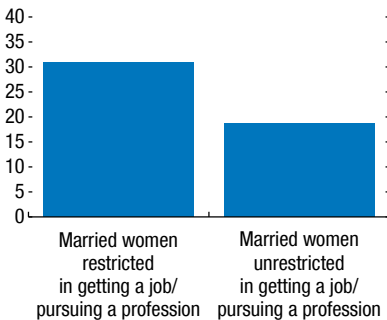
... and deviations around the mean labor force participation rates in these countries are smaller.

2. Male and Female Labor Force Participation under Unequal and Equal Property Rights for Sons and Daughters
(Percent of working-age population)



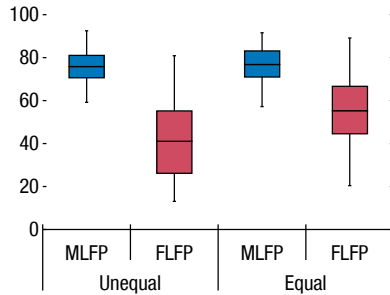
Women are also more likely to join the labor market if their pursuit of a profession is not restricted...

3. Labor Force Participation Gaps
(Male minus female participation, percent)



... and female labor force participation does not appear to substitute for male participation in these countries.

4. Male and Female Labor Force Participation under Unequal and Equal Rights to Get a Job/Pursue a Profession
(Percent of working-age population)



Sources: World Bank and International Finance Corporation 2013; World Bank, World Development Indicators database; and IMF staff estimates.

Notes: FLFP = female labor force participation; MLFP = male labor force participation.

rates. Similar results hold for the association of labor force participation gaps with other economic rights.

Panels 2 and 4 in Figure 12.3 indicate that smaller participation gaps in countries with no gender-based legal restrictions compared with countries with legal restrictions are driven by higher female labor force participation. There is considerable variation in female labor force participation across countries, but averages are higher and the range is narrower in countries where there are no legal differences for men and women. For instance, in countries with unequal inheritance rights for girls and boys (panel 2) female participation rates vary from 23 percent to almost 60 percent, as opposed to countries with equal property rights, where female participation is in the narrower range of 40 to 60 percent (the midpoint is higher in the latter case). This suggests that other important cross-country characteristics, such as demographics, preferences, and other policies, are additional explanatory factors that also play an important role.

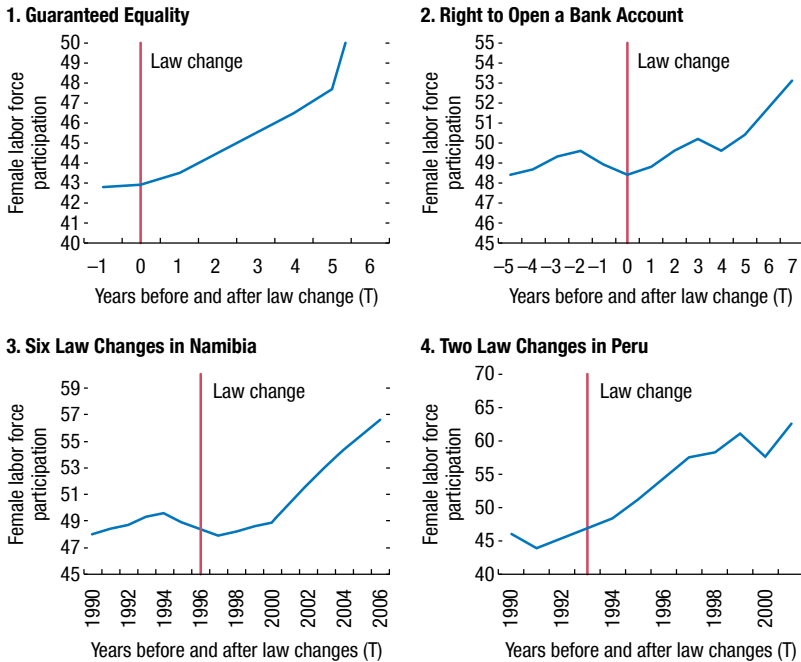
Legal changes have also on average been associated with marked increases in female labor force participation over time. Figure 12.4 plots the median female labor force participation rates for countries in which equality of men and women was constitutionally granted (panel 1). The year of the change is shown in the figure as $T = 0$. It shows that, in 50 percent of the countries where equity was legally granted, female participation increased by some 5 percentage points in the following five years. Such large increases in female labor force participation are likely to have a significant effect on economic growth. Similar results hold for other rights, such as the right to open a bank account (panel 2).

In some countries, several favorable changes in laws made during the course of a year have been found to have had strong effects on female labor force participation (Box 12.1). For example, in 1996 Namibia passed the “Married Persons Equality Act,” which triggered six changes in the WBL classification. In particular, the law equalized property rights for married women and granted women the right to sign a contract, head a household, pursue a profession, open a bank account, and initiate legal proceedings without their husbands’ permission. In Peru, customary law was abolished as a valid source under the Constitution in 1993 and invalidated if it violated the nondiscrimination clause. Malawi introduced similar laws invalidating customary law in 1994, combined with a nondiscrimination clause and equal inheritance rights for surviving spouses. Namibia and Peru experienced substantial increases in female labor force participation rates of 10 and 15 percentage points, respectively, in the decade that followed those changes (Figure 12.4, panels 3 and 4). In Malawi, female labor force participation rates increased further from already high levels.

Drivers of Female Labor Force Participation: Related Literature

The theoretical and empirical literature on female labor force participation is vast (Box 12.2). This overview does not aim to be exhaustive but rather to provide a short summary of the main areas of work related to the current study. Specifically,

Figure 12.4. Changes in Female Labor Force Participation Rates after Selected Legal Changes



Sources: World Bank, *Women, Business and the Law* database; and IMF staff estimates.

Box 12.1. Constitutional Reforms in Kenya

The 2014 *Women, Business and the Law* report by the World Bank and International Finance Corporation (2015) points to constitutional reforms in Kenya in 2010 as leading to changes equalizing women's legal status. Kenya's constitution has prohibited gender discrimination since 1997. However, customary law—traditional rules governing personal status and communal resources—was exempt from this nondiscrimination clause and prevailed in a number of areas, including inheritance and property rights afforded to women. The main reform in 2010 entailed making customary law subject to nondiscrimination and equal treatment. Until this change, women faced discrimination in matters related to personal status, inheritance, and property rights. In addition, the new constitution sets quotas for the representation of women in the parliament that were expected to be implemented by 2015.

Such constitutional reforms can lead to increases in female economic participation. The *Women, Business and the Law* report notes that in almost a third of sub-Saharan African countries, customary law prevails even if it violates constitutional provisions on gender-based discrimination. This suggests that there is significant potential to institute constitutional reforms similar to those enacted in Kenya to further level the playing field. This in turn could lead to sizable increases in female economic participation.

Box 12.2. Theoretical Underpinnings of Female Labor Supply: A Selective Literature Survey

Female labor supply is often modeled using the framework of the time allocation model (Becker 1965), which posits that women make their labor supply decisions considering not only leisure and labor but also home-based production of goods and services (including caring for children). As Jaumotte (2003) points out, working for a wage is chosen only if earnings at least make up for the lost home production (and the associated costs), implying a higher elasticity of female labor supply to wages.

Most studies emphasize the importance of education in models of female labor supply. A number of studies also include wages as a key in modeling female labor supply models (Heckman and MaCurdy 1980). Fernandez and Wong (2014) develop a dynamic life-cycle model with incomplete markets and risk-averse agents who differ in their educational endowments and make work, consumption, and savings decisions. They find that, in addition to the above factors, divorce risk has a large impact on married women's participation rates.

Eckstein and Lifshitz (2011) estimate a dynamic stochastic female labor supply model with discrete choice (contained in Eckstein and Wolpin 1989) and find that changes in education (accounting for a third of the increase in female employment) and wages (explaining about 20 percent) play a large role in explaining female employment. They also formulate a new framework that models intrafamily dynamics (using dynamic stochastic games) and relate it to the household's labor supply decision.

it touches upon demographic factors, policy choices, institutions, legal variables, and signaling effects that have been associated with changes in women's economic activity.

Fertility has been shown to significantly affect female labor force participation. For individual countries, there is evidence of a negative relationship between fertility and women's participation in the labor force. For instance, Bloom and others (2009) find that the number of births is significantly negatively related to women's labor supply, with each birth on average decreasing women's labor supply by almost two years during a women's reproductive life. Mishra and Smyth (2010) find that a 1 percent increase in the fertility rate results in a 0.4 percent decrease in female labor force participation rates in the advanced economies of the Group of Seven. While there is a negative relationship between the variables at the individual country level, there is a positive relationship between fertility and female labor force participation at the cross-country level. Using data from the OECD countries, De Laat and Sevilla-Sanz (2011) explain this puzzle—namely a negative relationship at the individual country level but a positive one across countries—by including men's contribution to home production. They find that women living in countries where men participate more in home production are better able to combine having children with working, leading to greater participation in the labor force at relatively high fertility levels. The trade-off between family and work is also reflected in a negative correlation between female labor force participation and marriage rates.

Educational attainment for women is positively correlated with female economic participation. Calibrating a dynamic model of labor supply, Eckstein and Lifshitz (2011) find that one-third of the increase in female employment during the last century in the United States can be attributed to education. In an empirical exercise, Steinberg and Nakane (2012) show that a 1 standard deviation increase in the education level in OECD countries is associated with a 3 percentage point increase in female labor force participation.

The scope for increasing female labor force participation through tailored and country-specific fiscal policies is significant (Aguirre and others 2012; Duffo 2012; Revenga and Shetty 2012; Sen 2001; Thévenon 2013; Kalb 2009). On the revenue side, tax credits or benefits for low-wage earners can stimulate labor force participation, including among women. By reducing the net tax liability or even turning it negative, tax credits increase the net income gain from accepting a job. Such credits are usually phased out as income rises. Policies can also build on the fact that female labor supply is more responsive to taxes than male labor supply (IMF 2012). For example, a switch from family income taxation to individual income taxation that reduces the tax burden for (predominantly female) secondary earners can increase female labor force participation, whereas it would affect the less-tax-elastic male labor supply to a smaller extent.

As for expenditure policy, better access to comprehensive, affordable, and high-quality childcare frees up women's time for formal employment (Gong, Breunig, and King 2010). The elasticity of female labor supply with respect to the price of childcare has been shown to range from -0.13 to -0.2 . Thus, reducing the price of childcare by 50 percent could be associated with an increase of 6.5 to 10 percent in the labor supply of young mothers. Other studies (Ghani, Kerr, and O'Connell 2013; Norando 2010) document the importance of public infrastructure to boost the participation of women in the labor force. Norando (2010) finds that a large part of the difference in female labor force participation rates in 1990 between the United States, on the one hand, and Brazil and Mexico, on the other, can be explained by the availability of basic infrastructure (electricity and running water). Ghani, Kerr, and O'Connell (2013) note that inadequate infrastructure affects women's participation more than that of men because women are more often responsible for household activities.

The availability of maternity leave can encourage greater participation, but its effects can be nonlinear. In other words, while properly designed family benefits can help support female labor force participation (Jaumotte 2003), long periods outside the labor market also risk reducing skills and earnings (Ruhm 1998; Edin and Gustavsson 2008). Independently of its duration, paid parental leave appears to have a negative effect on the gender gap in earnings of full-time employees (Thévenon and Solaz 2013). As parental leave is mostly taken by women, it can indirectly encourage employer discrimination and discourage employers from hiring women for positions that require costly qualification and training periods (Mandel and Semyonov 2005). This implies that policies that encourage greater parity between paternity and maternity leave could support a more rapid return

to work among mothers and help shift underlying gender norms (World Bank 2012).

Gender-based legal restrictions impede women's empowerment and thus their economic participation. In addition, weak or restrictive laws related to family, gender-based violence, and economic opportunities are most likely to impede women's empowerment, with a lack of gender parity in business and institutional laws strongly associated with lower levels of economic participation by women (Klugman and Twigg 2012; World Bank and IFC 2013).

Social institutions associated with more gender equality have been shown to be strongly positively related with better development outcomes and living standards. More equal property rights for men and women stimulate investment by eliminating inefficiencies, are associated with higher GDP per capita, and can shift the composition of public spending related to health, education, and children (Doepke, Tertilt, and Voena 2012). Using information from the OECD's Social Institutions and Gender Index, Branisa and Klasen (2013) show that the existence of institutions that perpetuate gender inequality is associated with lower female secondary education, higher fertility rates, higher child mortality, and a greater perception of corruption in the respective country. They propose, among other things, the passage of antidiscrimination laws or the introduction of programs in support of women and girls.

Women in leadership positions may also increase female labor force participation by providing role models for other women, and by combating stereotypes. The introduction of quotas for women in political positions has been shown to increase women's political participation and votes for women. In Rwanda, the constitutionally guaranteed quota of 30 percent of women in Parliament has been filled and indeed exceeded (Klugman and Twigg 2012). By weakening stereotypes about gender roles, the use of quotas for women in leadership positions in Indian village councils has led to a greater likelihood of women standing for elected positions in these councils. Also, once women are in charge, they can significantly change public attitudes toward women and can raise the aspirations parents have for their daughters and the aspirations teenage girls have for themselves (Beaman and others 2009). The introduction of female quotas in Italy in the 1990s tripled the probability of voting for women (De Paola, Scoppa, and Lombardo 2010) and increased female representation in politics (Bonomi, Brosio, and Di Tommaso 2013). Kang (2013) found that the success of gender quota laws in Niger depended on the design of the law, the institutional context, and having female activists monitoring its application.

Restrictions and Female Labor Force Participation: Empirical Results

Gender-based legal differences help explain female labor force participation gaps in a sample of OECD countries (Table 12.1; for the econometric details see Annex 12.1). The results confirm that a combination of demographics, policies, and legal rights can explain the dynamics of the gender gap in labor force

TABLE 12.1.

Labor Force Participation Gaps and Legal Restrictions: Organisation for Economic Co-operation and Development Country Sample (Male minus female labor force participation, percent) ¹										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Children ²	9.287*** (3.37)	5.218* (1.79)	4.395 (1.53)	3.758 (1.32)	4.993* (1.71)	3.825 (1.33)	4.769* (1.66)	3.758 (1.32)	3.758 (1.32)	3.758 (1.32)
Education	-7.094** (-2.03)	-6.141* (-1.70)	-6.990* (-1.95)	-7.128* (-2.01)	-6.286* (-1.75)	-7.074** (-2.00)	-6.712* (-1.88)	-7.128** (-2.01)	-7.128** (-2.01)	-7.128** (-2.01)
Maternity leave		-1.333*** (-4.01)	-1.123*** (-3.96)	-1.098*** (-3.84)	-1.143*** (-4.05)	-1.120*** (-3.94)	-1.116*** (-3.94)	-1.098*** (-3.84)	-1.098*** (-3.84)	-1.098*** (-3.84)
Unmarried, property rights			-3.105*** (-3.83)							
Married, property rights				-3.160*** (-6.19)						
Married, joint titling					-1.797* (-1.85)					
Be head of household						-2.373*** (-3.75)				
Get job/pursue a profession							-2.313** (-2.51)			
Open bank account								-3.160*** (-6.19)		
Sign contract									-3.160** (-6.19)	
Initiate legal proceedings										-3.160*** (-6.19)
Number of observations	574	484	484	484	484	484	484	484	484	484
Adjusted R-squared	0.254	0.330	0.340	0.350	0.339	0.358	0.347	0.350	0.350	0.350

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

¹Three-year seasonal differences were taken to make series stationary.

²Log of children instrumented with its lag.

participation in the OECD. In addition, legal rights—such as equal property rights for married and unmarried women and women’s rights to head a household, pursue a profession, open a bank account, or sign a contract and initiate legal proceedings—are strongly associated with lower gender gaps in OECD countries. In particular, the results highlight the following:

- *Demographics and education*—Expanding the sample in Steinberg and Nakane (2012) to include more recent years and substantially increasing the number of countries covered by the panel qualitatively confirms results in earlier studies vis-à-vis demographic variables such as family size and level of education. The findings show that education has a significant positive effect on female labor force participation and thereby shrinks the gap, whereas increasing family size has the opposite effect.
- *Policies*—Family-friendly policies such as maternity leave significantly contribute to reducing gender gaps in labor force participation in OECD countries.
- *Legal rights*—The lack of equal economic rights significantly contributes to explaining the variation of labor force participation gaps across countries and over time. In particular, the rights of married women to open a bank account, sign a contract, or initiate legal proceedings without their husbands’ permission are associated with a statistically significant decrease in the gender gap in labor force participation. The removal of most of the legal restrictions individually leads to a reduction of between 2–3 percentage points in the gender gap in labor force participation.

Legal restrictions also strongly hinder female labor force participation in emerging market and developing economies (Table 12.2; for the econometric details, see Annex 12.1). Our results show that legal rights—such as guaranteed equality, equal property, and inheritance rights, as well as other economic rights (for example, being allowed to head a household)—are associated with smaller gender gaps in labor force participation in a statistically and economically significant way. For example, guaranteed legal equality reduces the gender participation gap by 1.3 percentage points. The larger variation in legal rights in the larger data set also allows us to explore the effect of removing several legal restrictions at the same time. In particular, while each of the rights is important individually, the joint effect of guaranteed equity, more equal inheritance rights, and the legal right of women to head a household is associated with a larger decline in gender gaps in labor force participation of around 4.6 percentage points.

CONCLUSIONS AND POLICY RECOMMENDATIONS

There has been progress in removing gender-based legal restrictions, but the playing field is far from level. The ideal of equality in terms of economic opportunity remains elusive in some countries. A number of legal restrictions that impede female labor force participation remain in place which in turn hampers

TABLE 12.2.

Labor Force Participation Gaps and Legal Restrictions: Emerging Market and Developing Economy Sample (Male minus female labor force participation, percent) ¹								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fertility ²	1.494** (2.12)	1.388** (1.96)	1.362* (1.93)	1.414** (2.00)	1.391** (1.97)	1.402** (1.99)	1.502** (2.13)	1.394** (1.97)
Education	-2.775*** (-3.10)	-3.630*** (-3.86)	-3.579*** (-3.83)	-3.411*** (-3.73)	-3.314*** (-3.61)	-3.331*** (-3.62)	-3.063*** (-3.36)	-3.670*** (-3.93)
Married, property rights		-0.968* (-1.72)					0.176 (0.35)	
Daughters, inheritance rights			-2.531*** (-7.35)				-1.919** (-2.35)	-2.331*** (-5.99)
Spouses, inheritance rights				-1.646** (-2.55)			-0.641 (-0.75)	
Be head of household					-1.171** (-2.29)		-0.907** (-2.04)	-0.942* (-1.87)
Guaranteed equality						-1.260** (-2.12)	-1.299** (-2.12)	-1.297** (-2.15)
Number of observations	1251	1262	1262	1269	1277	1277	1243	1261
Adjusted R ²	0.301	0.304	0.303	0.302	0.301	0.299	0.306	0.306

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

¹Three-year seasonal differences were taken to make series stationary.

²Log of fertility instrumented with its lag.

productivity and sustainable and inclusive growth. Indeed, although greater gender equity is in itself an important development goal, such restrictions also impose additional economic inefficiencies because they restrict access to productive resources and economic choice and prevent the efficient allocation of resources. And, while this chapter focuses on legal restrictions that affect women's economic activity, there are other restrictions with serious social implications that should be addressed, such as the way laws treat violence against women.

Liberalization of different legal restrictions may yield benefits over different time horizons. For example, granting the right to pursue a profession could yield relatively fast gains, while other reforms, such as equalizing inheritance rights, may work through indirect channels and have effects on a range of economic activity. Policies should strive to eliminate the various remaining legal restrictions that prevent women from participating in the labor force, restrictions that range from preventing women from opening bank accounts to discriminatory property rights. Among the variety of gender-related legal rights, constitutionally guaranteed equity between men and women should be the absolute minimum, because it can have important catalytic effects on other reforms. To remove legal restrictions more broadly, countries should strive to guarantee legal equality to women in all dimensions.

This chapter does not take a normative stance on women's participation in the labor force but advocates a level playing field. Removing the obstacles that prevent women from reaching their full economic participation would give them the option to become economically active should they so choose. Increasing female economic participation in turn would lead to higher growth and more favorable development outcomes. Nevertheless, it should be emphasized that the policy recommendations with respect to creating equal opportunity should be considered against the backdrop of countries' broadly accepted cultural and religious norms.

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ANNEX 12.1 ECONOMETRIC METHODOLOGY

For a set of Organisation for Economic Co-operation and Development (OECD) countries and a wider global sample, including advanced, emerging market, and developing economies, the panel regressions are estimated as follows (for a detailed description of data sources, see Gonzales and others 2015):

$$Gap_{it} = \alpha + \beta \times Demographics_{it} + \gamma \times Education_{it} + \delta \times Policy_{it} + \phi \times Legal_{it} + FE_{it} + \varepsilon_{it}, \quad (12.1)$$

in which Gap_{it} refers to the male labor force participation rate minus the corresponding rate for females in country i at time t .

$Demographics_{it}$ includes the fertility rate, and the number of children are instrumented with lags of itself to mitigate endogeneity.

$Education_{it}$ refers to years of schooling from the Barro-Lee database.

$Policy_{it}$ refers to the number of weeks of maternity leave provided.

$Legal_{it}$ includes the various legal restrictions contained in the World Bank's Women, Business and the Law (WBL) database, as described in the paper.

For the OECD and global sample, country fixed effects are included in the regressions. Country fixed effects control for country-specific drivers of gender labor force participation gaps that are not explicitly controlled for in the regressions and if omitted could lead to misleading results. The Hausman test indicates that a fixed effects model is appropriate for both sets of panel regressions.

As the labor force participation series appear to exhibit a time trend, tests for panel unit roots are carried out and show that labor force participation for both males and females are integrated of the order 1. Differencing male and female labor force participation series results in a $I(0)$ or stationary series. We also difference other nonstationary variables including fertility and education.

We test for whether time dummy variables need to be included to control for the time trends. In the F test, we fail to reject the null that the coefficients for all years are jointly equal to zero, and therefore no time fixed effects are required.

We also conduct a number of robustness checks in which we run regressions with a number of different specifications: (1) including GDP per capita as a control variable; (2) including lags of the WBL variables, since the effects of legal changes could take time to reflect in labor force participation; (3) using female labor force participation instead of the gap as the dependent variable; (4) including a number of other variables such as childcare spending, wage gap, maternity leave, family allowance, tax wedge, and part-time employment as controls for the OECD sample; (5) including health and education spending as controls for policy variables in the emerging market and developing country sample; and (6) using the birth rate instead of fertility rate. While some variables from the baseline regression were not significant in some of the alternative specifications, a number of the WBL variables were always significant, indicating that the results are robust to changes in econometric specification.

We also used policy variables as explanatory variables in the regression. However, in the case for the OECD sample not enough variability in the data remains after the inclusion of these variables due to a reduced sample size, and there is insufficient data covering family policies for emerging markets and low-income countries.

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Women, Work, and Economic Growth

Leveling the Playing Field

Edited by Kalpana Kochhar, Sonali Jain-Chandra, Monique Newiak

Women make up a little over half of the world's population, but their contribution to measured economic activity and growth is far below its potential. Despite significant progress in recent decades, labor markets across the world remain divided along gender lines, and progress toward gender equality seems to have stalled. The challenges of growth, job creation, and inclusion are closely intertwined.

This volume brings together key research by IMF economists on issues related to gender and macroeconomics. In addition to providing policy prescriptions and case studies from IMF member countries, the chapters also look at the gender gap from an economic point of view by covering issues such as income gaps and participation in the labor force, as well as legal impediments that affect the economic activities of women within some societies. Chapters provide an overview of trends in gender inequality of opportunities and outcomes across different regions, their implications for growth, and suggested policy prescriptions for the different case studies reviewed.

The research shows that, for countries across all levels of development, income inequality is strongly associated with gender inequality: For advanced economies—with gender gaps in education largely closed and more equal economic opportunities across sexes—income inequality arises mainly through gender gaps in economic participation. In emerging markets and low-income countries, inequality of opportunity, in particular in gender gaps in education and health, appear to pose the main obstacle to a more equal income distribution. Gender gaps in education and economic participation harm economic diversification by cutting short the stock of human capital in the economy and constraining the pool of talent employers can choose from. Lower economic diversification, in turn, hurts growth in low-income countries.

Women, Work, and Economic Growth
Leveling the Playing Field

