Ginting, Edimon (Ed.); Manning, Chris (Ed.); Taniguchi, Kiyoshi (Ed.)

Book

Indonesia : enhancing productivity through quality jobs

Provided in Cooperation with:
Asian Development Bank (ADB), Manila

Reference: (2018). Indonesia : enhancing productivity through quality jobs. Mandaluyong City, Metro Manila : Asian Development Bank.

INDONESIA

ENHANCING PRODUCTIVITY THROUGH QUALITY JOBS

ASIAN DEVELOPMENT BANK

ADB

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Edited by Edimon Ginting, Christopher Manning, and Kiyoshi Taniguchi

ASIAN DEVELOPMENT BANK

6 ADB Avenue, Mandaluyong City, 1550 Metro Manila, Philippines
Tel +63 2 632 4444; Fax +63 2 636 2444
www.adb.org

ISBN 978-92-9261-078-4 (print), 978-92-9261-079-1 (electronic)
Publication Stock No. TCS189213-2
http://dx.doi.org/10.22617/TCS189213-2

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Foreword

Indonesia has recorded respectable economic growth, especially when compared with other Asian peer economies, despite the slow recovery from the Asian Financial Crisis in 1998. Rising commodity prices from 2003 to mid-2008 significantly benefited the Indonesian economy. During the commodity price boom period, Indonesia experienced its highest rate of growth in total exports since the Asian Financial Crisis. The windfall in export revenues increased the country's trade balance surplus as well as its foreign reserves. The rising commodity prices also increased the government revenues and helped to create more jobs and alleviate poverty. However, as prices of major commodities started to decline from 2012, Indonesia and other major commodity exporting economies have suffered accordingly from the economic downturn.

Today, Indonesia faces the coexistence of old and new development challenges. While challenges to sustain high economic growth remain, with rising income inequality during the commodity boom period, the government has put increased focus on making growth more inclusive. There is a growing consensus among policy makers that better jobs and greater productivity are the fundamental factors needed for sustaining rapid and more inclusive growth. It is widely recognized that improved productivity is essential to maintaining Indonesia's competitiveness. Meanwhile, better jobs are critical for improving living standards and reducing poverty. A clear understanding of the labor market, demographic and labor force transitions, and investment in education and skills development should help create a basis for sustainable growth for the next generation.

This study, *Indonesia: Enhancing Productivity through Quality Jobs*, presents findings of thematic analyses of the current development challenges related to employment outcomes and job creation in Indonesia. The study presents data on the growth and structure of the working-age population and labor force. Here it highlights opportunities created by the "demographic dividend" and some positive signs of female engagement in the workforce. However, the challenge of the labor market is a large backlog of lower productivity labor in agriculture and in the informal sector,

which is a drag on improvements in wages and productivity. In recent years, we observe a more rapid trend of labor migration out from low productivity agriculture to the services sector. Given the labor saving effects of modern technology, the economy needs to create a more diversified services sector to absorb the labor surplus. In tandem with the labor migration out from agriculture, Indonesia has urbanized rapidly. While the agglomeration externalities accelerate average productivity growth, urban districts also tend to attract a high share of low-productivity services. Education and training for skills in demand are key for sustaining productivity growth. In this context, the imbalance between the demand and supply of human capital is a major challenge. The quality, not the quantity, of education and relevance of skills training is critically important. The study maintains that moving forward on selected labor market policies and issues, including minimum wages and collective bargaining, compliance with labor regulations, employment protection legislation (including severance payments), and the expansion of nonstandard forms of work, requires a high degree of commitment among stakeholders to implement the reforms in good faith.

I believe that *Indonesia: Enhancing Productivity through Quality Jobs* will gain the attention of a wide range of readers including policy makers, development stakeholders, and researchers in this field. This book makes a valuable contribution to knowledge among those who wish to promote sustainable growth and the prosperity of the Indonesian economy.

The study was prepared by a team from the Asian Development Bank (ADB) Economic Research and Regional Cooperation Department (ERCD) under the supervision of Edimon Ginting, Director of the Economic Analysis and Operational Support Division, ERCD. The book was collectively edited by Edimon Ginting; Christopher Manning (Australian National University); and Kiyoshi Taniguchi (Senior Economist, ADB). The core study team comprises Valerie Mercer-Blackman, Senior Economist, and Lilibeth Poot, Economics Officer at ERCD, ADB; Emma Allen, Economist at the Indonesia Resident Mission, ADB; Ruth Francisco and Daryll Naval, ADB Consultants; Devanto Shasta Pratomo, Researcher at Brawijaya University; Asep Suryahadi, Joseph Marshan, and Veto Tyas Indrio at the SMERU Research Institute; and Mohammad Zulfan Tadjoeddin, Senior Lecturer in Development Studies at the Western Sydney University. Robert Kyloh provided invaluable insights on industrial relations. Amanda Isabel Mamon (ERCD) provided administrative support. Editorial support for the book was provided by Stephen Banta and Jill Gale de Villa. Michael Cortes did the layout, cover design, and typesetting.

The ADB Southeast Asia Department (SERD) provided useful comments for enhancing the relevance of the report. The study team acknowledges the excellent support from ADB's Indonesia Resident Mission staff, led by Country Director

Winfried F. Wicklein. The study team also acknowledges invaluable comments from Ayako Inagaki, Director, Human and Social Development Division (SERD); Rudi Van Dael, Senior Social Sector Specialist, and Sakiko Tanaka, Senior Social Sector Specialist at SERD, who initially led the study in its inception.

Last but not least, we are heavily indebted to the Government of Indonesia for support and guidance. The study team especially thanks the Government of Indonesia, led by Rudy Salahuddin, Deputy Minister for Creative Economy, Entrepreneurship, and Cooperatives and SMEs Competitiveness, Coordinating Ministry for Economic Affairs, for its continuing support, encouragement, and insightful feedback. Our special thanks go to the seminar participants in Jakarta in October 2016, including Haiyani Rumondang, Director General, Directorate General of Industrial Relations and Social Security Workers, Ministry of Manpower, and other participants.

Yasuyuki Sawada
Chief Economist and Director General
Economic Research and Regional Cooperation Department
Asian Development Bank

Abbreviations

ACDP	Analytical and Capacity Development Partnership
ACPECC	ASEAN Chartered Professional Engineer Coordinating Committee
ADB	Asian Development Bank
AEC	ASEAN Economic Community
AFC	Asian Financial Crisis
ASEAN	Association of Southeast Asian Nations
BAPPENAS	Badan Perencanaan Pembangunan Nasional (National Planning Agency)
BLK	public technical training center (*balai latihan kerja*)
BNP2TKI	Badan Nasional Penempatan dan Perlindungan Tenaga Kerja Indonesia (National Agency for Placement and Protection of Labor)
BNSP	Badan Standar Nasional Pendidikan (National Body for Professional Certification)
BPJS Kesehatan	Badan Penyelenggara Jaminan Sosial (Social Security Agency) national health insurance program
BPS	Badan Pusat Statistik (Statistics Indonesia)
CPI	consumer price index
DESA	Department of Economic and Social Affairs (United Nations)
ECD	early childhood development
EPL	employment protection legislation
GDP	gross domestic product
GER	gross enrollment ratio
GR78	Government Regulation No. 78 of 2015
IFLS	Indonesia Family Life Survey
ILO	International Labour Organization
IMF	International Monetary Fund
IQF	Indonesian qualifications framework
KHL	*kebutuhan hidup layak* (minimum decent standard of living)
km	kilometer
Lao PDR	Lao People's Democratic Republic
LFPR	labor force participation rates
MOEC	Ministry of Education and Culture
MPA13	Manpower Act No. 13 of 2003
MRA	mutual recognition agreement
NEET	not in employment, education, or training
NLFS	National Labor Force Survey
NTP	farmer terms of trade (nilai tukar petani)
OECD	Organisation for Economic Co-operation and Development

PCI	product complexity index
PISA	Programme for International Student Assessment
PRC	People's Republic of China
RGDP	regional gross domestic product
Rp	Indonesian rupiah
SAKERNAS	Survei Angkatan Kerja Nasional (National Labor Force Survey)
SCI	services complexity index
SDDS	Special Data Dissemination Standard
SMK	vocational high school (sekolah menengah kejuruan)
SUSENAS	Survei Sosial Ekonomi Nasional (National Socio-Economic Survey)
TVET	technical and vocational education and training
UIS	UNESCO Institute for Statistics
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund

Author Profiles

Emma Allen joined the Asian Development Bank (ADB) Indonesia Resident Mission in 2016 as Country Economist. She prepares the Indonesia chapter of ADB's flagship publication, *Asian Development Outlook*. She also supports the design and implementation of ADB loans and technical assistance related to public expenditure management, sustainable development goals, knowledge support, skills development, and financial inclusion. Prior to joining ADB, she was a Labor Market Economist with the International Labour Organization (ILO) and worked in several locations, including Geneva, Indonesia, South Africa, and Tanzania. She has authored over 20 academic and research papers, books, and manuals on issues in employment trends, public works programs, enterprise development, wages and productivity, labor market institutions, skills development, and women in the labor force. She received her PhD in Economics and her Bachelor's degree in combined Economics and Education from the University of Newcastle, Australia in 2015 and 2004, respectively.

Ruth Francisco is a Social Sector Economist (consultant) at the Economic Analysis and Operational Support Division (EREA) of ADB's Economic Research and Regional Cooperation Department (ERCD). She has been doing consulting work for various research and operation departments at ADB, the United States Agency for International Development (USAID), and the United Nations Children's Fund (UNICEF) since 2006. Previously, she was a teaching associate at the University of the Philippines, where she obtained her Master's degree and PhD in economics. She specializes in education and health economics.

Edimon Ginting is the Director of EREA, ERCD. In his current capacity, he leads the preparation of the country diagnostic studies for ADB developing member countries (DMCs). The studies inform ADB operations and facilitate dialogue with DMC officials on key structural reforms. In his first 6 years in ADB, he led nine large ADB operations to support economic reforms and countries' responses to the global financial crisis. As Deputy Country Director of ADB in Indonesia, he supervised the delivery of ADB programs for the country, including loans to support structural reforms in the capital market, transport, and energy sectors. Prior to joining ADB, he was an Economist at the International Monetary Fund (IMF); Advisor at the Indonesian Parliament;

Research Economist at the Productivity Commission, Australia; Researcher and Lecturer at the University of Indonesia; Postdoctoral Fellow at Monash University; and Research Economist at Gadjah Mada University. He received his PhD in economics from Monash University.

Veto Tyas Indrio is a Junior Researcher at The SMERU Research Institute in, Jakarta, Indonesia. His areas of research expertise are socioeconomics, poverty, and development studies. At SMERU, he is involved in several projects including a unique longitudinal study, poverty map of Indonesia, diagnostic study of child labor in rural areas, entrepreneurship, and economic growth in Indonesia. Prior to joining SMERU, he was a Teaching Assistant at the University of Indonesia, where he was an undergraduate student in the Faculty of Economics Faculty of Economics and Business. His undergraduate thesis is about financial deepening and growth of income per capita.

Chris Manning is an Honorary Associate Professor in the Indonesia Project at the Australian National University (ANU). He was Head of its Indonesia Project from 1998 to 2010. He is author or coauthor of over 30 refereed journal articles and 30 book chapters, as well as several books, research monographs and edited volumes on Indonesia and other Southeast Asian countries, including *Indonesian Labour in Transition: An East Asian Success Story?* (Cambridge, 1998). He continues to play an active role in supporting the research of the Indonesia Project as well as research for several international agencies on labor markets, migration and regional development issues, from a base in Indonesia since he formally retired from the ANU in 2011. He has a PhD in economics from the ANU.

Joseph Marshan is a Researcher at The SMERU Research Institute. His research projects in Indonesia include estimating poverty rates at the village level, child labor in tobacco farming, and livelihoods of households headed by women. His areas of expertise and interest include labor markets, intra-household allocations, and small area estimations. He obtained his Master's degree in Economics from the ANU and is currently in the process of obtaining his PhD at the Research School of Economics, ANU.

Valerie Mercer-Blackman is a Senior Economist at the macroeconomic research division of ADB, focusing on regional trends and development of macro monitoring tools. Her research at ADB has focused on diversification, employment and productivity issues in Bangladesh, Indonesia, and Kazakhstan. Her past analytical work includes growth drivers, investment, and fiscal issues in developing countries, specifically investment and taxation of oil and gas. Prior to joining ADB, she worked as a Macroeconomist at the Inter-American Development Bank and the IMF. She holds

a PhD in Economics from the University of Pennsylvania and a Bachelor of Arts from Yale University.

Daryll L. Naval is a research associate at ADB's EREA, ERCD. He has worked on country and employment diagnostic studies for Central and South Asian countries, where he assisted in reviewing, preparing, and drafting sections on education, health, and other social sectors. Prior to joining ADB, he has worked on health projects for USAID and as a Research Executive for a large market research agency in the Philippines. He has a Bachelor's degree in psychology from the University of the Philippines.

Devanto Shasta Pratomo is a Senior Lecturer at Brawijaya University in Indonesia. He holds a PhD in Economics from Lancaster University, United Kingdom, a Master's degree in Economics from Georgia State University, United States and Gadjah Mada University, Indonesia, and Bachelor of Economics of Development from Brawijaya University, Indonesia. He received Southeast Asian Ministry of Education Organization (SEAMEO) Jasper Research Awards on Education and Employability in 2013. He was a Visiting Scholar at the Indonesia Project, Australian National University and a postdoctoral fellow at the Global Asia Institute of National University of Singapore. His research focuses on labor economics, education, and migration.

Asep Suryahadi has been the Director of The SMERU Research Institute in Jakarta, Indonesia, since 2009. From 2003 to 2009 he was the Deputy Director of Research at SMERU. Previously he worked at the Center for Policy and Implementation Studies and the World Bank, both in Jakarta. He serves as a member of the Editorial Board of the *Bulletin of Indonesian Economic Studies* and as a member of the Advisory Board of Indonesia Project, both at the ANU. He is author and coauthor of numerous articles in several peer-reviewed journals, including *Education Economics*, *Health Economics*, *Journal of Economic Behavior and Organization*, *World Development*, *Journal of Development Economics*, and *Economic Development and Cultural Change*. He holds a doctorate in economics from the ANU.

Mohammad Zulfan Tadjoeddin is a Senior Lecturer in Development Studies at the Western Sydney University. He had visiting research appointments at the Queen Elizabeth House of the University of Oxford (United Kingdom) and at the International Institute of Social Studies of Erasmus University Rotterdam (the Netherlands). His latest book, *Employment and Reindustrialisation in Post Soeharto Indonesia*, is to be published by Palgrave in 2018. His articles have appeared in leading academic journals, such as *Journal of Development Studies*, *Oxford Development Studies*, *Journal of East Asian Studies*, *Journal of Peace Research*, *Economics of Peace and Security Journal*, *Journal of International Development*, *Economic and Labour Relations Review*, and *Journal of the*

Asia Pacific Economy. He has consulted for ADB and various United Nations agencies such as the ILO, United Nations Development Programme, and UNICEF.

Kiyoshi Taniguchi is a Senior Economist at ADB's EREA, ERCD. At ADB, he has held several economist positions, including at the Private Sector Operations Department, Uzbekistan Resident Mission, and Pacific Department. Prior to ADB, he was an Economist for the Poverty Reduction and Economic Management Network of the World Bank. He started his career as an Economist at the Food and Agriculture Organization of the United Nations in Rome, Italy. He held several research and teaching positions at the International University of Japan, Westminster International University in Tashkent, and University of the Philippines. He holds a PhD and a Master's degree in Economics from the Ohio State University, a Bachelor of Science in Economics with honors from the University of Oregon, and a Bachelor of Law from Chiba University in Japan.

Executive Summary

Indonesia: Enhancing Productivity through Quality Jobs examines interactions between the structure of the economy and employment two decades on from the Asian Financial Crisis (AFC). Indonesia faces both *old* and *new* job challenges, as growth in the national economy and employment flatten out toward the end of the second decade of 21st century. The long-standing challenge is to provide enough new and more productive jobs to exhaust the still large supply of low-wage workers, mainly in agriculture and the informal sector. The new challenge is to prepare the workforce for quantum changes to the quality and nature of jobs, as significant parts of the economy move toward a new industrial model ("Industry 4.0"), which includes significant digitalization of the economy. Not only does the country need to create a more skilled workforce but it also needs to adjust to new global patterns of technology and the associated demand for skills.

Supply and Demand. The book first surveys general issues on both the supply and demand side of the labor market. This sets up a framework for more in-depth investigation of policy issues on selected topics: creating new jobs and raising productivity among agricultural workers, adjusting to strong underlying pressures for urbanization and the creation of mega-cities, raising productivity through better schooling and investment in new skills, and adopting a set of labor policies to meet both the old and new challenges mentioned above. The book also outlines some of the steps in public policy needed to prepare the workforce and business for both the old and the new set of challenges.

The **labor supply** challenges are partly mitigated by a gradual fall in the growth of the working-age population and the opportunities created by a demographic dividend that extends through to about 2030. While labor force participation has remained flat, unemployment has fallen to levels more in line with (though still above) those in most neighboring countries. Women's representation has increased substantially among graduates from university and among job seekers for new, more skilled jobs in service industries. And Indonesia has adopted stronger policies to curb out-migration of poorly educated females, who take up exploitative jobs in the Middle East and Southeast Asia.

But there are also on-going difficulties on the supply side of the labor market. Growth in the working-age population is still quite high by middle-income country standards, and has begun to plateau before reaching the much lower levels attained in Thailand and even Viet Nam. Female participation in the workforce is still quite low by regional standards. Low rates of participation are especially worrying among less educated, rural women. In contrast, more highly educated women are facing obstacles to securing managerial jobs. Undocumented (illegal) international (out) migration is remains a problem, putting young women at risk of abuse in blue collar jobs abroad, especially as domestic workers.

With respect to **labor demand**, the book highlights two major developments: the fundamental dilemma created by a sharp fall-off in demand for jobs in manufacturing over the past 20 years, and both opportunities and pitfalls associated with the big shift toward jobs into services. The decline in manufacturing jobs is partly a consequence of slow rates of economic growth and failure to regain international competitiveness in this sector after the AFC. Export growth of labor-intensive products stagnated, thus removing the main driver of labor market change that had underpinned improvements in earnings and falling poverty in the decade before the crisis.

Economic policy failed to grapple with manifold problems that held back manufacturing in the decade and a half after the AFC. Most important among the problems have been infrastructure development and connectivity, and reemergence of "Dutch disease" issues during the resources boom of 2005–2011 (which discouraged investment in export-oriented manufacturing). However, while automation is likely to lead to more "job destruction" in manufacturing in the future, its impact in past years should not be exaggerated. Partly related to relative factor prices, automation (including the spreading use of robots) has not been a major factor in limiting the creation of manufacturing jobs in the last 2 decades.

The by-passing of manufacturing in favor of services jobs has partly been a reflection of such problems faced by industry. Especially in the first decade of the 2000s, poorer agricultural workers and new job entrants sought refuge in low-wage jobs in informal service industries, such as petty trade, food stalls, and other small businesses. However, at the same time expansion in tertiary education and modernization of banking and business services opened up a range of new job opportunities for more educated workers, especially among females. Indonesians have also been quick to participate in the digital revolution, first through the spread of mobile phones and more recently new applications that create opportunities for a range of jobs in creative industries and tourism.

From Agriculture to Industry and Services. Movements out of low-productivity agricultural activities have been sticky, however, especially among older, less-educated people. Chapter 4 finds that one fundamental reason for low productivity in the economy has been the bunching of jobs in low-productivity work in many (though not all) agricultural jobs, where associated household poverty levels are much higher than among households mainly dependent on in industry and services. Some households have found alternative paths to higher wage jobs. Nonfarm employment has expanded and opened opportunities for transitions into urban jobs. Improvements in education in rural areas have been one avenue stimulating these movements, especially among young job seekers.

But the concentration of older workers in low-paid employment in agriculture remains an obstacle to raising living standards and may continue to do so as the population continues to age, unless new policies are found to improve the mobility among this demographic group. Several research questions are proposed for the design of better policies. For example, what type of education supports employment transformation and what role do community-level variables, including social norms and culture, play in promoting change?

Urbanization. The discussion in Chapters 3 and 4 implies that urbanization is strongly correlated with improvements in living standards. As indicated in Chapter 5, research conducted for this book backs this correlation, especially in the case of medium-sized cities. Agglomeration effects have contributed to higher productivity and wages in medium-sized cities than in small towns and rural environments, or in the megacities. Congestion, strained infrastructure, housing shortages, and environmental problems have led to lower productivity gains from urbanization, especially in the megacity of Greater Jakarta. The productivity bonus from better schooling in cities is large, as more-educated employees find openings for better matching their skills, although the productivity gain from higher schooling seems to vanish in the most urbanized districts. Data analysis in Chapter 5 suggests that the "urban sprawl" model is confirmed: high-income earners commute long distances to central Jakarta (although some rich districts are also located very near the center) whereas low-income, services sector workers live somewhere in between.

Education. Chapter 6 argues that **education** is positively correlated with wage premiums and productivity, as well as incomes at the household level, thus adding to observations on the relationship between education, productivity, and earnings in earlier chapters. For many, education is a ticket to regular, formal sector work, especially in modern business services, and has contributed to lower levels of unemployment

among educated people, especially women. At the same time, wage differentials by gender are particularly marked at the tertiary level, given that females tend to crowd into certain services sector occupations such as teaching, health care, and banking.

The quality of schooling is highlighted as a major challenge for productivity and innovation (Chapter 6), especially as many firms do not invest much in the training and skills of their workers, and vocational training institutions face some major problems. As is widely known, student performance in Indonesia has improved only slightly in the last decade, despite a major increase in funding for education from around 2005. Scores among Indonesians are low in international tests in mathematics and science, even compared with neighboring countries at similar stages of development. Problems include the quality of teaching, the misallocation of educational resources, too little regional government support for better quality education and slow response of both the general and vocational education systems to the changing labor market needs. Further, rapid expansion of vocational schooling has had limited impact because of insufficient funding support and a raft of other problems: a shortage of well-trained teachers, obsolete equipment for training, and outdated curriculum in many schools.

Labor Policies. The final chapter of the book considers policies affecting labor. They provide an institutional framework to mediate processes of job creation and productivity improvement, although in Indonesia—as in many other countries—they are mainly relevant to the formal sector. Labor policies have been fiercely contested since the AFC and political reform in 1997–1998. Regulations under the umbrella of the Labor Law of 2003 sought to balance the sometimes competing interests of job creation and workers' rights. The policies have erred in favor of the latter, after several decades of *de facto* strong government support for business in the New Order period. Minimum wages are at the center of the regulatory structure at the expense of labor rights. Data analyzed in Chapter 7 show that minimum wages crept up from around 60% to close to 80% of average wages in the 2000s, compensating for an underdeveloped system of collective bargaining. Mainly because of uncertainty in the wage setting process, a new regulation in 2015 specified a uniform annual rate of increase in minimum wages across all provinces and districts in the country. This has been welcomed by government and business, as it has led to less pressure on minimum wage levels in the more industrialized regions of the country. However, the new regulation has its shortcomings, owing to the extreme simplicity of the minimum wage formula, which does not take into account variations in regional economic outcomes.

Chapter 7 also discusses problems associated with the weak collective bargaining environment. This is mainly a result of most people working in household or self-employed businesses, and associated low levels of unionization. The chapter shows that labor laws and regulations in Indonesia are not implemented consistently across a range of workplace environments, which are mostly governed by informal work arrangements. The chapter also argues that there are much wider implications of some employment protection regulations associated with the labor law, including a complicated set of procedures for dismissing workers, and high levels of severance payment. Regulation in both areas appears to contribute to under-investment in skills and training; discourage firms from hiring new, permanent workers; and encourage the adoption of new technology that displaces labor.

Finally, Chapter 7 also discusses how nonstandard forms of work tend to lower wages, and are an issue for investment in human resources, as a result of a higher degree of "churning" (job mobility) in the labor market. The chapter suggests an innovative way in which this problem might be addressed.

Chapter 1
Improving Employment Outcomes and Productivity in Indonesia

Edimon Ginting, Chris Manning, and Kiyoshi Taniguchi

1.1. Introduction

A persistent problem for jobs and productivity in Indonesia has been the slow transformation of the economy and labor market in the post-New Order Period, since the Asian Financial Crisis (AFC) of 1998. This stands in stark contrast to several other transition countries in East Asia where far-reaching changes in employment structure have been central to improvements in productivity and the emergence of a modern economy. Steady growth in the economy has brought about improvements in living standards. But this has not been rapid enough or favorable enough to labor to support a quantum shift in employment into higher productivity and "better" jobs. A large backlog of low-productivity labor in agriculture and the informal sector continues to act as a brake on improvements in wages and productivity.[1] This is Indonesia's central labor market challenge.

The slow recovery after the AFC in the wake of the commodity boom in the first decade of the 2000s spurred policy debate on the country's growth model. There is a growing recognition among policy makers of the importance of productivity in driving growth. To maintain the country's competitiveness, productivity improvement needs to keep pace with wage increases. Based on the growth experience of countries in the region, the Asian Development Bank (ADB 2016) has highlighted the importance of continued productivity improvement to transcend middle-income country challenges. Indonesia has unique opportunities at this stage of development as it seeks to benefit from the demographic dividend; raise productivity through wider application of the

[1] See Chapter 4 for details.

digital economy; and augment the skills base through making higher quality education more widely available, especially at the tertiary level. The World Bank (2014) suggests three key policies to ignite productivity-driven growth for Indonesia: closing the infrastructure gap, closing the skills gap, and improving the function of markets (products, labor, and land).

Fiscal policy after the oil boom period, particularly after President Jokowi assumed office, has put increasing emphasis on supporting the productivity-driven growth model. To close the infrastructure gap, the government cut fuel subsidies to make room for increased infrastructure spending. The government injected capital into selected state-owned enterprises to help accelerate infrastructure development. At the same time, fiscal support for private sector participation in infrastructure development has continued to be refined. The government has also started to reorient education spending to support higher education and improvement in the quality of education. To increase the access of low-income families to higher education, the government has increased the allocation of targeted education assistance.

The challenges Indonesia has faced in terms of creating better jobs and raising labor productivity, and the strategies devised to meet them in the last 2 decades, are the main focus of the present book—*Indonesia: Enhancing Productivity through Quality Jobs.* This overview chapter provides some details of the macroeconomic context, summarizes the arguments of the subsequent chapters, and puts them in the context of the challenges faced by policy makers. We first present data on recent economic and employment growth as well as the macroeconomic policies that have underpinned them. This is followed by an overview of labor supply, labor demand and employment, and wage and productivity trends, focusing on the 2000s. The next three chapters deal with issues fundamental to Indonesia's labor market transition: employment trends in agriculture; implications of rapid urbanization for productivity; and education, skills, and productivity. The final chapter takes up the issue of labor market policies designed to promote better jobs and productivity.

1.2. Macroeconomic Underpinnings of Job Creation and Productivity Growth

During the 10 years before the AFC, Indonesia recorded an episode of high economic growth (7%) and rapid economic transformation (Table 1.1). Economic growth was led by manufacturing, which expanded by 10% annually, while agriculture grew at a much lower rate of 3%. The rapid economic transformation supported a quantum shift in employment and living standards, and the poverty rate declined, enabling some 25 million people to avoid poverty (Table 1.2). The more-productive jobs in the

manufacturing sector increased by 5 million people, improving the overall productivity of the economy. Unfortunately, however, this high-growth episode was unsustainable. The economic growth was in large part supported by very rapid expansion of credit from the banking sector. This, together with weak banking sector supervision, a pegged exchange rate regime, and large exposure to external debt, cultivated financial vulnerability, which eventually led to a deep financial crisis causing economic growth to shrink by 13% in 1998.

Table 1.1: Annual Average Real GDP Growth (%) **and Contribution of Production Sectors to GDP Growth** (percentage points)

		Agriculture			Manufacturing			Industry[a]			Services		
Period	GDP Growth Rate	Growth Rate	Share of GDP	Contribution to GDP Growth	Growth Rate	Share of GDP	Contribution to GDP Growth	Growth Rate	Share of GDP	Contribution to GDP Growth	Growth Rate	Share of GDP	Contribution to GDP Growth
1988–1997	6.9	2.9	16.3	0.5	10.3	25.9	2.0	6.6	15.5	1.7	7.1	42.3	2.6
1998–2004	1.3	2.3	15.4	0.3	2.5	28.4	0.6	-1.1	16.4	-0.1	1.1	39.8	0.5
2005–2012	5.8	3.7	14.5	0.6	4.5	25.8	1.1	5.2	21.2	1.0	7.6	38.5	3.1
2013–2016	5.1	3.9	13.9	0.6	4.4	21.9	1.1	3.3	21.0	0.8	5.9	43.2	2.7

GDP = gross domestic product.
[a] Industry includes mining and quarrying, electricity, gas and water, and construction subsectors.
Note: GDP growth is at market price, while all sector indicators are computed based on GDP at basic prices.
Source: Estimates based on a BPS database, accessed September 2017.

Table 1.2: Annual Average Job Creation (in 'ooo jobs) **and Poverty Incidence** (in 'ooo persons) **and Share of Sectors** (%)

		Agriculture		Manufacturing		Industry[a]		Services		Poverty incidence[b]	
										Change in Headcounts[c]	
Period	Total Jobs Created	Jobs Created	Share of Total	Jobs Created	Share of Total	Jobs Created	Share of Total	Jobs Created	Share of Total	Urban	Rural
1988–1997	15,440	-3,636	-23.5	5,196	33.7	3,442	22.3	10,437	67.6	–2,500	–5,000
1998–2004	8,911	6,773	76.0	959	10.8	382	4.3	797	8.9	–6,230	–7,120
2005–2012	18,546	-1,720	-9.3	3,662	19.7	3,041	16.4	13,563	73.1	–1,750	–4,210
2013–2016	5,907	-1,820	-30.8	-75	-1.3	1,107	18.7	6,695	113.3	340	–640[d]

[a] Industry includes mining and quarrying, electricity, gas and water, and construction subsectors.
[b] Poverty incidence is based on poverty headcount ratio at national poverty lines.
[c] Change in headcount of poor population is based on the difference between the ending year and beginning year of the period.
[d] Data are up to March 2017.
Notes:
1. Poverty incidence data for 1976–1996 used the old standard, and for December 1996–2013 used the new standard.
2. Time reference for all entries is February, except for 1998 data (December) and 2011–2017 (March).
3. For 1988–1997, we used the difference between 1988 and 1997, for 1998–2004, we used the difference between 1998 and 2004, and so on.
4. Data from 1999 without Timor-Leste.
Source: BPS (various years), accessed September 2017.

After the AFC, successive governments, including the current Jokowi government, have attempted to bring growth back to 7%, but none has succeeded so far. In fact, Indonesia experienced three contrasting periods of economic performance after the AFC: a slow recovery in 1999–2004, the resources boom period of 2005–2012, and then reversion to slower growth again associated with global economic slowdown (2013–2016).

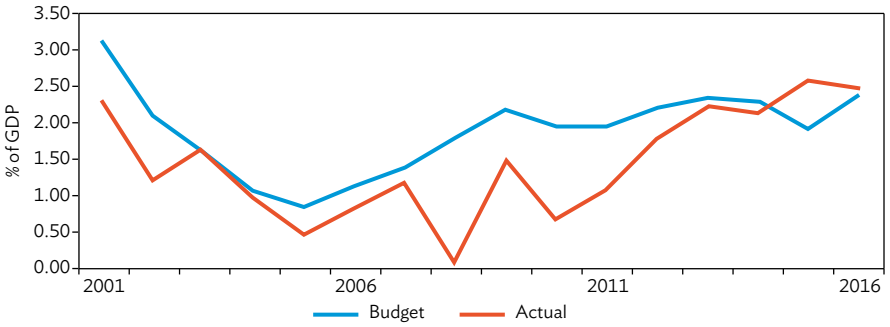
Macroeconomic management has continued to improve since the AFC, but its focus was different during the three growth periods. The key focus of monetary policy immediately after the AFC was to bring down inflation, which climbed to more than 60% in 1998. On the fiscal front, the focus was on fiscal consolidation following the decision to focalize the costs of the banking crisis, which increased the country's public debt from 44% of gross domestic product (GDP) in 1996 to more than 100% of GDP in 2003. At the same time, the government prepared a set of laws to provide a regulatory and institutional framework for improving macroeconomic management and government service delivery. These include laws on fiscal decentralization, state finance, audit, treasury, anti-money laundering, the anticorruption commission, and the central bank (to facilitate the latter's independence). The State Finance Law set the fiscal rule, including limiting the budget deficit to 3% of GDP annually.

During the early 2000s, the country's constitution was also revised to include the requirement to allocate 20% of the state budget to education. With economic growth averaging around 4% after 1998, macroeconomic policy did not contribute much to productivity improvement. In fact, from 1998 to 2004 close to 7 million more workers were employed in the agriculture sector. However, the return of macroeconomic stability together with an improved fiscal framework provided a better foundation for economic growth in the subsequent period.

Thanks to the resources boom, during 2005–2012 economic growth averaged around 6%, despite a brief slowdown during the global financial crisis in 2008–2009. The focus of monetary policy remained on inflation. In 2005, Bank Indonesia formally adopted inflationary targeting, and inflation continued to decline, except during the years when the government adjusted fuel and other administrative prices. With improved growth prospects, foreign direct investment returned, attracted by the commodity and related sectors. Significant increases in export earnings led to a sizable appreciation of the rupiah. At the same time, with the country's open capital account regime, the flow of capital to debt and equity markets also increased significantly. On the fiscal front, to support long-term productivity improvement, the government gradually increased education spending to meet the Constitution's requirement. Since 2010, the government also increased infrastructure spending. Fiscal space to increase infrastructure spending remained limited due to ballooning of spending on subsidies

and low levels of actual expenditure relative to the budget except in the last several years (Figure 1.1).[2]

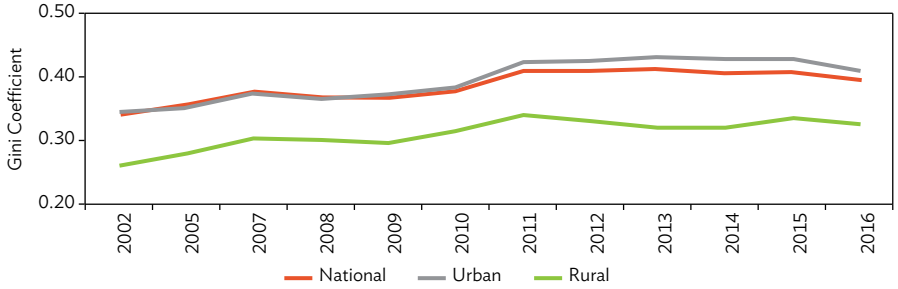
Figure 1.1: Fiscal Deficit, Budget vs. Actual, 2001–2016



GDP = gross domestic product.
Source: Estimates based on Bank Indonesia, SDDS, accessed September 2017.

High economic growth from 2005 to 2012 generated 18.5 million jobs. As shown in Table 1.2, most of the jobs created (73%) were in the services sector, mainly in urban areas. While the growth of the manufacturing sector was still low (4.5%), less than half of the pre-AFC level, the sector still generated more than 3.7 million jobs during the same period. However, employment in the agriculture sector shrank by 1.7 million, about half of the rate of job loss during the pre-AFC high-growth episode. Limited jobs provided by the high-growth and capital-intensive commodity sector, the slower growth of more-productive labor-intensive jobs in the manufacturing sector, and a decline in the number of workers released from the agriculture sector contributed to worsening income inequality over time. During this period, the Gini coefficient increased gradually and peaked at 0.43 in 2013 (Figure 1.2).

Figure 1.2: Gini Coefficient, 2002–2016

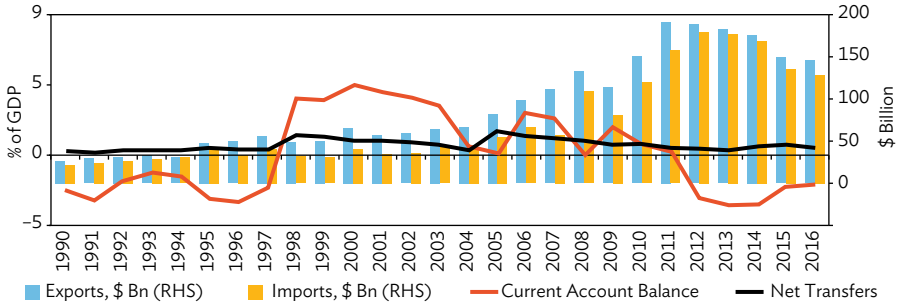


Source: BPS, Gini Ratio Provinsi, accessed September 2017.

[2] Ironically, due to various implementation issues, significant amounts of the infrastructure spending were often unspent, resulting in actual budget deficits that were lower than planned (see Figure 1.1).

The commodity boom created external vulnerabilities to declining commodity prices. Indonesia's external vulnerabilities have been compounded by more volatile inflows of short-term capital following the commodity boom. The decline of commodity prices starting in 2012 reduced exports significantly (Figure 1.3). At the same time, the financial market experienced a few episodes of turbulence, requiring monetary policy to focus on macroeconomic stability. In fact, monetary policy was designed to be contractionary during 2013–2014 to reduce pressures on the country's external balance. Therefore, part of the economic slowdown in the early years of the post-commodity boom was designed to reduce the country's external imbalance. Bank Indonesia started the cycle of monetary policy easing to prevent a deeper economic slowdown only in 2015.

Figure 1.3: Balance of Payments, 1990–2016



bn = billion, GDP = gross domestic product, RHS = right-hand scale.
Sources: IMF, Balance of Payments Statistics database, and Bank Indonesia, SDDS, accessed September 2017.

It is interesting to observe that jobs in the services sector increased substantially, by about 6.7 million jobs, from 2013 to 2016. During the same period, the agriculture sector absorbed 1.8 million fewer workers, while the manufacturing sector did not generate any new jobs. This suggests that most of the workers released by agriculture were absorbed by services, which is at least on average is half as productive as manufacturing. Under this type of transformation, labor productivity cannot be expected to improve much from its already low base relative to neighboring countries. Increased digitalization of the economy (which is ongoing in transport, finance, and trade) does, however, have the potential to raise labor productivity significantly. Digital technology (sometimes referred to as "disruptive" technology) is already displacing some people from jobs, both in manufacturing and in services, and there will be greater "churning" in the labor market (Box 1.1). These changes are already apparent in the case of Go-Jek motorcycle taxis and in the entry of large multinationals into the domain of online shopping. But it is also creating new opportunities and jobs. A focus needs also to be placed on jobs for workers displaced from these sectors as a result of changes in technology and the organization of production. Nevertheless, the core policy issue remains how to

Box 1.1: Disruptive Technology

The waves of digital innovation have led to digitalization of everything. Digital technologies enter nearly every business and workplace. Digitalization is transforming roles of the job by expanding the digital content of existing jobs and shifting the overall job mix toward more digital-intensive occupations (Muro et al. 2017). Sets of digitalization are called "disruptive technologies," such as artificial intelligence, mobile technologies, 3D printers, and automation of processes and manufacturing (World Economic Forum and Asian Development Bank 2017). The business applications of disruptive technologies include Amazon, Facebook, and Uber.

The new wave of digital innovation is called disruptive technology. New technology can be disruptive because digitalization changes what type of work people do. Digitalization will create some winners and losers. Regarding the impact of digitalization on the United States labor market, Autor et al. (2014) identified polarized patterns in the labor market, with employment polarizing into high-wage and low-wage jobs at the expense of middle-wage work. Those authors pointed out that digitalization strongly complements the nonroutine cognitive tasks of high-wage jobs, while it directly substitutes for the routine tasks that are found in many traditional middle-wage jobs. On the other hand, digitalization has little impact on nonroutine manual tasks, which are usually found in relatively low-wage jobs.

Some studies indicate that disruptive technologies will not alter the structure of jobs too quickly (World Bank 2016). Adoption of full automation of jobs takes time, even in the developed world. It is necessary to change the organizational structure. Labor reorganizations tend to happen during recession rather than in booms. In developing countries, adoption of disruptive technologies will be even slower. There are barriers to adopting new technologies from the very beginning. The cost of replacing labor and introducing new technologies is relatively high, even though positive benefits are expected from adopting disruptive technologies. There is scope for automation where there are large manufacturing or offshore activities, but these are limited.

David Autor, in the article by Clement (2016), shared optimism concerning the impact of digitalization. Shifting the job demand is nothing new—most of today's jobs did not exist 100 or 200 years ago. Autor points out three positive outcomes of digitalization. First, digitalization creates or promotes new jobs like software development and tourism. Second, due to digitalization, people work fewer hours; the extra hours can be used to improve the quality of our lives. Third, due to the extra wealth created by digitalization, we demand more, which leads to the creation of more jobs.

The World Economic Forum and the Asian Development Bank (2017) identify the positive impact of innovative digitalization for small and medium-sized enterprises: citizens in developing countries will gain access to new sources of information, new forms of education, new healthcare services, and new financial services such as digital finance and mobile banking. The result could be much more inclusive forms of economic growth to empower small and medium-sized enterprises, which are the backbone of many Asian economies.

A notable example of disruptive technology for Indonesia is Project Loon, which provides internet access to rural and remote areas. Because Indonesia is an archipelago with more than 17,000 islands, connecting the internet to everyone requires huge infrastructure. Instead of building cell towers on the ground, the project will use high-altitude balloons in the stratosphere to create an aerial wireless network. If this project becomes successful, it will bring internet accesses to many rural and remote areas of the country.

Sources: Autor et al. (2014); Clement (2016); Muro et al. (2017); Project Loon, https://x.company/loon/; World Bank (2016); World Economic Forum and Asian Development Bank (2017).

find jobs that can raise productivity and provide improved living standards for more Indonesian workers, many of whom are poor or living close to the poverty line.

While automation will increase the demand for skilled workers, it will likely decrease the demand for manual labor, possibly displacing temporary and low-skilled workers. Government policies should monitor these effects closely as automation spreads, and take action in order to reap the full benefits of new technologies, on both output and employment. Government policies should remain flexible to accommodate changes in the labor market. Labor policies should encourage the supply of competent, skilled workers to increase with demand, and mobilize low-skilled workers toward other productive activities. For example, government could consider strengthening ties between skill training institutions and employers to improve the matching of skills demand and supply.

Indonesia still has a relatively elastic supply of unskilled labor. Unlike in developed countries, rising labor costs have not resulted in a significant increase in automation. Despite stringent labor regulations, labor is still abundant relative to capital. In the transport sector, for example, companies such as Go-Jek increase the demand for skilled workers and stimulate activities, such as fast-food and take-away businesses, many of which are informal. The efficiency effects of new services created by Go-Jek connections result in lower costs of production and increased output and employment.

1.3. Labor Supply

A balanced assessment of the employment situation and policy alternatives rests on a knowledge of population growth and distribution, attachment to the workforce, and the human capital that underpins the labor supply. The evaluation is especially complicated in a large, geographically fragmented, and rapidly changing economy such as Indonesia.[3]

1.3.1. Population Growth and Distribution

Both the size and growth of Indonesia's working population pose major challenges for job creation.[4] Utilizing its large, youthful population effectively is still a major challenge. Nonetheless, there are some positive aspects of current demographics. Through to

[3] These issues are dealt with in Chapter 2.

[4] The population growth has been faster than was anticipated several years ago: the labor force of 175 million in 2016 has been growing at about 2% per annum.

around 2030, Indonesia is projected to experience a demographic dividend as the dependency ratio continues to fall. This will create opportunities for faster economic growth during the next 10–15 years. Growth of the working-age population, currently at close to 2%, will support faster growth. The working-age population growth is moderately high by regional and world standards and is projected to come down quite slowly over the coming decade. Commuting and migration have played a role in the interregional population dynamics and economic change that underpin changes in employment. Short distance and temporary migration are important for employment, within and to the major cities such as Jakarta and Surabaya. Commuting from nearby rural areas is also common, especially in Java–Bali although also increasingly in the outer islands, related to integrated urban and rural economies and to transport facilities. Net migration in the 2000s has also been into the growing cities in and around Jakarta and into other big cities across the archipelago. The balance of opportunities has shifted to growing urban centers. Employment challenges are mainly an urban concern on Java, whereas they are much more a rural issue elsewhere in Indonesia.

In regard to more permanent migration, the dominant flow of poor landless households was state sponsored in earlier decades, from Java–Bali to land-abundant areas in the outer island provinces. Much more recently, migrants have also been attracted by jobs on offer in selected regions outside Java through the global commodity boom (around 2005–2012).

International migration became significant in Indonesia during the early and mid-1980s, when employment difficulties surfaced after the oil boom years and labor shortages emerged in neighboring states and the Middle East. These international migration flows intensified through to the 2000s. But they fell off more recently, as migration became a contentious issue at home, especially in relation to labor standards and human rights concerns for Indonesian workers abroad. The majority of migrants has been and still is female, and they work mainly in the Middle East and Southeast Asia. The main sending regions have been the poorer districts in West and East Java and West Nusa Tenggara in Eastern Indonesia.

Although the part of Indonesia's total population working abroad is smaller than that of the Philippines and Viet Nam, the absolute number of Indonesian migrants working abroad (the "stock" of migrants) is large. More than 4 million people—2% of the population—were estimated to be working abroad in 2015.[5] This is a "guestimate" at most, especially since the number of undocumented migrants is estimated to be large. However, the flow of officially registered migrants on fixed-term contracts, the most common form of "official" migration, fell sharply, from over 500,000 in 2011 to

[5] See especially Muhidin and Utomo (2015) on the Indonesian "diaspora," estimated to be about 3 million in 2013.

not much above 200,000 in 2016. Still, remittances have continued to grow, peaking at around $9 trillion in 2016, suggesting that large numbers of undocumented workers may have substituted for those formerly registered by the government to work abroad.

1.3.2. Labor Force and Unemployment

Chapter 2 pays special attention to labor force issues and unemployment, in particular labor force participation rates (LFPRs) among women. It contrasts LFPRs among different groups of women, especially related to educational expansion and urbanization. While female LFPRs in Indonesia are intermediate by regional standards, there has been a strong U-shaped relationship between LFPRs and levels of schooling. Female LFPRs are quite high among women with little or no education; they fall and then bottom out among junior high graduates before rising again at the senior high level to peak among female university graduates. However, females living in large urban conurbations and in other urban areas are less likely to be in the workforce than rural women, pointing to some of the challenges facing less educated women in particular, as households move out of traditional environments.

During the last 20 years, female LFPRs have been comparatively stable, as in many countries, even though average years of schooling rose more quickly among females than males and there were more females than males studying at university by 2015. It is thus perhaps a surprise that female LFPRs have not risen in rapidly growing urban areas, and have tended to fall in rural areas, despite a growing recognition of the potential contribution of female workers to household and national income. The substantial increase in enrollments notwithstanding, "income effects" might have played an important role in discouraging less-educated females from working in rural areas. Researchers have also pointed to "sticky floors"—wages that discourage wage employment among less-educated women.[6]

While LFPRs have been intermediate, Indonesia has long been characterized by high levels of unemployment when compared with other Southeast Asian countries, especially among the youth. However, the situation has improved greatly in recent times, especially among females, who have experienced a fall in unemployment rates, from double-digit rates of twice the male rates a decade ago to close to parity in 2016. Durations of unemployment have also fallen. Both of these developments indicate some improvement in the labor market situation in the last 5–10 years, particularly in more skilled jobs in areas such as financial services. Still, the share of females not in employment, education, or training is quite high, and especially in rural areas, which also recorded low female LFPRs.

[6] See Cameron et al. (2015).

1.3.3. Labor Demand, Wages, and Productivity

We have already discussed the marked contrast between industry growth (slow) and services growth (moderately fast). In manufacturing, the main employment issues have been twofold: the slow overall growth in value added in industry, both at the upper and lower end of the technological spectrum; and the slowdown in jobs created in labor-intensive industries that are either oriented mainly toward export or are part of the small-scale and microenterprise economy. In services, the issues relate more to productivity in the formal sector than to job creation per se. As a result, the services sector has become less easy to predict with the onset of the digital revolution. In most countries the services sector is the most heterogeneous in terms of activities, occupations, and skills. Indonesia is no exception. Even more than in industry, the challenge is raising productivity in modern services, where most tertiary educated people work. At the other extreme, the challenge is helping to ensure a decent standard of living in the more traditional services undertaken mostly by females and older workers, including services delivered electronically.

Employment elasticity has been moderate in the 2000s, suggesting that the problem in Indonesia has as much to do with the growth of output as with the responsiveness of employment. Among demographic groups, jobs in total grew as fast among females as they did for males. However, the youth were slower to pick up jobs than prime age workers, except in finance and business. Moderate employment elasticities imply that growth in labor productivity was modest; it was 4% per annum in the 2000s. It is generally agreed that physical infrastructure has been the binding constraint, although skill shortages and mismatch in the deployment of skilled workers have also played a part. Real wage growth was slow, especially compared with that in the People's Republic of China (PRC) and Viet Nam from the mid-2000s.

For several decades, two challenges for the labor market in Indonesia have been the absorption of new workers into better jobs than those held by their parents and the transfer of other workers out of low-productivity into higher-productivity jobs. The low-productivity jobs have been in agriculture and the informal sector, which together accounted for two-thirds of all jobs in the early 2000s. That challenge remains. But as the formal sector has grown in importance, there is an increasing need to raise productivity in what have typically been classified as formal sector jobs. Both workers and employers need to have the necessary incentives and means to invest in human capital. And they need to have access to better jobs (for workers) and more productive labor (for employers) to meet their respective welfare and corporate goals.

In the 2000s, the dominant role of the agriculture sector in terms of employment was replaced by that of the formal sector associated with the urbanization of the economy

and society. The formal sector grew fastest (4% per annum) in the 6 years 2010–2016, drawing workers out of the agriculture sector. More females than males moved out of agriculture, and more females moved into the formal sector, especially in social services. Informal sector workers were less educated (8 versus 11 years of schooling on average compared with the formal sector), and many likely were "scarred" (in terms of job options) by the experience, even though significant numbers sought work in the formal sector (Cruces et al. 2012, OECD 2015). Mobility between the two sectors, although difficult to measure, is probably greater than is commonly believed; this is partly related to an individual's stage in the life cycle, partly to institutions, and partly to the presence or absence of shocks.

1.4. Structural Transformation and the Release of Labor from Agriculture

One feature of Indonesian employment dynamics has been a delayed release of low-productivity labor from agriculture as living standards have risen. This contrasts with the much more rapid rate of decline in the share of agricultural output in GDP. While not an outlier, this also means that Indonesia is not among the handful of East Asian countries that were able to discharge workers from the agriculture sector very rapidly during their 2 decades or so of accelerated growth.[7]

In the Indonesian case, the delayed transition has meant that productivity in agriculture has remained low relative to that in other sectors, and the incidence of poverty is high among households that depend on agriculture for their main source of income. Aspects of the dual economy model with a modern–traditional sector divide still apply. The traditional sector houses a large pool of low-productivity and low-wage labor that exerts downward pressure on the supply price of labor feeding into the modern sector. Thus, high rates of rural poverty and a widening gap in poverty rates between urban and rural areas in Indonesia can be attributed to the failure of employment to grow fast enough. Even though services sector growth has reduced poverty in both rural and urban areas, agricultural productivity has lagged (Suryahadi and Hadiwidjaja 2011).

If the government is to devise better strategies to help hasten modernization of the agricultural economy, more needs to be known about the longer-term transformation of employment, and the characteristics and mobility of agricultural workers. This task is taken up in Chapter 4.[8] Breaking all activities down by sector (agriculture, industry,

[7] See especially Briones and Felipe (2013).

[8] Chapter 4 is based on analysis of medium-term trends from the panel dataset collected in the 1997, 2007, and 2014 Indonesian Family Life Surveys.

and services) and by rural or urban location, the focus of Chapter 4 is on agricultural workers in rural areas, as the largest and most disadvantaged group of households within the matrix.

Chapter 4 shows that mobility was limited among rural people who worked in agriculture, or only in agriculture, mainly due to limited human resources. If rural agricultural workers did move, it was into other rural rather than urban jobs. In contrast, those working in rural industry and rural services were more likely to take a job in urban areas.

Initially, the likelihood of nonpoor and poor household members to move out of agriculture was similar, and there were no obvious differences in movement out of rural agriculture by age and gender. But educational attainment (graduating from senior high school or more) did contribute to greater mobility out of agriculture and into urban jobs. Moreover, the popular view that young people are no longer attracted to agricultural jobs is confirmed by the Indonesian Family Life Survey data analyzed in Chapter 4: many fewer young people entered rural agriculture in 2014 (12%) compared with earlier years (26% in 2007 and 38% in 1997). Finally, structural and contextual variables such as technology employed and crops planted were also found to be important for mobility into other jobs.

The research findings in Chapter 4 on agricultural worker mobility also pose several questions, which are flagged by the authors as topics for future research. For example, how do workers' decisions to move out of rural agriculture affect their and the next generation's well-being, and what type of education supports employment transformation (such as more vocational as against academic education at the senior high school level)? Third, the research also raises questions as to how community-level variables, including social norms and culture, play a role in determining the employment transformation process.

1.5. Urbanization and Productivity

Growth in the urban population is rapid by regional standards. While creating opportunities through the economies of agglomeration, rapid urbanization also creates major challenges, especially at the present time in the larger cities. Transport networks at the center and in the peripheries of urban conurbations have lagged badly behind the needs of the rapidly growing urban workforce. Greater Jakarta, which has a population of close to 30 million people, is the prime example.

The rate of growth in the urban population share has continued to be moderately high compared with that in other rapidly growing economies in East Asia.[9] Thus, by 2015, the share of the urban population was already estimated to be close to 55%. By 2030, urban areas are projected to account for two-thirds of the population. What happens in cities now and in the future will be the main determinant of growth, productivity, and living standards across the country.

How urbanization affects productivity is the main question addressed in Chapter 5. The analysis focuses on differences in labor productivity between various sized cities, and between urban and rural areas, controlling for a range of other factors including industrial patterns and change, developments in technology, and levels of schooling.

Earlier literature, both international and in Indonesia, tended to focus on the harmful effects of urbanization, especially in emerging megacities in most large economies including Bangkok, Jakarta, and Manila in Southeast Asia.[10] The authors note that manifold problems—congestion, stressed infrastructure, housing shortages, and environmental problems—have led to lower productivity gains from urbanization in Indonesia, and especially the growth of the megacity of Greater Jakarta, compared with city impacts in most other Asian countries.[11] But they also draw attention to more recent literature by economists on the benefits of agglomeration through the spread of new ideas and economies of scale and scope (World Bank 2009).

1.5.1. Productivity and Wage Growth

The analysis in Chapter 5 classifies cities in various ways: in terms of population size; according to the presence of specific urban public facilities (such as schools, hospitals, and markets); and, third, according to government administrative criteria. Consistent with the authors' hypotheses, higher levels of urbanization have been associated with higher productivity (output per worker) and wages. Wages, schooling, and population density have had a positive effect on productivity. The relationships are particularly strong in provincial capitals (greater public investment) and medium-sized cities (fewer congestion and environmental effects). The productivity bonus from better schooling in cities is large—more than three times that in rural districts. However,

[9] See especially Jones and Mulyana (2015) for a comprehensive discussion of recent urbanization patterns set in an international, regional, and historical perspective. For more detailed studies of Indonesia over several decades, see papers by Firman (for example 2014, 2016).

[10] The literature drew attention to an "urban bias" in public investment and policies, inducing rapid urbanization, and the neglect of agriculture and rural villages. See Lipton (1977) and Harris and Todaro (1970).

[11] Four sets of disorderly factors associated with urbanization are mentioned: congestion; stressed infrastructure; housing shortages; and more general environmental problems such as flooding, water and sanitation, and waste management.

the productivity gain from higher schooling seems to vanish in the most urbanized districts, in contrast to the administratively classified cities (*kota*). In regard to labor market effects, more educated employees can find better matching for their skills in urban areas, and can thus perform the jobs more efficiently and earn higher wages.

1.5.2. Urbanization, Productivity, and Skills

Chapter 5 then investigates whether the average urban worker engages in more highly skilled and complex activities than the average rural worker, which would help explain the productivity differences. The analysis finds that the contrast between urban and rural areas is not as marked as might have been expected, although a higher share of capital-intensive industries or more sophisticated industries, such as business services and financial services, were urban rather than rural based. The chapter investigates differing skill intensities across regions by applying the production and services complexity indexes to weight employment in every sector. High-skilled services are mostly very clearly centered in Jakarta, whereas high-skilled manufacturing tends to occur outside Jakarta (mainly on Java).

Adopting this industry focus, it is useful to follow up on the earlier examination of schooling achievement and productivity across ”more urban” and ”less urban” districts and cities. Chapter 5 does this for the service industries, where most of the highly skilled workers are employed.[12] The correlation between the share of workers with a college or postgraduate degree and population density was strong and positive. Agglomeration was found to be positively correlated with a higher share of more-educated workers in services, especially in Java and particularly near Jakarta, and in North Sumatra, all of which were more heavily urbanized areas.

1.5.3. Urban Sprawl and Commuting

What about the productivity of urban activities in the city center, beyond the center, and often in the outskirts of the mega-urban region, Greater Jakarta? Chapter 5 reminds us that urban sprawl or scattered development—the outcome of poor planning and disorderly development—can substantially affect productivity and incomes in the periphery. Poor infrastructure and long commuting times are the main culprits. Costly and time-consuming commuting patterns are particularly severe in Greater Jakarta, West Java, and adjacent Banten, where high rates of commuting

[12] The share of workers in each district with a college or postgraduate degree is related to the population density across districts.

affected about 30%–35% of the employed population in 2015. Contractors have an incentive to build village-type enclaves for wealthy urban households in the outskirts that bypass the slum areas.

The "urban sprawl" model predicts that districts with high per capita income should be either near the epicenter, or concentrated in towns within a reasonable distance in terms of travel time from the core of a megacity. Chapter 5 finds that more complex services as well as workers with a higher education are located mostly near the very center of Jakarta.

Thus a picture emerges of high-income earners commuting long distances to central Jakarta to engage in professional service activities, with some rich districts also located very near the center. Low-income workers, who are engaged in low-productivity services, are situated somewhere in the middle. This is in contrast to the distribution of manufacturing, which is spread out more evenly outside of central Jakarta.

1.6. Education Expansion and Reform, Skills, and Productivity

Improvements in education, oriented toward skills and the labor market, are important both at the micro and macro levels. It is widely acknowledged that better schooling—not just more schooling—positively impacts incomes at the household level through generous wage premiums, greater labor mobility, and capacity to run small enterprises, in most development contexts. At the macro level, better schooling contributes to faster economic growth through new investments and technology, as well as the application of higher levels of human capital in the production process. No less important are the positive implications for poverty reduction and income distribution, as poorer households have greater access to better jobs.

Indonesia has been among the countries investing heavily in the number of schools and universities in the last 20 years. However, the quality of schooling is a major challenge for productivity and innovation in the more technologically advanced and internationally oriented industries. Many firms do not invest as much as they might in the training and skills of their workers, and vocational training institutions face some major problems.[13] To some extent, issues arise because private enterprise is not so intimately involved with the government in planning skills development as it is in the more successful countries in this area, for example, Brazil, Germany, the Republic of Korea, or even Malaysia.

[13] This underinvestment compared with other countries in the region is recorded in the International Enterprise Surveys conducted by the IMF and World Bank (various years) in 2008–2009 and again in 2015–2016.

1.6.1. Schooling Expansion and Educational Reform

Raising the basic level of education has been a major program of Indonesian governments for more than 40 years, since Soeharto started the village primary schools project (*Inpres SD*) in 1974–1975. The goal—simply to give all Indonesian children basic literacy skills—had been largely achieved when the regime fell in 1998. Reforms in the 2000s have included decentralizing basic education, introducing a teacher certification process, and committing 20% of the national budget to education. In 2016, the national goal of universal schooling was raised from 9 years to 12 years, to include the senior secondary level.

The expansion of schooling, especially at higher levels in the last 2 decades, has had an enormous impact on the nature of work and incomes of millions of Indonesians, as shown in Chapter 6. For many, this was a ticket into formal sector work, both in the private and in the public sectors, and the promise—though not a guarantee—of a permanent or regular wage job. The expansion in tertiary education of the workforce has been even more rapid than at the secondary level, opening the door for better jobs to many Indonesians in the new and rapidly expanding digital economy (Pangestu and Dewi 2017).

The impact has been large at the national and local levels. Unemployment among young, educated people—which was very high by regional standards among more educated Indonesians for several decades—came down by 5–10 percentage points during the years of the Yudhoyono presidency, 2004–2014. There was enormous expansion of modern business services, including finance and banking, which has accounted for a large share of the increase in jobs for the tertiary educated. One key emphasis has been increased participation and completion rates among children from poor families through the quite successful scholarship and assistance programs set up by the government to keep and support poor children in schools.[14]

1.6.2. Skills and Productivity

By the middle of the first decade of the 2000s, however, the goal of higher enrollments increasingly gave way to more focus on the quality of education and its relevance for jobs, as Indonesia transitioned to a middle-income country. Policy makers talked increasingly about avoiding the middle-income trap characterized by low levels of productivity.

[14] This includes the Poor Students Assistance Program (Bantuan Siswa Miskin) and more recently the Indonesia Smart Card (Kartu Indonesia Pintar).

As is widely known, international assessments indicate that student performance in Indonesia has improved only slightly, and test scores are low in mathematics and science (the international Trends in International Mathematics and Science Study and Programme for International Student Assessment tests), even compared with quite similar neighboring countries (such as Thailand and Viet Nam). Problems include the quality of teaching, the allocation of educational resources, and regional government support for better quality education (World Bank 2013). One issue is the responsiveness of both the general and vocational education systems, as well as training institutions, to the changing needs of the labor market. Flexibility is crucial in promoting the employability of graduates, and in addressing the skills mismatch and high youth unemployment.

Vocational high schools (SMKs) are the largest providers of vocational education and traditionally concentrate on commercial subjects, economics, metalwork, automotive, building trades-related training, and computing.[15] A near doubling of SMKs from the mid-2000s brought student numbers close to parity with the academic high schools. But this does not seem to have achieved much toward solving the skills deficit problem. Rapid expansion occurred without sufficient funding support and exposed major problems in vocational schools, especially a shortage of well-trained teachers, obsolete equipment for training, and outdated curriculum in many schools.[16] Because the challenges of improving SMKs involve longer-term measures, the Jokowi government has pushed apprenticeship schemes as a stopgap action in key industries to boost the supply of skilled manpower.

Partly because of the shortage of highly trained and skilled manpower, returns to tertiary schooling are still high in Indonesia. Analysis conducted in Chapter 6 on the "predictive margins" (or wage premiums after controlling for measurable supply and demand characteristics) in earnings by schooling and gender suggests that university-educated people on average still earn more than twice what senior high school graduates earn; differences by gender are also particularly marked at the tertiary level, perhaps explained by the fact that females tend to crowd into certain services sector occupations such as teaching.

[15] See especially Kadir et al. (2016) for a review of the development of the SMK sector, including major challenges.

[16] Under President Jokowi, apprenticeships have been proposed and thrust upon larger firms as a stopgap measure to raise skills quickly in areas of greatest need. However, business has been cautious, at best, about the value of these hastily assembled measures.

1.7. Labor Policy

Labor policies provide an institutional framework to mediate processes of job creation and productivity improvement. They are mainly relevant to the formal sector and have been a hotly contested area of reform, since most political and labor freedoms were secured in Indonesia after the AFC in 1997–1998. Government reforms and regulations have sought to balance the sometimes competing interests of job creation on the one hand and better labor standards and rights among both workers and employers on the other. Harmonizing the concerns of those holding jobs in the formal sector with the interests of the large informal and small enterprise sectors adds to the complexity of policy making in this arena.

The Labor Law of 2003, debated and passed in the democratic era, provides the umbrella for follow-up implementing legislation executed in the regions. The law has always had its strong critics among employer groups and labor unions. Trade unions have protested weak government commitment and capacity to implement regulations that provide protection for workers in theory but often not in practice. Employer organizations for their part have objected to a tendency of the government and civil society groups to support workers in disputes that raise the cost of labor and threaten profits and jobs. Debates about this legislation have been particularly robust in regard to minimum wages, contracts, social security, and severance pay legislation.

Chapter 7 discusses many of these issues, and we look at some of the main findings below.

1.7.1. Minimum Wages and Collective Bargaining

Minimum wages are at the center of the regulatory structure. They were introduced in Indonesia during the Soeharto period but only really became important for wage costs and worker welfare after the AFC in 1997–1998. Political reform established freer and more active trade unions and paved the way for decentralization and the passing of the Manpower Law 13/2003. Initially set at the provincial level, minimum wages were decentralized to the district level in many provinces, based on the recommendations of "tripartite" wage councils in the regions and set by the governors each year in each province. Minimum wages crept up from around 60% to close to 80% of average wages in the 2000s, compensating for what Chapter 7 describes as an "underdeveloped system of collective bargaining."

Government dissatisfaction with the rate and uncertainty of minimum wage revisions across the country led to a change in policy in late 2015, despite some strong

opposition from the labor unions. The new regulation (78/2015) specified that all provincial, district, and municipal minimum wage levels should be adjusted annually to reflect the percentage increase in the national consumer price index and the annual percentage increase in GDP. The reform sought to introduce a more "fair, simple, and reliable" system for annual adjustments to help to reduce the labor unrest that has traditionally accompanied annual negotiations.

In the first couple of years after the reform there seems to have been less pressure on minimum wage levels in the more industrialized regions of Java, where wage increases had been large and industrial strife common prior to the reforms. Some observers regard the new minimum wage formula as too rudimentary for such a differentiated labor market. However, given the costs and uncertainties involved in negotiating and implementing regulations in Indonesia, it is unclear whether the country needs a more sophisticated formula for adjusting minimum wages across many diverse regions, sectors, and types of enterprise.

Given the high and uncertain costs of regulation in Indonesia, the weak institutional framework for collective bargaining is a major concern. Chapter 7 argues that collective bargaining agreements play only a small role in determining wages and other conditions of employment that go beyond the legal minimum. In Indonesia, the focus of firm-level collective bargaining has typically been regarded as monitoring and implementing rights specified in labor regulations. Extending collective bargaining should ideally relate to specific enterprise and industry circumstances, often involving wage-productivity trade-offs between employers and workers at the firm and the industry levels, nationally, and across regions.

The inadequate environment for collective bargaining is mainly the product of the weak bargaining position of labor in a country where there is an elastic supply of unskilled labor. This is reflected in low levels of unionization (about 15%–20%, including public sector unions) and the large number of small and micro enterprises (including in agriculture), where wages are typically low and uncertain, and little influenced by government regulations. Chapter 7 estimates that almost three-quarters of employed people are working for households or individual businesses. Confining collective bargaining to the enterprise level is a problem in such an economy, although multi employer bargaining approaches may provide an alternative, especially for small firms in similar industry groups. At the same time, unions need to demonstrate the benefits of membership to potential members if the share of workers to be covered by collective bargaining is to increase significantly. This is especially relevant for trade unions representing workers in industries where small and medium-sized firms predominate.

1.7.2. Implementation of Legislation

As in many other middle-income countries, labor laws and regulations in Indonesia are not implemented consistently across a range of workplace environments. This is true for minimum wages, social security entitlements, and employment contracts. Chapter 7 shows that the proportion of workers in regular wage employment (hitherto referred to as regular workers) has increased over time. Participation in social security programs to promote workers' welfare is low. But at the same time the share of regular employees receiving earnings below the minimum wage nearly doubled after the global financial crisis.[17] As might be expected, noncompliance is associated mostly with the informal economy and/or informal work arrangements (for example, oral rather than written agreements). Chapter 7 suggests, however, that minimum wage regulations may contribute, albeit marginally, to better wage equality in Indonesia.[18]

Debates in the past decade about labor market flexibility have focused on employment protection legislation and the level of severance payments paid on the dismissal of permanent employees. These issues are closely interlinked with dismissal laws, and the high incidence of nonstandard forms of work.[19] They help explain inadequate investment in skills and training (World Bank 2010). However, several attempts to reform these regulations have been unsuccessful over the last decade, owing to the lack of a strong government commitment to revise the prolabor reforms of the early 2000s. At the heart of the matter is entrenched union, civil society, and political party backing for key clauses of the 2003 Labor Law. Potentially, the high cost of severance for efficiency reasons discourages firms from hiring new workers on a permanent basis or adopting new technology and work practices that save labor, thus hindering the implementation of productivity enhancements and adoption of innovations. Fewer permanent workers also likely means less investment in training of workers.

In addition to high termination payments, employers are expected to go through a complicated set of procedures prior to dismissing a worker. Outcomes are quite unpredictable, which is a problem for both employers and employees.[20] Thus, many provisions in the dismissal legislation are not implemented or not fully implemented, especially in less-formal working environments.

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[17] Regular workers are defined here as persons who work permanently or for a fixed duration for other people or an institution/company.

[18] Among regular employees, only 20% have access to pensions, life insurance, or severance pay entitlements; 33% have workplace accident insurance; and 50% have health insurance provided by the company, business, or workplace that employs them.

[19] Dismissals from permanent jobs, regardless of the reasons for terminating employment, have always been tightly regulated in Indonesia, stretching back to the Soekarno era, and were actually strengthened during the probusiness Soeharto period.

[20] According to an International Labor Organization (2015) assessment, Indonesia recorded a maximum value on an index concerning procedural requirements for dismissal.

1.7.3. Nonstandard Forms of Work and Human Capital

Wage employment is far from homogeneous. Within the broad category of wage employment there are numerous subsets: "permanent" employment contracts without time limit (21% of regular workers in 2016)[21]; workers on fixed-term contracts (30%); and those with informal work arrangements (49%) with either verbal agreements or no agreement. Labor standards in outsourced companies and workers on fixed-term or verbal contracts have long been an issue of dispute between employers and unions because working conditions are often below the standards set in the regulations. These nonstandard forms of work tend to provide lower wages and are an issue for human resources. If workers are not on permanent contracts, employers and workers themselves are likely to have less incentive to invest in skills through training while on-the-job.[22] Insufficient skill accumulation contributes to a higher degree of "churning" in the labor market, as workers move between agricultural and other jobs and between spells of unemployment/inactivity and gainful employment. Chapter 7 suggests that high rates of turnover related to nonstandard work arrangements might be tackled by setting a higher rate of minimum wages for workers on fixed-term contracts.[23]

1.8. Policies for Job Creation and Higher Productivity

The policy initiatives suggested in this study focus on three main subjects:

(1) creating better jobs in the labor market,
(2) raising labor productivity, and
(3) facilitating worker adjustment to the challenges of the digital age.

These issues are addressed both from the supply side and from the demand side: raising capabilities to help people into more productive work—especially the poor, females, older people, and other disadvantaged groups—on the one hand; and ensuring that better jobs are offered by the world of work on the other. Private business, small-scale enterprises, and community groups can play a critical role in helping improve the employability of Indonesians. The challenge is avoiding the "middle-income" trap and adjusting to the digital economy. Combining new work opportunities with new technology, ideas, and organization will raise productivity and contribute to improved living standards.

[21] This group includes wage workers employed on subcontracting or outsourcing contracts.

[22] For example, Chapter 7 reports that fewer than 10% of workers on only oral contracts invest in training, compared with more than half of all permanent workers.

[23] In essence, this premium (for example a 15% top-up) should encourage wider use of permanent contracts and help tackle problems caused by underinvestment in training.

1.8.1. Supply-Side Policies

Several policy areas are highlighted: the continuing high rates of population increase, stagnant female LFPRs, youth unemployment, and protection of overseas migrant workers. The following policy prescriptions have already been given some attention and need continuing focus:

- continued efforts to curb the quite high population growth by addressing high fertility through the continued provision of information and services for family planning;
- special efforts to help less-educated rural women enter the labor market through small-scale enterprises and programs to improve basic skills;
- provision of more opportunities for young people to enter the labor market through public support for local labor market exchanges, and more intensive involvement of private enterprises in supporting vocational schooling; and
- intensified efforts at protection of Indonesian migrant workers at home and abroad through revision of the Migration Law of 2004.

Although labor mobility is quite high in Indonesia, investment in job information—especially through industry- and community-organized job fairs—can help the unemployed to get a foothold in the job market, and low-wage workers, including the self-employed, to have greater access to jobs.

1.8.2. Education, Skills, and Productivity

Raising the quality of education at all levels, and especially in basic schooling at the primary and secondary levels, is one key area for reform. It is widely acknowledged that Indonesia lags behind its competitors in the supply and quality of training opportunities for services in the digital economy, and for upgrading the skills of the existing workforce.[24] Employers underinvest in training partly because of strong disincentives through the regulatory system to appointing permanent workers. This major policy constraint has not been addressed in a systematic way by policy makers.

Boosting labor productivity entails keeping the knowledge and skills of the workforce up-to-date and relevant, and equipping new and future workers with the skills that are in demand both in the present and in the future. This requires an integrated effort by educators, policy makers, the private sector, and the international community. Three dimensions of policy are critical to skills outcomes—better allocation of resources, improvements in quality, and better management and support of schools:[25]

[24] See especially Jurriens and Tapsell (2017) for discussions of some the skill development challenges in the digital age.
[25] These issues are discussed in detail in Chapter 6.

- First, ensure more effective allocation of resources. While much has already been achieved, new steps are needed to ensure that funds are allocated for improvements in learning outcomes, skills development, and access to education.
- Second, improve the quality of education and training to close the skills gap. Bring the vocational and academic curricula up-to-date by recruiting teachers with strong industry experience, providing students with soft skills, and making sure that women and the youth are represented in any support programs.
- Third, efficient and needs-based school and teacher management is required, including a strong role for districts to decide on allocation of resources, and equity-sensitive programs, especially in disadvantaged regions.

1.8.3. Labor Demand

Indonesia's employment record has been middling by international standards. While the transformation needed in the labor market appears to have proceeded smoothly by developing country standards, this transformation falls well short of that achieved by the PRC and Malaysia, and even short of relatively low-income Viet Nam in Southeast Asia.

There are two main issues: the quantity and quality of jobs. Creating more jobs is important. Devising policies to raise the quality of workers and jobs is even more pressing, especially in the medium to longer term. The more fundamental challenge is to improve the quality of workers and jobs through both basic education and vocational training in independent schools and in the workplace.

With respect to the rate of job creation, the country needs both faster economic growth and more "job-friendly" growth to help overcome some of its main employment challenges in low-income areas of agriculture and the informal sector. A more systematic program is needed that targets job creation in labor-intensive industries in large and smaller firms and in micro enterprises through infrastructure, training, and deregulation. This can ensure that the benefits of the economic reform packages of the Jokowi government begin to transform the employment situation toward higher value jobs, including in traditional sectors such as textiles, footwear, and food processing.

Currently, 5% growth with an employment elasticity of 0.5 creates about 1 million new jobs annually, mainly in the formal sector. During the next 2–3 years a realistic target might be 1.5 million jobs annually with a 6% growth rate or an elasticity of approximately 0.7, again mostly in formal sector jobs.

Regarding the quality of jobs, it is clear that many of the new formal sector jobs are neither better jobs nor decent from the perspective of productivity and wages. The rate of the shift of low-productivity workers out of agriculture is very much determined by the creation of better jobs within and outside the agriculture sector. The study of mobility among agricultural workers in Chapter 4 provides some pointers for policy:

- Providing agricultural workers with better education, skills, and training to help them take up nonagricultural jobs can make a difference. This is especially true for younger workers, who are potentially more mobile.
- Agricultural modernization is critical to raising farmer incomes, including opportunities to plant higher value-added crops, which are likely to provide higher living standards.
- Policies for job diversification of rural areas are also likely to contribute to greater mobility and poverty reduction among rural agricultural workers.

1.8.4. Urbanization

In regard to urbanization, the thrust of desired policies is to capitalize on the natural productivity advantages of cities and megacities while seeking to control and reduce the costs from high levels of population density. The main set of policy conclusions to emerge from Chapter 5 are to

- continue support for medium-sized cities and support the growth of productive peripheries to the megacities through public policies on infrastructure, land use, and investment in social sectors (especially education, health, and housing); and
- continue efforts to both control and accommodate the excessive growth of megacities.

1.8.5. Labor Policies

Indonesian governments have performed credibly since the AFC in terms of employment and have maintained a balance between creating better, more stable jobs but at the same time maintaining a workable degree of labor market flexibility. Real wages have kept pace with productivity improvements during this period, and new minimum wage legislation has eliminated some of the uncertainty that underpinned the previous system of negotiated minimum wages. Employment protection regulations need reviewing to bring law and practice more into consonance. Reforms that might be considered include the following:

- In regard to institutional changes, three innovations could be considered at this time: upgrading the system of labor inspection and the labor courts for the

formal sector; encouraging industry-based wage agreements, based on specific circumstances faced in certain sectors and regions; and trialing an employment insurance fund offering workers and their employers training credits.

- In the informal economy, there is a need to disseminate information on wages and other labor standards to improve compliance by creating a signal or "lighthouse effect" for workers and employers.
- With respect to regulations, it is time to review dismissal processes and high rates of severance, which adversely affect employment and human resources, and to trial higher levels of minimum wages for workers on fixed-term contracts to compensate for their lack of job security.[26]

[26] Chapter 7 also argues that it seems necessary to clearly separate severance payments and gratuities and to make the latter available to all workers who have reached the appropriate length of tenure, and not just dismissed workers.

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Chapter 2
Labor Supply and Attachment to the Workforce

*Chris Manning and Devanto Shasta Pratomo**

2.1. Introduction

Population growth and distribution, attachment to the workforce, and human capital resources underpin the labor supply in Indonesia. Knowledge of these subjects helps us appraise severe employment challenges as well as opportunities. Such an assessment is particularly urgent in a large, geographically fragmented, and rapidly changing economy such as Indonesia.

This chapter deals with both quantitative and qualitative aspects of the labor supply. It focuses mostly on the former, leaving the more detailed discussions of urbanization, labor force quality and skills, and policies to later chapters (especially chapters 4 and 7). Four main topics are considered. First is the population dynamics underpinning labor force change—dealing with the quite rapid growth of the working-age population associated with a youthful workforce. This is currently providing a demographic dividend, with opportunities but also risks. The second topic is labor force participation, in particular among females. We identify some encouraging signs in regard to female engagement in the workforce. These changes are documented in the context of significant improvements in the schooling of the population, especially in the first decades of the 21st century. But it is also problematic for women to move seamlessly into male-dominated workplaces, especially in the modern sector.

The chapter also deals with unemployment and migration. Indonesia continues to face major challenges in creating jobs for an increasingly educated young workforce across an extensive archipelago. At the same time, migration at home and abroad and

* The authors thank Emma Allen and Sakiko Tanaka for comments on an earlier version of this chapter.

in such a large country provides alternative job opportunities, especially when choice is limited at home. Many people are attracted by the prospects in towns and cities but not always with success at finding employment.

In the next section of the chapter we address the population dynamics that underpin employment and urbanization. The section also examines the main dimensions of labor mobility between urban and rural areas, and across Indonesia's many regions. The chapter then investigates labor force participation rates (LFPRs) and unemployment, especially among women and youth (ages 15–24), in sections 2 and 3. Then the last section looks at international migration as an important source of jobs, especially for poorer, rural Indonesians.

2.2. Population Dynamics and the Labor Market Implications

Indonesia's population is large by any standard, which in itself poses a major challenge for employment policy. With an estimated population of just over 260 million in 2016, Indonesia is the world's fourth most populous nation after the People's Republic of China (PRC), India, and the United States (Table 2.1). Population growth is intermediate to low by developing country standards, and intermediate relative to population growth rates of the four most populous Southeast Asian countries (Malaysia, the Philippines, Thailand, and Viet Nam).[1] While urbanization is estimated to be low compared with more developed countries, assessments indicate it is probably higher than in lower-income countries such as India and Viet Nam.[2]

2.2.1. Population Growth, Changing Age Distribution, and Demographic Bonus

To the surprise of many demographers, the rapid decline in fertility and population growth rates in the last decades of the 20th century have not been sustained into the 2000s in Indonesia.[3] Finding jobs for a growing labor force will remain a challenge for several decades. By 2035, it is estimated that the total population will have increased by 50% over levels recorded at the turn of the century, to exceed 300 million. Thus Indonesia is experiencing moderately high population growth for an established lower middle-income country. Changes are envisaged to be gradual for the medium term. Population growth rates are projected to fall to a little over 1% per annum in the 2020s

[1] Growth rates were higher in Malaysia and much higher in the Philippines but lower in Viet Nam and much lower in Thailand in 2015 (Jones 2013).
[2] Definitions of urbanization differ significantly across countries.
[3] See McDonald (2014) for a review of recent demographic trends and projections in a regional perspective.

Table 2.1: Indonesia's Past, Present, and Projected Population in Comparative Perspective

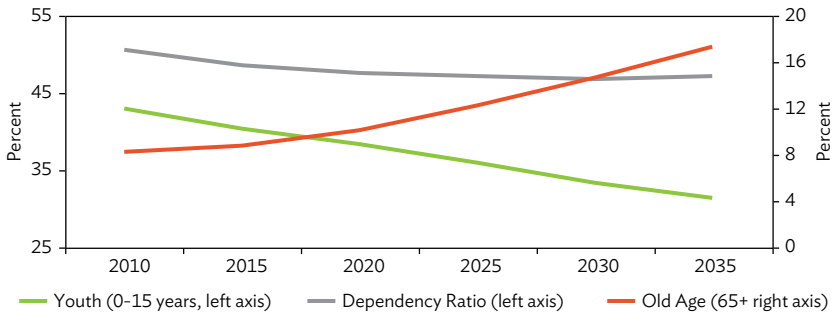
Country	Estimated Population (million)			Population Growth Rates Per Annum (%)		Urban Share of the Population (%)			Per Capita Income ($)[a]
	2000	2015	2035	2000–2015	2015–2035	2000	2015	2035	2012
Indonesia	212	258	305	1.3	0.8	42	54	65	3,347
Brazil	176	208	233	1.1	0.6	81	86	89	8,539
PRC	1,270	1,376	1,408	0.5	0.1	36	56	71	7,925
India	1,053	1,311	1,585	1.5	0.9	28	33	42	1,582
Malaysia	23	30	38	1.7	1.1	62	75	83	9,766
Thailand	63	68	67	0.5	0.0	31	50	66	5,816
Philippines	78	101	131	1.7	1.3	48	44	49	2,899
Viet Nam	80	93	108	1.0	0.7	24	34	46	2,111
Japan	126	127	117	0.0	-0.4	79	93	97	32,477
United States	283	322	365	0.9	0.6	79	82	85	55,837

PRC = People's Republic of China.
[a] All per capita income data converted at 2015 current exchange rates.
Sources: Indonesia: BPS (2014); all other countries: UN DESA (2015 and 2014).

and to around 0.5% by the 2030s, based on an estimated annual growth rate of just below 1.5% in 2000–2010 (Jones 2013: 3).

The period 2015–2030 has been described as Indonesia's period of demographic bonus or demographic "dividend." The share of dependents relative to economically active persons is projected to fall gradually to a minimum of about 47% before it is projected to rise again around 2030–2035 (Figure 2.1).[4] This presents an opportunity for productive deployment of the workforce to contribute to a rising share of savings and investment to gross domestic product

Figure 2.1: Dependency Ratio, Indonesia, 2010–2035



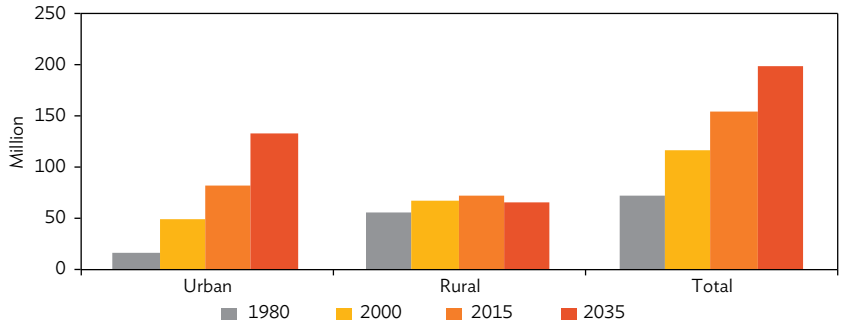
Source: BPS (2014).

[4] During the period of demographic bonus, the decline in the share of the young population offsets the rising share of the older population before the latter begins to grow much more quickly as age expectancy rises. In Indonesia, the dependency ratio has been projected to fall from just over 50% in 2010 to a low of 47% in 2030 (BPS 2014).

(GDP). It would also mean a smaller percentage of GDP allocated to the consumption needs of younger and older age dependents.

The demographic bonus notwithstanding, population dynamics will still pose a challenge in terms of job creation. The working-age population reached about 180 million in 2015 and will increase to close to 250 million in 2035 (Figure 2.2). It has been growing at close to 2% (doubling each 35 years) and is projected to continue to increase at more than 1% per annum through to 2035. Much of this increase is due to changing age structure. But even the youthful, working-age population (aged 15–29) is projected to continue to grow until 2035, meaning a continuing challenge for young job seekers (Jones and Mulyana 2015: 13).

Figure 2.2: Working-Age Population and Projections, Indonesia, 1980–2035

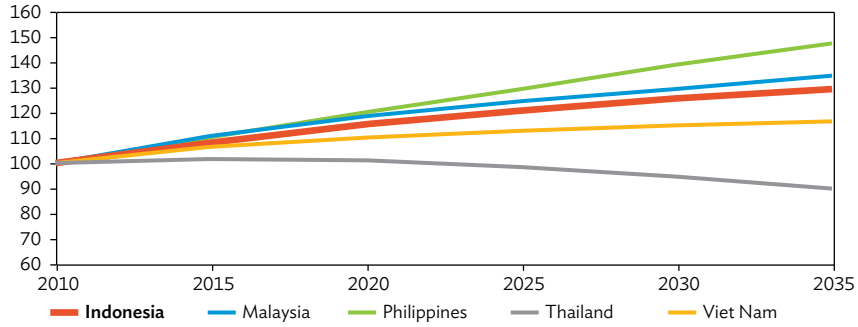


Note: Working-age population comprises people aged 15 and above.
Sources: BPS Population Census 1980, 2000, and 2010; and BPS (2014) for projections 2010–2035.

Figure 2.3 shows an index of the projected size of Indonesia's working-age population relative to the four most populous Southeast Asian countries from 2010 (=100) through to 2035.[5] Indonesia's growth is close to that of upper middle-income Malaysia, and far below that of the Philippines. But it is projected to rise much faster than that in Viet Nam and Thailand. The absolute size of annual increases—now about 2.5 million—is of course much greater in Indonesia than in all the other Association of Southeast Asian Nations (ASEAN) countries.

[5] The working-age population is defined by the United Nations as age group 15–64. In the National Labor Force Surveys (SAKERNAS), BPS (Statistics Indonesia) defines it as all persons aged 15 and above, which makes sense for a country where pensions and other retirement incomes are enjoyed by only a minority of the population. Figure 2.3 is modeled on Jones (2013: 11, Figure 6d).

Figure 2.3: Index of Increase in the Working-Age Population, Selected Southeast Asian Countries, 2010–2035 (2010=100)



Source: UN DESA (2015).

2.2.2. Urbanization

From the turn of the century, almost all the growth in Indonesia's population has been in urban areas. By 2015, more than half of the population lived in towns and cities (see Table 2.1).[6] Urbanization has been faster than projected a decade ago and seems to have been more rapid than in many other East Asian countries at similar stages of development.[7] This has created a host of social and environmental problems, both in the megacities and in some of the rapidly growing small cities (Lewis 2014, Firman 2014). Reclassification of rural centers as urban—or what has been termed "*kota-desasi*" (literally "towns taking over the villages")—has been an important part of the process. Rural-urban migration is estimated to account for around one-third of total urban population growth, while as much as another third of the growth has been estimated to be the result of *kota-desasi*.[8]

Furthermore, as we shall see below, permanent movement of people into towns and cities is only one aspect of "churning" in the labor market. Commuting and circular migration are also important dimensions, especially in densely populated Java. The eminent demographer Graeme Hugo and others have estimated that circular migrants, many of whom are not covered in the census, have been quantitatively as important, if not more so, as permanent migrants for employment in most of the larger cities on Java. In addition, with greater access to motor vehicles, especially motorbikes, commuting

[6] The relationship between urban growth and employment is discussed in detail in Chapter 4. Officially, the urban population is defined by several criteria, including population density, the share of agricultural employment, and minimum number of designated urban facilities present in the region.

[7] World Bank (2013, Figure 45). Although there are problems with cross-country comparisons in rates of urbanization, it is instructive that only the Philippines has recorded a higher proportion of its population than Indonesia in urban areas out of a selection of larger Asian countries (the PRC, India, Thailand, and Viet Nam).

[8] The final third of urban population growth has been estimated to come from natural increase in urban areas. See Gardiner (1997).

appears to have become increasingly common around major cities.[9] Jakarta has been estimated to grow by as much as half or more during working hours.[10]

Urbanization has been rapid in both large and small cities, but slightly faster in the latter. Greater Jakarta, as the primate city region—with all its problems of urban sprawl—plays a leading role, although not as dominant as Bangkok and Manila in neighboring Thailand and the Philippines.[11] Several other large urban conurbations both on Java and in the outer islands have already emerged to counterbalance the dominance of the national capital region and its surrounding urban districts (Jones and Mulyana 2015).

Finally, it is important to bear in mind that the total rural population is still very large (about 120 million) and will still be substantial in 20–30 years, even though the urban share will rise steadily to around two-thirds of the total. From just under 120 million in 2015, the rural population is expected to fall slowly to just over 100 million or one-third of the total population in 2035. While the main employment challenges will increasingly be in urban areas, these projections suggest that a large population by any standard will continue to depend on agriculture and related sectors for jobs and incomes for some time into the future.

2.2.3. Nonpermanent Migration: Commuting and Circular Migration

One dimension of urbanization is the growing size of nonpermanent migration, including commuting and circular migration, which does not involve a change of residence. According to the National Labor Force Survey (SAKERNAS), commuting is defined as regular (daily) travel outside the district or province for work, while circular migration involves temporary absences from the district or province for more than 1 day (this can be weekly or monthly).[12] In the former case the threshold is a single day, whereas circular migrants maintain their usual place of residence, but they are temporarily absent for weeks or months at a time. One would expect the frequency of movement to be determined by the distance between origin and destination, mode of transportation, and job opportunities and earnings in the destination area, compared with the place of origin (Hugo 1982).

[9] The large majority of commuters (about 78%) used private transport and traveled relatively short distances (less than 10 kilometers), although a small minority traveled 30 kilometers or more. The PEW Research Centre reports that nearly 90% of Indonesian households owned a motorcycle, compared with only 4% owning cars, in 2014. See CityLab: http://www.citylab.com/commute/2015/04/global-car-motorcycle-and-bike-ownership-in-1-infographic/390777/

[10] See below for a further discussion of circular migration.

[11] See also Firman (2014).

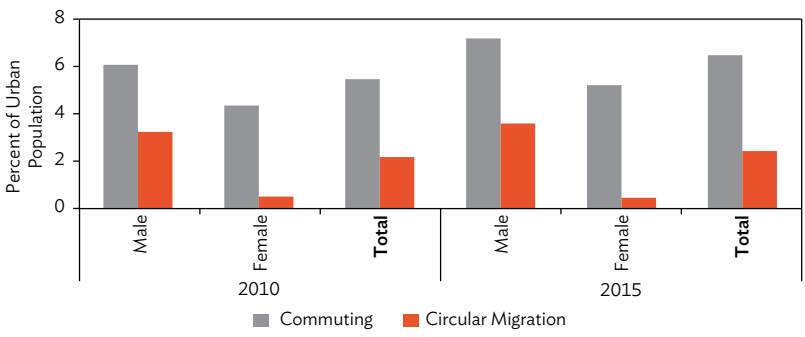
[12] The definition excludes people who commute for activities outside work, such as students traveling from their homes to schools in neighboring districts.

Based on the SAKERNAS, commuting and circular migration rates have increased over time, particularly in the last 5 years[13]; partly due to improvements in infrastructure and related to growth of the labor force. In 2010–2015, the rate of commuting increased from 6% to 7% of the working population among males and from a little over 4% to 5% among females, while increases in circular migration have been smaller (Figure 2.4). Nonpermanent mobility is selective by gender, with a higher proportion of movers comprising male workers, especially among circular migrants. Commuting workers, especially females, tend to be younger (below 30 years old) and better educated. Transport and infrastructure improvements, and access to cheaper motorcycles purchased on credit, have supported commuting over short distances for jobs that fit with the job seeker's qualifications.

Commuting is mainly an urban phenomenon, indicated by more than 80% of commuters living in urban areas. It can also be seen as a response to the greater economic specialization across localities, especially in Greater Jakarta (Jabodetabek), as well as the rise in rail commuting to Jakarta from its peripheries.

In contrast, a significant part of circular migration involves workers from rural areas. Circular migrants from rural areas usually maintain some village-based employment or assets (Hugo 1982). Circular migration has been especially significant in the rapidly growing and now huge Greater Jakarta region, where flows in recent years have been dominated by workers from West Java (48%), Central Java (33%), and Banten close to Jakarta (10%).

Figure 2.4: Commuter and Circular Migration Rates by Gender, 2010 and 2015



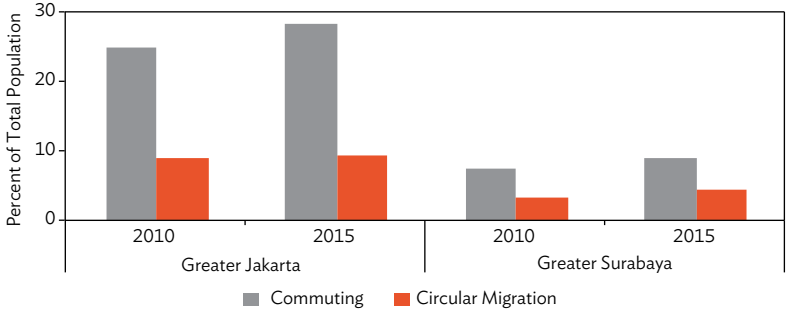
Sources: Data from BPS (various issues), National Labor Force Surveys (SAKERNAS) 2010 and 2015 (August rounds).

[13] The commuter and circular migration rates are calculated as the number of commuter or circular migrants relative to the total number employed.

As noted, commuting is dominated by workers living in urban conurbations, particularly workers living in Greater Jakarta: 23% of its workers are commuters, including workers who reside in Bekasi, Depok, and Tangerang, to the east, south, and west of the city.[14] The share of commuters in Greater Jakarta is even greater than the share of recent migrants who have settled permanently in the last 5 years. Most commuters to Jakarta travel by motorcycle, despite efforts to improve public transport.[15] Further, Firman (2014) mentioned that, in addition to blue collar workers, middle- and upper-income workers also tend to commute from homes in peripheral areas with a higher quality life due to the environment and infrastructure.

The commuter rate has intensified in the last decade, in line with the rapid population growth in Jakarta's peripheral areas (Figure 2.5). A similar dominance of commuting in urban conurbation also exists in Greater Surabaya (Gerbangkertasusila),[16] the second-largest city in Indonesia. Greater Surabaya has a much smaller share of commuting in total employment compared with Greater Jakarta.

Figure 2.5: Commuting and Circular Migration Rates in Urban Conurbation, 2010 and 2015



Sources: Data from BPS (various issues), National Labor Force Surveys (SAKERNAS) 2010 and 2015 (August rounds).

2.2.4. Major Regional Dimensions of Population Change

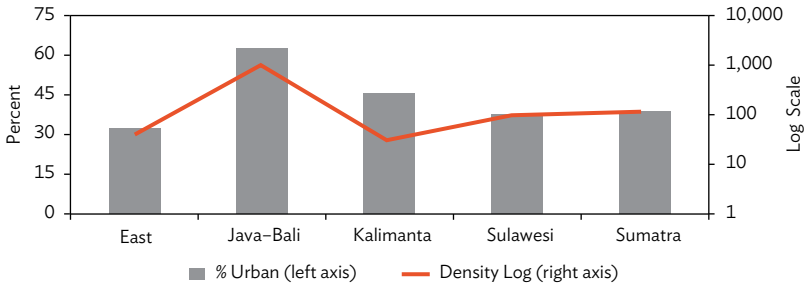
While this study does not report in detail on regional trends, the Java–Bali and outer islands split is impossible to ignore in the formulation of policies for better employment outcomes. We present some broad trends by major "island group," represented by the most populous region—Java–Bali—and four "outer" island groups: Eastern Indonesia,

[14] Jabodetabek stands for Jakarta, Bogor, Depok, Tangerang, and Bekasi region engulfing the capital city.
[15] In 2015, it was reported that 58% of 1.4 million commuters used motorcycles to commute from surrounding districts. See "1.38 million commute into Jakarta daily" Jakarta Post, 29 March 2015.
[16] Gerbangkertasusila stands for the Gresik, Bangkalan, Mojokerto, Surabaya, Sidoarjo, and Lamongan in metropolitan Surabaya.

Kalimantan, Sulawesi, and Sumatra.[17] While heterogeneous, Eastern Indonesia as defined here is generally poorer and suffers greater infrastructure and communication deficits than much of the rest of Indonesia.

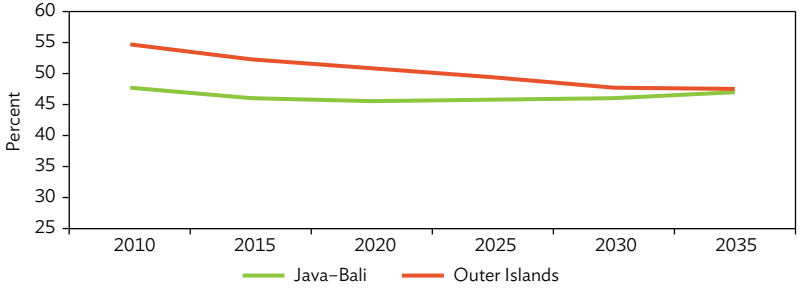
Three points are worth noting (see Figures 2.6 and 2.7). First, rates of urbanization are much higher in more densely populated Java–Bali than in the other regions, even though population growth rates are now much slower (Figure 2.6). Related to this, the dependency ratio has begun to rise in Java–Bali since about 2010, in contrast to a continuous decline in all of the outer island groups until about 2025–2030. This implies a larger supply of potential human resources in the form of younger, more educated workers outside Java–Bali. But it also means greater challenges in having to provide jobs for new, younger job seekers (Figure 2.7).

Figure 2.6: Urban Percentage and Population Density, Major Island Groups, Indonesia, 2015



Source: Data from BPS (2014).

Figure 2.7: Dependency Ratio for Java-Bali and Outer Islands, Indonesia, 2010–2035



Source: BPS (2014).

[17] Bali and Java are combined in this discussion because they share many similar demographic and economic characteristics.

Third, while the urban population is already much larger than that in rural areas on Java–Bali, the reverse is true by a large margin in all the other island groups. Thus the rural population will continue to grow in most outer island provinces through to 2030. In contrast, it has already been falling on Java for more than 2 decades. The supply of rural and agricultural jobs is a critical factor in efforts to raise living standards and reduce poverty outside Java–Bali, especially in most of the poorer Eastern Islands of Indonesia.

Finally, there are also some significant contrasts between the outer island groups, as well as within the island groups (Manning and Purnagunawan 2014). Most important is the contrast between much of resource-rich Kalimantan, where the population has been growing rapidly in recent years, and resource-poor Eastern Indonesia, which is dependent on low-productivity agriculture (except for parts of Papua).

Within the island groups, disparities are stark. For example, on Java they are marked between the high-income and urbanized region of Jakarta (and Greater Jakarta) and Central Java. In the former, modern services stand out, and agriculture contributes a tiny share of employment. In contrast, in the quite poor region of Central Java, incomes are still very low, mainly in traditional services and low-productivity agriculture. Similar disparities can be seen elsewhere, for example between resource-rich and urbanized East Kalimantan versus the still intensely rural structures in West Kalimantan; or between more urbanized and prosperous North Sulawesi versus its neighboring Gorontalo, where a quite poor population still works mostly in agriculture.

In a large and regionally diverse country such as Indonesia, labor migration between provinces and districts is an important issue for overcoming regional labor demand and labor supply differences. This is closely related to the imbalance in population and labor supply between Java and the outer islands. Densely populated Java has historically been the main island of out-migration. But it is also the preferred destination area for migrants, due to the pull factors associated with more economic opportunities, especially in the larger urban centers. Stark differences are also apparent among the outer island regions. Agriculture and natural resource development have also resulted in a growing interest in migration to rapidly growing outer island regions such as East Kalimantan, Riau and Riau Islands, Southeast Sulawesi, and West Papua.

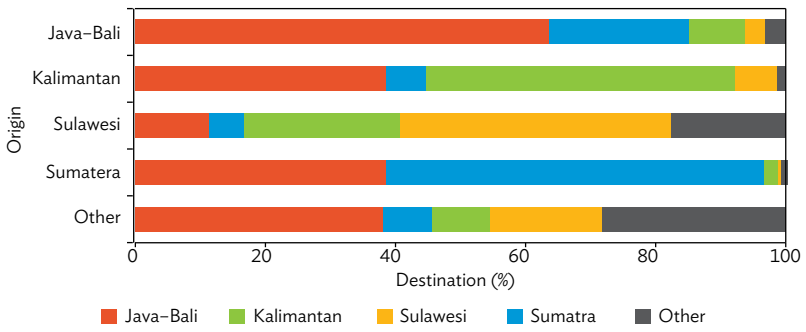
According to population censuses, the share of lifetime migrants in the population increased significantly from below 5% in 1980 to 12% in 2010.[18] Lifetime migrants comprised more than 30% of the population in five provinces: in Jakarta (42%) and Riau Islands (48%)—two centers of industrial development over several

[18] Lifetime migrants are defined as those who were born in a different province from the current province of migration and who have been resident in the region of destination for at least 6 months.

decades—and in three resource-rich provinces: East Kalimantan (37%), Riau (34%), and West Papua (33%). In Riau Islands and West Papua, as newly established provinces, a high proportion of permanent migrants were also attracted by new economic opportunities, including in government administration (Muhidin 2014).

Figure 2.8 summarizes the interprovincial movement of permanent lifetime migrants across Indonesia's main islands. Most lifetime migrants moved within the same island. However, Java has been known as the main destination area of migration from all the other island groups. On the other hand, a high proportion of lifetime migrants from Java have gone to Sumatra and Kalimantan. This reflects the influence of the transmigration policy from Java to Sumatra in the past (especially in the 1970s and 1980s), in addition to the development of mining and cash crops more recently. The other important patterns of interisland lifetime migration have been the movement of migrants from the poorer parts of Eastern Indonesia to Sulawesi, and the movement from Sulawesi to Kalimantan, particularly among the Buginese people from South Sulawesi.

Figure 2.8: Lifetime Migrants by Destination, 2015



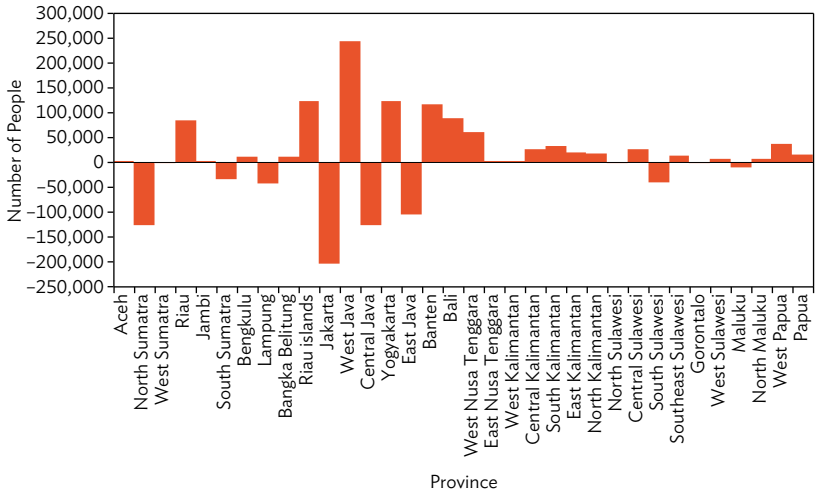
Note: "Lifetime Migrants" are defined as those who were born in a different province from the current province of migration and who have been resident in the region of destination for at least 6 months.
Source: BPS (various years), National Socio-Economic Survey (SUSENAS) for 2015.

Unlike lifetime migrants, the share of recent migrants in total population tends to be stable over time at about 2%–3%.[19] Figure 2.9 shows the distribution of net recent migrants (more in-migrants than out-migrants) across provinces in Indonesia in 2015. According to the National Socio-Economic Survey (SUSENAS), West Java Province has the highest positive share of net recent migration, with more than 200,000 net recent in-migrants in 2015. However, this is associated mostly with the recent in-

[19] Recent migrants are defined as those that have migrated within the last 5 years.

migration into districts in Greater Jakarta—the extended metropolitan region of Jakarta (Jabodetabek), including Bogor, Tangerang, and Bekasi, which are in the West Java administrative area (Firman 2016).

Figure 2.9: Recent Net Migration by Province, 2015



Source: BPS (various years), National Socio-Economic Survey (SUSENAS).

Net migration is also supported by significant recent out-migration from Jakarta to its peripheral areas in West Java and Banten, attracted by the emergence of employment opportunities or to avoid the congestion in central Jakarta.[20] Riau Islands and Yogyakarta (both with much smaller populations than West Java) also show significant positive net recent migration. Riau Islands attracted recent incoming migrants for employment in industry in the Special Economic Zone of Batam near Singapore. In contrast, the positive net migration flow into Yogyakarta has been dominated by migrants who have moved for education purposes (Muhidin 2014).

Population growth and structure are linked to the labor force and indirectly to employment through LFPRs. We now turn to this subject before discussing unemployment.

[20] See Chapter 5 for more discussion of these patterns.

2.3. Labor Force Participation Rates

As in many other countries, Indonesia's LFPRs have remained remarkably stable over time. But this masks some important differences in trends among population subgroups by gender, place of residence, and education. We find some encouraging signs in female participation notwithstanding several challenges.

The understanding and explanation of labor market attachment is more straightforward for urban rather than rural workers. The large agriculture sector in Indonesia consists mainly of family farms—more than 90% of employed people in agriculture work in household enterprises (Firman 2016).[21] However, indicators developed to capture labor market behavior are more relevant to people searching for or engaged in full-time wage employment.[22] In rural areas, LFPRs and unemployment are more difficult to measure and to interpret, given the prevalence of family and self-employed work in agriculture and in nonfarm jobs.

This section starts with a general discussion of LFPRs, following on from the previous examination of age structure and growth of the working-age population. The main focus is on female LFPRs, especially as related to levels of schooling.

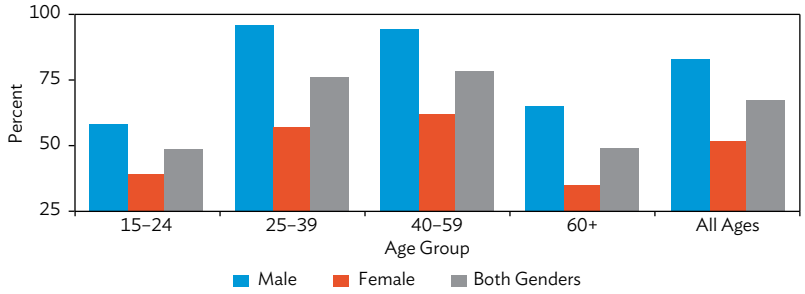
2.3.1. Labor Force Participation by Age and Gender

The most remarkable aspect of overall LFPRs in Indonesia is their stability. They were intermediate (ranging from 66% to 69% in 2001–2016) among countries at similar stages of development. As in other countries, there were also marked differences in LFPRs by age and gender. Among prime age males, LFPRs are around 95%. For prime age (25–59 years old) females, they are closer to 50%, and for youth (aged 15–24), LFPRs are about 35%–40%. LFPRs begin to taper off for both genders for people in their late 50s and then decline sharply as they reach 60, and into the their 70s.

The stability of overall rates mainly reflects almost universal attachment to the labor force among prime age males. It also reflects (and hides) offsetting differences by level of education and urban–rural residence, especially among females. Figure 2.10 shows overall LFPRs for males and females for different age cohorts in 2016. As in most other countries, LFPRs are highest for prime age males and lowest for females at older ages. The gap at prime ages reflects the near universal tendency for many females to withdraw from the workforce intermittently, or even sometimes permanently, in their child-bearing and child-rearing years.

[21] See for example the National Labor Force Survey (SAKERNAS), February 2016.
[22] For discussions of the concepts and methodologies applied in developing countries, particularly regarding participation of women, see Kapsos (2007) and Verick (2014).

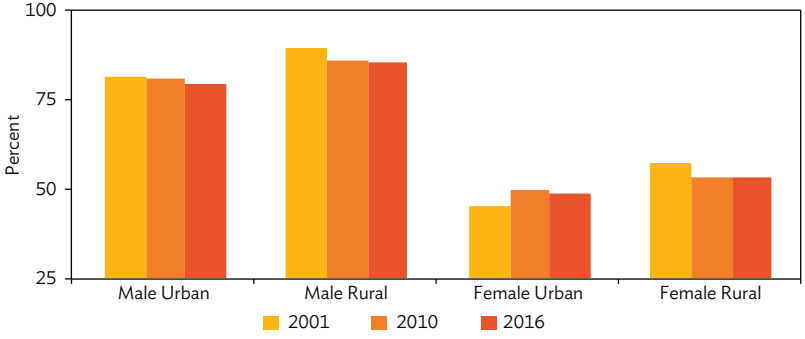
Figure 2.10: Labor Force Participation Rates for Males and Females in Different Age Cohorts, 2016



Source: BPS (various issues), National Labor Force Surveys (SAKERNAS) 2016 (August round).

The gender gap in LFPRs is smaller for the youngest age group, especially in urban areas. This reflects both improvements in schooling and more opportunities for wage employment among young females in the towns and cities. However, female LFPRs have not shown a tendency to rise in urban areas, despite reports of opportunities for wage employment among younger educated women (Figure 2.11). There has also been a fall in male LFPRs, particularly in rural areas, most likely due to increased schooling at younger ages.

Figure 2.11: Labor Force Participation Rates by Gender, Urban and Rural, 2001, 2010, and 2016



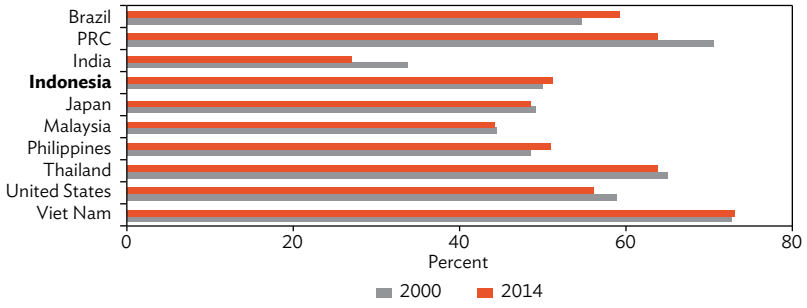
Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS) 2001, 2010, and 2016 (August rounds).

With regard to island groups, female LFPRs were remarkably stable in urban areas, varying just a couple of percentage points around the national mean of 49% in 2015. But in rural areas it was a different story. Rural LFPRs were above the rural average of 53% in Kalimantan (55%) and much higher in Eastern Indonesia (62%), two provinces where agriculture still dominated rural employment.

2.3.2. Female Labor Force Participation and Schooling: The U-Curve Hypothesis Revisited

Females show the greatest variations in LFPRs between and within countries. In Indonesia, close to 50% of women were in the workforce for much of the 2000s. This LFPR level was intermediate among large economies in the region, and compared to large developing countries. Thus, for example, female LFPRs in Indonesia were higher than in India or Malaysia, very close to those in the Philippines, but below rates recorded in the PRC and Thailand, and way below Viet Nam (Figure 2.12).

Figure 2.12: Female Labor Force Participation Rates in Selected Countries, 2000 and 2014



PRC = People's Republic of China.
Sources: World Bank. DataBank. Labor Force Participation Rate, Female. Data originally computed by the International Labour Organization (ILO) and available in ILOSTAT.

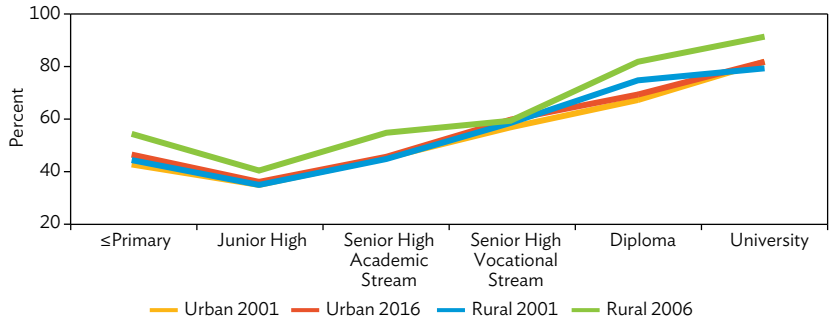
Among groups of women within Indonesia, however, there has long been a U-shaped relationship between LFPRs and levels of schooling.[23] Female LFPRs were just over 50% in 2016 among less-educated women (with a primary education or below). This figure was close to the average for all females. LFPRs then declined by about 20% for junior high school graduates before rising again for senior high school and tertiary graduates.[24] The pattern was quite stable, as apparent in 2001, still quite evident in 2016, and was just as marked in urban areas as in the countryside in the latter year (Figure 2.13).

A probit regression analysis confirmed some of these results (Table 2.2, p. 46). The dependent variable is the female LFPR (1 if participating, 0 if outside the workforce) and the explanatory variables are the conventional sociodemographic indicators (age,

[23] See for example Manning (1998: Chapter 11 "More women in the workforce," pp. 236–238).
[24] In the 1970s to the early 1990s, LFPRs among females were still quite low among senior high school graduates (academic stream, although not for vocational graduates), but rose in the 2000s.

gender, education, marital status) and locational variables (urban–rural residence and island group).[25] The focus is the engagement of more-educated women in the workforce. The education variable is measured in different ways (years of completed schooling and level of completed schooling) to help focus on the nonlinear relationship between level of schooling and female LFPRs.

Figure 2.13: Urban and Rural Female Labor Force Participation by Schooling, 2001 and 2016



Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS) 2001, 2010, and 2016 (August rounds).

As expected, the effect of education on female LFPRs is stronger for those with more schooling, as shown by the positive coefficient for years of schooling in equation I in Table 2.2. However, the regression also suggests that this relationship is not linear, as indicated by the negative coefficient for years of schooling squared (equation II). This implies a U-shaped curve in relation to years of schooling. In other words, while LFPRs fall initially, they rise subsequently at higher levels of education, as illustrated by the bivariate relationship pictured in Figure 2.13.

When levels of completed schooling are specified as a categorical variable (less than completed primary schooling is the reference category), primary, junior high, and senior high school (academic stream) dummy variables all return a negative and significant coefficient (see equation III). The effect is strongest for lower secondary schooling. The surprising result is for senior high, a level of schooling that has generally been considered a stepping stone to better jobs. While this remains the case for females from the vocational stream, it no longer seems to be the case for those graduating from the academic (general) stream of senior high school education. The effects are strongly positive in the case of a completed university education. This further supports the finding of a U-shaped relationship between education and female participation, and pinpoints the particular level at which female LFPRs fall and then rise again.

[25] Unfortunately, the dataset does not allow inclusion of household variables such as occupation of spouse and income.

Table 2.2: Probit Regression: Determinants of Female Labor Force Participation, 2015

Subject	Variables	Equation I	Equation II	Equation III
Age	Age	0.110	0.110	0.105
	Age squared	-0.001	-0.001	-0.001
Education	Years completed schooling	0.029	-0.133	
	Years completed schooling squared		0.010	
	<Primary			-0.122
	Junior high school			-0.226
	Senior high academic			-0.089
	Senior high vocational			0.090
	Diploma			0.526
	University			0.910
	At school formal	-1.542	-1.454	-1.444
	At school informal	-0.900	-0.768	-0.796
Marital Status	Married	-0.826	-0.770	-0.777
	Ever married	-0.542	-0.516	-0.510
Region	Sumatra	-0.056	-0.051	-0.049
	Kalimantan	-0.014*	-0.021	-0.023
	Sulawesi	-0.152	-0.164	-0.166
	Eastern Indonesia	0.187	0.138	0.156
Urban–Rural	Greater Jakarta[a]	-0.526	-0.554	-0.548
	Greater Surabaya (East Java)[b]	-0.234	-0.233	-0.215
	Other urban	-0.191	-0.201	-0.194
	Constant	-1.402	-0.898	-1.008
	Number of observations	264,034	264,034	264,034
	LR chi²	44,622	50,037	51,678
	Prob > chi²	0	0	0
	Pseudo R²	0.122	0.1368	0.1413

Note: * = not significant at 5% level.
[a] The Greater Jakarta region covers the cities of Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jabodetabek).
[b] The Greater Surabaya region covers the cities of Gresik, Bankalan, Mojokerto, Kertosono Surabaya, Sidoarjo, and Lamongan (Gerbangkertosusilo) in East Java.
Reference categories (category = 0):
Level of completed schooling: <=primary.
Marital status: Single.
Region: Java-Bali.
Urban/rural classification: Rural areas.
Formal schooling: No school or no school anymore (mostly the latter).
Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS), 2015 (August round).

The influence of demographic variables on the LFPR was as expected. As in many other countries, the effect of age on female LFPRs was nonlinear and inverted U-shaped, as shown by the negative sign of the coefficient for age-squared. Also consistent with most international studies, currently married (and ever married) women are less likely to participate in the labor force than are single women.

With regard to region, females living outside Java–Bali in Sumatra and Sulawesi are less likely to participate in the labor force than females living in Java and Bali. But females

living in other islands where agriculture is more prevalent are more likely to be in the labor force. Perhaps surprisingly, females living in the two largest urban conurbations, Greater Jakarta in the west of Java and Greater Surabaya in the east, are less likely to participate in the labor force than are females living in other urban areas or in rural areas. Many young females were probably still going to school full-time. Both the difficulty and the cost of regular transport to work in the urban conurbations may have also played a part.

2.3.3. Female Labor Force Participation Rates: Changes over Time

Referring back to Figure 2.12, which showed some international comparisons of female LFPRs in the small sample of countries, there seems to be no clear relationship between living standard and female LFPRs. The data in the table do not support the notion of systematic changes in participation as incomes rise and female education improves, or what is known as the U-curve hypothesis with respect to LFPRs over time.[26] Overall rates do not appear to have changed a great deal in the last 15 years, for Indonesia or any other country for which data are shown in the figure.

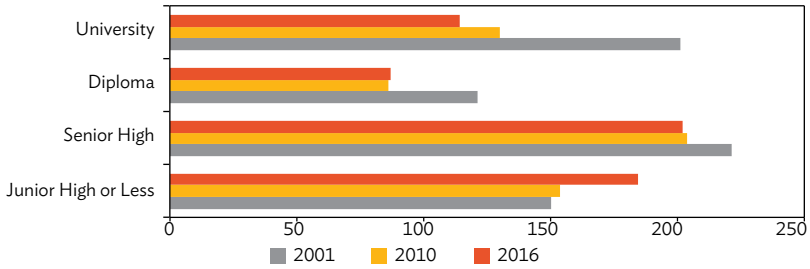
More generally, findings for Indonesia are consistent with international trends. Verick (2014) argues that there has been no systematic variation over time in female LFPRs in developing countries; in some, LFPRs have even declined among females (India and Turkey, for example) despite significant improvements in female schooling and increased urbanization.

Quite stable LFPRs over time for all Indonesian women have been recorded at a time when female schooling has expanded rapidly and the gender gap in completed years of schooling among males and females has narrowed. Figures 2.14 and 2.15 capture both of these effects. While the gender ratios for schooling participation rates at different levels have not fallen much (in favor of females) at the secondary level, they fell quite dramatically at the tertiary level (see Figure 2.14). Average years of schooling rose more quickly among females than males, especially for women aged 20–29. The average years rose from around 5% below those for males in 2001 to more than 10% above them, or nearly 11 years of schooling on average for females, in 2016 (see Figure 2.15).

Given that LFPRs among tertiary educated women are above 80%, it is perhaps puzzling that this education effect has not had an impact on overall LFPRs. Rural rates

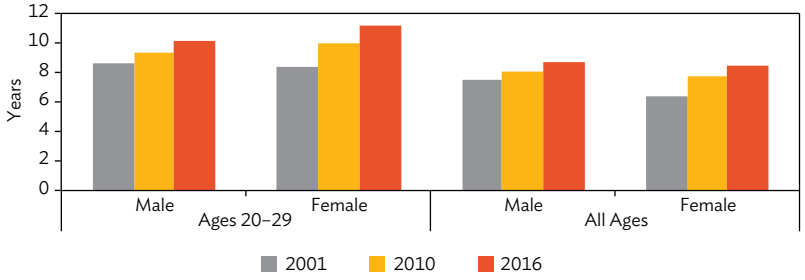
[26] The hypothesis of a U-shaped LFPR curve with development—that LFPRs fall in the early years of modernization and then rise again as education and incomes of women pass a given threshold—was advanced by Ester Boserup in a book published in 1970. However, this has not been confirmed by data on international trends in female LFPRs for the last 20–30 years (Verick 2014).

Figure 2.14: Gender Ratio of Completed Level of Schooling, Labor Force, 2001, 2010, and 2016



Note: The gender ratio measures the number of males for every 100 females.
Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS) 2001, 2010, and 2016 (August rounds).

Figure 2.15: Mean Years of Completed Schooling by Gender, 2001, 2010, and 2016



Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS) 2001, 2010, and 2016 (August rounds).

remained higher than urban rates despite the more rapid expansion and higher levels of schooling in urban areas. Although not an entirely satisfactory explanation, it may be that a boost to the employment of tertiary educated females has been delayed. The large expansion of female tertiary enrollments is quite recent, and many graduates have yet to enter the workforce or are still seeking the right job (hence unemployment rates of tertiary educated women are quite high; see below). Many recent graduates may still be searching for work, or continuing their schooling to higher levels. More data are needed to throw light on these trends, especially in regard to such factors as changing age at marriage, child-bearing, and child-rearing patterns in different parts of urban Indonesia.[27]

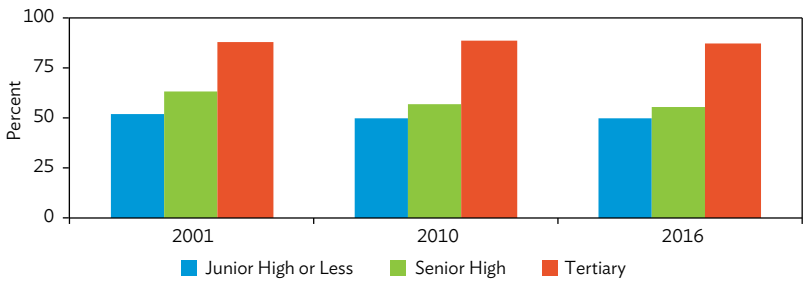
[27] Reports on research Lisa Cameron and Contreras Suarez of Monash University conducted on female LFPRs (Cameron et al. 2015) mention large wage differentials between males and females as one possible explanation for sticky female LFPRs. This was not necessarily due to discrimination, however. Three quarters of the wage premium for males was found to be accounted for by different characteristics of the two groups, such as career interruptions, lower levels of education, and different industries of employment among females (PhysOrg 2016).

Shaner and Das (2016) found some evidence of important "churning" in labor market behavior across cohorts and socioeconomic groups in the last 2 decades.[28] They highlight two movements in particular: First, even though LFPRs have not changed much, young and educated urban females at the senior high school and tertiary levels have increased their participation in wage employment in the last decade and a half.[29] Second, LFPRs among less-educated females appear to have declined outside the cities and towns, despite the substantial growth in enrollments at the primary and lower secondary levels.

With regard to urban females, it is argued that educated women are now more able to compete for better jobs. As for rural women, income effects might have played an important role in discouraging less-educated females from working in rural areas. Figure 2.16 shows that the fall in female LFPRs in 2001–2016 was quite marked among rural females with a junior high education or less, and was evident for those with a senior high school education. Some women may have been no longer inclined, or their families needed them less, to work in family enterprises as an antipoverty strategy. But neither did they have access to much better jobs in the cities.

There might also have been demand-side effects. Opportunity for family jobs in agriculture (especially in rice cultivation) has been shrinking, as the sector employs more machinery and is moving into higher value-added crops.

Figure 2.16: Female Labor Force Participation Rates by Level of Schooling in Rural Areas, 2001, 2010, and 2016



Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS) 2001, 2010, and 2016 (August rounds).

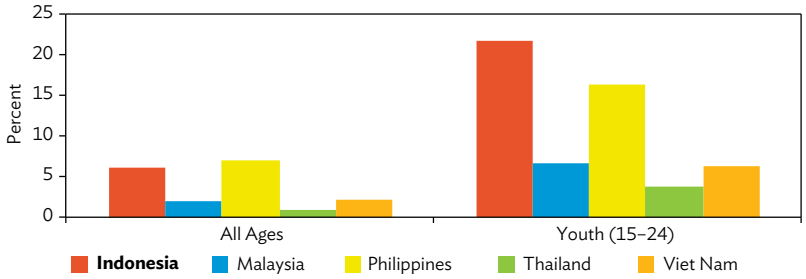
[28] Shaner and Das (2016) examine Indonesian LFPRs and employment patterns over the 20-year period 1992–2012.
[29] See Chapter 3 for more discussion of these trends.

2.4. Unemployment and Not in Employment, Education, or Training

Unemployment is one dimension of attachment to the labor market. As Indonesia urbanizes and industrializes—with more of the former than the latter—unemployment is likely to become an increasingly relevant indicator of labor market conditions. However, it is only one of many indicators of attachment and, as in countries at similar stages of development, is still less important as a labor market indicator in Indonesia than in developed industrial countries. Unemployment is less meaningful principally because there is no national unemployment insurance scheme and because the common definition implicitly assumes job search processes in the pursuit of regular wage jobs. Thus it seems reasonable to focus on urban areas and on more-educated youth in the discussion of unemployment, especially because regular wage jobs accounted for only about one-quarter of all rural jobs but over half of all jobs in urban areas, as of August 2016.

Although unemployment rates in Indonesia have come down in recent years, they have long been high compared with several of the larger Southeast Asian economies (Malaysia, Thailand, and Viet Nam; Figure 2.17). Nationally, unemployment was recorded at 5.6% in August 2016 after declining from a high of double digit unemployment in the mid-2000s.[30] For youth, unemployment rates were much higher, although they too had fallen to below 20% by 2016.

Figure 2.17: Unemployment in Indonesia and Selected Southeast Asian Countries, All Ages and Youth, 2014



Source: ILO. Key Indicators of the Labour Market database, downloaded from World Bank http://databank.worldbank.org/data/reports.aspx

[30] Unemployment has bounced around in the past few years, rising from 5.9% to 6.2% from August 2014 to August 2015 and then falling quite sharply in 2016 to 5.6%. As Allen (2016: 4) reports, there has been a degree of seasonality in unemployment rates, indicated by higher rates generally found from the August round of the National Labor Force Surveys (SAKERNAS), when many young people graduate, compared with the February round.

2.4.1. Young and Educated People

One characteristic of unemployment in Indonesia has been high rates among youth compared with prime age groups. In the past several years, unemployment among youth has fluctuated around 20% for both males and females, in contrast to rates of 3%–5% among 30 and 40 year olds.[31] While higher unemployment is common among young people in many countries, the gap was very large in Indonesia.

One might suggest several possible explanations. Beside the difficulty of searching for preferred jobs in a relatively segmented labor market (see Chapter 3), these include poor information on job opportunities, underdeveloped labor market search processes, rapid growth in education, and a still small formal sector.[32] Indonesia's labor market's structure shares much in common with that of the Philippines. But unlike in the Philippines, most middle class Indonesians are less mobile in seeking jobs abroad, especially because of language difficulties, quality of schooling, and fewer family and contacts ("beachheads") abroad.

However, Indonesia shares a number of characteristics with other countries in the region that offer limited or no state unemployment benefits for the majority of (or all) young people. For example, once unemployed young people have to care for themselves, it seems that many are willing to accept the best jobs on offer and leave the ranks of the unemployed. Thus, unemployment for the 5-year cohort aged 25–29 was much lower (just over 8%) than for 15–24 year-olds in 2016. For recent years, this applied to all levels of schooling.

Declining unemployment rates among successive age groups suggest that many educated job seekers are driven to take up less desired jobs, including in the informal sector, at about age 25 or above. This corresponds to the age when many begin to think about starting and supporting a family.[33] Alternatively, returns to long periods of job search may begin to pay off for many younger people by about age 25.

As in earlier years, high unemployment among the youth (ages 15–24) in Indonesia in 2016 was especially experienced by senior high school students—both academic and vocational streams—and university graduates (Figure 2.18). Unemployment rates at lower secondary school and below should be interpreted cautiously, because they are a less useful indicator of labor market conditions for less educated people.[34]

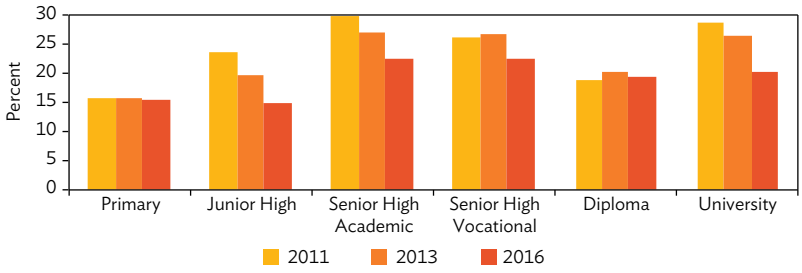
[31] In the mid-2000s, youth unemployment reached more than 30% for several years, as more people came onto the labor market after the Asian Financial Crisis.

[32] For a recent treatment of some of these issues in Indonesia, see Allen (2016). For an earlier treatment of other developing countries, see for example Berry and Sabot (1978).

[33] On "choosy youth," see Manning and Junankar (1998: 57–62).

[34] Over the years, however, there has been some "bumping up" of urban unemployment rates: About 25–30 years ago they were much higher among young junior high school graduates, especially among females (see Manning 1998: 197–98), but have close to halved since then.

Figure 2.18: Youth Unemployment Rates by Education, 2011–2016

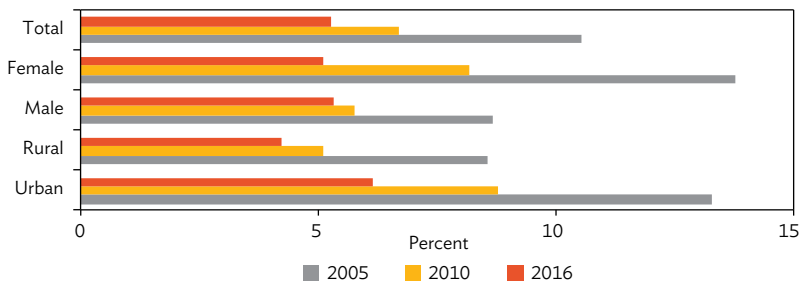


Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS) 2011, 2013, and 2016 (August rounds).

2.4.2. Gender and Urban–Rural Residence

Higher unemployment rates were experienced mainly by two sociodemographic groups in the last 15 years: females and urban residents (Figure 2.19). Both have come down rather sharply in recent years. Female unemployment rates had long been well above those for males, commonly with a disparity of 20%–30%, until the last several years.[35] After a slight erosion of this gap from the early 2000s, the difference between female and male unemployment rates contracted more sharply from 2010 to 2012.

Figure 2.19: Unemployment Rates by Gender and Urban–Rural Residence, 2005, 2010, and 2016



Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS) 2001, 2005, 2010, and 2016 (August rounds).

For young people, the gender ratio in unemployment rates (ratio of males to 100 females) increased from a score in the low to mid-80s in the early to mid-2000s to close to parity in August 2016. For all females during the same time period, the ratio increased from a little over 60% in the early 2000s to 104% in 2016 (unemployment

[35] See Manning and Junankar (1998) for data on earlier years.

rates of 5.5% for females and 5.7% for males). The engagement of more educated females in the new service industries may help to account for this development as, relatively, the number of blue collar jobs in manufacturing has tended to stagnate (see Chapter 3).

In regard to urban–rural residence, customarily, unemployment rates have been higher in towns and cities, where the formal sector is larger and active job search more visible. Unemployment was 6.6% in urban areas and 4.5% in rural areas in August 2016 (see Figure 2.19). However, as in the case of gender, the difference between urban areas and the countryside has also narrowed in recent years, as unemployment rates have come down sharply in the former—more than halving from 2005. More job opportunities in the towns may help to explain the decline in urban rates. On the other hand, it is not surprising that people living in "more urbanized" rural areas have taken on some of the characteristics of residents in nearby towns and cities.

In contrast to quite large urban–rural differentials, there seems to be less variation in unemployment across island groups. For example, the difference between islands was not large: Unemployment rates ranged 15%–20% above the national rate in Eastern Indonesia, Sulawesi, and Sumatra in 2015, and this applied to all urban residents, including youth. In contrast, consistently lower unemployment implied a better job situation for all in more urbanized Java and relatively better-off Kalimantan, compared with other regions.[36]

One important agenda area for research and policy is to examine what factors lay behind these changes, especially in unemployment rates by gender. For example, are they related mostly to labor supply elements (the quality of graduates or their fields of study) or labor demand reasons (changing attitudes of employers toward recruitment of female graduates), or perhaps a combination of both sets of factors? In regard to the urban–rural differential, perhaps it is time to place more trust in unemployment data from rural areas, at least those close to the main cities—which means most of Java–Bali—as an indicator of rural welfare, than was the case 10–15 years ago.

As in the case of female LFPRs, it is clear that much more research is needed to understand patterns and trends in unemployment and their determinants. A simple probit regression exercise undertaken for this study (Table 2.3) suggests that the key variables that influence unemployment are indeed likely to be age and education (the latter effect being nonlinear), although marital status and place of residence (as a proxy for place of work) also seem to play some part.[37]

[36] Data available on request from the authors.
[37] As noted above, the data do not allow inclusion of key household variables in the regression.

Table 2.3: Probit Regression: Determinants of Urban Unemployment, 2015

Subject	Variables	Equation I	Equation II	Equation III
Age	Age	-0.085	-0.084	
	Age squared	0.001	0.001	
	Age 15–24			0.815
	Age 25–34			0.321
Gender	Males	-0.005*	-0.009*	-0.016*
Education	Years completed schooling	0.045		
	Years completed schooling squared	-0.002		
	Primary school		-0.065	-0.034*
	Junior high		-0.051	0.003*
	Senior high academic		0.188	0.221
	Senior high vocational		0.160	0.193
	Diploma		0.051*	0.078
	University		0.050	0.081
	At school formal	-0.449	-0.440	-0.395
	At school informal	-0.678	-0.544	-0.443*
Marital Status	Married	-0.633	-0.622	-0.679
	Ever married	-0.317	-0.312	-0.407
Region: Main Island	Sumatra	0.090		
	Kalimantan	0.044		
	Sulawesi	0.038		
	Eastern Indonesia	0.136		
Urban Conurbation/	Greater Jakarta[a]		0.076	0.071
Urban Areas	Greater Surabaya (East Java)[b]		-0.121	-0.136
	Other Urban-Java		-0.088	-0.095
	Constant	0.481	0.734	-1.473
	Number of observations	159,618	159,618	159,618
	LR chi²	14,835	15,072	14,804
	Prob > chi²	0	0	0
	Pseudo R²	0.192	0.195	0.192

Note: * = not significant at 5% level.
[a] The Greater Jakarta region covers the cities of Jakarta, Bogor, Depok, Tangerang, and Bekasi (Jabodetabek).
[b] The Greater Surabaya region covers the cities of Gresik, Bankalan, Mojokerto, Kertosono Surabaya, Sidoarjo, and Lamongan (Gerbangkertosusilo) in East Java.
References categories (category =0):
Age: Age group 35 and over.
Level of completed schooling: <Primary.
Formal schooling: No school or no school anymore (mostly the latter).
Gender: Female.
Marital status: Single.
Region: Java–Bali.
Urban conurbation: Urban areas outside Java.
Source: Authors' computations using data from BPS (various issues), National Labor Force Surveys (SAKERNAS) 2015 (August round).

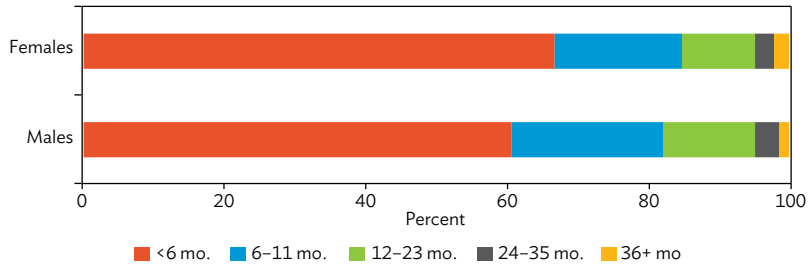
2.4.3. Duration of Unemployment

Duration of job search is an important aspect of unemployment, and is one measure of the intensity of the problem, as well as time wasted from the economy's point of view. The National Labor Force Survey (SAKERNAS) data indicate quite small

differences in the duration of job search among different sociodemographic groups in recent years. Most groups report mean durations of job search of close to 1 year. In urban areas, all males, senior high school (academic stream), and tertiary graduates recorded slightly longer average durations than all females, less educated, and senior high school graduates from vocational schools.

It seems that it may be harder in Indonesia for older people to get jobs in the formal sector back after losing them. Appreciably longer periods of unemployment were recorded among prime-aged persons (25–49 years) than among younger job seekers. For the former, the average length of joblessness ranged from 14 to 18 months during the 5 years to 2015 versus 11 to 12 months for 15–24 year-olds. This provides some further tentative support for the luxury unemployment hypothesis for youth discussed above. However, the majority of job seekers were out of work for 6 months or less in most years. For example, 60% of unemployed males and females had been looking for a job for less than 6 months in August 2016 (Figure 2.20).

Figure 2.20: Distribution of Males and Females by Duration of Unemployment, Urban Indonesia, 2016



mo. =month.
Source: BPS (various issues), National Labor Force Surveys (SAKERNAS), 2016 (August round).

Over time, the duration of unemployment does not appear to be moving in any obvious direction, and the differentials between groups have been fairly constant. Thus, the mean duration of periods without work rose quite sharply in the first decade of the 2000s from an average of 8 to 17 months, during a period when education expanded and modern sector jobs grew slowly (see Chapter 3). From 2011 on, the average length of joblessness slipped back to 13 months in 2012 and has remained at 12–13 months, on average, thereafter.

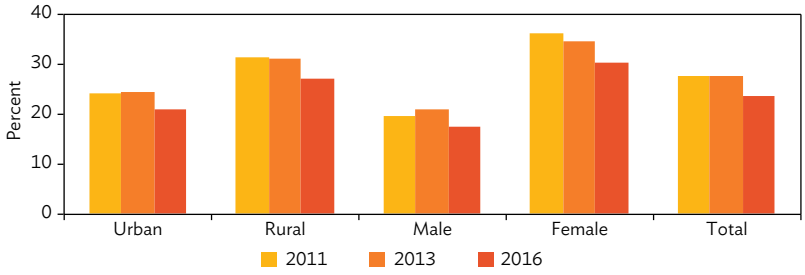
2.4.4. Youth Not in Employment, Education, or Training

To round out this section on labor force attachment, we report briefly on the estimated dimensions of working-age youth not in employment, education, or training (NEET), a measure that has been used internationally to capture the underutilization of youth, beyond the somewhat flawed, conventional measurement of unemployment. NEET is estimated to have been about 30% in developing countries around 2005, although slightly lower in East Asian countries.[38] Indonesia currently records slightly lower rates of 25%, which had fallen slowly but steadily during the 5-year period 2011–2015 (Figure 2.18).[39]

On an annual basis, there does not seem to have been a lot of movement between labor force statuses in the short-to-medium term. For example, among youth, about one-third of young people who were unemployed a year previously were still unemployed 12 months later, according to data on labor flows from the National Labor Force Surveys, August 2013–2014. Comparatively few went back to school or chose to spend more time in housework.[40] At the same time, only a small share of those employed in 2013 were unemployed 12 months later; either they stayed in the same jobs, or moved quickly between their past and present jobs.

NEET has been especially high in rural areas and among females (near 30% for both, with females a little higher; Figure 2.21). The high figure among rural people compared with urban dwellers is somewhat unexpected. It may be a further sign that, as education

Figure 2.21: Working-Age Population Aged 15–24 Not in Employment, Education, or Training, 2011–2016



Source: BPS (various issues), National Socioeconomic Surveys (SAKERNAS) 2011, 2013, 2016 (August rounds).

[38] See especially Freije (2014). For data reasons, the World Bank comparisons do not exclude young people in training in their estimate of NEET.

[39] As in the other countries, these figures do not take account of young people engaged full-time in training. NEET in Indonesia was on a par with that in the Philippines circa 2005, but higher than in Cambodia, the Lao People's Democratic Republic, and Thailand—all countries for which data are reported by Freije (2014). The incidence of NEET was estimated to be especially high in Africa and the Middle East.

[40] The authors thank Emma Allen for providing them with these data.

improves, younger people are not taking up jobs in agriculture.[41] Both for rural people and for females, the large majority of the inactive people give "doing housework" as their main activity.[42]

2.5. International Migration

International movement became increasingly attractive to Indonesians from the 1980s after a sharp increase in neighboring Malaysia's real wage rates, and after the second oil boom in the Middle East. There have also been push factors at home, especially related to the slow rate of labor absorption in manufacturing and limited opportunities in agriculture. These push and pull factors have created pressures for people to seek alternative job opportunities overseas and for policy makers to foster overseas work. In 2016, the number of Indonesian labor migrants working overseas (the migrant stock) was estimated at more than 4 million—approximately 2% of the country's population (World Bank 2016).[43] However, the exact and updated number of Indonesian labor migrants is difficult to determine because of the large number of undocumented movements, particularly to neighboring Malaysia. Partly because of this, international migration has become a contentious issue at home, especially as labor standards and human rights concerns have gained prominence in the national political and social scheme of things.

2.5.1. General Trends and Patterns

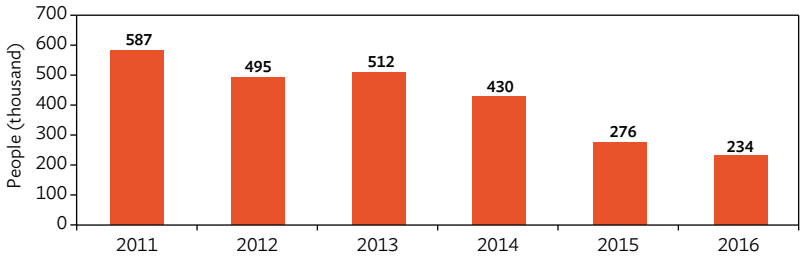
Figure 2.22 shows the annual officially registered international migrant flows from Indonesia from 2011 to 2016, with a significant drop, especially in the last 2 years under President Jokowi, after being close to 1 million around 2009–2010. This decline was particularly associated with the moratorium policy from the Indonesian government to temporarily halt sending domestic workers to Malaysia in 2009 and later to Saudi Arabia in 2011, due to the continuing reports of human rights violations and exploitation, especially of female domestic workers (Raharto 2011: 28–30).

Although the number of migrants has decreased, remittances sent home have tended to increase over time, except in 2016, and were estimated to amount to just under $9 billion in 2016 (Figure 2.23). There are several possible explanations for this

[41] See Chapter 4 for an examination of this issue across generations.
[42] However, this does not seem to be an adequate explanation for many young women not working or withdrawing from the workforce. Many less educated rural women are married by the age of 20. Nevertheless, housework hardly seems likely to be a full-time activity for many.
[43] Some estimates put the number at 6 million, which is probably an upper limit to what are mostly "guesstimates."

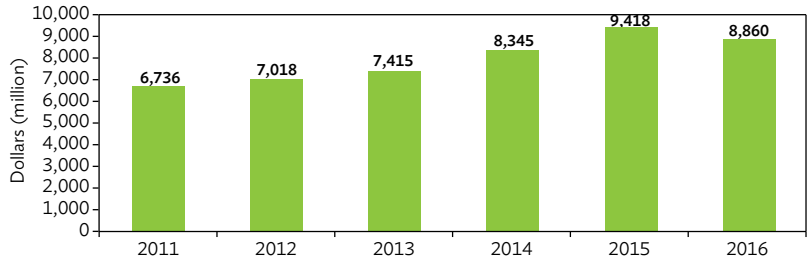
discrepancy. The migration data cover only migrants registered by the Indonesian government, while the number of undocumented migrants is likely to have risen significantly during the period as a result of tighter regulations on registered migration.[44] The moratorium policy has also had a greater impact on migrant flows rather than migrant stocks.[45]

Figure 2.22: Migrant Labor Flows from Indonesia, 2011–2016



Source: BNP2TKI (2017).

Figure 2.23: Total Remittances of Migrant Workers, 2011–2016



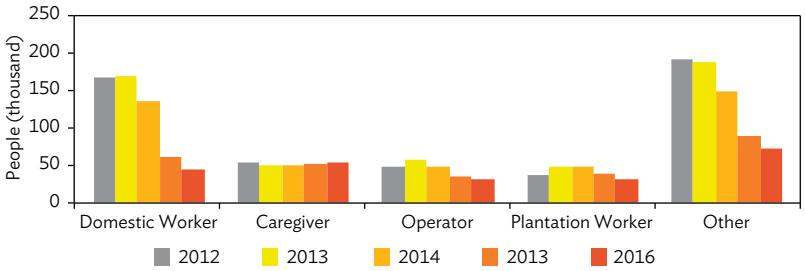
Source: Bank Indonesia (2017).

While the number of unskilled labor migrants working as domestic workers in Malaysia and the Middle East has been diminishing sharply, the number of officially registered labor migrants employed in the other sectors has also registered a big decline (Figure 2.24). Increasing remittances may also come from the small but growing Indonesian diaspora employed in manufacturing industries and services in developed or upper middle-income economies such as Japan; the Republic of Korea; and Taipei,China (Nguyen and Purnamasari 2011). Some of these movements have been supported by government-to-government bilateral agreements for a small number of migrants, mostly in manufacturing (BNP2TKI 2016).

[44] The number of undocumented migrants in Malaysia has been estimated at 500,000 in the past several years, despite the government efforts to reduce it (Manning and Sukamdi 2016).

[45] Restrictions especially imposed on domestic workers officially recruited for jobs abroad do not directly affect migrant workers already having registered jobs overseas.

Figure 2.24: Labor Migrant Flows from Indonesia by Occupation, 2012–2016



Source: BNP2TKI (2017).

Registered Indonesian labor migrants are spread over more than 100 destinations (BNP2TKI 2016), with the primary destinations being Taipei,China and neighboring Malaysia, each with flows of more than 75,000 migrants officially registered in 2014. Other prime destinations include Singapore and Hong Kong, China, although migration flows to these destinations have fallen quite dramatically, as they have to all Middle Eastern countries (Table 2.4).[46] The steep decline in the number of registered migrants going abroad is partly reflected in the Jokowi government's policy of banning the sending of new domestic workers to the Middle East and placing tighter restrictions on sending them to all other countries.[47]

Table 2.4: Indonesian Migrant Labor Flows by Destination, 2012–2016

Destination	2012	2013	2014	2015	2016
Brunei Darussalam	13,146	11,269	11,616	9,993	8,152
Hong Kong, China	45,478	41,769	35,050	15,322	14,434
Korea, Republic of	13,593	15,374	11,849	5,501	5,912
Malaysia	134,088	150,248	127,812	97,261	87,616
Qatar	20,380	16,237	7,862	2,460	1,355
Saudi Arabia	40,655	45,394	44,325	23,000	13,538
Singapore	41,556	34,655	31,680	20,895	17,700
Taipei,China	81,071	83,544	82,665	75,304	77,087
United Arab Emirates	35,888	44,505	17,963	7,619	2,575
United States	15,353	15,021	9,233	1,029	249
Other	53,401	54,152	49,817	17,352	5,833

Source: BNP2TKI (2017).

[46] The occupational breakdown in Figure 2.23 and the breakdown by destination in Table 2.4 are not consistent with the estimated flow of registered migrants (Figure 2.21) in recent years, but they do provide a general picture of relative magnitudes.

[47] The government aims to phase out the sending of all multitasked domestic workers in 2017, and to replace them with workers that have certified skills in specific fields such as housekeeping, child care, cooking, and other activities, currently often conducted simultaneously by domestic workers. However, the government has backed down on earlier plans to ban the sending of all domestic workers abroad in 2018. See, for example, Kompas (2017).

Occupations and earnings of migrants have differed greatly according to destination. While migrants to Saudi Arabia (as to Hong Kong, China; and Singapore) have tended to comprise mainly female domestic workers, those to Taipei,China consist mostly of caregivers, both in private homes and in institutions. Migrants to Malaysia comprise a much higher proportion of registered male workers engaged in a wider variety of occupations, including construction; services; and plantation agriculture, especially oil palm. Overall, however, female labor migrants continue to dominate, numbering just under 150,000 compared with closer to 90,000 males in 2016. Many of the female migrants are still concentrated in vulnerable jobs such as domestic service.

In terms of place of origin, the labor migrants come mainly from a few provinces with large and quite poor rural populations—the three main provinces in Java (West, Central, and East Java) and the poor province of West Nusa Tenggara. The last is a major source for wage workers in the palm oil industry in Sarawak, in neighboring Malaysia (Table 2.5). Smaller numbers originate from several other more densely populated outer island provinces, including Lampung and North Sumatra. Their place of origin is also more likely to be spatially concentrated in particular districts (*kabupaten*), many of which suffer from rural poverty and limited job opportunities.[48]

The role of networks, following in the footsteps of family or friends who have already migrated earlier, seems important in encouraging further movement between specific regions in Indonesia and destination countries. In addition, migrant workers' remittances provide significant revenues for the provinces and districts of origin. In some provinces, such as East Java and West Nusa Tenggara, total remittances from

Table 2.5. Indonesian Migrant Labor Flows by Province of Origin, 2012–2016

	2012	2013	2014	2015	2016
West Java	120,045	129,885	105,479	63,064	51,047
Central Java	115,456	105,971	92,591	57,078	49,512
East Java	100,368	93,843	78,306	48,313	43,135
West Nusa Tenggara	46,245	63,438	61,139	51,743	40,415
Lampung	16,259	17,975	18,500	16,109	16,049
North Sumatra	13,728	13,299	14,782	12,054	14,137
Banten	10,853	13,244	9,720	4,270	2,684
Bali	14,082	14,617	7,716	4,869	3,258
Jakarta	15,021	14,248	7,561	1,212	811
South Sulawesi	13,875	10,358	7,497	2,348	904
Other	28,677	35,290	26,581	14,676	12,499
Total	494,609	512,168	429,872	275,736	234,451

Source: BNP2TKI (2017).

[48] The island provinces include Indramayu and Cirebon (on the north coast of West Java), Cilacap (southwestern Central Java), and the southern districts of Ponorogo and Malang in East Java. East and Central Lombok are the main districts registering out-migration from West Nusa Tenggara.

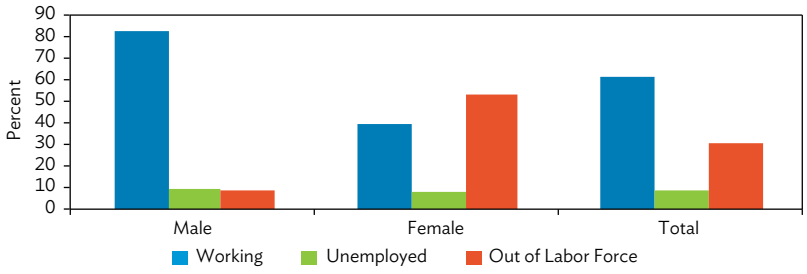
migrant workers have been higher than their region's own-source revenues (World Bank 2016). Unfortunately, the households receiving remittances in Indonesia are often poorer than average, making it difficult to devote more of their expenditures to investment in human and physical capital (Pratomo and Jayanthakumaran 2016).

2.5.2. Return Migrants

The 2016 National Labor Force Survey, (SAKERNAS, February round) collected data on migrants who had returned to Indonesia in the previous 5 years. Just over 1 million people reported that they had worked abroad in this period. A large majority of return migrants worked after they returned, particularly male workers, while most female return migrants tended to be out of the labor force or doing housework (Figure 2.25). A smaller proportion of about 7% of return migrants were unemployed and actively looking for work, a slightly higher percentage than for the labor force as a whole.

Given that the majority of migrants were from poorer rural areas, it is not surprising that their main sector of employment was agriculture (35%), many no doubt returning to work on family farms. This was followed by the sector that combines data for trade, hotels, and restaurants (27%) and a much smaller share (13%) in industry. Relatively few (about 12%) were engaged in services, which tend to employ quite a high share of educated workers. It seems that the benefit of return migration in terms of new ideas and business skills has probably been limited. This is consistent with Pratomo and Jayanthakumaran's (2016) findings that quite a high share of returning migrants return to poverty after a period of time.

Figure 2.25: Occupational Status of International Returned Migrants, 2016



Source: BNP2TKI (2017).

2.5.3. Foreign Workers in Indonesia

Compared with Indonesian labor migrants overseas, the number of registered foreign workers in Indonesia was relatively small at about 60,000–70,000 in 2014–2016. Distributed by region, about half of these foreign workers came from Northeast Asian countries—the PRC, Japan, and the Republic of Korea—while foreign workers originating from Southeast Asian countries came mostly from Malaysia (around 4,500) and a smaller number from the Philippines and Thailand (Figure 2.26). A range of Organisation for Economic Co-operation and Development (OECD) countries (especially Australia, the United Kingdom, and the United States) came next, and then India.[49]

More than 70% worked as professionals, consultants, or managers in the trade, services, and industry sectors. Based on the 2016 National Labor Force Survey, foreign workers in Indonesia are most concentrated in Java, with more than 70% located in Jakarta and the industrial estates around Jakarta, where there is more developed infrastructure and a more modern economy. Illegal migration of workers, mainly from the PRC, has received considerable media coverage in Indonesia for the past few years. While this is a sensitive nationalist issue, it seems unlikely that the numbers are very large in relation to registered migrant workers.

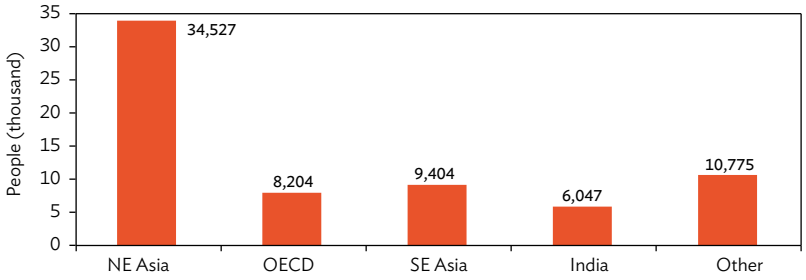
While finding jobs for more educated workers is a major challenge, an equally difficult task is finding highly skilled manpower to fill niche positions required to manage and develop new technology in industry and services in Indonesia. It is possible to fulfill these two objectives at the same time by using different policy levers. Admitting foreign workers to specific jobs where Indonesia has shortages can create rather than threaten jobs overall. Areas of particular concern are highly skilled information technology and internet experts in advanced web-based platform development and computer systems operations in areas of robotics, computer managed transport services such as Go-Jek, and other on-line services. Rather than try to develop and manage a detailed inventory of jobs in which demand is constantly changing (and the management of which is often subject to stifling bureaucratic controls), different systems could be tried to ensure that the filtering of highly skilled, foreign manpower inflows is in Indonesia's interests.[50] One approach has been that of Singapore, which sets minimum salary levels for highly skilled and professional foreign workers that are a multiple of salaries in the domestic market. Local investors are unlikely to be

[49] These data refer to migrant flows, that is the number of migrants coming to Indonesia for work during a given year. Some come on 3-month, some on 6-month, and some on 12-month visas. According to the National Labor Force Survey (SAKERNAS), the stock of foreign migrant workers in Indonesia in February 2016 was only just under 30,000, a small number compared with the flow that has continued to run at around 70,000 a year.

[50] The government is currently looking at ways of simplifying the recruitment of foreign manpower.

interested in recruiting foreign workers at these salary levels unless such workers are essential for the success of their business model.[51]

Figure 2.26: Number of Foreign Workers Registered in Indonesia by Country or Region of Origin, 2014



OECD = Organisation for Economic Co-operation and Development, NE = Northeast, SE = Southeast.
Source: Indonesia. Ministry of Manpower, unpublished administrative statistics, Jakarta 2015.

2.6. Conclusion

This chapter on labor supply mainly seeks to provide a platform for the discussion of human capital, productivity, rural-urban linkages, and labor policies in later chapters. Several policy issues are flagged.

Demographics. In relation to population and labor force growth, policies are still needed to help slow fertility and population growth, especially in Indonesia's outer islands. This currently feeds into the high rate of increase in the work force. At the same time, policy makers are aware of the need to try to avoid the social and economic problems associated with the steep fall in fertility and the rapid aging that have been experienced in neighboring countries.

Whether Indonesia should take steps to encourage higher fertility through pronatalist policies so as to reap the demographic bonus for a longer period (say in the 2040s or 2050s) is another question altogether. The slowing of fertility decline since 2000 was not planned but was probably a positive development for a more gradual economic adjustment, once the inevitable aging of the population occurs as living standards rise. Support for family planning in the past has implicitly been support for women's rights, poverty reduction (since poorer women have typically had larger families),

[51] This approach would only be applied to high skilled and professional manpower and not to middle level skills that have been supplied by foreign workers in construction and mining companies, and received considerable criticism in the local media because of the failure to recruit available domestic workers for the same jobs.

and the participation of more women in social and economic affairs. Government support for larger families is understandable in France, Singapore, or even Thailand, where living standards are higher. It would be a much more controversial policy in Indonesia, especially as a challenge to women's rights and a potential shift toward greater inequality.

Female Labor Force Participation. Labor force participation is discussed in the overall context of attachment to the workforce. Female LFPRs have remained stagnant for some time despite significant improvements in schooling relative to males at the upper secondary and tertiary levels. Approaches need to be made to raise female participation not only for formal sector jobs in urban areas but also among those caught in the "middle" in regard to their level of schooling and aspirations relative to job opportunities, especially in rural areas. It appears that many women are not well enough educated to get better jobs in the cities but no longer want to work in agriculture and other informal jobs in their villages.

In the regression analysis, we found a strongly positive coefficient for years of schooling on female LFPRs, although this relationship was not linear. Participation was lowest for junior high school and only slightly higher for academic senior high school graduates; but then increased significantly for university graduates. Again, women seem to be caught in the middle, unable to move up the occupational ladder and unwilling to work in low-paying jobs in the informal sector.

Increasing Number of Educated Workers. Policies need to be designed to cope with the employment implications of the rapid increases in the number of educated workers, which puts a strain on formal sector labor markets in particular. Especially noteworthy are the gains in schooling made by women compared with males, which is still not reflected in higher (economic) activity rates.[52] But improvement in the quality and relevance of schooling at all levels is still a major challenge, and one that is addressed in greater detail in Chapter 6.

High Unemployment Rates. One consequence of rapid increases in the educated workforce is high rates of unemployment, especially among younger educated workers. While some of this can be classified as "luxury" unemployment, hence a weak attachment to the workforce, joblessness appears to be assuming greater importance for welfare as the country industrializes. NEET is another characteristic of many youths, especially in rural areas and among females. Beside assistance through activating labor market exchanges, unemployment insurance is another policy alternative, and one that Indonesia has not hitherto considered seriously—unlike in several neighboring

[52] Initiatives to address quantity–quality trade-offs in the education sector, and policies designed to provide a better match between the demand for and supply of skills, will be elaborated on in Chapter 6.

countries. However, Indonesia would benefit from conducting some pilot studies to test various approaches to the problem, especially among youth.

Migration. This chapter also dealt with benefits from greater population mobility through commuting and circular migration, and overseas migration. Better access to transport networks around the main cities appears to have opened opportunities for more commuting to find better jobs, especially in the Greater Jakarta region. But improvements in transport are critical to reap the rewards of population agglomeration, as is argued in Chapter 4. In general, population mobility for work is high in Indonesia, and could greatly benefit from lower transport costs (see Chapter 5).

On the international front, migration for work peaked around 2009–2010, and registered migration has declined steeply since then. The main policy initiative has been to slow the outflow of unskilled workers and particularly domestic workers, mainly because of human rights violations and the inability of Indonesia to achieve satisfactory bilateral agreements on labor standards with key receiving countries: Malaysia and Saudi Arabia. Nonetheless, too stringent controls can have negative implications for the welfare of the poor—if they increasingly choose the route of undocumented ("illegal") migration, they can become more, not less, vulnerable to abuse abroad. Thus there is also a need to assess the implications of policies to discourage out-migration from Indonesia of less-skilled workers by regulation. International experience with policies adopted in other countries that face similar challenges, such as the Philippines, also needs to be considered.

Rather than banning migration outright, an alternative is enhancing the skills of domestic workers through more rigorous training and certification as one set of policies that can improve the labor standards of Indonesian workers abroad. These policies are taking shape and should be pursued more intensively across a wider range of relatively unskilled occupations in demand overseas. At the same time, Indonesia should work closely with neighbors such as the Philippines to ensure that labor-importing countries adhere to international labor standards in terms of basic rights such as hours worked, leave, and basic health coverage for its workers.

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Chapter 3
Jobs, Wages, and Labor Market Segmentation

Chris Manning

3.1. Introduction

A persistent problem in Indonesia has been the slow transformation of the labor market in the past 2 decades, after the shock of the Asian Financial Crisis (AFC) almost 20 years ago. In successful transition countries in East Asia, far-reaching changes in employment structure have been central to significant improvements in productivity that are vital for a modern economy. They also underpin large and sustained improvements in wages and welfare (Packard et al. 2015). In Indonesia, the economy, jobs, and the shift of workers into higher-paying and higher-productivity jobs outside agriculture have grown steadily. But none of these changes have been rapid enough to support a quantum shift in employment and living standards such as was achieved by the Asian "tigers" in the 1970s and 1980s, and by the People's Republic of China (PRC) and Viet Nam in more recent years.[1]

As a consequence, a large backlog of low-productivity labor in agriculture and the informal sector continues to act as a brake on improvements in wages and productivity. This is Indonesia's central labor market challenge, and it is a problem pivotal to improving living standards for the majority of poor households living in or close to poverty.[2] The chapter will present data on the main dimensions of this problem, and make some preliminary suggestions for policy reform, laying the foundations for more detailed reforms to be discussed in the subsequent chapters of this book.

[1] For example, see Manning and Purnagunawan (2016).
[2] While the proportion of households under the official poverty line has fallen almost continuously since around 2005–2006, the share of Indonesians under the World Bank standard of $2 a day remains high, and still accounts for about half of all households in the country.

The next section places the discussion in the broader context of current labor market challenges in East Asia and beyond. The third and fourth sections deal with economic growth, employment, wage, and productivity outcomes in Indonesia since the AFC, and look at Indonesia in comparative perspective. The fifth section discusses divisions in the labor market, both segmentation and mobility in the labor market, especially shown in the contrasts between the formal and informal sectors and in productivity across sectors. The final section concludes and draws some inferences for policy.

3.2. Regional and International Context

It is useful to set Indonesia's experience and options for labor market transformation in the context of its past achievements, and of the prospects in the coming decade for the East Asian region. Indonesia's development strategy has followed that of several other East Asian countries since the 1970s and 1980s, and the country shares many characteristics in common with its neighbors, including a large labor force, much of which still depends on low-productivity agriculture for a living.

Three points are especially relevant: First, the shift of labor out of low-productivity agriculture into industry and then services, including rapid urbanization, has been one of the most powerful instruments for improving living standards in several East Asian countries in the past. Second, acceleration in the creation of manufacturing jobs played the major role in the early stages of this transformation in successful industrialized countries in the region. However, it is less likely to do so in the future. Many of those moving out of agriculture are going directly into services. And third, slower growth in the PRC, the world economy, and world trade in the wake of the global crisis and the end of the recent resources boom will mean slower gains in productivity than experienced by the earlier industrializers in East Asia. Other strategies will need to be found. Countries will need to depend much more on raising the productivity of agriculture for the domestic market, including the informal sector, and on creating a more diversified services sector during the period of transition to a modern industrialized economy.

The chapter shall deal briefly with each of the above-mentioned issues in turn. For more than half a century, the shift of labor out of agriculture into labor-intensive industry in the early stages of modernization has been one of the most powerful processes for structural change in East Asia. First Japan (1950s–1970s); next the four tiger economies of Hong Kong, China; the Republic of Korea; Singapore; and Taipei,China (1960s–1980s); then the Southeast Asian economies of Indonesia, Malaysia, and Thailand, (1980s and 1990s); and finally the PRC and Viet Nam (2000s) all followed the same route. The main attributes were the absorption of "surplus" or

low-productivity labor from agriculture and the countryside into the manufacturing sector, which in turn generated a thriving services sector in growing urban areas.[3] Beyond the early stage of industrialization, several—although not all—of these economies transitioned to higher-technology industry and a growing modern services sector, both supported by improvements in human capital.

After around 2 decades of this development model, services began to account for the majority of new jobs, and the share of employment in manufacturing declined. Indonesia participated in this process for a short period in the 1980s and 1990s. But its path to a modern industrial economy was obstructed by the AFC and regime change in 1997–1999.

The second important contextual factor is the declining importance of manufacturing output and jobs, or what Rodrik (2015) refers to as "deindustrialization." To quote from his abstract:

> *The hump-shaped relationship between industrialization (measured by employment or output shares) and incomes has shifted downwards and moved closer to the origin. This means countries are running out of industrialization opportunities sooner and at much lower levels of income compared to the experience of early industrializers.*

Compared with the early industrializers in Asia (Japan; the Republic of Korea; Taipei,China), the Southeast Asian economies (excluding Singapore) were reaching their peak share of output, and especially employment, earlier—in the case of Indonesia and the Philippines, in the late 1990s and early 2000s, when less than 15% of all jobs were in manufacturing and when per capita incomes were less than $5,000.[4] This earlier peaking of the manufacturing share of total employment can be partly explained by the rise of the PRC as the factory of Asia. But a good part can be attributed to changing relative prices and technological change associated with globalization. Baldwin (2016) has argued that changing technology creates opportunities, but they are mainly in services in the new phase of development described as Industry 4.0, driven by the internet and cybertechnology.

Third, the projected slower growth of the world economy and of the PRC adds to problems faced by the manufacturing sector among the late industrializers. It is likely to slow the shift out of agriculture more generally. The early industrializers in Asia were supported by a growing world economy and world trade increasing much

[3] See especially World Bank (1994).

[4] This contrasts with the Republic of Korea and Taipei,China, where the peak of the manufacturing share of jobs was more than 20% when per capita incomes were closer to $10,000.

faster than gross domestic product. This contributed to the dramatic rise of the PRC, which played a pivotal role as the final stage of production networks throughout Asia.[5] However, the phenomenal growth rates in the PRC faltered around 2011–2012, close to halving by 2015. Slower world growth is predicted to put downward pressure on output and employment growth in general and especially in tradable goods industries.

These three contextual factors inform our discussion of structural change in the labor market in Indonesia, which focuses on the three main sectors of employment—agriculture, industry (mainly manufacturing), and services—and the subsectors or industries within each of these sectors.[6] The chapter discusses the shift out of agriculture in the 2000s, and the shift toward a much more service-oriented economy than might have been expected had there been a continuation of earlier growth patterns before the AFC. These changes interact with high but declining levels of informal work and the rapid rates of urbanization that have been features of the labor market since the 2000s.

The shift out of agriculture and other low-productivity sectors is never smooth. This is especially true in an open commodity-exporting country like Indonesia, where wages vary significantly across industries and where jobs and incomes are susceptible to large shifts in commodity prices. Many such industries are compelled to seek refuge in the low-productivity informal sector during the downturn. Policies that encourage mobility between the informal and formal sectors, as well as among industries, can facilitate a smoother transition. Government policies can also play an important role in both encouraging mobility and at the same time providing for some security of tenure and social safety nets for workers who move into the formal sector.

3.3. Economic Growth, Structural Change, and Employment in the 2000s

The World Bank (2010) *Jobs Report* on Indonesia highlighted "jobless growth," especially in services, after the AFC through to the mid-2000s as Indonesia's main employment problem. It contrasted this period with the decade before the crisis, when both manufacturing and services jobs grew rapidly. Subsequently, Indonesia was able to overcome this problem of jobless growth. But despite some encouraging signs, it has not been able to return to the high rates of creation of better jobs, in both manufacturing and services, which drew significant amounts of labor out of low-productivity agriculture in the decade preceding the AFC of 1997–1998.

[5] See, for example, Athukorala (2010).

[6] Within industry, the International Standard Industrial Classification (ISIC) one-digit subsectors or industries are mining, manufacturing, utilities and waste disposal, and construction. Within the services sector, they are trade, restaurants and hotels, transport and communications, finance, and business and other services.

Economic growth averaged just over 5% per annum in 2001–2015, in the wake of the AFC (Table 3.1). Although economic growth rates were by no means low by developing country standards in the 2000s, they were below the 7%–8% growth rates achieved in the Soeharto years, and about half the double-digit rates for the PRC in the first decade of the 21st century. Services saved the economy during this period. The sector expanded at just below 7%, much faster than industry and agriculture. In services, all the one-digit industries grew quite quickly, whereas in industry both mining and manufacturing lagged.

Table 3.1: Growth and Share of Output and Employment by Industry, Indonesia, 2001–2016

Sector	Subsector	Annual Growth (% per annum)		Share (%)	
		Output[a]	Employment	Output	Employment
		2001–2016	2001–2016	2016	
Agriculture		**3.6**	**-0.3**	**12.8**	**31.9**
Industry		**4.2**	**2.7**	**40.5**	**21.4**
	Mining	1.2	2.9	8.2	1.2
	Manufacturing	4.6	1.7	21.4	13.1
	Electricity	6.7	6.2	1.1	0.3
	Construction	6.8	4.9	9.8	6.7
Services		**6.2**	**3.2**	**35.2**	**46.7**
	Trade	5.6	2.8	13.3	22.5
	Transportation	10.4	1.5	4.0	4.7
	Finance	6.7	7.6	8.7	3.0
	Other services	5.4	3.8	9.2	16.4
Total GDP		**5.3**	**1.8**	**100.0**	**100.0**

GDP = gross domestic product.
[a] At constant 2010 prices.
Sources: BPS (various years), National Accounts, https://www.bps.go.id/subject/11/produk-domestik-bruto--lapangan-usaha-.html#subjekViewTab3; BPS (various issues), National Labor Force Survey (SAKERNAS) 2001 and 2016 (August rounds).

Contrasts were greater in regard to employment. Employment in agriculture was negative, although the shift out of this sector only accelerated in recent years (Table 3.1). Despite impressive growth, the services sector did not provide many more jobs than industry, and growth in jobs was quite variable among subsectors. Among the main industries in each sector, finance, electricity, and construction stood out in job creation, while the opposite was true of manufacturing and of transport and communications.

3.3.1. Growth in Output

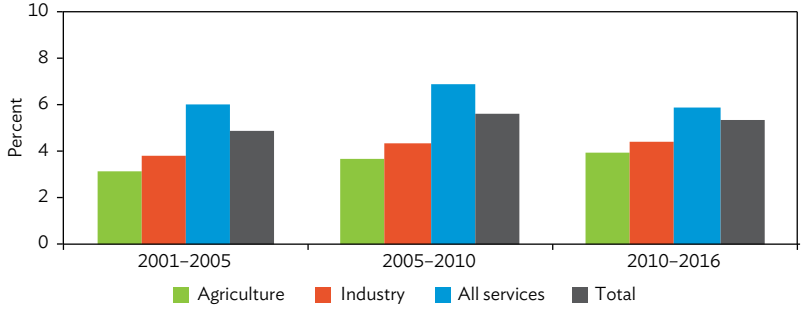
To gain further insight into the evolving labor market challenges, growth rates in the economy are contrasted during three periods: the recovery period after the

AFC (2001–2005), the period of more rapid growth during the resources boom (2005–2010), and the end of the resources boom and the beginning of the Jokowi presidency (2010–2015).

Growth rates were much lower in all sectors in the recovery period than during the resources boom, and then they moderated in the most recent period to an average of just over 5% per annum (Figure 3.1). Looking at the data by sector, the services sector grew much faster than industry in all periods. The slow progress of industry is partly reflected in the slow growth of both the mining and manufacturing subsectors.[7] Industry as a whole recorded only moderate rates of expansion, despite quite robust growth in construction in all periods, and especially during the resources boom. In contrast, growth was steady in all the main branches of services (trade, restaurants and hotels, finance, government, community and social services, and especially in transport and communications). Finally, agricultural growth rates have been steady, rising 1 percentage point to 4% per annum during the resources boom, then falling back to just over 3% in the most recent period.

By the mid-2000s, the many problems associated with the AFC no longer dogged the economy to the same extent. Bolstered by a global resources boom, Indonesia's economy grew more strongly (by more than 6% per annum) up to the Global Crisis in 2007–2008. This was not sustained, however. Although Indonesia did not feel the full brunt of the Global Crisis at that time, the economy slowed in the following 5 years through to 2016 as the government sought a new economic strategy at the end of the resources boom.

Figure 3.1: Annual Rate of Output Growth by Major Sector Group, 2001–2016



Sources: BPS (various years) National Accounts, https://www.bps.go.id/subject/11/produk-domestik-bruto--lapangan-usaha-.html#subjekViewTab3.

[7] Mining grew rapidly during the resources boom, but its growth was very slow or even negative in other periods owing to the uncertain investment climate in this industry.

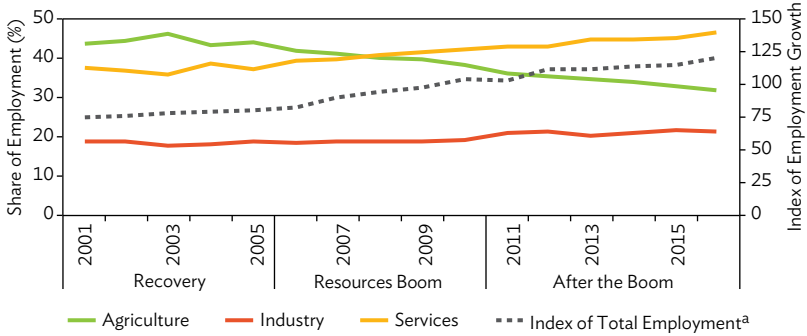
3.3.2. Employment

What were the outcomes for employment? Figure 3.2, which shows the share of employment in the three major sectors (agriculture, industry, and services), indicates that most of the action was in agriculture and services in each of these three periods. Overall employment expanded steadily throughout the period at around 2% per annum (see index of employment growth, right-hand axis, in Figure 3.2).

Regarding sectors, agriculture continued to offer jobs for those struggling to find employment in other sectors during the recovery period after the AFC. However, this sector lost its position to services as the main source of jobs by around 2007; employment in agriculture then contracted in absolute terms from around 2011. Agricultural employment growth went from a positive number (1% growth in the early 2000s) to no change and then strong negative growth (almost –2%) in 2010–2016. Agricultural output growth was relatively constant throughout, which meant that there was some improvement in labor productivity in this sector, even though the output per worker remained well below that in most other sectors, except other services.

Services employment, on the other hand, began to accelerate as economic growth rates recovered from the mid-2000s, breaking out of what had seemed a vicious circle of joblessness. By 2015, services were already providing jobs for just under half of the workforce. Meanwhile, employment in industry grew slowly, and industry's share in total employment hardly grew from the beginning of the decade, although it, too, picked up somewhat toward the end of the first decade of the 2000s.

Figure 3.2: Index of Total Employment and Share of Employment by Sector, 2001–2016



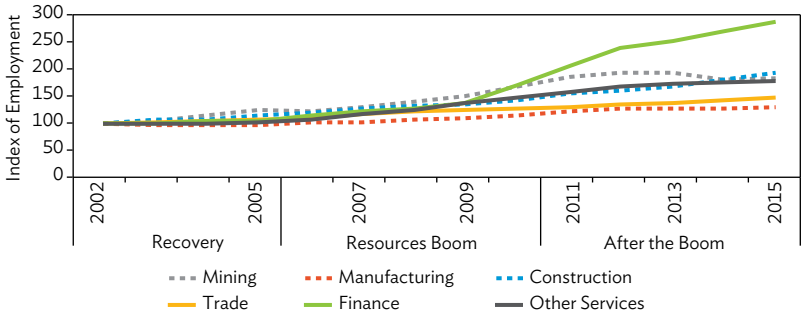
[a] Index of employment (2011=100).
Sources: BPS (various issues), National Labor Force Survey (SAKERNAS) (August round).

In the recovery period, the episode of jobless growth referred to above can be seen as a consequence of two factors: First was slow growth of the economy, especially industry. As a result, there was a return to agriculture in the immediate aftermath of the AFC. Second, businesses failed to take on more workers in a period of great change in the legal and institutional environment with regard to labor in the early 2000s.[8]

This all changed during the resources boom from around 2005, as services sector employment began to grow more rapidly, and the shift out of agriculture accelerated. But the loss of competitiveness in manufacturing due to both domestic and international circumstances—domestic obstacles to job creation and the appreciation of the real exchange rate—during the resources boom meant that this sector grew slowly, and employment continued to stagnate (World Bank 2016: 10). Worst hit were the export-oriented industries that had underpinned the growth in employment in manufacturing in the last decade of the New Order. In the 2000s through to 2014 (latest figures), employment never recovered from its peak of 1.4 million jobs in textiles, clothing, and footwear achieved in 2000, shortly after the AFC.[9]

Figure 3.3 shows these developments in subsectors of industry and services.[10] In industry, manufacturing employment grew slowest, while construction employment growth was solid throughout the period. The mining sector never created many jobs directly, but employment nevertheless grew strongly until the end of the resources

Figure 3.3: Index of Employment, Selected Industries, 2001–2016 (2002=100) [a]



[a] 3-year moving average
Sources: BPS (various issues), National Labor Force Survey (SAKERNAS) (August round).

[8] BAPPENAS, the National Planning Agency, produced a White Paper in 2003 outlining some of these changes and challenges to the legislative and institutional environment in relation to employment. For a discussion see Manning (2003).

[9] Employment had risen more than twofold from 600,000 in large and medium-sized firms in these industries in 1989 (see BPS, various years, Survey of Large and Medium Establishments). Kis-Katos and Sparrow (2016) find that trade reform seems to have contributed to formalization of unskilled labor in Indonesia during this period, which we could expect to be especially associated with growth of the export-oriented textiles, clothing, and footwear industries.

[10] The figure does not show data for the very small industry of utilities and waste disposal.

boom, when labor began to move out of industry (Edwards 2016). The disappointing performance of manufacturing provides some support for earlier observations that the age of industrial jobs growth based on a dominant manufacturing sector may have passed, although this viewpoint is contested by some authors (Papanek et al. 2014).

Employment in nontradable services was quite another story. Job growth was very rapid in finance and business and in "other" services (especially in education and health sector jobs). Similar patterns are apparent in transport and communications for most of the first decade of the 2000s, although employment stalled around the time of the Global Crisis (2007–2008), despite continued high rates of growth in value added in this subsector.[11]

3.3.3. Employment Elasticities and Urban Jobs

The responsiveness of employment to output growth, or employment elasticity, has been moderate in Indonesia for a country at its stage of development.[12] For the economy as a whole it was positive for the entire period, ranging from 0.35 to 0.25 in the period of recovery and the recent period of growth (Figure 3.4).[13] In manufacturing, it was slightly lower than in the economy as a whole in the first period and then higher later on. The data suggest that the problem in Indonesia has been more with the growth of output rather than with the responsiveness of employment, as suggested above, even though the slow growth of labor-intensive sectors has been a problem. Second, employment elasticities do not inform us about the quality of growth, especially improvements in productivity, which has been an issue, especially with regard to skill accumulation.

The World Bank (2016) has computed employment elasticities separately by gender and for different age groups in Indonesia. For gender, the analysis shows comparatively little difference between males and females in most sectors where large numbers of females are employed, except for government, social, and community services in the most recent period of studies, 2007–2015 (World Bank 2016: 29–31). It seems that females were much more likely to get jobs in these services because of the expansion

[11] However, job growth in trade, restaurants, and hotels was sluggish. The spread of malls, supermarkets, and restaurants serving the middle class was probably counterbalanced by the disappearance of some of the traditional markets and stalls (although the popular explanation of competition between the two has been challenged by some researchers; see Suryadarma et al. 2007).

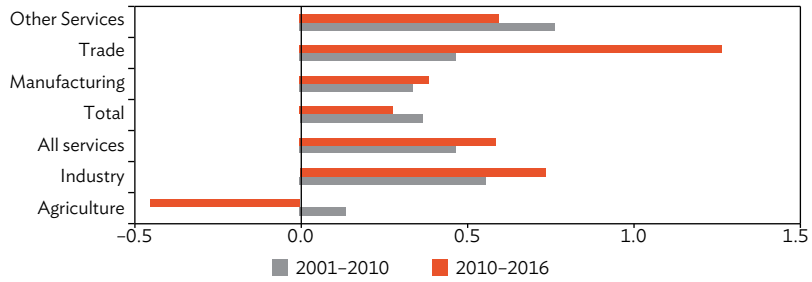
[12] Precisely, the increase in employment as a result of a unit percent increase in economic growth. For an international comparison, a range of 0.3–0.5 appears about what might be expected for manufacturing (Mazumdar 2003).

[13] Allen (2016: 7) notes that employment elasticities were low in key industries such as trade, restaurants and hotels, and transport and communications. Elasticities that measure the response of jobs to a percentage change in output were rarely above 0.5 in these industries in the period after 2005.

of employment of teachers and healthcare workers, as government expenditure rose in these areas in the 2000s.

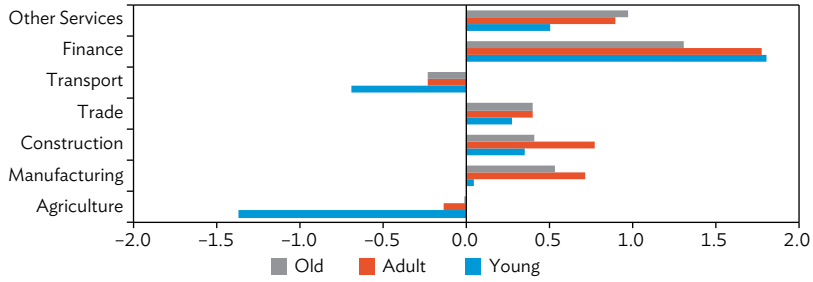
There were greater contrasts by age group (Figure 3.5). Labor absorption was much slower over the same time period for youth in most industries except finance and business. It was miniscule in manufacturing, heavily negative in agriculture, and negative in transport and communications. As will be discussed in Chapter 4 of this book, as levels of schooling rise, many fewer young people are taking up jobs in agriculture compared with early decades.

Figure 3.4: Elasticities in Major Industries in Indonesia, 2001–2016



Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS) 2001, 2010, and 2016 (August round).

Figure 3.5: Employment Elasticities by Age Group, 2007–2015



Sources: BPS (various issues) National Labor Force Surveys (SAKERNAS) 2001, 2010, and 2016 (August round).

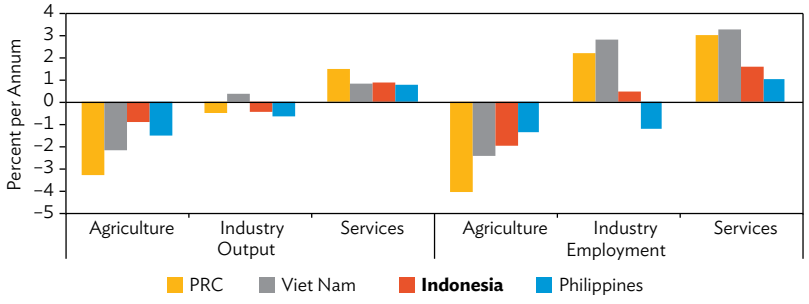
3.3.4. Some Comparisons in East Asia

How do these patterns compare and contrast with neighboring East Asian countries? While Indonesia is not a rank outlier in terms of employment transition, it certainly is not among the leaders of the pack. This applies to both rates of change and sectoral changes in output shares. Indonesia can be compared with the PRC and Viet Nam, the

two leaders in growth in East Asia in the 2000s, and with the Philippines, which shares many of the same structural characteristics and is at a similar stage of development as Indonesia. The transformation out of agriculture has been much faster in the PRC and Viet Nam in terms of both output and employment shares after the AFC in the 2000s (Figure 3.6).[14] Consistent with the earlier discussion of a global slowdown in manufacturing, all countries except Viet Nam experienced relative stagnation in the share of output in industry.

But it is noteworthy that the employment share in industry continued to increase in the PRC and Viet Nam, despite the relative stagnation of that sector's output share. The expansion of labor-intensive industry absorbed a significant proportion of workers who moved out of agriculture in these two countries, whereas in Indonesia most of those moving out of agriculture went into services; the industry share of employment increased only very slightly. Figure 3.6 shows that Indonesia was left behind compared with the PRC and Viet Nam, even though employment transformation was more significant than in the Philippines in terms of major sectoral shifts.

Figure 3.6: Changes in Output and Employment Shares in East Asian Countries, 2000-2013/14



PRC = People's Republic of China.
Source: World Bank, World Development Indicators.

3.4. Wages and Productivity

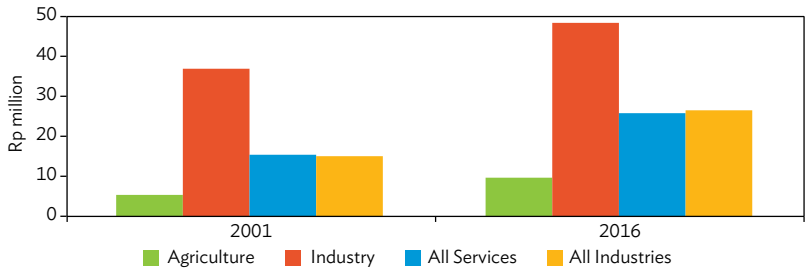
Whether the foregoing pattern of change has been positive, benign, or even negative for living standards and economic transformation depends on trends in productivity and wages. As noted above, output and investment growth were sluggish for most of the first decade of the 2000s. For a good part of the period, particularly in the early 2000s, when employment did not improve much, the poor growth record was not

[14] See Appendix Table A3.1 for details.

reflected in falling levels of labor productivity. Labor productivity rose in all sectors, and remained considerably higher in 2016 than at the beginning of the decade (Figure 3.7). Throughout, industry sector productivity was considerably higher than that in agriculture and services.

Nonetheless, growth in labor productivity was a miserly 4%, well below that of the PRC and Viet Nam (Yueh 2010).[15] Official data suggest an improvement in the years after the Global Crisis, with growth rates increasing to more than 6% in agriculture and closer to 5% for industry and services.[16] While this is an improvement, it is generally agreed that improvements in infrastructure, the business environment, and regulatory frameworks could lead to much bigger gains, and thus advance Indonesia's competitiveness considerably. Reforms in these three areas were priorities in the reform packages introduced by the Jokowi government in the 12 months from September 2015.

Figure 3.7: Labor Productivity in Major Sectors, 2001 and 2016
(constant 2000 prices)



Sources: BPS (various years) National Accounts; BPS (various issues), National Labor Force Surveys (SAKERNAS), 2001 and 2016 (August rounds).

Growth in real productivity in manufacturing (large and medium-sized establishments) was steady throughout the first decade and a half of the 2000s, reflecting Indonesia's steady recovery after the AFC. Competitiveness, however, depends partly on what happens to unit costs, including unit labor costs, that is, nominal wages relative to real output.[17] In this measure, it seems that the country did not fare so well, at least in large- and medium-scale manufacturing. After increasing gradually during the recovery phase, unit labor costs rose more quickly than productivity (Figure 3.8).[18] In part, this

[15] For example, Yueh (2010) estimates labor productivity growth of between 10% and 20% per annum in manufacturing in the decade from the mid-1990s to mid-2000s.

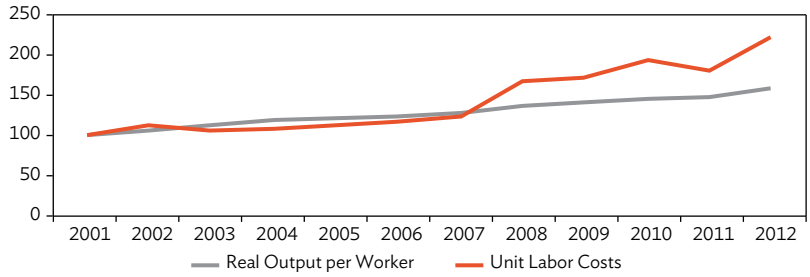
[16] The most spectacular gains were recorded in the transport and communications subsector (double-digit growth rates), which can be attributed mainly to the information technology subsector: first, the introduction and spread of mobile phones, and then the expansion of the digital economy into other areas such as retail sales, transport, and service delivery.

[17] Unit labor costs measure the labor costs of producing one unit of real output of goods or services.

[18] Measured in dollar terms, the gap would have been even wider owing to the steady appreciation of the rupiah from around the mid-2000s.

reflects high rates of inflation, and then, toward 2011–2013, more rapid increases in nominal wage costs. The latter may be partly related to a more active campaign by unions to raise the minimum wage in Indonesia at this time, after a long period of comparatively small annual increases.[19]

Figure 3.8: Index of Real Output per Worker and Unit Labor Costs, L&M Manufacturing, 2000–2013 (2000–2002=100)[a]



L&M =large- and medium-sized.
[a] 3-year moving average.
Note: Output data are deflated by the manufacturing price index, taken from the national accounts data.
Sources: BPS (various years) National Accounts; and BPS (various issues); National Labor Force Surveys (SAKERNAS); 2001 and 2015 (August rounds).

How have productivity improvements impacted the real wages of workers? In the recovery period, stretching into the resource boom years, real hourly wages (nominal wages deflated by the consumer price index) are estimated to have increased by a bare 1.4% per annum. This is consistent with slower employment growth outside agriculture for much of this period. As labor began to move out of agriculture and as formal sector employment expanded, real wages began to increase more rapidly across all industries in the 5-year period from 2010 (Appendix Table A3.1). Intersectoral and interindustry differences are revealing. Agricultural wage rates grew more slowly than the rates on all other sectors in the earlier period, 2001–2010. This situation was reversed in the next 5 years—agricultural wages increasing by close to 6% per annum in 2010–2015, a rapid rate even if from a low base. Manufacturing and construction wages also rose comparatively quickly, at about 4.5%–5.0% per annum. The gains in services were smaller, perhaps reflecting the heterogeneous composition of jobs in this sector.

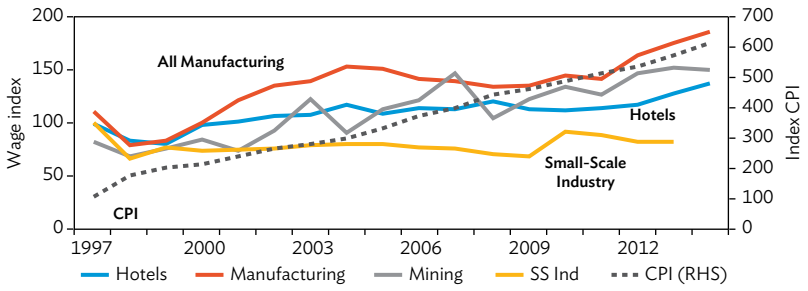
These trends based on the National Labor Force Surveys (SAKERNAS) are confirmed by data on wages of blue collar workers collected from selected industries across the country from the 1990s.[20] Figure 3.9 suggests very slow growth in real wages across

[19] See Chapter 7 for details on minimum wage changes in Indonesia during the 2000s.
[20] The data are from the wages survey conducted by Badan Pusat Statistik (Statistics Indonesia), which show increases in wages for all employees below the level of foreman (or equivalent position), collected quarterly in most regions of Indonesia.

all industries for which data are available (hotels, representing service industries; manufacturing; and mining) until around 2010–2011, when a combination of factors seems to have contributed to faster real wage growth. The disappointing record in the earlier period has been attributed to the perverse impact of the resources boom on the labor market, including not only increased informality but also lower real earnings (Coxhead and Shrestha 2016). Paradoxically, higher output growth rates in manufacturing *after* the resources boom, together with lower rates of inflation, seem to have contributed to larger increases in real wages (close to 5% per annum) once the boom came to an end.

The higher growth rates of wages in manufacturing and slower increases in small-scale industry as shown in Figure 3.9 are of some interest. The former may be due to rising skill (educational) levels of employees as Indonesia's manufacturing industry began to move away from labor-intensive industries. On the other hand, the latter may reflect overcrowding, as well as difficulties in small-scale industries at the tail end of the resources boom.[21]

Figure 3.9: Real Wages Index and CPI, Various Industries, 1997–2014
(1996=100)



CPI = consumer price index, RHS = right-hand side, SS Ind=Small-scale industry.
Sources: BPS, The Quarterly Wages Survey and CPI, (various years) https://www.bps.go.id/subject/19/upah--buruh.html#subjekViewTab3)

Several factors are likely to have contributed to the turnaround in wage growth: First, the shift of labor out of agriculture (discussed above) is likely to have contributed to rising real wage rates as well as improved productivity in this sector (see Figure 3.7 for data on labor productivity). It was most likely a lagged effect, in a period when prices moderated in the booming export-oriented commodity sectors such as palm oil and rubber. Second, construction wages seem to have responded to the faster growth in

[21] The slower rate of wage growth in hotels and the variable rates in the mining subsector might be explained by greater ease of entry into the former and the sharp changes in fortunes of different industries at various stages in the volatile oil, gas, and mining subsectors in Indonesia.

this sector from around the mid-2000s. And finally, larger minimum wage increases occurred especially in the main industrial areas in 2011–2013, which probably had a disproportionate influence on wages in manufacturing and possibly also construction. In addition, inflation as measured by the CPI had been higher in the earlier years leading up to the Global Crisis of 2007–2008, compared with the last 4–5 years.

Various commentators have noted that the application of higher levels of skills in the workplace is a major challenge if productivity is to rise faster. For example, in a revealing survey of the issues, Allen has drawn attention to several challenges in regard to skills (Allen 2016: 9–16). There has been increasing investment in education by both the public and private sectors, including the 20% of the public budget mandated for expenditure on education. A host of problems remain, though, for converting better education outcomes to higher-level skills. Beside graduates not being ready for hire by the private sector, only a minority of business firms offer any training to their employees, a practice exacerbated by a significant proportion of employees hired on short-term contracts. Based on international benchmarks, Allen finds that as many as half of all workers might be underqualified for their positions, implying that they urgently require further training to make them better prepared for their tasks.[22] Further, Allen (2016: 13) points out that access to certified training courses is limited in Indonesia, and fewer less-educated people—but more diploma and university graduates—participate in them.

At the same time, in the last 5–10 years the government has been making efforts to turn this situation around. Certification of skills has expanded considerably in both the private and public sectors, especially for lower-level blue-collar skilled workers, and in tourism and in government-dominated areas such as teaching. The National Occupational Certification Board reports a dramatic increase in the number of accredited certification bodies at the industry and occupational levels, to about 300 by 2016 from only a handful of bodies several years earlier.[23] In the teaching profession, the expansion of certification has had major implications for salary levels, commonly leading to a near doubling of basic salaries of primary and secondary school teachers and lecturers. Although early studies suggest a limited effect on performance to date, one positive aspect appears to be greater attraction to the profession among bright young graduates.[24]

[22] This figure might overestimate the problem. Notwithstanding the importance of the general point, international benchmarks may not be entirely applicable to different kinds of enterprises and work situations (e.g., small and micro enterprises) in lower-income countries.

[23] About 400,000 workers, mainly in construction and related industries, had received basic through to more advanced certification of their skills by the end of 2015.

[24] See Suryahadi and Sambodho (2013: 146–50). Some of these issues are taken up in Chapter 6.

3.5. Segmentation, the Formal–Informal Sector Divide, and Labor Mobility

Simplifying matters, one can describe the Indonesian labor market as fundamentally dualistic, a pattern that has historically been associated with the unequal distribution of population, land, and natural resources. This characteristic is probably more marked than in most economies in East Asia, perhaps with the exception of the Philippines. The labor market thus displays features of a classic East Asian "labor surplus" economy and, at the same time, a resource-abundant economy, prone to enclave developments and "Dutch disease" shocks (Edwards 2016); the latter tend to impact negatively on the international competitiveness of a major segment of manufacturing, which continues to derive its competitiveness from an abundance of unskilled labor.[25]

Currently about one-quarter of the population lives in densely populated rural areas in Java–Bali, which supports a plethora of nonfarm jobs mostly tied to agriculture. About another 35% of the population resides in a large number of cities and towns also in Java–Bali and is closely integrated with these rural communities. This large part of the Indonesian economy shares much in common with the densely populated regions of South Asia rather than several of the historically less densely populated countries in Southeast Asia such as Malaysia, Myanmar, and Thailand.

But at the same time, large parts (though by no means all) of the rest of Indonesia in Kalimantan, Sulawesi, Sumatra, and Papua can be described as land and resource abundant, certainly relative to Java–Bali. In these regions, international and, increasingly, large national companies have historically invested in agriculture and natural resource extraction.[26] For the minority of workers employed in enclaves, wages have always been higher than in the rest of the economy. But they set a standard to which workers in other sectors aspire, and to which the government is compelled to respond, despite the great competition for jobs at much lower wage levels, especially on Java–Bali.[27] In short, government policies for the formal sector have been heavily influenced by demands for wages and working conditions that are comparable with those in the enclaves.

There are several manifestations of segmentation, including large interfirm differences in wages (after accounting for skill and measurable individual differences) according

[25] See especially papers by Ian Coxhead from the University of Wisconsin on various responses of the labor market in Indonesia to the recent resources boom in the 2000s, for example the paper by Coxhead and Shrestha (2016).

[26] Finally, to complete the mix, most outer-island people, about one-quarter of the total, work on their own widely dispersed farms or in traditional fisheries and forestry away from the enclaves and urban settlements supported by them.

[27] For example, this is demonstrated by the high average wages in mining, which are close to twice the national average and three times wages in agriculture.

to size and ownership patterns; long-standing contrasts in the characteristics of workers in different sectors, especially between the formal and informal sectors; and differences in employment and wage patterns by gender and across regions.[28] To examine some of the determinants of wages, a standard Mincerian regression was run on the earnings of wage workers in 2015 (see Appendix Table A3.2). Almost all the standard variables were significant in regard to wages. After controlling for personal characteristics of workers and economic variables, the coefficients for years of completed schooling were significant in all specifications of the model. The dummy variable for male was predictably positive and significant, as were the dummy variables for the Greater Jakarta region, and all the major regions outside Java, relative to rural Indonesia and Java as the omitted category in regard to region, respectively. As might be expected, dummy variables for managers and professionals recorded positive and significant coefficients relative to clerical occupations as the omitted category for occupation.

The study also focuses on the formal–informal sector divide, but looks briefly at some differences across firm types and by employment status. It is useful to think of the structure of the economy as consisting of three main segments: the agriculture sector, the formal sector, and the informal sector, the latter two comprising nonagricultural activities.[29] Toward the end of the first decade of the 2000s, the dominant role of agriculture in terms of employment was replaced by that of the formal sector.

The share of total employment in the informal sector outside agriculture remained stable at about 20%, although it continued to expand in absolute terms (Figure 3.10). This has been quite a significant change, associated with the urbanization of the economy and society.[30] The transformation was fastest in the seven years 2010–2016, when formal sector employment is estimated to have grown at more than 4% per annum. The expansion was largely at the expense of jobs in the agriculture sector, which (as already seen) contracted at close to 1% a year.

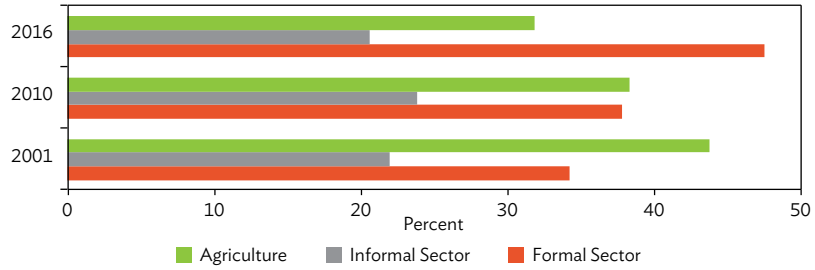
Referring to the discussion of stagnant overall female labor force participation rates in Chapter 2, it is noteworthy that the move out of agriculture has been more marked among females, and growth of the formal sector has also been faster among females than males in the 2000s (Figure 3.11). While the move out of agriculture seems to have been especially marked among unpaid family workers, who were mostly female,

[28] See, for example, Ramstetter and Sjoholm (2006).

[29] Unless otherwise specified, the terms "formal sector" and "informal sector" refer to nonagricultural activities in this chapter, given the very different nature of work and assets (especially land) in agriculture compared with other sectors. The division between the formal and informal sectors follows the official BPS (Statistics Indonesia) definition, based on the work status and occupational status of workers. The former consists mainly of regular wage employees and employers, as well as all self-employed persons who are professionals, managers, or clerical workers.

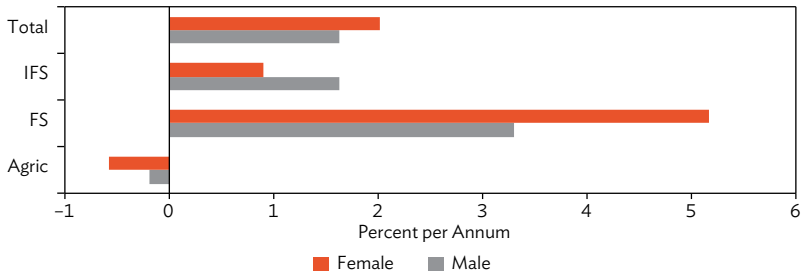
[30] The National Labor Force Survey shows quite large changes in the rate of growth of the working-age population, labor force, and employment from year to year. Subsequent comments are based on what appear to be the medium-term trends.

Figure 3.10: Shares of Employment in Agriculture and the Nonagricultural Formal and Informal Sectors, Indonesia, 2001–2016



Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS), 2001–2016 (August round).

Figure 3.11: Annual Growth Rates of Male and Female Jobs in Agriculture and Formal and Informal Sectors, 2001–2016



IFS= informal sector; FS=formal sector; Agric=agriculture.
Sources: BPS (various years), National Labor Force Surveys (SAKERNAS), 2001 and 2016 (August rounds).

the shift into the formal sector might be explained by more female jobs becoming available in services and social sectors, especially finance, teaching, and healthcare. Wage differentials were more likely in less-skilled jobs, however. One report on research into female labor force participation notes that, although wage gaps are greater in the informal sector, "sticky floors" (that is, wage gaps at the bottom of the distribution) are more common among lower-income groups in the formal sector.[31] This may be due to the bunching of female employment in very low-wage occupations such as domestic service, one area where nongovernment groups and unions are anxious to improve protection of female rights and wages.

What distinguishes the average formal sector employee from her or his informal sector and agricultural counterpart? Just over 40% of all nonagricultural workers were formal

[31] See Cameron et al. (2015), which reports that as much as 60% of a quite large gender wage differential (the "raw wage gap") of 41% was explained by personal and other characteristics of workers; this unexplained proportion is unusually large for a country where female participation in the workforce has been moderately high by developing country standards for several decades.

in 2016, and they differed in a number of ways from informal sector and agricultural workers. While informal sector workers were employed mainly in retail trade and small stalls (*warung*), formal sector workers were more likely to work in manufacturing or in "other" services (especially in government and security and in education). Predictably, formal sectors were more likely to be urban, though it is interesting that nearly 30% of formal sector workers still found jobs in rural areas, many of them in government services (Table 3.2). There was not much difference in average age between the sectors, although few young people worked in agriculture, where the average age was more than 40.

As might be expected, the contrast in educational attainment was large among the sectors. The average formal sector worker registered 11 years of formal schooling, and nearly one-quarter had completed tertiary schooling, mostly at the university level. Alternatively, informal sector counterparts registered an average of only 8 years schooling, and in agriculture a paltry 6 years on average. Very few informal sector or agricultural workers had completed tertiary schooling.

Table 3.2: Share of Jobs and Characteristics of Workers in the Formal and Informal Sectors and Agriculture, 2016

	Formal	Informal	Agriculture	All sectors
Share of Jobs (%)				
All jobs	47	21	32	100
Females in each sector (%)	39	40	36	38
Urban in each sector (%)	70	59	20	52
Age				
Average age (yrs.)	37	40	44	40
Aged <25 years old (%)	17	14	11	14
Aged 50 years and above (%)	17	24	38	25
Schooling				
Average years of schooling	10.8	7.7	5.6	8.5
Completed junior high or less (%)	38	71	86	60
Competed tertiary (%)	23	4	1	12
Hourly Earnings				
Rupiah	15,686	10,864	8,941	13,352
Index	117	81	67	100

Source: BPS (various issues), National Labor Force Surveys (SAKERNAS), 2016 (August round).

Two aspects of the formal–informal sector divide are worth observing: First, as in other countries, formal sector work is generally preferred over informal and agricultural work, especially by younger persons.[32] Research in Indonesia suggests that the longer someone has a job as a self-employed person the more likely he or she is to be disadvantaged vis-à-vis people with similar qualifications in the formal sector.[33] They

[32] See especially World Bank (2010), Chapter 3.
[33] Naidoo et al. (2015). The research was based on the Indonesian Family Life Survey rounds in 1993, 1997, and 2007.

had been "scarred" in terms of earnings capacity by the experience of working in the informal sector. However, this was certainly not always the case. Although average earnings were about 20% higher in the formal sector, a significant number of informal workers chose the sector and prospered. Some took up informal work as a stepping stone to jobs in the formal sector, and some, especially older people in Indonesia (and other countries), moved to the informal sector on or after retirement (World Bank 2010: 68).

Second, although the extent of job mobility is unclear, it may be higher than some have suggested.[34] It has been argued that job mobility is low for permanent workers in Indonesia (i.e., workers whose contracts are ongoing) owing to high rates of severance pay for dismissals. However, this induces many firms to employ labor on fixed-term contracts and hence encourages job mobility. Survey data find significant job mobility between industries within the informal sector, between the informal sector and the formal sector, and between agriculture and other sectors.[35] For example, in 2000–2007 agricultural workers were least likely to move to other sectors, whereas mining, manufacturing, construction, trade, transport, and social services all experienced high turnover rates. As one might expect, more-skilled persons (measured by level of schooling) were more likely to move jobs, or to move out of unemployment into new jobs. Those moving from agriculture and manufacturing tended to find jobs in services, which offered more employment opportunities than other sectors in these years.[36]

Recent research focused on the distribution of enterprises by scale has raised the issue of whether there is a dualistic structure of employment within the manufacturing sector. It addresses the important policy question of whether there is indeed a "missing middle" in manufacturing. Two points come out of the discussion: First, rigorous analysis suggests that most firms (about 95%) are very small, employing fewer than 10 workers, and do not seem to be constrained by regulations or discrimination from entering the formal sector.[37] Second, as indicated in the discussion above, informal firms are oriented toward local markets, pay low wages, and are generally managed by less-educated people (especially women) compared with medium and larger scale firms (Rothenberg et al. 2016). While the analysis is compelling, neither of these studies focuses on the percentage of jobs at different ends of the size distribution, particularly in the labor-intensive industries, which is needed for a systematic evaluation of the

[34] One study (Artuc et al. 2013) that estimated mobility within manufacturing found Indonesia to be roughly midway between countries with very low levels of mobility (including Bangladesh and the Philippines) and those with high rates of mobility such as Finland, Germany, and the Netherlands.

[35] See World Bank (2016: 13–7). Data based on the Indonesian Family Life Survey results in 2000 and 2007.

[36] The same study found that mobility between main regions was much lower, a result that might be partly explained by the size of the country; mobility may be quite high between districts and subdistricts within the same province.

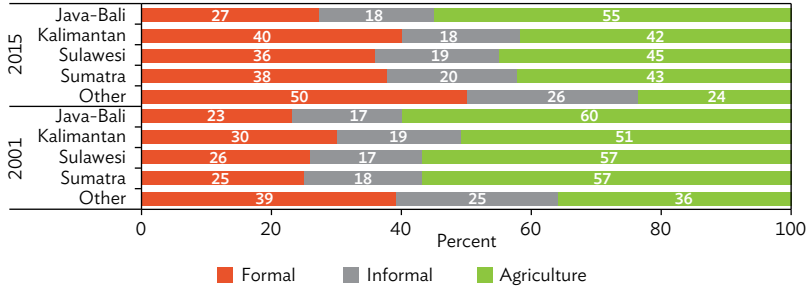
[37] See Hsieh and Olken (2014), who find a high concentration of firms at the low end of the scale and no obvious break in the distribution related to different treatment of small and large firms.

dualistic model.[38] Nonetheless, the policy implications seem clear: these studies question the proposition that small firms are "excluded" from present government policies and that special approaches need to be taken to give them a chance to grow.

3.5.1. Formal and Informal Jobs across Island Groups

As indicated in Chapter 2, the Indonesian labor market is quite heterogeneous across island groups, provinces, and districts. As noted, the most obvious contrast is between the densely populated Java–Bali on the one hand and, on the other hand, the main outer island groups of Kalimantan, Sulawesi, Sumatra, and "other" regions in the eastern part of Indonesia (the Nusa Tenggara provinces, Maluku, and Papua provinces). The share of jobs in agriculture is smaller and the formal sector larger on more urbanized Java–Bali, contrasting most with the "other" island group, where even in 2016 well over half the population was still employed in agriculture (Figure 3.12). All regions, however, experienced a decline in agriculture and a rise in the share of employment in the formal sector in the 2000s. In all, the share of nonagricultural, informal sector work remained relatively constant at around 20%–25% of all jobs. Thus, at this level of aggregation, there were signs of some limited convergence, and no indication of greater regional diversity in the structure of jobs.

Figure 3.12: Percentage Distribution of Employment by Major Sector, Indonesia, 2001 and 2015



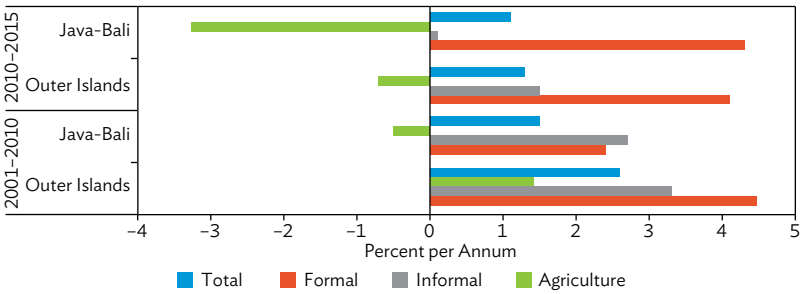
Sources: BPS (various years), National Labor Force Surveys (SAKERNAS) (August round).

The dynamics of these changes and the tendency toward some convergence between Java–Bali and the outer islands are shown in Figure 3.13, which displays growth rates in employment in the formal, informal, and agricultural economies. The earlier shift out of agriculture is apparent on Java–Bali, where the total labor force and employment

[38] This conclusion is from the perspective of enterprise characteristics, as against worker characteristics in the labor market context on which we have focused in this chapter.

were already growing much more slowly than in other islands in the first decade of the 2000s. This shift out of agriculture intensified during the last several years on Java. However, it also began in the outer islands in 2010–2015. Formal sector growth was sluggish on Java–Bali initially but then accelerated from 2010 to 2016, growing at a similar pace as the formal sector in the outer islands. And the informal sector grew faster outside Java, catching up to patterns already established in Java-Bali.

Figure 3.13: Annual Growth of Employment by Main Sector, Java and Outer Islands, 2001–2015



Sources: BPS (various years), National Labor Force Surveys (SAKERNAS), 2001, 2010, and 2015 (August rounds).

3.5.2. Labor Market Flexibility and Churning

For several decades, one of the challenges for the labor market in Indonesia has been the absorption of new workers into better jobs than those held by their parents and the transfer of other workers out of low-productivity into higher-productivity jobs. The low-productivity jobs have been in agriculture and the informal sector, which accounted for two-thirds of all jobs in the early 2000s. That challenge remains, but it is increasingly matched by the need to raise productivity in what have typically been classified as formal sector jobs. Rather than one-third of all jobs, the formal sector now accounts for close to one-half of all jobs and two-thirds of all nonagricultural jobs. For higher growth and greater equity, raising productivity and improving skills in these jobs is now at least as important a challenge as increasing participation in the formal sector. To achieve this goal, both workers and employers need to have the necessary incentives to invest in human capital, and to have access to better jobs (for workers) and more productive labor (for employers) to meet their respective welfare and corporate goals.

One factor that can influence investment in human capital is the duration of tenure in jobs. Too frequent a turnover from one job to another (or excessive "churning") in the labor market can lead to under-investment in human capital. Despite fears of

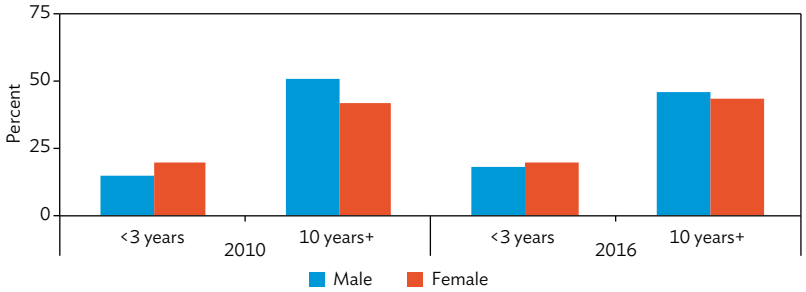
high rates of turnover in jobs, what is striking in Indonesia is the high proportion of workers that report relatively long periods of tenure in the same job: Nearly half of all workers aged 30–55 reported that they had been employed in the same job for 10 years or more in 2015. Less than 5% reported less than 1 year of tenure, and only around 15% had been in their current job for 3 years or less (Figures 3.14 and 3.15). These proportions had changed very little from 5 years earlier.

This sample includes public sector workers and employees in large private organizations (both business and social, such as educational institutions and hospitals), who could be expected to have long periods of tenure. But it also includes many people in agriculture and the informal sector, who one might expect to be more mobile. The data suggest, for example, that agricultural workers were actually likely to be more attached to their current job than workers in other sectors.[39]

Other industries tended to report a higher proportion (20%–30%) of workers with shorter periods of tenure in 2015, such as mining and construction, which have either a pronounced seasonal dimension or experience large fluctuations in business activity associated with business cycles. There was some difference by gender as well: As might be expected, females experienced shorter periods in the same job than males (see Figure 3.14).

One issue in this domain is getting the balance between permanent and fixed-term contract jobs right; another is ensuring that people in jobs have the opportunity to work the number of hours they desire. We look at each of these topics below.

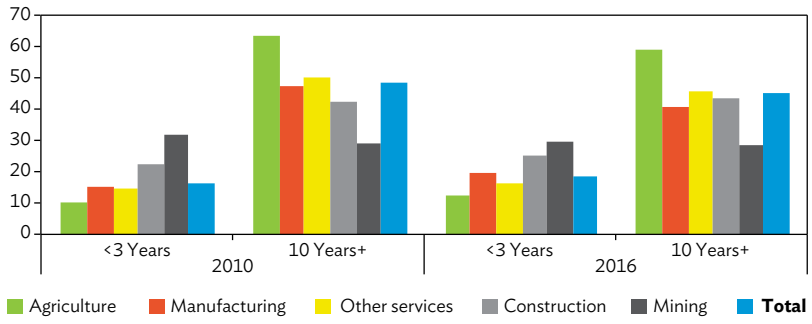
Figure 3.14: Share of Workers Who Have Remained in the Same Job for Less Than 3 and for 10 or More Years by Gender, Indonesia, 2010 and 2016



Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS), 2010 and 2016 (August rounds).

[39] However, a large number of agriculture workers combine work in agriculture with other income-earning activities but still report agriculture as their main source of income. Many of such agriculture workers tend to be older, which probably helps explain greater attachment to their current jobs (see Chapter 4).

Figure 3.15: Share of Workers Who Have Remained in the Same Job for Less Than 3 or for 10 or More Years by Industry, 2010 and 2016



Other Services=all services sectors outside construction.
Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS), 2010 and 2016 (August rounds).

3.5.3. Permanent versus Contract Jobs

Ever since the Labor Law 13/2003 was passed, there has been an intensive debate on the desirable balance between labor market flexibility and protection of standards for workers. While labor unions have argued that too much flexibility is the consequence of liberal regulations and failure to strictly implement legal restrictions on rehiring once a worker's contract has expired, they point to the case of fixed-term contract workers. Employers have countered with criticism of severance pay legislation, which raises the quasi-fixed costs of employing permanent workers.[40] In assessing the efficiency of the labor market, it is generally agreed that the employment of many workers on short-term contracts is partly an unintended consequence of regulations that raise the costs of employing permanent workers.

New questions added to the 2016 National Labor Force Survey (SAKERNAS, February round) throw some light on the balance of permanent and contract jobs, and on earnings and tenure among workers on different kinds of labor contract. The first finding of interest is the quite small proportion of what are termed regular wage employees (all of these are classified as formal sector workers) who were employed on permanent contracts.[41] Only 22% of regular employees were employed on permanent wage contracts, a smaller share than those on fixed-term contracts (32%). In contrast, just under half of all regular employees had no contract or only an oral contract with their employers (Table 3.3). In sectors with a high proportion of private

[40] See Chapter 7 for a more detailed discussion of these issues.
[41] In the National Labor Force Survey (SAKERNAS), regular wage employees are distinguished from casual wage workers, the latter defined as employees who changed their job at least once in the previous month.

sector employees (manufacturing; construction; and trade, restaurants, and hotels), the proportions of permanent employees were lower (15%–20%), and very low in construction (only 8%).

A second finding is that permanent workers do not earn much of a wage premium compared with fixed-term contract workers, but they do compared with workers on oral contracts or no contract at all. Table 3.3 shows that there was not much difference between the hourly wages of regular employees on permanent contract and those on fixed-term contract. But both earned close to double what those with only an oral contract or without a contract earn.[42]

Table 3.3: Characteristics of Regular Employees on Permanent, Fixed-Term, and Other Types of Contract, Indonesia, 2016

	Permanent Employee	Fixed-Term Contract	Other*	All Contract Types
Share of Employees (%)				
Manufacturing	16	35	49	100
Construction	6	11	83	100
Trade, hotels, and restaurants	12	23	65	100
All industries	21	30	49	100
Average Hourly Wage (Rp '000)				
Manufacturing	19	16	9	13
Construction	25	23	11	13
Trade, hotels, and restaurants	21	14	9	11
All industries*	24	18	10	15
Employed Who Worked in Same Job For Less Than 3 Years (%)				
Manufacturing	19	40	38	36
Construction	22	43	37	37
Trade, hotels, and restaurants	36	58	54	53
All industries*	19	36	42	35
Employed Who Worked in Same Job For More Than 10 Years (%)				
Manufacturing	38	19	24	24
Construction	42	21	30	30
Trade, hotels, and restaurants	22	10	13	13
All industries	44	26	22	28

[a] Other = oral or no contract.
Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS), 2010 and 2016 (August rounds).

However, workers on permanent and fixed-term contracts contrasted in other ways. For example, there was a significant difference between the permanent and fixed-term contract employee groups in regard to social security and insurance benefits available to workers. About 40% of permanent employees had access to pensions, provident funds, and life insurance compared with a very small proportion of workers on fixed-term contract, while there was not much difference between the two groups in access

[42] Much longer periods of tenure among permanent employees—around one-third had been at their present job for 10 years or more—might help explain their wage premium vis-à-vis those without a written contract.

to health and accident insurance, and only small differences in regard to undertaking training once employed (Allen and Kyloh 2016: 87).[43]

To sum up, there were some differences in wages and job tenure between permanent and fixed-term contract workers but not as large as might have been expected. The differences probably related as much to the personal characteristics of permanent workers (their age, education, and gender) as to advantages inherent in the type of contract per se. But there clearly were big differences in duration of tenure between all workers with a written contract—permanent or fixed-term—and employees with no written contract.

To sum up on flexibility and churning, the Indonesian labor market may not be quite as "flexible," and "churning" might not be as extensive as many observers contend and as some observers have found in other countries, such as in Mexico (Maloney 1998). Nonetheless, given the segmented nature of the labor market, maintaining a balance between flexibility to promote job growth and protection of basic labor standards remains a challenge for policy makers in Indonesia. This is especially the case as there is still quite a large pool of low-productivity workers seeking jobs, and high rates of unemployment and underemployment.

3.6. Policy Implications

This chapter has argued that Indonesia's employment record has been middling by international standards. However, the transformation needed in the labor market to make a serious contribution to poverty reduction and income growth has not occurred as it has in the PRC and Viet Nam. There are two main issues. The first is the number of jobs and the second is the quality of workers and jobs created by the ongoing output of and investments in Indonesia. In regard to the former, the country needs both faster economic growth and more "job-friendly" growth to help overcome some of its main employment challenges. How these might be achieved will be discussed in subsequent chapters on agriculture, urban development, skills, and labor regulations and industrial relations. This chapter has outlined some of the broad policy issues that need to be addressed.

Given global circumstances, it will be difficult to achieve the ambitious economic growth rates of 7% or higher during the current presidential term (2014–2019), as projected in the national 5-year plan (Rencana Pembangunan Jangka Panjang

[43] Allen and Kyloh (2016: 93) note that permanent employees are more likely to benefit from training than workers on fixed-term contract, although again the main differences were with those with no written contract. Workers on permanent contract were on average older (just under 40 compared with 35 for fixed-term contract employees) and slightly more educated than those on fixed-term contract.

Nasional 2015–2019). Some special tax concessions have already been offered to large employers of labor to help stimulate employment. A more systematic program that targets labor-intensive industries through infrastructure, training, and deregulation would complement these efforts, in addition to more general efforts to improve the investment climate, which have been the focus of reform packages in 2015–2017. Improving the fiscal situation is critical for public investment to support such initiatives.

Five percent growth currently creates about 1 million jobs annually, mainly in the formal sector, with an employment elasticity of 0.5. In the next 2–3 years, a realistic target might be to gradually raise growth rates and labor absorption to 1.5 million new jobs annually with a 6% growth rate or an elasticity of approximately 0.7, again mostly in the formal sector. One key challenge will be to include policies that can have an immediate, short-term impact over 6–12 months in addition to policies that target structural obstacles for improvements in the medium term.

The second set of policies places focus on the quality of jobs: better jobs for new entrants and for those needing to move out of low-productivity areas. While it appears that formal sector jobs have grown more quickly in recent years, many of these are clearly neither better jobs nor decent jobs according to some of the criteria outlined by the International Labour Organization. Short- and medium-term objectives need to be clearly defined in this regard. The challenge, then, is to ensure that the growth of formal sector jobs continues to be robust and at the same time better jobs are increasingly created as the economy is transformed.

This is essential for addressing the problems of low productivity discussed in this chapter. Indonesia is at a turning point as a middle-income country in needing to move up the technological ladder. While the increasing numbers of middle class people are intensive users of new information technology and internet technology, it is widely acknowledged that the country lags behind its competitors in the supply and quality of training opportunities for new workers, and in upgrading the skills of the existing workforce. Employers underinvest in training, partly because there are strong disincentives through the regulatory system to appointing permanent workers. This major policy challenge has not been addressed in a systematic way by policy makers.

A range of policies for improving skills are discussed in greater detail in Chapter 6. In addition to some of the supply-side issues discussed in Chapter 2, closer links between the supply and demand of skilled human resources are essential to raise productivity and wages.[44] One priority is continued efforts to constantly monitor human resources

[44] See a more detailed discussion of some of these alternatives in Allen (2016: 29–30).

needs and to reshape vocational school and center training and the polytechnic curriculum through cooperation with private enterprise. A much-debated training fund is one option for the private sector to have better access to the money needed. At the same time, policies need to be adopted to raise the incomes and productivity of informal jobs, which will remain an important part of the labor market for some time to come. Making cheaper credit accessible to micro and small enterprises is one strategy, although there are doubts about whether the current heavily subsidized people's credit program (Kredit Usaha Rakyat) is the best way to support new enterprises (*Jakarta Post* 2017).

Labor demand patterns interact with the policy environment to impact the distribution of employment and wages. Fundamental to creating better jobs is raising wages; providing more regular jobs (and earnings) rather than casual and contract jobs; and ensuring that barriers to entry and mobility, and discrimination, are minimized in the labor market. While it is not easy to generalize, this chapter and Chapter 2 have argued that the Indonesian labor market is moderately open; there is considerable mobility among sectors and regions. However, considerable wage differentials persist by gender and between urban and rural areas, although women are playing a greater role in the formal sector than ever before. One policy challenge is to reduce disincentives for firms to employ workers on long-term, permanent contracts, which is likely to increase their interest in providing badly needed training in order to raise productivity.

Improvements can be made on all fronts and in particular in developing new policies that result in a higher proportion of regular employees relative to the number of low-wage contract and casual workers. While contributing to improvements in wages for many workers, a more politicized wage policy (minimum wages) probably contributed to greater interregional wage differentials in the 3 years before President Jokowi came to power, adding to pressure to slow the recruitment into regular jobs.[45] As discussed in Chapter 7, a new wage formula introduced by the Jokowi government has changed that situation, resulting in a much more even distribution of wage increases and greater certainty in wage outcomes.

In part, the role of this chapter is to raise questions based on trends and patterns from the labor data that will be taken up in subsequent, more focused chapters, and in the overall policy recommendations based on the findings discussed in this book. Many of the policies in relation to labor demand and job creation will be fleshed out in the book's subsequent chapters dealing with agricultural transformation, urban growth, skills and productivity, and labor policies.

[45] This may have contributed to wider skill premiums, for example, between tertiary and high school graduates.

Appendix: Employment and Earnings Tables

Table A3.1: Changing Share of Output and Employment in Selected East Asian Countries

Country	Percentage of GDP								
	Agriculture			Industry			Services		
	1990	2000	2014	1990	2000	2014	1990	2000	2014
China, People's Republic of	27.1	15.1	9.5	41.3	45.9	42.8	31.5	39.0	47.7
Malaysia	15.0	8.3	9.0	41.5	46.8	40.4	43.5	44.9	50.6
Thailand	10.0	8.5	10.5	37.2	36.8	36.8	52.8	54.7	52.7
Philippines	21.9	14.0	11.3	34.5	34.5	31.4	43.6	51.6	57.3
Viet Nam	38.7	24.5	18.1	22.7	36.7	38.5	38.6	38.7	43.4
Indonesia	**19.4**	**15.6**	**13.7**	**39.1**	**45.9**	**42.9**	**41.5**	**38.5**	**43.3**
Country	**Percentage of employment**								
	Agriculture			**Industry**			**Services**		
	1990	**2000**	**2013**	**1990**	**2000**	**2013**	**1990**	**2000**	**2013**
China, People's Republic of	60.1	50.0	29.5	13.3	22.5	29.9	26.6	27.5	40.6
Malaysia	26.0	16.7	13.0	20.5	23.8	17.6	53.5	59.5	69.4
Thailand	63.3	44.2	41.7	9.9	15.0	15.0	26.7	40.8	43.2
Philippines	44.9	37.1	31.0	10.6	10.4	8.9	44.4	52.5	60.0
Viet Nam	72.1	64.4	46.8	8.8	10.1	14.5	19.0	25.5	38.7
Indonesia	**55.9**	**45.3**	**35.0**	**10.8**	**13.5**	**14.3**	**33.3**	**41.2**	**50.6**

GDP = gross domestic product.
Source: Asian Development Bank, SBDS.

Table A3.2: Number of Workers, Hours Worked, and Real Wages, Indonesia, 2001–2015

	No. of Workers (m)		Mean Hours Worked		Mean Real Wages (Rp/hr)[a]			Growth in Real Wages* (% per annum)	
	2001	2015	2001	2015	2001	2010	2015	2001–2010	2010–2015
Sector									
Agriculture	6.4	8.7	36.8	36.1	4,769	5,337	7,056	1.3	5.6
Industry	11.7	19.8	46.2	45.0	7,235	8,166	10,156	1.3	4.4
All services	14.5	28.5	44.4	43.4	9,903	11,083	12,516	1.3	2.4
Total	32.7	57.0	43.6	42.8	7,965	9,044	10,851	1.4	3.6
Main Industries									
Manufacturing	8.0	10.9	46.2	44.7	7,173	7,926	10,032	1.1	4.7
Construction	3.0	7.6	46.7	45.5	6,574	7,405	9,226	1.3	4.4
Trade, hotels, & restaurants	3.2	7.8	49.9	48.7	6,402	7,221	8,367	1.3	2.9
Other services	8.7	15.1	41.4	39.8	10,988	12,483	14,046	1.4	2.4

hr = hour, m = million.
[a] 2015, prices and nominal wages deflated by the national CPI.
Sources: BPS, National Labor Force Survey [SAKERNAS], 2001, 2010, and 2015.

Table A3.3: Mincerian Earnings Regression, Indonesia, 2015

Ln (Wage)	I	II	III
Age	0.0291	0.0289	0.0272
Age Squared	-0.0003	-0.0003	-0.0003
Males	0.1575	0.1911	0.1768
Years of Schooling Completed	0.0613	0.0496	0.0456
Married	0.1317	0.1317	0.1420
Ever Married	-0.0322*	-0.0407*	-0.0123*
Sumatra	0.1867	0.1749	0.1809
Kalimantan	0.3357	0.3226	0.3170
Sulawesi	0.1603	0.1514	0.1515
Other Island	0.0404*	0.0188*	0.0147*
Greater Jakarta	0.3298	0.3018	0.2992
Greater Surabaya	0.1089*	0.1415*	0.1401*
Other Urban	-0.0554	-0.0552	-0.0497
At School Formal	0.0992*	0.0575*	0.0331*
At School Informal	0.1052*	0.2687*	0.1396*
Worked More than 5 Years	0.0760	0.0478*	0.0654*
Regular Worker	0.1146	0.1036	0.1139
Agriculture	-0.1710		-0.1647
Mining	0.0410*		0.0176*
Manufacturing	-0.1156		-0.1133
Electricity	-0.1262*		-0.1118*
Trade	-0.2617		-0.2467
Transport	-0.1610		-0.1590
Finance	-0.0851*		-0.2050
Service	-0.2738		-0.3781
Manager		0.8688	0.6520
Professional		0.3838	0.1559
Services & Sales		-0.1947	-0.2571
Other		0.0218*	-0.2647
Constant	8.7267	8.6635	9.1395
R^2	0.1493	0.1620	0.1757
No. of Observations	6,721	6,721	6,721

* = not significant at the 5% level, ln = natural logarithm
Source: BPS, National Labor Force Survey [SAKERNAS], 2015.

Reference Categories for Mincerian Regression Equation:

- Female for gender
- Single for marital status
- Java–Bali for region
- Rural areas for "urban-ness"
- No school or no school anymore for formal schooling
- Work for less than 5 years for security of employment
- Casual workers for status
- Construction for industry
- Clerical for occupation

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Chapter 4
Structural Transformation and the Release of Labor from Agriculture

Asep Suryahadi, Joseph Marshan, and Veto Tyas Indrio

4.1. Introduction

Structural transformation refers to changes in the structure of an economy as it develops from a low- to a high-income level. The economic structure is measured mainly by the sectoral composition of its gross domestic product (GDP) and employment. At the early stage of development, both the GDP and employment compositions of an economy are dominated by the agriculture sector. As the economy develops, both the GDP and employment compositions shift away from agriculture to industry and then to services.

In many developing countries in Asia, the shifting of economic activities from agriculture to industry and services has had five general characteristics. First, the agriculture share declines faster in terms of output than employment. Second, growth of agricultural productivity is significantly higher than in developing countries in other regions. Third, this also applies to land productivity. Fourth, since the early 1960s, the production of traditional crops has increased significantly, resulting from technological change. Fifth, agriculture has shifted to higher-value products (Briones and Felipe 2013).

Indonesia is no stranger to these general characteristics. In relation to the first one, this chapter aims to investigate the lagging employment transformation, despite the rapid sectoral shift in output terms. While there are many studies on how Indonesia's economy has shifted from agriculture to services, limited discussions are available on employment share transformation. Despite the fact of increasing formal sector employment, Manning and Purnagunawan (2016) show that Indonesia did not experience a sustainable decline in agricultural employment followed by improved productivity in agriculture. They also find that labor wages in agriculture are at the bottom of

the distribution, and that jobs in the informal sector have not declined sharply. Those three indicators imply that Lewis' turning point hypothesis (Lewis 1954) might not be observable in the Indonesian case. In fact, this finding motivates further research to better understand the process of labor market change. The issue of employment transition also has a special place in discourse about development, as it is an integral part of the role of structural transformation in poverty reduction (Vollrath 2009, Teal 2011).

This chapter's contribution is the first effort to reveal the pattern of employment transformation using a long-term longitudinal survey, the Indonesia Family Life Survey (IFLS).[1] Utilizing this dataset, we have generated matrixes of employment transformation for a 17-year period. The chapter also looks at both micro-level variables (e.g., individual or household characteristics) and macro-level variables (government policies, labor market indicators, etc.) that may influence people who move out to other employment sectors as well as those who stay in their original sectors.

The rest of the chapter is structured as follows. Section 2 discusses Indonesian structural transformation and its theoretical framework. Section 3 describes the data and methods used in the analysis. Section 4 discusses the pattern of structural transformation in employment that has taken place in Indonesia. Section 5 concludes and offers some policy recommendations based on the insights that emerge from the results.

4.2. Structural Transformation

4.2.1. Structural Transformation in Indonesia

Over the long run, significant structural transformation is evident in the Indonesian economy. In 1980, the contribution of the agriculture sector to GDP was 24%, while its contribution to employment was 56.4%. By 2014, the contribution of agriculture to GDP had diminished to 13.3% and to employment, it was 34.3%. During the same period, industry's contribution to GDP was relatively stable at 41.7% in 1980 and 41.9% in 2014, while industry contribution to employment had increased from 13.1% to 21.0%. Meanwhile, the contribution of the services sector to GDP had increased significantly, from 34.3% to 42.3%, and to employment, from 30.4% to 44.8%.

Compared with "Asian miracle" economies such as Japan; the Republic of Korea; and Taipei,China, the pace of employment transition in Indonesia has been rather slow in the

[1] Rand Corporation (various years).

last 2 decades.[2] The annual decline of agriculture's employment share ranged between 2.5% and 6% in the Republic of Korea and Taipei,China (Manning and Purnagunawan 2016). Even compared with other Southeast Asian countries such as Viet Nam, Malaysia, and Thailand, Indonesia still fell behind in terms of the decline in the share of agricultural employment.

If we further stretch the time horizon and focus more on agriculture, as indicated in Table 4.1, unbalanced structural transformation figures for Indonesia are even more evident. From 1967 to 2014, the share of agriculture in GDP had fallen by 38.1 percentage points or proportionally about 74% of its share in 1967. Meanwhile, during the same period, the employment share fell proportionally by only 50%. Consequently, the agriculture sector's GDP to employment ratio experienced a greater decline than in the nonagriculture sector.

Table 4.1: Structural Transformation in Indonesia (%)

Sector	Indicator	1967	2014	Percentage Point Change	Change from 1967 Level
Agriculture	Share of GDP	51.4	13.3	-38.1	-74
	Share of employment	69.0	34.3	-34.7	-50
	GDP/employment ratio	0.75	0.39	-0.36	-47
Nonagriculture	Share of GDP	48.6	86.7	38.1	78
	Share of employment	31.0	65.7	34.7	119
	GDP/employment ratio	1.57	1.32	-0.25	-15.8

GDP = gross domestic product.
Sources: For GDP data, World Bank. World Bank Open Data. data.worldbank.org (accessed 26 June 2016); for employment data, Sandri et al. (2007) and BPS (various years) Statistical Yearbook of Indonesia 2014.

Beyond the concerning figure of a sharp decline in agriculture's GDP to employment ratio, the issue of poverty is even more worrying. Since poverty was first officially recorded in 1976, Indonesia undoubtedly succeeded in cutting the poverty level. Table 4.2 suggests that rural poverty indeed has declined quite rapidly. However, the gap between rural and urban poverty rates has grown wider. This cannot be separated from the fact that a large share of poor people in rural areas work mostly in agriculture.

Table 4.2: Poverty Rate in Indonesia, 1976–2013 (%)

	1976	1996	2013
National	40.1	24.20	11.47
Rural	40.4	25.72	14.42
Urban	38.8	21.92	8.52
Share of Poor People in Rural Areas (%)	82	72	63
Share of Poor People in Agriculture (%)	~70	68.5	60

Sources: BPS. Number of Poor People. Percentage of Poor People and the Poverty Line, 1970–2017 (accessed 26 June 2016); and Suryahadi et al. (2009).

[2] See Briones and Felipe (2013), Manning and Purnagunawan (2016), and Athukorala and Wei (2015).

The share of poor people in rural areas has significantly declined, but the share of poor people in agriculture has not changed as much. Combining these two facts, it is quite likely that one of the reasons for the widening gap between urban and rural poverty rates is the declining GDP to employment ratio of the agriculture sector.

Previous studies on poverty reduction in Indonesia suggest the importance of employment transformation on poverty reduction. Suryahadi et al. (2012) found that growth of the services sector had the greatest impact on reducing poverty in both rural and urban areas. However, as mentioned earlier, the transformation must also be led by improving agricultural productivity in the first place, since agricultural growth remains a significant contributor to poverty reduction in rural areas (Suryahadi and Hadiwidjaja 2011). Improving productivity in agriculture while maintaining rural services growth to support the agriculture sector can be seen as two sides of the same coin. By following the same households over a long period, the present study expected to uncover the dynamics of employment and livelihood in Indonesian households.

Labor policy in Indonesia is codified in Labor Law No. 13/2003, which has institutionalized minimum wages, hiring and firing mechanisms, contract work, severance pay, and outsourcing. These labor market institutions have an impact on employers' discretion over the size and composition of the workforce, reducing labor market flexibility (Manning 2004). As the labor market becomes more rigid, labor-intensive investments are hampered and employers tend to adopt more capital- and skill-intensive technologies, leading to a decrease in demand for unskilled workers, who constitute the majority of the poor. Thus, labor policies in Indonesia may have had adverse effects on employment transformation.

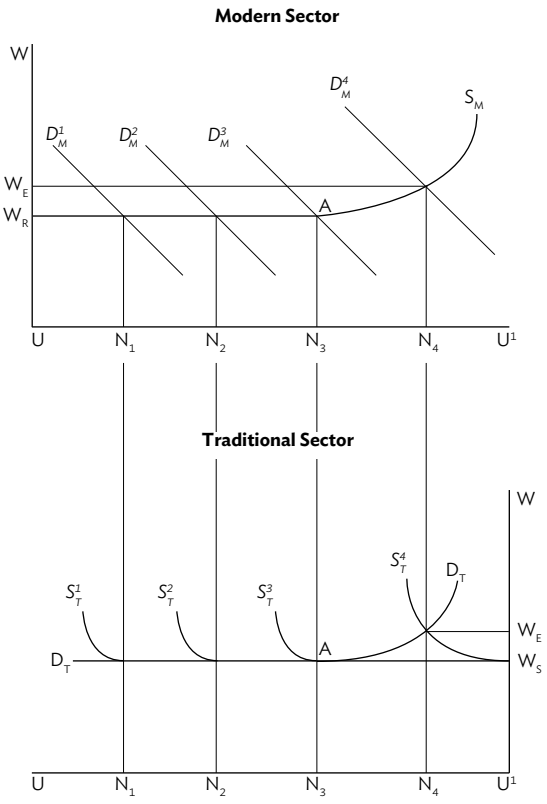
4.2.2. Theoretical Review

Lewis's (1954) seminal work on the unlimited labor supply hypothesis, followed by a series of important publications in the field (Ranis and Fei 1961, Lewis 1972), is the starting point for the theoretical framework adopted in this chapter. The main idea of the hypothesis can be summarized as follows: A developing country starts with the traditional economy, i.e., rural farm activities with an abundant low-skilled labor supply. At this stage, economic growth relies on the presence of cheap labor. As the economy grows, real wages in the traditional sector rise to find a new equilibrium as labor supply flows from the traditional to modern sectors such as industries and services. It is then expected that a "turning point" will be realized, where the economy shifts to more capital- and skill-intensive activities.

How this dual labor market theory works is illustrated in Figure 4.1, adapted from Manning (1995) and Suryahadi (1998). Let the horizontal axis U ranging to U' in both parts of the figure represent the stock of unskilled labor in the economy, and the vertical axis *W* is the real wage. The supply of unskilled labor in the modern sector is represented by the curve $W_R S_M$, which has a flat segment along $W_R A$, representing the reservation wage level W_R. In the traditional sector, the demand for unskilled labor is represented by the curve $D_T D_T$, which has a flat segment from the left up to point A, representing the subsistence wage level W_S. The level of wages in the modern sector, W_R, is higher than the subsistence level of wages in the traditional sector, W_S, as a premium to induce workers to migrate from the traditional to the modern sector.[3]

Let demand for unskilled labor in the modern sector be D_M^1, which determines the number of unskilled workers employed with level of wages W_R. Meanwhile, the number of the unskilled who are in the traditional sector is N_1U', and they receive wages W_S. A shift in the demand curve to D_M^2 will incentivize workers to move to the modern sector.[4] This would yield a decrease in the supply of unskilled labor in the traditional sector, measured by the shifting of $S_T^1 W_S$ to $S_T^2 W_S$. It would immediately increase the number of unskilled workers in the modern sector by UN_2 while reducing the number who stay in the traditional sector by N_2U'. The important part of the dynamics at this stage is that the respective wages received are unchanged.

Figure 4.1: Dual Labor Market



Sources: Manning (1995) and Suryahadi (1998).

[3] The wage levels cannot be lower than W_R in the modern sector and W_S in the traditional sector, because there are minimum wage levels below which workers will not accept employment.

[4] Lewis (1954) assumed that the modern sector expansion is a result of reinvested profits.

If the modern sector expands continuously, obviously the demand for unskilled labor D_M^3 will increase. This will cause a temporary rise in real wages for those in the modern sector. But it will be followed by a flow of workers from the traditional to the modern sector. In the end, the market will clear and real wages will remain unchanged. As the demand for unskilled labor in the modern sector shifts to D_M^4, real wages will finally increase. This will be achieved as a significant proportion of unskilled labor, UN_4, work in the modern sector, leaving only N_4U' in the traditional sector. Under perfect labor mobility, the market will clear, and both modern and traditional workers will receive W_E. The previous equilibrium at point A is then referred to as the turning point.

The theory itself has been the subject of challenges from both the empirical and theoretical framework perspectives. Several critiques have arisen, including the following: (1) What the so-called "modern economy" is based on may be unskilled labor-saving technological change; in which case, wages and employment of unskilled labor are unlikely to change (Todaro 1989). (2) Human capital accumulation differs across sectors (Buera and Kaboski 2009). (3) In traditional societies, "hiring and firing" mechanisms, or wage-bargaining mechanisms to achieve neoclassical equilibrium, seem unrealistic, because they are subject to family and communal arrangements (Hayami and Kikuchi 1982, Ranis 2012). The basic model has limited power to explain some empirical puzzles. One of them is the lagging employment transformation puzzle, wherein many developing countries experience significant transformation in terms of output but stagnation in terms of employment share (Lavopa 2015). Based on the aforementioned critiques, it emerges that individual, household, and community characteristics have the potential to explain the employment transformation puzzle.

4.2.3. Determinants of Employment Transformation

This chapter focuses on pull and push factors in the release of workers from rural farm activities. From developed country experience, as a comparison, Dennis and Iscan (2007) showed that increasing productivity growth in agriculture explains out-migration from agriculture in the United States. One important factor in increasing productivity growth in agriculture is mechanization (Yang and Zhu 2013). Moreover, some authors such as Johnson (2000) also believe that increasing agricultural productivity will increase rural nonfarm activities and livelihood diversification. Beside productivity, wage differences between sectors and competitiveness of farmers are two important aspects of labor transition (Manning and Purnagunawan 2016, Foster and Rosenzweig 2007). A lesser, yet important, aspect that has been discussed in some empirical works on labor transformation is individual-level characteristics that might affect structural transformation, such as human capital (Foster and Rosenzweig

1995). These individual characteristics can also be seen as part of the social mobility cost that hinders the labor transformation process, in addition to macro-level aspects (World Bank 2016).

4.3. Data and Methodology

4.3.1. Identification Strategy

This chapter consists of two main analyses. First, we start by providing the story of longer-term employment transformation in Indonesia. We build employment transition matrixes disaggregated by several individual and household characteristics to identify who was able to move out and who stayed. The second main analysis is a more contemporary investigation (2007–2014) to gain more policy insights.

To identify the determinants of employment transformation of workers who started in the rural agriculture sector, we employ a multinomial logit model.[5] The dependent variables are a set of categories of those who moved to rural nonfarm activities, urban farm activities, and urban nonfarm activities by 2014. The probability is relative to those who stayed in rural farm activities. The independent variables are the initial individual characteristics and aggregate variables at the district and province levels that may affect individual worker's decisions to move out of the rural agriculture sector.

The model is formulated as follows:

$$\eta_{i,j,p} = \log \frac{\theta_{i,j,p}}{\theta_{i,J,p}} = \alpha_j + \boldsymbol{x}' \beta_{i,j,p} + z' \delta_p + \varepsilon_{ij}$$

where there are J categories of outcome η for each individual i, living in an area (province) p and a vector of potential determinant $\boldsymbol{x}$ that may affect the possibilities of individual i to be at outcome η. The outcome variables are the status of someone who started working in rural agriculture with a possible four (J=4) outcomes at the end period: stay in rural agriculture, move out to rural nonfarm activities (to industry and services), move out to urban farm activities, and move out to urban nonfarm activities. Hence, the probabilities are defined as

$$\theta_{i,j,p} = \frac{e\eta_{i,j}}{\sum_{k=1}^{J} e^{\eta_{i,k}}}$$

[5] For a detailed discussion of the multinomial logit model, refer to Wooldridge (2015).

We include more "intermediary" variables beside individual and household characteristics at the province level, such as labor market environment, and labor-related policies in agriculture, denoted as vector $\boldsymbol{z}$, which might change over time.

4.3.2. Data Description

We use a series of the IFLS dataset as the main source of data. The IFLS is a longitudinal household survey that represents 83% of the total population of Indonesia. First conducted in 1993, the latest survey in 2014, known as IFLS5, provides observations over 21 years at the household, individual, and community levels. The IFLS sample frame follows the National Socioeconomic Survey (SUSENAS) 1993 sample frame. The IFLS collected detailed household information, not only on consumption but also on labor market activities. Another advantage of using the IFLS is that it also collects health care information and data on community facilities that are both absent from other national datasets such as the SUSENAS and the SAKERNAS—both available from Statistics Indonesia (BPS).

We use IFLS2, the 1997 survey, as the baseline for our study. The two first IFLSs (IFLS1 and IFLS2) did not include a direct question on main occupation in the labor module; instead they asked about the type of activities and what was produced. However, sector of employment is available for 1997 from IFLS3, which was conducted in 2000. Unfortunately, it is not possible to extract the 1993 information from IFLS3. We will later argue that the structure of the labor market in 1997 that we gleaned from IFLS3 is comparable to other labor market data in the same year from the BPS.

Using the IFLS, which has a more general purpose, to analyze the labor market may raise concerns about how well it will fit in with the sampling frames of other household surveys, especially SAKERNAS, which is designed specifically for the analysis of labor issues. Consistency between the IFLS and SAKERNAS has been discussed thoroughly by Dong (2016), who believes that, although there are differences in distribution by age and education as well as in wages, the IFLS remains consistent with SAKERNAS in the context of the sectoral proportion of workers, which is the most important feature for the analysis in this chapter. Potential problems may arise due to significant differences in the age and education distributions, if we try to estimate the Mincer equation to get returns to education, for example, in which SAKERNAS and the IFLS will provide different results, as Dong (2016) discussed. However, the issue is beyond the scope of this chapter, which focuses on employment choice. From Table 4.3, we can observe that, indeed, simply comparing labor market structure between the SAKERNAS and IFLS samples in each corresponding year shows a high level of consistency in 1997

but divergence over time. This is expected, given the nature of IFLS data collection as a panel survey, which is based on the 1993 sample and then tracks each original household and its descendants through the following survey rounds, without adding people outside the original sample.

Table 4.3: Sectoral Composition of Employment Based on SAKERNAS and IFLS Data

National Labor Force Survey (SAKERNAS)					
Sector	**1993**	**1997**	**2000**	**2007**	**2014**
Agriculture	0.50	0.41	0.45	0.44	0.35
Industry	0.16	0.19	0.17	0.18	0.21
Trade and Services	0.34	0.40	0.37	0.38	0.45
Indonesia Family Life Survey (IFLS) cross section[a]					
Sector	**1993**	**1997**	**2000**	**2007**	**2014**
Agriculture	...	0.42	0.36	0.35	0.26
Industry	...	0.18	0.19	0.19	0.27
Trade and Services	...	0.40	0.45	0.46	0.47

.. = data not available.
[a] Weighted using cross-section weight with attrition.
Source: Authors calculations based on data from Rand Corporation (various years) Indonesia Family Life Survey; and BPS (various issues) SAKERNAS.

Because we can observe that the employment structure in 1997 is almost identical between SAKERNAS and IFLS, analyzing the 1997 cohort provides quite comparable and valid results. In addition, the IFLS and SAKERNAS also share the same definitions of work (Dong 2016). This gives external validity for the results that emerge from this study.

Finally, for the labor transition matrixes, we were able to build a panel data of 8,474 individuals who were covered in both the 1997 and 2014 surveys. We limited our observation to 5,548 individuals who completed the labor questionnaire in both years. For the more contemporary analysis of determinants (2007–2014), we found 16,293 individuals aged 15 and above in 2007 who were still present in the 2014 dataset. For the analysis of determinants, we took a subsample of 3,055 individuals who worked in rural agriculture in 2007. In the regression, we dropped 2 individuals due to missing individual information, which yielded a final sample of 3,053. In addition to individual characteristics from the IFLS, we also collected data on external "intermediary" variables, such as changes in plantation land area, an agricultural mechanization proxy; the farmer terms of trade; and changes in the wage gap in the labor market. The variable definitions are discussed in the following subsection.

4.3.3. Variable Definitions and Hypothesis

This chapter examines the dynamics of employment transformation over the longer term for those who are in the labor force, according to the BPS definition. We investigate the factors that drive workers to move out of rural agriculture in subsequent periods. In the analysis, employment is classified into three major sectors—agriculture, industry, and services—and broken down into rural or urban location, thus resulting in six sectors.

We also examine other individual characteristics such as age, gender, working status, educational attainment, and poverty status in 1997. This basic information on individual characteristics is used to shed some light on what the key factors are that drive workers to move from the traditional to more modern sectors. We also analyze information on the second sector of work in nonfarm activities, which is defined as the sector of work on which the workers spend most of their time beside the main occupation. For convenience we sometimes refer to the rural or urban sector of work as the individual's job or occupation.

For the second part of the analysis, which looks at a more contemporary time frame (2007–2014), we collected several additional variables that might affect the decision to move out of rural agriculture, in addition to some common individual characteristics such as age, gender, education, and marital status. The first set of variables contains information on initial household-level (in 2007) characteristics such as landownership, defined as whether the individual worker lived in a household that owned a farm or land. We would expect that having their own land would hold people in agriculture (Galor et al. 2009). We also use a variable that indicates whether an individual was receiving an unconditional cash transfer. This variable is rather ambiguous, because on the one hand it may indicate a low-income family, but on the other hand it might provide additional cash to move out to another sector. Next, we employed a variable that indicates whether an individual came from a farming household with horticulture as the main activity. This variable is hypothesized to have a negative effect on the move out of agriculture. Horticulture is more remunerative and encourages more modern technology compared with food crops. These variables are available in the IFLS datasets.

The second set of explanatory variables includes time-invariant variables from the provincial and district levels that explain the dynamics of the market environment and labor policies related to agriculture in 2007–2014. We used the average income difference between services and agriculture in 2007–2014 from SAKERNAS at the district level. This variable seeks to capture the incentive to move out of farm activities.

We also used the ratio of number of two-wheeled tractors to number of agricultural households at the province level (for every 1,000 households). The number of two-wheeled tractors is based on government assistance for tractor purchases from 2007 to 2014, from data obtained from the Ministry of Agriculture. The data cover all subsidized tractors distributed and do not reflect the real stock of tractors owned by farmers. Using this variable, we were able to estimate the marginal effect of government in-kind assistance on employment transition.

From the same ministry, we also collected data on accumulated expansion of plantations by province. Expansion of plantations as part of rural farm activities can hold people in the agriculture sector. The last variable we employed is the average change in the farmer terms of trade (*nilai tukar petani*—NTP) from 2007 to 2014 collected from the BPS (2007-2014).[6] The NTP is an index that reflects the ratio between prices received and paid by farmers, normalized to 100 if the price received equals the price paid. An NTP greater than 100 indicates that farmers gain a surplus between consumption and production of an agricultural product. We expect to see positive changes in the NTP corresponding to stronger incentives to stay in agriculture.

4.4. Pattern and Determinants of Structural Transformation in Employment

4.4.1. Long-Term Patterns of Structural Transformation in the Main Sector of Employment

During the last 2 decades, there were significant shifts in workers' jobs between the rural and urban sectors. Table 4.4 presents the employment transformation matrix from 1997 to 2014, in which the economy is divided into six sectors, with rural and urban areas subdivided into agriculture, industry, and services sectors. The diagonal cells indicate "the stayers"—people who did not change their sector of employment during the period. In addition, the table also shows unemployment, housekeeping, and status outside the labor market.

The table indicates that most people who started working in rural agriculture stayed in the sector during the 17-year period or moved to housekeeping and out of the labor market. Among those who were able to move to another sector, most remained engaged in rural activities. In contrast, about one-third of people who worked in rural industry and rural services were able to move out to urban activities, mainly to the services sector.

[6] BPS (various years). Statistical Yearbook of Indonesia.

These findings show that there are limited options for people who work in rural agriculture to move out to urban sectors. One possible explanation of this phenomenon is the lower productivity and smaller initial capital of people who work in rural agriculture compared with those who work in other sectors in rural areas. The absence of capital seems to have entrapped them in low-productivity activities "semi" permanently. In fact, people who work in rural agriculture are also less likely to shift to rural services compared with those who work in rural industry. Again, this depicts very well how people who started in rural agriculture have limited opportunities even within rural areas.

Unsurprisingly, most of the people who started working in urban economies stayed in urban areas during the 17-year period. As can be seen in Table 4.4, almost half of the people who started working in urban services stayed in the same sector. Furthermore, the majority of those who started in agriculture and industry chose to move to services. This indicates that the urban services sector plays a role as the ultimate sector of employment for most people in urban areas.

Another interesting finding is that the transition from labor market to nonlabor market activities, particularly housekeeping, is quite significant. This is possibly due to stages in the life cycle, aging, and women's changes in marital status, and will be investigated further in the following section by looking at the gender composition of workers.

Table 4.4: Matrix of Employment Transformation, 1997–2014

	Main Job in 2014										
Main Job in 1997	Rural Agriculture	Rural Industry	Rural Services	Urban Agriculture	Urban Industry	Urban Services	Unemployed	Housekeeping	Out of Labor Market	Total	Number
Rural Agriculture	35.06	16.09	13.86	6.27	2.91	4.71	0.04	9.50	11.49	100	2,821
Rural Industry	15.23	17.38	17.97	6.84	10.35	17.97	0.59	8.20	5.47	100	512
Rural Services	17.41	10.95	26.12	5.78	5.60	17.07	0.17	8.45	8.45	100	1,160
Urban Agriculture	3.33	2.00	2.50	24.13	11.65	30.45	0.17	11.48	14.31	100	601
Urban Industry	0.68	1.23	1.77	6.96	25.10	43.79	0.27	13.23	6.96	100	733
Urban Services	0.78	0.54	2.05	8.43	16.02	45.84	0.18	13.67	12.47	100	1,660
Unemployed	8.19	7.60	8.77	9.94	15.79	33.33	1.17	12.28	2.92	100	171
Housekeeping	6.06	7.32	10.61	4.29	10.86	21.46	0.00	34.60	4.80	100	396
Out of Labor Market	6.19	4.76	10.48	8.57	15.71	33.81	0.48	15.95	4.05	100	420

Source: Authors' calculations based on data from Rand Corporation (various years), Indonesia Family Life Survey.

4.4.2. Characteristics of Workers Who Switched Main Employment

From this point we will consider only rural employment and what characteristics may increase or decrease the probability for an individual worker to move from rural agriculture to another sector. We will start by looking at welfare indicators, with poverty status as a proxy. As mentioned earlier, lack of assets perhaps limits individual ability to look for other employment. Indeed, Table 4.5 shows that the nonpoor individuals who started in rural agriculture have slightly better opportunities to move out to services in both rural and urban areas. However, the difference with the poor is not large.

Table 4.5: Matrix of Employment Transformation by Poverty Status, 1997–2014

Main Job in 1997 and Poverty Status	Main Job in 2014										
	Rural Agriculture	Rural Industry	Rural Services	Urban Agriculture	Urban Industry	Urban Services	Unemployed	Housekeeping	Out of Labor Market	Total	Number
Rural Agriculture											
Not poor	34.20	16.53	14.20	6.27	2.76	5.27	0.00	9.60	11.12	100	2,104
Poor	37.57	14.80	12.85	6.28	3.35	3.07	0.14	9.22	12.57	100	715
Rural Industry											
Not poor	15.06	17.65	18.35	7.29	10.12	18.35	0.71	7.53	4.94	100	425
Poor	16.09	16.09	16.09	4.60	11.49	16.09	0.00	11.49	8.05	100	87
Rural Services											
Not poor	16.89	10.58	26.21	6.12	5.73	16.89	0.00	9.03	8.54	100	1,030
Poor	21.54	13.85	25.38	3.08	4.62	18.46	1.54	3.85	7.69	100	130

Source: Authors' calculations using data from Rand Corporation (various years), Indonesia Family Life Survey.

People who started as poor in rural industry and rural services were more likely to move out to urban industry and urban services than those who started as being not poor. This indicates that being in industry or services presents more opportunities to move to more productive sectors rather than starting from rural agriculture. It gives a hint about how much more difficult and perhaps costly it is for people in rural agriculture to move to more productive sectors. In other words, if there is a transformation path in the labor market, people who started in agriculture in rural areas may take a longer and perhaps more costly path.

Because "rural" and "urban" are defined as the places where people live, this finding may underestimate people who worked in services or industry in urban areas while staying in rural areas. In rural areas that have better access to urban centers, given geographical advantages or better infrastructure, seasonal work in urban areas is possible.

Table 4.6 tries to capture the gender perspective of employment transformation. In the beginning of this section, we hypothesized that a significant proportion of individuals who transformed to nonlabor market activities were female. This is confirmed by Table 4.6, which shows that a significant proportion of female workers who started working in rural agriculture moved to housekeeping activities.

In contrast, less than 1% of male workers who started working in rural agriculture turned to housekeeping; however, both genders have similar probabilities of moving out of the labor market due to aging or perhaps physical condition (this will be confirmed later after we look at a cohort comparison). This situation is not unique to agriculture, but exists also in rural services and industry. This finding lends support to studies that have found stagnation in female labor participation in Indonesia (Schaner and Das 2016).

Table 4.6: Matrix of Employment Transformation by Gender, 1997–2014

Main Job in 1997 and Gender	Main Job In 2014										
	Rural Agriculture	Rural Industry	Rural Services	Urban Agriculture	Urban Industry	Urban Services	Unemployed	Housekeeping	Out of Labor Market	Total	Number
Rural Agriculture											
Male	39.62	17.87	13.37	7.25	3.80	5.14	0.07	0.91	11.82	100	1,419
Female	30.43	14.29	14.36	5.29	2.00	4.29	0.00	18.21	11.14	100	1,400
Rural Industry											
Male	17.69	16.67	18.03	8.84	12.24	19.05	1.02	1.36	5.10	100	294
Female	11.93	18.35	17.89	4.13	7.80	16.51	0.00	17.43	5.96	100	218
Rural Services											
Male	20.45	11.54	22.73	6.47	7.69	19.06	0.35	1.40	10.31	100	572
Female	14.46	10.37	29.42	5.10	3.57	15.14	0.00	15.31	6.63	100	588

Source: Authors' calculations using data from Rand Corporation (various years), Indonesia Family Life Survey.

Table 4.7 summarizes employment transition for workers in rural areas by educational attainment. The results indicate that the higher the educational attainment, the higher the probability to move to other sectors and to migrate to urban areas. This is true even for those who started working in rural agriculture, indicated by the fact that higher educational attainment leads to a lower proportion of people who stay in rural agriculture. The probability of moving to urban industry or services tends to be higher for those who have a higher educational level if they originally worked in rural industry or services.

Table 4.7: Matrix of Employment Transformation by Educational Attainment, 1997–2014

Main Job in 1997 and Completed Education	Main Job In 2014										
	Rural Agriculture	Rural Industry	Rural Services	Urban Agriculture	Urban Industry	Urban Services	Unemployed	Housekeeping	Out of Labor Market	Total	Number
Rural Agriculture											
Not completed primary schooling	34.30	10.98	11.43	4.27	1.37	3.51	0.00	12.04	22.10	100	656
Primary	36.57	17.26	13.81	6.44	2.98	4.27	0.06	9.19	9.30	100	1,707
Lower secondary	33.97	22.90	15.65	4.58	3.82	6.49	0.00	8.02	4.58	100	262
Higher secondary	25.70	15.08	17.32	15.08	6.70	11.17	0.00	5.59	3.35	100	179
Diploma/ university	26.67	0.00	53.33	0.00	0.00	0.00	0.00	6.67	13.33	100	15
Rural Industry											
Not completed primary schooling	14.52	24.19	17.74	4.84	4.84	9.68	0.00	6.45	17.74	100	62
Primary	17.15	17.8	19.42	6.15	7.77	16.83	0.97	9.06	4.85	100	309
Lower secondary	11.25	16.25	16.25	6.25	17.50	22.50	0.00	7.50	2.50	100	80
Higher secondary	10.71	10.71	10.71	12.5	19.64	28.57	0.00	7.14	0.00	100	56
Diploma/ university	20.00	0.00	40.00	20.00	20.00	0.00	0.00	0.00	0.00	100	5
Rural Services											
Not completed primary schooling	14.93	4.48	29.85	3.73	6.72	13.43	0.00	11.94	14.93	100	134
Primary	15.76	12.71	27.97	4.41	5.76	17.63	0.00	9.32	6.44	100	590
Lower secondary	10.22	18.25	24.09	4.38	5.84	21.90	1.46	6.57	7.30	100	137
Higher secondary	19.53	9.30	20.47	9.30	5.12	18.60	0.00	7.44	10.23	100	215
Diploma/ university	39.29	1.19	25.00	11.90	3.57	7.14	0.00	2.38	9.52	100	84

Source: Authors' calculations based on data from Rand Corporation (various years), Indonesia Family Life Survey.

Table 4.8 summarizes employment transformation for workers in rural areas by age cohort. As expected, younger workers have a higher tendency to move to other sectors and to urban areas. However, more dynamics can be seen in workers who started their main employment in rural industry or services. In each age group, the proportion of

Table 4.8: Matrix of Employment Transformation by Age, 1997–2014

Main Job in 1997 and Age	Main Job in 2014										
	Rural Agriculture	Rural Industry	Rural Services	Urban Agriculture	Urban Industry	Urban Services	Unemployed	Housekeeping	Out of Labor Market	Total	Number
Rural Agriculture											
1–15	21.15	28.85	25.00	1.92	5.77	5.77	0.00	7.69	3.85	100	52
16–30	33.91	19.62	19.62	5.48	4.04	6.20	0.00	9.24	1.59	100	691
31–45	39.26	18.22	14.61	7.57	2.90	4.84	0.09	8.71	3.79	100	1,136
46–60	34.82	11.61	9.04	5.40	2.16	4.18	0.00	11.74	21.05	100	741
61+	19.60	5.03	4.52	6.03	1.01	0.50	0.00	7.04	56.28	100	199
Rural Industry											
1–15	8.33	16.67	8.33	16.67	8.33	25.00	0.00	16.67	0.00	100	12
16–30	13.59	18.93	20.87	5.83	14.56	18.45	0.49	7.28	0.00	100	206
31–45	17.91	15.42	17.91	5.97	8.96	21.39	1.00	8.46	2.99	100	201
46–60	14.47	18.42	14.47	11.84	5.26	9.21	0.00	10.53	15.79	100	76
61+	11.76	17.65	5.88	0.00	0.00	5.88	0.00	0.00	58.82	100	17
Rural Services											
1–15	0.00	16.67	33.33	0.00	25.00	16.67	0.00	8.33	0.00	100	12
16–30	17.06	12.97	28.67	5.12	6.14	21.16	0.68	7.17	1.02	100	293
31–45	19.77	10.86	27.71	6.48	5.83	17.02	0.00	6.00	6.32	100	617
46–60	13.08	8.88	19.16	5.61	3.27	12.15	0.00	17.29	20.56	100	214
61+	8.33	4.17	12.50	0.00	4.17	12.50	0.00	8.33	50.00	100	24

Source: Authors' calculations based on data from Rand Corporation (various years), Indonesia Family Life Survey.

rural agricultural workers who did not move to other sectors is higher than in industry and services. Moreover, in rural services, age does not matter much, as older workers are apparently able to migrate to urban services.[7]

Finally, Table 4.9 shows employment transformation by working status in rural areas. People who were self-employed in rural agriculture have a higher probability of staying in rural agriculture. Perhaps this self-employment in agriculture is related to landholding, which implies higher returns from agricultural activities. However, a high incidence of staying in agriculture also occurred among family workers. In this case, it may indicate such because unpaid family workers cannot accumulate capital. However, it is also possible that many family workers were women, who tend to play a part-time role in family-based farming.

[7] However, considering that people who were older than 60 years old in 1997 were at least 77 years old in 2014, most of them were already out of the labor force in 2014.

Table 4.9: Matrix of Employment Transformation by Work Status, 1997–2014

Main Job in 1997 and Working Status	Main Job in 2014										
	Rural Agriculture	Rural Industry	Rural Services	Urban Agriculture	Urban Industry	Urban Services	Unemployed	Housekeeping	Out of Labor Market	Total	Number
Rural Agriculture											
Self-employed	39.49	17.96	11.68	6.10	2.79	4.53	0.00	4.62	12.82	100	1,147
Government worker	20.83	4.17	20.83	20.83	0.00	20.83	0.00	0.00	12.50	100	24
Private sector worker	32.29	14.31	14.13	8.07	4.95	6.24	0.18	9.54	9.91	100	543
Family worker	37.02	19.57	12.02	5.62	2.52	3.49	0.00	11.63	8.14	100	516
Rural Industry											
Self-employed	14.97	17.65	19.79	6.42	8.56	17.11	0.53	4.81	10.16	100	187
Government worker	20.00	0.00	20.00	20.00	20.00	20.00	0.00	0.00	0.00	100	5
Private sector worker	14.35	20.57	13.88	8.13	12.92	19.14	0.96	8.61	1.44	100	209
Family worker	22.22	11.11	22.22	0.00	4.44	22.22	0.00	13.33	4.44	100	45
Rural Services											
Self-employed	13.35	12.41	31.95	4.51	5.45	18.42	0.00	6.95	6.95	100	532
Government worker	34.18	7.65	19.39	7.65	1.02	10.71	0.00	4.59	14.8	100	196
Private sector worker	14.86	9.91	21.17	9.01	9.91	19.37	0.45	5.41	9.91	100	222
Family worker	18.06	15.28	27.78	4.17	4.17	12.50	1.39	11.11	5.56	100	72

Source: Authors' calculations based on data from Rand Corporation (various years), Indonesia Family Life Survey.

4.4.3. Structural Transformation in Main Employment among Younger Workers

Sectoral Composition of First Employment of Younger Workers. The labor market structure has changed dramatically for younger cohorts in Indonesia. Table 4.10 shows that the proportion of people who started working in rural agriculture in 2014 was only a quarter of those in 1997. The younger cohort workers have better access to nonagriculture sectors and choose mostly the urban services sector as their first place of employment.

This confirms previous findings by Allen (2016) that younger generations migrate to urban areas, leaving older cohorts in the traditional sector. This could worsen

Table 4.10: Employment Composition of New Entrants

Employment Sector	1997	2000	2007	2014
Rural Agriculture	38.36	37.90	26.12	11.63
Rural Industry	8.26	10.78	11.67	15.00
Rural Services	17.50	17.54	17.28	18.57
Urban Agriculture	4.07	3.52	3.74	5.19
Urban Industry	9.63	10.62	12.61	18.67
Urban Services	22.12	19.64	28.29	30.94
Total	**100.00**	**100.00**	**100.00**	**100.00**

Source: Authors' calculations based on data from Rand Corporation (various years), Indonesia Family Life Survey.

productivity in agriculture, not only in terms of productivity per worker but also through technological adaptation. Theoretical frameworks, later confirmed by some empirical works, have shown that lagging technology adaption or dispersion in rural areas worsens traditional economies even more.[8] In free market settings, this may even have a more destructive impact in developing countries, where traditional rural farm activities remain a large part of the economy.

Table 4.11 shows the education profile of new entrants to the labor market: Younger cohort workers have higher education attainment than the older cohort; however, very few of them chose agricultural work.

Table 4.11: Educational Profile of New Entrants to the Labor Market, 1997 and 2014

Educational Attainment	New Entrants in 1997	New Entrants in 2014
Not Completed Primary School	0.72	0.00
Primary School	51.81	17.22
Junior Secondary School	44.34	41.67
Senior Secondary & Above	3.13	41.11

Source: Authors' calculations based on data from Rand Corporation (various years), Indonesia Family Life Survey.

Pattern of Employment Transformation of Younger Workers. Table 4.12 shows the employment transformation for the younger cohort of workers who entered the labor market in 2007. Compared with Table 4.4, a smaller proportion of rural agricultural workers remained in the sector by 2014. Most of the young workers were able to move to other sectors within rural areas. However, there is no major difference in migration flows from rural to urban areas between the younger cohort and the older cohort. This implies that there is no speedier path for those who started in rural agriculture to move to urban sectors.

[8] See Bueara and Kaboski (2009) and Duarte and Restuccia (2010).

Table 4.12: Matrix of Employment Transformation of New Entrant Workers, 2007–2014

Main Job in 2007	Main Job in 2014										
	Rural Agriculture	Rural Industry	Rural Services	Urban Agriculture	Urban Industry	Urban Services	Unemployed	Housekeeping	Out of Labor Market	Total	Number
Rural Agriculture	20.00	22.86	22.86	0.00	8.57	5.71	0.00	11.43	8.57	100	3,590
Rural Industry	9.09	9.09	0.00	9.09	36.36	9.09	0.00	18.18	9.09	100	842
Rural Services	7.14	7.14	50.00	7.14	7.14	0.00	0.00	14.29	7.14	100	1,883
Urban Agriculture	0.00	0.00	0.00	0.00	0.00	50.00	0.00	0.00	50.00	100	680
Urban Industry	0.00	0.00	0.00	0.00	44.44	55.56	0.00	0.00	0.00	100	1,136
Urban Services	0.00	10.00	0.00	0.00	10.00	45.00	5.00	30.00	0.00	100	3,536
Unemployed	0.00	20.00	0.00	0.00	40.00	0.00	0.00	20.00	20.00	100	207
Housekeeping	3.85	3.85	3.85	0.00	11.54	15.38	0.00	57.69	0.00	100	2,828
Out of Labor Market	5.61	9.47	8.07	5.26	11.23	25.96	3.16	11.23	13.68	100	1,590

Source: Authors' calculations based on data from Rand Corporation (various years), Indonesia Family Life Survey.

4.4.4. Livelihood Diversification

In explaining employment transformation, it is very important to consider the role of second jobs. Shishko and Rostker (1976) and Stevens (1997) found that a second job has the potential to bridge employment transformation. It turns out that in Indonesia most individuals in rural areas have a second job. Low productivity and low returns push workers to take on an additional job to generate sufficient resources for living. On the other hand, most jobs in rural areas provide opportunities to perform a second job, because most of the jobs are informal, which allows more flexible time allocation compared with formal jobs in urban areas.

Table 4.13 shows the sectoral composition of second jobs. In rural areas, most second jobs are in agriculture regardless of the sector of primary jobs. This indicates that most people in rural areas, despite their main jobs, have some activities in the agriculture sector. This is also evidence of a lack of opportunities available outside agricultural activities for those who live in rural areas. Meanwhile, in urban areas, there is a concentration of people with a second job in urban services. This may be related to the easy entry and exit nature of the urban informal services sector.

Does having a second job provide better opportunities to move to more productive sectors? Table 4.14 compares employment transformation in rural areas between workers who had a second job in nonfarm activities and those who did not. The table shows that having a second job in nonfarm activities in 1997 slightly improved

opportunities for workers in rural agriculture to move to other sectors by 2014. For those who started in rural industry and rural services, having a second job in nonfarm activities improved their opportunities to move to urban sectors.

Table 4.13: Composition of Second Jobs in 1997

Primary Job	Second Job			
Rural	Rural Agriculture	Rural Industry	Rural Services	Total
Agriculture	61.68	14.56	24.42	100
Industry	71.30	8.50	20.15	100
Services	69.40	6.58	23.65	100
Urban	Urban Agriculture	Urban Industry	Urban Services	Total
Agriculture	45.12	18.29	36.58	100
Industry	26.40	21.70	51.90	100
Services	22.93	14.30	62.80	100

Source: Authors' calculations based on data from Rand Corporation (various years), Indonesia Family Life Survey.

Table 4.14: Matrix of Employment Transformation by Having a Second Job, 1997–2014

Main Job in 1997 and Having a Nonfarm Second Job	Main Job in 2014										
	Rural Agriculture	Rural Industry	Rural Services	Urban Agriculture	Urban Industry	Urban Services	Unemployed	Housekeeping	Out of Labor Market	Total	Number
Rural Agriculture											
2nd job	34.77	16.16	13.40	6.07	2.92	4.63	0.04	9.85	12.07	100	2,566
No 2nd job	37.94	15.42	18.58	8.30	2.77	5.53	0.00	5.93	5.53	100	253
Rural Industry											
2nd job	15.98	17.22	17.43	7.05	9.75	18.05	0.62	8.51	5.39	100	482
No 2nd job	3.33	20.00	26.67	3.33	20.00	16.67	0.00	3.33	6.67	100	30
Rural Services											
2nd job	18.10	10.82	25.65	5.60	5.69	16.42	0.19	8.96	8.58	100	1,072
No 2nd job	9.09	12.50	31.82	7.95	4.55	25.00	0.00	2.27	6.82	100	88

Source: Authors' calculations based on data from Rand Corporation (various years), Indonesia Family Life Survey.

4.4.5. Determinants of Structural Transformation in Employment

As discussed in section 3, to identify the determinants of employment transformation of workers who started in the rural agriculture sector, we employed a multinomial logit model. However, to obtain results that are more relevant to the current situation, in the analysis we focused on the most recent period of employment transformation in the data from 2007 to 2014.

We start the discussion by presenting the employment transformation dynamics during this period (Table 4.15), which in general shows a similarity with the long-term pattern for the same cohort from 1997 to 2014. People who started in agriculture

tended to stay in the same sector compared with those who worked in industry or services. One interesting finding is that the proportion of those who migrated to urban areas was well spread out in farm and nonfarm activities. From the same data (not shown in the table), about 20% of those who started in urban agriculture were able to move to urban services, but the number of people in urban agriculture was quite small.

Table 4.15: Matrix of Employment Transformation of Workers in Rural Sectors, 2007–2014

	Main Job in 2014									
Main Job in 2007	Rural Agriculture	Rural Industry	Rural Services	Urban Agriculture	Urban Industry	Urban Services	Unemployed	Housekeeping	Out of Labor Market	Total
Rural Agriculture	47.00	17.19	13.37	3.20	1.84	2.59	0.08	6.94	6.60	100
Rural Industry	11.28	18.76	17.81	2.97	8.55	12.35	0.59	7.13	3.21	100
Rural Services	13.49	11.15	28.25	3.03	4.78	11.74	0.05	8.39	3.98	100

Source: Authors' calculations based on data from Rand Corporation (various years), Indonesia Family Life Survey.

Of the total of 3,053 individuals who worked in rural agriculture in 2007, about 48% stayed in agriculture (see Appendix Table A4.1 at the end of this chapter). It also emerges (Appendix Table A4.2) that those who stayed in agriculture were older and less educated (higher proportion of never completing primary school). This is also not a surprising result, given what we already observed in the long-term transition matrix. However, more interesting results emerge from the multinomial logit results.

The multinomial results in Table 4.16 provide some insights about what pull and push factors affect the probability of rural agricultural workers moving out to other sectors. These factors consist of individual and household characteristics as well as the broader working environment and government policies. The coefficients reported in Table 4.16 can be interpreted, if significant, as factors that on average may increase (positive sign) or decrease (negative sign) the probability of moving out from rural agriculture to rural nonfarm, urban farm, or urban nonfarm activities, because the base employment status outcome is defined as staying in rural farm activities.

From the perspective of individual attributes, age and educational attainment have significant effects, while gender and marital status are only partly significant in regard to the probability of rural agricultural workers moving to rural and urban nonfarm activities. Older workers are less likely to move to nonfarm sectors in both rural and urban areas, but they are more likely to move to the urban farm sector. Male rural agricultural workers are less likely to move to rural nonfarm sectors, but gender emerges as not significant regarding the probability of moving out to either urban farm or urban nonfarm jobs.

Education does not matter much in rural economies, as none of the education variables has a significant coefficient on the probability of moving to rural nonfarm sectors. However, higher educational attainment improves the probability of moving to urban areas, but only for those with a senior high school degree; reaching this level of completed schooling has a significant positive effect on the probability of moving to urban nonfarm activities. This indicates that, while basic education remains important, a higher educational level is needed to move into the urban economy.

Table 4.16: Multinomial Results of the Probability of Rural Agricultural Workers Moving to Other Sectors

	To Rural Nonfarm	To Urban Farm	To Urban Nonfarm
Age	−0.00335***	0.000702*	−0.00125**
	(0.000753)	(0.000315)	(0.000393)
Male	−0.0549**	0.0159	−0.00614
	(0.0182)	(0.00824)	(0.00908)
Completed Primary	−0.0269	0.0369***	0.0238*
	(0.0287)	(0.00732)	(0.0108)
Completed Lower Secondary	−0.0345	0.0481***	0.0284
	(0.0371)	(0.0143)	(0.0148)
Completed Upper Secondary	−0.0139	0.0431*	0.0760***
	(0.0402)	(0.0168)	(0.0201)
Completed Diploma Or Above	0.0780	0.0650	0.0483
	(0.109)	(0.0705)	(0.0530)
Married	0.00800	0.00555	−0.0336**
	(0.0231)	(0.0110)	(0.0102)
Having A Second Job In Nonfarm	0.0563*	−0.0293*	0.0174
	(0.0266)	(0.0134)	(0.0116)
Owning Land	0.0422*	−0.0366***	−0.0335***
	(0.0204)	(0.00814)	(0.00899)
Growing Horticultural Crops	−0.0531**	0.00523	−0.0193*
	(0.0185)	(0.00834)	(0.00887)
Wage Gap Between Services & Agriculture	0.0130	−0.00557	0.00970
	(0.0109)	(0.00434)	(0.00541)
Receiving Unconditional Cash Transfer	−0.0163	0.00192	−0.0367
	(0.0347)	(0.0135)	(0.0191)
Two-Wheeled Tractor Assistance	0.0379**	0.0150**	0.0138**
	(0.0122)	(0.00472)	(0.00517)
Plantation Expansion	0.0238***	−0.0200***	−0.0195***
	(0.00700)	(0.00266)	(0.00266)
Farmer Terms of Trade	0.00711***	−0.00359***	−0.00210**
	(0.00105)	(0.000823)	(0.000720)

The dependent variable is employment transition whether individuals stay in rural farm activities, move to rural nonfarm activities, move to urban farm activities, or move to urban nonfarm activities. In this regression, staying in rural farm activities becomes the base outcome. Standard errors in parentheses.
N=3,053, Pseudo-R2 =0.0783, Prob>Chi2 =0.000.
* p<0.05 ** p<0.01 *** p<0.001.
Source: Authors' calculations.

Another interesting finding from individual characteristics is the effect of having a second job in nonfarm activities. It turns out that having a second job gives a better chance of moving out to rural nonfarm activities; but it is the other way around for moving out to urban from rural farm activities. Meanwhile, having a second job in nonfarm activities has no effect on the probability of moving out to urban nonfarm activities directly. Off-farm activities are an important income source for agricultural households in Indonesia (Booth 2002). However, they are mostly still in the context of other farm-related activities. The role of second-job income can evolve from supporting basic livelihoods to financing human capital investment (Booth 2002). Hence, even though the effect of having nonfarm activities does not appear to be significant in our analysis, it could be significant in the longer term. This means, initially, that having a second job in nonfarm activities increases the probability of moving to rural nonfarm sectors, which will then increase the probability of moving into urban nonfarm sectors. However, this is not observable in our analysis, which spans only a 7-year period.

From the household perspective, landownership has a strong influence on holding farmers in rural areas, compared with those who do not own land, although it increases the chance of moving to rural nonfarm sectors. Because owning land provides higher returns from farm activities, it also increases the attachment to rural areas. However, the higher returns also increase the probability of seeking employment in nonfarm activities, without necessarily leaving rural areas.

Meanwhile, farmers who grow horticultural crops, which are high-value, are less likely to move to nonfarm sectors, in both rural and urban areas, than are those who grow other types of crops. Horticultural crops tend to provide greater market incentives and encourage modern technologies that increase productivity. Hence, it can be inferred that these farmers are better off staying in the agriculture sector.

The wage gap between the services and agriculture sectors and receiving government social assistance in the form of conditional cash transfers do not have significant effects on employment transformation. However, the government's agricultural mechanization policy, through providing two-wheeled tractors, has a positive correlation with the possibility of moving out of rural agriculture. This may work through two channels. On the one hand, mechanization replaces manual work; on the other hand, it might be that the government is providing tractors in labor-scarce regions because of urbanization. Because the data are at the province level, it seems that most tractor assistance occurs in provinces with more agricultural production and more plantations. Agricultural mechanization increases the capital-to-labor ratio and the productivity of rural farm activities, while at the same time reducing the demand for labor.

From the external environment, plantation expansion and farmer terms of trade at the province level are two significant factors inducing people to stay in rural areas, as indicated by the negative and significant coefficients for moving to urban sectors. However, these two variables have positive and significant coefficients for moving to nonfarm activities in rural areas. This points to the importance of forward linkages from improving conditions in the agriculture sector to the rural economy in general by providing more economic opportunities in rural areas.

Last, we also tried to add a regional fixed effect of Java versus non-Java to isolate region-specific unobservable factors that might affect the results. Since the majority of Indonesian farmers live on Java, it raises the possibility of a different agricultural and institutional setting influencing the outcome, even though we have already controlled for several province- and district-level characteristics. Using a regional fixed effect, our findings still hold (the results are presented in Appendix Table A4.3).

4.5. Conclusion and Policy Recommendations

Structural transformation in Indonesia has been characterized by faster output than employment shifts from agriculture to industry and services. As a result, the ratio of output contribution to employment contribution in the agriculture sector has fallen relative to the other sectors. The finding from the long-term employment transformation matrix (1997–2014) in this study confirms that people who started working in the rural agriculture sector have a lower probability of moving to other sectors, especially to urban-located sectors. Furthermore, despite the continuing new entry of younger cohorts into the labor market, this dynamic in employment transformation has not changed much during the last 2 decades. This phenomenon may have a role in explaining the stagnation in poverty reduction and the increase in inequality in recent years.

More importantly, the analysis in this study has identified the factors that affect the probability of employment shifts out of rural agriculture. Some of these factors are related to the individual characteristics of workers, while other factors are related to the broader working environment and government policies. The factors that increase the probability of workers moving out of rural agriculture are higher education level and agricultural mechanization. On the other hand, the factors that reduce the probability of workers moving out of agriculture are being male, age, and planting of high-value crops.

Meanwhile, having a second job, owning land, plantation expansion, and higher farmer terms of trade increase the probability of rural agricultural workers moving to other

sectors within rural areas, but reduce the probability of moving to urban sectors directly. However, once a rural agricultural worker has moved to another rural sector, he or she will have a higher chance to move to an urban sector.

These findings have several important implications for policies to encourage faster employment transformation away from rural agriculture: First, expansion of education in rural areas up to the senior secondary level is one key policy to encourage younger workers in rural areas to seek employment outside agriculture and move to urban areas. Second, a policy to invest more in agricultural mechanization, which will increase the productivity of the rural agriculture sector and reduce the demand for agricultural workers, will also encourage rural agricultural workers to seek employment outside farm activities.

However, this policy should be followed by diversification of agricultural products. Promoting more productive crops to replace staple crops is important to avoid unemployment as an undesirable effect of mechanization. Finally, a policy to provide more investments in rural areas to diversify rural economies will create more opportunities for rural agricultural workers to take up a second job, which will then increase the probability of them moving to nonfarm sectors.

This chapter has shed some light on the employment transformation puzzle in Indonesia. However, several related questions still need to be investigated in future studies: First, how do workers' decisions to move out of rural agriculture affect their and the next generation's well-being? Second, what types of education really support the employment transformation process? Third, what roles do community-level variables, including social norms and culture, play in determining the employment transformation process? And fourth, how (and why) do regions vary in the pace of their employment transformation?

Appendix Tables

Table A4.1: Change in Employment Status from Rural Agriculture, 2007–2014

Employment Status	Number	Percent
Stay In Agriculture	1,456	47.66
Move To Rural Nonfarm	1,274	41.7
Move To Urban Farm	142	4.65
Move To Urban Nonfarm	183	5.99
Total[a]	**3,055**	**100.00**

[a] Later, we dropped 2 observations due to missing individual information so that the total observations for multinomial logit analysis were 3,053.
Source: Authors' calculations.

Table A4.2: Summary Statistics of Agricultural Workers by Stability or Change in Employment Status (Mean)

	Stay in agriculture	To Rural nonfarm	To Urban farm	To Urban nonfarm	Total
Male=(1)	0.616	0.575	0.721	0.682	0.608
	(0.486)	(0.495)	(0.450)	(0.467)	(0.488)
Age in 2014	45.230	41.340	45.500	36.150	43.120
	(13.530)	(13.560)	(12.380)	(14.520)	(13.780)
Never Attended School in 2007	0.160	0.131	0.062	0.064	0.138
	(0.367)	(0.338)	(0.242)	(0.245)	(0.345)
Completed Primary in 2007	0.621	0.590	0.682	0.490	0.604
	(0.485)	(0.492)	(0.467)	(0.502)	(0.489)
Completed Junior Secondary in 2007	0.134	0.150	0.171	0.191	0.146
	(0.341)	(0.358)	(0.378)	(0.394)	(0.353)
Completed High School in 2007	0.080	0.119	0.078	0.242	0.105
	(0.272)	(0.324)	(0.268)	(0.430)	(0.307)
Completed University in 2007	0.004	0.009	0.008	0.013	0.007
	(0.067)	(0.093)	(0.088)	(0.113)	(0.083)
Log Difference of Agriculture and Service Gap (2007–2014)	-1.271	-1.176	-1.153	-1.005	-1.211
	(0.870)	(0.806)	(1.301)	(0.874)	(0.872)
Owned Land in 1997	0.745	0.754	0.519	0.599	0.730
	(0.435)	(0.430)	(0.501)	(0.497)	(0.480)
Ratio of Total Number of Two-Wheel Tractor Assistance to Number of Agricultural Households (times 1000, from 2007 to 2014) at Province Level	0.664	0.635	0.680	0.717	0.656
	(0.227)	(0.230)	(0.199)	(0.249)	(0.229)
Has Second Job in Nonfarm Activities in 2007	0.112	0.130	0.078	0.172	0.122
	(0.316)	(0.337)	(0.268)	(0.379)	(0.327)
Plantation Expansion (Ha) Yearly at Provincial Level	5.515	5.988	4.419	4.739	5.616
	(1.909)	(1.844)	(2.444)	(2.252)	(1.975)
Average Change in Absolute Terms of Trade from 2007 to 2014	9.14	10.41	8.048	9.03	9.61
	(8.53)	(9.41)	(6.72)	(5.64)	(8.73)

ha = hectare.
Note: Standard deviations in parentheses.
Source: Authors' calculations.

Table A4.3: Model with Regional Fixed Effects

	To rural nonfarm	To urban farm	To urban nonfarm
Age	-0.00334***	0.000712*	-0.00125**
	(0.000752)	(0.000316)	(0.000394)
Male	-0.0562**	0.0156	-0.00642
	(0.0182)	(0.00825)	(0.00909)
Completed Primary	-0.0280	0.0367***	0.0236*
	(0.0286)	(0.00730)	(0.0108)
Completed Lower Secondary	-0.0309	0.0490***	0.0291
	(0.0371)	(0.0145)	(0.0149)
Completed Upper Secondary	-0.00684	0.0448*	0.0780***
	(0.0404)	(0.0174)	(0.0207)
Completed Diploma or Above	0.0795	0.0651	0.0488
	(0.109)	(0.0705)	(0.0531)
Married	0.00900	0.00573	-0.0335**
	(0.0231)	(0.0110)	(0.0102)
Having a Second Job in Nonfarm	0.0562*	-0.0296*	0.0173
	(0.0265)	(0.0134)	(0.0116)
Own Land	0.0427*	-0.0364***	-0.0335***
	(0.0204)	(0.00814)	(0.00899)
Growing Horticultural Crops	0.0118	-0.00590	0.00943
	(0.0109)	(0.00436)	(0.00543)
Wage Gap Between Services & Agriculture	-0.0140	0.00266	-0.0361
	(0.0348)	(0.0135)	(0.0191)
Receiving Unconditional Cash Transfer	0.0481***	0.0186**	0.0166*
	(0.0134)	(0.00697)	(0.00663)
Two-Wheeled Tractor Assistance	0.0392***	-0.0187***	-0.0182***
	(0.0101)	(0.00328)	(0.00351)
Plantation Expansion	0.00845***	-0.00344***	-0.00191*
	(0.00123)	(0.000850)	(0.000782)
Farmer Terms of Trade	0.0118	-0.00590	0.00943
	(0.0109)	(0.00436)	(0.00543)

Standard errors in parentheses.
N=3,055, Pseudo-R^2 =0.0793, Prob>Chi^2 =0.000
* p<0.05 ** p<0.01 *** p<0.001.
Source: Authors' calculations.

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Chapter 5
Urbanization and Labor Productivity in Indonesia

Mohammad Zulfan Tadjoeddin and Valerie Mercer-Blackman*

5.1. Introduction

In a book titled *The New Geography of Jobs*, Moretti (2012) provides a clear summary and compelling research from United States cities on the benefits of urbanization for the acquisition and spillover of human capital. But the literature has only recently begun to dab at the possibility that these effects occur in Asian developing countries. One issue is the heterogeneity of cities in their size, structure, and economic base, not only across countries, but even within a country. This is especially true in a socioeconomically diverse country such as Indonesia.

This chapter aims at examining the key variables of labor productivity, wages, and employment in the context of Indonesia's rapid urbanization. It tries to discern whether workers in Indonesian cities are more productive than workers in rural areas, and if so, how much is due to the agglomeration of externalities and how much to location and economic activity (World Bank 2009).[1] This area of inquiry has not been widely researched in Indonesia, in contrast to some recent work in the People's Republic of China (PRC) and India (Chauvin et al. 2016). The chapter first considers average wage levels and worker productivity in Indonesia and whether there are significant differences if workers are located in large cities, small cities, or rural districts. There seem to be some differences in productivity based on location that cannot be directly explained by the standard factors such as wages and education levels. Subsequently,

* This chapter benefited from major conceptual inputs from Ron Miller. The authors thank Amador Foronda and Angelica Maddawin for excellent research assistance.

[1] Many tables and figures in this chapter were based on data from Badan Pusat Statistik (BPS, Statistics Indonesia), especially the National Labor Force Survey (Survei Angkatan Kerja Nasional—SAKERNAS), BPS District Regional Accounts, and BPS Human Development Index by Districts in Indonesia. Data were accessed in February 2017.

the chapter also considers whether these differences in worker productivity may be due to the predominant types of economic activity of a district (agriculture, mining, industry, or services). The chapter finds that the types of activities that require a high share of skilled workers (who have correspondingly higher wages) are more likely to be located in urban districts. This is particularly true of services. At the same time, urban districts also tend to attract a very high share of low-productivity services.

We also analyze the geographic distribution of jobs in Java, particularly around the capital city Jakarta, and show that workers are willing to commute to or live in places where these relatively high-paying jobs are located. Finally, we take the case of Bandung and Makassar, two very successful mid-sized cities, and discuss how their more manageable size enhances their good government leadership, which has been the key to attracting talent and improving the livability of these cities. The main recommendations point to reaping the benefits of agglomeration by maximizing the advantages attributed to the presence of highly skilled workers while avoiding congestion. The growth of the two mid-sized cities has occurred in the context of effective decentralization, in which fiscal federalism has emphasized equalizing standards of living across all districts (including rural ones); but cities are also striving to attract highly skilled workers so as to enhance productivity through competitiveness.

The chapter proceeds as follows: The first section offers an introductory discussion on urbanization in Indonesia complemented by a detailed discussion on urban-rural classification. Section 2 examines productivity, wages, and employment in an urbanization context detailing the descriptive statistics, empirical models, and data and results. Section 3 looks at the role of economic activities in determining employment location. Section 4 investigates the relationship between commuting and location of workers in the area around the metropolis of Jakarta, the best practice cases of mid-sized cities such as Bandung and Makassar, and their innovative urban governance. Conclusions and recommendations are set forth in section 5.

5.1.1. Urbanization in Indonesia: Trends and Challenges

Indonesia has almost 100 cities with a population of more than 250,000, 14 of which have more than 1 million inhabitants (Table 5.1). Java is by far the most populated island, with eight of the largest cities, including the national capital, Jakarta. The map in Figure 5.1 (p. 133) shows the population concentration, with red areas denoting high population density. It illustrates the high population density of the island of Java in particular.

The process of urbanization is driven largely by two forces: the expansion of urban centers due to natural population growth, and rural-to-urban migration and reclassification, which lead to urban growth and the transition into urban status of areas previously classified as rural. Growth rates of the urban population were consistently higher than the overall rate of population growth: 4.40% versus 1.35% and 3.33% versus 1.50% for the periods 1990–2000 and 2000–2010, respectively (Firman 2016). This is a common process across the globe: The share of the global population living in urban areas has recently surpassed 50% and is expected to keep increasing (Jones 2015). Indonesia is no exception: urbanization coupled with the rise of metropolitan cities has been a dominant feature characterizing the country's development, and this trend should continue (World Bank 2012). Indonesia also has around half a dozen major agglomerations with populations of 2 million or more, of which Greater Jakarta (Jabodetabek[2]) is by far the largest. This trend poses opportunities as well as challenges.

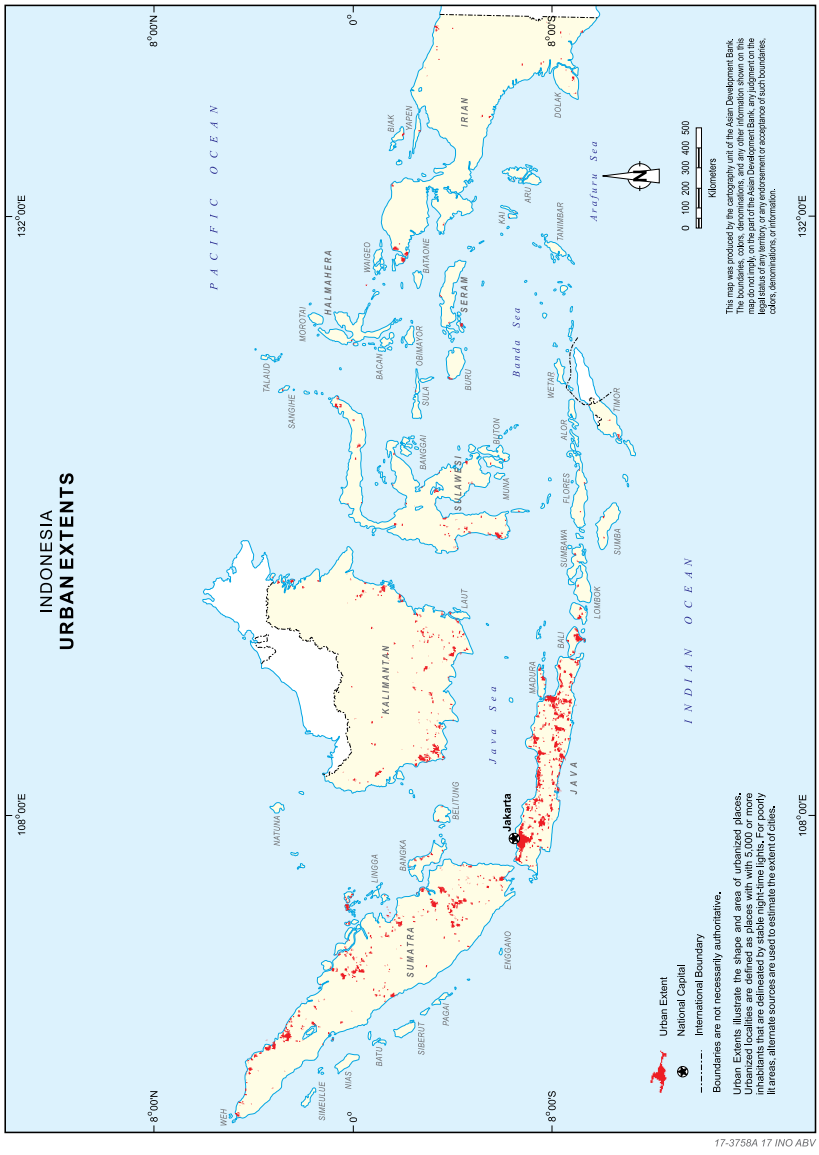
Table 5.1: An Overview of Major Cities in Indonesia (projections for 2015)

Rank	City	City Population	Province
1	Jakarta	10,135,030	Jakarta
2	Surabaya	2,843,144	East Java
3	Bandung	2,575,478	West Java
4	Medan	2,497,183	North Sumatra
5	Bekasi	2,510,951	West Java
6	Semarang	2,067,254	Central Java
7	Tangerang	2,001,925	Banten
8	Depok	1,869,681	West Java
9	Palembang	1,561,959	South Sumatra
10	S Tangerang	1,436,187	Banten
11	Makassar	1,398,801	South Sulawesi
12	Batam	1,142,646	Riau Islands
13	Pekanbaru	1,030,732	Riau
14	Bogor	1,022,002	West Java

Source: Based on the 2010 population census (BPS 2010a), projected for 2015 based on population growth rate during 2000–2010.

[2] Jabodetabek is an acronym for Jakarta, Bogor, Depok, Tangerang, and Bekasi region engulfing Jakarta, the national capital city.

Figure 5.1: Indonesia: Urban Extensions



Source: Asian Development Bank.

5.1.2. Urbanization May Be Different in the Developing World

Most of the literature on urbanization and discourse by policy makers, in general, contend that growing urbanization is a sign of progress (Chen et al. 2014). Accordingly, as compellingly articulated by Glaeser (2011), vibrant cities or urban areas have been associated with several positive features. They create an urban economy with higher labor productivity due to economies of agglomeration.[3] Consequently, their workers enjoy higher wages. As generally accepted, agglomeration economies exist when productivity rises with density (Glaeser and Gottlied 2009), as it fosters efficiency due to proximity, and helps facilitate the free flow of ideas and the spread of knowledge and innovation. In short, cities magnify humanity's strengths.

Such a perspective sounds very optimistic, however, and it resonates more with situations of urban centers in the developed world. Orderly and planned urban development in Indonesia is only partly the case, at best, as is true with many other developing countries. The positive externalities of a more productive urban economy with higher-paid workers in urban centers may be overwhelmed by structural problems in more rapidly growing and densely populated urban areas. These problems are (1) congestion due to inadequate transport facilities; (2) stressed infrastructure required to accommodate the increasing flow of people (Cervero 2014); (3) housing difficulties due to inadequate supply and related regulatory problems (Monkkonen 2013a); and (4) environmental pressures such as water availability, sanitation, flooding, waste management, and pollution (Firman 2009, Jago-on et al. 2009). All these problems seem to make cities become less livable, impacting worker productivity and quality of life.

Jakarta, in particular, where per capita incomes are by far the highest of any Indonesian province, has a population density and urban activity that have overwhelmed its infrastructure, probably more than any other city in Indonesia. The city suffers from chronic congestion problems due to its size: Jakarta is globally classified as a megacity in terms of broad geographic area and population. The city proper is the 17th largest in the world in terms of population, with almost 10.1 million people as of December 2015, but is the fourth largest in terms of population of the metropolitan area (30 million).[4] It is divided into five districts, all with chronic congestion problems.

This situation of urban congestion and population overflow is mirrored to a lesser extent in many other Indonesian cities. It is made worse by the general inability of

[3] Agglomeration economies refer to the benefits that come when firms and people locate near one another together in cities and industrial clusters. These benefits all ultimately come from transport and communication costs savings. As stated in the introduction in Glaeser (2011: 1), "the only real difference between a nearby firm and one across the continent is that it is easier to connect with a neighbour."

[4] Data Jumlah Penduduk DKI Jakarta (2014). Data.jakarta.go.id – Jakarta Open Data. Pemerintah Provinsi DKI Jakarta. Accessed 5 December 2016.

the public transport system to cope with the growing population despite several initiatives. In general, as in other Asian cities, economic growth has enabled consumers to substitute the poor provision of public transport with private means in the form of motorcycles, collective cars, etc. Housing stress also characterizes Indonesian cities, leading to a housing deficit (Monkkonen 2013b). Construction has been unable to match the increase in housing demand resulting from the growing middle class in the last 10–15 years, which creates a situation wherein the growth of house prices far outpaces the growth of workers' earnings. Housing is seen as critical to create resilient cities (Vale et al. 2014). Finally, the inadequate supply of clean water by the public water companies forces city residences and businesses to keep pumping groundwater. The unequal distribution of water supply is evident, as apartment blocks and hotels operate high-powered pumps that jeopardize surrounding households' access to groundwater.[5] All of these challenges reflect the negative externalities of urban living.

These factors may have contributed to lower productivity gains from urbanization in Indonesia compared with many other Asian countries. The World Bank (2012) calculated that in Indonesia during 1970–2006, a 1% increase in urbanization rate was associated with only less than a 2% increase in per capita gross domestic product (GDP). The elasticity was similarly low in the Philippines. However, in other Asian countries, the association is much stronger. Updating this indicator to 2015, the same ranking is observed: a 1% increase in urbanization was associated with a 0.74% increase in per capita GDP in Indonesia, the lowest after the Philippines. The figures for other countries are 0.28 for the Philippines, 1.14 for India, 1.43 for Thailand, 1.53 for Viet Nam,[6] and 1.98 for the PRC.

By 2025, an estimated 67.5% of Indonesia's population will live in urban areas, which means that the impediments to better urban productivity will need to be addressed. A key question examined throughout this chapter is whether urban agglomeration (measured by population density) is associated with positive or negative externalities. The following subsection investigates whether labor productivity has been larger in urban areas versus rural areas in Indonesia. We then consider why this may be so.

5.1.3. Urban–Rural Classifications

The urban–rural classification is the key to any assessment of the process of urbanization in Indonesia. To understand the urban–rural classification adopted by Statistics Indonesia (BPS), one has to understand the layers and divisions of administrative government units. Currently Indonesia consists of 34 provinces, each

[5] This situation has been reported in several Indonesian cities, including Makassar and Yogyakarta.
[6] Data for Viet Nam are available only between 1984 and 2015.

led by a governor[7] and consisting of several districts (subprovincial units). There are two kinds of district: *kota* (predominantly urban) and *kabupaten* (predominantly rural). In English, *kota* is usually called a city or municipality and is headed by a mayor, while *kabupaten* is usually called a "rural" district and is headed by a regent or a district head. Governor, mayor, and regent are all posts elected through popular votes in direct local elections.

Each district (*kota* or *kabupaten*) is divided into subdistricts (*kecamatan*). Each subdistrict consists of several villages: *desa* (rural village), and *kelurahan* (urban village). In total, there are 81,253 villages in Indonesia, consisting of 72,944 *desa* and 8,309 *kelurahan*; these correspond to the lowest level of administration and governance.

The BPS also defines how to assess the level of urbanization in Indonesia by assigning each village the status of either rural (*desa*) or urban (*kelurahan*). In the 2000 and 2010 population censuses, BPS employed a scoring system to categorize a village as either "urban" or "rural." The score is a cumulative of three criteria: population density, percentage of households working in the agriculture sector, and availability of urban facilities. If a village has a score of 10 or above, it will be categorized as "urban"; and if the score is less than 10, it will be categorized as "rural." The score is updated from time to time as population characteristics change. The scoring details are presented in Table 5.2.[8] The projection of Indonesia's urban population to reach 67.5% by 2025 is based on this urban–rural definition.

Table 5.2: Rural–Urban Classification of Villages in Indonesia, 2010

Population Density (persons/km2)	Score	Percentage of Agricultural Household Worker	Score	Urban Facilities	Criteria or Distance	Score
<500	1	>70	1	Kindergarten	Available, or ≤2.5 km	1
500–1,249	2	50–69.99	2	Junior high school		
1,250–2,499	3	30–49.99	3	Senior high school	>2.5 km	0
2,500–3,999	4	20–29.99	4	Market	Available, or ≤2.0 km	1
4,000–5,999	5	15–19.99	5	Shops	>2.0 km	0
6,000–7,499	6	10–14.99	6	Cinema	Available, or ≤5.0 km	1
7,500–8,499	7	5–9.99	7	Hospital	>5.0 km	0
>8,500	8	<5	8	Hotel/billiard/pool/	Available	1
				disco/beauty shop	Not available	0
				Percentage of households	≥8.00	1
				with telephone	<8.00	0
				Percentage of households	≥90.00	1
				with electricity	<90.00	0

km = kilometer, km^2 = square kilometer.
Note: Each urban facility is scored separately, not as a group. The grouping of the criteria is just for efficiency.
Source: BPS (2010b).

[7] North Kalimantan, the newest province, was crafted from the northern districts of East Kalimantan province and was officially formed in 2013.

[8] Using this approach, we generate a variable called "percentage urban population by district" to be used as a proxy to measure the level of urbanization (a binomial variable in which a district is rural or urban).

Another way to operationalize urbanization is by the separation of regions into administrative units, using the *kota* (urban district or municipality) and the *kabupaten* (rural district) to differentiate between districts. Although this is an administrative distinction, *kabupaten* have different levels of urbanization according to the share of population living in urban villages as defined above. In the next section we use this administrative definition of the level of urbanization. Sections 3 and 4 use the population density of the district as the variable to define urban agglomeration and its relation to productive activities.

5.2. Productivity, Wage Growth, and Employment: Are there Rural–Urban Differences?

This section examines productivity, wages, and employment in the context of urbanization. We want to know whether an urban administrative district is more likely to have higher productivity leading to more pay per worker, as well as the role of schooling in enhancing productivity in rural areas and different sized towns and cities. For these purposes, a two-equation model is estimated, defining labor productivity and wages across Indonesian districts during 2007–2014.

5.2.1. Definition of Urbanization Used in Wage and Productivity Estimations

Because the subprovincial unit (district/*kabupaten* and municipality/*kota*) is used as our unit of observation, urbanization is classified by differentiating *kabupaten* (as the predominantly rural districts) and *kota* (municipality/city), strictly following the administrative classification described above. The idea is that the institutional setup (administrative size) creates a cohesive unit where firm production takes place. We use the 2010 subnational divisions.[9] For the regressions, we also separated cities functioning as provincial capitals. Table 5.3 details the urbanization levels at the district level. The national capital Jakarta is treated differently from other metropolitan areas.[10]

[9] Districts created after 2010 are merged with their mother districts; missing data are imputed for districts created after 2007 but existing in 2010 or earlier.

[10] The five Jakarta municipalities are counted as five metropolitan cities and one *kabupaten,* Kepulauan Seribu. Jakarta, however, is not counted as a provincial capital, as the special capital region of Jakarta is not classified as a provincial capital. Therefore, there are only 32 provincial capitals and 33 provinces.

Table 5.3: Levels of Urbanization by Administrative Classification, 2010
(number of districts/cities)

Rural Districts *(Kabupaten)*	399	Urban Districts or Cities *(Kota)*	98
Kab1 (urban population <25%)	248	Small city (population <100,000)	11
Kab2 (urban population between 25% –50%)	117	Medium-sized city (population between 100,000 –500,000)	56
Kab3 (urban population ≥50%, but not city	34	Large city (population between 500,000– 1 million)	13
		Metropolitan (population >1 million)	18

Kab = *kabupaten*.
Source: Calculations using BPS (2010a)—see Appendix 5.1.

5.2.2. Data, Methods, and Descriptive Statistics

We have a balanced panel dataset of 497 districts for 8 years for when the data are available from the National Labor Force Survey—known in Indonesia as SAKERNAS (BPS 2007–2014). The main variables are described in detail in Appendix A5.1. Table 5.4 presents comparisons of Indonesian districts in 2014 across different levels of urbanization. It shows simple averages of labor productivity, real wage earnings, the wage/productivity ratio, mean years of schooling, and unemployment rates of district values within each group.

Table 5.4: Productivity, Wages, Education (mean years of schooling)**, and Unemployment Rates, Indonesia, 2014**

Panel A						
Region and Size	No. of Districts	Productivity Rp Million, 2010cp	Real Earning Rp Million, 2010cp	Wage/ Productivity (%)	Mean Years of Schooling (years)	Unemployment Rate (%)
1 - *Kabupaten*	399	57.4	14.8	37.2	7.1	4.5
2 - Small City (<100k)	11	69.1	18.0	29.7	9.6	8.5
3 - Medium-sized City (100k–500k)	56	84.8	18.6	28.4	9.9	7.7
4 - Large City (500k–1,000k)	13	85.4	19.9	25.0	10.1	7.7
5 - Metro (>1,000k)	18	181.1	24.1	22.2	10.6	8.4
Panel B						
Kabupaten Urbanization Rate	No. of Districts	Productivity Rp Million, 2010cp	Real Earning Rp Million, 2010cp	Wage/ Productivity (%)	Mean Years of Schooling (years)	Unemployment Rate (%)
1 - Kab1 (<25% urban)	248	48.7	14.7	42.2	6.9	3.9
2 - Kab2 (25%–50% urban)	117	68.4	14.7	29.5	7.4	5.5
3 - Kab3 (>50% urban)	34	82.9	15.9	26.9	7.9	5.8
4 - City	98	100.8	19.7	26.9	10.0	7.9
Provincial Capital (excluding Jakarta)	32	100.1	21.7	24.6	10.6	8.2

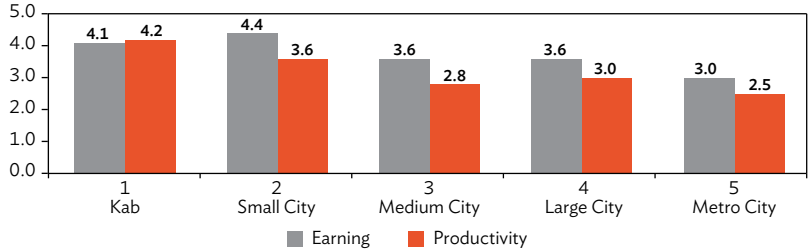
cp = current prices, k = thousand, kab = *kabupaten*; municipality.
Sources: Calculations using BPS data—see Appendix A5.1.

Some interesting points emerge. First, districts with higher levels of urbanization tend to be more productive, and their workers receive higher pay. This is understandable, as more urbanized districts tend to enjoy higher levels of education and income per capita. However, districts with higher levels of urbanization also tend to have higher rates of formal unemployment. Urban centers offer more job opportunities attracting incoming migrants from rural areas.

Moreover, districts with higher levels of urbanization tend to be more competitive with lower unit labor cost (as proxied by the wage/productivity ratio). In other words, on average, differences in productivity appear to be much greater than differences in wages in more urbanized areas compared with less urbanized ones (both for urbanization measured in terms of city size and the percentage of urban villages). This pattern implies that the income share of labor declines (capital intensity increases) with the process of urbanization.[11]

Figure 5.2 shows that the average growth of earnings in all groups of cities is higher than productivity growth, while in rural districts there is virtually no difference between the two. This is consistent with lower unit labor costs in cities. However, growth of labor productivity and wages has been lower in large cities than in small ones and in rural districts. This may reflect the convergence of income, given the higher average GDP per capita in urban districts compared with rural ones, as well as fiscal transfers, which are more generous overall to districts with smaller populations—mostly rural ones (World Bank 2017). It could also reflect the urbanization pressure on productivity, which confirms the finding of a previous study by Lewis (2014). Based on time-series analysis during 1960–2009 and panel data at the subnational level, he found that the level of urbanization is positively associated with economic growth, but that the rate

Figure 5.2: Average Annual Growth of Productivity and Wage Earnings, 2007–2014 (%)



Kab = *kabupaten*, municipality.
Source: Calculations using BPS (various issues), Indonesia Labor Force Survey (SAKERNAS); and BPS District Regional Accounts—see Appendix A5.1.

[11] A caveat is that informal labor is not included in the data, and that labor regulations can impact this result.

of change of urbanization is negatively correlated with economic growth. He then contended that the harmful impact of urban population growth is linked to insufficient local public infrastructure spending.

5.2.3. Modeling Productivity and Wages

A model with two equations was developed for productivity and wages with the district or subprovincial unit as the unit of observation. This study is probably the first to model productivity, wages, and employment at the district level in Indonesia.

First, productivity is modeled as a function of wages, education, and population density.[12] It is hypothesized, following the efficiency wage theory, that productivity is at least partly driven by wages (Katz 1986).[13] The effect of education on productivity is expected to be positive as in Black and Lynch (1996). Controlling for these standard explanatory variables, we include population density as a proxy for agglomeration externalities: A positive coefficient signifies spillovers and links across workers in firms that augment productivity. If it is negative, it would imply that congestion reduces productivity. The productivity model can be expressed as follows:

$$\log PROD_{it} = \alpha_0 + \alpha_1 \log RW_{it} + \alpha_2 \log EDU_{it} + \alpha_3 \log POPDEN_{it} + \upsilon_i + \varepsilon_t \qquad (1)$$

where *PROD* represents labor productivity, *RW* stands for real wages, *EDU* denotes level of education measured as years of schooling, and *POPDEN* is population density.[14] The relationship between productivity and wages is denoted by α_1 in the form of elasticity, since all variables are expressed in log form. Assuming that α_1 is positive, productivity (*PROD*) will increase by α_1% if real wages (*RW*) increase by 1%. The same is true for other variables.

Second, wages are modeled as the function of productivity *(PROD)*, education *(EDU)*, unemployment rate *(UE)*, and population density *(POPDEN)* to denote the agglomeration externality. This is a reverse version of the previous equation, as the relationships between productivity and wages run both ways. Higher labor productivity

[12] Although urban districts are usually on average more densely populated than rural districts, it is not immediately obvious that the size of a city should correlate with its density. Cities here are demarcated administratively, so the results will also attest to the quality of their governance. As will be shown in section 4, even the megacity of Jakarta can have pockets or peripheries that are sparsely populated alongside densely populated districts.

[13] The idea is that firms, faced with the asymmetry of information regarding workers' efforts, pay higher than the market clearing wage. Workers, in return, feel more loyal and devoted to the company. With a higher wage, they may also fear losing the job if caught shirking and may not then get another with similarly higher pay. So they are likely to work harder on average.

[14] The remaining components in the model are the error terms: u_i represents time-invariant heterogeneity across districts, and ε_{it} is the time-variant error term.

should lead to higher wages and vice versa.[15] Districts with higher levels of education should expect to enjoy higher real wages (Ashenfelter and Ham 1979). The relationship between real wages and unemployment rates (UE_{it}) is expected to be negative, as the reserve army of unemployed labor puts pressure on wages (Gregg et al. 2014). Last, as in the case of the above productivity model, the variable of population density is included to detect economies (or diseconomies) of agglomeration. The real wages model can be written as follows:

$$\log RW_{it} = \beta_0 + \beta_1 \log PROD_{it} + \beta_2 \log EDU_{it} + \beta_3 \log UE_{it} + + \alpha_4 \log POPDEN_{it} + \upsilon_i + \varepsilon_t \quad (2)$$

It is assumed that the trade-off between wages and employment follows the conventionally conceived negative association between price and quantity from the demand perspective.[16]

5.2.4. Results

The results of the productivity model (equation 1) are presented in Table 5.5. In general, wages, schooling, and population density positively affect productivity (column 6), all with a high level of statistical significance. These are consistent with our expectations. Cities tend to outperform their rural district counterparts in terms of productivity gains from higher wages and more schooling. However, it is interesting to see variations in the magnitude of coefficients across district aggregations based on different levels of urbanization. Provincial capitals and medium-sized cities show strong positive and significant effects of wages and schooling, consistent with good governance (agglomeration is not significant). It is possible that medium-sized cities may be large enough to attract skills and take advantage of economies of scale, but small enough to be more manageable administratively and thus governable. The provincial capital is usually the most developed city in a province, serving also as the economic capital.[17] Moreover, the effect of population density (the proxy for agglomeration economies) on productivity in rural districts (*kabupaten*) is positive and significant, but its significance disappears in the context of cities (*kota*). This may be either because the agglomeration externality is already captured in the education

[15] Marginal productivity theory suggests that productivity should positively affect wages. The theory maintains that highly productive workers are highly paid and vice versa. In a macro setting, a rise in real wages will result in increased cost of labor. This, in turn, would cause factor substitution from labor to capital. This could raise marginal productivity. The rise in productivity will stimulate labor demand, leading to pay increase (Goh 2009).

[16] Tadjoeddin and Chowdhury (2012) also include an employment equation in which firms employ workers by weighing the average wage they pay against the price they receive for products.

[17] This is consistent with World Bank (2012), which shows that medium-sized cities in Indonesia performed better than cities of any other size in terms of generating benefits from agglomeration economies. Note, however, the different definition of medium-sized city between this study and World Bank (2012). This study defines a medium-sized city as one with a population between 100,000 and 500,000, as it observes all districts in Indonesia, while the World Bank uses a population size between 500,000 and 1 million, as it focuses on the rise of metropolitan regions in Indonesia.

or wages of workers in cities, or because there are other offsetting aspects in some cities captured by the population density variable (for example, congestion and overcrowding could reduce productivity).

Table 5.5: Explaining Labor Productivity (equation 1—fixed effects)

	Classification of Districts Based on % of Villages Urban, and All Urban Districts (*Kota*)						Groups of *Kota*		
	Kabupaten				*Kota*	All	Provincial Capital	*Kota* - Medium	*Kota* – Other
	Kab1	Kab2	Kab3	Total Kab					
Variable	(urban <25%)	(25%≤ urban <50%)	(urban≥ 50%)	(all districts)	(all municipalities)			(100K ≤ pop < 500K)	(small, large, metro)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Log Real Wages	0.117***	0.33***	0.423***	0.17***	0.367***	0.191***	0.456***	0.395***	0.351***
Log Schooling	0.18***	0.532***	-0.143	0.199***	0.658***	0.204***	0.867**	1.2***	0.241
Log Population Density	0.397***	0.426***	0.148	0.42***	0.083	0.413***	-0.202	-0.135	0.223*
Constant	1.32***	-0.261	2.2**	0.93***	1.1*	0.745***	2.61**	1.33	1.09
No. of Observations	1,984	936	272	3,192	784	3,976	256	448	336
No. of Groups	248	117	34	399	98	497	32	56	42
F	58.29	100.19	19.15	126.61	79.69	176.52	23.22	48.23	34.33
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R^2	0.092	0.269	0.197	0.120	0.259	0.132	0.240	0.271	0.261

k = thousand, Kab1 = *kabupaten* with less than 25% urban population, kab 2 = *kabupaten* with urban population of 25%–50%), kab3 = *kabupaten* with urban population higher than 50%, *kabupaten* = predominantly rural district.
Note: ***, **, and * indicate 1%, 5%, and 10% levels of significance, respectively.
Source: Authors.

The productivity gains from attaining more education deserve a special discussion. Does urbanization amplify the positive effect of education on productivity? A quick answer to the question tends to be "yes," as the magnitude of productivity gain of more schooling in cities is more than three times that in rural districts. Within rural districts, the positive effects of schooling from productivity show for kab1 (*kabupaten* with less than 25% urban population) to kab2 (urban population of 25%–50%). However, the productivity gain of more years of schooling seems to vanish in the case of the most urbanized *kabupaten* (with urban population higher than 50%), in contrast to *kota* (cities). It seems that the urbanization gain in capitalizing the effect of education on productivity is better managed in cities (with the official status of *kota*/ municipalities), probably because municipal governments are able to deliver better urban management than district governments of even the most urbanized *kabupaten*.

This is not surprising, as cities generally offer better educational facilities because they serve as education centers for surrounding rural districts. Indeed, the productivity gain from better education supply in medium-sized cities is nearly twice that of cities in general.

Overall, while the productivity gain of more education in cities is far superior to that of rural districts, **medium-sized cities are the best at capturing the gain** among the groups of cities. This is also consistent with the Lewis result that many migrants to large cities end up unemployed and/or doing fairly informal, or family-type work. Moreover, although the impact of average years of schooling is not overwhelming in large cities, they may still have the highest share of college-educated employees but the latter work alongside informal workers with low productivity and low education, which lowers the overall impact (see Section 4).[18]

Note that the schooling variable *EDU* measures mean years of schooling, but there is also an impact discussed in the literature of having a core of highly educated workers not captured in this variable. Evidence in other countries suggests that having a core of highly educated workers or a university in close proximity contributes strongly to positive agglomeration externalities and productivity. We find this to be true in Indonesia, particularly in Jakarta. It may also explain why the coefficient of population density is insignificant in explaining productivity for larger cities—because this effect is already being captured by the education variable.

The results of wages (equation 2) are presented in Table 5.6. We find a generally consistent result that productivity drives wages, which is in accordance with the marginal productivity theory. On the wage gains of higher schooling, the results vary. In the overall observation of all districts presented in column 1, there seems to be no significant effect of schooling on wages, which is counterintuitive, as one would expect that districts with a higher stock of human capital with higher educational attainment should enjoy higher wages. The disaggregation of all districts into *kabupaten* and *kota* helps in identifying the problem. The positive effect of schooling on wages is different in cities versus rural districts. While the wage gain of higher schooling is not present across *kabupaten*, the gain is significantly positive in all cities and in the most urbanized *kabupaten,* as can be seen in columns 3 and 5. The results in Table 5.6 indicate the importance of mean years of education in urban districts in commanding higher wages, except in the case of medium-sized cities.[19] This is consistent with the hypothesis that better educated employees can find a better match for their skills in urban areas, and can thus perform jobs more efficiently and earn higher wages.

[18] Unfortunately, data on informal employment are not available.

[19] It is possible that investment in education is less rewarded in medium-sized cities because of the relative absence of formal sector jobs.

Table 5.6: The Wages Model (fixed effects)

	Classification of Districts Based on % of Villages Urban, and All Urban Districts (*Kota*)						Groups of *Kota*		
	Kabupaten				*Kota*	All	Provincial Capital	*Kota* - Medium	*Kota* - Other
	Kab1	Kab2	Kab3	Total Kab					
Variable	(urban <25%)	(25%≤urban <50%)	(urban≥50%)	(all districts)	(all municipalities)		(100K ≤ pop < 500K)		(small, large, metro)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Log Productivity	0.159***	0.39***	0.305***	0.22***	0.365***	0.241***	0.273***	0.369***	0.374***
Log Schooling	9.30E-03	0.075	0.927***	0.024	0.508***	0.031	0.377	-0.246	1.06***
Log Unemployment Rate	-0.061***	-0.073***	3.80E-03	-0.064***	-0.047***	-0.068***	-0.024	-0.035	-0.065**
Log Population Density	0.044	0.211**	0.699***	0.112**	0.553***	0.169***	0.813***	0.928***	0.242*
Constant	1.9***	-0.055	-5.27***	1.29***	-4***	0.878***	-5.42***	-4.98***	-2.97***
No of Observations	1,984	936	272	3,192	784	3,976	256	448	336
No of Groups	248	117	34	399	98	497	32	56	42
F	24.15	63.49	42.85	66.28	98.57	107.92	47.6	58.21	46.73
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R^2	0.053	0.234	0.423	0.087	0.366	0.110	0.464	0.375	0.392

k = thousand, Kab1 = kabupaten with less than 25% urban population, kab 2 = kabupaten with urban population of 25%–50%), kab3 = kabupaten with urban population higher than 50%, kabupaten = predominantly rural district.
Note: ***, **, and * indicate 1%, 5%, and 10% levels of significance, respectively.
Source: Authors.

As expected, we find a negative relationship between the unemployment rate and wages, although it is inexplicably positive (though not significant) in the most urbanized group of *kabupaten*.

In general, districts with higher population density tend to enjoy higher wages. Although the coefficient on the population density variable is positive and significant in all cases, the magnitude is considerably higher for *kota* than for *kabupaten*. The positive effects of population density on wages are largest in medium-sized cities.

In conclusion, the results of the two models show that the productivity gain of more schooling and the positive effect of population density on wages are largest in medium-sized cities, particularly cities with population sizes between 100,000 and 500,000, where there is sufficient population density to provide agglomeration

externalities, but urban management seems to be more able to handle pressures from population growth. Although we do not have a variable to represent the quality of governance, calculations suggest that districts with high per capita fiscal revenue have grown the most, possibly related to the possibility of attracting businesses.

5.3. Urbanization and Economic Activities

The previous section looked at the difference between labor productivity and wages in cities and rural districts of different sizes. While the results in part reflect the size and governance based on the administrative definition, it is not clear how much some of these results are being driven by the different types of economic activities in which workers engage in rural versus urban centers, particularly if there are high levels of agglomeration (proxied by population density). In this section, we are less interested in the dynamic aspects of wage and productivity growth and more in the association between the location of economic activities and the likelihood of districts being urban or rural.

It is not immediately obvious when looking at the three main sectors—agriculture, industry, and services—that densely populated districts are more productive because of their predominant activities: manufacturing and services. We know that family-based agriculture is located predominantly in rural districts, but so too is the highly productive export of edible oils, minerals, and hydrocarbons. Moreover, manufacturing is not generally located in the large, densely populated cities; export processing zones are near cities but in districts with low-to-medium population density, and most medium and large manufacturing firms are located in *kabupaten,* which employ 67% of manufacturing workers, not in cities (*kota*). However, firms concentrated in *kabupaten* tend to be located close to cities, and in most cases these *kabupaten* are categorized as the most urbanized ones (with proportion of urban population higher than 50%).

Finally, services in Indonesia could be located anywhere: wholesale trade and tourism may be located in mostly rural districts, whereas government affairs may be mostly urban activities. Services in urban districts may consist of small, informal shops that cater to commuters, whereas the services consumed by high-income earners in their home districts—possibly defined as rural—may be of higher value on average.

Table 5.7 shows that 73% of manufacturing and services output is produced in urban districts (as defined by BPS).[20] More than half (54.5%) of industry sector workers resided in urban areas, even though the workers in urban districts comprised only

[20] Unfortunately the data on economic sectors are available only at this aggregation level by district. Much more detailed data within manufacturing and services are available only at the province level.

44% of total employment in 2015. This would indirectly imply that they are more productive than rural workers; however, parts of the production value chain are likely located in rural districts. Moreover, 88% of mining sector value added came from rural districts, even though 74% of employment in mining was rural. Finally, urban districts produced 72.7% of Indonesia's services value added and employed more than 58.4% of service workers.

Table 5.7: Sectoral Employment and Output Share (%) by District Type, 2015

Employment Share (%)						
	Agriculture	**Mining**	**Industry**	**Manufacturing**	**Services**	**Total**
Urban	14.3	26.0	54.5	63.2	58.4	44
Rural	85.7	74.0	45.5	36.8	41.7	56
Output Share (%)						
	Agriculture	**Mining**	**Industry**	**Manufacturing**	**Services**	**Total**
Urban	16.6	11.8	69.7	72.5	72.7	59.9
Rural	83.4	88.2	30.3	27.6	27.3	40.1

Sources: BPS (various years), Indonesia National Labor Force Survey (SAKERNAS); and BPS, District Regional Accounts —see Appendix A5.1.

Our unit of analysis is the district, but divided into only two subgroups: urban or rural as defined by BPS,[21] with population density being the most important criterion (Table 5.8). According to this binary classification, 29% of workers in urban districts are employed in industry. Moreover, 41% of urban output is in the industry sector. Likewise, in rural districts, 50% of employment is in the agriculture sector, and 28% of the output is in the agriculture sector. Almost 16% of workers in urban districts have some tertiary education, and 11.8% completed it. Urban districts tend to receive lower fiscal revenues per capita (Table 5.9).

Using this classification, we try to answer two questions related to agglomeration:

- Are the economic activities with the highest skill requirements located in urban districts?
- Does the strong relationship between agglomeration and highly educated workers relate to the economic activity—especially in services, the largest sector of the economy?

This is capturing a very different effect than the education variable in section 2, which relates to mean years of schooling. The share of workers who are highly educated is

[21] In this classification, all *kota* and all *kabupaten* with more than 50% urban workers are considered urban districts. The rest of *kabupaten* are classified as rural. As per Table 5.2, the most important criterion is population density. Source: Statistics Indonesia district definition (as in Table 5.2).

Table 5.8: Distribution of Employment and Output Shares by Sector in Urban and Rural Districts, 2015

	Urban	Rural
Employment Share (%)		
Agriculture	11	50
Mining	1	2
Industry	29	15
Of which: Manufacturing	20	9
Services	60	33
Total	**100**	**100**
Output Share (%)		
Agriculture	4	28
Mining	2	18
Industry	41	24
Of which: manufacturing	29	16
Services	53	30
Total	**100**	**100**

Source: Calculations using BPS data (accessed May 2017).

Table 5.9: Highest Educational Attainment and Fiscal Revenue in Urban and Rural Districts, 2015

	Urban	Rural
Education Share (%)		
Higher Education Completed (associate diploma)	15.6	7.3
Tertiary Education Completed (including bachelors, masters, and doctorate degrees)	11.8	5.6
Average Fiscal Revenue Per Capita (million rupiah)	3.7	6.3

Source: Calculations using BPS data (accessed May 2017).

used to test the hypothesis of whether a critical mass of high talents not only produces high spillovers—particularly in services—but also attracts other types of employment, including low-skilled employment to provide support services.

5.3.1. Where Are the High-Skilled Workers Employed?

To estimate whether high-skilled workers are working in mostly urban districts, we divided industries of employment into 35 production sectors, distinguishing between the output produced by workers employed in urban districts and that produced by workers employed in rural districts. The National Labor Force Survey (Survei Angkatan Kerja Nasional—SAKERNAS) provides this information. Then we rated the production activity according to its level of complexity, which is a proxy for the

share of skilled workers required in that endeavor. For sectors that mostly produce goods (agriculture and industry), the index was taken from the Atlas of Economic Complexity (Hausman and Hidalgo 2016), wherein each good is ranked according to its revealed comparative advantage in global trade.[22] We used this index for the level of classification of Indonesia's goods production and normalized it so that the average complexity index was 1. This gave us a product complexity index (PCI).

Since such an index did not exist for services and nontradables, we created our own complexity index for services.[23] We assumed that the United States is on the technology or efficiency frontier for service delivery and has a comparative advantage in business services. It is a large and diverse country, which generally creates conditions for strong competition among service providers.[24] The index was normalized to 1, and this gave us a services complexity index (SCI) to help determine whether the average urban worker is engaged in more complex activities than the average rural worker.[25]

The results are in Figure 5.3 (right-side bars), where a value of 1 of the PCI or SCI is considered an activity of average complexity. According to the SCI, the contrast between urban and rural areas in the location of more and less complex activities is not as marked as might have been expected (see columns to the left in Figure 5.3). With the exception of agriculture, mining, and coke and petroleum, almost all less-complex manufacturing and service activities were still concentrated in urban areas (see for example construction, and hotels and restaurants in services; and garments and textiles, leather and footwear, and food and beverages in manufacturing).[26] Nonetheless the more sophisticated industries such as business services and financial intermediation within services tended to be heavily urban, as were chemicals, transport equipment, electrical equipment, rubber and plastics, and machinery and equipment among the most complex goods sectors.

[22] The formula is the same as the Economic Complexity Index. See detailed derivation in Harvard University (2016), the Atlas of Economic Complexity glossary.

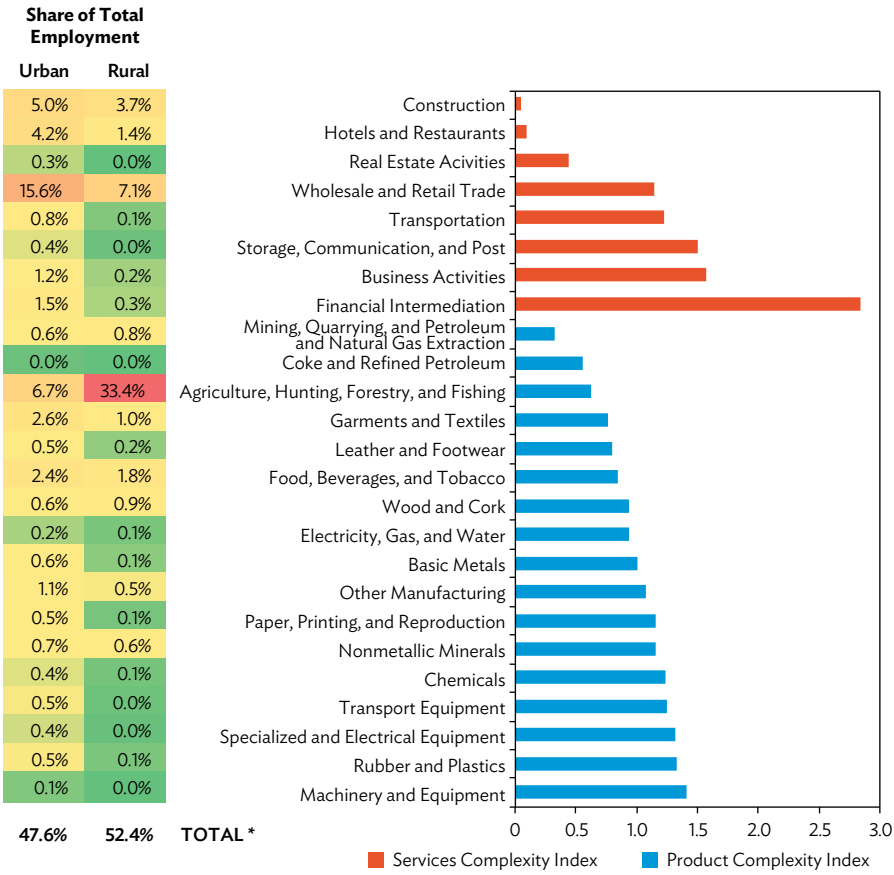
[23] We used the trade-in-value-added "revealed comparative advantage index" of services of the United States as a proxy for the complexity of services in 2015. The source is ADB (2015).

[24] We excluded government and community services from this analysis, as they are not necessarily produced in a competitive market. We also excluded transport and infrastructure services, which are dependent in all countries on different factors. For example, infrastructure services delivery depends on whether they are publicly or privately provided, the geography and population density of the country, and the initial capital level.

[25] This exercise can also be thought of as a second-best solution to classifying workers based on their skills, with higher weights for higher skills.

[26] However, the share of employment in the large construction and food and beverage sectors was more even between urban and rural areas (5.6% versus 3.7%, and 2.4% versus 1.6% in urban and rural locations, respectively).

Figure 5.3: Product and Services Complexity Indexes for Selected Sectors, and Urban–Rural Employment Shares in Goods and Services Sectors, 2015



Notes:
1) Excludes infrastructure services and public sector activities.
2) The "Total" in the table is not the same as the country-wide total because the table includes only sectors used in the product and services complexity indexes.
Sources: BPS (various issues), National Labor Force Surveys (SAKERNAS); ADB (2015); and authors' calculations.

5.3.2. What Is the Relationship between Agglomeration and the Concentration of Highly Educated Workers?

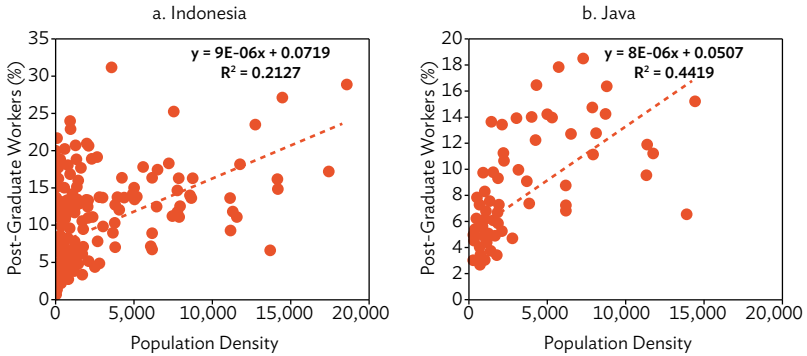
It is possible that the relationship between high productivity and urban location is especially prevalent for highly educated workers. Evidence from other countries suggests that urban activities—particularly in the services sector—are more productive when there is agglomeration. Within services in particular, some activities require more complex processes and perhaps need a critical mass of high-skilled workers to be concentrated geographically. Moreover, high-skilled workers generally

demand higher-quality personal services such as good health and education. We now examine whether districts with a high population density come hand in hand with a high share of professionally educated workers (Moretti 2012).

Figure 5.4 shows an indicator of employment skill—measured in terms of the share of workers in each district that have a college or postgraduate degree—against population density (a proxy for agglomeration and urbanization). For many of the less densely populated districts, the correlation between agglomeration and the share of highly educated workers is very small (panel a). But this relationship becomes stronger the more densely populated the district is, consistent with the results found in section 2, for different levels/kinds of urbanization. Moreover, in districts within Java (particularly near Jakarta, Banten, and West Java—all heavily urbanized areas), agglomeration is positively correlated with a higher share of well-educated workers (panel b).

Appendix A5.2 examines whether this strong relationship still holds after controlling for other factors such as income and principal economic activity. The results confirm the strong and significant relationship at the district level between the share of highly educated workers (a proxy for a skilled workforce) and agglomeration or level of urbanization, even after controlling for income and main economic activities in the district.[27] The same was true when looking only at districts in Java. While this is not necessarily a causal relationship, it is consistent with Moretti's hypothesis observed in more advanced economies.

Figure 5.4: Relationship between Agglomeration and High-Skilled Human Capital



Note: Java covers 108 districts.
Source: Authors.

[27] We have enough years to do a panel data analysis but chose not to, as the data are not sufficient, and we are likely to get a lot of endogeneity because of contemporaneous effects. Nonetheless, most of the explanatory variables are unlikely to change over a short period of time; indeed, the process of urbanization is really a long-term phenomenon.

5.4. Defining Livable Cities in Indonesia

In this section we look at commuting patterns and the spatial distribution of Jakarta and the surrounding provinces. Much has been said about Java being "different" from the rest of Indonesia in both good and bad ways, but it deserves special attention, particularly with regard to the geography of employment and productivity differences. Moreover, medium-sized cities have thrived in the last 2 decades in the context of a decentralization phase, and the productivity of workers in these cities is higher as suggested in section 2. The cities of Bandung and Makassar are taken as two case studies where urbanization appears to have supported productivity, partly because of superior leadership, application of new ideas, and governance patterns. We also draw attention to some of the costs of urbanization in both cases.

5.4.1. What is Urban Sprawl?

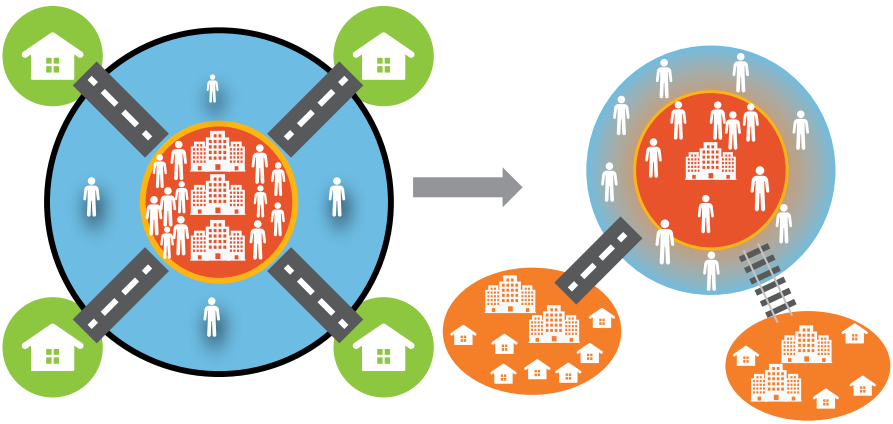
Urban sprawl or scattered development can be the outcome of poor planning and disorderly development, and can also affect commuting times.[28] If planning and patterns of settlement are relatively good, then urban models predict that population density should go down progressively as one moves away from the city center, particularly in the case of a megacity. This way there is a tradeoff between rental prices per square meter and commuting costs. But sometimes a "donut-shaped" population density pattern of settlements can occur, in which there is a surrounding area that is relatively sparsely populated and not well developed, for various reasons. One may be that, as the city grew and developed, a marginalized population that migrated there to work could not find good paid employment centrally or found it too expensive to live in the center, and thus settled in the outskirts (Harris and Todaro 1970). Many such migrants may not have found good jobs and may be working in informal or unpaid jobs near their residence. The presence of slums and lack of good public services may emerge.

However, people with good jobs and choices may either prefer city living but with smaller residences, or suburban living with larger housing space available. This will create incentives for contractors to build village-type enclaves for wealthy urban households on the outskirts, which is feasible if the highway system or public transport option maintains commuting times within 1 hour each way. The problem is created when these suburbs "bypass" the sparsely populated slum areas with poor and possibly

[28] The definition of urban sprawl in this context refers to scattered development (as in Burchfield et al. 2006). Scattered development is a phenomenon in which many areas of undeveloped land exist within the outskirts of the city. This makes it more costly to provide public utilities and roads if development is less compact, and with poor institutions can lead to the development of slums and thus undesirable pockets within metropolitan areas, which further encourage suburbanization.

insecure provision of public services. The result in terms of population density is like a "donut" effect, where there is less population density on the dough part (Figure 5.5, left side). A partial solution may be to create incentives for economic activity to move out of the metropolis and settle in an urban area where the construction of public transport is consistent with a more uniform settlement of the city, while the size and growth of the new city are well managed (with density moving away from the center), thus relieving congestion in the city center. If this city is well managed and medium-sized, it will become more livable.

Figure 5.5: Urban Sprawl in Megacities: An Example of the Negative Externality of Urbanization—and Its Solution



Urban sprawl: Land expansion grows faster than commuting costs, population, income, and agricultural rent—creating a "donut shape" of low population density.

One partial solution: Create new urban centers with just as good or better amenities, and reinforce with congestion pricing, good inner city transport, and property taxes.

Note: Light blue areas denote low population density. Red denotes high population density including high-rise buildings. Green is mostly residential, and orange is well-planned residential with office and business space.
Source: Authors' representation based on Brueckner (2011).

Traffic congestion is on the rise in many of Indonesia's major cities, especially Jakarta and surrounding areas, which simply cannot cope with the growth in the number of vehicles, despite the recent initiative to develop a mass rapid transport system in

Jakarta.[29] In terms of start–stops, it has been rated as the city with the world's worst traffic congestion, followed by Istanbul and Mexico City.[30]

Commuting patterns and urban sprawl are a problem mostly on Java, particularly in Jakarta Special Capital Region (Jakarta DKI—Daerah Khusus Ibukota), West Java, and Banten (the two provinces that surround Jakarta). Indeed, of the five cities in Indonesia where there is a high prevalence of workers commuting outside their district, all except Bali are on Java. In 2015, a quarter of workers crossed district lines to get to work in the capital city, and of those, 25% did so daily. Banten, bordering Jakarta to the west, also has a large percentage of commuters that cross district lines. Furthermore, Table 5.10 column 2 shows that in three provinces (Banten, Jakarta, and West Java), which are all contiguous to the capital city area, between 28% and 36% of commuters that cross district or city lines need to travel more than an hour to get to work. Fortunately a large percentage use collective or public transportation.

Table 5.10 : Commuting in the Most Problematic Provinces, 2015

Province	Share of Workers Commuting within District (%) (1)	Share of Interdistrict Commuters Traveling more than 1 Hour a Day to Work (%) (2)	Share of Total Workers Commuting for more than 1 Hour a Day Across District/City Borders (%) (3)
Bali	89.9	11.2	1.1
Banten	81.6	28.7	5.3
Gorontalo	94.1	9.9	0.6
DKI Jakarta	74.1	28.0	7.3
North Sumatera	94.4	11.9	0.7
South Kalimantan	94.8	16.0	0.8
West Java	89.7	36.1	3.7
Yogyakarta	87.4	10.5	1.3

Note: the values in the columns 2 and 3 now add to less than 100% of commuters in which the remaining shares correspond to the share of commuters who travel less than 1 hour across districts
Source: BPS (various issues), National Labor Force Survey (SAKERNAS).

5.4.2. Dissecting the Relationship between Work and Home Locations in Jakarta's Urban Sprawl

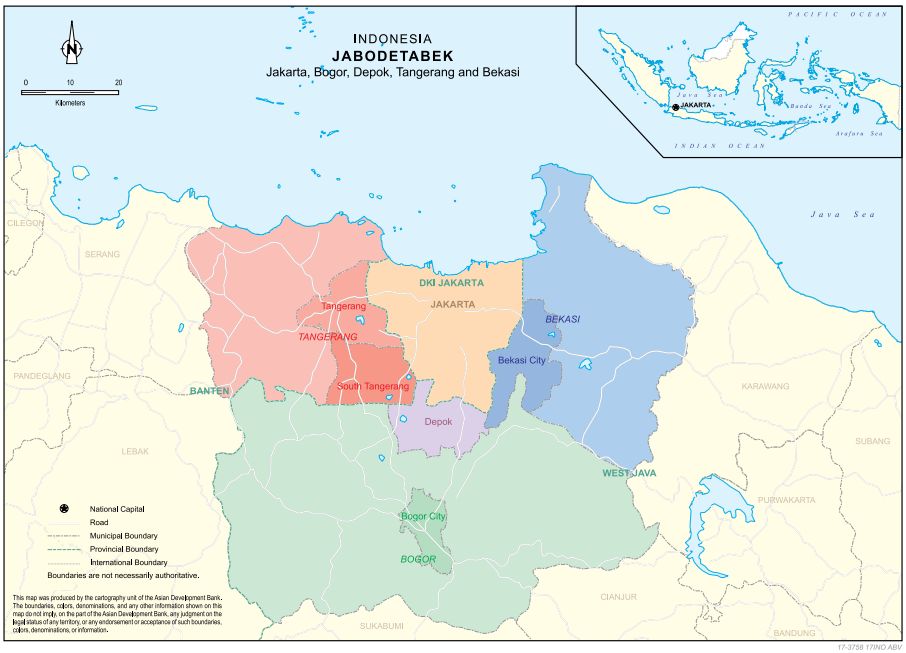
Using data on average per-worker income by district and the commuting distance to the capital city, we studied patterns in the location of workers in districts near Jakarta in relation to their wage income and economic activity. The model just discussed predicts that if a settlement is disorderly, productive workers will work and

[29] See for example Firman (2009).

[30] This is based on a new index created by the motor oil company Castrol, which finds that drivers in Jakarta are stopping and starting their cars 33,240 times per year on the road. The index relies on information from TomTom navigation devices in 78 countries. See http://time.com/3695068/worst-cities-traffic-jams/. In terms of average commuting times, though, Jakarta does slightly better than other megacities. It is not rated in another more precise measure of congestion http://www.worldatlas.com/articles/cities-with-the-worst-traffic-in-the-world.html.

live either in central Jakarta or far away in the outskirts of the metropolitan area (as depicted in the left diagram of Figure 5.5). Moreover, the discussion in section 1 and the concentration of commuting problems in and around central Jakarta (Table 5.10, last column) suggest that people choose to travel long distances to work in the urban centers around Jakarta and Bandung, but such travel is associated with high-skilled, high-paying services jobs. Moreover, the area outside of central Jakarta has many services activities—many of which are not captured by national surveys because they are informal—but these activities require few skills. These workers reside and are employed in the "urban sprawl" area outside Jakarta (depicted as the light blue shaded area in Figure 5.5).

Figure 5.6: Greater Jakarta—Jabodetabek



Source: Asian Development Bank.

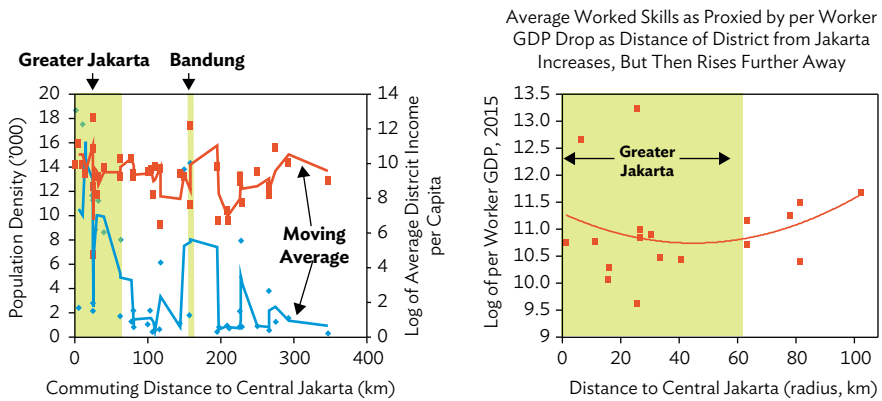
To test this hypothesis of whether commuting patterns around Greater Jakarta (Figure 5.6) are related to an urban sprawl phenomenon, we looked at the distance from the epicenter in central Jakarta (Merdeka Place, the presidential palace, was chosen) to the center of each district located in one of the contiguous provinces (West Java and Banten) in terms of both kilometers of traveled road and average travel time to make the trip. We present two pieces of evidence that suggest that this characterization of urban geography in and around Jakarta is consistent with the

observations above. With only district-level data and minimum granularity (detail) on the economic activities by district, the patterns cannot be further refined at this point.

First, the relationship between earnings per worker and commuting distance is not linear, confirming the urban sprawl hypothesis. We define as "urban sprawl" the districts in or around Greater Jakarta excluding Jakarta's main capital city proper. Greater Jakarta includes the eight districts surrounding Jakarta Province within a 63-kilometer radius (known as Jabodetabek; see Figure 5.6).

Figure 5.7, left-hand graph, shows that average income per capita in 2015 was higher in districts near Jakarta and Bandung. It shows that population density has a strong co-movement with per capita income: Districts near central Jakarta and Bandung are wealthier—and they are urban. Also, within the commuting range of Jakarta, income per worker (a proxy for wage earnings) tends to be positive and high the farther away the employment is from Jakarta (right-hand graph of Figure 5.7). Average wage income of districts closer to Jakarta tends to be higher, then dips at about a 40-kilometer radius from the city center, and then moves up beyond Greater Jakarta (shaded green in Figure 5.7) as average per-worker income again becomes higher. In sum, Figure 5.7 suggests that higher earners live close to the urban centers. Higher earners also tend to work close to urban centers, but the pattern is somewhat more dispersed.[31]

Figure 5.7: Average District per Capita Income and Population Density in the Three-Province Area Surrounding Central Jakarta (left-hand graph)**; and Wage Income in Relation to Distance for Districts Contiguous to Central Jakarta** (right-hand graph)



GDP = gross domestic product, km = kilometer.
Note: Horizontal axis in both graphs shows driving distance from Jakarta's epicenter to district center.
Sources: BPS (various issues), National Labor Force Survey (SAKERNAS); and authors' calculations.

[31] Note that the left-hand graph of Figure 5.7 stretches out for 300 kilometers from Jakarta, whereas the right-hand graph shows only the range of likely commuter distance.

Second, these income differences are better explained by the location of service jobs, as manufacturing is relatively well dispersed and generally not located in central Jakarta. Services are concentrated in large, densely populated urban centers—particularly high-skilled services—whereas manufacturing activity is more spread out but not too far from cities. Table 5.11 shows the share of production in services: (1) in Jakarta versus outside of Jakarta but on Java (columns 1 and 2); and (2) in the three provinces versus elsewhere on Java (columns 3 and 4). The fifth column provides the same indicator for Indonesia as a whole.

The number can be interpreted as an "augmented" share in that, if it is considered a complex activity, then average worker productivity should be higher. This is derived by multiplying employment shares by the SCI. The results show that production in Jakarta is clearly dominated by more high-skill service activities such as financial intermediation and business services. The difference with the rest of Java (excluding the three provinces) is startling (column 4 of Table 5.11): The services share is 29.8%, compared with 60.0% in central Jakarta. In contrast, manufacturing is located mostly outside of Jakarta, but the augmented manufacturing employment share is about the same (36.3%) in Jakarta's contiguous provinces and on Java as it is in Indonesia as a whole. Finally, while jobs in "sophisticated services" are concentrated in Jakarta, so are less sophisticated ones such as wholesale and retail trade and construction. This is consistent with Moretti's 2012 hypothesis that there is a class of low-skilled activities in and around large cities that cater to wealthy individuals and provide support to high-end services.

In conclusion, a picture emerges of high-income earners commuting long distances to central Jakarta to engage in professional services activities. Most of the basic services are in the areas immediately surrounding Jakarta, and the more sophisticated business services are in central Jakarta. In contrast, manufacturing production is more evenly spread out geographically, even after accounting for product complexity.[32]

Differences in skills are stark: Workers with a higher education are located mostly near the very center of Jakarta.[33] However, fiscal federalism policies continue to act as an income equalizer. Although per capita income of urban districts and the surrounding regions is almost five times higher than in rural districts, the share of fiscal revenues to district GDP in Java is much higher in rural districts than in urban districts: 86%

[32] Ideally, we would want to have more detailed data by neighborhood around the city center to make this analysis. Nonetheless, our findings are consistent with observations and assessments by local government planners of an urban sprawl around the center.

[33] The share of workers with a higher education degree in the province of Jakarta Special Capital District in 2015 was almost 27.0%, compared with 10.6% nationally excluding Jakarta. Moreover, central Jakarta has 36.4% of workers with some tertiary education, the second highest level in Indonesia after energy-rich Kota Banda Aceh.

Table 5.11: Shares of Services Sector Employment in Total, Jakarta, and Selected Regions (%), Complexity-Augmented by the Services Complexity Index

Services Sectors Ranked by SCI	Jakarta (1)	Java excluding Jakarta (2)	Jakarta and Contiguous Provinces (3)	Java excluding Jakarta and Contiguous Provinces (4)	Indonesia (5)
1. Financial Intermediation	16.7	3.5	6.5	3.5	4.1
2. Business Activities	5.1	1.1	2.3	0.9	1.2
3. Storage and Communication	3.9	0.9	1.6	0.9	1.1
4. Transport	4.9	3.8	5.3	2.8	3.9
5. Trade (wholesale and retail)	27.6	22.7	26.0	21.0	21.3
6. Real Estate Activities	0.7	0.1	0.3	0.1	0.1
7. Hotels and Restaurants	0.8	0.4	0.6	0.4	0.4
8. Construction	0.3	0.3	0.3	0.3	0.3
Weighted Manufacturing Share	16.9	39.8	36.3	38.1	36.2
Weighted Services Share	60.0	32.8	43.0	29.8	32.4

SCI = services complexity index.
Notes: The SCI averages 1 if each worker in each sector is equally skilled. If a sector requires more skills (a higher SCI), the weight will be greater than 1. For manufacturing it is multiplied by the product complexity index (PCI). See subsection 3.1 for the derivation.
"Contiguous provinces" relates to Banten and West Java. All three provinces have districts located within a 150-kilometer radius of the Jakarta city center. It is not possible to disaggregate at the more detailed district level the economic activities in those provinces.
Source: Authors' calculations based on BPS (various issues), National Labor Force Survey (SAKERNAS).

compared with 64% in urban districts.[34] The World Bank (2017) also shows that the intergovernmental fiscal transfer system still favors smaller districts in terms of population, which are likely to be rural.

5.4.3. Two Exemplary Cities: A Closer Look at Bandung and Makassar

In addition to the geographic and demographic description of job location, firms and households clearly move to cities because of the amenities they offer. Here we consider two urban centers that have been relatively successful at doing so.

The "big bang" decentralization program that began in 2001 has given district-level governments more responsibility, as most government functions are delegated to

[34] The data are defined in billions of rupiah, and include intergovernmental transfers. They also seem to be related to per worker productivity by district (Appendix 5.2).

this level of local administration. The central government is left with only six basic functions—defense, police, monetary policy, justice, foreign affairs, and religious affairs—while the provincial governments serve as the representatives of the central government in the regions and manage issues such as interdistrict coordination and other local government functions that cannot be handled by district governments (Ostwald et al. 2016).

The decentralization is only part of the long history of subnational governments in Indonesia. During the authoritarian era under President Suharto prior to the democratic transition in 1999, local government heads (governors, regents, and mayors) were simply hand-picked by the central government, though they were, procedurally, elected by members of local parliaments of the provinces, *kabupaten,* and *kota*. Between 1999 and 2004, the power to elect local government heads was largely in the hands of party bosses, and vote buying during close elections for local parliaments was rampant. In 2005, for the first time, local government heads were elected through popular votes in each subnational government unit, including districts. It was a moment for a true political decentralization to take place (Tadjoeddin 2012).

The direct election of local government heads starting in 2005 allowed an opportunity for good leaders to provide outstanding governance, defined as the ability to administer basic urban services while attracting business and promoting transparency. Local voters felt empowered to elect popular governors, regents, and mayors and to punish nonperforming local leaders (Erb and Sulistiyanto 2009). For incumbents, their current and past records as local leaders were used to convince voters. For other contestants, their track records in different roles (as bureaucrats, businesspeople, professionals, politicians, informal leaders, etc.) and their visions as new leaders were their main campaign messages to win local elections. In this regard, several Indonesian localities have been able to elect new kinds of local leaders with clean track records and professional capabilities who are contributing significantly to innovative development and governance at the local level. Although it is more of an exception than the rule, the conduct of direct local elections facilitated the rise of good and capable local leaders such as in West Sumatra (the provincial governor elected in 2005 is the first local leader to receive the Bung Hatta Anti-Corruption Award); in Surakarta (the city's mayor was elected twice in 2005 and 2010, then elected as Jakarta's governor in 2012, and then Indonesia's president in 2014); in Surabaya (the current mayor was elected twice, in 2010 and 2015); in Bandung (the current city mayor was elected in 2013); and in Makassar (the current mayor was elected in 2014, as well as the previous mayor, during 2004–2014).

From this perspective, in the context of urban development and governance, the municipalities of Bandung and Makassar have occupied relatively shining positions,

partly because these cities have been led by relatively innovative and energetic mayors. The two cities are unique in their own right.

Bandung. Located in a beautiful mountainous area and dubbed the "Paris of Java," Bandung is the provincial capital of West Java. Historically Bandung is a major tourist destination and a key center for higher educational institutions in the country, with about 78 colleges and universities actively operating in the city. More recently, Bandung has named itself as a center for the development of creative economies. "The term creative industries first emerged in Indonesia when young creative people established indie music and clothing industries ('*distro*') in Bandung in the first decade of the new millennium. These youngsters, supported by the British Council, then attempted to develop Bandung as a 'creative city.' Later, the national government had the idea that creative industries could also be established in other localities. In response, President Yudhoyono issued Presidential Instruction 6/2009 on the development of the creative economy, which obliges all local governments to promote creative industries in their own localities, and this was followed by the formation of the Ministry of Tourism and Creative Economy" (Fahmi et al. 2016: 67). Since 2015, creative economy affairs in Indonesia have been coordinated by the Creative Economy Board. Bandung can be easily called the most creative city in Indonesia, as it was the only Indonesian city included in the United Nations Educational, Scientific and Cultural Organization (UNESCO) Creative Cities Network.[35]

Bandung is currently led by a relatively young and energetic mayor. A professional architect and an academic, he won the direct local election for Bandung mayor in 2013 by a landslide. Since then, he has introduced many urban governance-related breakthrough initiatives.[36] Bandung has constantly demonstrated a higher economic growth rate than the national average while experiencing many challenges resulting from rapid urbanization, including slums, insufficient basic infrastructure, and flooding. Still, its recent development is closer to the type of orderly urbanization model depicted in Figure 5.5, right side. Despite the challenges, Bandung has improved gradually in recent years, offering hope and confidence for the city's economic and environmental sustainability (Tarigan et al. 2016). Despite these positive developments, given the size of the city's public finance, the ability of the city's administration seems to be

[35] See http://en.unesco.org/creative-cities/events/47-cities-join-unesco-creative-cities-network. Later on, the city of Pekalongan in Central Java joined the network.

[36] Bandung has aimed to boost its infrastructure spending, especially through public–private partnership schemes. Speaking in 2015, in his second year in office, the mayor projected that Bandung would need Rp58.9 trillion ($4.30 billion) to develop various local infrastructure projects until 2018, of which only about 6% would be covered by the government. New key infrastructure projects include an intra-urban toll road, a cable car, and a monorail (Dipa 2015). Other initiatives include revitalization of key business streets for creative economy, new development as well as revitalization of public parks, modernization of traditional markets, and revitalization of informal urban settlements. In addition, the mayor has offered a new style of clean, responsive, and consultative leadership through the help of information and communication technology as well as social media (Rowe and Wu 2016, Anindita and Rachmawati 2016).

under duress due to growing pressure from economic growth and urbanization (Table 5.12). Moreover, as the city becomes richer, transfers per capita from the central government fall as per the equalization formula. This points to the importance of balanced development across regions and between urban and rural areas.

Table 5.12: Bandung Public Finances

	Total Fiscal Revenue (million rupiah)	Fiscal Revenue per Capita	Growth of Income per Worker (%)
2009	1,954	0.82	4.8
2010	1,760	0.73	8.1
2015	3,251	0.60	9.0

Note: Fiscal revenue also includes general and special allocation funds and other intergovernmental transfers.
Source: Calculations using BPS data (accessed July 2017).

Makassar. Makassar is the capital city of South Sulawesi Province. It has been the largest city in the province in historic times and serves as the economic capital as well as the transport hub of the Eastern Indonesia Region (comprised of Maluku, Papua, and Sulawesi). Since colonial times, Makassar has been the gateway to the eastern part of the Indonesian archipelago. As a home for several universities, Makassar also functions as the educational capital of the Eastern Region. Therefore, Makassar attracts migration and talent from all over Indonesia, especially the eastern part. Based on regional development policy adopted by the centrist federal government in the 1980s, Makassar became the economic epicenter of the Northern Development Region consisting of Sulawesi and East Nusa Tenggara. This had positive implications for key infrastructure development in the city, such as ports, airports, and roads (Anwar 2004). In the mid-2000s, with technical assistance from the Japan International Cooperation Agency, a plan to integrate the metropolitan region of Makassar, Maros, and Sungguminasa dan Takalar (Mamminasata) was developed. Recently in 2016, the provincial government of South Sulawesi claimed that Mamminasata is the most advanced National Strategic Area (*Kawasan Strategis Nasional*) after Greater Jakarta.[37]

Makassar was led by a capable mayor for two periods (2004–2009 and 2009–2014). The mayor was elected for the first time at the age of 39, having had experience as a successful businessman and a member of the local parliament. In 2008, the mayor was selected by *Tempo* magazine as one of the 10 best local leaders. During that period the Makassar economy grew at about 9% annually, the highest in Eastern Indonesia, a key factor being improvements in local government licensing processes for businesses and others (see also Table 5.13).[38]

[37] See http://www.antarasulsel.com/berita/78840/wagub-mamminasata-ksn-termaju-di-luar-jabodetabek?utm_source=fly&utm_medium=related&utm_campaign=news

[38] See http://makassar.tribunnews.com/2013/07/30/inilah-kebersilan-wali-kota-ilham-dalam-pertumbuhan-ekonomi-makassar, and http://makassar.antaranews.com/berita/57281/walikota--pujian-presiden-terhadap-makassar-karena-jasa-ias

After serving two terms (the maximum allowed by law), in 2014, the mayor was replaced by a new mayor with a background as a professional urban planner, architect, and academic, a background that is shared by the current mayor of Bandung. The current mayor of Makassar is the first mayor to launch a Smart City plan in Indonesia (OpenGov 2017). In 2016, the mayors of Bandung and Makassar were among seven mayors awarded as *Indonesian Innovative Mayors 2016* in the categories of creative economy and economic development.[39]

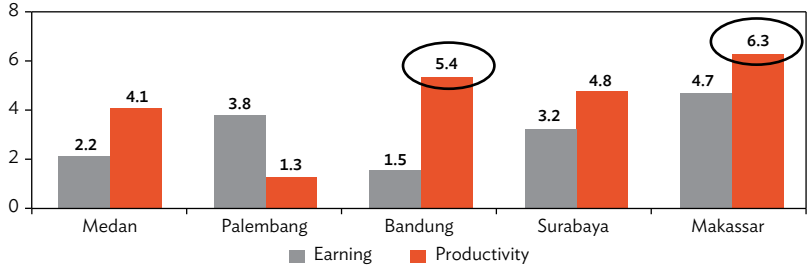
Table 5.13: Makassar Public Finance

Year	Total Fiscal Revenue (million rupiah)	Fiscal Revenue per Capita	Growth of Income per Worker (%)
2009	1,208	0.92	5.4%
2010	1,214	0.90	8.1
2015	3,081	0.23	7.6

Note: Fiscal revenue also includes general and special allocation funds and other intergovernmental transfers.
Source: Calculations using BPS data (accessed July 2017).

The role of economic geography, which favored the development of these two cities, as well as the dynamic government, which fostered strong institutions, seem to have paid off in terms of generating successful employment outcomes. This is also evident when comparing the productivity and wage indicators of Bandung and Makassar with those of other cities. During 2007 and 2014, Makassar and Bandung recorded the highest productivity growth, followed by Surabaya in third place (Figure 5.8). This is a reflection of the overall high economic growth of the cities.

Figure 5.8: Average Annual Growth of Productivity and Earnings in Selected Cities, 2007–2014 (%)



Source: BPS (various issues), National Labor Force Survey (SAKERNAS); and BPS District Regional Accounts—see Appendix A5.1.

[39] See http://daerah.sindonews.com/read/1130589/21/daftar-wali-kota-inovatif-2016-1470929049

5.5. Conclusions and Policy Implications

This chapter has examined productivity, wages, employment, and worker location in the context of urbanization in Indonesia. Urbanization, however, is not treated as a single variable, but is operationalized into the grouping of districts based on size and designation. Using data disaggregated across about 500 districts, the general trends in productivity and wages reveal that urbanization seems to correlate with higher productivity, worker skills, and pay, which is very much in line with the dominant narrative on urbanization as in Glaeser (2011). The links between productivity and wages are much stronger across cities compared with rural districts. The chapter also finds that the prevalence of more sophisticated services in urban areas, particularly in Jakarta, is associated with workers that are highly skilled and command larger earnings. The main conclusions follow.

First, **medium-sized cities seem to outperform** other cities and rural districts (*kabupaten*) in terms of productivity gains from greater average educational attainment. This seems to point to the relatively better urban management capacity of medium-sized cities in capitalizing the gains from urbanization, while larger cities are probably suffering from inadequate responses to mounting pressures from the demand for urban services, as well as longer average commuting times. So far, urban management in Indonesia appears to be reactive rather than anticipative to the growth of urban centers, and the size of reactive efforts tends to be far from sufficient to cope with the growing needs of expanding cities. This situation seems to be at the heart of the problem of why urbanization is unable to deliver sufficient economic gain. The data on commuting support the notion that this reactive stance is still largely a problem for megacities, in particular Jakarta.

Second, **urbanization is related to strong gains in productivity that are passed on in the form of higher wages**. The sectors that require the higher skills in terms of employment are located in major urban centers, particularly services sectors such as finance and business services that require better paid professional workers. Nonetheless, with a large urban sprawl and pockets of informal, low-wage service workers, not all cities have necessarily grown faster than regions classified as fully or partly rural. Indeed, the positive effect of population density on wages is larger at higher levels of urbanization. This is consistent with the finding that people are willing to commute long distances and across districts—at least at or near Jakarta—to work in jobs that command higher wages in the most urbanized and densely populated areas.

Third, **cities seem to suffer more from wage pressures** compared with rural districts. This is consistent with the previous descriptive finding that, in cities, wage growth is generally due to higher productivity growth. The cases of Bandung and Makassar are perhaps exceptions, since they have enjoyed much higher productivity growth during the period analyzed. Despite the unique characteristics and historical development of Bandung and Makassar, which might not be replicable in other cities, much can be learned from the innovative urban governance delivered by local leaders of the two cities since Indonesia embarked on radical decentralization nearly two decades ago. This also suggests that, in terms of size, the two cities have gained in terms of being able to attract talent and take the greatest advantage of agglomeration externalities without congestion. However, the two cities have been under constant pressures of increased traffic congestion and environmental issues, which require increased capacity of public urban infrastructure.

Finally, **despite evidence of an urban sprawl around Jakarta, the good news is that trends seem to be changing.** The government is setting property taxes and real wages to be commensurate with the cost of living to equalize standards of living across regions. Since the reforms of 2015, the minimum wage increase was standardized across regions, based on national cost of living and growth statistics. Moreover, district-level local government revenue data suggest that rural districts are favored over urban districts in terms of fiscal transfers.[40]

More importantly, if satellite clusters of livable neighborhoods near a megacity grow quickly enough, with the corresponding provision of high-quality services (health, education, recreation), then the clusters become a new urban unit with all the positive attributes of economies of agglomeration that may come from a critical mass of population density. Such cities will no longer need to be satellites sustained from the epicenter of Jakarta. That seems to be happening to Bandung.

[40] As Table 5.9 shows, average per-capita fiscal revenue in urban districts in 2015 was Rp3.67 million rupiah compared with Rp6.29 million in rural districts.

Appendix 5.1: Description of Variables Used in the Wage/Employment/Productivity Equations

1. The percentage of urban population across Indonesian districts is based on the 2010 population census.

2. Employment-related data are calculated from the National Labor Force Survey (SAKERNAS) datasets of Badan Pusat Statistik (BPS—Statistics Indonesia). They include number of employed, earnings, and unemployment rate. Earnings per worker refers to incomes received by the following categories of employment: self-employed, regular wage employment, and casual employment. The surveys do not collect earnings data for informal categories of employment (self-employed assisted by permanent workers, employer, unpaid family workers), so unless there are many more informal workers in urban than in rural districts, this should not bias the results. Real earnings data are expressed in 2010 constant prices using the district-level gross domestic product (GDP) deflator.

3. Labor productivity refers to total output (regional gross domestic product [RGDP]) per employed population. District-level RGDP is taken from two BPS publications: (1) RGDP by district 2007–2011, and (2) RGDP by district 2010–2014 . The two series of data are made consistent into one single constant price (2010). In the RGDP figures, oil and gas are excluded, as they contribute to only a very small portion of employment.

4. Schooling data (mean years of schooling) are taken from BPS annual publications of district-level Human Development Index .

5. Population density is obtained by using district-level population data (estimated by BPS) and data on land area by district issued by the Ministry of Home Affairs (Kode dan Data Wilayah Administrasi Pemerintahan per Provinsi, Kabupaten/Kota dan Kecamatan Seluruh 2012).
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4255706/.

6. Figures and tables using these sources were completed in February 2017, which is thus the access date for the figures and tables.

Appendix 5.2. Is There an Additional Higher-Education Premium on per-Worker Productivity in Urban Compared with Rural Districts?

To examine this question, we regress 2015 district-level data using a cross-section ordinary least squares (OLS) specification and a Probit specification, where the dependent variables are population density (agglomeration) and whether the district is urban or rural. Both specifications confirm a similar story.

Table A5.1 shows the results. We find that agglomeration is positively and statistically significantly related to being an urban district under either specification, after controlling for the wealth of the district in terms of per capita income and whether the district produces minerals or hydrocarbons (as these districts have a different structure and accumulated a lot of wealth during the commodity boom years). We find that population density (our variable of agglomeration) is positively and significantly related to a higher share of educated workers at the district level, where this variable is proxying for high-skilled employees who are expected to have high productivity. The second variable of interest (the share of services in total employment in the district) is positive and very statistically significant, reflecting the fact that these districts have a large and relatively developed services sector to support the high-skill activities. The coefficient is small, reflecting the fact that the share of employment in services in urban districts is not necessarily that different from the share in rural districts.

We performed the same exercise only for districts in Java (equations 2 and 5 of Table A5.1), and found that the broad relationship holds except that the share of value added in mining is no longer significant (reflecting the fact that Java is not a large mineral or hydrocarbon producer). The large and significant negative coefficient on the constant suggests that unobserved common effects are important.

Table A5.1: District-Level Results on Economic Agglomeration: The Importance of Graduate Education and the Service-Oriented Economy

	OLS Cross-Section Regressions Dependent Variable: Population Density 2015		Probit Regression Dependent Variable: Urban Dummy		
	Total	Java	Total		Java
Variable	1	2	3	4	5
Constant	-1,232.12***	-2,551.54***	-3.79***	-3.50***	-3.75***
	(159.5)	(419.3)	(0.32)	(0.3)	(0.75)
Share of Workers with Tertiary Education	123.29***	417.56***	0.1974***	0.195***	0.363***
	(12.8)	(39.8)	(0.02)	(0.02)	(0.08)
Per Capita GDP 2015	0.01***	0.01**	7.07E-06***		0.0000193**
	(0.0)	(0.0)	(0.00)		(0.00)
Share of Employment in Services	0.01***	0.004***	8.68E-06***	8.10E-06***	3.49E-06**
	(0.0)	(0.0)	(0.00)	(0.0)	(0.00)
Share of Value Added in Mining	-11.60**	-18.88	-0.011*	-0.007	-0.037
	(5.1)	(25.9)	(0.006)	(0.006)	0.027
Per Worker GDP in 2015				-1.31E-06	
				(0.000)	
Number of observations	505	119	505	505	119
F (4, 500)	169.1	73			
Prob > F	0	0			
R^2	0.6	0.7			
Adjusted R^2	0.6	0.7			
LR $chi^2(4)$			307.9	294.4	82.0
Prob > chi^2			0	0	0
Pseudo R^2			0.52215	0.4986	0.5003
Log likelihood			-141.2	-148	-41
Root MSE	1,648.1	2,178.9			

GDP = gross domestic product, MSE = mean square error, OLS = ordinary least squares.
Standard errors in parentheses, significance: *=90%, **=95%, ***=99%.
Source: Authors.

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Chapter 6
Education, Skills, and Labor Productivity

*Kiyoshi Taniguchi, Ruth Francisco, and Daryll Naval**

6.1. Introduction

Indonesia's remarkable economic growth in the past decades, as discussed in Chapter 1, has been accompanied by significant improvements in household living standards, as well as substantial progress in education.[1] Increased public investments in education, from 11.6% to almost 20% of the national budget, helped improve access to and enrollment in education (World Bank 2017c). Investments were made in critical areas such as teacher certification and scholarship and assistance programs to keep and support poor children in school. As a result, the last 2 decades have seen significant improvements in school participation and completion rates across all levels, especially at the primary and tertiary levels.

The gross enrollment ratio (GER) at the secondary level increased by almost 50 percentage points between 2000 and 2014, whereas the GER at the tertiary level more than doubled (World Bank 2017b). The average years of schooling increased from only 3.3 years in 1990 to 7.9 years in 2015 (UNDP 2016). Better education allows workers to secure higher paying and permanent jobs. The accumulation of human capital through investment in education and skills lays the foundation for sustained productivity growth.

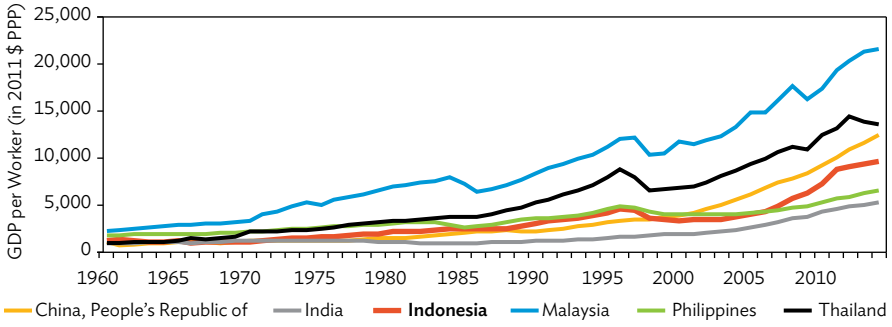
Beyond these remarkable achievements, Indonesia's performance in terms of labor productivity still lags behind that of its Asian peers (Figure 6.1). The country's weak infrastructure, low process productivity—how organizations design and operate their

* Insightful comments and suggestions from Rudi Van Dael, Edimon Ginting, Ayako Inagaki, Chris Manning, Ye Xu, and participants at the Asian Development Bank workshop greatly helped improve the chapter and are much appreciated.

[1] The proportion of population living in absolute poverty narrowed from 70% in the 1970s to 8% in 2014.

businesses so that labor, capital, or technology are used most effectively—and skill gaps are the major factors adversely affecting labor productivity (Budiman 2014). For example, while there are currently too many semiskilled workers in the country, the job market has limited capacity to absorb them, causing an oversupply of semiskilled workers (ACDP 2017a). At the same time, the education and vocational training system is not producing adequate graduates who are qualified to perform the available high skilled jobs in the country (ACDP 2017a).

Figure 6.1: Labor Productivity in Selected Asian Countries



GDP = gross domestic product, PPP = purchasing power parity.
Sources: Feenstra et al. (2015) and ADB staff estimates.

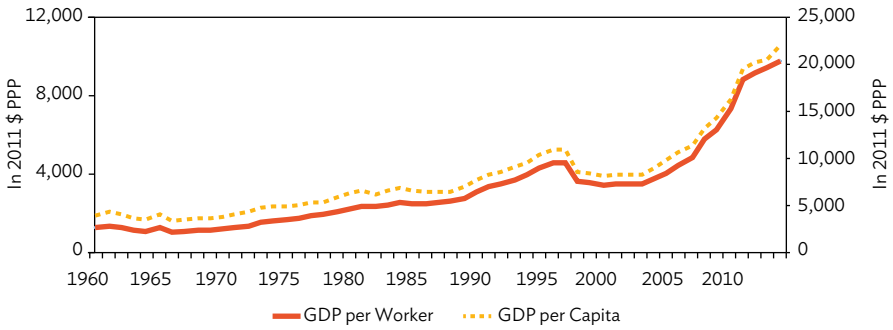
It is important for Indonesia to narrow its skills gap and employ its labor force more effectively in order to accelerate its labor productivity, achieve its growth targets, and transition from a middle- to a high-income economy. As shown in Figure 6.2, Indonesia's gross domestic product per capita has moved together with labor productivity through time. According to the McKinsey Global Institute (2012), achieving the government's 7% annual target for gross domestic product growth[2] by 2030 will entail boosting labor productivity to grow 60% faster than the average productivity growth rate in 2000–2010 (i.e., 2.9% per year). Moving forward, productivity improvements are crucial for bolstering Indonesia's economic growth and competitiveness, and for helping the country transition from middle-income to high-income.

Opportunities to enhance productivity lie in at least three areas: (1) reaping the demographic dividend, (2) overcoming skills gaps and mismatches in the labor market, and (3) fostering the accumulation of human capital rich in knowledge and innovation. Building an inclusive and responsive education system that promotes

[2] The original master plan (*Masterplan Percepatan dan Perluasan Pembangunan Ekonomi Indonesia*) aimed for real economic growth of 6.4%–7.5% in 2011–2014. Subsequently, the Jokowi administration vowed to meet the 7% growth target (*The Economist 2016*).

learning is vital for realizing these potentials. The success of the newly industrialized economies (Hong Kong, China; the Republic of Korea; Singapore; and Taipei,China) is partly attributed to an environment that has fostered the accumulation and efficient allocation of knowledge capital (e.g., Barro 2001, Aghion and Howitt 2009, Hanushek and Woessmann 2016).

Figure 6.2: Labor Productivity and Real GDP Per Capita In Indonesia



GDP = gross domestic product, PPP = purchasing power parity.
Sources: Feenstra et al. 2015 and ADB staff estimates.

Indonesia is in the best position to reap a demographic dividend now. By 2030, the country's working-age population (people aged 15–64 years) and its share of total population are projected to increase to 201 million, from 173 million in 2015, and to 68%, from 67% in 2015 (UNDESA 2017).[3] Consequently, the country's dependency ratio—the ratio of nonworking-age to working-age population—will dip to its lowest since the 1990s.[4] Beyond 2030, however, the country's dependency ratio will rise again as the share of older population increases more quickly.

Improving the quality and relevance of education is a high priority. Though enrollment and average years of schooling have increased significantly, Indonesian students perform worse than their Asian peers in science, mathematics, and reading. The coexistence of skill shortages (from the employers' perspective) and underutilization of learned skills (from the employees' perspective) highlights the problem of skills mismatch and education investments that are not responsive to market demands, resulting in suboptimal use of education resources and human capital. Indonesia needs to create incentives for employers to be involved in the deliberate planning of technical and vocational education and training (TVET), and to overcome the

[3] According to BPS (2016b), Indonesia's working-age population was at about 188 million in 2016.
[4] According to the 2015 Revision of the World Population Prospects (UNDESA 2017), the share of working-age population is estimated to be 68.1% by 2030. As of 2016, however, this figure was already around 72.8%, implying that the actual dependency ratio is lower than earlier projected.

constraints of limited funding and low teacher capacity to significantly enhance the quality of general education and TVET.

Innovation becomes more important for productivity growth after economies fully reap the benefits of using existing resources efficiently. Higher education creates the type of knowledge capital that can develop, adapt, and employ disruptive technologies that promote productivity. Higher level and better quality education are especially important for middle-income economies, such as Indonesia, to shift toward high-productivity sectors, as well as to employ advanced technologies and produce more sophisticated, high-value products and services (Eichengreen et al. 2014). Currently about 11% of the economically active population in Indonesia receives university-level education (BPS 2016b). The majority of such people work in permanent jobs in financial business services; social and personal services; as well as the electricity, gas, and water sectors. Beside intensive investment in higher education, policies should support innovation and entrepreneurship, which may not always provide job security and may require greater risk-taking.

Indonesia needs a better educated workforce with the skills that employers require, the capacity to learn and acquire new skills and to use advanced technology, as well as the agility to adapt to the ever-changing demands of the modern local and global markets. Such a workforce is indispensable for boosting Indonesia's global competitiveness, tapping the country's window of opportunity, and avoiding growth stagnation. In the medium term, the country could focus on optimizing the efficiency of using existing educational resources by improving the organization and management of education, upgrading connectivity and other infrastructure, and reallocating resources to education fields that are most responsive to industry needs. In the long run, intense investments in higher education and industrial research and development will drive the accumulation of knowledge capital, innovation, and entrepreneurship, which are the keys to a successful transition from a middle-income to a high-income economy.

This chapter reviews the

- progress of education and TVET in section 2,
- challenges in education, TVET, and employment in section 3, and
- integration with the Association of Southeast Asian Nations (ASEAN) and the mobility of skilled labor in section 4.

Section 5 provides policy suggestions.

6.2. Progress in Education and Technical and Vocational Education and Training

Education is one of the most critical ingredients for increasing labor productivity. Allen (2016) found that in Indonesia, workers with higher levels of education (secondary education or more) tend to be employed in full-time jobs; have better access to formal wage work; and follow better career progression toward permanent, full-time employment that pays above the minimum wage. Workers with an (upper) secondary education are twice as likely to move into permanent, full-time employment that pays above the minimum wage as those with junior high school or below attainment, while those with postsecondary qualifications are 3.5–4.5 times more likely to move into permanent, full-time employment.

Indonesia has one of the largest and most diverse education systems in the world (Table 6.1). It is composed of a series of interdependent stages, including a compulsory 12 years with 6-year primary education, 3-year junior secondary education, and 3-year senior secondary education—either through the general track or the vocational track—followed by the tertiary level.[5] Islamic education is offered alongside the general education system. Schools are run either by the government or private entities. Close to 90% of primary schools and half of secondary schools are public schools (MOEC 2016).[6]

The government has pursued several reforms toward increasing access to education; improving the quality of teaching and learning; and strengthening governance, management, and accountability. The policy reforms, combined with relatively large private investments in education, helped Indonesia make education more accessible, especially at the secondary and tertiary levels. These achievements are remarkable, especially for a country with a 260 million population, over 60 million students, and fewer than 4 million teachers (Table 6.1).[7]

Beyond current progress, continued improvements in education quality are crucial to ensure that graduates possess skills that employers require and that are necessary for the Indonesian workforce to catch up to and compete with its peers in the region and the rest of the world. This is a big challenge, given the number of education institutions in Indonesia and their geographical distribution.

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5 Introduced in 2016, the 12-year compulsory education program replaces Indonesia's 9-year basic education program but is not yet fully implemented.

6 Basic education (kindergarten to grade 9) is managed primarily by the districts (decentralized); senior secondary, both general and vocational is managed by the provinces; and the national government provides overall system governance through the Ministry of Education and Culture (MOEC). The Ministry of Research, Technology and Higher Education has oversight of higher educational institutions. Islamic schools are centrally managed and governed by the Ministry of Religious Affairs.

7 Population data as of 2015 from UNDESA (2017).

Table 6.1: The Indonesian Education System and Distribution of Students, Educational Institutions, and Teachers by Age and Level of Education, 2016

			Education Delivery		Population (2016)		
Age	SY	Level	Decentralized	Centralized	Students	Teachers	Institutions
Above 22	21–23	Higher education		Doctoral[a]	5,822,143[d]	209,830[d]	3,226
	19–20			Master[a]			
19–22	15–18			Undergraduate[b]			
16–18	12–14	Secondary education	General and vocational senior secondary	Islamic and vocational senior secondary schools	8,647,394	569,265	25,348
13–15	9–11		Junior secondary	Islamic junior secondary schools	10,040,277	681,422	37,023
7–12	3–8	Basic education	Primary	Islamic primary schools	25,885,053	1,795,613	147,536
5–6	1–2	Early childhood education	Kindergarten	Islamic kindergarten[c]	12,159,327	604,580	189,116
Total					62,554,194	3,860,710	402,249

SY = school year.
Notes:
[a] Doctoral and masteral levels include general and Islamic; and vocational, academic, and professional.
[b] Undergraduate degree includes general and Islamic, and vocational and academic.
[c] Kindergarten includes play groups, childhood development and care centers, and similar early childhood education and care programs.
[d] Refers to 2013 data.
Sources: MOEC (2013, 2016), Morthe (2017).

6.2.1. Education Sector Reforms

Among the key reforms that the government has pursued to improve education access and quality are decentralizing basic education and introducing a teacher certification process in the early 2000s, and committing 20% of the national budget to education in the late 2000s. In 2012, the Indonesian qualifications framework (IQF) was introduced, and in 2016, universal education was increased from 9 years to 12 years to include the senior secondary level. Table 6.2 lists other key education reforms in the last 2 decades.

Following the government's commitment to allocate 20% of the budget to education, the share of education in total government spending increased from only 11.6% in 2001 to 19.3% in 2009 and has remained at around the same rate—averaging 17.6% during 2010–2014—since then (World Bank 2017c). Teacher salaries and certification account for almost two-thirds of the additional resources coming from the 20% rule (World Bank 2013). The rest is spent on additional education facilities and learning materials.

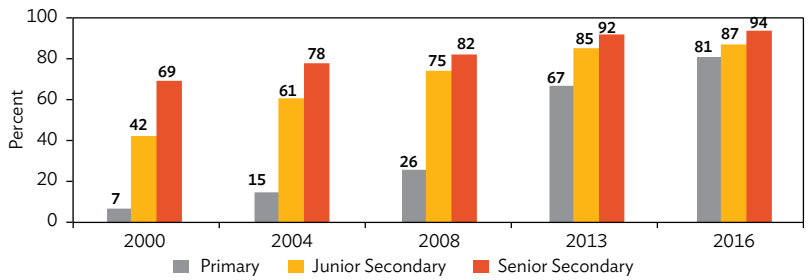
Table 6.2: Key Reforms in Education in the Past 20 Years

Policy Reform	Year
Decentralization to Local Governments of the Responsibility for the Delivery of Basic Education	2001
Nine-Year Compulsory Education	2003
More Stringent Qualification Process and Introduction of Teacher Certification Process	2005
School Operational Assistance Funds	2005
Constitutional Requirement to Devote 20% of National Budget to Education	2009
Commercialization and Internationalization of Higher Education	2012
Introduction of the Indonesian Qualifications Framework	2012
Twelve-Year Compulsory Education[a]	2016

[a] Not yet fully implemented.
Sources: LaRocque (2015); UNICEF Indonesia. (n.d.); Global Business Guide Indonesia (2014).

Data from the Ministry of Education and Culture (MOEC) show that the proportion of teachers with bachelor's degrees increased sharply, especially at the lower levels (Figure 6.3). At the primary and secondary levels for instance, the proportions increased from 7% and 42%, respectively, in 2000 to 81% and 87% in 2016. Likewise, the number of classrooms increased from 1.4 million in 2013 to 1.7 million in 2016 (MOEC 2013, 2016). As indicated in Table 6.3, Indonesia's student–teacher ratios at the primary and secondary levels are among the lowest in the ASEAN.

Figure 6.3: Proportion of Teachers with Bachelor's Degree or Higher by Level, 2000–2016



Sources: MOEC (2013, 2016).

Table 6.3: Selected Comparative Education Indicators, ASEAN Countries, 2015

Indicator	Brunei Darussalam	Cambodia	Indonesia	Lao PDR	Malaysia	Myanmar	Philippines	Singapore	Thailand	Viet Nam
Adult Literacy Rate (%), 15+ years	96.7	78.4	95.4	79.9	94.6	93.1	96.6	96.8	94.0	94.5
Youth Literacy Rate (%), 15–24 years	99.6	91.5	99.7	90.2	98.4	96.3	98.2	99.9	98.6	98.1
Pupil-Teacher Ratio, Primary	10.0	45.5	16.6[c]	24.2	11.5	27.6[c]	31.4[g]	17.4[a]	16.9	19.2
Pupil-Teacher Ratio, Secondary	8.84	28.9	15.5	18.7	12.0	31.8	27.0	14.9[a]	28.2	...
Mean Years of Schooling	...	3.53[a]	7.91	...	10.1[d]	...	9.15[g]	11.5	8.32[h]	7.81[a]
School Life Expectancy, Primary to Tertiary	14.7	10.5[b]	12.8	10.9	12.9	8.20[e]	12.8[g]	...	16.0	...
School Life Expectancy, Tertiary	1.52	0.68	1.21	0.90	1.40	0.69[f]	1.79[c]	...	2.40	1.44

.. = data not available, ASEAN = Association of Southeast Asian Nations, Lao PDR = Lao People's Democratic Republic.
[a] Data refer to 2009. [b] Data refer to 2008. [c] Data refer to 2014. [d] Data refer to 2010. [e] Data refer to 2007. [f] Data refer to 2012. [g] Data refer to 2013. [h] Data refer to 2016.
Source: UIS (2017), accessed 28 June 2017.

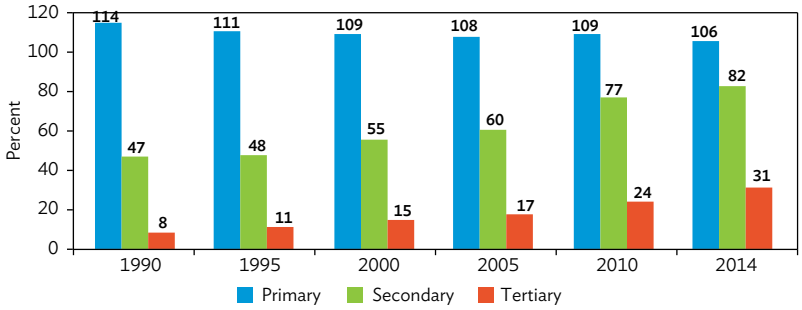
6.2.2. Access and Attainment

Following budgetary and other education reforms, along with relatively high private investments in education, Indonesia's progress in making education more accessible was substantial, especially at the secondary and tertiary levels (OECD and ADB 2015). As shown in Figure 6.4, the GER at the secondary level increased to 82% in 2014 or by almost 50 percentage points from 2000, far exceeding its annual increase in the 1990s. Similarly, the tertiary GER more than doubled between 2000 and 2014. At the primary level, the GER was particularly high, hovering above 100% from 1990 to 2014 and moving to the 100% mark approaching 2014, indicating the positive developments that (1) more primary-grade students were joining schools at the appropriate age levels, and (2) fewer students were repeating a grade.

A key driver behind the growth in enrollment rates is the increased participation and completion rates among children from poor families, owing to scholarship and assistance programs set up by the government to keep and support poor children in schools. These include the Poor Students Assistance Program (*Bantuan Siswa Miskin*—BSM), the Family Hope Program (*Program Keluarga Harapan*—PKH), and the recently introduced Indonesia Smart Card (*Kartu Indonesia Pintar*). Between 2009 and 2013, the proportion of 15-year-olds from the poorest 20% of households who were enrolled in school increased from 63% to 74%, while the proportion of 18-year-olds

from poor families enrolled rose from 21% to 29% over the same period (Government of Indonesia 2015).

Figure 6.4: Gross Enrollment Ratio by Level, 1990–2014

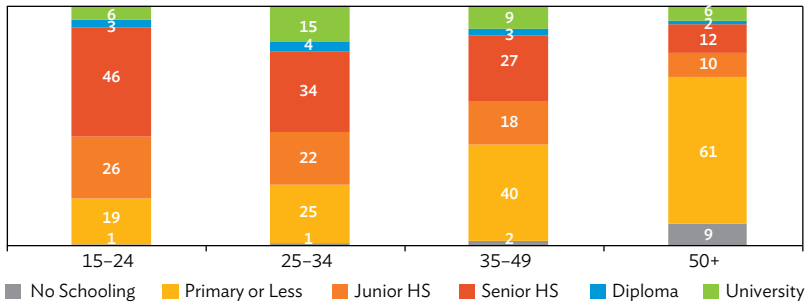


Note: Gross enrollment ratio refers to total enrollment, regardless of age, expressed as a percentage of the population of the official education level being measured.
Source: World Bank (2017a).

Progress has also been made in closing the gender gap in education. According to data from the United Nations Educational, Scientific and Cultural Organization Institute of Statistics (UIS), the female-to-male ratio in enrollment or gender parity index was close to 1 across all educational levels in 2015: preprimary—1.04, primary—0.97, secondary—1.00, and tertiary—1.12 (UIS 2017). The gap in educational attainment dropped by almost a half year, from 1.34 years (male minus female years of schooling) in 1990 to 0.89 years in 2010 (Barro and Lee 2013).

Alongside the increase in participation rates, the mean years of schooling among the country's workforce increased from 3.3 years in 1990 to 7.9 years in 2015 (UNDP 2016). Compared with the older cohorts, the younger members of the workforce are more educated, as depicted in Figure 6.5. Overall, the proportion of the workforce with higher levels of education is increasing—an indication of a positive trend in educational attainment, particularly among younger workers, who have benefited more from increased investments in education than their older counterparts.

Figure 6.5: Distribution of Economically Active Population by Educational Attainment and Age Group, February 2017 (%)



HS = high school.
Source: BPS (2017b).

6.2.3. Progress in Vocational Education and Skills Training

Institutions offering vocational education have increased rapidly in the recent years. As in the case of general education, improving the quality of vocational education and skills training remains a challenge. Three types of institutions provide vocational education and skills training in Indonesia: (1) the upper secondary schools (*sekolah menengah kejuruan* [SMKs]), which offer both academic and nonacademic subjects that focus on developing technical skills; (2) public technical training centers (*balai latihan kerja* [BLKs]), which provide nonformal technical education; and (3) private companies that provide apprenticeships.

Upper Secondary Schools. SMKs—the largest provider of vocational education in Indonesia—deliver 3-year vocational programs that focus mostly on commercial subjects and economics or on metalwork, automotive, or building-related training targeted at secondary-level students aged 16–18 (Kadir et al. 2016, UNESCO–UNEVOC 2012).[8] Because vocational education was often associated with low salaries and unclear career progression in the past, only about one-fifth of students at the secondary level were enrolled in SMKs in the early 2000s (Kadir et al. 2016).

Recognizing the importance of vocational education in preparing young people for the labor market and addressing the growing youth unemployment in the country, the MOEC started promoting vocational education by establishing more SMKs and converting some general senior secondary schools to SMKs. As a result, the last decade saw a significant expansion in the number of SMKs and their share of secondary students.

[8] SMKs operate under the MOEC and are regulated by the National Education System Act.

Between 2005 and 2012, the number of SMKs almost doubled from only 5,665 schools to 10,256 (BPS 2017a). Along with its plan to hire more teachers, the MOEC announced in 2015 the addition of 200 new SMKs specializing in the agriculture, tourism, infrastructure, and manufacturing industries (Saputri and Zuhri 2015). From only 20% in 2005, the share of senior secondary vocational or SMK students in Indonesia more than doubled, to 45% in 2015 (Kadir et al. 2016). Although this is still below the government's enrollment target of 50%, Indonesia is among the countries with the highest vocational enrollments at the secondary level.

In addition, with help from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), the MOEC is building SMKs' capacity by improving their management systems and providing equipment to several SMKs across the country (Kadir et al. 2016). However, the lack of information on the quality of training that SMKs provide remains a concern (especially regarding the private SMKs, which make up the majority). Anecdotal reports suggest that quality of education is highly variable across SMKs. Employers report that many graduates lack specific relevant skills.

The MOEC requires all SMKs to work with an industry partner. Students are also required to participate in 3- to 6-month student internship programs, which are hosted by company partners (Kadir et al. 2016). After completing their skills training program at SMKs, students are assessed and certified through a competency-based test by the National Body for Professional Certification (BNSP). The BNSP has defined the standards for a wide range of occupations based on industry-wide agreed-upon competencies. However, because certification requires external assessors from BNSP, the certification process is costly and many institutions are reluctant to hire the external assessor, as they cannot recover the cost from the students taking the test.

The IQF, which was introduced in 2012, intends to enable students in both the general and vocational tracks (from year 9 to higher education) to achieve comparable learning outcomes (ACDP 2016, Kadir et al. 2016).[9] Together with the implementation of the Multi Entry and Multi Exit System, once operational, the IQF could facilitate the entry, exit, reentry, or transition of students between programs and across levels—from primary to secondary level, between vocational and academic tracks, and from secondary to tertiary level—without penalty (Noor 2016, Kadir et al. 2016). By offering different pathways, the IQF helps encourage greater school participation, reduce dropout rates, and broaden access to higher education and skills development. It addresses the concerns of parents and students regarding the quality of training and career opportunities for vocational graduates. At the same time, the IQF serves as a

[9] The IQF was introduced through Presidential Decree No. 8/2012 and elaborated on further in Article 29 of Higher Education Law 12/2012 (ACDP 2016).

useful tool for employers to assess local and foreign workers' competencies (Kadir et al. 2016).

Public Technical Training Centers. Operating under the country's Ministry of Manpower and Transmigration, about 160 BLKs (public technical training centers) are distributed across Indonesia, targeting young individuals who are out of school and unable to get a job (UNEVOC 2012). They offer short, basic skills training courses (about 140 hours) in various subject areas including automobile mechanics, information technology, machine shop, secretarial skills, bookkeeping, sewing and dressmaking, and building and construction.

Employers and Private Companies. The Ministry of Manpower and Transmigration supports the development of workplace learning in the private sector through an apprenticeship program. Most companies need workers who have specific skills that match industry standards and workplace conditions. By helping current and future workers hone their technical and nontechnical skills to fit workplace and industry standards, apprenticeship can facilitate the transition of graduates from school to workplace and narrow industry skills gaps. Effective apprenticeship systems that combine relevant workplace training with off-the-job training can also facilitate the development and growth of innovative and technology-driven industries (ILO 2015).

Several regulatory policies promote apprenticeship programs in Indonesia, among them the Ministry of Manpower and Transmigration's Regulation No. 22/2009, which guides employers in starting and implementing an apprenticeship program. The regulation covers the rights and obligations of employers participating in the program, particularly concerning recruitment, training, assessment, certification, and working conditions for apprentices (ILO 2015).[10] Under the program, the government is responsible for monitoring and ensuring that the regulation is applied. Apprenticeship programs in Indonesia are designed based on a set or a combination of any of the following three competency standards: (1) Indonesian National Competency Standards; (2) international standards; and (3) special standards, which are company- or organization-specific (ILO 2015).

A field survey by the International Labour Organization covering Greater Jakarta (Jabodetabek—Jakarta, Bogor, Depok, Tangerang, Bekasi) and Balikpapan City found a number of good practices (ILO 2015). For example, thorough screening and testing ensured a good success rate in developing skills. A high employment rate was also observed among people who complete such apprenticeships.

[10] Detailed guidelines for and good practices in apprenticeship among employers are described in a booklet based on Regulation No. 22/2009.

6.3. Challenges in Education and Training, and Employment

The rapid expansion in the quantity of education and skills training in recent years, however, has yet to be matched by qualitative improvements. Because of the rapid increase in school enrollment, as well as the institutions offering vocational education in recent years, improving the quality of education and skills training remains a huge challenge. Indonesia needs to do more to improve learning and skills development outcomes.

Students in Indonesia continue to perform poorly compared with their peers in international standardized tests of student performance and basic skills, such as numeracy and literacy, which are prerequisites for learning and acquiring skills. For example, in the 2015 Third International Mathematics Science Study, participating grade 4 students in Indonesia ranked 44th out of 47 economies in both science and mathematics (Mullis et al. 2016). Results of the assessment indicate that only half of the students could apply some basic mathematical knowledge in simple situations or had passed the low international benchmark score of 400 (Mullis et al. 2016, Provasnik et al. 2016). Only 20% of the students could apply basic mathematical knowledge in simple situations or reached the intermediate benchmark score of 475, and only 4% could apply knowledge and understanding to solve problems (i.e., passed the high score of 550).

Similarly, results of the 2015 Programme for International Student Assessment (PISA) study indicate poor learning among students in Indonesia (World Bank 2016, OECD and ADB 2015).[11] Despite strong improvements in science and mathematics scores since Indonesia started participating in 2000, the performance of 15-year-old students in Indonesia was about 3 years behind that of their peers in other countries, including in Malaysia, Thailand, and Viet Nam, across all subjects (Table 6.4).[12] Of the 73 participating groups of 15-year-old students worldwide, those in Indonesia ranked 65th in science, 66th in mathematics, and 67th in reading in 2015. Nonetheless, if Indonesia can sustain the current pace of improvement in its educational system, Indonesian students could catch up with their peers in more advanced countries by 2030 (OECD 2016b).

Overall, the poor performance of students in Indonesia on international standardized tests is observed across income groups and genders, which suggests that improving learning outcomes and skills requires systematic improvements in education quality.

[11] PISA is an ongoing triennial survey that assesses the extent to which 15-year-old students near the end of compulsory education have acquired key knowledge and skills essential for full participation in modern societies.

[12] For example, between 2012 and 2015, the average science score of 15-year-old students in Indonesia increased by 21 score points.

Table 6.4: Programme for International Student Assessment Results
(mean score and rank)[a]

Location	Science		Mathematics		Reading	
	2015	2009 Plus	2015	2009 Plus	2015	2009 Plus
Singapore	556 (1)	542 (4)	564 (1)	562 (2)	535 (1)	526 (5)
Japan	538 (2)	539 (5)	532 (5)	529 (9)	516 (8)	520 (8)
Taipei,China	532 (4)	520 (12)	542 (4)	543 (5)	497 (23)	495 (23)
Macau, China	529 (6)	511 (18)	544 (3)	525 (12)	509 (10)	487 (28)
Viet Nam	525 (8)	...	495 (21)	...	487 (30)	...
Hong Kong, China	523 (9)	549 (3)	548 (2)	555 (3)	527 (2)	533 (4)
Beijing, Shanghai, Jiangsu, and Guangdong, PRC	518 (10)	...	531 (6)	...	494 (27)	...
Shanghai, PRC	...	575 (1)	...	600 (1)	...	556 (1)
Korea, Rep. of	516 (11)	538 (6)	524 (7)	546 (4)	517 (7)	539 (2)
United Kingdom	509 (15)	514 (16)	492 (27)	492 (28)	498 (21)	494 (25)
United States	496 (25)	502 (23)	470 (39)	487 (31)	497 (23)	500 (15)
Malaysia[b]	443 (47)	422 (53)	446 (45)	404 (57)	431 (50)	414 (55)
Thailand	421 (57)	425 (51)	415 (56)	419 (52)	409 (60)	421 (53)
Indonesia	**403 (65)**	**383 (66)**	**386 (66)**	**371 (68)**	**397 (67)**	**402 (62)**

...= no data, PISA = Programme for International Student Assessment, PRC = People's Republic of China.
Note: Figures in parentheses are rankings.[a]Rank out of 73 and 74 participating economies and countries in the PISA 2015 and PISA 2009 Plus, respectively.
[b] Coverage is too small to ensure comparability.
Sources: OECD (2016a); Walker (2011).

Studies suggest that early child education can be an effective tool in improving learning outcomes in Indonesia, as it significantly improves children's readiness to learn in school (Nakajima et al. 2016a and 2016b; World Bank 2016). In rural Indonesia, for example, primary school-age children who were enrolled in school at the developmentally appropriate age performed better in cognitive tests than those who had not been enrolled at that stage (Nakajima et al. 2016b).

Many graduates of both the general and vocational education systems face difficulties finding a job, even though skills are lacking in the market. For example, many graduates of the maritime education and training system cannot take or pass certification examinations, while many of those who were certified fail industry tests (ACDP 2017a). In addition, even some graduates of the best maritime education and training institutions in Indonesia face difficulties finding jobs (ACDP 2017a). Many graduates of other training systems face similar challenges.

Although establishing a national qualification framework that is compatible with international standards is an important first step, it does not guarantee improved educational mobility, quantity, and quality, especially in a developing country. Indonesia, and most developing countries, face financial and capacity constraints—two of the most critical challenges to improving skill quality and employability of vocational

graduates. Because vocational courses require more inputs than most academic courses—e.g., specially trained teachers, laboratory facilities and equipment, and smaller class sizes—offering a vocational course usually costs at least twice as much per student as an academic course (ADB 2009). The effectiveness of any national qualification framework and competency-based training is also highly dependent on the skill development system's capacity to make effective use of resources to recruit, train, and deploy teachers.

Indonesia's policy to raise the educational level of its workforce compelled the government to aggressively hire and certify more teachers, and retain them by focusing on their remuneration. While some teachers in Indonesia are excellent, many are underperforming and underqualified (World Bank 2015). The quality of teachers and learning outcomes vary substantially between teachers and across schools.

Indonesia's Teacher Law mandated the certification of all teachers in the system by 2015. Starting in 2006, the country's certification program certified around 200,000 teachers per year. However, a World Bank evaluation study (2015) using a randomized, controlled trial found no evidence that the teacher certification program had improved student learning outcomes. It revealed that simply paying teachers double did not improved teachers' motivation and efforts to achieve better student performance and learning. Instead, the study suggests that improving teacher's subject-matter knowledge is a reasonable and effective way of raising teacher quality, and therefore improving student's learning outcomes.

The same study also found that the teacher certification process was affected by politics, in particular, local election cycles. Pierskalla and Sacks (2016) observed that since the *pilkada* system was introduced to promote local electoral accountability, a large number of new contract teachers (about 1,200 per district) and civil servant teachers are hired before an election. Pierskalla and Sacks note that mass hiring of new teachers may have had a negative effect on student learning.

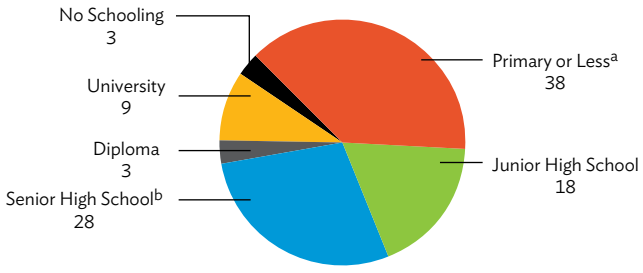
Because of the rapid increase in institutions offering vocational education in recent years, improving the quality of vocational education and skills training remains a huge challenge. Many training institutions face severe capacity constraints in terms of recruiting and keeping qualified teachers with industrial experience, as well as in acquiring and maintaining equipment. Equipping the trainers in public training institutions is problematic, as many leave for the private sector once they are qualified. Most BLKs are under local control, and some are poorly equipped. The systematic linkages between SMKs and BLKs and industry are weak overall.

The rapid expansion of SMKs in Indonesia requires new teachers with industry experience who are qualified to equip students with employable skills. To mitigate the shortage of teachers, new academic graduates with "noneducation" (nonteaching) degrees and without any industry training are recruited to teach vocational courses in SMKs, and given preservice training by the MOEC (Kadir et al. 2016). More teachers with graduate degrees are also needed to establish additional tertiary education institutions (Kadir et al. 2016).

The share of economically active people in the total working-age population (or the labor participation rate) in Indonesia was about 68.1% in February 2016. Labor participation rates are lower among the youth (aged 15–24 years) at 47.9%, females at 52.7%, and people in urban areas at 66.2% than overall. Unemployment is highest among the youth (17.9%), especially those in urban areas (19.1%).

The Indonesian labor market remains dominated by workers with lower levels of education. In 2016, six of 10 economically active individuals had not completed secondary education, and only one in 10 had postsecondary education (Figure 6.6).

Figure 6.6: Educational Attainment of the Economically Active Indonesian Population, February 2017 (%)



[a]Less than primary = 14%. [b]General senior HS = 17%, vocational senior HS = 11%.
Source: BPS (2017a).

The majority of tertiary education graduates in the labor force (80.6%), and more than half of senior high school graduates (55.4%) in the labor force are regular rather than casual employees (Table 6.5). In contrast, only 6.3% of uneducated workers and 25.3% of those with junior high school education or less are regular employees. However, the proportion of unemployed workers is also highest among senior high school graduates (8.1%) and tertiary graduates (6.5%). As growth in tertiary enrollment is expected to continue with the greater flow of secondary graduates, the challenge of addressing the country's high youth unemployment and underemployment (8.2%) is now more urgent than ever.

Table 6.5: Educational Attainment of the Labor Force (15 years and over) **by Employment Status**

Employment Status	Educational Attainment				
	No Schooling	Junior High School or Less	Senior High School	Diploma or University	All
Number ('000)					
Unemployed	94	3,090	2,895	945	7,024
Self-Employed	2,282	29,359	8,357	1,392	41,390
Regular Worker/Employee	275	18,363	19,899	11,788	50,325
Casual Employee	572	10,031	1,592	48	12,243
Unpaid Family Worker	1,172	11,861	3,200	457	16,690
Total	4,394	72,704	35,943	14,631	127,672
% of Total (column)					
Unemployed	2.1	4.3	8.1	6.5	5.5
Self-Employed	51.9	40.4	23.3	9.5	32.4
Regular Worker/Employee	6.3	25.3	55.4	80.6	39.4
Casual Employee	13.0	13.8	4.4	0.3	9.6
Unpaid Family Worker	26.7	16.3	8.9	3.1	13.1
Total	100.0	100.0	100.0	100.0	100.0

HS = high school.
Source: BPS (2016a).

A greater proportion of the less-educated workers in Indonesia are either self-employed or employed in temporary jobs. A majority of uneducated workers in the labor force are either self-employed (51.9%), unpaid family workers (26.7%), or casual employees (13.0%). Of those with junior high school education or less, more than 40% are self-employed, 16.3% are unpaid family workers, and 13.8% are temporarily employed.

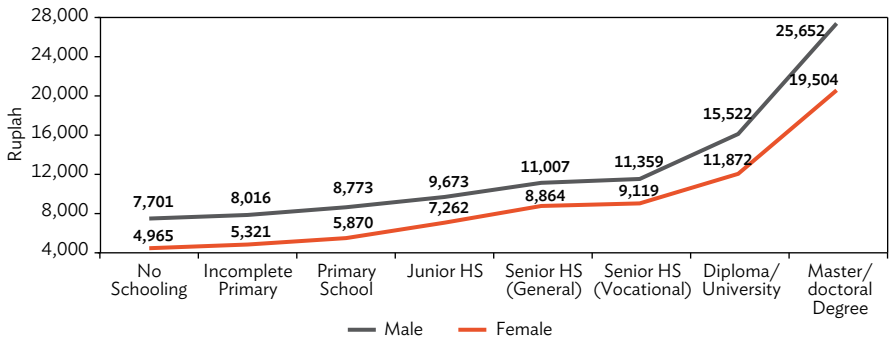
Access to good quality or high-paying jobs improves with education. Data from Indonesia's public employment service indicate that about 40% of the formally registered job vacancies require tertiary qualifications, another 40% require senior high school education, and only 20% require junior high school or less (Allen and Kim 2014). Data from the Indonesian National Labor Force Survey (SAKERNAS) confirm this, suggesting that more and better-educated workers are needed in order to reallocate more workers from low-productivity agriculture to higher-productivity sectors such as manufacturing and services.

Figure 6.7 compares the predictive margins of hourly wages of male and female employees across educational levels, after adjusting for various individual

characteristics.[13] The same pattern can be observed in both rural and urban areas. Other things equal, more-educated employees tend to earn higher wages.[14] On average, the hourly wages of employees who obtained their secondary education under the vocational track are not significantly different than those under the general education track. Employees with training and certification tend to earn more than those without.

All things being equal, data suggest that, on average, male employees earn significantly higher wages than females. After controlling for other factors, the gender wage gap declines with higher education (unlike in Figure 6.7), and is significantly lower among employees with training and certification. This suggests that fostering school completion and broadening access to training and certification, especially among women, can help narrow gender differences in wages, and perhaps encourage greater labor force participation among females.

Figure 6.7: Predictive Margins of Hourly Wages of Employees by Educational Attainment



HS = high school.
Sources: Statistics Indonesia (2016b), ADB staff estimates.

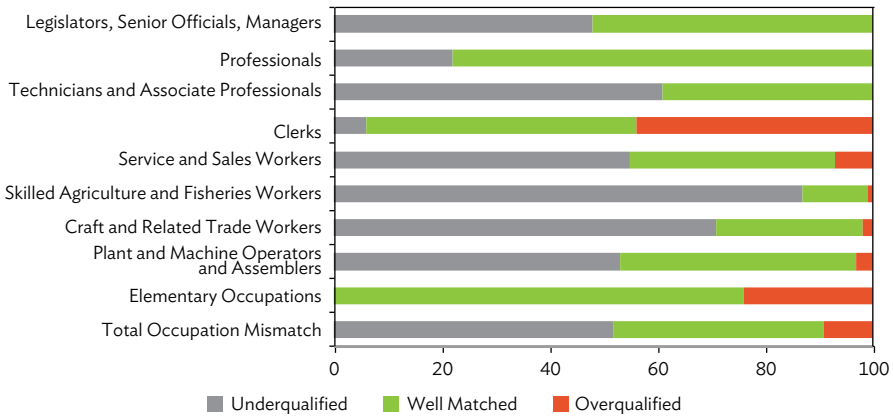
Aside from skill shortages in terms of quality and quantity, underutilization of and underinvestment in skills are related challenges in Indonesia. Although regular wage employment has expanded and informal employment has declined over time, employment growth is dominated by growth in the demand for minimum wages. Consequently, a majority of workers are either employed on short-term contracts or earn below minimum wage or both.

[13] These margins are based on the estimates derived using a reduced form regression model of employee wages, log (wage per hour) = $\alpha + \beta X$ (where X is a vector of individual characteristics that can influence hourly wages), over a sample of the BPS National Labor Force Survey (SAKERNAS) Feb 2016 data including both agricultural and nonagricultural employees and casual employees. It includes dummy variables for gender and educational attainment, and gender-education interaction terms to test whether there are significant gender differences in hourly wages among permanent and casual employees.

[14] Regression estimates available upon request.

Because of skill shortages, many positions are filled with underqualified workers (Figure 6.8). For example, only two-fifths of the employed workers in 2015 were well matched with the educational requirement of their occupations, while more than half (51.5 %) were underqualified, and 8.5 % were overqualified. In addition, only a small proportion of less-educated workers had participated in certified training courses. Less than 1% of people with junior high school education or less had attended such courses, while 9% of those with secondary high school education and about 26% of those with diploma or university education had participated. High levels of occupational mismatches and lack of training are usually associated with lower levels of labor productivity and imply the need for skill development to promote skill matching.

Figure 6.8: Occupational Mismatch



Note: In each occupational group, workers are considered well matched if they have the educational level assigned for the group according to the International Standard Classification of Occupations and the International Standard Classification of Education. Those who are overeducated are considered overqualified in the occupational group, while those who are undereducated are underqualified.
Source: Allen (2016).

Employers complain about the lack of relevant knowledge and skills among graduates (Schwab 2015, Di Gropello 2013, Nugroho et al. 2012). Employers are looking for both hard and soft skills. Hard skills include cognitive ability, technical skills, and practical ability, e.g., in using modern equipment. Soft skills include communication skills, analytical and problem-solving skills, flexibility and adaptability, innovation and creativity, and teamwork.

Di Gropello (2013) emphasized that addressing the skills gap is especially important for larger, more export-oriented manufacturing firms. Consistent with Di Gropello

(2013) and other studies, a survey of employers in Jakarta by Nugroho et al. (2012) found that only one in every two employers thought that tertiary graduates possessed the skills required by their organizations.[15] The other half indicated that they would like the higher education curriculum to match industry needs. More attention could be given to on-the-job training and improving students' soft skills.

The top 10 worker skills most desired by employers included mainly soft skills such as (1) communication skills, (2) teamwork skills, (3) integrity, (4) intellectual capacity, (5) self-confidence, (6) personality/individual character, (7) planning skills, (8) writing skills, (9) computing skills, and (10) analytical and problem-solving skills (Nugroho et al. 2012). Employer respondents to the survey agreed that, of these skills, higher education institutions in Indonesia should focus on improving graduates' analytical and problem-solving skills, integrity, teamwork, and personality.

Less than 10% of the working-age population has undergone certified workplace training (ADB 2017). Labor regulations in Indonesia *de facto* do not prevent hiring people on short-term contracts (ADB 2017).[16] Because of this, employers and workers invest little in skills development. Only a small percentage of firms offer formal training. Similarly, only a small proportion of workers continue training when they find employment.

According to the OECD (2016c) Survey of Adult Skills, poor skills severely limit individuals' access to better-paying and more-rewarding jobs. Survey results indicate that, compared with poorly skilled adults, highly skilled ones are twice as likely to be employed and almost three times more likely to earn an above-median salary. Productive employment generally requires two types of skills: hard skills and soft skills (World Bank 2013; OECD 2012a, 2012b; UNESCO 2012b).

6.4. ASEAN Integration and Mobility of Skilled Labor

To facilitate the creation of the ASEAN Economic Community (AEC) and to promote overall intraregional mobility, the ASEAN community has agreed to establish mutual recognition agreements (MRAs) for six professions: engineering (2005), nursing (2006), architecture (2007), medicine and dentistry (2009), tourism (2012), and accounting (2014). In addition, an ASEAN Qualification Reference Framework was developed primarily to facilitate the mobility of skilled workers under an MRA from

[15] Twenty-nine randomly selected employers were included in the survey.

[16] This point merits clarification. By law, Indonesia limits employment on short-term contracts (i.e., to 2 years with a possible 1-year renewal), although anecdotal evidence shows that many companies get around the law by rehiring after the 3-year period. Many economists believe that the absence of longer-term contracts is mostly because of the high rates of severance pay, which discourage firms from taking on permanent employees.

countries with different education systems (e.g., years of schooling and different degree programs).

Although progress has been made in creating implementing offices and bodies for MRAs and incorporating MRA principles into national laws, these are not useful in the absence of accompanying processes, regulations, and procedures for mutual recognition and registration (Mendoza and Sugiyarto 2017). In 2015, only two MRAs (engineering and architecture) were at the stage of registration in Indonesia or in other countries for work across the region, and only a few professionals had taken advantage of these agreements in Indonesia and across the region (Manning, forthcoming).

As of 2017, only 965 Indonesian engineers and 145 Indonesian architects were registered in ASEAN databases (Table 6.6), and only a few have found employment through the MRA, because most employment is through direct hiring or other channels, which tend to be less tedious but are not tracked in official migration surveys (Batalova et al. 2017).

Table 6.6: Number of Engineers and Architects Listed in ASEAN-level Registers by Country, 2017

Country	Engineers		Architects	
	Number	% of Total	Number	% of Total
Brunei Darussalam	15	2.6	11	0.6
Cambodia	53	1.0	4	2.1
Indonesia	965	34.7	145	37.8
Lao PDR	11	2.2	9	0.4
Malaysia	302	9.6	40	11.8
Myanmar	301	2.9	12	11.8
Philippines	260	16.3	68	10.2
Singapore	257	20.6	86	10.1
Thailand	187	6.2	26	7.3
Viet Nam	204	4.1	17	8.0
Total	2,555	100.0	418	100.0

ASEAN = Association of Southeast Asian Nations, Lao PDR = Lao People's Democratic Republic.
Sources: ACPECC (2017); ASEAN Architect Council (2017).

Clearly, the AEC is quite far from reaching its goal of a single ASEAN community characterized by a great flow of skilled labor. Papademtriou et al. (2015) identified three main challenges to the movement of skilled professionals within the AEC:

- The complex qualifications recognition process discourages professionals who move within the region from having their professional and academic credentials assessed and recognized.
- Professionals face restricted access to the ASEAN labor market due to national-level barriers such as constitutional provisions reserving particular occupations

for nationals, and complex and opaque requirements and procedures for employment visas.
- Perceived cultural, language, and socioeconomic differences limit the interest of professionals in moving within the region.

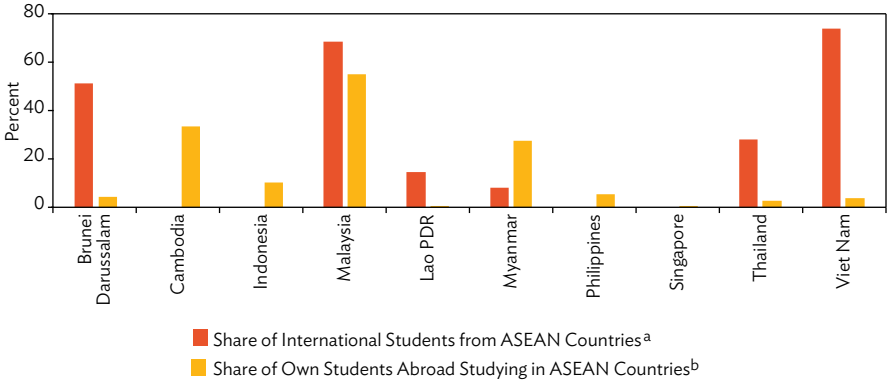
Although the present narrative argues that intraregional movement has been limited, the region has made some advances in fostering mobility, particularly of skilled workers and international students. The movement of highly skilled workers within the ASEAN region is projected to increase in the years to come across occupations such as healthcare workers, engineering, and education. Professionals are also starting to move to countries that have historically attracted only a few migrants, such as the Lao People's Democratic Republic (Lao PDR), Myanmar, and Viet Nam, indicating a directional shift among labor migrants.

Batalova et al. (2017) cite examples:
- Indonesians working in the oil and gas industry in Brunei Darussalam;
- Filipino engineers in Brunei Darussalam and Singapore;
- English-speaking Filipino teachers working in international schools in Thailand and in the tourism sector in Indonesia;
- Myanmar engineers in Brunei Darussalam, Singapore, and Viet Nam; and
- Thai engineers working in Cambodia, the Lao PDR, and Myanmar in hotels and in road construction.

A directional shift is also seen among international students, indicating the increasing role of the region in international education. Figure 6.9 presents the share of ASEAN students studying in other ASEAN countries. A large majority of international students studying in Brunei Darussalam, the Lao PDR, and Viet Nam are from ASEAN countries (yellow column).

Similarly, students from Cambodia, the Lao PDR, and Myanmar are likely to choose another ASEAN country for their tertiary education (blue column). However, students from Indonesia, Malaysia, Singapore, Thailand, and Viet Nam, are more likely to leave the region for Western countries than to study within the ASEAN. Among Indonesians, the most favored destinations include Australia and the United States, and neighboring Malaysia, given the similarity in the Malay and Indonesian languages (Figure 6.10). It is also assumed that many Indonesian students go to Singapore to pursue higher education owing to its proximity and given the flourishing Indonesian community there, but no statistics are currently available to support this claim.

Figure 6.9: Proportion of Students from or Studying in ASEAN Countries out of Total International Students and Proportion of Own Students in ASEAN Countries, 2013



ASEAN = Association of Southeast Asian Nations, Lao PDR = Lao People's Democratic Republic.

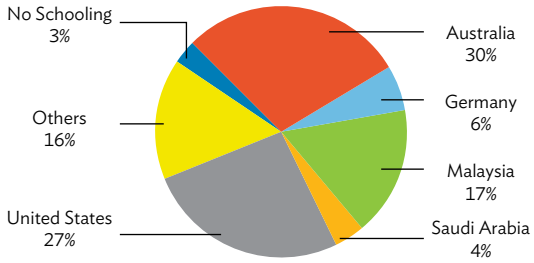
[a] Number of international students for Brunei Darussalam, Indonesia, Myanmar, and Thailand is based on 2012 data; for the Lao PDR and Viet Nam it is based on 2014 data; and for the Philippines it is based on 2008 data.

[b] Number of own students abroad and Share of international students from ASEAN countries do not include international students studying in Cambodia, Indonesia, the Philippines, and Singapore, since these four countries do not report the country of origin of the international students they host.

Note: International students are defined here as those who have crossed a national border and moved to another country with the objective of obtaining a tertiary education.

Source: Batalova et al. (2017).

Figure 6.10: Destination Country of Indonesian Students, 2015



Note: Data do not include Singapore, which does not report the country of origin of the international students it hosts.

Source: UIS (2017).

6.5. Summary and Policy Suggestions

The Indonesian economy has been performing well to sustain growth and raise prosperity based on relatively high labor productivity and strong domestic demand. As discussed in sections 2 and 3, the country has made remarkable progress in expanding access to general and vocational education, and this should continue, given recent and ongoing policy reforms. However, narrowing the country's skill gaps and employing its skills more effectively are critical for boosting Indonesia's labor productivity and achieving its growth targets.

Maintaining and accelerating workforce productivity require human resources with capacities, skills, and knowledge that are dynamically aligned with employers' diverse demands. Adopting new technologies, harnessing productivity gains from technological advances, and upgrading existing industries and developing new ones require skilled workers. Keeping the knowledge and skills of the workforce up-to-date and relevant, and, more importantly, equipping new and future workers with the right level of skills and specific competencies that the labor market demands are critical to transform Indonesia into a more productive economy.

Skills that are relevant to the labor market, such as numeracy, literacy, and problem-solving abilities, are strongly associated with higher individual earnings and economic growth (Hanushek and Woessmann 2008, 2016). The flexibility and responsiveness of both the general and vocational education systems, as well as training institutions, to adapt to changing labor market needs is crucial for promoting the employability of graduates and addressing the skills mismatch and high youth unemployment in the country. Filling skills gaps requires a strong, integrated effort by people who are working in the various government education and employment ministries, the education and training sectors, the private sector, and international organizations.

6.5.1. Ensuring More Effective Allocation of Resources

The government made a big leap forward by committing 20% of its budget to educational investments. As discussed in the previous sections, such investments facilitated access to education and skills development. While the increased budget is a step in the right direction, other steps are needed to ensure that funds are allocated toward achieving the improvements needed in learning outcomes, skills development, and access to education.

To match the growing supply of young workers with the increasing demand for skills, upgrading and expanding the existing skills training programs, as well as improving

skills deployment, are crucial. The government and development institutions can facilitate effective technical and vocational education and skills development systems (Jagannathan 2013, UNESCO 2012a). To make public spending more efficient at closing the skills gap, the government could leverage its resources toward maintaining stronger partnerships among education institutions, skills providers, employers, and itself.

Spend Public Resources to Achieve Better Learning Outcomes and Skills. Indonesia's own experience suggests that merely spending more resources to recruit and certify more teachers does not guarantee better learning outcomes (World Bank 2013 and 2015). Instead, resources should be focused on evidence-based strategies that are effective in directly enhancing learning outcomes, such as ensuring the quality of teacher training colleges, upgrading teachers' subject-matter knowledge, enforcing teacher monitoring and performance-based incentives, and providing early childhood development education, especially for poor and rural children.

Leveraging public resources to forge better coordination among the different ministries, and encourage greater industry involvement and private investments in the design and implementation of education, training, and employment policies and programs can hasten the transition from school to work. The coordination of and active partnerships in such policies and programs are key to the success of education policy discussions, curriculum development, apprenticeship programs for students, and on-the-job training for blue-collar workers and tertiary graduates to effectively develop the needed skills and enhance labor productivity. As end users of skills, employers can contribute to strengthening quality assurance in skills development institutions, and to linking curricula to industry qualification standards. Stronger private involvement helps ensure that graduates of general and vocational educational institutions have skills consonant with industry demand.

Provide Incentives to Encourage Greater Private Investment in Workers' Training. Incentives can help motivate employers to invest in training programs that upgrade their employees' skills and promote lifelong learning. Reducing structural impediments (e.g., high severance pay) for private firms to hire workers on a long-term basis can encourage employers to provide skills training. For example, a lower severance pay rate can be gradually applied to firms that are contributing to the country's worker social security program (BPJS Ketenagakerjaan). Promoting policies to ensure that training institutions have access to adequate financial and technical resources is also important.

Improve Targeting of Resources to Give Poor Students Better Access to Education and Skills Training. This is especially important for poor students in

rural areas. Existing social assistance programs, such as the Poor Students Assistance Program (*Bantuan Siswa Miskin*—BSM), the Family Hope Program (*Program Keluarga Harapan*—PKH), and the recently introduced Indonesia Smart Card (*Kartu Indonesia Pintar*), have increased poor students' access to education. Nonetheless, implementation challenges remain, related to the amount of scholarships, timing of disbursement, targeting, and the need to address difficult and costly school transition periods (OECD and ADB 2015).

Ensuring that financial assistance is released to deserving students in a timely manner and is adequate to cover key education expenses are also important to maximize the impact of financing for education (ADB 2013, World Bank 2013). Relevant programs should also consider covering significant education expenses other than tuition fees, such as transport cost, which can deter poor students in remote areas from attending school.[17] Transition incentives can also help encourage better school performance and prevent dropouts among poor students, especially at the secondary level (World Bank 2013).

Simplify a Governance Framework, Streamline Bureaucratic Processes, and Improve Transparency and Accountability in Planning and Spending. In Indonesia, several different ministries play some role in the coordination of education and vocational training policies, including the Ministry of Social Affairs, coordinating ministries, Vice-President's office, delivery units (e.g., TPN2K), and others. However, fragmentation of roles and functions and poor coordination across ministries and institutions have been preventing the delivery of effective outputs. Separate planning and budgeting processes for different parts of the budget further aggravates the situation. As a result, policy management has been a challenge.

Streamlining the mandates of various ministries and institutions involved in vocational training and apprenticeship programs, and delineating their key functions, can help promote accountability and effective output delivery among them. Clearly demarcated and transparent authority will be the key for effective output delivery. Clearly defined authority is needed to manage the policy processes so that coordination challenges will be lessened.

For example, the heads of the ministries could form a joint ministerial committee that sets the national skills development agenda, formulates and enforces policies, defines the specific performance targets of the various training and apprenticeship programs, and allocates the available resources. The joint ministerial committee could also delegate to a working committee the responsibility of coordinating and monitoring the

[17] Whether increasing the amount of scholarships would have a significant impact on enrollments remains unclear (Filmer and Schady 2009).

performance of the different training and apprenticeship programs. Another working committee could be formed to strengthen the working relationship with prospective employers, to address skill mismatches and related issues and to anticipate future skills demand.

A separate working committee could be assigned to facilitate periodic monitoring and evaluation of the performance of education and skills funds. This is important for enhancing the effectiveness of the funds in achieving their objectives. This entails providing clear data-reporting guidelines to districts and provinces to ensure consistency in methodology, calculation, and timely reporting. Moreover, the gap between planning and budgeting, and subsequent performance must be bridged as a move toward performance-informed budgeting, and to incentivize and instill the culture of quality spending in the education system (World Bank 2013).

6.5.2. Accelerating Improvements in the Level and Quality of Education, and Closing the Skills Gap

Indonesia's commitment to achieve universal participation in secondary education by extending compulsory education from 9 to 12 years is likely to increase completion rates at the secondary and tertiary levels, and thus raise the average educational attainment among its workforce. However, better skills and productivity require not only higher levels of education but, more importantly, better quality education. Beyond upgrading school infrastructure and making it more accessible to all students, education spending should build on progress and focus on raising the quality of instruction and making the vocational and academic curricula up-to-date and relevant in order to enable students to learn well, and to form core skills. Some of the key action areas are described in the following text.

In November 2016, the President gave instructions to 12 ministries, the chairman of National Professional Certification Board, and provincial governors to reform the vocational education and training system and reorient it to become demand driven (ACDP 2017b).[18] The President instructed ministries to align curriculum, teaching materials, practical skills training, evaluation, and certification to the objective needs of business and industry.

Strengthen Teachers' Competencies and Equip Them with Effective Teaching Strategies for Better Learning Outcomes. The subject matter competencies of teachers in general and in vocational schools in particular need strengthening, and

[18] Presidential Instruction 9/2016 on Revitalization of Vocational Senior Secondary Education to Improve Quality and Competitiveness of Indonesia Human Resources.

they need effective teaching strategies to achieve better learning outcomes. Enforcing better quality control in teacher training colleges and improving access to high-quality continuing training for public and private school teachers are important (World Bank 2016, OECD and ADB 2015). Recruiting teachers with good industry experience is especially important in specialized vocational courses. Using information and communication technology can be effective for improving access to effective learning materials, facilitating training needs assessment, and sharing classroom experiences. Experts from countries with good vocational educations systems can be tapped to guide policy reform, curriculum design, and teacher training.

Make the Curriculum More Relevant to Work to Further the Employment Prospects of Students. Stronger partnerships are needed between secondary schools and higher education institutions on the one hand and employers on the other, in formulating relevant curriculum, acquainting students with industrial and practical applications of classroom discussions, and monitoring progress toward improved skills development.

Creating and developing relevant skills entail strong partnerships among education and training institutions, employers, and the government to ensure that investments in training are reflected in better-quality jobs and higher salaries, and that training programs are widely accessible (ADB 2009, OECD 2012a, 2012b). A well-designed incentive mechanism to encourage employers to actively participate in advising on curriculum design, monitoring, and evaluation is important to promote their strong involvement. Effective strategies are also needed, such as hands-on workplace training, to motivate disengaged youth and facilitate the transition from education to work.

Shifting current classroom practices to a more student-centered and interactive approach may facilitate improvements in learning outcomes (World Bank 2017a). Greater emphasis on developing soft skills that employers require of both general and vocational students is also important. Institutionalizing a formal mechanism to harmonize national standards for education with international education standards at the curriculum level, especially for SMKs (ACDP 2017a).

Improve Apprenticeship Programs' Effectiveness at Ensuring an Adequate Supply of Skills that Employers Require. This is critical for accelerating workforce productivity, as well as effective utilization of human resources. Internships and on-the-job training programs provide an excellent opportunity for students to practice both their technical and nontechnical skills in an industry setting. It can also serve as a mechanism for assessing the relevance of educational and training curricula to prospective employers' needs, and whether there is an urgent need to improve

them. The relevance effectiveness, and efficiency of the different apprenticeship and vocational programs can be improved with stronger partnership between the various ministries implementing them, training institutes, and the private sector.

Institutionalize Affordable, Interactive, Transparent Learning Assessment Mechanisms. Such mechanisms help promote accountability among teachers and parents to enhance learning among students. The only way to gauge the effectiveness of any intervention to raise learning outcomes is to directly assess learning among students. School principals, teachers, and parents should work together in assessing how well the students are learning in school, how they are performing compared with their peers, and what measures can be taken to correct any deficit.

Create Pathways to Acquire, Develop, and Employ Skills Available to All, Especially Women and Youth (Jagannathan 2013, UNESCO 2012a). Tracking students who will go into the academic or vocational stream from an early age, without any option to change later, may discourage completion or even participation for some students. Access to skills training should be improved, career advice and job placement services made available, and funding support for startups more accessible, especially for young graduates and women. Training and labor market information should be widely and publicly disseminated through information and communication technology, mass media, and other mechanisms.

Having instant access to reliable, up-to-date labor market information can help graduates of vocational schools and universities, adult workers, and the unemployed find jobs and learn more about the skills that employers require. For example, regular job fairs are held in Surabaya, and jobs are posted online through the Surabaya Job Fair website (surabayajobfair.com). The various ministries, schools, training providers, and employers can come together to build an integrated, up-to-date, and easy-to-use national training and employment information system that all can access, especially students and job seekers. This can help improve the matching of available skills with existing demand, as well as encourage the development of new skills to fill existing gaps.

Inform Policy Planning and Decision-Making with Evidence. Enhance the evidence base for designing effective policies, and implement state-of-the-art national, regional, and local skills strategies (OECD 2012a). Countries should build "skills intelligence" to situate their strengths and weaknesses across the dimensions of skills strategies and evaluate policy alternatives for skills development (OECD 2012a). Undertake policy reviews to track the progress with implementing recent educational policies, measure their impact, and assess implementation and resource gaps, especially at the local level.

Many issues and challenges are best identified and addressed at the local level. Carry out tracer studies to inform curriculum and policy development. A better understanding of local labor market needs, the employability of graduates, and the current skills gap is especially important in supporting better matching of skills and jobs. A functional integrated labor market information system can also help inform policy making.

6.5.3. Improving School and Teacher Management

Districts Need to Play a Stronger Role in Managing and Supporting Schools. One promising approach is expanding local school grants, such as the Enhancing Equity and Performance through Local School Grants program (BOSDA), which is associated with better learning outcomes. The grants are linked with tangible benefits such as higher levels of learning and are meant to fill the gaps left by the School Operating Fund grant (BOS), which does not fund costs associated with the populations schools serve and their location, or the schools' actual operating costs.

Teacher Management Needs Improvement. Despite the excessive teacher hiring at the district and city levels, teachers are unevenly distributed across regions—richer areas tend to have more teachers than remote and underdeveloped ones (e.g., Maluku and Sunda islands). Staffing norms need to be consolidated and clarifed, a clear mechanism is required for reallocating teachers at the district and provincial levels, and clear policies on incentives for teaching in remote areas are needed (World Bank 2013). Well-designed incentive mechanisms can encourage deployment of well-qualified teachers to remote schools and communities with poor learning outcomes and low-income students.

Improving teacher management also entails strengthening the effectiveness and efficiency of the teacher certification program, as well as the preservice screening, training, and hiring process. This is important to improve the competency levels and effort of in-service teachers, and, especially, student learning outcomes. Ensuring the quality of training institutions requires improving the system for licensing and accreditation, making the hiring process more transparent and merit-based, rewarding better teacher competency and performance, and regularly reassessing and recertifying teachers using tools that are valid and reliable (World Bank 2015).

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Chapter 7
Labor Market Policies and Institutions in Indonesia

*Emma Allen**

7.1. Introduction

Indonesia has sustained more than a decade of economic growth, which has provided an environment allowing growth in wages and regular wage employment to outperform that in most other countries. The positive economic growth trends have provided a climate that has seen the formal economy expand while poverty declined. Recent policy initiatives to increase public investment in infrastructure and improve the business environment should help to strengthen growth and make it more inclusive. These policies need to be complemented, however, by measures to address structural challenges that have hindered economic performance. Sustainable solutions are needed for wage policies. A more flexible labor market is needed to ensure that ongoing reforms strengthen economic growth and create quality jobs. A more enabling environment for human capital development is needed to better meet skills needs in the future.

This chapter discusses a number of labor market regulations and related reforms that are relevant today. These include the future of wage policy encompassing the minimum wage-fixing system and collective bargaining; compliance with regulations regarding minimum wages, contracts, and social security; employment protection legislation including severance payments and regulations governing dismissal; and

* Much of the material in this chapter is based on two previous manuscripts by Robert Kyloh and Emma Allen from December 2016: "The evolution of industrial relations and wages policy in Indonesia," and "Adjusting labor institutions and laws for greater equity and efficiency: The way forward." These earlier papers provide greater detail on many of the issues discussed in this chapter as well as an alternative perspective on the impact of Regulation 78 of 2015, including the impact of the revised minimum wage system. In addition, the two papers provide a detailed overview of reports by the International Labour Organization (ILO) Committee of Experts on the Application of International Labour Standards in relation to ILO Convention 87 in Indonesia and the recommendations of the relevant ILO Committee. Copies of these papers can be obtained from Robert Kyloh (kyloh@ilo.org).

the expansion of nonstandard forms of work and its implications for human capital development. These labor market issues have long been of concern to policy makers and other stakeholders in the world of work, but reforms have remained a contentious area of policy. This chapter proposes a combination of changes to advance both equity and economic efficiency that cover all the policy areas mentioned above. Essential to this is a high degree of commitment among stakeholders to implement the reforms in good faith.

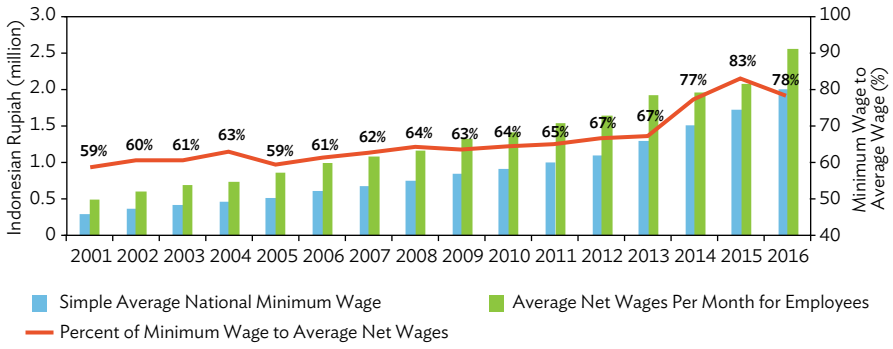
7.2. Minimum Wages

Minimum wages became a central part of the government's labor regulations in the early 2000s, coinciding with the passing of Manpower Act No. 13 of 2003 (MPA13). According to the law, authority to set minimum wages lay with the provincial and/or district governments. Annual adjustments were based on a process led by local wage councils, with decisions made by political leaders at the district and provincial levels. Trade unions, employers, and government representatives from the Manpower Office were members of the local wage councils and provided input into the decision-making process. This approach emphasized tripartite dialogue in wage setting. The wage council was responsible for estimating the wage needed for a single worker to achieve a "minimum decent standard of living" or the *"kebutuhan hidup layak"* (KHL) in a particular area. The process of estimating the KHL involved undertaking a price survey of a "basket" of food and other basic commodities. There were often disputes in the wage council over the methodology for implementing this survey. Arguments centered on the number of items required in the "basket," the quality of the goods and services to be measured, as well as price movements. Consequently, workers and employers often undertook separate surveys and arrived at significantly different estimates of the KHL. They were then required to reach consensus on an official KHL estimate and provide a recommendation to the political leader, who decided on the minimum wage level. In many cases, competing estimates from workers and employers were presented, and the governor was required to arbitrate.

The minimum wage has been a major plank of labor policy, especially for setting labor standards in the industry sector. Earlier research suggested some negative impacts of minimum wage increases on employment in industry, especially among females. They were also associated with positive growth of employment in the informal economy and limited benefits for poorer families (World Bank 2010). But these effects were not large and did not last for long. Minimum wages appear to have grown strongly in some periods, and in other periods adjustments have been more modest. For example, minimum wages increased moderately between 2003 and 2012 across most

provinces. Figure 7.1 illustrates that during this period the ratio of the minimum wage to the average wage crept up, albeit at a mild pace. The situation changed at the end of 2012, however, with minimum wages beginning to increase at a faster pace, driving up the ratio of the minimum wage to the average wage substantially.[1] By August 2015, the ratio reached a peak of 83% before declining to 78% in 2016. These trends reflect the increasing focus of industrial relations dialogue on the minimum wage-fixing system and an underdeveloped system of collective bargaining.

Figure 7.1: Trends in Nominal Minimum and Average Wages, 2001–2016



Source: BPS (2016).

Provincial minimum wages represent the lowest wage within the province, with district or municipality minimum wages able to be set at higher levels within the province. Historically, trends in minimum wage increases at the province level to some degree echo trends at the district level. In recent years, however, district minimum wages in industrial areas, such as Greater Jakarta and Surabaya, rose much faster than in other industrial areas throughout the country (Dong and Manning 2017). This resulted in some manufacturing firms, particularly in labor-intensive industries that are more sensitive to labor costs, choosing to relocate to districts with lower minimum wages.

The ratio of the minimum wage to the mean or median wage, as depicted in Figure 7.1, is a useful and widely employed statistical indicator providing information on the minimum wage relative to that of the "average worker." In developed economies, the minimum wage usually ranges between 30% and 60% of the median wage, while in developing countries the ratio tends to be higher, in part due to the predominance of unskilled and low-skilled types of work (ILO 2016b).

[1] Jakarta increased its nominal minimum wage from Rp1,529,150 in 2012 to Rp2,200,000 in 2013. In the following year, several provinces followed this move with larger adjustments.

In Indonesia, which has a large share of workers employed in low-skilled occupations, the ratio of the minimum wage to the median wage for regular employees has tended to be high and was estimated at 100% in 2016, indicating a high incidence of regular employees that earn wages close to the minimum. While the high ratio is in part attributable to the occupational profile of the labor market as well as trends in minimum wage adjustments, in part it also reflects enterprise formality. The ratio of the minimum to median wage in formal enterprises was 80% in 2016, and for micro and informal enterprises it was 151% in the same year.[2] While the general purpose of the minimum wage is to militate against unduly low pay for unskilled and low-skilled workers, a situation of a high ratio of the minimum to median wage may impede the distributional benefits of minimum wage policies and spur evasion or informality. Important points to take into consideration when setting the minimum wage, therefore, are the level that is appropriate and its annual pace of adjustment, including implications that this may have on firms' decisions and workers' welfare (ILO 1970).

Many proposals to reform Indonesia's minimum wage-fixing system have been made in the last few decades, but until recently there was not sufficient consensus to implement such reforms. This changed in October 2015 with the introduction of Government Regulation No. 78 of 2015 (GR78), which specifies that all provincial, district, and municipal minimum wage levels should be adjusted annually to reflect the percentage increase in the national consumer price index (CPI) and the annual percentage increase in gross domestic product (GDP).[3] The 2015 minimum wage reform process involved tripartite dialogue with employers, workers, and government representatives during the consultation phase and sought to introduce a more "fair, simple, and reliable" system for annual adjustments. The reforms were intended to provide greater certainty for businesses about future labor cost trends and to help reduce strikes and protests, which have traditionally accompanied annual negotiations.

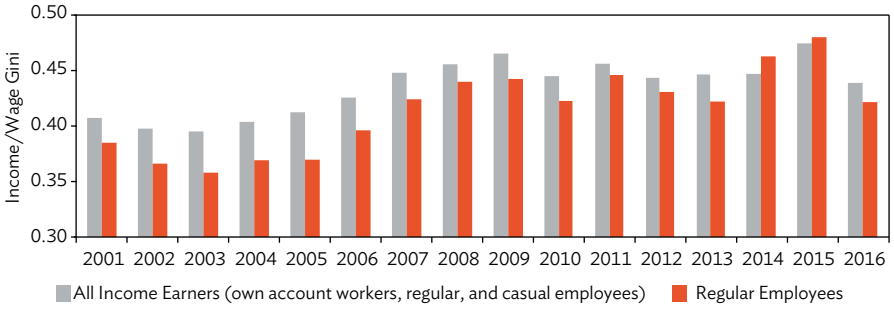
Some preliminary evidence suggests the new policy is on the way to achieving its objectives. Since introduction of the regulation, wage and earnings inequality declined to a 10-year low (Figure 7.2). Similarly, the ratio of the mean to median wage declined to 1.28 in 2016 from 1.38 just 12 months earlier, implying that the distribution of earnings among regular employees improved, and inequality may have decreased. In addition, demonstrations on minimum wage setting

[2] Formal enterprises include government and international institutions; for-profit organizations (private companies, state-owned enterprises, and enterprises owned by regional governments); nonprofits; and cooperatives. Micro and informal enterprises include individual or household businesses, households, and others.

[3] More precisely, Article 44 (2) of GR78 provides a formula whereby the minimum wage increase in all provinces and districts is based on the percentage increase in the national CPI in September (year-on-year) plus the percentage increase in real national GDP in the second quarter (year-on-year). GR78 entails the use of data from Badan Pusat Statistik (BPS—Statistics Indonesia), rather than wage council surveys, and envisages that this formula will apply for the next 5 years. In addition, for provinces with minimum wage levels that are below the KHL, the new system provides scope for further adjustment until that threshold is reached.

declined in 2016 compared with 2015 when the new system was brought in, and compliance with minimum wage implementation has improved. Continued monitoring and analysis are needed to substantiate the effectiveness of the new policy.

Figure 7.2: Wage Inequality Trends, 2001–2016



Source: BPS (2016).

Commitment across government units for implementation of the new policy has been broad-based, with 20 of 34 provinces adjusting minimum wages in accordance with GR78 in 2016, and only 4 of 34 provinces not complying with the regulation in 2017. The parameters of the regulation also put Indonesia's annual nominal minimum wage adjustments in line with those of other countries in the region. To illustrate, in 2015 Indonesia's second quarter GDP grew by 4.7% and year-on-year September inflation reached 6.8%, entailing an 11.5% increase in the 2016 minimum wage across the country. In 2017 and 2018, the annual minimum wage increases will amount to 8.3% and 8.7%, respectively. In comparison, Viet Nam increased its minimum wage by 7.3% in 2017 and Cambodia increased its minimum wage for regular employees in the garment sector by 9.3% in the same year.[4] In addition, Indonesia's approach to minimum wage setting by region puts it in a comparable position with other manufacturing countries in Southeast Asia. For example, the monthly minimum wage in 2017 ranged between $116 and $166 in Viet Nam; in Cambodia, the 2017 garment sector minimum wage for regular employees was $153 per month. In current United States dollar terms, Indonesia's minimum wage for 2017 ranged from $100 in Yogyakarta to $252 in Jakarta.

The government, together with employers and workers who are members of the wage council, plans to review the minimum wage-fixing system that was introduced through GR78 every 5 years. It is important that a system of wage monitoring be established to ensure that this policy dialogue is supported by high quality and robust analysis,

[4] See https://wageindicator.org/

which considers workers' welfare along with issues of wider public interest such as productivity, economic conditions, and equity (ILO 2016a). Continued monitoring and analysis of employment and wage trends is needed to affirm the effectiveness of the new policy. Providing expert advice, along with upgrading the technical skills of the trade unions and employers that participate in these forums, is important for ensuring that all parties have the capacity to engage in a productive economic debate and collective negotiation. Questions that consider the pace of annual adjustments, the appropriateness of minimum wage levels, and the approving government authority should be considered at this time.

For example, when GR78 is reviewed, parties to the process might want to consider if the policy provides them with the flexibility needed to take local economic and social conditions into account. For example, in the follow up regulation, the formula may provide the overall guidance for annual minimum wage adjustments in all provinces and districts. In addition, provisions for an adjustment factor to reflect local economic and social conditions could be specified.[5] The adjustment factor could be either positive or negative and limited by a percentage point band width (for example plus or minus 2% or 3%). For example, a mechanism such as a purchasing power parity index for each region could be used to account for workers' cost of living differences in the formula Similarly, surveys and institutions that provide information on the appropriateness of minimum wage levels and workers' cost of living should be reviewed. Priority should be given to ensuring that tools are appropriately resourced and professionally administered, including piloting.

In the future, Indonesia may also consider further differentiating minimum wages to alleviate potential adverse side effects on vulnerable groups, particularly young people without work experience. The level of youth not in employment, education, or training (NEET) in Indonesia is high, with one in four youth considered as NEET.[6] Countries such as Germany and the United Kingdom have introduced policies that allow lower minimum wage rates for young people and trainees. Given Indonesia's persistently poor outcomes on youth employment, the country could explore a similar option.

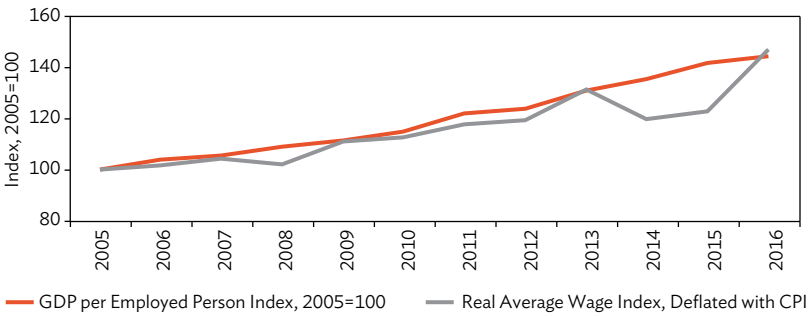
In moving forward, a substantive challenge for Indonesia concerns accelerating the pace of gains in labor productivity while ensuring that wages and productivity continue to move in line. Figures 7.3 and 7.4 illustrate a steady, long-term upward trend in real average wages, with increases moving in line with productivity improvements. The

[5] ILO (1970), Article 3 mentioned that the elements to be taken into consideration in determining the level of minimum wages shall, so far as possible and appropriate in relation to national practice and conditions, include (1) the needs of workers and their families, taking into account the general level of wages in the country, the cost of living, social security benefits, and the relative living standards of other social groups; and (2) economic factors, including the requirements of economic development, levels of productivity, and the desirability of attaining and maintaining a high level of employment.

[6] See Chapter 2 for data on NEET.

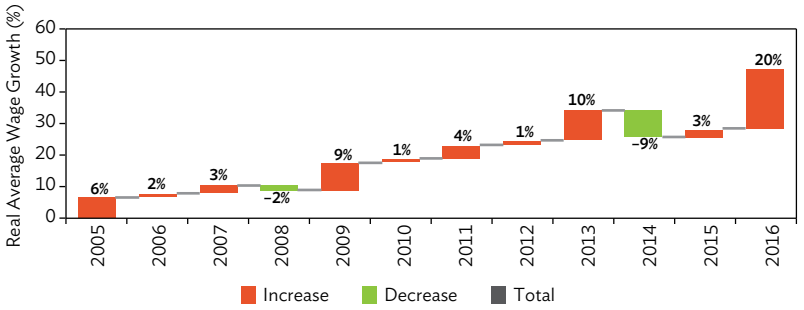
growth in average real wages moderated in 2014 due to higher inflation and slower average wage growth in key sectors and exceeded labor productivity growth only in 2016, as wage trends adjusted to the new policy context. The link between wages and productivity has helped to ensure that higher labor productivity has resulted in higher earnings. In the future, firm-level collective bargaining that includes focus on measures such as occupational safety and time management can be used to foster sustainable growth of average wages to boost productivity. Investments in vocational education and workplace training, along with measures to support improved organization and economies of scale among micro and informal enterprises, are also needed to support average wage and productivity growth.

Figure 7.3: Wage and Labor Productivity Trends, 2005-2016[a]



CPI = consumer price index, GDP = gross domestic product.
[a] Labor productivity calculated as GDP per employed person based on GDP in constant 2010 prices and total employment.
Source: BPS (2016).

Figure 7.4: Trends in Real Average Wage Growth, 2005–2016



Source: BPS (2016).

7.3. Collective Bargaining

While there may be a significant number of collective agreements in Indonesia, bargaining still plays a small role in determining wages and other conditions of employment that go beyond the legal minimum (ILO 2015c).[7] Collective bargaining refers to a process of negotiation between employers and employees regarding working conditions, a process that is conducted freely and requires all parties to act in good faith through demonstrating willingness to negotiate and reach agreement on related matters within a reasonable time frame (ILO 2005). The collective bargaining process requires information sharing, consultation, and joint assessments in the lead-up to the negotiation phase and implementation of the agreement thereafter. The outcome is a collective agreement, signed by the parties to the negotiations. In Indonesia, the focus of firm-level collective bargaining has typically been on agreement to implement rights specified in labor regulations. For example, an ILO review of 100 enterprise-level collective contracts reveals that most clauses in the agreements related to issues are already specified in laws and regulations, such as minimum wages, overtime payments, and premiums for working on Sunday (ILO 2016a).

Expanding collective bargaining is important for decreasing pressure on the minimum wage system and reducing related industrial relations tensions and strikes. It is also important for supporting quality improvements in employment conditions throughout the country. A well-functioning and flexible collective bargaining system that considers macroeconomic conditions can promote quality employment that is high and stable (Hijzen and Martins 2016). Many European countries have highly centralized and regulated systems, with the coverage of collective agreements determined through multiemployer or industry-level collective bargaining and governments using "extension mechanisms" to provide coverage across all workers in the relevant sector. This approach allows collective bargaining coverage to be relatively high, even when union density is low (OECD 2017, Jaumotte and Buitron 2015). Other countries use more decentralized bargaining models that take place at the firm level. This approach tends to provide more flexibility to respond to labor market conditions and can help to avert job shedding during periods of economic downturn. Firm-level bargaining also opens avenues for productivity gains sharing that can be implemented through performance-related pay, investment in human resources, or improvements in other working conditions.

An important reason why collective bargaining is not as extensive as it could be in Indonesian workplaces is the weak bargaining position of labor. This is reflected in

[7] In 2013, it was reported that more than 12,000 companies were registered with collective bargaining agreements.

low levels of unionization and the focus of industrial relations dialogue, as well as in the predominance of micro and small-scale enterprises in the economy. A recent labor force survey indicates that 18% of all employees reported that they were a member of a union, which amounts to 9% of total employment (Table 7.1). According to this statistic, union membership density for all employees is roughly on par with countries such as Germany and the Netherlands, but lower if union membership density is compared with total employment, due to the large share of workers that are still employed in the informal economy.[8] Closer examination of the data reveals that most employees who are organized in unions are concentrated in the public sector, including in education and public administration, where wages and working conditions are determined largely by state regulation rather than through collective bargaining. Within the private sector, union membership is quite limited outside of manufacturing. While collective bargaining over wages and working conditions is a core activity of most workers' organizations throughout the world, the weak bargaining position of labor saw minimum wages become an important element of trade union strategy in Indonesia (Visser et al. 2015).

Table 7.1: Union Membership Density by Sector, August 2016

Sector	Narrow Density (% union members in all employees)	Comprehensive Density (% union members in total employment)
Agriculture, Forestry, and Fishing	4.0%	0.9%
Mining and Quarrying	14.2%	9.7%
Manufacturing	20.8%	13.6%
Electricity and Gas Supply	19.8%	17.5%
Water Supply, Waste Management, and Recycling	17.1%	11.8%
Construction	1.3%	1.2%
Wholesale and Retail Trade, Repair of Vehicles	3.9%	1.2%
Transport and Storage	9.3%	4.5%
Accommodation and Food Service Activities	4.8%	1.4%
Information and Communication	9.1%	6.3%
Financial and Insurance Activities	14.0%	13.7%
Real Estate Activities	5.1%	4.0%
Business Services Activities	7.2%	5.1%
Public Administration, Defense, and Social Security	59.2%	59.2%
Education	54.0%	52.4%
Health and Social Work	25.5%	23.8%
Other Services	2.4%	1.9%
Average	17.8%	8.8%

Source: BPS (2016).

[8] Trade union density corresponds to the ratio of wage and salary earners that are trade union members, divided by the total number of wage and salary earners. See https://stats.oecd.org/.

Second, the Indonesian economy has a large number of micro and small enterprises, with almost three-quarters of employed people working for households or individual businesses—many of which operate in the informal economy, where compliance with labor regulations is limited. In manufacturing, it is estimated that there are close to 4 million firms, of which 3.7 million are micro or small firms. In such a context, it would be difficult for a union movement to organize and represent workers through firm-level negotiations. Consequently, collective bargaining at the enterprise level has been limited to larger domestically owned companies and multinational enterprises, with workers in micro and small enterprises less likely to be covered. However, increasing the share of workers covered by collective agreements through sector-wide approaches or extension mechanisms also faces constraints due to limited government administrative resources and capacity to monitor implementation. Given the large scale of the informal economy and high levels of noncompliance, additional regulatory measures may make little difference to workers in small firms. Instead, interventions to encourage micro and small enterprises to form clusters to promote cooperation and economies of scale may have an important role to play in providing an environment that is more conducive to collective bargaining. With improved organization, multiemployer bargaining approaches may provide options for industrial contexts with many small firms.

To some extent, the previous wage policy,[9] which required employers' and workers' organizations to participate in wage councils for deliberating provincial and district minimum wage levels, helped to mitigate the challenges that unions face in representing workers spread across micro and small firms. However, this framework saw preferences for the use of legally binding tools, such as minimum wage-fixing structures, become a key mechanism for improving workplace conditions (ILO 2015c). This resulted in a context wherein a multitude of minimum wages existed, whereas it may have been more efficient to develop collective agreements.

In moving forward, the lessons learned and experiences gained by employers and workers under the previous wage policy have provided both parties with some relevant experience for expanding collective bargaining throughout the country. GR78 makes several provisions that support the expansion of collective bargaining. For example, it provides legal scope for the negotiation of sector-level minimum wages and makes provision for wage scales that could reflect tenure, skill level, and other appropriate variables. While similar provisions have existed in previous regulations, they were not implemented widely. The new regulation therefore represents fresh government efforts to expand collective bargaining over wages and working conditions. GR78 provides scope for sector-level employers' and workers' organizations to freely negotiate sector

[9] See section 7.2 on minimum wages.

wage increases through a bipartite bargaining process. The only limitation is that sector minimum wages must be above the provincial minimum wage. Parties are permitted to undertake cost-of-living surveys if they so choose and may include consideration of other economic and labor market indicators in their negotiations.

GR78 also makes it clear that the provincial wage council will have the authority to determine industry groups or enterprise groups that constitute a sector for the purpose of bipartite collective negotiations. Using this authority wisely will be important. A review of previous experience with sector-level minimum wages reveals that the sectoral composition was decided in an ad hoc manner, with industries being combined in one sector that had few common economic characteristics. For example, a sector minimum wage in Bekasi District covers "food and beverage, textiles, print media, glass, metal, compressors, telephones and cables, and light bulb manufactures." This is a very diverse group of manufacturing industries that may have very different profit and productivity levels, as well as vastly different skill levels and capital-to-labor ratios.

When implementing GR78, it would be more rational to define industry or enterprise groups more narrowly and precisely, based on their levels of capital intensity and/or the occupations and skill levels of the core workers within the industry. For example, it may be more reasonable to organize sector negotiations in accordance with labor-intensive, capital-intensive, and resource-based industry classifications at the provincial level. Agreements that emerge from sector-level bargaining regarding minimum wages can then be geared more closely to the economic performance of the industry. Provisions for wage scales that reflect tenure, skills, and occupations in GR78, along with other productivity enhancing measures, may then be negotiated at the firm level to take into account the intricacies of individual enterprises.[10]

It is also important to increase the representativeness of the collective bargaining system by including more workers and employers in the negotiations. For example, an important barrier to moving forward with sector-level bargaining is the absence of sector-level employers' organizations at the provincial level. There are no employers' organizations at the provincial level for specific industries, such as the metal industry or electronics industry, with experience in collective negotiations. Indonesia's employers' organization, Asosiasi Pengusaha Indonesia (APINDO), could however help establish such organizations and provide technical assistance to them.

Similarly, focusing the strategy of the union movement on bargaining and improving union membership density in the private sector is important for expanding collective

[10] For example see ITC-ILO/ACTRAV training on Negotiating Productivity linked agreements in Enterprises: http://actrav-courses.itcilo.org/en/a104027/a104027-presentations/arun-kumar-english/negotiating-productivity/at_download/file.oad/file

agreements. Given the underdeveloped nature of collective bargaining, workers would need to perceive that there are benefits to joining a union and paying union dues out of their salaries. It will be important for workers' organizations to focus on strategies for improving the working conditions of their members through collective bargaining to build their membership in the future. Likewise, strengthening services, such as legal advice in cases of interest disputes and unfair dismissal, is important. Finally, improving the coherence of the union movement through promoting consolidation would enhance their bargaining position.

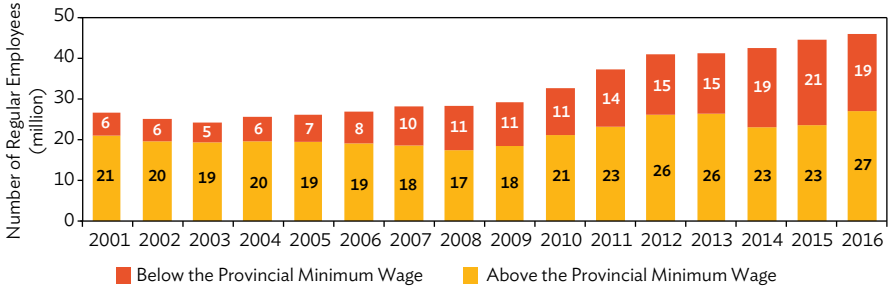
7.4. Labor Standards and Labor Rights

Labor regulations can help to safeguard against low earnings and poor working conditions; however, the effectiveness of such instruments can be undermined by weaknesses in implementation and enforcement. Although evidence on compliance with labor laws is difficult to obtain, there are indications that the standards provided in laws and regulations are not implemented consistently across workplaces in Indonesia. The Indonesian Labor Force Survey provides some data that can be used to monitor compliance with a selected number of labor regulations, such as minimum wages, social security, and employment contracts. Issues such as occupational safety and health, coverage of collective agreements, child labor, and discrimination are more difficult to monitor at the aggregate level.

The proportion of workers in regular wage employment[11] has been increasing over time, while the proportion of workers who are self-employed or unpaid has diminished. This is an important trend, as it signals the expansion of the formal economy and an expansion of jobs with work arrangements that are more likely to comply with labor regulations. However, an expansion of regular wage employment does not necessarily entail an expansion of jobs that are consistent with all parameters of labor regulations. To further examine the trends, Figure 7.5 compares the expansion of regular wage employment with one aspect of the implementation of labor regulations—compliance with minimum wages. The figure shows that in the last 16 years the number of workers in wage employment has risen and that the number of regular employees receiving the minimum wage or above has increased at a steady pace. The number of regular employees receiving earnings below the minimum wage began increasing around the time of the global financial crisis, and the number of regular employees earning below the minimum wage has close to doubled since then.

[11] A regular employee is a person who works permanently or for a fixed period for other people or an institution/company and gains some money and/or goods as a wage or salary. Regular employees can be found in micro, small, medium, and large firms in the formal and informal economy. A worker who has no permanent employer is not categorized as a regular employee but as a casual employee.

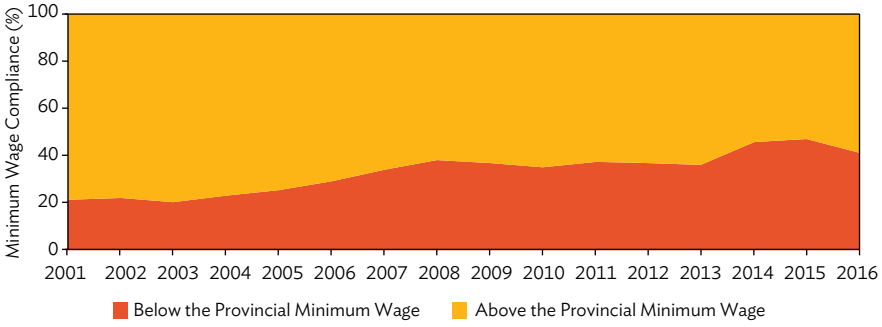
Figure 7.5: Regular Employees Below and Above the Provincial Minimum Wage, 2001–2016



Source: BPS (2016).

The data show that minimum wage noncompliance is high in Indonesia. In August 2001, roughly 21% of regular wage employees received wages below the minimum. By 2016, the comparable figure was 41% (Figure 7.6). Noncompliance with minimum wages rose sharply between 2003 and 2008, when the economy grew more quickly and wage adjustments were modest. During this period, job growth for regular employees was comparatively slow, especially in manufacturing. Noncompliance hovered at around 37% between 2008 and 2013 and increased again after 2013, when minimum wages began to increase more rapidly. The situation began improving in 2016 with the implementation of the new policy on wages. However, the overall high level of noncompliance means that minimum wage levels in Indonesia do not represent a wage floor for the country.

Figure 7.6: Regular Employees Below and Above the Provincial Minimum Wage, 2001–2016



Source: BPS (2016).

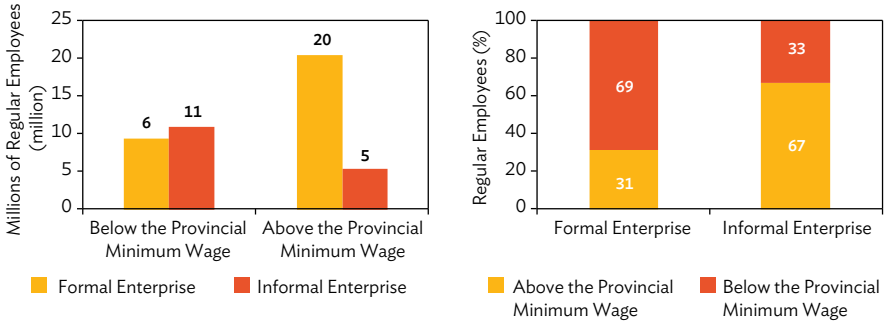
Minimum wage noncompliance tends to be higher at the start of the year and to gradually improve as the year progresses. For example, in February 2015 minimum wage noncompliance reached a peak of 52% and by August in the same year it had improved to 47%. This may in part be because employers can make an application to postpone wage adjustments from early in the new year for a maximum period of 12 months.[12] This is a unique feature of minimum wage-fixing in Indonesia and helps explain the variation in implementation within the year. Administrative data collected by the Ministry of Manpower indicate that between 2011 and 2015 applications for postponement by enterprises increased steadily and began moderating after the introduction of GR78. However, this feature only partly explains the trend of high noncompliance over prolonged periods.

To better understand trends related to the implementation of labor regulations, it is important to consider the status of firms that are hiring these workers. The level of compliance with minimum wages is likely to vary considerably by place of work, with enterprise formality playing an important role. Based on data from 2016, Figure 7.7 illustrates that regular employees working for formal enterprises are more likely to receive the minimum wage than those working for enterprises in the informal economy. Only one in three regular employees in informal enterprises received wages at or above the minimum, while in formal enterprises two of every three regular employees received at least the minimum wage. The figure highlights that noncompliers are associated with the informal economy, particularly micro and small enterprises and household businesses, where enforcement through the labor inspection and judicial systems is a challenge. Compliance is much higher in formal enterprises. Given the context, different measures may be needed to improve results on the implementation of labor regulations. What may be fitting for formal economy enterprises might be counterproductive for those working in the informal economy.

The degree to which enterprises follow other labor regulations, such as issuing their employees with written contracts, also seems to increase the likelihood of compliance with minimum wage regulations. That is, compliance with one element of labor regulation makes compliance with other aspects more likely. Approximately half of all regular employees are employed on formal contracts, while the remaining half has informal work arrangements. Figure 7.8 shows that employees on formal contracts, be they permanent contracts or fixed term, are more likely to receive the minimum wage or above than those with informal work arrangements. Only one in three regular employees with informal work arrangements was paid above the minimum wage, while two in three regular employees with formal contracts were paid above the minimum wage.

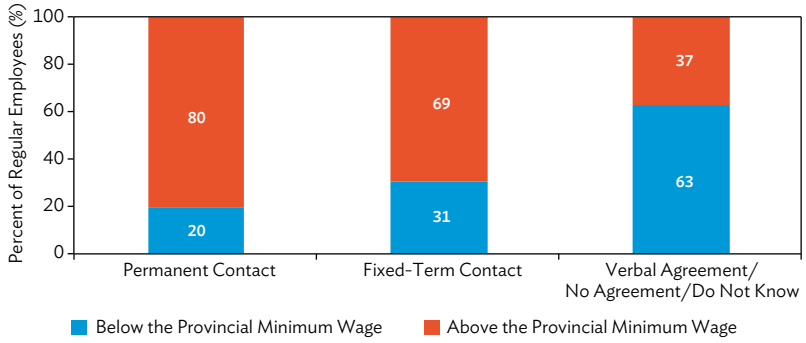
[12] See Manpower Act No. 13 of 2003, Art. 90 and Minister of Manpower and Transmigration Decree No. 23 of 2003 on Regulation on Minimum Wage Postponement.

Figure 7.7: Regular Employees Below and Above the Provincial Minimum Wage by Enterprise Type, August 2016[a]



[a] Central Java does not set a provincial minimum wage. Therefore the lowest district-level minimum wage in the province is used as a proxy for the provincial minimum wage. Microdata files do not provide district-level disaggregation. Formal enterprises include government and international institutions; for-profit organizations (private companies, state owned enterprises, and enterprises owned by regional governments); nonprofits; and cooperatives. Micro and informal enterprises include individual or household businesses, households, and others.
Source: BPS (2016).

Figure 7.8: Regular Employees Below and Above the Provincial Minimum Wage by Contract Type, August 2016

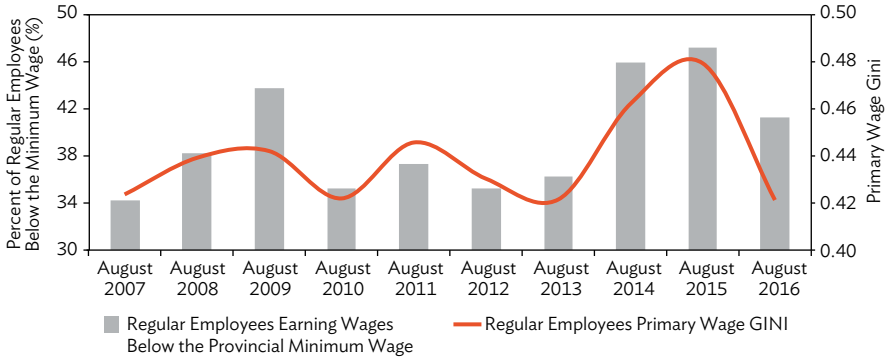


Source: BPS (2016).

Compliance with labor regulations is important for several reasons, including the role that such regulations may play in supporting more equitable growth. For example, recent research from the International Monetary Fund (IMF) highlights that minimum wages may support income distribution, which may lead to broader influences on income equality (Jaumotte and Buitron, 2015). Following this, the degree to which minimum wage regulations can be implemented may have implications for wage and earnings inequality. This concept is further explored in Figure 7.9, which presents trends in minimum wage noncompliance and the primary wage Gini for regular employees. The

figure illustrates that, between 2007 and 2009, noncompliance with minimum wages increased, and wage inequality also expanded. Thereafter, compliance improved somewhat, and wage inequality fluctuated before both variables rose sharply after 2013. In 2016, compliance improved, and wage inequality also narrowed. While many factors influence wage inequality, including skills premiums, the implementation of labor regulations seems to play a role as well. In this regard, further measures to support the implementation of labor regulations could help to moderate wage inequality in Indonesia.

Figure 7.9: Employees Below the Minimum Wage and the Primary Wage Gini, 2007–2016



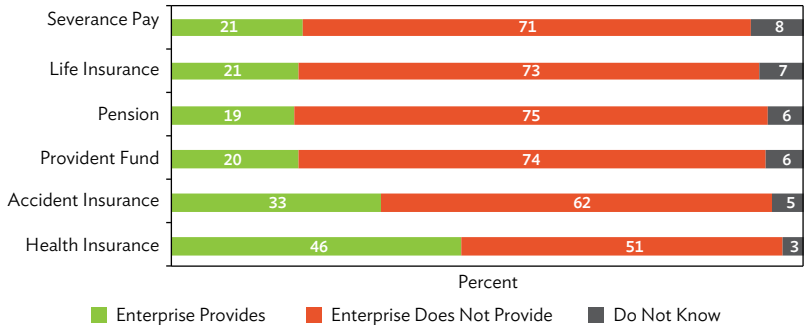
Source: BPS (2016).

As many in Indonesia earn below the minimum wage, improving compliance involves raising the earnings of those at the bottom of the distribution. On the one hand, raising the earnings and purchasing power of those at the bottom of the income distribution may see wage inequality narrow. Because people who receive low incomes tend to spend most of their earnings on locally produced products and services, such a measure could support growth. On the other hand, if enterprises are forced to comply with minimum wages, they may respond by cutting costs and laying off some workers, or they might try to substitute workers with more skilled workers to improve efficiency (IMF 2016a). Firms may also pass on additional costs, subsequently reducing the purchasing power of all consumers, including those with lower incomes. Therefore, the overall positive and negative impacts that improving compliance may have on aggregate employment, economic activity, and equality need to be thoroughly investigated.

Labor regulations also require participation in social security programs to promote workers' welfare. Laws and regulations in these areas tend to have lower compliance

levels than those associated with wages. For example, Figure 7.10 provides data on the proportion of regular employees receiving selected social security benefits. It shows that only one in five has access to pensions, life insurance, or severance pay entitlements, while one in three has workplace accident insurance. Interestingly, almost half of regular employees have health insurance provided by the company, business, or workplace that employs them. While overall social security coverage is still low, the relatively higher rates of employee participation in the national health insurance program are encouraging.

Figure 7.10: Regular Employees with Social Security Benefits, August 2016



Source: BPS (2016).

Enrollment in the national health insurance program, known as BPJS Kesehatan,[13] increased rapidly in January 2014 when Indonesia commenced implementing the national social security system as mandated by the National Social Security System Act No. 40 of 2004 (ILO 2015c). The rollout of the program was accompanied by an awareness-raising campaign, outreach programs, and a range of sanctions to incentivize enrollment. The program was extended to all workplaces, including microenterprises, with employers that fail to register employees in the program becoming ineligible to receive a range of other business licenses. Lessons from increasing enrollment and compliance with BPJS Kesehatan should be gathered and shared with other social security programs for making similar improvements in their scale of coverage.

Policies to support the implementation of labor laws and upgrade compliance are needed. A stronger consensus from employers and workers is needed to implement existing regulations and ensure an effective level of compliance. Investments to strengthen labor market institutions, particularly an upgrading of the system of labor inspection and the labor courts, are needed. In addition, different strategies may be

[13] BPJS is the abbreviation for Badan Penyelenggara Jaminan Sosial, the Social Security Agency.

required to improve compliance among formal and informal enterprises. This would provide recognition of heterogeneity in the labor market and provide an opportunity to improve compliance in different parts of the market where the government and workers' organizations have a greater or lesser degree of influence. Disseminating information on wages and other labor standards more broadly could improve compliance through creating a signal or "lighthouse effect" to workers and employers in the informal economy (ILO 2016b). In addition, many countries deal with low compliance by adopting differentiated minimum wage systems, such as an apprentice wage and age-differentiated minimum wages for young and less qualified workers, or distinguishing between smaller and larger enterprises.

7.5. Employment Protection Legislation

In Indonesia, debates about labor market flexibility in the last decade have focused on employment protection legislation (EPL) and the level of severance payments required when dismissing employees on contract without a time limit ("permanent" employees). These issues are closely interlinked with dismissal laws, the high incidence of nonstandard forms of work, and inadequate investment in skills and training. Several attempts to reform the regulations have failed, with comprehensive reform to make the labor market more efficient and equitable still wanting.

Dismissal has always been tightly regulated in Indonesia. Law No. 12 of 1964 on Employment Termination required employers to get approval for both individual and mass dismissals, regardless of the reasons for terminating employment (Manning 2003). Consequently, employers complained that dismissal procedures were complicated and time consuming. However, the cost of dismissal was low, and enforcement of the law regarding prior approval was extremely lax. Things changed dramatically toward the end of the Suharto government. Minister of Manpower and Transmigration Decree No. 3 of 1996 increased severance payments for workers being dismissed at the discretion of the employer by more than 50% (World Bank 2010). Job cuts associated with the Asian Financial Crisis, combined with the absence of unemployment insurance, generated pressure for strengthening of the EPL. In 2000, the government adjusted the rules governing who was entitled to severance payments, the level of payment associated with length of service, and the reasons for termination, and raised severance payments by 10%. A few years later the MPA13 made additional adjustments and increased severance payments further for workers with 10 or more years of service. These increases in severance payments consequently saw the real cost of dismissal rise over time. Today's severance payments could now be considered akin to a "hiring tax," equal to roughly one-third of a worker's salary,

with no other country in the Asian region having dismissal costs as high as those in Indonesia (World Bank 2010).

The EPL is one of the most controversial aspects of labor market regulation, with much analytical work in this area hampered by inadequate data. To help rectify these shortcomings, the ILO recently established a database on EPL indicators for 95 countries, covering eight subcomponents of laws related to worker termination (ILO 2015b, ILO 2017). This database is based on eight categories that are addressed in ILO Convention No. 158 concerning Termination of Employment—valid grounds for dismissal, prohibited grounds for dismissal, probationary period, procedural notification requirements for dismissal, notice periods, severance pay, redundancy pay, and avenues for redress when workers wish to contest dismissal (ILO 2015a). Based on the content of the national legislation, the ILO assigned a value between 0 and 1 to each of the above-mentioned issues, with higher values reflecting stronger protection for workers. Based on a simple average of the eight indicators, Indonesia has a high degree of protection for workers against individual dismissal. There are several reasons for this, including high levels of dismissal payments and cumbersome dismissal procedures.

Provisions for dismissal payments are specified in the MPA13. Article 156 states that "termination of the employment relationship gives rise to termination payments that include severance pay and/or long-service pay (*uang penghargaan/jasa*)." Reward for length of service, often referred to as a "gratuity" in Indonesia, amounts to 1 month's pay for every 3 years of employment up to a maximum of 10 months' wages for 24 years of service. In addition, provisions for individuals dismissed for "efficiency" reasons double severance payments, with Article 164 stating that in the case of termination due to rationalization or efficiency "workers/labourers shall be entitled to severance pay twice the amount of severance pay stipulated under subsection (2) of Article 156." If the severance payments and long-service benefits are combined, the cost of termination to the employer is significantly higher in Indonesia than in most countries in the region. If dismissal is due to efficiency reasons, total termination payments become among the highest in the world, as shown in Table 7.2 (World Bank 2018). The high cost of severance for efficiency reasons very strongly discourages firms from adopting new technology and work practices that save labor, hindering the implementation of productivity enhancements and adoption of innovations.

Many countries have "long-service benefit" arrangements, with workers receiving either a monetary reward or some other benefit, such as extra holidays, as an incentive for long tenure. In most countries, such benefits would be available to a worker after a long period of continuous employment in one enterprise or on termination of employment, and not just for those who are dismissed. Thus, an employee quitting to take up a new

Table 7.2: Payments Applicable to Workers at Dismissal

Years of Service	Severance Pay (x monthly salary)	Long Service (Gratuity) (x monthly salary)	Total Payments (x monthly salary)
< 1 years	1	0	1-2
1 years	2	0	2-4
2 years	3	0	3-6
3 years	4	2	6-10
4 years	5	2	7-12
5 years	6	2	8-14
6 years	7	3	10-17
7 years	8	3	11-19
> 8 years	9	3	12-21
9 - 11 years	9	4	13-22
12 - 14 years	9	5	14-23
15 - 17 years	9	6	15-24
18 - 20 years	9	7	16-25
21 - 23 years	9	8	17-26
> 24 years	9	10	19-28

Note: Dismissal for efficiency = twice the severance pay entitlement.
Source: Manpower Act No. 13 of 2003.

job with another employer should still be entitled to this long-service benefit. This is not the case in Indonesia, with workers who resign receiving neither the severance payment nor the long-service benefit (Table 7.3). The MPA13 also establishes different benefit levels depending on the reasons for the dismissal. A key point to note is that no benefits are paid if the worker has reached the end of the contract. This creates a very important distinction between workers on contracts without limit of time (permanent contracts) and workers on fixed-term contracts. The law thus creates a major financial incentive for the employer to use short-term contracts. In addition, the MPA13 makes provisions for "compensation pay" when workers are dismissed. Compensation pay depends on the benefits specified in the employment contract, and includes compensation for unused leave and other benefits. This is standard practice in most countries.

Table 7.3: Benefits Paid According to Reason for Dismissal

Reasons for Severance	Benefits
Resignation	Only compensation pay
End of Contract	No benefit
Fired Due to Worker's Errors	1 times severance pay, 1 times gratuity, and compensation pay
Fired Due to Employer's Mistakes	2 times severance pay, 1 times gratuity, and compensation pay
Lay-Offs During Company Losses	1 times severance pay, 1 times gratuity, and compensation pay
Lay-Offs During Mergers	1 times severance pay, 1 times gratuity, and compensation pay
Company Bankruptcy	1 times severance pay, 1 times gratuity, and compensation pay
Efficiency (downsizing)	2 times severance pay, 1 times gratuity, and compensation pay

Source: Manpower Act No. 13 of 2003.

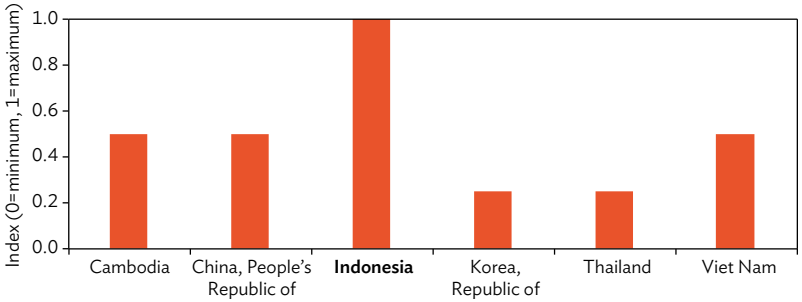
Under the current system, both the severance pay and the long-service payment should be made available to the dismissed ("permanent") worker in a lump-sum payment immediately after termination of the employment contract. In situations of mass dismissal this can present financial challenges. Provisions in the Statement of Financial Accounting Standard in Indonesia regulate these severance and long-service payments and are supposed to ensure that all enterprises have made sufficient provisions to avoid financial difficulties in the case of mass dismissal. However, many enterprises do not allocate resources for such payments in their balance sheets, entailing financial challenges in meeting legal obligations.

In addition to high termination payments, Indonesia is also considered to have a high degree of protection for workers due to procedures that employers are expected to go through prior to dismissing a worker. The legislation states that the employer should engage in a process of mandatory conciliation prior to every dismissal. This is unusual, with most countries allowing employers to dismiss a worker by following specific procedures prescribed by law and workers are allowed to appeal to a labor court if they consider their employment has been unjustifiably terminated.

Under the current regulatory framework, if mandatory conciliation fails, there is provision for mediation and arbitration by the Industrial Relations Court. While there are time limits on the duration of these mediation and arbitration processes, the actual time it takes to complete a dismissal, and the outcomes the conciliation and/or mediation process normally generates, are uncertain. The lack of predictability of the outcome, and the uncertainty about the process, represent a burden. Consequently, Indonesia recorded the maximum value on an index concerning procedural requirements for dismissal when the ILO assessed this aspect of the EPL (Figure 7.11). This aspect of the employment protection legislation by law provides significantly more protection to the worker in Indonesia than is the case in comparable countries in the region. However, as in other attempts to quantify the EPL, this reflects only the legal level of protection provided by the legislation. By itself, it tells little about the actual level of protection. For example, conciliation procedures may not be a burden, as they are not applied in the stringent way envisaged in the law. Similarly, full severance pay obligations may not be met, with compromises often agreed upon between employers and workers. Moreover, provisions in the EPL are rarely applied in the informal economy, and workers on short-term contracts are exempt from several aspects of the legislation.

It is neither efficient nor equitable to have a complex set of regulations that provide a high degree of employment protection by law, but very low levels of protection in reality. There are strong grounds for reviewing employment protection regulations to bring law and practice into conformity. It would also be appropriate to clearly separate

Figure 7.11: Procedural Requirements for Dismissal in Selected Countries



Source: ILO (2017).

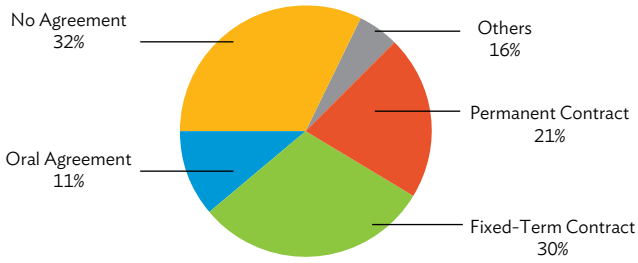
severance payments and gratuity. The latter should be available to all workers who have reached the appropriate length of tenure and not just dismissed workers. In the case of the former, provisions on payments for dismissal due to efficiency reasons should be brought into line with international best practice. This has been a major industrial relations issue since 1996, with serious implications for industry competitiveness. Consideration might also be given to replacing the legal requirement for mandatory conciliation prior to dismissal with more standard access to remedial action after the fact in cases of unfair dismissal. Reforms of this nature might be best tackled in the context of a comprehensive reform package that seeks to curtail excessive levels of nonstandard forms of work and support investment in training and productivity.

7.6. Nonstandard Forms of Work and Human Capital Development

Indonesia has had considerable success in expanding regular wage employment, with 38% of all employed persons classified as regular employees in 2016. This trend reflects an expansion of formal nonagriculture activities and needs to accelerate further. However, wage employment is not homogeneous, and within the broad category of wage employment there are numerous subsets. First, regular wage employment includes jobs that come with "permanent" employment contracts without time limit. Employment contracts without time limit tend to be better paid and come with a range of other benefits, including severance payments and long-service benefits. Second, a proportion of wage employment is composed of workers on fixed-term contracts. These workers benefit from wage levels and employment benefits that are comparable to those received by "permanent" employees, but their jobs have fixed tenure. Third, a portion of those in regular wage employment have informal work arrangements—either verbal agreements or no agreement—and rarely have access to social security

benefits or secure job tenure. Badan Pusat Statistik (Statistics Indonesia) recently started collecting data on the contract type of regular employees, and, as of August 2016, 21% of regular employees had permanent contracts; 30% had fixed-term contracts; and the remaining 49% had a verbal agreement, no contract, or did not know (Figure 7.12). Almost all workers with permanent or fixed-term contracts work for formal enterprises, while those with informal work agreements tend to work for micro or small enterprises or households. The data suggest that almost 80% of regular employees in Indonesia are in nonstandard forms of work.[14] Recalling that regular wage employment represents 38% of total employment and that most of those not in wage employment are engaged in the informal economy or work in agriculture, there are considerable decent work deficits in Indonesia.

Figure 7.12: Contract Types for Regular Employees, August 2016 (%)



Source: BPS (2016).

In addition to the above-mentioned contract types, a proportion of regular wage employment (and nonwage employment) refers to "outsourced" workers. In Indonesia, the outsourcing of work is restricted by (1) the type of work, and (2) the types of jobs that enterprises can legally subcontract to another enterprise. The subcontracting of work is permitted for noncore functions of the primary enterprise. This work should be conducted separately from the main activities of the company and be a supporting activity, and the subcontracting process should not hinder the overall production process. The subcontracting of jobs refers to workers who undertake activities within a formal enterprise but are engaged through private employment agencies or labor supply firms. The subcontracting of jobs is restricted to five occupations: cleaning services, catering services for employees, security services, support services in the mining and oil sector, and transport services for employees.

[14] "Nonstandard forms of employment" is an ILO term that refers to (1) temporary employment; (2) contractual arrangements involving multiple parties, including temporary agency work; (3) ambiguous employment relationships, including dependent self-employment and disguised employment relationships; and (4) part-time employment. For further details see ILO (2016c).

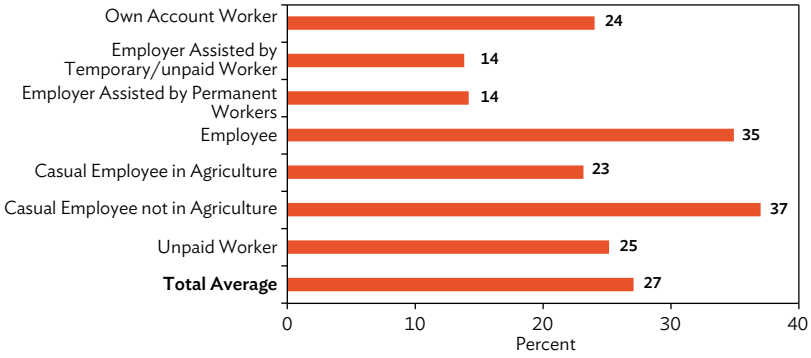
Subcontracting or outsourcing is permitted only by formally registered companies; however, such work is often undertaken by entities in the informal economy. For example, the manufacturing of noncore elements of the production process may be outsourced, with certain auxiliary tasks—such as sewing buttons or packaging cables—at times outsourced to female homeworkers in the informal economy on a piece-rate basis. Outsourced workers in this situation may support supply chains producing inputs for national and international markets, yet the working conditions of such workers can be below the standards received by permanent or fixed-term workers in the parent companies.[15] Grievances of outsourced workers have been a source of conflict in the labor market, with access to entitlements, such as minimum wages and social security, a frequent complaint.

Some important attempts to regulate nonstandard forms of work have been made in Indonesia. For example, legislation concerning fixed-term contracts usually covers at least three aspects: the maximum duration of a fixed term, the possibility for renewal, and regulations about the type of work permitted under a fixed-term contract. To curb the growing number of temporary contracts, the MPA13 reduced from 5 years to 3 years the time limit on fixed-term contracts. More specifically, the law allows for fixed-term contracts of 2 years with the possibility of one extension of 12 months. The effectiveness of such measures in Indonesia needs to be further understood. However, experience in other countries suggests that when the use of fixed-term contracts is widespread, legal reforms that cut time limits may have limited capacity to reduce reliance on fixed-term contracts (ILO 2016c). This is because employers may adapt their production structures and processes to meet the requirements of workers on fixed-term contracts, which is subsequently reflected in comparatively shorter job tenure for workers. To illustrate, in Indonesia the ratio of regular employees with contracts of 3 years' duration or less is high in comparison with other informal economy workers and other types of employers. One in three regular employees has a job tenure of 36 months or less, while only one in four self-employed workers or one in seven employers has a job tenure of less than 3 years (Figure 7.13).

A reliance on short-term contracting and informal work arrangements can have a negative impact on efficiency and productivity gains, as it tends to discourage investment in new skills and human capital development. For employers who hire workers on fixed-term contracts, the time horizon is often not sufficient for the firm

[15] Most workers in this situation would be classified as self-employed and hence would not be covered by the Manpower Act No. 3 of 2003 or entitled to social benefits that are associated with an employment relationship. However, in many cases these workers are economically dependent on the parent company distributing the work. Thus, it could be argued that these workers are in a form of "disguised" employment relationship. In recent years, many countries have altered the tests that they apply to establish the existence of an employment relationship, placing greater emphasis on economic dependency and less emphasis on control or subordination of the worker by management.

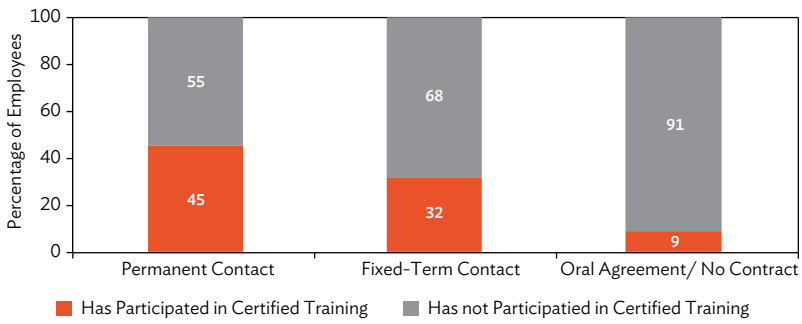
Figure 7.13: Percentage of Workers with Less than 36 Months of Job Tenure, 2016



Source: BPS (2016).

to accrue a return that offsets the cost of training. Figure 7.14 illustrates this point. Employees with a permanent contract are more likely to have participated in certified workplace training than employees on fixed-term or informal contracts, with the high usage of short-term and informal contracts likely to be one reason why enterprises underinvest in training. A similar situation exists for the worker. Because a very large proportion of workers do not expect to remain in the same enterprise for lengthy periods, the incentive to acquire firm-specific skills is diminished.

Figure 7.14: Participation in Certified Workplace Training by Contract Type for Employees, August 2016

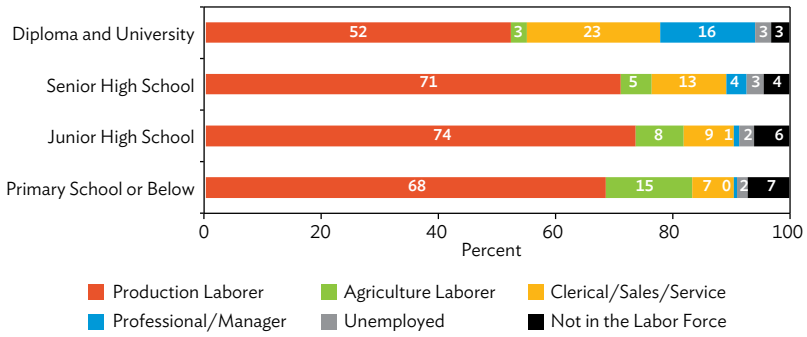


Source: BPS (2016).

The large share of workers in nonstandard forms of work sees workers moving between jobs frequently and may be one reason for high levels of labor market "churning" in Indonesia. The concern is that, in the absence of opportunities for up

skilling, workers—particularly those with lower levels of education attainment—will tend to shift between formal-sector fixed-term contracts and work in the agricultural informal economy. To illustrate, a survey of production workers in manufacturing found that over a 12-month period approximately two-thirds of the sample were still working as production workers, with the remaining one-third likely to have taken up employment as agricultural laborers or in low-skilled services or to have exited the labor force (Figure 7.15). The figure shows that workers with low education levels in low-skill jobs tend to change jobs regularly and cycle between low-paid positions and spells of unemployment, with no definable career progression. In comparison, workers with postsecondary qualifications were able to strengthen their labor market attachment, climb the career ladder, and graduate into more highly skilled occupations. The finding highlights that the benefits of labor market flexibility associated with nonstandard forms of work do not seem to accrue to all workers equally, with temporary jobs unlikely to provide an opportunity for upward mobility for low-skilled workers.

Figure 7.15: Transition Rates for Production Workers across Occupations by Educational Attainment over 12 Months



Source: BPS (2016).

There are therefore both equity and efficiency grounds for examining the incentive structures and regulations that encourage a reliance on fixed-term contracts and other nonstandard forms of work in Indonesia. The relevant legislation includes regulations governing dismissal procedures and the complex set of rules related to severance and long-service payments, as well as regulations on fixed-term contracts and outsourcing. In the absence of major reforms to the labor inspection system and the labor courts system, it is unlikely that further legal restrictions on time periods or the type of work that can be undertaken by workers on fixed-term contracts or

"outsourced" workers will have the desired impact. It may therefore be more effective to adjust financial incentives rather than tighten laws.

In 2010, the World Bank proposed a "grand bargain" for Indonesia that involved lowering severance payments in exchange for introducing unemployment insurance (World Bank 2010). Based on the above analysis, a broader range of issues may need to be covered, including conciliation and arbitration processes associated with unfair dismissal as well as provisions related to severance payments. Provisions to strengthen skills and employability may also be merited, particularly to support workers with low skill levels to access quality jobs in the formal economy. In reviewing these provisions, careful attention should be paid to the evidence on the actual level of benefits paid and not just the legal entitlements specified in legislation.

The *quid pro quo* for such changes could be an increase in the minimum rate of remuneration received by regular employees who are employed on temporary contracts.For example, all wage employees on fixed-term contracts or workers supplied through labor supply companies or employment agencies could be paid a premium on the minimum wage. From the employers' point of view this would be perceived as a wage penalty, while from the employees' point of view it would be seen as compensation for less stable employment. While it is recognized that there exist major problems with minimum wage compliance, a simple rule such as this—that provides a modest wage premium—might be more effective than trying to further tighten the regulations that attempt to curtail the time limits, occupations, or other characteristics of nonstandard work contracts. Such a policy might also reduce incentives to outsource to micro and informal enterprises and encourage growth in firm size.

To strengthen productivity and incentivize skills training, a contributory employment insurance fund could be trialled that provides employers and their workers with training credits to support the professional progress of workers and the competitiveness of enterprises.[16] Such reforms should be piloted to better understand their effectiveness in addressing the challenges at hand. Evidence from such pilots should be used to inform legislative reform. Above all, solutions need to be practical, enforceable, easy to communicate, and perceived as fair by both workers and employers. Over the longer

[16] The concept of "employment insurance" is a system of entitlements to training, funded through an employment insurance system, such as individual "training" accounts, that seeks to support and enhance employability. It also has the benefit of supporting workers with the greatest need for continuing education, who often do not have the resources to finance the absence from work and the training on their own, as well as workers in small and medium-sized enterprises who are less likely to benefit from employer-sponsored training. In France, a "personal training account" allows employees to receive 24 hours of credits for certified training per year worked, which can be topped up by employers or the government. Employers and workers can contribute to the scheme through an earmarked contribution based on payroll costs. See ILO (2016c).

term it would also be essential to strengthen enforcement mechanisms to ensure that any revised legislation is properly implemented.

7.7. Conclusions

Public policy needs to provide an environment that is conducive to creating jobs in the formal economy to provide opportunities for the 3 million additional Indonesians who attain working-age each year. Thus far, we have seen that the proportion of quality jobs in the labor market has grown, and that average real wages have kept pace with productivity improvements over the long term. However, challenges associated with wage policies, labor market flexibility, and implementation of labor rights persist—all of which have important implications for supporting job-rich growth. The recent introduction of GR78 has helped to make the system of minimum wage-fixing fairer, simpler, and more reliable. The regulation also represents fresh government efforts to promote a well-functioning and flexible system of collective bargaining. In moving forward, it will be important to (1) establish a system of wage monitoring to ensure that GR78 is achieving its objectives, while also examining broader wage and employment issues to inform future policy; and (2) support sector-level bargaining among industries with similar levels of capital intensity or skills requirements, as well as firm-level agreements that reference wage scales and productivity-enhancing measures. Most importantly, for collective bargaining to expand, more workers and employers need to be included in the negotiations, to increase the representativeness of the system.

While reforms to the EPL remain controversial, solutions are needed to improve flexibility in the labor market. Worker dismissal in Indonesia entails levels of payments and cumbersome procedures that are high in comparison to other countries in the region. This merits a review of worker dismissal procedures and payments, in which two considerations are highly relevant: first, long-service benefits should not be confused with severance payments and should be available to all workers after a suitable period of tenure; and second, the payments specified in laws for severance, long service, and related benefits are very rarely paid. In the best of circumstances workers receive a proportion of their legal entitlements. Bringing the laws and actual practice into closer accord through a combination of adjustments to the laws and improved enforcement would enhance both equity and efficiency.

Reflecting the high cost of worker dismissal as well as enterprises' need for greater flexibility, a large share of workers has jobs with nonstandard employment arrangements. Tightening regulations governing nonstandard forms of work, such as defining the length of temporary contracts or the type of work that can be outsourced, is unlikely to have any significant impact in the absence of upscaling government resources and capacities considerably. It may therefore make more sense to gradually improve enforcement, while adjusting the financial incentives facing entrepreneurs to reduce nonstandard forms of work.[17] Such measures could be complemented by additional policies to promote equity through supporting upward mobility for low-skilled workers with vocational and workplace training, along with policies to support micro and small enterprises to form clusters and increase economies of scale.

Finally, the issue of compliance with minimum wages, social security programs, and labor laws needs to be addressed. Compliance is much higher in formal enterprises than in informal enterprises, entailing a need for strategies that can support improvements in both contexts. Higher rates of employee participation in the national health insurance program are encouraging, and lessons from increasing enrollment could be shared with other social security programs for making similar improvements in their scale of coverage. Importantly, measures to support the implementation of labor regulations could help to moderate wage inequality and promote more inclusive growth in Indonesia and therefore deserve greater priority.

Going forward, the government and partners in the world of work need to genuinely accept that compromises are required to make the labor market more equitable and efficient. All parties should commit to adopting a comprehensive and balanced package of labor market reforms that will serve the interests of the majority. This package would include (1) measures to support the implementation of labor regulations across both small and large enterprises, adjustments to employment protection legislation, and financial incentives for reducing nonstandard forms of work; and (2) the promotion of a well-functioning and flexible collective bargaining system guided by the provisions contained in GR78.

[17] For example, complementing the lowering of severance payments with a wage premium for temporary workers.

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Glossary of Indonesian Terms

Indonesian	English
Badan Pusat Statistik (BPS)	Statistics Indonesia
Badan Perencanaan Pembangunan Nasional (BAPPENAS)	National Planning Agency
Badan Standar Nasional Pendidikan (BNSP)	National Body for Professional Certification
balai latihan kerja (BLK)	public technical training center
bantuan operasional sekolah (BOS)	school operation fund grants
bantuan operasional sekolah daerah (BOSDA)	grants for technical guidance for schools
BPJS Kesehatan	the national health insurance program administered by the Badan Penyelenggara Jaminan Sosial (Social Security Agency)
desa	rural village, part of a subdistrict
DKI Jakarta	Daerah Khusus Ibukota Jakarta, or Special Capital Region of Jakarta
Gerbangkertosusila	Surabaya Extended Metropolitan Area; an official acronym of seven cities and regencies in East Java, including the following: Gresik, Bangkalan, Mojokerto, Kertosono Surabaya, Sidoarjo, and Lamongan
Jabodetabek	Greater Jakarta; Jabodetabek is an acronym for Jakarta, Bogor, Depok, Tangerang, and Bekasi region engulfing the capital city
kabupaten	district, regency; predominantly rural district, although those with more than 50% of workers urban workers are classified as urban districts
kebutuhan hidup layak (KHL)	minimum decent standard of living
kecamatan	subdistrict
kelurahan	urban village, part of a subdistrict

Indonesian	English
kota	predominantly urban district, or city
kota-desasi	towns taking over the villages
Kredit Usaha Rakyat	people's credit program
sekolah menengah kejuruan (SMK)	vocational high school
Survei Angkatan Kerja Nasional (SAKERNAS)	National Labor Force Survey
Survei Sosial Ekonomi Nasional (SUSENAS)	National Socio-Economic Survey

INDONESIA
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The book focuses on Indonesia's most pressing labor market challenges and associated policy options to achieve higher and more inclusive economic growth. The challenges consist of creating jobs for and the skills in a youthful and increasingly better educated workforce, and raising the productivity of less-educated workers to meet the demands of the digital age. The book deals with a range of interrelated topics—the changing supply and demand for labor in relation to the shift of workers out of agriculture; urbanization and the growth of megacities; raising the quality of schooling for new jobs in the digital economy; and labor market policies to improve both labor standards and productivity.

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6 ADB Avenue, Mandaluyong City
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