INCLUSIVE GROWTH DIAGNOSTIC FOR INDONESIA

Authors*: Steve Anderson, Whitney Dubinsky, Brandon Fenley, Kishori Kedlaya, Sait Mboob, Caroline Smith, John Thurow, James Whitaker

*The authors would like to also acknowledge the early contributions of Dany Khy in the formulation and initial interviews of the report.

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EXECUTIVE SUMMARY

Indonesia is a unique and diverse country with a complicated past and bright future. Per capita GDP growth rates in Indonesia have been relatively stable at around 5 percent for the last two and a half decades with few exceptions. However, GDP per capita levels are still quite low, especially compared to some of its peers such as Malaysia and Thailand. Further, economic growth has not been inclusive. A significant portion of the population, over 40 percent, still live on less than $2 per day (PPP) and many more hover just above that poverty demarcation. Poverty rates also vary substantially by region; using their own poverty definitions, the Government of Indonesia estimates poverty rates from over 30 percent in Papua to below 10 percent in Bali and parts of Java. However, regions with low poverty rates are still home to the majority of Indonesia's poor due to their high population densities.

By major production sector, Industry and Services drive Indonesia's growth, but Agriculture still employs the majority of the country's workforce, including the bulk of Indonesia's poor. Agriculture serves as the sector of last resort for employment when there are economy-wide macroeconomic shocks; when times are tough labor migrates to Agriculture. We find that the binding constraints to growth in Indonesia prohibit both 1) productivity increases within Agriculture and other sectors and 2) the movement of factors of production, including labor, out of Agriculture and into Industry or Services where higher returns are realized.

In this Inclusive Growth Diagnostic we combine previous studies with our own analysis to identify the main barriers to economic growth for the poorest Indonesians. In addition to identifying these binding constraints to growth, we provide evidence and rationale for why some constraints may not be as binding. In this Executive Summary we categorize constraints as 1) binding and 2) nonbinding and briefly describe the basis for our conclusions. We also look at binding constraints to growth through the lens of environmentally and ecologically sustainable practices, providing an important nuance to the identified constraints.

Binding Constraints to Growth

A constraint is considered binding if its removal would lead to a substantial increase in inclusive economic growth. The binding constraints to growth for Indonesia are:

- Corruption
- Regulatory Quality and Nuisance Taxes
- Contract Enforcement
- Ease of Doing Business
- Ports
- Roads
- Electricity
- Property Rights and Land Tenure

Each of these binding constraints is summarized below.

Corruption

The shadow price of corruption is difficult to quantify by its nature – however, the estimated loss of forest revenue alone due to corruption stands at USD 2 billion per year. The Indonesian Supreme Audit Agency estimates that USD 3.3 billion in total is lost each year to corruption. In the World Bank's 2009 Enterprise Survey, 23 percent of transactions in Indonesia required an informal payment and Indonesia has the highest percentage of firms among its comparators (almost a third) that required a gift to obtain an operating license. Other studies have shown a reduction of Foreign Direct Investment flows to Indonesia due to perceptions of corruption. Corruption discourages business expansion into the formal sector, job creation, and economic growth and is therefore a binding constraint. Further, corruption has significant impact on other outcomes such as natural resource depletion and the provision of government services in health and education.

Regulatory Quality and Nuisance Taxes

With decentralization, district governments, which are not permitted to tax incomes and assets, are authorized to levy various user charges and fees via Law 34/2000. This has left trade as an obvious and easy target for district governments to impose distortionary regulations as a means of raising their own revenue. A feature of many local regulations is that they are often drawn up with no clear objective, or they are not designed to protect public interests but to raise revenue. Local governments rely on the use of *retribusi* charges, which can be characterized as public service, business, or licensing levies. These nuisance taxes offer little or no benefits to firms. District governments also impose import-export tariffs on intra-jurisdictional trade, certificates of origin requirements even for domestically produced goods, coerced third party contributions, road and transport charges, safety inspections for through-tariff, and other revenue generating mechanisms. Unnecessary fees and levies impose costs without providing any valuable service in return and therefore discourage investment, business expansion into the formal sector, job creation, and growth.

Contract Enforcement

Contract enforcement in Indonesia is time consuming, unpredictable, complicated and expensive. Businesses have little incentive to enter into contracts and financial arrangements with individuals or companies with whom they have no prior relationship. To enforce a contract requires 40 procedures, 570 days to complete, and costs 123 percent of the value of the claim. The fact that it costs more to enforce the contract than what one gains nullifies the usefulness of the contract and creates a disincentive to honor the contract. This lack of contract enforcement discourages investment, business expansion into the formal sector, job creation, and growth.

Ease of Doing Business

Though the process of starting a business has improved significantly over the past few years, it remains a binding constraint to growth. The Starting a Business metric in the World Bank's 2012 Ease of Doing Business Index ranks Indonesia at 155 out of 183 countries. Indonesia requires 9 procedures and 47 days to start a business, both among the highest in Southeast Asia. Moreover, it requires more capital than anyone in the region to start a business (46.6 percent of income per capita). Closing a business in Indonesia is also a slow, difficult and expensive process. Bankruptcy proceedings require an average of 5 years, cost 15 percent of the value of the estate, and claimants only recover USD 0.137 for every dollar invested. These costs of doing business increase the risk of lending to or investing in private enterprises and discourage expansion into the formal sector, restricting employment and growth.

Ports

In the most recent cross-country comparable data, Indonesia's busiest and best performing port, Tanjung Priok, had less than half the productivity, as measured by container moves per hour, of Singapore's and Malaysia's major ports. Ports on the north coast of Java, which are the busiest, are built in relatively shallow water, hindering the size of ships that can enter, and have unstable alluvial soils and rivers prone to siltation which requires very expensive and constant dredging. There is poor infrastructure at the ports. Regional ports in particular lack container facilities which forces shippers to use their own equipment to load and unload containers, increasing the amount of time spent at port. There is also limited space for container storage which requires cargo to be moved directly from the ship to the customer or container freight station, compounding congestion at the port and causing additional delays. Further, many ports only have one shift of labor that has strict break times that are not staggered causing activity to halt and additional delays. This lack of port infrastructure for moving cargo and storage leads to informal payments to reduce waiting time. The inability of Indonesian firms to transport goods to, from, and within the archipelago causes them to incur substantial costs, which in turn discourages investment, employment, and growth.

Roads

Ninety-two percent of freight in Indonesia is transported via roads, yet Indonesia has some of the lowest road densities among its peers. A large portion of its roads are in poor condition, especially those falling under provincial or local jurisdictions. A poor network of roads impacts all aspects of business, education, and health. Further, road transportation is subject to all varieties of local and provincial nuisance taxes, both legal and illegal. As with ports the costs incurred to transport factors of production such as labor or final goods and commodities is a major barrier to expansion, investment, job creation, and growth. This barrier is especially poignant in the Agriculture sector where it limits farmers in getting their commodities to markets that would otherwise be accessible.

Electricity

Indonesia's electricity network is constrained by a lack of competition; most of Indonesia's electricity is produced or controlled by the national enterprise PLN. Furthermore, tariffs are legislatively set at a level that is below cost recovery, hindering expansion of electricity to unserved areas and disincentivizing investment and maintenance. Increasing the price of electricity to improve investment and growth might seem counterintuitive, but Indonesia's electricity is so unreliable for businesses that many generate their own at a large and sometimes prohibitive expense. Higher energy prices would allow for investment in power generation and distribution allowing the roughly 33 percent of Indonesia's electricity produced by industrial and manufacturing companies for their own use to be provided at a lower cost. This lack of access to a key input in the production of most goods and services discourages investment, expansion, employment, and growth.

Property Rights and Land Tenure

For urban businesses and residential housing, property title in Indonesia is generally secure and real estate markets are sufficiently developed. However, Indonesia suffers from high costs, length of time, and complexity in the registration of property, especially in rural areas. Only 25% of rural landowners have formal land-use certificates. The cost of registering property in Indonesia is the most expensive of all APEC countries, triple that of its neighbors. Further, a lack of land tenure in rural areas has a significant impact on the extraction and harvesting of natural resources. This dichotomy makes the call of whether this constraint is binding or not more difficult. The prohibitive cost of the process for low income and informal sector businesses, particularly in rural areas, combined with the environmental

impacts of land tenure, make this constraint binding for inclusive economic growth. Without the removal of this constraint the informal entrepreneur will be unable to expand into the formal sector.

Nonbinding Constraints to Growth

There are constraints to growth that we identify as restrictive, but not binding relative to the constraints previously listed. If these nonbinding constraints are lifted while binding constraints remain, economic growth would not necessarily improve. The nonbinding constraints to growth for Indonesia are:

- Labor Laws
- Secondary and Tertiary Education Enrollment and Quality
- Health Outcomes
- Macroeconomic Environment
- Access to Finance

Each of these nonbinding constraints is summarized below.

Labor Laws

Labor market regulations governing minimum wage and severance pay impose real costs to businesses and discourage participation in formal sector employment, but also have the potential to provide security and benefits to laborers. Evidence suggests that in Indonesia these laws have been ineffective in protecting employees, especially low-wage workers, due to high rates of noncompliance and a lack of enforcement. A policy framework that does not incentivize costly avoidance behavior by employers and employees alike would doubtless be desirable for Indonesia. However, relaxing regulations that have low levels of compliance would be unlikely to boost the incomes of disadvantaged workers appreciably. On the other hand, evidence suggests that enforcing them would likely lead to increased unemployment for the poorest and least educated laborers. Minimum wage increases are associated with substantial shifts of labor out of Industry and into Agriculture.

Secondary and Tertiary Education Enrollment and Quality

The returns to education substantially increase as one becomes more educated in the Indonesian economy with returns to an additional year of schooling estimated at a minimum of 10 percent. However, Indonesia has very low enrollment rates in secondary and tertiary educational institutions when compared to its peers. Further, the poorest Indonesians are often excluded from participation in secondary and tertiary education due to costs as simple as transportation. Lower and upper secondary education receives less than 15 percent of public education expenditures each.

However, other metrics indicate no significant shortage of skilled labor; the number of applicants is substantially greater than the number of job vacancies and job vacancy rates are quite low. While firms are able to fill their demand for positions, they report a significant need to provide additional training for secondary school graduates, suggesting the curriculum is not preparing laborers for workforce duties.

Increasing the number of secondary and tertiary graduates without an increase in the number of available jobs would lead only to increased competition and downward pressure on salaries. Therefore, the binding constraint becomes the one preventing businesses to start, grow, and expand their demand for secondary and tertiary graduates. However, increasing accessibility to secondary and tertiary education for the poorest Indonesians could lead to more inclusive growth as long as other laborers are

not displaced to take their place among the poor. This conclusion omits the theoretical and potentially substantial benefits that can accrue from an increase in the overall education level among the general population.

Health Outcomes

Health and health shocks have a detrimental impact on the economic standing of Indonesians. A 2012 study by Sparrow and Van de Poel found a poor health incidence was associated with a 15 percent reduction in wages for the poorest population quartile while the second poorest quartile experienced a 22 percent decline in wages. Indonesia suffers from very poor health indicators, especially relative to its level of development. Part of this can be explained by low public spending on health, which lies far below comparator countries at less than 3 percent of GDP.

In the World Economic Forum's survey of businesses, respondents shared their views of the seriousness of disease on their business in the next five years, ranking it 3.94 on an index that ranges from a value of one meaning a serious impact to seven meaning no impact. Indonesia's health system suffers from major deficiencies and has a real impact on wages for the poorest Indonesians, but based on the degree and severity of incidence combined with firm-level perceptions, we do not find enough evidence to support the notion that it is a major binding constraint relative to other constraints on economic growth. Health and growth are mutually reinforcing. Bad health leads to lower income which in turn leads to worse health. By removing the binding constraints to growth, this cycle is reversed with increased incomes leading to improved health which in turn leads to increased productivity and income.

Macroeconomic Environment

Since the 1997 Asian Financial Crisis, which affected Indonesia tremendously, Indonesia has greatly improved its macroeconomic stability, combating inflation and exchange rate volatility and having an overall well managed macroeconomy. Overall, Indonesia has largely been unaffected by the current global financial crisis and has benefited from an influx of foreign capital looking for a safe but high return. However, most of this capital influx is in short-term portfolio investments which can easily be liquidated if conditions outside or inside Indonesia change. Such an event would have an adverse impact on the exchange rate and Indonesia's ability to continue financing the investment behind their domestic growth. Furthermore, Indonesia has a well-managed and small deficit in part due to the inability of the government to execute its planned budgets, especially for much needed infrastructure projects. Another potential source of macroeconomic concern comes from a substantial subsidy on fuel that could infringe upon Indonesian fiscal space as oil prices rise and demand for fuel increases in step with economic growth. While these risks are potentially significant, the Government of Indonesia has a history of monitoring and intervening in exchange markets to mitigate capital flight risk. While there are some specific macroeconomic risks, overall performance has been consistent over time and we conclude that the risks don't constitute a binding constraint to growth.

Access to Finance

Indonesia's financial sector is small compared to its peers in the region, with assets in its financial sector being 60 percent of GDP in 2010 compared to 100 percent and 250 percent for the Philippines and Malaysia, respectively. Banks dominate the financial system accounting for 76 percent of the financial sector's assets in 2012. However, the top three state-owned commercial banks alone account for a third of the sector's assets as of 2010. The cost of finance is quite high in Indonesia due to low efficiency in financial intermediation as indicated by a high spread between the rate paid on bank deposits and the rate earned on credit. While access to finance is not a constraint for the overall economy, it is a constraint for the poorer segment of the population employed in the informal sector and for some micro, small and medium enterprises. Enough capital exists in Indonesia and markets are sufficiently

developed that if the binding constraints to growth were removed, we would observe an increase in the flow of financing to companies and risk premiums would decline.

Environmental Risks and Degradation

There is some evidence to suggest that the broader international community values sustainable ecosystem outcomes more than local interests value the unsustainable alternative. As long as this holds true, the Indonesian Poor should be able to receive the benefit of the environmentally sustainable outcome, either through receiving a transfer payment for ecosystem services or from the stream of ecosystem services itself. However, the fact that we observe so much illegal deforestation and other ecologically harmful outcomes implies a market failure or barrier to maximizing social welfare. We posit that the barriers to inclusive *and environmentally sustainable* economic growth are 1) lack of enforceable property rights 2) corruption 3) high transaction costs for facilitating payments for ecosystem services and 4) asymmetric information.

The laws governing land ownership and property rights in Indonesia create some confusion about the authority of tribal and local councils to manage natural resources and the authority of the local or provincial government. This confusion makes it difficult to ascertain to whom a payment for ecosystem services should be made.

Even when property rights are clearly and legally defined, corruption or the lack of enforcement can lead to less efficient outcomes. The ambiguity surrounding property rights in Indonesia allows for corruption to benefit small segments of the population who may profit from unsustainable activities but have no right to the land and, therefore, no grounds for compensation to maintain a certain ecosystem service outcome.

Even absent corruption and in the presence of clearly defined and enforceable property rights, the sheer volume of coordination required to transmit a payment for an ecosystem service outcome between property owners (including state owners) and the rest of the world is substantial. However, government to government transfer payments are already occurring and this constraint would not be binding in the presence of well-defined property rights and absent corruption.

A final barrier to inclusive and ecologically sustainable growth is asymmetric information. The poorest Indonesians, who often rely on nature to make a living and survive, may not have a clear understanding of the value of the resources under their control. If knowledge of the commercial value of the forest were common among the people, along with a realistic understanding of the true costs associated with unsustainable practices, then local communities would not accept the low compensation currently offered for access to natural resources.

The binding constraints to inclusive economic growth take on a slightly different character when factoring in the boundary of environmentally and ecologically sustainable outcomes. As far as environmental objectives are a priority for development agencies, then all constraints to growth should be viewed through that lens so that activities designed to remove barriers to economic growth do not inadvertently lead to undesirable ecological and environmental outcomes.

1. Growth Diagnostic Methodology

The Inclusive Growth Diagnostic (IGD) presented here is an adaptation of Hausmann, Rodrik, and Velasco's (2005) HRV methodology, derived from the initials of their respective last names, that identifies the key constraints to economic growth in a country. The HRV model is based on the premise that economic growth is necessary to achieve poverty reduction and that private investment and entrepreneurship lead to economic growth. It then analyzes the factors that foster increased investment and entrepreneurship and determines whether there are major constraints to those activities.

Although the HRV approach provides the policy community a practical tool for rigorous analysis of the key constraints to economic growth, it does not illuminate the extent to which growth corresponds to poverty reduction. Given that economic growth is necessary but not always sufficient to achieve poverty reduction, this analysis focuses on income growth that is consistent with an overarching objective of poverty reduction. We note that the constraints to growth for the most economically disadvantaged Indonesians may differ from the constraints to growth for the country overall. This IGD is designed to inform USAID strategic planning for Indonesia, but can also help guide the Government of Indonesia (GOI) and other donors in focusing their resources on areas which would have the largest impact on poverty reduction.

The IGD methodology is based on the important contributions of two USAID economists. Callison (2011) advocates for the inclusion of a special employment and labor analysis. Labor and employment, entrepreneurial or otherwise, are the means by which citizens participate in and benefit from economic growth. Garber (2011) advocates for identifying the subsectors in which the economically disadvantaged are disproportionately represented. Once identified, the HRV methodology can be applied to the relevant subsectors. We limit the scope of this report to identifying the sectors which have the greatest impact on the economically disadvantaged and leave the deeper sector analysis to future research.

This IGD study synthesizes analysis across development sectors including health, environment, education, governance, and economic growth, in order to form a cohesive picture of a key development objective: reducing poverty. A limitation of this IGD is its focus on economic or income poverty; poverty is multi-dimensional and can be measured through health and education outcomes as well. While an IGD does not fully capture all development concerns, it brings to bear a data-driven, evidence-based approach across a wide range of sectors to weigh the relative severity of various potential constraints to inclusive economic growth.

The IGD methodology used in this analysis is illustrated in Figure 1.1 as a decision tree and is adapted from Hausmann, Rodrick, and Velasco (2005). The top node corresponds to the overarching goal of economic growth, which is derived from increases in investment and entrepreneurship. The determinants of growth can be split into costs and revenues: returns to entrepreneurs from economic activity and the cost of financing economic activity. The tree branches out further into other topics that hone in on more particular aspects of why the cost of financing may be high or why entrepreneurs are not being attracted to business opportunities. For instance, under the cost of financing branch, there may be legal constraints to the flow of international capital into/out of a country. Alternatively, savings rates may be too low leading to low rates of lending by banks.

1.1 Comparator Countries

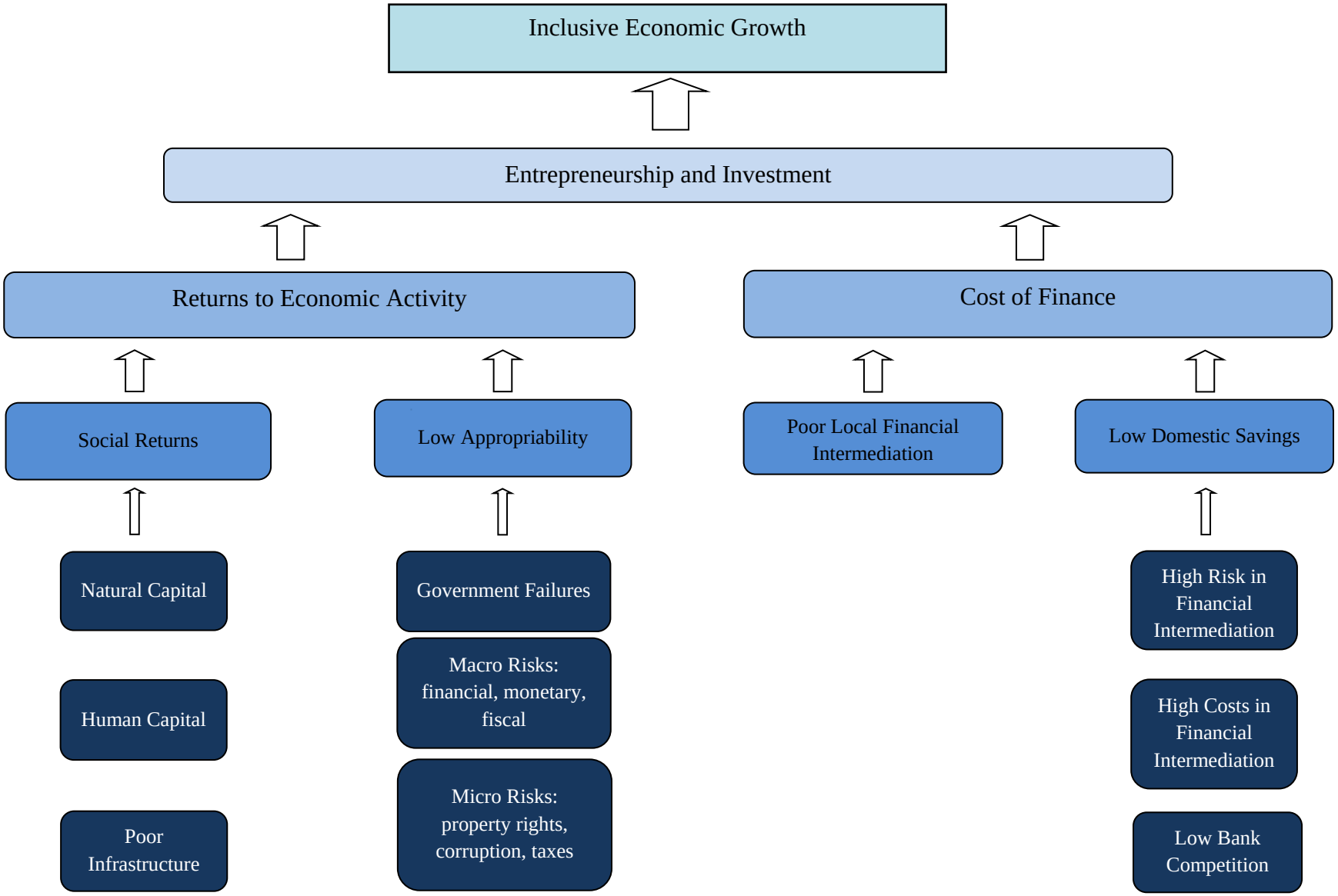
The comparator countries we will use in this study are as follows:

1. India
2. Brazil

3. Malaysia
4. Philippines
5. Vietnam
6. Thailand

These comparators were chosen because of their similar level of development, geography, population, or cultural ties. For instance, India and Brazil are both very large, populous, and fast growing emerging economies like Indonesia. Malaysia and Indonesia both share history and culture, even though Malaysia has a higher per capita income than Indonesia. The Philippines is an archipelago like Indonesia and has a similar level of development. Thailand and Vietnam are both Southeast Asian countries, with Thailand representing a potential growth trajectory to which Indonesia can aspire.

Figure 1.1: The USAID/Indonesia Inclusive Growth Diagnostic Framework



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Garber, David. "A Disaggregated Growth Diagnostic: Concept NOte and Guidance on Implementation." Draft Concept Note, 2011.

Hausmann, Ricardo, Dani Rodrik, and Andres Velasco. Growth Diagnostics. Working Paper, John F. Kennedy School of Government, Harvard University, 2005.

2. Growth and Poverty

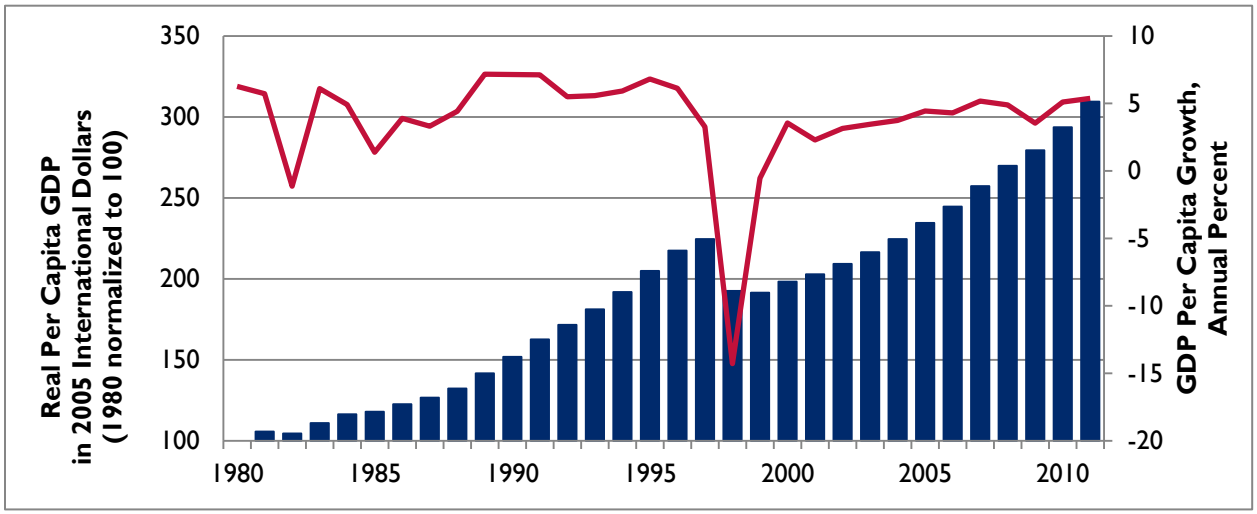
This section presents trends in poverty and growth to provide important background information for analyzing binding constraints for the most economically disadvantaged Indonesians. The main observations from this section are:

- With the exception of the 1997 Asian Financial Crisis, GDP per capita growth rates in Indonesia have been relatively stable at around 5 percent for the last two and a half decades. However, GDP per capita levels are still quite low, especially when compared to Malaysia and Thailand.
- GDP per capita growth rates and levels vary significantly by region; GDP per capita in the province of East Kalimantan is nearly 18 times higher than in the province of North Maluku. The island of Java has the highest share of real GDP growth, accounting for nearly 83 percent of Indonesia's growth in 2009.
- Defining GDP as expenditures shows that household consumption accounts for the bulk of real GDP growth, followed by gross capital formation. Using a different lens, defining GDP as output shows that the manufacturing; trade, hotels and restaurants; and transport and communication sectors contribute to the bulk of real GDP growth. The contribution of the Agriculture sector, which employs majority of Indonesia's poor, is small but positive.
- Historically growth in total factor productivity (TFP) in Indonesia was generally positive until the Asian Financial Crisis erased most productivity gains. The negative impacts of the Asian Financial Crisis on TFP are mitigated in the first decade of the new century.
- Poverty rates are consistently declining over time. However, Indonesia still has over 40 percent of its population that lives on less than $2/day (PPP), second only to India. Further, measures of inequality show an increasing divide between the rich and poor, meaning that economically disadvantaged Indonesians are not benefitting from Indonesia's growth relative to more prosperous citizens.
- Poverty incidence and levels vary by region with the highest *rates* in Eastern Indonesia and Papua, but the highest *levels* in Java and Sumatra due to their high population density.
- The data does not show evidence of significant differences in poverty rates between men and women. Roughly half of the poor and near poor are women.

2.1 National and Regional Trends in Growth

Growth trends in Indonesia have been largely positive, both in the short and long term. Indonesia's economy has been growing steadily since the early 1980s, tripling per capita GDP by 2011. Figure 2.1 shows that Indonesia maintained an average per capita growth rate of approximately 5 percent from 1980 to 1996. In 1997-98, Indonesia was hard hit by the Asian Financial Crisis, with a negative growth rate of 14 percent in 1998. Though growth resumed relatively quickly, it wasn't until 2004 that GDP per capita levels had recovered to their pre-crisis levels. Since recovery, growth has been slower, dropping to an average per capita growth rate of approximately 4 percent from 2000 to 2011.

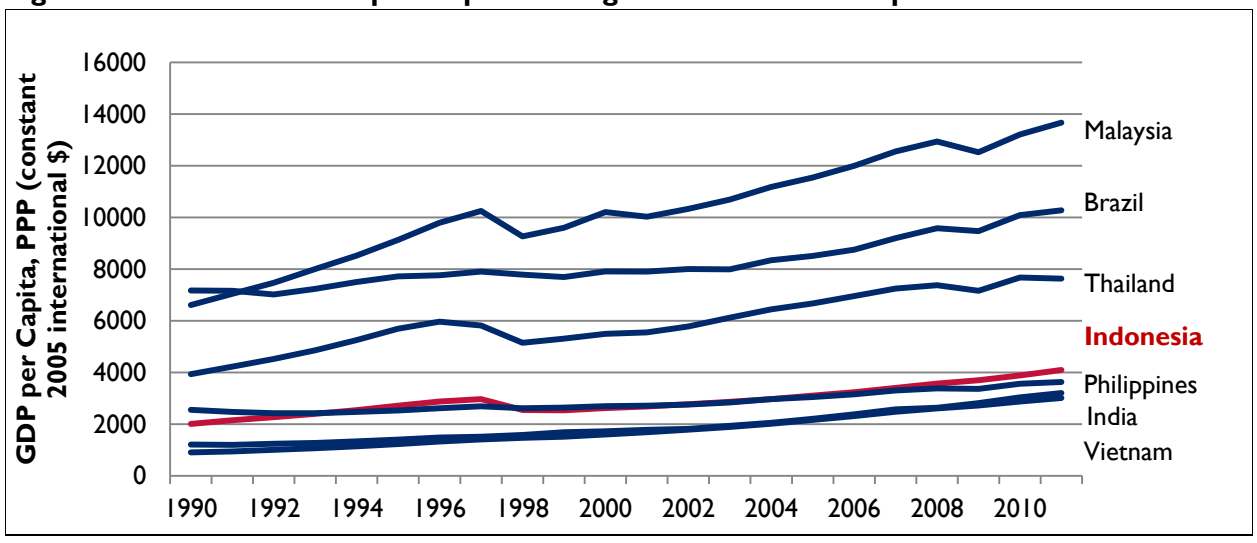
Figure 2.1: Trends in GDP per Capita Growth: Levels and Rates



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org. Left vertical axis is GDP per capita, PPP (constant 2005 international $) indexed by authors with the year 1980 normalized to 100. Red line is GDP per capita growth. Blue bars are real per capita GDP in international dollars.

More recently, Indonesia weathered the 2008-2009 Great Recession quite well compared to many other countries and managed to maintain a 3.54 percent GDP per capita rate of growth in 2009. This resilience was primarily due to Indonesia's strong domestic demand and its relatively small share of exports as a proportion of GDP, which provided insulation from major external shocks (Basri and Rahardja 2010). Though Indonesia has maintained consistent growth rates, Figure 2.2 shows that its GDP per capita levels still lag behind some of its peers, specifically Malaysia, Brazil, and Thailand.

Figure 2.2: Trends in GDP per Capita among Indonesia and Comparators



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

Though growth in Indonesia has been lower on average since the Asian Financial Crisis, it has also been less volatile, with a standard deviation of over 2 prior to the crisis and less than 1 since 2000. Table 2.1 lists a measure of growth volatility for the 2000-2011 time period. Of all the comparator countries, Indonesia has had the lowest growth volatility since 2000. Lower growth volatility can contribute to overall economic growth (Ramey and Ramey 1995).

Table 2.1: Recent Growth Volatility in Selected Countries

Country	GDP per Capita Growth Volatility (2000-2011)
Brazil	2.29
India	2.34
Indonesia	0.87
Malaysia	2.87
Philippines	1.78
Thailand	2.96
Vietnam	1.00

Note: Data from World Bank, World Development Indicators at http://databank.worldbank.org.

For decades, Indonesian development strategy and economic policy were handled exclusively by the national government. Landmark decentralization legislation in 1999 allowed sub-national governments to exert influence on growth trajectories at the provincial and local levels. As a result, growth in economic output varies by region. Table 2.2 shows that Java & Bali (grouped together) and Sumatra had the highest levels of regional output in 2010. However, GDP *per capita* was highest in Kalimantan. Sulawesi and the rest of Eastern Indonesia had the lowest levels of both absolute and per capita GDP.

Table 2.2: Indonesia's Output (GDP) by Region for the Year 2010

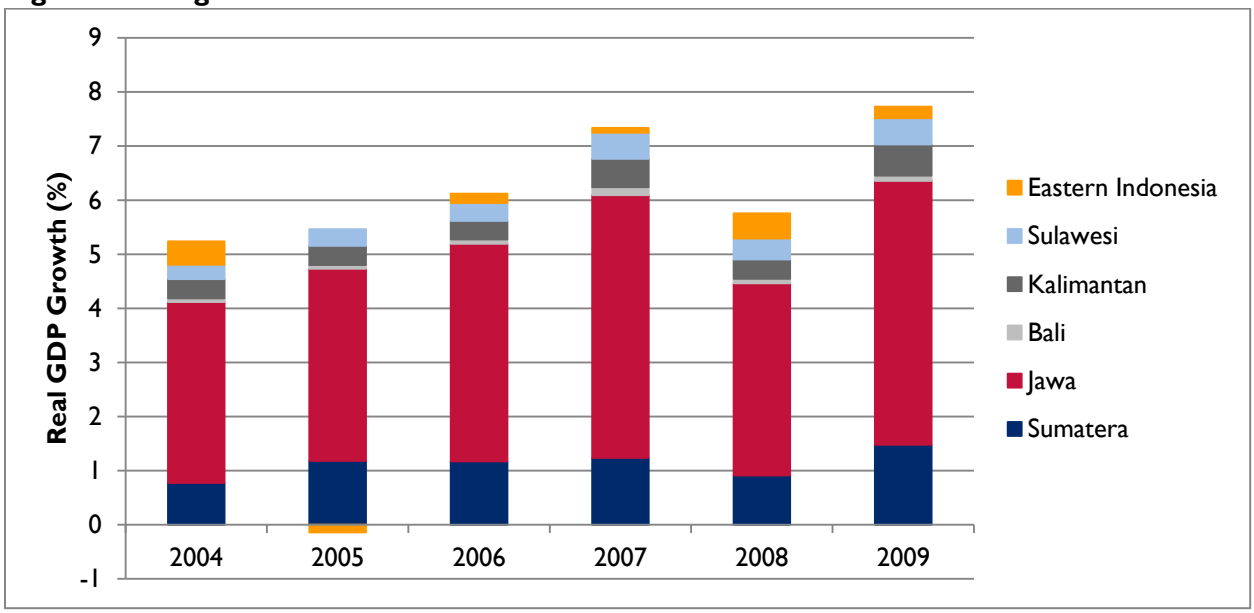
Province	GDP (Rp. Million)	GDP per Capita (Rp. Million)	GDP Growth (percent)
Aceh	77.51	17.24	2.64
North Sumatra	275.70	21.24	6.35
West Sumatra	87.22	18.00	5.93
Riau	342.69	61.88	4.17
Jambi	53.82	17.40	7.33
South Sumatra	157.77	21.18	5.43
Bengkulu	18.04	10.51	5.14
Lampung	107.28	14.10	5.75
Kepulauan Bangka Belitung	25.71	21.01	5.85
Kepulauan Riau	71.61	42.65	7.21
Sumatra	***1217.34***	***24.04***	***5.49***
DKI Jakarta	862.16	89.74	6.51
West Jawa	770.66	17.90	6.09
Central Jawa	444.40	13.72	5.84
DI. Yogyakarta	45.59	13.19	4.87
East Jawa	778.46	20.77	6.68
Banten	170.53	16.04	5.94
Bali	66.69	17.14	5.83
Jawa & Bali	***3138.48***	***22.34***	***6.29***
West Kalimantan	60.48	13.76	5.35
Central Kalimantan	42.57	19.24	6.47
South Kalimantan	58.54	16.14	5.58
East Kalimantan	321.09	90.37	4.95
Kalimantan	***482.68***	***35.01***	***5.26***
North Sulawesi	36.83	16.22	7.12

Central Sulawesi	36.86	13.99	7.79
South Sulawesi	117.83	14.67	8.18
Sulawesi Tenggara	33.27	14.90	8.19
Gorontalo	8.06	7.75	7.62
West Sulawesi	10.99	9.48	11.91
Sulawesi	***243.83***	***14.04***	***8.08***
West Nusa Tenggara	49.36	10.97	6.29
East Nusa Tenggara	27.71	5.92	5.13
Maluku	8.08	5.27	6.47
North Maluku	5.39	5.19	7.96
West Papua	22.53	29.62	26.82
Papua	89.45	31.57	-2.65
Eastern Indonesia	***202.52***	***13.19***	***5.17***

Note: GDP and GDP per capita are in current prices; growth calculated using 2000 constant prices. Data from Indonesia's Central Statistics Body (BPS) for the year 2010 at www.bps.go.id.

As seen in Figure 2.3, Java far outpaces the rest of the country in its contribution to real GDP growth. Its share is also growing, accounting for 64 percent of growth in 2004 and 83 percent in 2009. Sumatra's contribution to real GDP growth also increased during this same time span. The remaining regions have seen both gains and losses, with Eastern Indonesia seeing the most fluctuations.

Figure 2.3: Regional Contributions to GDP Growth



Note: Data from Indonesia's Central Statistics Body (BPS) for the year 2010 at www.bps.go.id.

2.2 Growth Decompositions

Looking at growth by expenditure component reveals the integral role that household consumption has played in driving Indonesia's growth over the past decade. Table 2.3 shows that from 1998-2011, household consumption provided an average of 47 percent of each year's growth, followed by gross capital formation at 28 percent, and then net exports and government consumption at 14 percent and 11 percent respectively. Comparing the composition of Indonesia's growth prior to and following the Asian Financial Crisis reveals that domestic consumption and gross capital formation used to contribute

even more to growth than they do currently, while government consumption and net exports have increased their contribution relative to other components.

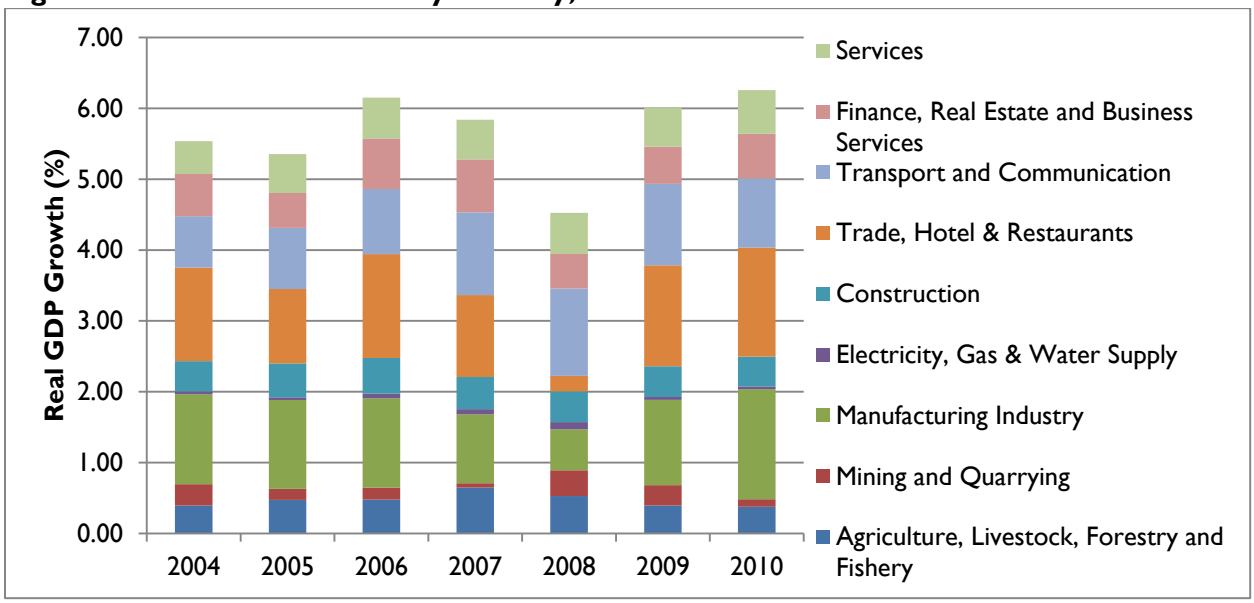
Table 2.3: Average Annual Share of Real GDP Growth by Expenditure Component

Expenditure Component	Percent of Growth (1980-1997)	Percent of Growth (1998-2011)
Household consumption	68	47
Government consumption	6	11
Gross capital formation	35	28
Net exports of goods and services	-9	14
Total:	**100**	**100**

Note: Data taken from World Bank, Databank, World Development Indicators at http://databank.worldbank.org. Percentage changes are authors' calculations.

Examining growth by industry of origin (see Figure 2.4) shows that Trade, Hotels, and Restaurants and the Manufacturing Industry sectors account for the bulk of Indonesia's growth, with the exception of 2008 when both sectors were negatively affected by the global economic crisis. The Transport and Communication sector also plays a significant role in growth. Though only a small share of the Indonesian economy, it has posted double digit growth since 2004 and has almost doubled in size as a share of GDP, from 5.8 percent to 9.4 percent. Also notable is Agriculture, Livestock, Forestry, and Fishery's relatively minor contribution to growth, important due to the fact that the sector continues to employ the majority of Indonesia's workforce as well as its poor. Despite its positive contribution to growth, the inability of the Agriculture sector to keep pace with other sectors is evidenced by its decline as a share of GDP from 46 percent in 1971 to 15 percent in 2010 (Suryahadi and Hadiwidjaja 2011). Other sectors, such as Services, Finance, Real Estate and Business Services, and Construction have also maintained similarly stable contributions to GDP growth.

Figure 2.4: Real GDP Growth by Industry, 2004-2010



Note: Data from Indonesia's Central Statistics Body (Badan Pusat Statistik) for the years 2004-2010 at www.bps.go.id.

2.3 Growth by Factors of Production

A number of studies (see Table 2.4) have attempted to determine the contribution that Total Factor Productivity[1] (TFP) has made to Indonesia's sustained growth over a variety of time frames. Their findings are significantly different from one another and are summarized below.

Table 2.4: Estimates of TFP Contribution to Indonesia's Economic Growth

Source	Period	Annual Average TFP Growth (%)	Percent TFP Contribution to Output Growth
Baier et al. (2006)	1951-2000	-0.7	-37
Bosworth et al. (1995)	1960-1992	0.5	17
Collins and Bosworth (1996)	1960-1994	0.8	23
Firdausy (2005)	1961-2000	-1.5	-27
Drysdale and Huang (1997)	1962-1990	2.1	31
Lindauer and Roemer (1994)	1965-1990	2.7	42
Young (1994)	1970-1985	1.2	24
Kawai (1994)	1970-1990	1.5	24
Sarel (1997)	1978-1996	1.2	25
Sigit (2004)	1980-2000	-0.8	-15
Van der Eng (2008)	1951-2007	0.6	12

Note: Authors' compilation.

With one exception, those studies that incorporate data from the time period covering the Asian Financial Crisis in 1997 and 1998 find a negative rate of growth for TFP in Indonesia. This implies that the Asian Financial Crisis was so severe that it wiped out gains in total factor productivity that had accumulated since the early 1950s. When the Asian Financial Crisis years are excluded, the estimates are positive. The one exception is the most recent study in 2008 which estimates TFP growth for the time period 1951-2007 as net positive. Baier et al. (2006) estimate a negative overall TFP for 1951-2000. This implies that TFP growth in the first decade of the new millennium has been substantial. Van der Eng (2008) concludes that TFP growth in Indonesia is greatest immediately following economic crises.

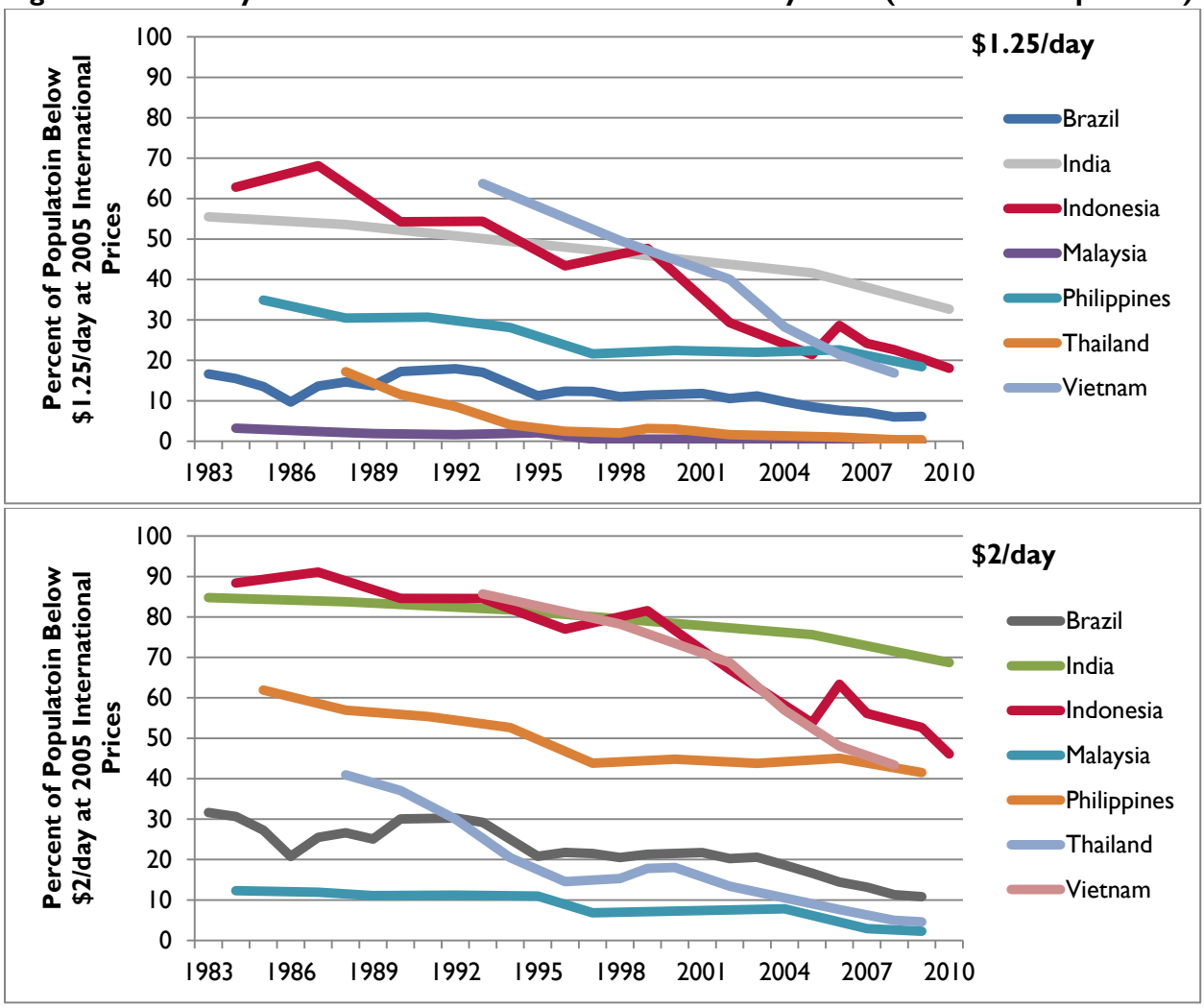
2.4 National and Regional Trends in Poverty

The national trends in poverty have been extremely positive, with total poverty headcount at the World Bank $1.25/day poverty line dropping from 68 percent of the entire population in 1987 to 18 percent in 2010 – a decrease of over two-thirds. Using the $2/day poverty line, the total poverty headcount decreased by approximately one half, going from 91percent in 1987 to 46 percent in 2010. Indonesia's progress is reflective of a success in poverty reduction for comparator countries as well. Figure 2.5 shows poverty trends for comparator countries, all of which show significant downward trends. However, at the $2/day poverty line, Indonesia's rates are second only to India.

While poverty has declined overall, there have been some intermittent upticks over the past 15 years. The first, in 1999, was due to the effects of the Asian Financial Crisis. This recovery took a relatively short amount of time. The second, in 2006, was due to temporary increases in the cost of both rice and fuel.

[1] Total Factor Productivity is an estimation of factors that are difficult to measure or intangible (such as advances in technology or increases in efficiency) that contribute to total output in an economy. TFP is approximated as a residual and thus is not guaranteed to be an accurate measure of productivity.

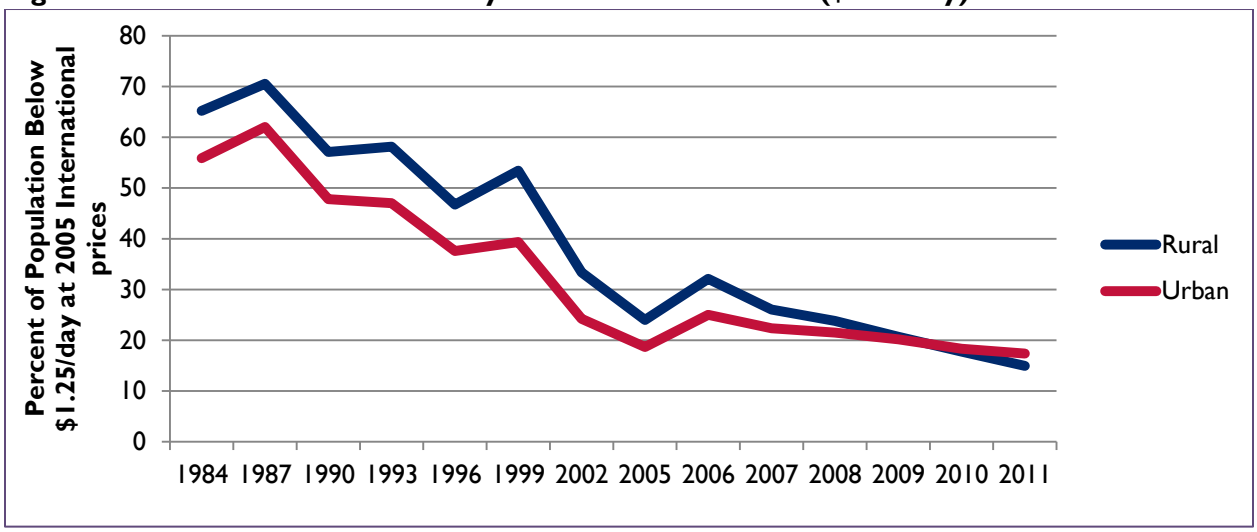
Figure 2.5: Poverty Headcount Ratio at World Bank Poverty Lines (Percent of Population)



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

The trends in poverty remain positive when the poverty headcount ratio at the international poverty line is broken down further into subgroups. Figure 2.6 shows that there has traditionally been a greater poverty incidence in rural areas relative to urban areas. However, beginning in 2010, the rate of urban poverty was higher than that of rural poverty for the first time. The trend continued in 2011. Though both rates continue to drop, the rural rate is decreasing relatively more quickly than the urban rate.

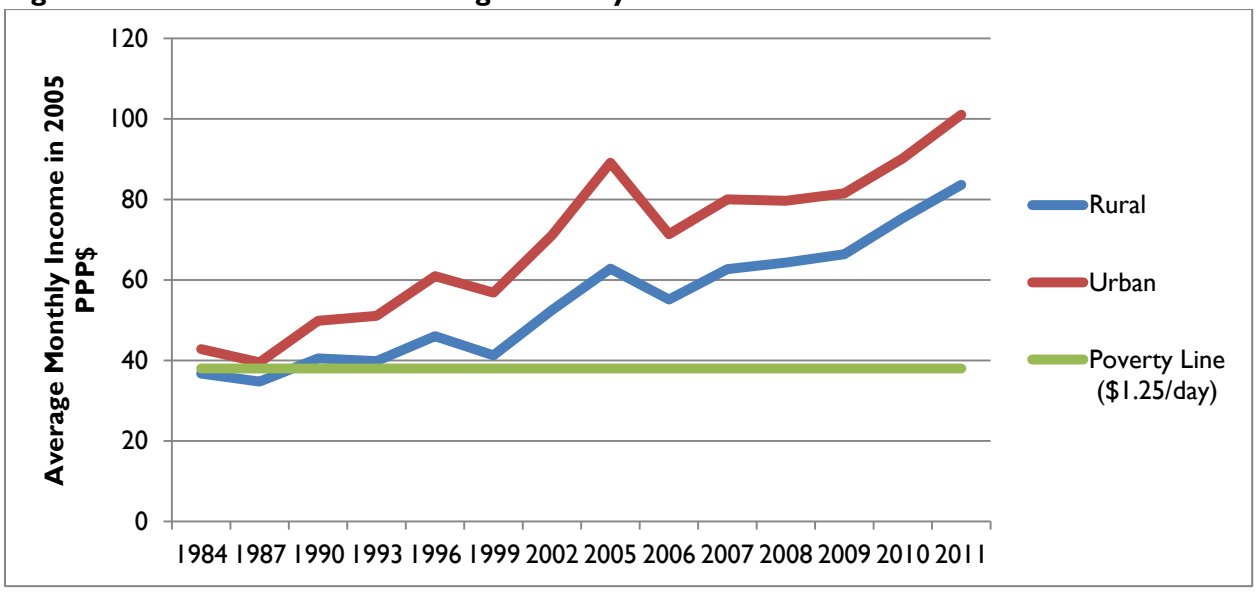
Figure 2.6: Rural and Urban Poverty Incidence in Indonesia ($1.25/day)



Note: Data from World Bank, PovcalNet, 2012.

Though the rural poverty incidence is decreasing at a faster rate than the urban poverty incidence, this has not translated into similar relative gains in income. Both average urban and rural monthly incomes are increasing, but Figure 2.7 shows that the average urban income is still significantly higher than the average rural income. In fact, the income gap has widened since the early 1990s. But compared to its peer countries, Indonesia has relatively low levels of inequality. In 2005, the most recent year with data available, Indonesia had a GINI coefficient of 34.01, significantly less than most other comparator countries that had coefficients above 40.

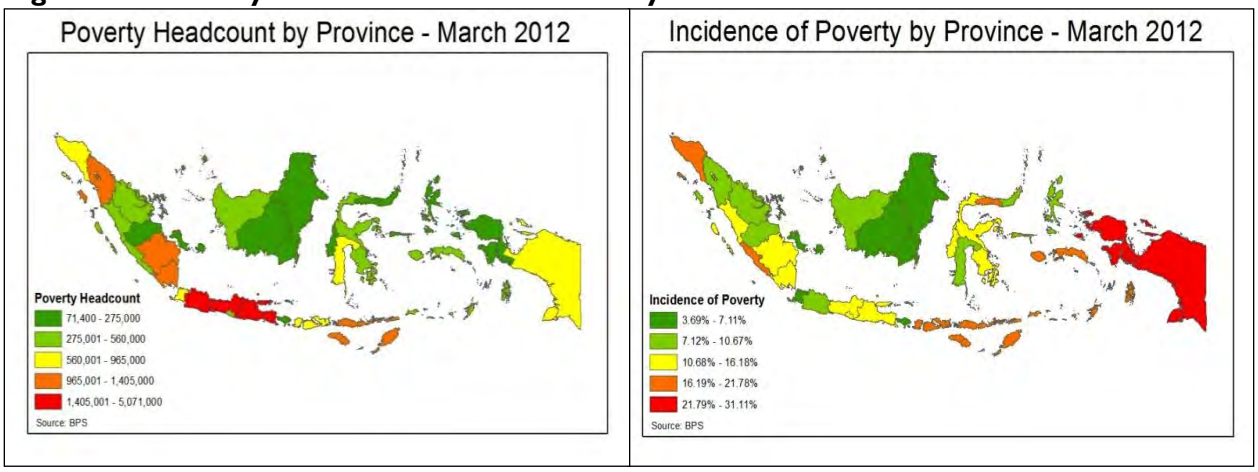
Figure 2.7: Rural and Urban Average Monthly Income



Source: Data from World Bank, PovcalNet, 2012.

As with economic growth, there are stark regional differences in poverty in Indonesia, though the type of poverty measurement used provides different perspectives. Figure 2.8 uses data from March 2012 to show that while poverty incidence is extremely high in Eastern Indonesia, particularly Papua, absolute levels of poverty are greater on Java and parts of Sumatra due to the greater population density.

Figure 2.8: Poverty Incidence and Headcount by Province



Note: Data taken from Indonesia's Central Statistics Body (BPS). Poverty headcount (left) is the absolute number of people below the poverty line. Poverty incidence (right) is the percentage of the population below the poverty line.

There do not appear to be any significant age or gender inequities across the distribution of poor and nonpoor Indonesians. Table 2.5 shows the percentage of poor broken down by poverty level, gender and age for the years 2010 and 2011. In the table, the lowest quintile is considered "Poor," the second and third quintiles are considered "Near Poor," and the fourth and fifth quintiles are "Non Poor". The percentages of poor that are male and female are similar within age groups and across poverty groupings. For the 0-24 age groups, women generally comprise a lower share of the Poor and Near Poor, but a higher share for the age groups 25 and older.

Table 2.5: Percentage of Males and Females Disaggregated by Age and Poverty Level

		Poor		Near Poor		Non Poor	
		Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)
2010	**All**	**49.57**	**50.43**	**49.85**	**50.15**	**49.95**	**50.05**
2010	0-14	18.09	16.80	15.51	14.72	13.08	12.08
2010	15-24	7.32	7.00	7.88	7.35	8.43	8.23
2010	25-64	20.94	22.73	23.51	24.51	25.80	26.81
2010	65 and older	3.22	3.90	2.96	3.56	2.64	2.92
2011	**All**	**50.19**	**49.81**	**50.15**	**49.85**	**50.48**	**49.52**
2011	0-14	17.64	16.38	15.65	15.16	13.41	12.62
2011	15-24	8.33	7.95	8.54	8.05	8.79	8.95
2011	25-64	21.49	22.10	23.48	23.55	26.32	25.53
2011	65 and older	2.72	3.38	2.48	3.08	1.97	2.42

Note: Data take from the SUSENAS data set available from Indonesia's Central Statistics Body (BPS) for the years 2010 and 2011.

In most developing countries, women-headed households are more likely to be poor than households headed by men. However, a recent study found that in Indonesia, average and median per capita consumption is roughly the same for both male- and female-headed households (Suryahadi, Raya, et al. 2012). This implies that if there are differences in quality of life for men and women in poverty, they are primarily non-monetary.

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3. Labor and Wages Policy Environment

This chapter analyzes the country's labor markets, focusing on the characteristics that shape welfare outcomes for individuals and shed light on potential labor market-related constraints to inclusive growth in Indonesia.

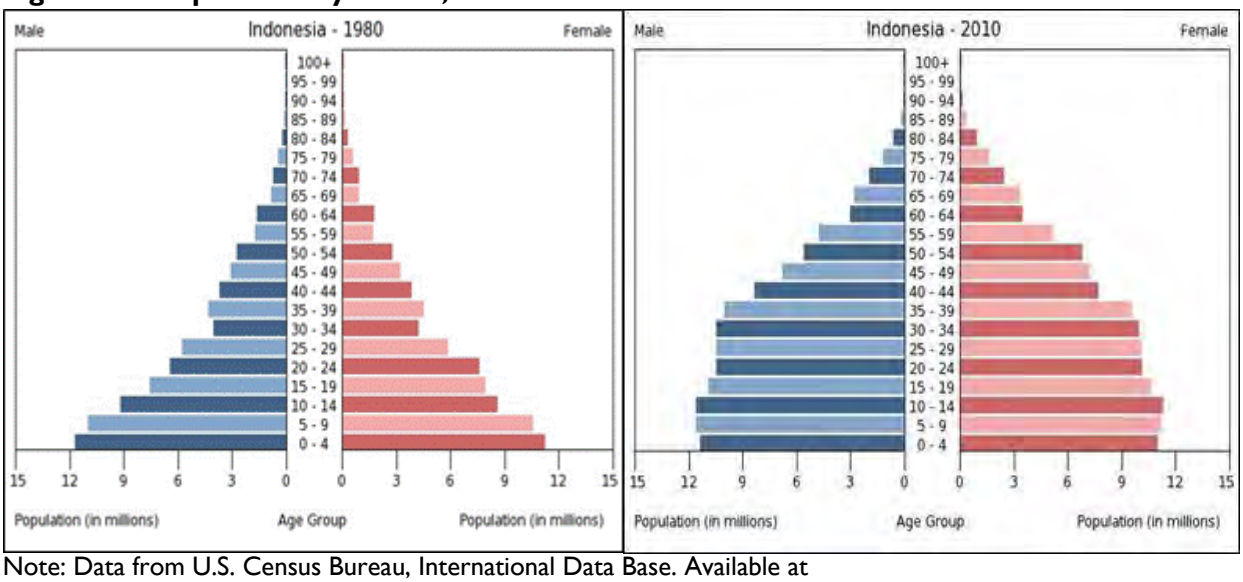
The key findings of this section are:

- Indonesia is moving into a period where the working-age population will increase significantly relative to the overall population.
- Labor market trends have improved continuously since 2005; unemployment and underemployment have fallen with a constant labor force participation rate.
- Women's employment is increasing relative to men's. Further, women's employment in higher-status and higher-paying jobs is increasing, but the reverse is true for lower-status, lower-paying jobs. This implies that for the poorest segment of the population, the gender imbalance in employment is increasing.
- Youth unemployment is high but decreasing, in part due to a trend of young people delaying their entrance into the labor force in favor of more schooling.
- Employment in Agriculture is falling while employment in Services is increasing. Employment in Industry remains relatively constant. Labor productivity in Services and Industry is increasing while labor productivity in Agriculture is declining.
- Informal employment dominates the Agriculture sector and in rural areas. Informal labor is associated with lower wages and educational attainment levels.
- Wages adjust to macroeconomic swings while employment remains relatively stable. Further, only in Industry do increases in labor productivity lead to significant increases in wages. This implies that investments designed to improve agricultural productivity in Indonesia are less efficient at increasing wages compared to activities that transition labor from Agriculture to Industry.
- The Indonesian labor market is the source of several policy-related obstacles that on the surface seem to inhibit employment prospects and hence positive economic outcomes for many workers. However, due to low levels of compliance with and de facto flexibility in implementation of labor market regulations, these regulations are not nearly as binding in practice as they appear to be in principle. We conclude that labor market policies and characteristics are not among the most binding constraints to inclusive growth in Indonesia.

3.1 Demographic Trends

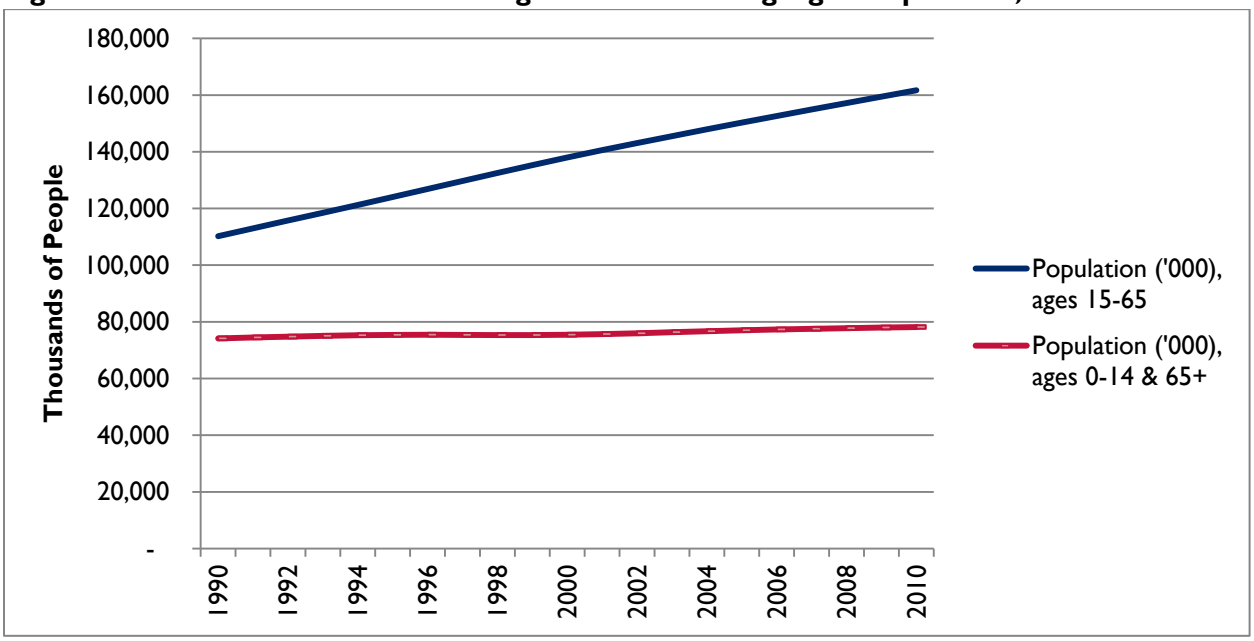
Indonesia is experiencing a demographic "dividend" in the working age population. The difference in population pyramids depicted in Figure 3.1 for the years 1980 and 2010 is stark, with the latter exhibiting a substantial increase in the size of the working population relative to the total population. Figure 3.2 depicts the same phenomenon; the working age population is steadily increasing over time while growth in the remainder of the population remains relatively flat.

Figure 3.1: Population Pyramids, 1980 and 2010



Note: Data from U.S. Census Bureau, International Data Base. Available at http://www.census.gov/population/international/data/idb/informationGateway.php.

Figure 3.2: Growth Trends in Working and Non-working Aged Population, 1990-2010



Note: Data from International Labor Organization, Key Indicators of the Labor Market, 7th edition. Available at http://kilm.ilo.org/KILMnet.

As those born in the past 15 years join the workforce, this trend will continue and further decrease the country's dependency ratio. A low dependency ratio means that more individuals provide for their own needs through their employment, freeing up federal revenues for investment in human capital and other poverty-reducing mechanisms. Indonesian economist Sri Moertiningsih Adioetomo predicts that the country's dependency ratio will fall to its lowest point of .44 in 2020-30, which means that the country may benefit for the next decade or so (Suryahadi, Raya, et al. 2012). Though a potentially tremendous boon to both economic growth and poverty reduction, the window of opportunity for harnessing a demographic dividend is temporary. An aging workforce and decreasing fertility will gradually change this

situation. In order for Indonesia to benefit, productive jobs must remain available to its growing workforce.

3.2 Labor Market Trends

Over the last 8 years, labor market conditions in Indonesia have generally improved. Table 3.1 shows that employment has risen while unemployment has fallen against a stable labor participation rate. A constant labor participation rate demonstrates that the growing labor force has kept pace with the general population increase. With a constant labor participation rate, the increase in the employment to population ratio shows that employment growth has outpaced growth in the labor force. Unemployment peaked in 2005 and has been trending downward since that time. Even though employments statistics show substantial progress, wages and salaries have declined overall in real terms (International Labour Organization 2011).

Table 3.1: Key Labor Market Trends, 2005-2010

Metric	2005	2011
Labor Force (# of participants)	109,313,025	119,852,909
Labor Participation Rate, 15+, Total (%)	67.5%	67.5%
Employment to Population Ratio, 15+, Total (%)	59.9%	62.7%
Unemployment, Total (Percent of Total Labor Force)	11.2%	6.6%

Note: Data from World Bank, World Development Indicators. Available at http://databank.worldbank.org.

3.2.1 Disaggregation by Gender

Women's participation in employment is improving. Women comprised 38.2 percent of the total labor force in 2010, a share that has remained relatively stable since 1996, with a low of 37.2 percent in 2002.[2] The period 2000 to 2005 was characterized by a weak labor market in the aftermath of the 1998 financial crisis. Over this period, female employment as a share of the total female population (age 15+) *decreased* by 4.2 percentage points. However, since 2005 this share has increased steadily from 42.9 percent to a 2010 rate of 46.6 percent. Men's share over the same time period increased from 77.2 percent to 79 percent. Using a slightly different metric, the female labor force participation rate (age 15-64) increased from 52 percent in 2005 to 53.2 percent in 2010.[3] On the other hand, the male labor force participation rate declined from 87.4 percent to 86.3 percent per cent during the same period. Overall, the gender gap in employment-to-population ratios remains wide but is narrowing (International Labour Organization 2012b).

In addition to increasing their share of employment relative to the total population, women's degree of representation in various occupations is changing. Data from Indonesia's Central Statistics Body (BPS) show that since 2007, women's employment in higher-status and higher-paying jobs is increasing; over half of all professionals are female (International Labour Organization 2011). The reverse is true for

[2] This and other statistics in this paragraph are drawn from World Development Indicators unless otherwise noted. Employment to population ratio includes persons age 15+. Labor force participation rates are for persons age 15-64.

[3] Female labor force participation is defined as women in the labor force as a share of total working-age women in the population.

lower-status, lower-paying jobs. These structural trends for women in the labor market appear to be positive, though the time period covered coincides with the recovery from the 2008 global financial crisis. Accordingly, it is not clear how much of this trend is transitory and how much is "permanent." Further, if the pool of jobs available to the poorest segment of the population consists of lower-status, lower-paying jobs, it is likely that poor women are being marginalized to a greater degree than poor men.

3.2.2 Disaggregation by Age

Youth unemployment is about three times the overall unemployment rate, though it too has fallen significantly in recent years. Youth unemployment peaked in 2005 at 32.4 percent and has been on a downward trend since then, with a 2010 rate of 22.2 percent (International Labour Organization 2012b). This recent drop in youth unemployment is driven by declining labor force participation of youth. Higher returns to education have made additional schooling more attractive so that more youth are choosing to pursue higher levels of education.

For youths entering the workforce, the transition from schooling to employment (involving job search and matching issues) has been a source of frictional unemployment (International Labour Organization 2012b). One example of this phenomenon is that some higher education graduates choose to remain unemployed while waiting for suitable job opportunities (International Labour Organization 2012b). While the reasons behind this phenomenon are not definitively clear, one may speculate that at least in some cases, this is due to an option value of waiting for a suitable position that is increasing over time. Such option value, in turn, is driven by two demand-side factors: (1) robust recent growth in Services means that educated workers are increasingly in demand, and (2) at the same time, wages for university graduates have been rapidly increasing (International Labour Organization 2012b).

3.2.3 Disaggregation by Sector

Table 3.2 below depicts the growth of employment for salaried workers by major economic sector: Agriculture, Industry, and Services.

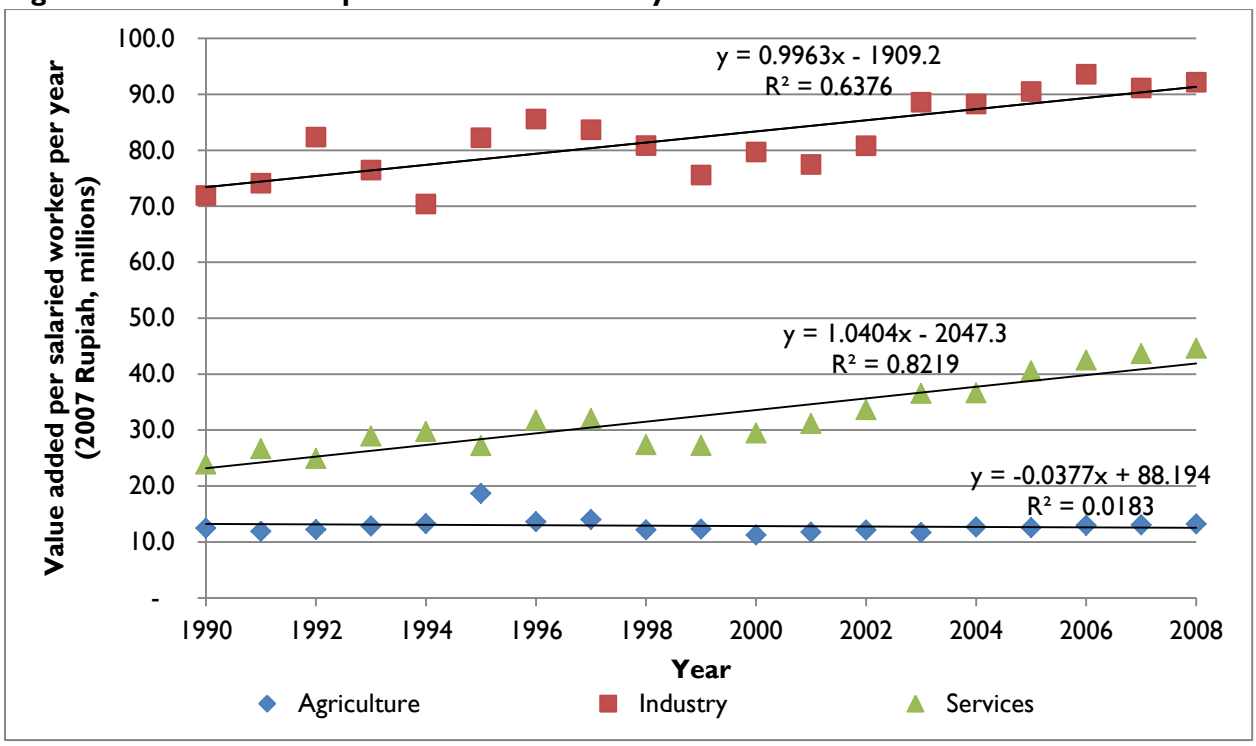
Table 3.2: Employment by Sector

Sector	2005	2011
Employment in Agriculture (% of Total Employment)	44.0%	35.9%
Employment in Services (% of Total Employment)	37.2%	43.5%
Employment in Industry (% of Total Employment)	18.7%	20.6%

Note: Data from World Bank, World Development Indicators. Available at http://databank.worldbank.org.

For salaried employees, the Agriculture sector accounted for the largest share of employment from the 1998 Asian Financial Crisis until 2008. Since 2003 total employment in Services has grown steadily, largely at the expense of Agriculture employment. In 2008, employment in Services surpassed employment in Agriculture for the first time in the country's history.

Figure 3.3: Value Added per Salaried Worker by Sector



Note: Data from World Bank, World Development Indicators. Available at http://databank.worldbank.org. Regression lines are authors' calculations.

Figure 3.3 plots value added per salaried worker by sector (a rough measure of labor productivity), including linear regression trend lines to depict average growth rates over time. The Services sector exhibited robust annual growth in the ratio of value added per salaried worker of slightly over 1 million Rupiah per worker (in constant 2007 Rupiah/worker--see regression coefficients in Figure 3.3). Industry experienced nearly as high growth in labor productivity, while labor productivity in Agriculture actually declined at an annual rate of 38,000 Rupiah per worker. Figure 3.3 depicts growing gaps in labor productivity between the Industry and Services sector on the one hand, and the Agriculture sector on the other. Given the large number of poor, low-wage workers in the Agriculture sector, this is a worrying trend for the inclusiveness of economic growth in the country.

Indonesia has been unable to regain its pre-crisis levels of non-agricultural employment growth. The Services sector employment elasticity remains short of its pre-1997 level even though it recovered substantially during the 1999-2003 period. The Industrial sector also lags. One-third of the shortfall in off-farm job growth relative to the pre-crisis era is explained by slower industrial employment growth (World Bank 2010). The subsectors responsible here are Manufacturing, Construction, and Mining. The Manufacturing sector accounted for about half of the slowdown in Indonesia's growth, declining from 5.4 percent pre-crisis to 3.1 percent post-crisis. Growth in the Construction and Mining sectors also slowed considerably, and accounted for the remaining half of the growth shortfall.

Against the comparator countries of Malaysia, Philippines, Thailand, and Vietnam, Indonesia's industrial sector growth has slowed the most from 9 percent to 4.5 percent per year, though these regional neighbors have also been unable to match their pre-crisis Industry growth rates (World Bank 2010).

The Agriculture sector played a buffering role in the 1998 financial crisis, absorbing workers displaced in the balance of the economy. Despite steady growth of 4 percent per annum in per capita income since

1998, very little structural transformation has taken place as evidenced by the approximately constant shares of value added and employment associated with the Agriculture sector.

3.3 Labor Force Segmentation: Formal vs. Informal

The definition of the informal sector for the Indonesian labor market described by the Indonesian Central Statistics Body (BPS) is complex; it depends on an employee's occupational category and employment status (International Labour Organization 2012b). Professional, technical, managerial, and clerical occupations are all considered part of formal sector employment as long as the labor is paid. Independent contractors (also known as own account workers) and casual employees in other occupations are considered informal.

Indonesia's share of informal employment is significantly higher than that in comparator countries (World Bank 2010). It increased from 61.5 percent in 2001 to 64.7 percent in 2003 before the sustained economic expansion gradually decreased it to 59 percent by 2010 (International Labour Organization 2012b). Over the period 2001 to 2010, the share of female workers in informal employment decreased by 5.7 percentage points while the share of male workers employed informally decreased by only 0.6 percentage points.

World Bank (2010) offers a useful summary characterization of informal workers in Indonesia:

> "More than 70 percent of all informal workers live in rural areas. Sixty percent of these rural informal workers are poor or near-poor and 73 percent have only elementary education or less. Most informal workers are self-employed. Most rural informal workers are self-employed workers in farming, fishing and raising livestock. Although the majority live in Java and Sumatra, they are mostly concentrated in remote areas where fewer firms operate and agriculture is the main source of livelihood. Workers in eastern Indonesia are 2.3 times more likely to be informal than workers with identical characteristics in western regions of the country [footnote omitted]."

In rural areas, informality is perpetuated by the dominance of agriculture as an economic activity coupled with low agricultural productivity. The wage gap between formal and informal laborers is larger in the Agriculture sector and in rural areas in general, reaching an estimated 30 percent when controlling for education level, age, sex, location, and other factors (World Bank 2010). In urban areas, rapid urbanization (i.e., outstripping the pace of complementary investments) combined with the slow growth of formal sector employment contribute to informal activity.

Considering all informal workers, 91 percent have less than a high school education (World Bank 2010). A study in the province of East Nusa Tenggara found that a higher level of education was associated with lower probability of informal sector employment (International Labour Organization 2012a).

3.4 Wages

Average real wages in Indonesia increased between 2000 and 2010 for all employees, both regular and casual, though rapid fuel price inflation caused real wages to decrease in 2005 and 2008. Sugiyarto, Pratomo, and Purnagunawan (2011) argue that changes in population growth rates are the main drivers of employment rates while macroeconomic shocks cause labor to adjust through altering wages. Average annual rates of real wage growth from 2000 to 2010 were 3.8 percent for regular employees, 1.1 percent for casual employees, and 2.2 percent overall (International Labour Organization 2011). The growth in average annual real wages was higher for women (3.4 percent) than for men (1.8 percent), narrowing the gender wage gap. Despite this differential growth, average real wages in 2010 were Rp 575,000 per month for men and Rp 455,000 per month for women.

We examine the extent to which labor productivity (measured by output per labor hour) growth has translated into higher wages, and how this varies across sectors. [4] We do this by constructing log-log plots by sector of wages vs. labor productivity using annual data from 1990 to 2008.[5] This assumes a power law relationship between wages and labor productivity as shown in equation (1).

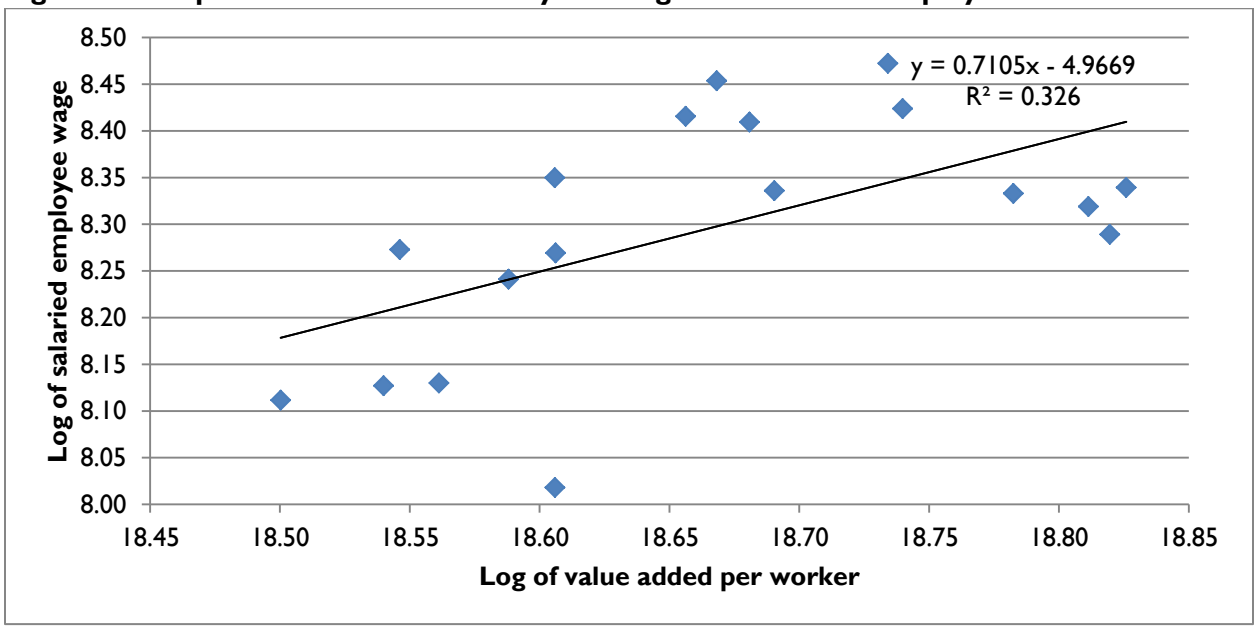
$$w = \alpha * LP^m \quad (1)$$

where w is the wage, α is a constant, LP is a measure of labor productivity, and m is the slope of the log-log plot of wages vs. labor productivity. A value of $m = 1$ would indicate wages growing proportionally with labor productivity, whereas $m < 1$ ($m > 1$) would imply wage growth lagging (exceeding) growth in labor productivity. Taking the log of each side of equation (1) yields equation (2).

$$\log(w) = \alpha + m * \log(LP) \quad (2)$$

Figures 3.4 - 3.7 below plot estimates of m from equation (2) for the labor force overall, and for the sectors of Agriculture, Industry, and Services.

Figure 3.4: Impact of Labor Productivity on Wages for Salaried Employees

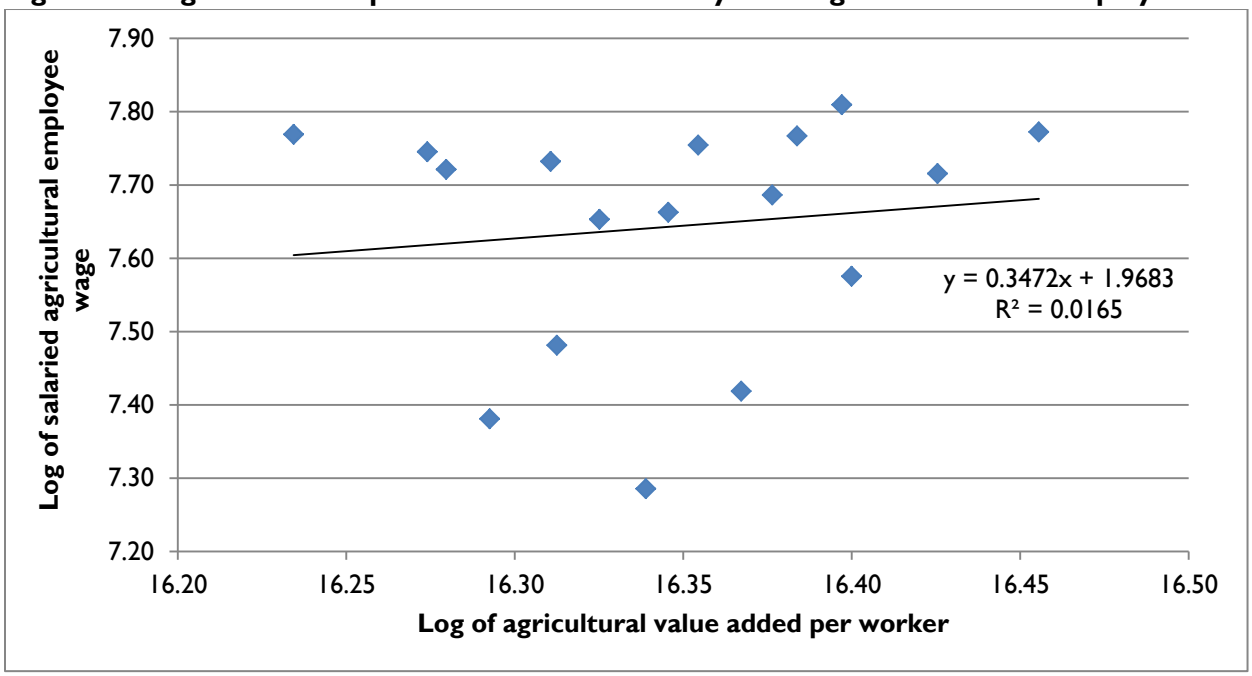


Note: Salary and wage data by sector provided by Newhouse, David, 2012, through personal communication on wage and employment statistics computed from SAKERNAS survey data taken from the Central Board of Statistics of Indonesia (BPS) and prepared for World Bank (2010). Y-axis is annual median earnings for salaried employees in constant 2007 Rupiah. Data on value-added per worker taken from World Bank Databank. Each data point represents one year for the years 1990 – 2008. Regressions are authors' own calculations.

[4] In competitive labor markets, on average, wages are equal to labor productivity (i.e., the value of workers' output).

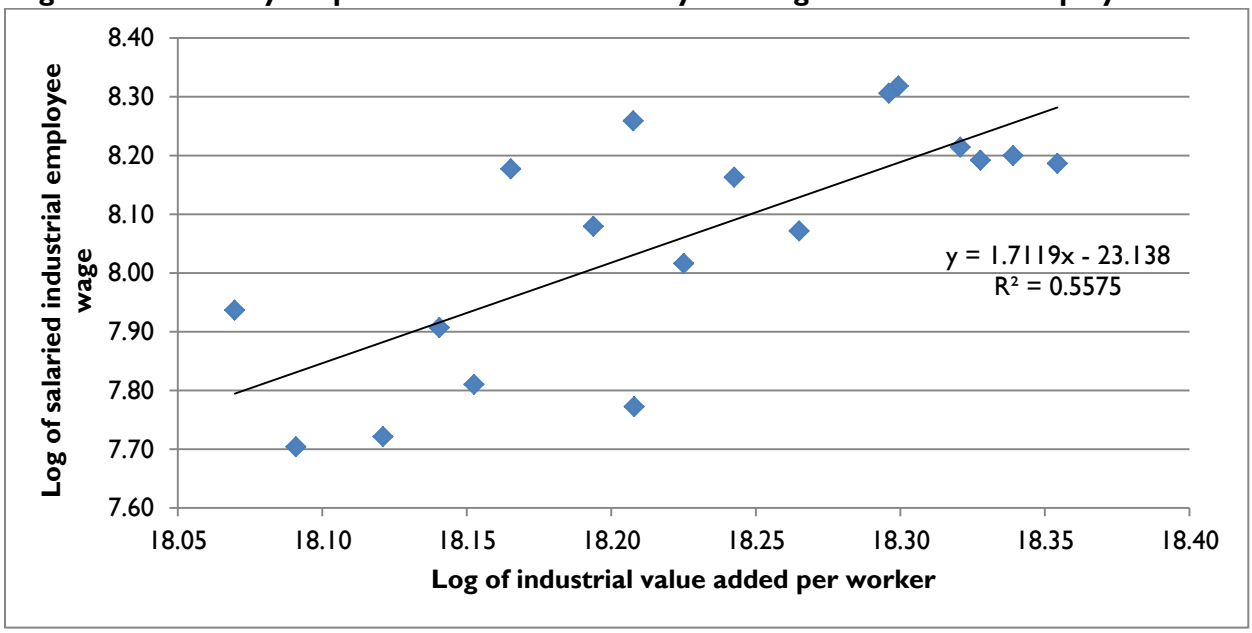
[5] As systematic wage data are available only for salaried employees, we restrict the analysis to this group of workers.

Figure 3.5: Agriculture: Impact of Labor Productivity on Wages for Salaried Employees



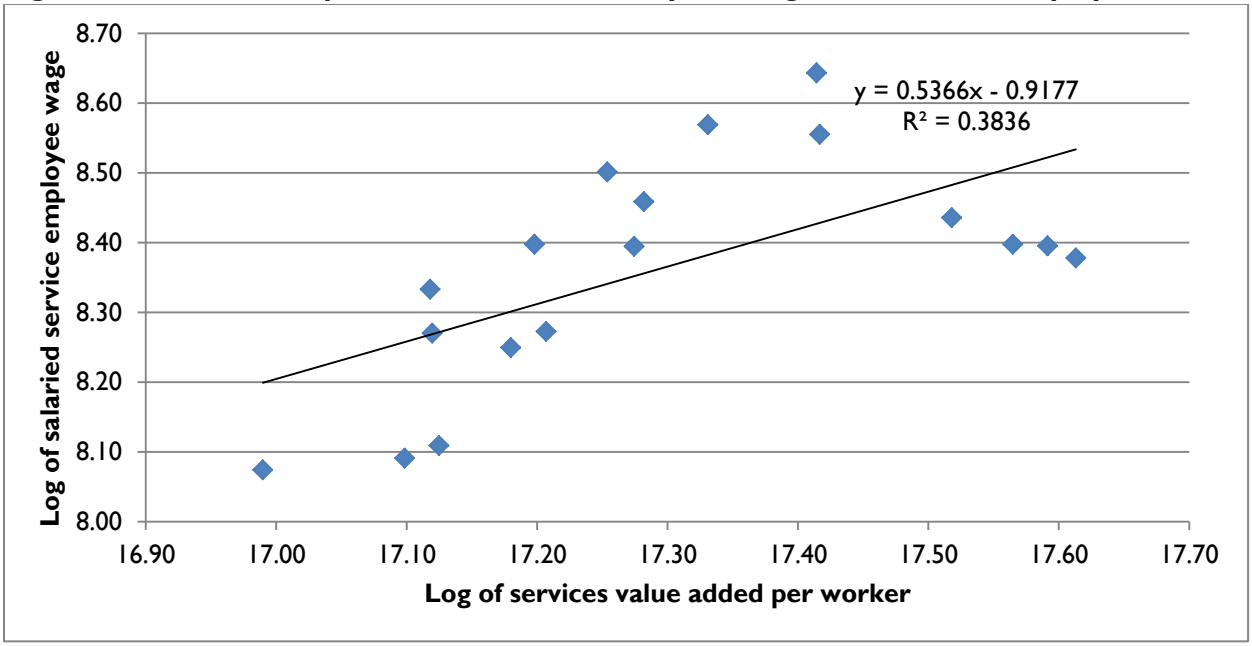
Note: Salary and wage data by sector provided by Newhouse, David, 2012, through personal communication on wage and employment statistics computed from SAKERNAS survey data taken from the Central Board of Statistics of Indonesia (BPS) and prepared for World Bank (2010). Y-axis is annual median earnings for salaried employees in constant 2007 Rupiah. Data on value-added per worker taken from World Bank Databank. Each data point represents one year for the years 1990 – 2008. Regressions are authors' own calculations.

Figure 3.6: Industry: Impact of Labor Productivity on Wages for Salaried Employees



Note: Salary and wage data by sector provided by Newhouse, David, 2012, through personal communication on wage and employment statistics computed from SAKERNAS survey data taken from the Central Board of Statistics of Indonesia (BPS) and prepared for World Bank (2010). Y-axis is annual median earnings for salaried employees in constant 2007 Rupiah. Data on value-added per worker taken from World Bank Databank. Each data point represents one year for the years 1990 – 2008. Regressions are authors' own calculations.

Figure 3.7: Services: Impact of Labor Productivity on Wages for Salaried Employees



Note: Salary and wage data by sector provided by Newhouse, David, 2012, through personal communication on wage and employment statistics computed from SAKERNAS survey data taken from the Central Board of Statistics of Indonesia (BPS) and prepared for World Bank (2010). Y-axis is annual median earnings for salaried employees in constant 2007 Rupiah. Data on value-added per worker taken from World Bank Databank. Each data point represents one year for the years 1990 – 2008. Regressions are authors' own calculations.

We see that only in Industry do we observe $m > 1$, whereas for the labor force overall and for the Agriculture and Services sectors, $m < 1$. Thus, among the three subsectors, wages in the Industry sector experience the strongest growth relative to labor productivity (exceeding it, in fact, with $m = 1.7$), while Agriculture sector wages evince the weakest relative growth ($m = 0.3$). These results have important implications for designing development interventions. They tend to suggest that investments which ease the flow of labor out of Agriculture and into Industry, perhaps through improving the business investment climate or through increasing vocational and technical skills, will yield higher wage impacts than investments that improve productivity in Agriculture.

3.5 Decomposing the Role of Labor in Inclusive Growth

In order to identify barriers to inclusive economic growth that may originate from the labor market, it is important to know in which sectors inclusive growth is taking place, either through higher wages or increased employment. We identify the sectors that play a key role in inclusive economic growth.

3.5.1 Analytical framework

Our approach follows Warner (2011) in decomposing per capita GDP growth to highlight various channels through which inclusive growth might be manifested.[6] The decomposition begins with a simplified depiction of GDP shown in equation (3) below.

$$Y = W + \pi \tag{3}$$

[6]Decomposition methods such as those illustrated here represent an *accounting framework* rather than a *demonstration of causality*. Fortin et al. (2010) highlight two specific limitations of these approaches: (1) strong assumptions typically underlie decomposition methods including, notably, a partial equilibrium assumption (i.e., "holding all else equal") which, strictly speaking, is unrealistic, and (2) "while decompositions are useful for quantifying the contribution of various factors to a difference or change in outcomes in an accounting sense, they may not necessarily deepen our understanding of the mechanisms underlying the relationship between factors and outcomes."

where

Y = GDP
W = Total Wages (from labor)
π = Total Profit (from entrepreneurs)

This definition of GDP can be averaged over the population to get per capita GDP, or averaged over employed labor to get output per worker. These are shown in equations (4) and (5) respectively.

$$\frac{Y}{P} = (\frac{1}{P})[\mathrm{W} + \pi] \quad (4)$$

$$\frac{Y}{L} = [\mathrm{w} + \frac{\pi}{L}] \quad (5)$$

where

P = Population
L = Number of Employed Laborers
$w = \frac{W}{L}$ or Average Wage

Equations (4) and (5) can be related by multiplying the right hand side of equation (4) by L/L.

$$\frac{Y}{P} = \frac{L}{P} \quad w + \frac{\pi}{L} = (\frac{L}{P})[\frac{Y}{L}] \quad (6)$$

Equation (6) shows that per capita output can increase in two ways. First, the number of employed laborers L can increase relative to the population. Second, output per laborer can increase, meaning labor can become more productive. Totally differentiating equation (6) and dividing both sides by $\frac{Y}{P}$ yields an expression that equates the percentage change in GDP per capita to the sum of the percentage changes in workers per population and GDP per worker, or

$$\frac{Y}{P} = \frac{L}{P} + \frac{Y}{L} \quad (7)$$

Estimates for the percentage change in each variable are calculated using data from the SUSENAS and SAKERNAS data sets housed at Indonesia's Central Statistics Body (BPS). Table 3.3 shows that increases in GDP per worker account for the bulk of GDP per capita growth from 1990 to 2008 with a Compound Annual Growth Rate (CAGR) of 2.4 percent. This suggests that increased productivity resulting in higher wages, higher profits, or both, accounts for approximately 71 percent of the growth in GDP per capita. The change in workers per population accounts for approximately 29 percent.[7] We

[7]This result is only suggestive and not quantitatively predictive for policy purposes, since it is the product of an accounting decomposition rather than a structural analysis. The latter analysis would identify and model interdependencies among the terms in equation (6), a task that is beyond the scope of this work.

conclude that increased employment growth relative to population growth is not a significant source of inclusive growth compared to changes in wages or productivity.

Table 3.3: Compound Annual Growth Rates (CAGRs), 1990-2008

Terms	CAGR, 1990-2008
$\frac{Y}{P}$ = Percent Change in GDP per Population	3.4%
$\frac{L}{P}$ = Percent Change in Workers per Population	0.96%
$\frac{Y}{L}$ = Percent Change in GDP per Worker	2.4%

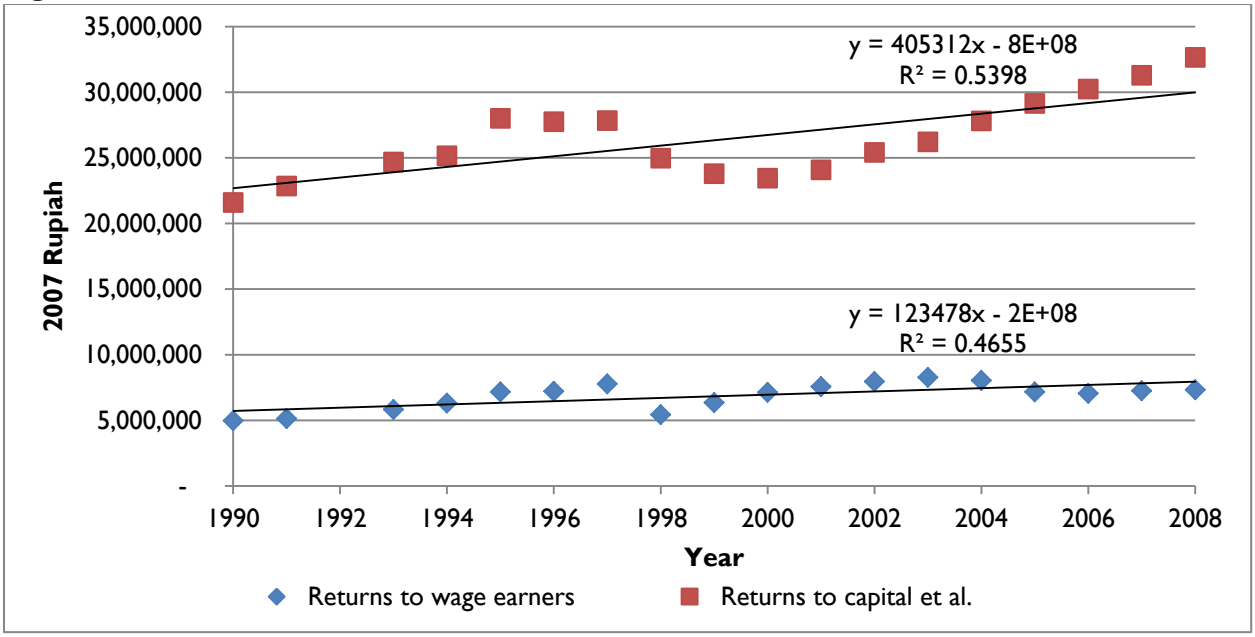
Note: Data taken from Indonesia's SUSENAS and SAKERNAS data sets housed at the Central Statistics Body (BPS) of Indonesia. Calculations are authors' own.

We now take a deeper look into what drives the increase in output per worker $\frac{Y}{L}$. Equation (5) shows that the ratio of GDP per worker, $\frac{Y}{L}$, can be broken down further into the average return to wage earners, w, and the profit from nonwage earners averaged over all wage earners, $\frac{\pi}{L}$. Nonwage earner profits capture not only returns to capital, but also payments to all other factors of production not otherwise captured in the wage and employment data. Because the SUSENAS and SAKERNAS data sets list wages only for salaried employees, the nonwage earner profits include returns to informal sector labor.[8] The term π therefore incorporates returns to a heterogeneous group of individuals. Because we lack comprehensive data on returns to capital and other data limitations previously mentioned, the term $\frac{\pi}{L}$ is computed as a residual that must satisfy equation (6) in each year 1990-2008.

Figure 3.8 depicts the evolution of returns to wage earners (w) with the profits of nonwage earners averaged over all laborers $(\frac{\pi}{L})$ calculated as a residual. Values are depicted over time along with linear regression trend lines.

[8] A significant fraction of workers reported zero monetary and non-monetary wages (on a monthly basis). Respondents are asked to estimate the value of non-monetary wages, so this may be a significant source of measurement error. Data were reweighted each year to hold constant the share of different types of workers according to education, gender, and age.

Figure 3.8: Returns to Production Factors



Note: Salary and wage data by sector provided by Newhouse, David, 2012, through personal communication on wage and employment statistics computed from SAKERNAS survey data taken from the Central Board of Statistics of Indonesia (BPS) and prepared for World Bank (2010). Y-axis is annual median earnings for salaried employees in constant 2007 Rupiah. Data on value-added per worker taken from World Bank Databank. Each data point represents one year for the years 1990 – 2008. Regressions are authors' own calculations.

The level and slope of returns to nonwage earners exceed those for wage earners over this period; in particular, the average annual incremental return to nonwage earners (405,000 Rupiah) is 3.3 times that for wage earners (123,000 Rupiah). We conclude that profits per worker offer significantly higher returns compared to wages, but because of the heterogeneity of the productive factors included in profits for nonwage earners, including returns to capital, informal sector labor, and more, the implications for inclusive growth remain somewhat ambiguous.

Though we are unable to further disaggregate the returns to nonwage earners due to data limitations, we can look at what is driving the returns to wage earners. Assume that workers L can be categorized into n categories and that for each category i there is a corresponding average wage for labor w_i. This implies that total wages W can be defined as the sum of all wages in each sector, or $W = \sum_{i=1}^{n} L_i w_i$. The average wage for all workers w can now be defined as

$$w = \frac{1}{L} \sum_{i=1}^{n} L_i w_i = \sum_{i=1}^{n} s_i w_i \qquad (8)$$

where

$s_i = \frac{L_i}{L}$ or the Share of Employment in Group i

Substituting equation (8) into equation (6) yields

$$\frac{Y}{P} = \frac{L}{P} \left[\sum_{i=1}^{n} s_i w_i + \frac{\pi}{L} \right] \qquad (9)$$

Equation (9) now depicts four distinct components that lead to increased growth per capita. We've already discussed the role of an increase in number of employed people relative to the population $\frac{L}{P}$ and an increase in the profitability of nonwage factors of production $(\frac{\pi}{L})$, leaving two ways in which per capita GDP can grow due to wages. First and most obvious, it can come through increased wages w_i. Second, it can come from an increase in the proportion of labor in sectors where wages are higher. For example, if employment shifts from a low-wage sector such as Agriculture to a high-wage sector such as Industry, per capita GDP would increase holding the total number of employees and the population constant.

We first analyze the contribution of wages w_i to growth disaggregated along the following dimensions:

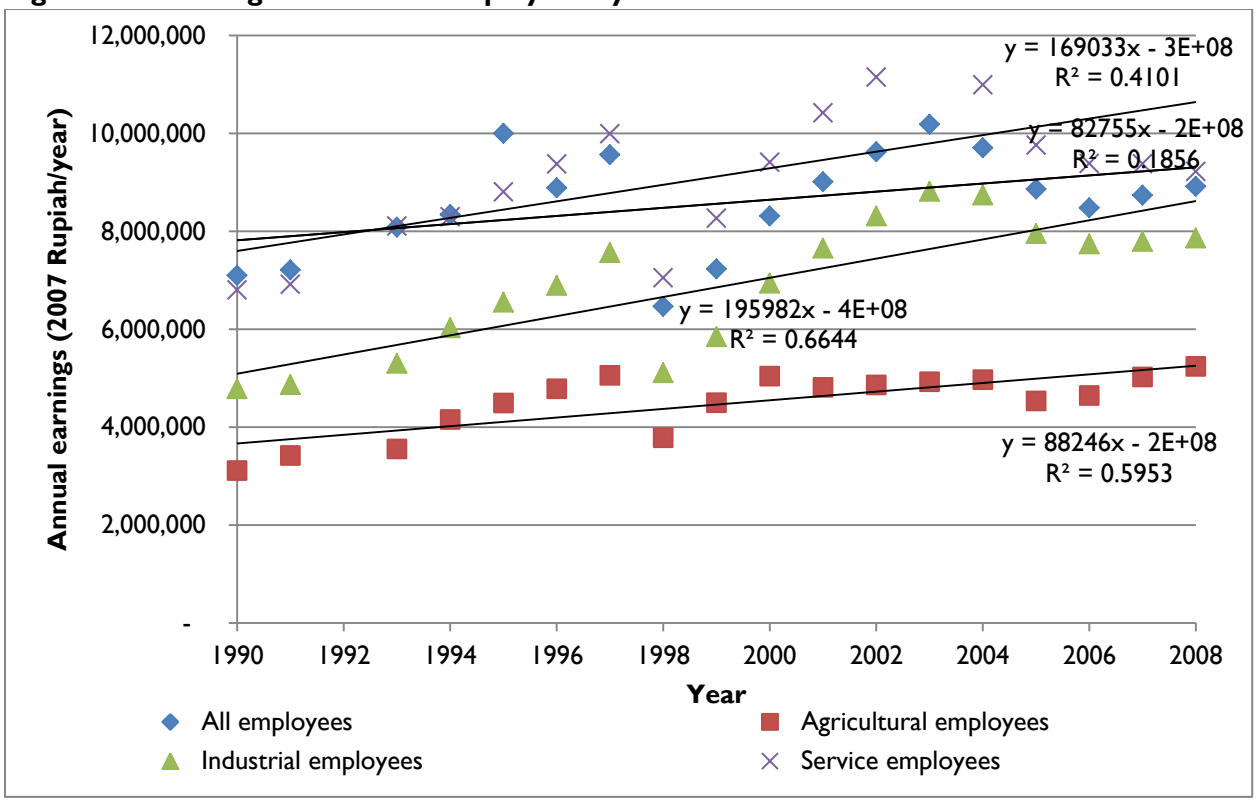
- employment sector
- gender
- location
- poverty status
- skill level
- age

Figures 3.9 to 3.14 depict wage trajectories for population subgroups along the above dimensions for the period 1990-2008, along with linear regression trend lines.

Figure 3.9 differentiates wage growth by sector. All three sectors (Agriculture, Industry, and Services) have positive Annual Average Wage Increments (AAWIs), with Industry and Services workers enjoying AAWIs 2.4 and 2.0 times that of all workers.[9] Agriculture employees' AAWI is about 7 percent higher than that for all workers. Considering the entire time interval, there is a divergence between Agriculture wages and wages in Industry and Services, with Services wages being above the overall average since the mid-1990s. During the 1998 financial crisis, wages for Services and Industry experienced a more substantial drop than Agriculture wages. This may reflect not only a drop in wages for Services and Industry, but a movement of labor into Agriculture. The trend from 2004 onward, however, shows stagnating wages in Industry and Services, and the fastest growth in Agriculture wages potentially altering the convergence story.

[9] The value of interest is the slope of the Ordinary Least Squares trend line.

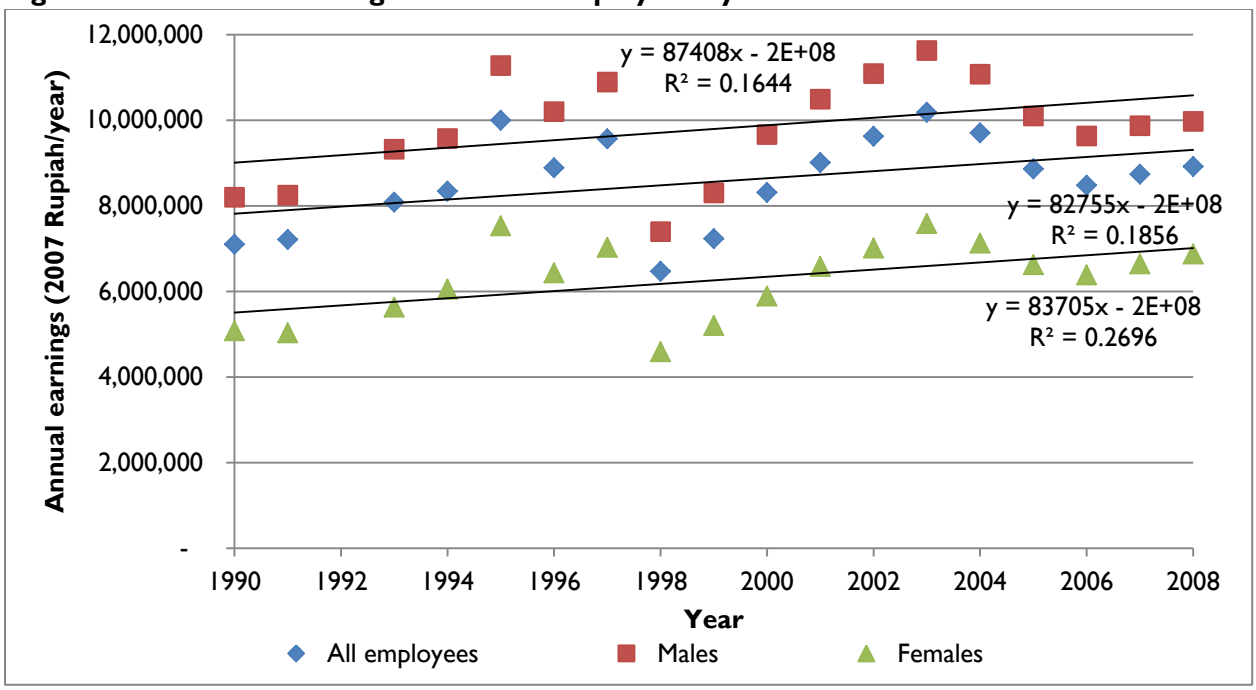
Figure 3.9: Earnings of Salaried Employees by Sector



Note: Salary and wage data by sector provided by Newhouse, David, 2012, through personal communication on wage and employment statistics computed from SAKERNAS survey data taken from the Central Board of Statistics of Indonesia (BPS) and prepared for World Bank (2010). Y-axis is annual median earnings for salaried employees in constant 2007 Rupiah. Each data point represents one year for the years 1990 – 2008. Regressions are authors' own calculations.

Figure 3.10 differentiates wage growth by gender. The AAWIs for both men and women are above the "all employees" benchmark, with that for males 6 percent higher and that for females 1 percent higher. This implies a divergence in wages for men and women, rather than convergence. This may be counterintuitive to our previous findings on employment levels and wages for women, though not contradictory. We noted previously that employment rates between men and women are diminishing and that there has been a convergence in real wages for men and women for the 2000 to 2010 time period. The time frame here is from 1990 to 2010. The discrepancy can be attributed to the longer time period.

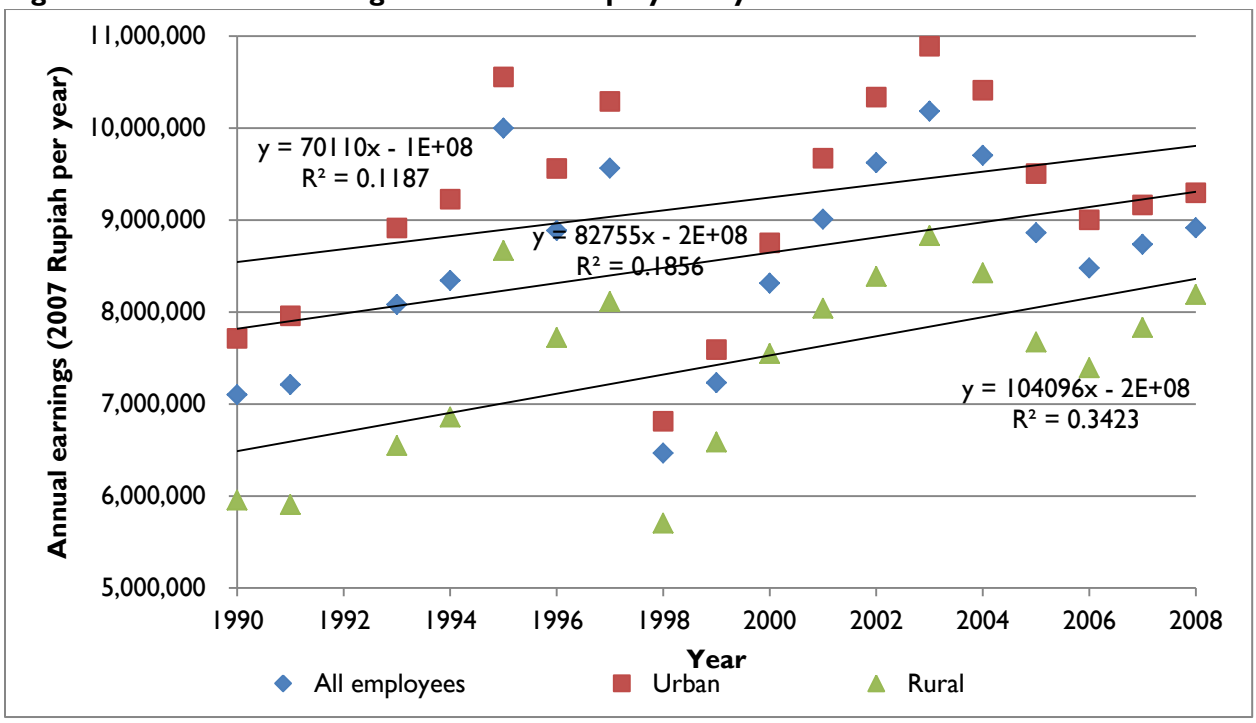
Figure 3.10: Annual Earning of Salaried Employees by Gender



Note: Salary and wage data by sector provided by Newhouse, David, 2012, through personal communication on wage and employment statistics computed from SAKERNAS survey data taken from the Central Board of Statistics of Indonesia (BPS) and prepared for World Bank (2010). Y-axis is annual median earnings for salaried employees in constant 2007 Rupiah. Each data point represents one year for the years 1990 – 2008. Regressions are authors' own calculations.

Figure 3.11 differentiates wages between rural and urban laborers. The AAWIs for rural and urban wages are starkly different at 126 percent and 85 percent of the overall average AAWI, respectively. Because urban wages are higher than rural wages, the two are converging. The years since 2006 have seen particularly strong growth in rural wages. Although further analysis would be required to identify convincingly the underlying reasons, plausible explanations might include 1) a rise in the price of agricultural commodities or 2) a flow of labor from rural to urban areas, rebalancing labor supplies and affecting wages.

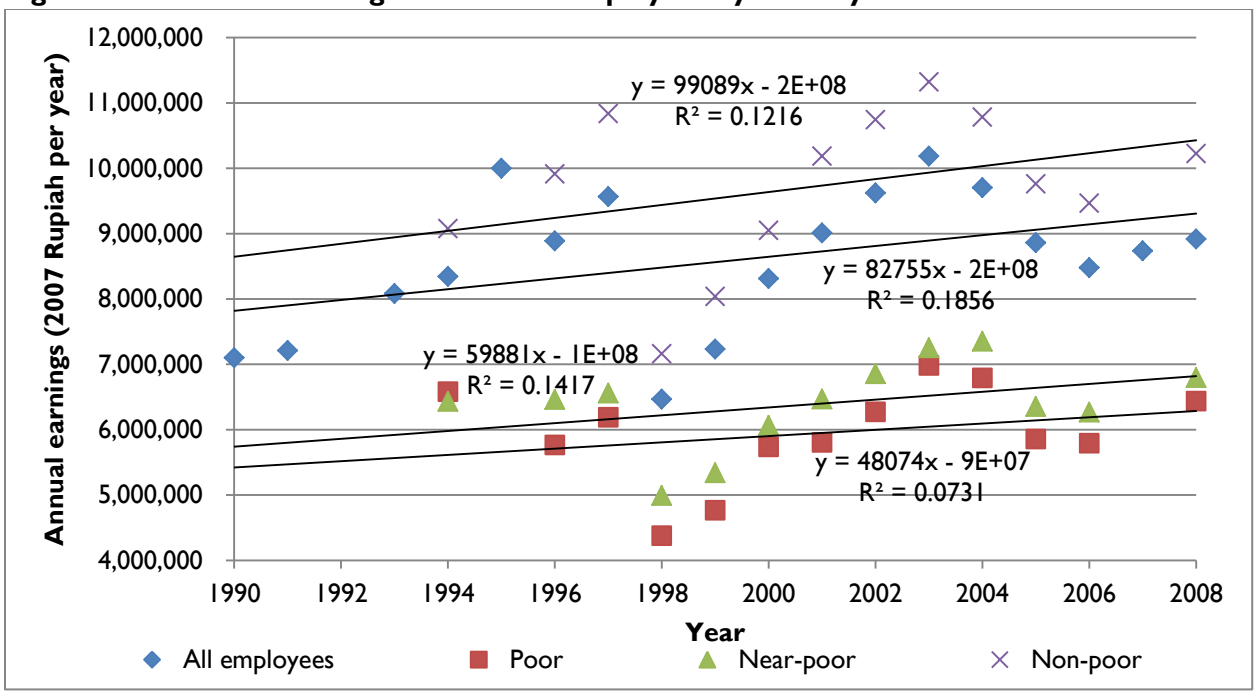
Figure 3.11: Annual Earnings of Salaried Employees by Location



Note: Salary and wage data by sector provided by Newhouse, David, 2012, through personal communication on wage and employment statistics computed from SAKERNAS survey data taken from the Central Board of Statistics of Indonesia (BPS) and prepared for World Bank (2010). Y-axis is annual median earnings for salaried employees in constant 2007 Rupiah. Each data point represents one year for the years 1990 – 2008. Regressions are authors' own calculations.

Figure 3.12 depicts wage growth by poverty status. At 58 percent and 72 percent of the AAWI for overall wages, the AAWIs for wages of the poor and near-poor, respectively, fall well short of the benchmark for wages of all employees (here again, low R^2 coefficients mean that these estimates are fairly imprecise). The AAWI for nonpoor wages lies moderately (20 percent) above the AAWI for overall wages. This is not surprising given the close connection between wage levels and poverty status. Given this pattern of wage growth, wage levels for these groups are on a diverging track, albeit gradually, increasing the gap between the poor and nonpoor. Recall that nonwage growth also far outpaces wage growth, implying a substantial divergence in income between the nonpoor, nonwage earners and the wage earning poor.

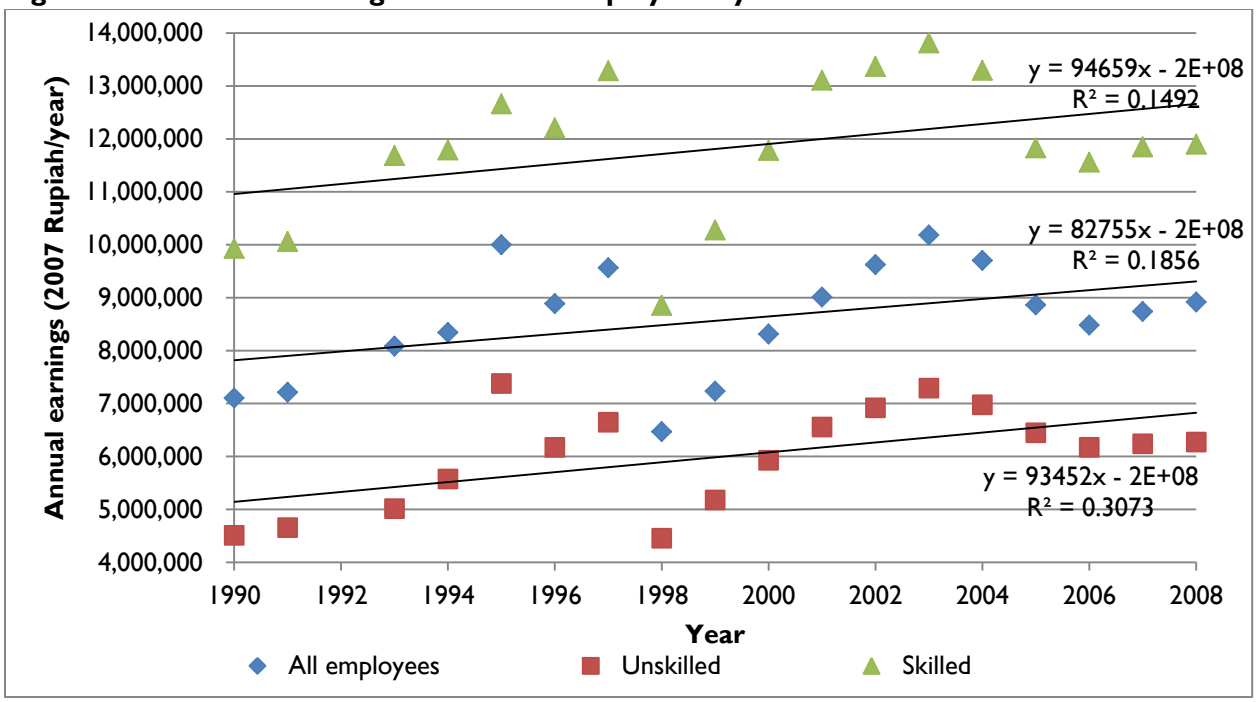
Figure 3.12: Annual Earnings of Salaried Employees by Poverty Status



Note: Salary and wage data by sector provided by Newhouse, David, 2012, through personal communication on wage and employment statistics computed from SAKERNAS survey data taken from the Central Board of Statistics of Indonesia (BPS) and prepared for World Bank (2010). Y-axis is annual median earnings for salaried employees in constant 2007 Rupiah. Poor are defined as the bottom quintile of predicted consumption while near poor are in the 20th-40th percentile. Nonpoor are those above the 40th consumption percentile. Each data point represents one year for the years 1990 – 2008. Regressions are authors' own calculations.

Figure 3.13 differentiates wage labor by skill level. Skilled and unskilled cohorts of workers have nearly the same AAWI, 14 percent and 15 percent above the benchmark of average wages of all employees. This is somewhat surprising, since our prior expectations might have returns to higher skilled labor outpacing returns to less skilled labor. While there is no convergence of wages between skilled and less skilled labor, nor should it be expected, it is encouraging to see wage growth increasing for both groups along with an absence of divergence.

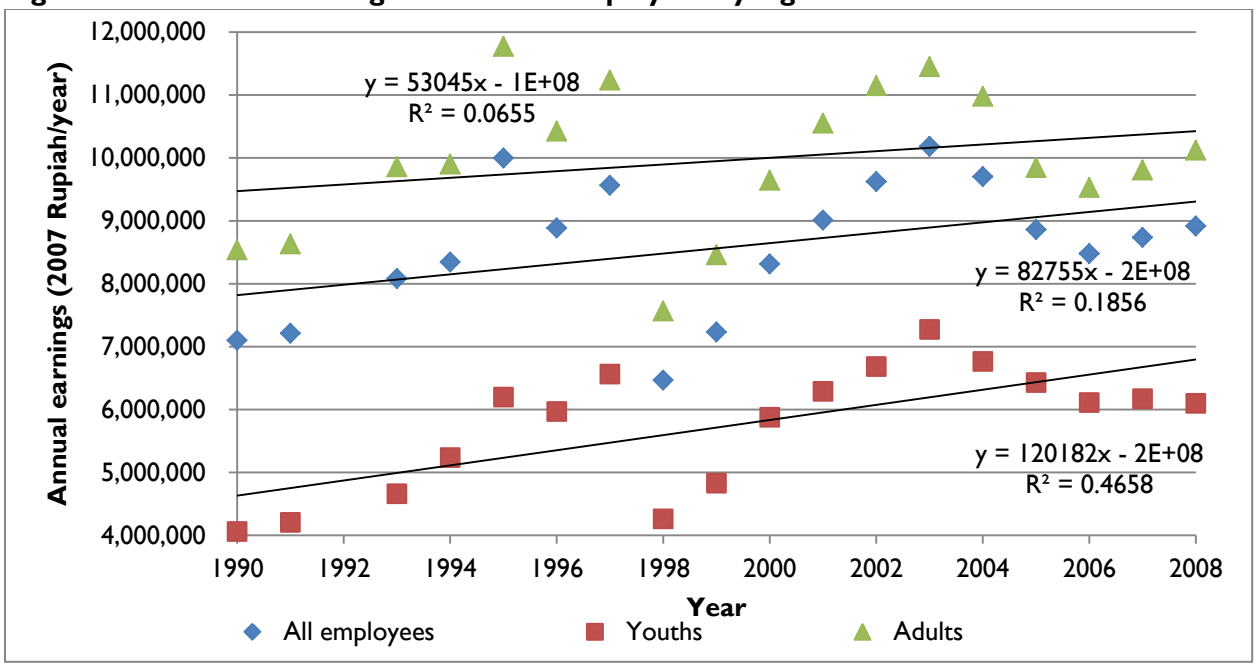
Figure 3.13: Annual Earnings of Salaried Employees by Skill Level



Note: Salary and wage data by sector provided by Newhouse, David, 2012, through personal communication on wage and employment statistics computed from SAKERNAS survey data taken from the Central Board of Statistics of Indonesia (BPS) and prepared for World Bank (2010). Y-axis is annual median earnings for salaried employees in constant 2007 Rupiah. Unskilled defined as educational attainment of Junior High (SMP) and below. Skilled defined as High School or University education. Each data point represents one year for the years 1990 – 2008. Regressions are authors' own calculations.

Figure 3.14 differentiates wage growth by age. There is a striking difference between the AAWIs for youth and for adults: 145 percent vs. 64 percent of the benchmark for average wages of all employees. Because adult wages are higher, there is a strong convergence between the two cohorts. This may reflect higher levels of educational attainment among younger workers entering the workforce. Since 2006, however, the longer-run trend has reversed, with youth wages actually declining slightly and adult wages increasing. Further analysis would be required to identify underlying causes of this trend reversal.

Figure 3.14: Annual Earnings of Salaried Employees by Age



Note: Salary and wage data by sector provided by Newhouse, David, 2012, through personal communication on wage and employment statistics computed from SAKERNAS survey data taken from the Central Board of Statistics of Indonesia (BPS) and prepared for World Bank (2010). Y-axis is annual median earnings for salaried employees in constant 2007 Rupiah. Youth is defined as ages 15-24 while Adults are age 25 and older. Each data point represents one year for the years 1990 – 2008. Regressions are authors' own calculations.

Table 3.4 summarizes the wage trajectories for the disaggregation of labor presented in figures 3.9 to 3.14 by tabulating the annual rate of wage growth, represented by the slopes of the linear regression trend lines which correspond to average annual wage increments (AAWIs) for the respective subgroups. We also assign an index of 100 to the wage increment of salaried workers in the economy overall.

To summarize, wage growth is highest in the Industry and Services Sector, among youth, in rural areas, and for the nonpoor. There are only four cohorts that do not demonstrate wage growth above the population average. These are adults, urbanites, near poor, and poor.

Table 3.4: Average Annual Wage Increments (AAWIs) for Salaried Employees, 1990-2008

Cohort	Wage Increment (2007 Rupiah/Year)	Index ("All Salaried Employees" = 100)
Sector		
Industry	195,982	237
Services	169,033	204
Agriculture	88,246	107
Age		
Youths	120,182	145
Adults	53,045	64
Geographic		
Rural	104,096	126
Urban	70,110	85

Skill		
Skilled	94,659	114
Unskilled	93,452	113
Sex		
Males	87,408	106
Females	83,705	101
Economic Status		
Non-poor	99,089	120
Near-poor	59,881	72
Poor	48,074	58
All employees	**82,755**	**100**

Note: Salary and wage data by sector provided by Newhouse, David, 2012, through personal communication on wage and employment statistics computed from SAKERNAS survey data taken from the Central Board of Statistics of Indonesia (BPS) and prepared for World Bank (2010). Calculations are authors' own.

Having focused on the wage portion of the wage bill w_i , we now explore the impact of labor mobility between sectors on GDP growth. We examine relative changes among the sector shares s_i for disaggregations of the term along different dimensions.[10] The only dimensions that exhibit appreciable variation in the underlying population shares over time are *employment sector* and *poverty status*. The trajectory of these shares over time is given in Figures 3.15 and 3.16 below.

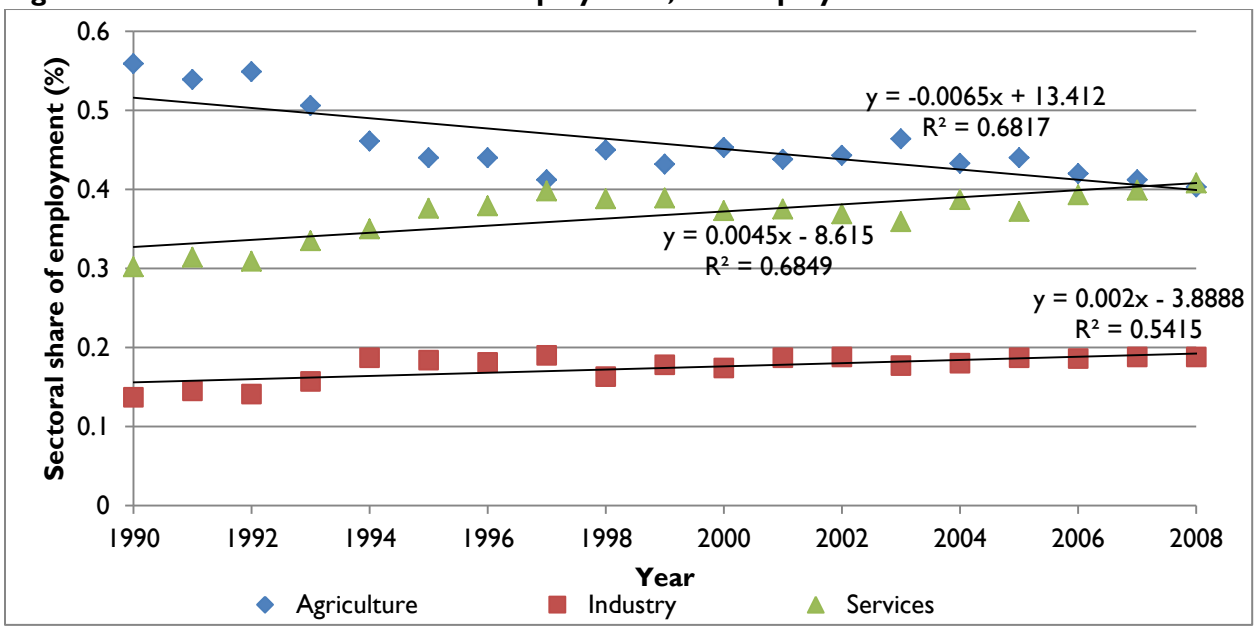
Figure 3.15 depicts the share of salaried employees in Agriculture decreasing at an average annual rate of 0.65 percentage points over the period 1990 to 2008, while the share of salaried employees in Services and Industry increased by 0.45 and 0.20 percentage points, respectively. The relative ranking of movements in sector employment shares is *exactly the reverse* of the ranking of wage rates (see Fig. 3.8) in that:

- the lowest-paid sector (Agriculture) is shedding employees fastest (see Fig. 3.15),
- the sector with intermediate wages (Industry) is increasing its employment share moderately, while
- the sector with the highest wages (Services) is experiencing the most rapid growth in employment share.

This implies a causal relationship. An exogenous increase in the supply of labor in a sector would drive wages down in that sector, but an exogenous increase in wages in an industry would attract labor. We conclude that there is clear, long-run evidence that wage levels in certain sectors are *causing* movement out of low wage sectors and into higher-wage sectors, such as the movement of labor from Agriculture to Industry or Services.

[10]We are limited in the extent to which we can carry out this element of the analysis, since the underlying microdata have been weighted to enhance comparability of wage statistics over time. Specifically, survey data was re-weighted to keep the share of different types of workers constant from year to year (using a chosen base year of 2006) with respect to educational attainment, gender, and age. With this weighting, we can examine wage trends for a *comparable cohort* of workers at different points in time. As a consequence of this weighting, much of the variation in the dimensions along which the data can be disaggregated has been attenuated.

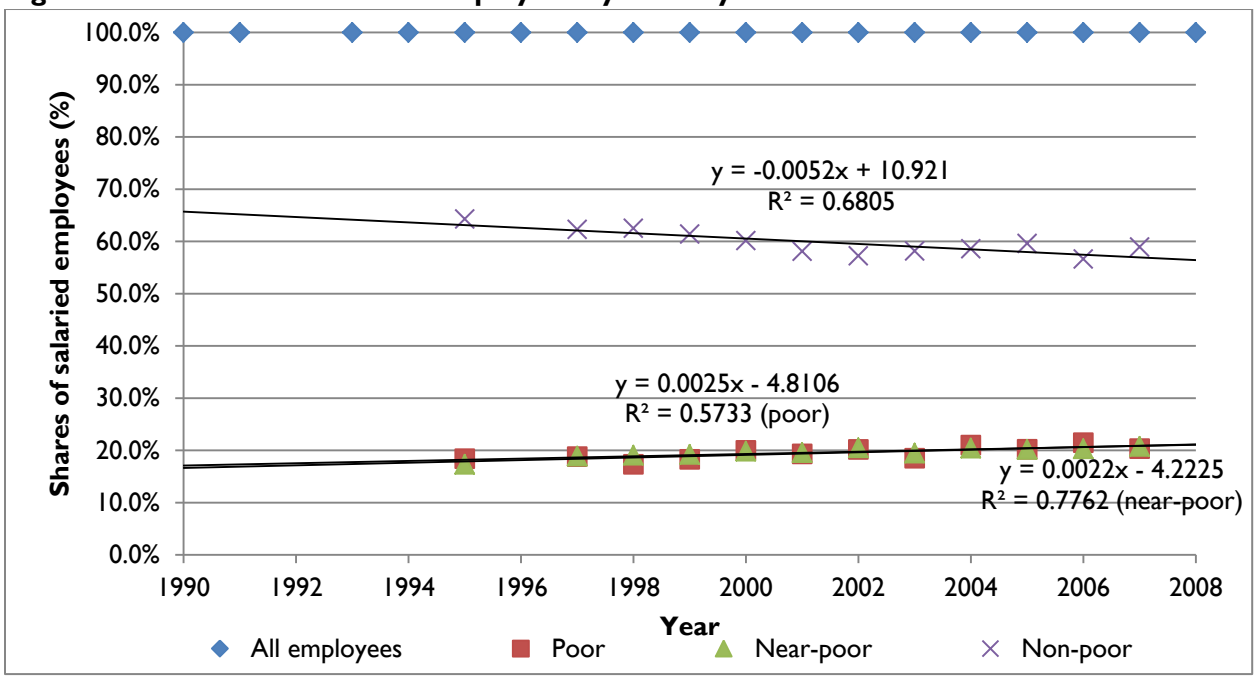
Figure 3.15: Sector Shares of Total Employment, All Employees



Note: Data from World Bank, World Development Indicators, 2012. Regression analysis is authors' own.

In Figure 3.16 the rates of change in shares of employees by poverty status are attenuated by the data weighting procedure discussed above (though the directions of overall trends are preserved). From the figure, we see that the share of non-poor employees has declined by 0.52 percentage points on average over the period 1990 to 2008, while the shares of near-poor and poor employees have increased by 0.22 and 0.25 percentage points, respectively, over the same period. One might be tempted to interpret this result as labor moving from higher paying jobs to lower paying jobs, increasing the share of poor who are employed relative to the nonpoor. However, given the compound annual growth rate in real wages for both poor and nonpoor during the period in question, a more plausible interpretation of these data is that *poor and near-poor individuals are gaining increased access over time to the labor market* (albeit at a gradual rate). These trends with respect to shifts in shares of employees by poverty status represent a positive contribution to inclusive growth.

Figure 3.16: Shares of Salaried Employees by Poverty Status



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3.6 Labor Market Policies: Issues and Impacts

Labor market policies in Indonesia are complicated. Minimum wage laws and laws governing severance pay may have theoretical impacts, but the lack of compliance and enforcement often render the laws irrelevant in an applied sense. On the other hand, ad hoc laws at the provincial level can impose significant impacts on labor markets.

3.6.1 Minimum Wage Policies

A legal minimum wage in Indonesia that is close to actual average wages indicates that the laws are used more as a mechanism for wage-setting than for protecting the most vulnerable (World Bank 2010).[11] A study by Alisjahbana & Manning (2007) found that "increases in the minimum wages have a negative effect on urban formal sector employment, except for white-collar workers. This negative effect was greatest for those groups that are most vulnerable to change in labor market conditions, such as females, young workers and less educated workers." Later regression analysis by the World Bank (2010) shows that a 10 percent increase in the minimum wage is associated with a 3 percent increase in average wages in the same year; the effect continues to remain positive for at least two years following the increase. The direction of causality, however, is not clear, since variation in provincial minimum wage changes may be triggered by strong economic growth. Del Carpio, Nguyen, and Wang (2012) use firm level fixed effects from the Indonesia Industry Survey (SI) and obtain similar results with a 10 percent increase in the minimum wage leading to a 1-2 percent increase in average wages.[12]

[11] While Indonesia has a relatively high minimum wage/GDP per capita ratio compared to other Southeast Asian countries, this ratio for Indonesia is not out of line with countries having a similar GDP per capita level (World Bank 2010).

[12] This study makes two methodological extensions beyond most previous work. First, as the authors observe (p. 3), "[t]he use of firm fixed effects regressions is superior to the use of province fixed effects regressions, as the Indonesian central and provincial governments set

While past research on the effect of minimum wage increases comes to mixed conclusions on all employment, some studies suggest a negative effect on formal employment. The World Bank (World Bank 2010) finds that minimum wage laws cause labor to migrate from Industry to Agriculture. Specifically, they find that "a 10 percent increase in minimum wages during the previous year is associated with a 1-percentage point decline in industrial employment and a 0.6 percentage point increase in agriculture" (*ibid.*). The study also finds a connection linking minimum wage increases with shifts from formal to informal labor. Del Carpio, Nguyen, and Wang (2012) conclude that minimum wage changes had significant negative effects on employment for production workers across all firms, and for non-production workers in small firms.

There is some evidence that *women workers* are disproportionately adversely affected by minimum wage increases in terms of job losses. Both the World Bank (2010) and Del Carpio, Nguyen, and Wang (2012) find that an increase in the legal minimum wage has a larger effect on women than men, both in terms of moving from Industry to Agriculture and in general job loss.

Considering potential behavioral responses by employers, there is anecdotal evidence that inter-regional differences in minimum wages have induced some firms to move to districts having lower minimum wages (Manning and Purnagunawan 2011). Such behavior, *ceteris paribus*, will tend to mitigate impacts of minimum wage policies that are differentiated sub-nationally with respect to rules or their enforcement on both firms and workers.

3.6.1.1 Compliance

Non-compliance with minimum wage policies appears to be a significant issue in the Indonesian labor market affecting the reach and ultimate impact of these policies. Non-compliance with minimum wage increases reached 40 percent by 2007, whereby a 10 percent minimum wage increase is associated with an increased non-compliance rate of 2.6 percent in the following year (World Bank 2010). More recent analysis by Sugiyarto, Pratomo, and Purnagunawan (2011) found that "[m]ore than 18 percent of employees in urban areas are paid below the minimum wage level, while in rural areas the share is more than 29%."

According to the World Bank (2010), poorer households benefit to only a limited extent from minimum wage increases because they 1) are not generally employed in the formal sector where the laws apply and 2) if they are in the formal sector, they are in jobs that are exempted from or illegally pay below the minimum wage.

Nonetheless, the direct relationship between minimum wages and informality rates and the tradeoff between industrial and agricultural employment discussed above could suggest adverse impacts of minimum wages particularly for marginal workers in salaried and wage jobs. These workers would be the first to be affected by employers' adjustments to labor market shocks. Whether the poor and women are disproportionately represented among these cohorts of workers would be a matter for further research.

3.6.2 Severance Pay and Contract/Casual Employment

Pursuant to the Manpower Act of 2003, Indonesia's hiring and firing regulations are now among the most rigid in East Asia and the world. The World Bank (2010) estimates average severance pay to be the equivalent of a "hiring tax" of 34 percent of a worker's annual wage. They also note a maximum

provincial minimum wage changes taking into consideration the labor market conditions of provinces and estimates based on province fixed effects regressions may suffer from a greater degree of endogeneity bias. The use of firm-level fixed effects potentially removes unobserved factors that jointly influence employment in the province and the level of the minimum wage and exploits only variation in employment within firms" (Del Carpio, Nguyen and Wang 2012). Secondly, the firm-level data distinguishes between production and non-production workers. The systematic differences in both worker attributes and functional tasks performed across these two groups are an important source of heterogeneity with respect to effects of changes in the minimum wage.

severance pay of close to 30 months of wages depending on longevity of service and if dismissal is for economic reasons.

The Manpower Act of 2003 also has provisions that restrict employment arrangements and constrain hiring decisions regarding Fixed Term Contracts (FTCs). Employment under FTCs is not subject to the regulations that govern severance pay. The ability to circumvent laws governing severance pay can be viewed as increasing market efficiency, but the World Bank (2010) warns of inefficiencies associated with a lack of investment in human capital for temporary workers. Unfortunately, empirical evidence specific to Indonesia on the impact of severance pay rigidity on job creation is lacking because data on severance payment and contract status has not been consistently collected. However, one study of 74 countries concluded that if Indonesia maximized the flexibility of its labor regulations, the unemployment rate would decrease by 2.1 percentage points and the youth unemployment rate by 5.8 percentage points (Feldmann 2008).

As with minimum wage policies, there is evidence that firms responded to the severance pay provisions in the 2003 Manpower Act. Specifically, after passage of the Act, firms reported an increased reliance on FTCs. A 2004 survey of 86 firms in large urban areas indicated an 8 percent increase in FTC employment as part of their corporate restructuring efforts (World Bank 2010). This development also reflects a more general, global trend toward temporary employment relationships. Increased use of casual labor is one example of *firms circumventing the high costs of employing regular workers* (Manning and Purnagunawan 2011), and a telltale signal of a constraint on doing business (Hausmann, Klinger and Wagner 2008). At the same time, however, low rates of compliance and the ability to circumvent the constraint at little cost render this barrier relatively inconsequential in practice.

3.6.2.1 Compliance and Heterogeneity of Impact

In addition to legally circumventing the impact of the 2003 Manpower Act, there is substantial evidence of simple noncompliance. Of those employees eligible to receive a severance payment, 66 percent reported that they did not receive any severance pay from their employers and another 27 percent received less than the amount of severance pay to which they were entitled (World Bank 2010). On average, workers collect only 40 percent of the amount of severance pay to which they are entitled (Brusentsev, Newhouse and Vroman 2012). Seventy percent of eligible women failed to receive severance pay compared to 63 percent of eligible men, though women who do receive such payments receive a higher proportion of their entitled amounts than do men (World Bank 2010). Similarly, while low-wage employees are less likely to receive severance pay at all, they are more likely to receive their entitled amount in the event that their employers do pay leading to a below-average share of their legal entitlement (Brusentsev, Newhouse and Vroman 2012). Finally, some firms were able to circumvent the Manpower Act's requirements by amending contracts to make them more flexible.[13] Firms who chose not to comply did not face effective sanctions from the Government (Sugiyarto, Pratomo and Purnagunawan 2011).

There is, in a sense, a second-best silver lining in firms' non-compliance with the Manpower Act, in that its provisions have not produced marked increased labor market rigidities. Namely, "[t]rends in unemployment and job separation rates--both indicators of employment rigidity--appear to be unaffected by the significant increases in severance pay that were introduced in 2000 and again in 2003" (World Bank 2010).

Overall, the 2003 Manpower Act has been relatively ineffective in protecting employees, particularly lower-wage employees. Sugiyarto, Pratomo, and Purnagunawan (2011) summarize the costs to the economy and to workers alike:

[13]The industry surveys examined in Brusentsev, Newhouse, and Vroman (2012) indicated that the actual costs to employers are only 10 to 14 percent of the costs indicated by the severance pay regulations.

> "The [minimum wage and severance pay] regulations are introduced to protect the workers but their actual implementations have missed the targets and as a result they have created more uncertainties and additional burdens to the business. This, in turn, contributes to the worsening of investment climate in Indonesia."
>
> "Moreover, the high cost of the minimum wage and severance pay system will only deter a new good investment away, filtering in instead those who know exactly how to go around with these regulations. The high prevalence of non-compliance to the minimum wage and non-payment of the severance pay are a clear proof for this.... [The regulations'] adverse effects further contribute to the flexibility of the labor market in Indonesia but in a negative way. This is really against the effort of improving the quality of employment and labor market condition as the workers are actually in the worse off situation."

At the same time, a policy framework that does not create such adverse effects and incentivize costly avoidance behavior by employers and employees alike would doubtless be desirable for Indonesia. In particular, new market entrants (whether employers or employees), younger and less experienced firms, and foreign investors may be differentially harmed by the status quo. Generally speaking, these actors are less likely to have the knowledge, connections, and influence to mitigate the harmful effects of labor market policies.

Beyond the Manpower Act, Alisjahbana and Manning (2007) document numerous instances of local labor regulations and informal labor practices that add to firms' financial burdens and create insecurity and uncertainty in the business environment. Examples include:

- Letters from the District Head requiring firms to employ a certain percentage of the workforce from local population;
- Employment charges for each worker from outside the region, sometimes differentiated according to specific worker qualifications or job functions;
- Pressure from local communities to employ locals; and
- Payments to third parties to secure employment

Most such provisions correspond to no clear service provided or license granted in return for the fees, and so might be categorized as "nuisance" taxes.

3.7 Economic Sectors that Employ the Poor

In this section we use two independent sources to determine which sectors employ the poor. First, we use a Social Accounting Matrix (SAM) from the Central Statistics Body (BPS), Indonesia's statistical agency, to identify the production sectors that are currently most intensive in the use of the labor of the poor. Second, we use data from the SUSENAS survey, also housed at BPS, to show the distribution of occupations for poor households.

General equilibrium models capture the linkages and interdependencies between sectors and factors of production using SAMs. We first use SAMs from 2005 and 2008 to identify the production sectors that are currently most intensive (and over time, increasingly so) in the use of the labor of poor households. The available SAMs disaggregate households by multiple types, distinguished by their status and level of security within the labor market. While the SAMs do not differentiate by poverty level, they do differentiate by labor types that correspond generally to poverty levels. The categories are:

- **Household Agriculture: Labor**
- Household Agriculture: Agricultural Entrepreneurship

- **Household Non-Agriculture Rural: Lower-class entrepreneurs, administrative force, street vendors, self-employed transportation workers, individual service providers, blue-collar workers**
- **Household Non-Agriculture Rural: Non-Workforce and Unclassified**
- Household Non-Agriculture Rural: Upper-class entrepreneurs, non-agricultural entrepreneurs, management, military, professional, technical, teachers, administrative workers and upper-class salesmen
- **Household Non-Agriculture Urban: Lower-class entrepreneurs, administrative force, street vendors, self-employed transportation workers, individual service providers, blue-collar workers**
- **Household Non-Agriculture Urban: Non-Workforce and Unclassified**
- Household Non-Agriculture Urban: Upper-class entrepreneurs, non-agricultural entrepreneurs, management, military, professional, technical, teachers, administrative workers and upper-class salesmen
- Entrepreneurship
- Government

We limit our analysis to the *lower-status* household types (in bold) and assume that they 1) contain the bulk of the poor and 2) each category is dominated by the poor; a plausible assumption, but an assumption nonetheless.

Because we are not studying comparative statics of exogenous shocks within the economy, our use of the SAMs is relatively straightforward. It is confined to tracing the *direct influence* of activity in a production sector on incomes in households of interest, mediated by the production factor(s) (e.g., categories of labor) owned by those households. Mathematically, the direct influence may be expressed (following Resosudarmo and Nurdianto (n.d.)) as

$$Direct\ Influence = \sum_i \frac{a_{j,i}}{y_i} \cdot \frac{a_{i,k}}{z_i},$$

where $a_{j,i}$ and $a_{i,k}$ are values corresponding to household type j, production factor i, and production sector k; y_i is the column total in the SAM for production factor i, and z_i is the row total in the SAM for production factor i (where, by construction in the SAM, $z_i = y_i$).

For each of these five lower-status household types, we:

- Compute for each production sector in the SAM the:
  - *normalized direct influence* (i.e., the direct influence as a percentage of the sum of direct influences across all sectors), and the
  - percentage change in normalized direct influence between 2005 and 2008
- Select those production sectors having the highest values of both metrics.

Table 3.5 identifies those sectors in which the normalized direct influence and the percentage change in normalized direct influence were highest. In the production sectors selected, the values ranged from approximately 2 to 28 percent for normalized direct influence and from approximately -3 to +52 percent for percentage change in normalized direct influence.

Table 3.5: Employment by Household Type and Production Sector

Production Sector		Non Agriculture			
		Rural		Urban	
	Agriculture: Labor	Lower-Class Entrepreneurs, etc.	Non-Workforce and Unclassified	Lower-Class Entrepreneurs, etc.	Non-Workforce and Unclassified
Edible Plant Agriculture	X	X	X		
Other Plant Agriculture	X	X	X		
Animal Husbandry and Products	X				
Forestry and Hunting	X		X		
Fisheries	X				
Mining: Coal, Metal, Oil					
Other Mining and Excavating	X	X	X	X	X
Food, Drink, and Tobacco					
Spinning, Textiles, Clothing, and Leather				X	X
Wood and Wood Products	X	X	X		
Paper, Printing, Transportation, and Metal and Industrial Goods				X	X
Chemicals, Fertilizers, Clay Products, Cement					
Electricity, Gas, and Drinking Water					
Construction	X	X	X	X	

Trade	X			
Restaurant	X			X
Hotel				X
Ground Transportation	X		X	X
Air and Water Transportation and Communication				X
Transportation Services and Warehousing	X	X	X	X
Bank and Insurance				
Real Estate and Business Services				
Government and Defense, Education, Health, Film and Other Social Services		X	X	X
Individual, Household, and Other Services			X	X

Note: Data taken from Social Accounting Matrices developed by the Central Statistics Body (BPS) of Indonesia. Calculations are authors' own.

Table 3.5 displays important information on which sectors are likely to employ labor from the poorest households. Not surprising, households that are defined as using Agriculture labor are employed mainly in Agriculture related sectors; but Construction and Other Mining are sectors that are also important to households who provide Agriculture labor. To the extent that Agriculture labor is seasonal, these two Industry related sectors may provide an important work alternative to labor in Agriculture.

Rural and Urban unclassified laborers are employed by different sectors, overlapping in only three sectors. The same is true for Urban and Rural low-class entrepreneurs, overlapping in only four sectors. Rural unclassified labor is employed mainly in sectors related to Agriculture, with Transportation and Government Services playing important roles as well. Rural entrepreneurs are engaged Trade, Hotel, Restaurant, and Transportation Services related sectors in addition to Agriculture. Urban laborers and entrepreneurs are engaged mainly in sectors related to Services and Industry.

It is not surprising that those industries important to employing the poor vary for urban and rural households. One important implication is that the movement of informal labor from lower-paying

Agriculture sector jobs into higher-paying Industry and Services sector jobs requires labor migration to urban areas.

Overall, the production sectors that most intensively employ three or more household labor types and therefore most likely to affect the poorest households are:

- Edible Plant Agriculture
- Other Plant Agriculture
- Other Mining and Excavating (other than coal, metal & oil)
- Wood and Wood Products
- Construction
- Transportation Services and Warehousing
- Government and Defense, Education, Health, Film and Other Social Services

In an alternative approach to identifying sectors that affect the poor, we analyze the SUSENAS Household survey data gathered by BPS to highlight the distribution of occupations for poor households. Table 3.6 lists the top ten occupations for households in the bottom consumption quintile in each of Indonesia's major geographic regions. For each province, the ranking is based on the weighted sum of all income for a given occupation divided by the weighted sum of income for all occupations using household weights from the SUSENAS survey.

Table 3.6: Occupation Income for Lowest Consumption Quintile Households

Region	Occupation	Weighted Sum of Occupation Income / Weighted Sum of All Income
Java	Rice and crop agriculture	28.4%
	Trade	17.9%
	Processing industry	15.6%
	Construction/building	9.9%
	Public, governmental, and individual services	8.7%
	Transportation and warehousing	4.6%
	Horticulture	2.9%
	Livestock	2.6%
	Fisheries	1.7%

	Plantation	1.6%
Kalimantan	Plantation	34.2%
	Rice and crop agriculture	17.3%
	Construction/building	9.6%
	Fisheries	7.1%
	Processing industry	6.0%
	Trade	5.4%
	Public, governmental, and individual services	4.7%
	Forestry and other agriculture	4.4%
	Mining and quarrying	3.7%
	Horticulture	2.3%
Lesser Sunda Islands (Nusa Tenggara)	Rice and crop agriculture	37.0%
	Trade	9.8%
	Construction/building	9.8%
	Processing industry	8.6%
	Public, governmental, and individual services	6.9%
	Transportation and warehousing	6.1%
	Plantation	5.3%
	Mining and quarrying	4.6%
	Livestock	3.0%
	Fisheries	2.9%
Maluku Islands	Plantation	29.8%
	Rice and crop agriculture	17.7%

	Fisheries	12.3%
	Public, governmental, and individual services	6.3%
	Processing industry	5.9%
	Trade	5.9%
	Transportation and warehousing	5.3%
	Construction/building	4.6%
	Forestry and other agriculture	3.9%
	Horticulture	3.3%
Sulawesi	Rice and crop agriculture	27.9%
	Trade	11.7%
	Plantation	10.2%
	Fisheries	9.6%
	Processing industry	8.8%
	Construction/building	8.6%
	Public, governmental, and individual services	5.9%
	Transportation and warehousing	5.6%
	Horticulture	3.0%
	Mining and quarrying	2.7%
Sumatra	Plantation	35.6%
	Rice and crop agriculture	24.3%
	Trade	8.0%
	Construction/building	6.7%

	Processing industry	5.3%
	Public, governmental, and individual services	4.7%
	Fisheries	4.2%
	Transportation and warehousing	3.2%
	Mining and quarrying	1.6%
	Horticulture	1.4%
Western New Guinea (Papua)	Rice and crop agriculture	53.9%
	Forestry and other agriculture	13.8%
	Plantation	12.4%
	Fisheries	5.3%
	Horticulture	3.5%
	Public, governmental, and individual services	3.2%
	Construction/building	2.8%
	Processing industry	1.2%
	Educational services	1.1%
	Trade	1.0%

Note: Data taken from SUSENAS survey maintained by the Central Statistics Body (BPS) of Indonesia. Calculations are authors' own.

Table 3.6 reveals only one sector that employs the poorest Indonesians across all regions of the archipelago: Rice and Crop Agriculture. This sector is one of the top two in every province, accounting for a low of 17.3 percent of household income for the lowest consumption quintile in Kalimantan and a high of 53.9 percent in Western New Guinea (Papua). Though employment in Agriculture is declining nationally, it clearly remains an important sector for the poorest Indonesians.

Other sectors of great significance to the lowest consumption quintile vary substantially by region. For example, Plantation Agriculture is important in five of the seven provinces, taking the top spot in Kalimantan, the Maluku Islands, and Sumatra. Coffee, cocoa, rubber, and palm oil remain important commodities that provide employment opportunities for the poorest Indonesians. But in the most populous region of Java, Plantation Agriculture takes last place accounting for only 1.6 percent of household income for the lowest consuming class.

Two resources of critical importance to the global community are Indonesia's fisheries and forests. However, the importance of these sectors to the poor varies by region. Fisheries is in the top four sectors for only four out of seven regions, but makes the list in every region. Forestry makes the list for only three regions: Western New Guinea (Papua), where it is second only to Rice and Crop Agriculture, Kalimantan, and the Maluku Islands. While these results could reflect the lack of inclusiveness from players operating in the Forestry sector, they could also reflect underreporting if revenues are generated from illegal deforestation or other such activities in Forestry.

While Agriculture dominates most regions, Services and Industry also have important roles. Four provinces have Trade as one of the top three sectors that employ the poor, including the most populous region of Java. Public, Government, and Individual Services take the fifth spot in three regions. Construction/Building are in the top four for four regions while Processing is in the top five for all regions except Papua.

With such regional variation in the sectors that employ the poorest Indonesians, identifying national-level constraints to growth becomes a difficult task. Most notably, Papua relies heavily on Agriculture; nearly 89 percent of household income for the poorest consumption quintile comes from some sort of agriculture or forestry related sector. For Java, less than half the poor's revenue comes from Agriculture.

3.8 Are Labor Market Policies Binding Constraints to Growth?

The labor market regulations on minimum wage and severance pay discussed in the foregoing section have been *ineffective in protecting employees, especially low-wage workers*. This is in part because a significant wedge exists between *de jure* labor market rules and their *de facto* implementation in practice. The corollary for purposes of this diagnostic is that relaxing these regulations would be unlikely to boost incomes of poorer workers appreciably.

Consistent with this conclusion, Sugiyarto, Pratomo, and Purnagunawan (2011) point to other, more fundamental, constraints to growth in which such labor market inefficiencies are rooted:

> "[R]eform in the labor market only will not solve the problem as it has a root in the bigger predicament of investment climate, which covers overall macroeconomic stability, infrastructure and policies and regulations that make the country less competitive for doing business internationally."

Earlier, Alisjahbana and Manning (2007) articulated a similar view: "The crux of the issue is slower economic growth and deterioration in the investment climate which have negatively affected employment."

Collectively, these observations suggest that the underlying *root causes* of economic performance and growth lie not in the labor market per se, but in other aspects of the macroeconomy analyzed in detail in the balance of this report.

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4. Human Capital: Education

Within the framework of a growth diagnostic analysis, low or poor human capital, either through the low stock of an educated and skilled workforce or through a workforce whose productivity has been degraded through poor health, inhibits long-term economic growth by limiting the returns to investment. According to the basic HRV model, "[i]ncreasing the supply of human capital – through a greater health and education effort – is expected to lead to a faster accumulation of these assets and hence to a higher level of income" (Hausmann, Rodrik and Velasco 2005). In this section we summarize the education and skill level of the Indonesian workforce followed by an analysis of the health of its workforce.

In this section we find that:

- Primary school enrollment rates are high relative to comparator countries, averaging 96 percent in 2010. However, there are still significant discrepancies between provinces. Papua sticks out with a particularly low enrollment rate of around 70 percent, well below any other province.
- Secondary school enrollment rates have improved significantly over the last several years, but Indonesia still lags behind all but one of its comparators, averaging 77 percent in 2010.
- Students who drop out of secondary school list cost as the number one cause of their decision. Of all the costs incurred to attend school, daily transportation costs are cited the most.
- Educational attainment rates vary greatly by region, with 12 provinces having over 50 percent of the population who have completed only primary schooling or less.
- The government of Indonesia through the Ministry of National Education is actively working to increase upper secondary enrollment in Technical and Vocational Education and Training institutions.
- Education expenditures are only a small portion of government spending in Indonesia, with the bulk of spending going to primary education. There is also disparity in education expenditures across districts, which is important in light of Indonesia's decentralized system, as the majority of education expenditures, 70 percent, are allocated at the subnational level. There is some evidence that links education spending with enrollment and attainment rates.
- Teacher salary is low relative to comparator countries; a significant portion of teachers have second jobs outside the school system. Many teachers do not meet the degree or certificate standards required by law.
- Literacy rates in Indonesia are high, but standardized test scores are low relative to its peers.
- Returns to an additional year of education are estimated between 10 and 15 percent. The returns are higher for women and vary by region. Further, wages for college graduates are 130 percent higher on average than wages for those who did not finish primary education, a value which also varies by region.
- Firms in general do not view access to labor as a constraint to growth. However, they also note that secondary graduates are not as well suited for the positions to which they are hired and require substantially more training than either primary or tertiary graduates.
- Very low vacancy rates suggest consistent demand for skilled and unskilled labor alike. Therefore, because of the high employer demand for labor, the high returns to education, and

the satisfactory level of quality of workers that employers report, labor quality as a whole is not a binding constraint to growth in Indonesia. A caveat lies with the quality of education, especially at the upper secondary level, where there is substantial room to improve the quality of graduates entering the workforce.

To help gauge the quality of Indonesia's education system, we compare key statistics with the following countries: Brazil, India, Malaysia, Thailand, Vietnam and the Philippines. We also explore key statistics at the provincial level. In general the data used for this analysis come from the SUSENAS and SAKERNAS datasets for 2011. When data from these sources is unavailable, we supplement with data from UNESCO, the World Bank and the World Economic Forum.

4.1 Educational Regulatory Environment

The Indonesian education system is comprised of the preschool, kindergarten, primary (elementary), lower secondary, upper secondary, and higher education levels. Each of these levels has a corresponding Islamic track that serves as an alternative to the general education system. There is flexibility between the two tracks and students are allowed to switch in and out. There are also informal programs corresponding to all levels below higher education (di Gropello, Kruse and Tandon 2011).

Pendidikan Anak Usia Dini (PAUD) are government funded pre-schools. Afterwards, children may attend kindergarten (Taman Kanak-Kanak). Primary school, called Sekolah Dasar (SD), is made primarily of children aged 6–11 and more than 90 percent of students attend a six year government-operated public school. Lower secondary school (middle school), called *Sekolah Menengah Pertama* (SMP), and upper secondary school (high school), called *Sekolah Menengah Atas* (SMA), are each three year programs. Students may also choose from a three or four year vocational path offered by *Sekolah Menengah Kejuran* (SMK) schools instead of the traditional SMA route. The public general stream provides three majors: natural science, social science and language.

SMK schools are managed by the Ministry of National Education (MoNE) with input on curricula from the private sector and the other ministries. Both SMKs and the public general track SMAs are accredited by the National Accreditation Agency for Higher Education or the National Accreditation Agency for Schools and Madrasahs (di Gropello, Kruse and Tandon 2011).

One of the largest changes to the Indonesian education sector in the past ten years is the expansion of the formal technical and vocational education training systems (TVETs). The MoNE is looking to shift students from the formal upper-secondary education system to the SMK TVETs (di Gropello, Kruse and Tandon 2011). In order to reach this goal, the MoNE issued a moratorium on the creation of new general schools in favor of the vocational program (Newhouse and Suryadarma 2009). This resulted in a 15 percent increase per annum in SMK schools from 2005-2009, whereas SMA schools only increased by 7 percent. The breakdown of providers in the various levels of senior secondary education varies considerably by province; however, at the national level 30 percent of senior secondary education providers are private SMKs, 11 percent public SMKs, 26 percent public SMAs, and 33 percent private SMAs (World Bank 2012).

Indonesia has five different types of higher education facilities: single faculty academies, advanced schools, polytechnic schools, institutes and universities. Polytechnic schools are normally associated with universities and issue subdegrees for junior technical training. The MoNE manages overall authority of both state and private institutions, including private universities. Islamic institutions are overseen by the Ministry of Religious Affairs (di Gropello, Kruse and Tandon 2011). In 2009, there were a total of 2,766 private, 83 public, and 52 Islamic higher education institutions (Moeliodihardjo 2010).

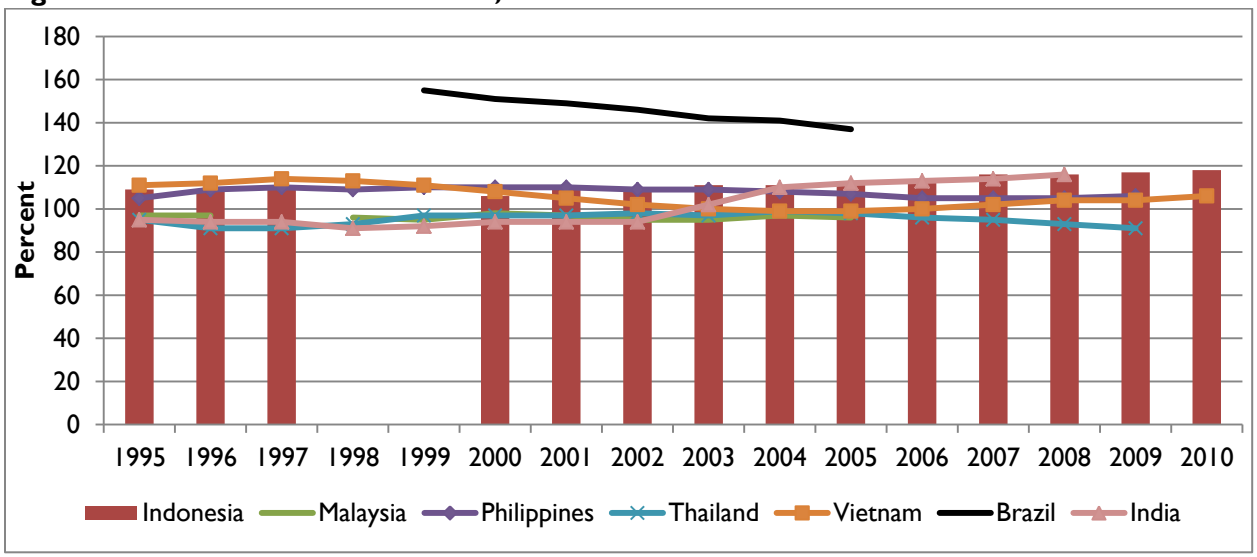
4.2 Access to Education and Educational Attainment

4.2.1 Primary Enrollment Rates

Enrollment ratios demonstrate the percentages of children in school. The gross enrollment ratio (GER) is the number of pupils enrolled in a given level of education regardless of age expressed as a percentage of the population in the theoretical age group for that level of education. The GER may be greater than 100 percent when students younger or older than the official age for a given level of education are enrolled in that level. The net enrollment ratio (NER) is the number of pupils in the theoretical age group who are enrolled expressed as a percentage of the same population.

GERs at the primary level in Indonesia (see Figure 4.1) have shown improvement in the country within the last 15 years with a slight upward trend. Rates in Indonesia are higher than most comparator countries, with the only exceptions being Brazil and India. Moreover, NERs also show Indonesia outperforming most comparator countries. In 2010 UNESCO reported that 96 percent of students of appropriate primary age attended primary school, whereas the most recent data for India and Brazil show rates of 92 and 94 percent respectively.

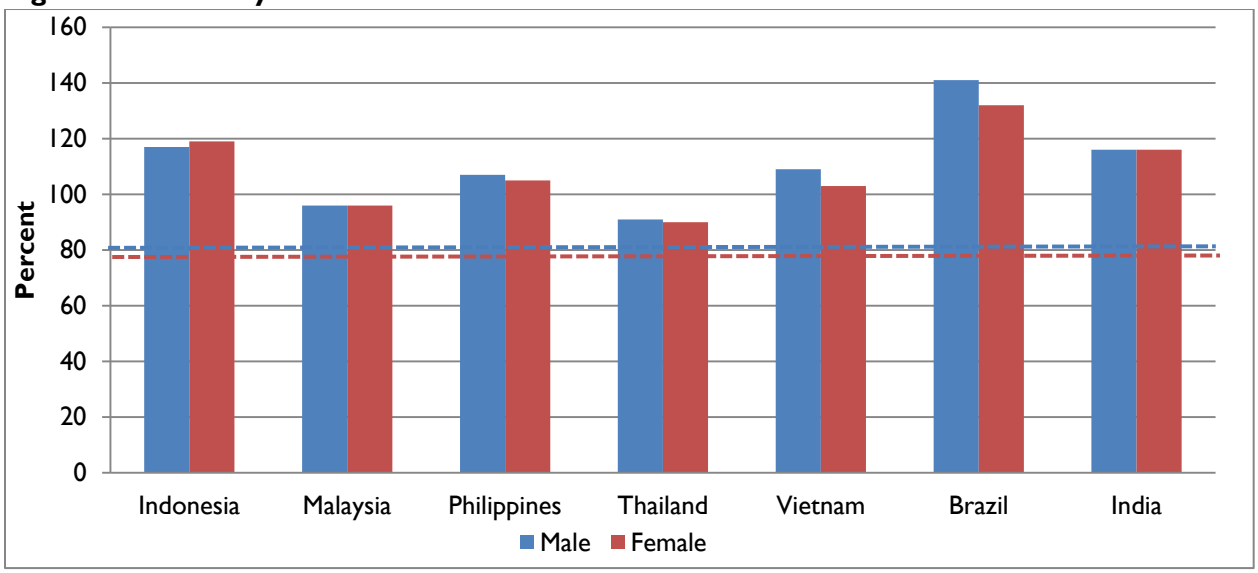
Figure 4.1: Gross Enrollment Ratios, 1995-2010



Note: Data from UNESCO Institute for Statistics

Indonesia also slightly outperforms the overall average for comparator countries in both male and female gross enrollment (see Figure 4.2). Indonesia ranks higher than all other South East Asia comparators in female gross enrollment ratios. NERs also show that female's participation in primary education outperforms the region: In 2010, the female net enrollment rate was 97 percent, outperforming all comparators except Brazil.

Figure 4.2: Primary Gross Enrollment Ratio



Source: Data from UNESCO Institute for Statistics. Data for Indonesia and Vietnam from 2010; Philippines and Thailand, 2009; India, 2008; Brazil and Malaysia, 2005. Red (blue) dashed line is average female (male) gross enrollment ratio for all comparator countries.

While NERs and GERs are high for Indonesia nationally against comparators, there are still significant discrepancies between provinces. As reported by the MoNE in 2011, the national primary NER was 91 percent while in districts such as North Sulawesi, the rates were below 86 percent. Papua sticks out with a particularly low enrollment rate of around 70 percent, well below any other province. Table 4.1 summarizes provincial level education indicators, including primary NERs.

Conditional cash transfer programs have played a positive role in increasing enrollment in underserved provincial areas. In 2007, the Government of Indonesia established Program Keluarga Harapan (PKH) or Family Hope Program, a conditional cash transfer program to the poorest households which have expecting or lactating mothers and children between 0-15 years old intended to increase primary and lower secondary schooling and use of maternal and child health services (World Bank 2009).

Table 4.1: Enrollment and Schooling Statistics by Province

	Primary Net Enrollment Ratio	Lower Secondary (SMP) Net Enrollment Ratio	Number of Repeaters/ Number of Pupils in Primary Education	Percent of Population with No Schooling or Only Primary Schooling				
	2011	2011	2010	2007	2008	2009	2010	2011
National	**91.03**	**68.12**	**3**	**--**	**--**	**--**	**69**	**--**
Aceh	92.57	74.76	4	43.9	50.1	47.2	44.4	39.6
Bali	90.39	69.16	2	45.2	48	49.7	50.4	44.6
Banten	92.18	71.12	2	49.9	57.7	54.5	54	42.7
Bengkulu	92.75	68.55	5	53.1	58.7	56.9	55.9	46.2
Central Java	90.19	69.77	5	57.5	62.9	61.4	61	55.2
Central Kalimantan	92.25	66.35	5	55.8	61.5	61.2	60.5	52
Central Sulawesi	89.99	61.74	--	52.8	62.5	59.6	57.5	48.6
Dista Yogyakarta	91.98	69.15	4	39.1	41.4	42	41.4	33.7
DKI Jakarta	89.79	68.85	--	24.9	32.2	31.7	30.9	20.2
East Java	91.88	71.77	3	56.7	59.9	58.9	57.3	53.2
East Kalimantan	92.23	72.4	5	39.5	47.9	47.5	44.3	36.1
East Nusa Tenggara	92.13	56.74	--	66.8	71.4	71.5	68.2	63.3
Gorontalo	90.04	59.17	--	64	67.1	65.1	65.7	60
Jambi	92.69	66.54	4	50.6	55.7	55.3	53.6	49.6
Kep Bangka Belitung	91.12	60.19	--	53.8	60.9	58.4	55.3	50.7
Riau Islands	92.01	73.34	3	36.3	46.2	42.3	41.2	39.6
Lampung	91.47	66.56	3	--	--	--	--	--
Maluku	88	64.33	--	49.1	56.6	53.4	52.1	43.9
North Maluku	89.95	65.92	5	54.8	57.2	58.4	56.3	45.2
North Sulawesi	85.91	61.22	3	40.3	45.7	45	43.5	40.6
North Sumatra	91.46	67.96	3	40.4	47.8	47.3	46.8	39.4
Papua	70.13	46.03	7	55.7	63.8	65.9	65	55.6
Riau	91.67	65.98	5	45.2	48.8	50.4	50	39.2
South Kalimantan	92.01	65.79	7	53	60.2	58	59.6	52.8
South Sulawesi	89.48	65.29	5	52.9	56.5	57.6	55.6	48.4

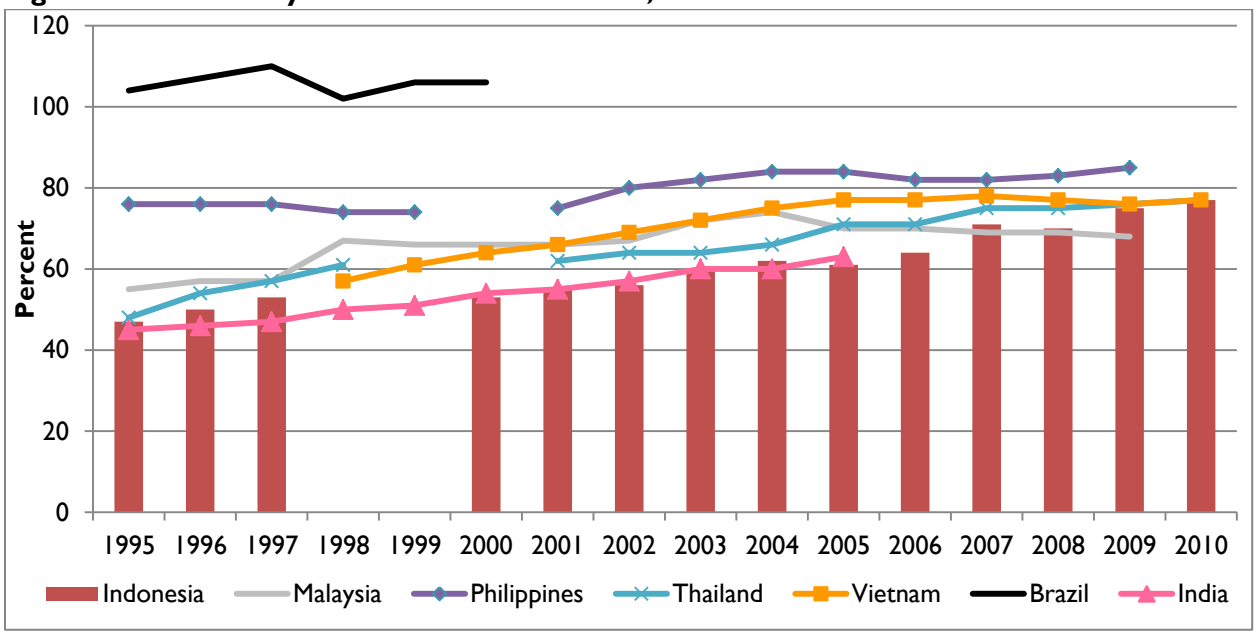
	Primary Net Enrollment Ratio	Lower Secondary (SMP) Net Enrollment Ratio	Number of Repeaters/ Number of Pupils in Primary Education	Percent of Population with No Schooling or Only Primary Schooling				
	2011	2011	2010	2007	2008	2009	2010	2011
South Sumatra	89.79	64.12	5	53.1	57.8	58.7	56.1	48.9
Southeast Sulawesi	88.8	64.31	6	51.2	59	57	54.2	43.2
West Java	92.26	69.57	2	55	58.3	58.8	57.4	50.5
West Kalimantan	92.18	58.75	8	58	67.3	65.8	65.7	58.5
West Nusa Tenggara	92.69	76.7	--	57.9	64	61.6	59.8	54
West Papua	88.28	57.66	--	44.4	52.8	51.5	50.7	44.2
West Sulawesi	89.35	60.34	5	57.5	62.3	62.2	61.9	56.1
West Sumatra	93.47	67.1	8	46.2	52.9	52.2	47.4	41.5

Note: Primary Net Enrollment Ratio and Lower Secondary Net Enrollment Ratio data are taken from Indonesia's Central Statistics Body (Badan Pusat Statistik), http://www.bps.go.id. The Number of Repeaters/Number of Pupils in Primary Education data are taken from Pangkalan Data dan Informasi Pendidikan, Ministry of National Education, http://www.padatiweb.depdiknas.go.id for regionally disaggregated data and from the UNESCO Institute for Statistics for national level data. The Percent of Population with No Schooling or Only Primary Schooling data is calculated from the SUSENAS data set for regionally disaggregated data and from Barro and Lee (forthcoming) for national level data in 2010.

4.2.2 Secondary Enrollment Rates

Unfortunately, the story told by secondary education data is not as positive. As seen in Figure 4.3, Indonesia has made considerable improvements in GERs and NERs in secondary school, but it remains beneath most comparator nations. The most recent year's GER in secondary school show that Indonesia underperforms all comparators, with the exception of Malaysia, with a GER of 77 percent in 2010.

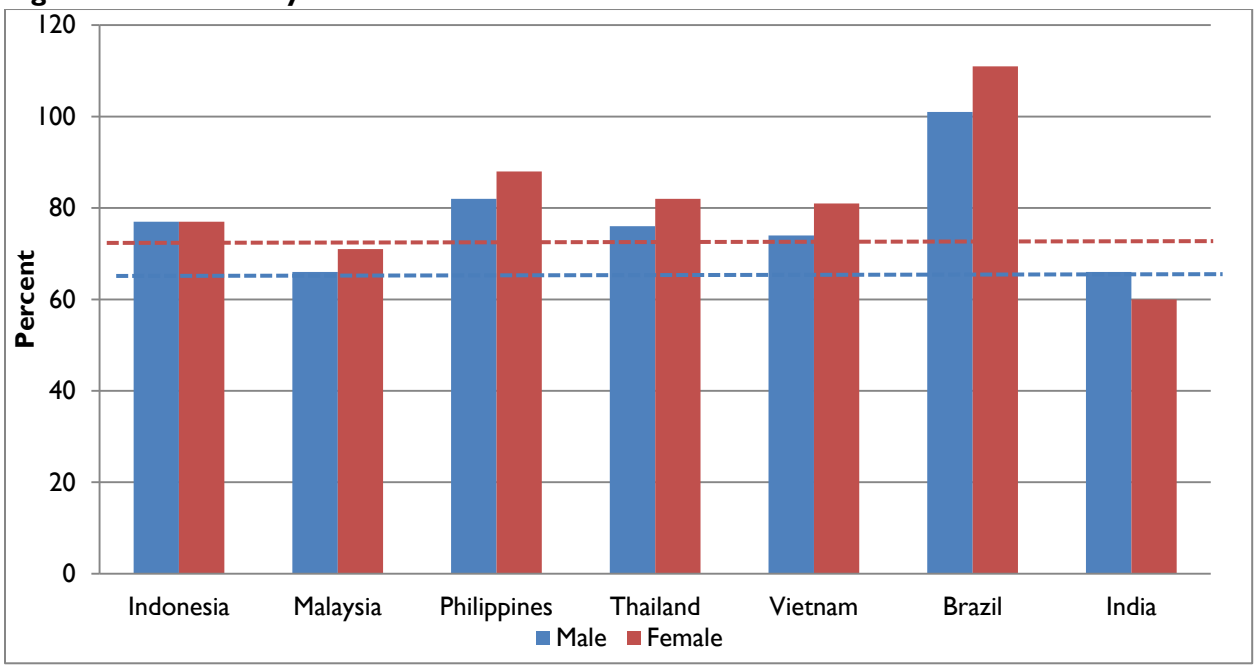
Figure 4.3: Secondary Gross Enrollment Ratios, 1995-2010



Note: Data from UNESCO Institute for Statistics

For the last 15 years, there have been considerable efforts to increase secondary NERs with rates for males and females improving by 25 percentage points. One reason enrollment rates in Indonesia have improved so significantly in secondary education is the ever decreasing gender gap (Takahashi 2011). The rates of gross enrollment broken down by gender (depicted in Figure 4.4) show a very slight gender gap, but Indonesia underperforms in secondary gross enrollment for girls, with a GER of 77 percent compared to the 81 percent average of the comparators.

Figure 4.4: Secondary Gross Enrollment Ratios



Note: Data from UNESCO Institute for Statistics. Most recent year available used. Data for Thailand is from 2011; Indonesia and Vietnam, 2010; Malaysia and Philippines, 2009; India, 2004; Brazil, 1999. Red (blue) dashed line is average female (male) gross enrollment ratio for all comparator countries.

Poor performance in secondary enrollment is disheartening due to recent aspirations the MoNE had to reach the goal of 100 percent gross enrollment at the primary school level and 96 percent at the junior secondary school level by 2009. In order to reinforce this goal, the government passed Law Number 20 in 2003 which declared that every citizen aged 7–15 years must attend basic education (Del Granado, et al. 2007).

Table 4.1 displays net enrollment rates in lower secondary education at the provincial level. In these, one can see that enrollment at the lower secondary level is low throughout Indonesia. Notice that Papua and East Nusa Tenggara have the lowest rates, with around 46 and 57 percent respectively, while West Nusa Tenggara and Aceh have the highest with around 75 percent and 77 percent respectively.

4.2.3 Repetition and Dropout Rates

Another important measure of access to education is the percentage of repetition. The percentage of repeaters in primary school, or the total number of pupils who are enrolled in the same primary grade (or level) as the previous year, expressed as a percentage of the total enrollment in that grade (or level) of education is high in Indonesia relative to South East Asian comparators. In 2010, 3 percent of students repeated primary education.[14] Repetition rates vary by province, as shown in Table 4.1. West Sumatra and West Kalimantan, for example, experience eight percent of students repeating primary school grades, which is considerably higher than Bali, West Java, and the national mean.

Secondary repetition rates in Indonesia are lower, close to 1 percent. Comparatively the Philippines and India experience higher secondary repetition rates of 4 and 5 percent. Overall Indonesia outperforms all competitor countries.

[14] The rate of repetition was the same for boys and girls.

Although repetition is low in secondary school, a large percentage of children drop out, especially between the transitions from primary to secondary school. Based on the 1997 Demographic & Health Survey (DHS) and Indonesia Family Life Survey (IFLS), the primary reasons for not continuing from primary to secondary schools was that students could not afford secondary education (60 percent of respondents in DHS and 70 percent of respondents in IFLS2). The largest cost associated with attending secondary school is daily transportation to school. However, additional costs include school fees, cost of uniforms and the need to purchase books (Weston 2008).

4.2.4 Educational Attainment

According to the 2007 Demographic Health Survey, 6.9 percent of ever-married women aged 15-49 and 4.1 percent of currently married men aged 15-54 report having no schooling. According to Barro and Lee (forthcoming) data, reported levels of no schooling and the percent of the population having only completed primary education in Indonesia in 2010 are worse than all comparator countries except India.

The SUSENAS data reported in Table 4.1 have a noticeable discrepancy between attainment rates in urban areas like Jakarta and more rural provinces for the years analyzed (2007-2011). In 2011, DKI Jakarta had 20 percent of its population only with primary schooling completed or no schooling, however 63.3 percent of the population of East Nusa Tenggara had only primary schooling completed or no schooling. In fact, there were 12 provinces in 2011 in Indonesia where over half the population over 15 completed only primary school or less.[15]

4.2.5 Senior Secondary and Vocational Training

Senior secondary schools, both the public general track (SMA) and the vocational track (SMK) have seen considerable growth in recent years. According to the World Development Indicators, seventeen percent of total secondary school participants are in vocational schools in Indonesia, higher than all other comparators.

Enrollment in public SMAs and SMKs has been increasing faster than private schools (both secondary and vocational) with the share of public school enrollment growing from 47 to 51 percent in the last 5 years. Table 4.2 shows that SMKs have experienced the greatest growth averaging 12-14 percent per annum since 2004.

Table 4.2: Enrollment Growth Rate by School Type (%)

	2005/2006	2006/2007	2007/2008	2008/2009
Public SMA	3.4	6.4	7	5.3
Public SMK	7.3	14	17.3	14.5
Private SMA	1.8	-2.7	1	-1.9
Private SMK	1.4	4.8	12.5	12.3

Note: Data from World Bank (2012). SMAs refer to general track senior secondary school. SMKs refer to vocational senior secondary school.

Provincial analysis based on 2011 SUSENAS data show that regional disparities continue into senior secondary education. Maluku Province has the highest senior secondary enrollment rates at 90 percent, of which 90 percent is SMAs. However, West Java has an enrollment rate of 50 percent of which 60

[15] In our analysis of SUSENAS data, primary schooling refers to elementary school and includes M. Ibtidaiyah (Islamic elementary school) and Package A (non-formal schooling certificate equivalent to elementary school); lower secondary refers to junior high, and includes M. Tsanawiyah (Islamic Middle School) and Package B (non-formal schooling certificate equivalent to middle school); upper secondary refers to senior high and includes M. Aliyah (Islamic high school) and Package C (non-formal schooling certificate equivalent to high school degree).

percent is SMA. Central Java and Yogyakarta Regency have the largest share of secondary students enrolled in vocational schools (with nearly half in Central Java and more than half in Yogyakarta Regency). In general, the World Bank (2012) found that "more populated or industrialized provinces tend to have higher shares of enrollment in SMKs."

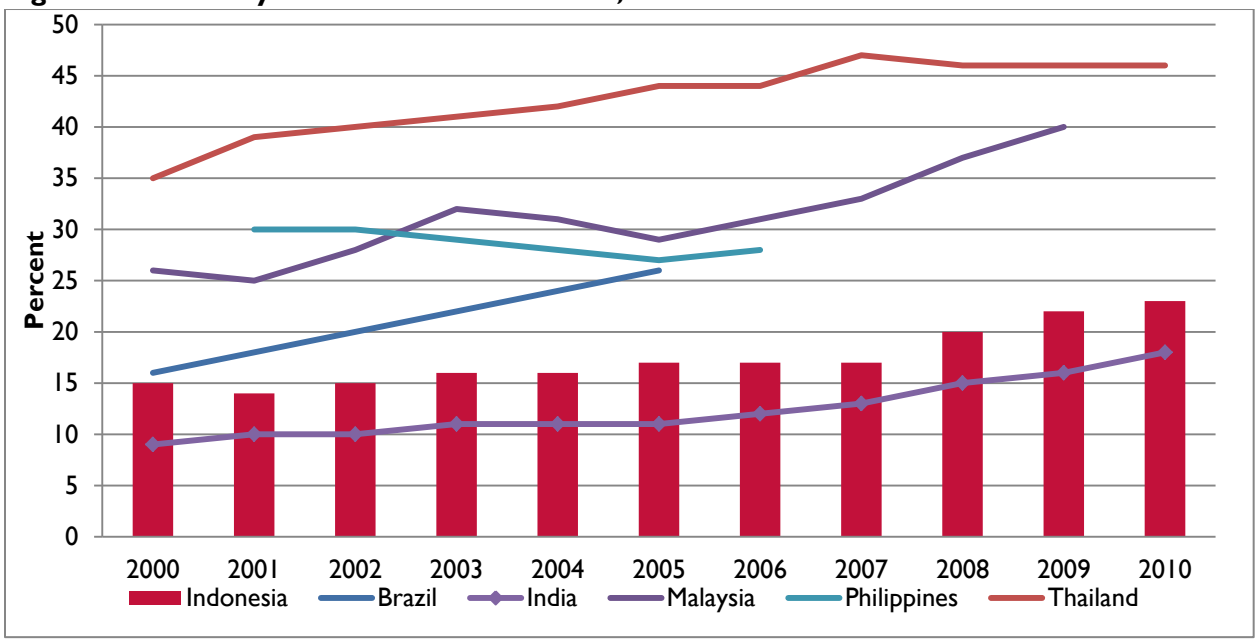
The World Bank also argues that there is an urban-rural divide in terms of overall enrollment in senior secondary school. Urban areas have a much higher rate of senior secondary enrollment (74 percent), whereas the rural senior secondary enrollment rate is 51 percent. SMKs appear to be more popular in urban areas with nearly 40 percent enrollment in SMKs in urban areas compared to 30 percent in rural areas. Similarly, there is a divide in access to secondary education based on income quintiles. Eighty percent of children from the wealthiest families reach grade 10, whereas less than 20 percent of children from the poorest quintile reach this level (World Bank 2012).

Newhouse and Suryadarma (2009) provide perspective on the tracks students choose with respect to secondary education. Students with higher test scores are more likely to attend SMAs and vocational schools while students with the lowest test scores attend private vocational schools. Also the study found that "private general schools (high schools) attract the sons of better-educated fathers, followed by public general and public vocational schools" (Newhouse and Suryadarma 2009). The study concluded that "private vocational schools therefore act as a last resort; students who enroll in these school are disproportionally likely" to have poor test scores and to come from poorly educated households (Newhouse and Suryadarma 2009).

4.2.6 Higher Education

Tertiary education is highly and positively associated with economic growth and GDP regardless of development. In fact "no country or region has achieved long term, high-income status without first crossing a 'respectable' higher education threshold" (World Bank 2011). Tertiary gross enrollment ratios in Indonesia have been steadily increasing. In 1990, tertiary gross enrollment in Indonesia was only at 8 percent, whereas the most recent estimates in 2010 are at 23 percent. Despite the improvement, Indonesia lags behind comparator countries. Figure 4.5 below highlights the difference between Indonesia and countries like Thailand, where the most recent tertiary enrollment ratio is 48 percent. However, Indonesia does outperform India, whose most recent tertiary gross enrollment ratio was 18 percent.

Figure 4.5: Tertiary Gross Enrollment Ratios, 2000-2010



Note: Data from UNESCO Institute for Statistics

Tertiary enrollment ratios are not only low against comparators, but also have a large geographic disparity. The disparity is derived from the lack of educational infrastructure to support teachers in remote islands and locations. This is illustrated by the fact that in a 2007 survey, 87 percent of students at the University of Indonesia, and 86 percent of students from Gadjah Madah, two renowned universities on Java, attended secondary school in Jawa-Bali; whereas only one percent of students at the University of Indonesia and four percent at Gadjah Madah attended secondary school in the Eastern provinces, the poorer region of Indonesia. This phenomenon does appear to be geographic, however, and not an issue of rural versus urban. In fact, the percent of applicants from rural and urban areas are 50-50, though 52 percent from urban areas are admitted (Moeliodihardjo 2010).

Similar to primary and secondary enrollment ratios, the gender disparity in higher education has rapidly diminished. Gross enrollment ratios for women were higher in 2008 than for men. However, women are still more likely to enroll in faculties that conform to gender stereotypes (Moeliodihardjo 2010).

Internationally, Indonesia has two universities ranked in the "Top 500" according to the Quacquarelli Symonds (QS) World University Rankings. University of Indonesia (ranked 217th in 2011 and 236th in 2010) and Universitas Gadjah Mada (ranked 342nd in 2011 and 321st in 2010) scored well in academic recognition and employer reputation; however had lower marks in citations of faculty, international faculty, and international students. By comparison for 2011, India has five universities in the top 500, of which three are in the top 300. Brazil has three universities in the top 500 and Malaysia has four. Indonesia is competitive with Thailand[16] and the Philippines, each with two in the top 500. Overall, Indonesia ranks on par with comparators, outperforming Vietnam.

Based on a 2009 survey of higher education institutions in Indonesia by the BAN-PT (National Accreditation Board for Higher Education) only 8 percent of diploma programs nationally are ranked "very good." Fifty-five percent are ranked "good" and 36 percent are merely ranked "accredited." The same survey concluded that public institutions had higher quality programs than private institutions, as

[16] It is important to note that both of the Thai universities are in the top 300.

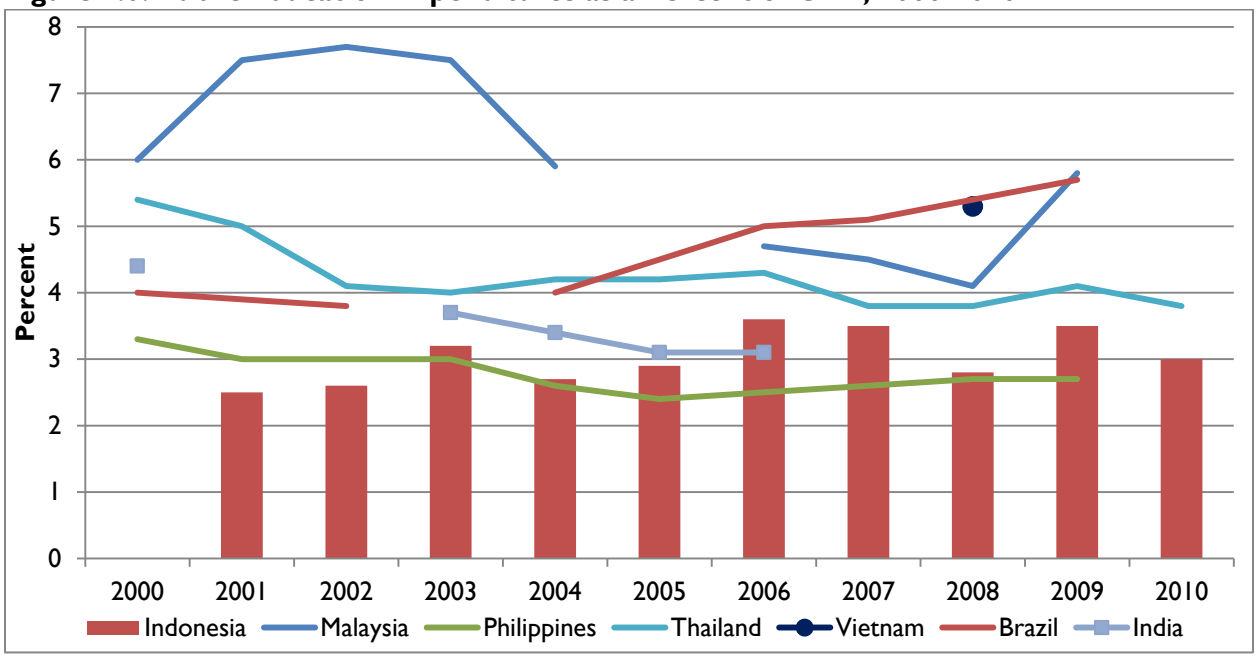
was seen in senior secondary schooling. Forty-two percent of private institutions were ranked with BAN-PT's lowest score (Moeliodihardjo 2010).

4.3 Education Inputs: Public Expenditure and Teacher Quality

4.3.1 Public Expenditure

Since the 1990s, Indonesia has worked to increase government expenditure on education. Although levels as a percentage of GDP have been inconsistent, overall there is an upward trend, as seen in Figure 4.6. In 2010, government expenditure on education was three percent of GDP. When judging against the comparator countries, Indonesia underperforms. Indonesia has higher levels than only the Philippines (2.7 percent in 2009) and does poorly against Malaysia, Thailand and Brazil (all with levels roughly higher than or almost at four percent).

Figure 4.6: Public Education Expenditures as a Percent of GDP, 2000-2010



Note: Data from UNESCO Institute for Statistics

Table 4.3 shows the largest percentage of the education budget in 2010 was spent on primary education at 44 percent. Only 14 percent and 10 percent was spent on lower secondary education and upper secondary education, respectively. Indonesia outperformed only India in funding for lower secondary education (though note the amount India spends on upper secondary) and Philippines on upper secondary (though also note the amount spent on lower secondary in the Philippines). Table 4.3 suggests the possibility that primary enrollment is outperforming secondary enrollment in Indonesia due to funding. Further, Indonesia had the lowest amount spent on pre-primary education. Tertiary education received 16 percent of total education spending. Tertiary education levels are on par with those of Indonesia's lower income comparators, but in countries with higher quality universities there are significantly higher levels of spending on higher education (see tertiary education quality in next section).

Table 4.3: Educational Expenditure by Level as Percent of Total Education Expenditures

	Pre-Primary	Primary	Lower Secondary	Upper Secondary	Tertiary	Year of Data

	Pre-Primary	Primary	Lower Secondary	Upper Secondary	Tertiary	Year of Data
Indonesia	0.7	44.4	14.2	10.1	16.1	2010
Brazil	7.0	32.4	31.1	13.5	16.0	2009
India	1.1	25.2	10.9	26.1	36.1	2010
Malaysia	1.2	27.7	20.1	13.3	35.9	2009
Philippines	1.7	55.0	23.4	6.3	12.0	2009
Thailand	5.7	40.1	16.1	12.5	16.5	2010
Viet Nam	8.8	29.4	24.2	11.5	22.2	2008

Note: Data from UNESCO Institute for Statistics

Per capita levels of expenditure per student give an alternative picture to the share of total expenditures. Based on 2005 UNESCO data, on average $110 is spent per student in primary education, which is lower than $491 in Philippines, $396 in India and $1, 897 in Malaysia.[17] Similarly, on average $315 is spent per student in secondary education, which is lower than $452 in Philippines, $712 in India and $2,923 in Malaysia (Del Granado, et al. 2007). Moreover, there is disparity in education expenditures across districts, which is important in the light of Indonesia's decentralized system, as the majority of education expenditures, 70 percent, are allocated at the subnational level (Del Granado, et al. 2007).

Recalling the previous discussion on discrepancies across provinces in enrollment, Del Granado et al. (2007) has attributed this inequality to the level of education spending at the district level. "Education spending patterns at the district level indicate that rich districts have not only higher per capita expenditure on education but also higher per student expenditure" (Del Granado, et al. 2007). Overall the levels of funding for education remain low against international comparators and the allocation of these funds is insufficient for increasing secondary and tertiary enrollment ratios and the quality of both.

4.3.2 Teacher Quality

Low salaries, in part due to an oversupply of teachers and limited government funding, has adversely affected the quality of education. Additionally, salaries in Indonesia have dropped from 2004 rates. Previously, teachers started primary school at $2,733 and as of 2008 receive $1,614 (Jalal, et al. 2009). Table 4.4 shows just how low teacher salaries are compared to some of its neighbors. To supplement this income, a worrisome trend is the amount of teachers taking on second jobs, especially in senior secondary education. Forty-three percent of teachers in private SMAs and 46 percent of teachers in private SMKs have a second job. Additionally, 25 percent of public SMAs and 24 percent of teachers in public SMKs have a second job. Teacher pursuit of secondary employment shows an impact on time spent teaching. According to the Teacher Law, teachers are required to work a minimum of 18 hours per week. Based on 2005 data, 59 percent of secondary teachers in remote areas and 53 percent of teachers in rural areas work less than the minimum requirements (Jalal, et al. 2009).

Table 4.4: Teacher Annual Salaries by Level in 2008 in US$ (PPP)

Country or Territory	Primary Education		Lower Secondary Education		Upper Secondary Education	
	Starting Salary	High Salary	Starting Salary	High Salary	Starting Salary	High Salary

[17] 2002 USD Purchasing Power Parity

Indonesia	1,612	2,325	1,719	2,526	1,990	2,806
Philippines	5,095	6,057	5,095	6,057	5,095	6,057
Thailand	5,996	19,689	5,996	19,689	5,996	19,689
OECD Average	28,687	47,747	31,000	51,470	32,183	54,440

Note: Salaries are on a purchasing power parity basis and are gross numbers without accounting for bonuses. Data from UNESCO Institute for Statistics, http://stats.uis.unesco.org/unesco/tableviewer/document.aspx?FileId=405&IF_Language=eng.

According to UNESCO Institute for Statistics data, salaries in primary and secondary education make up 62 percent of total expenditures on education. Though this number may seem high, comparator countries all contribute a higher percentage: Philippines, 75 percent; Malaysia, 80 percent; Brazil, 70 percent; and India, 83 percent.

As mandates for salaries and prestige increase, the quantity of teachers has increased dramatically, however teacher quality remains an ongoing issue despite efforts by the government to improve overall standards. The 2005 Teacher and Lecturer Law intended to improve the quality of teachers by requiring teachers to have a minimum qualification of at least four years of post-secondary education (or an SI degree or bachelor's degree) and have the ability to pass a portfolio exam. However, as is demonstrated in Table 4.5, as of 2010, teachers are not meeting these requirements. In 2010, 73 percent of elementary school teachers, 23 percent of junior high school teachers, and 8 percent of high school teachers did not obtain the required bachelor's degree.

Table 4.5: Number of Teachers and Their Qualifications by Grade Taught, 2010

Student Grade Level	Teacher Education Level							
	High School or Less	Associate Degree			Bachelor's Degree	Master	PhD	Total
		D1	D2	D3	S1	S2	S3	
Kindergarten	120,056	20,427	66,639	6,448	38,455	443	9	252,477
Elementary School	380,010	12,514	720,997	35,773	418,704	4,587	58	1,572,643
Junior High School	31,323	21,040	21,132	53,918	398,061	8,287	69	533,830
Special Need	2,062	291	3,927	1,410	8,341	176	4	16,211
High School	6,336	916	1,559	12,208	225,546	7,736	86	254,387
Vocational High School	6,383	866	1,053	13,125	136,056	4,141	32	161,656
Total	546,170	56,054	815,307	122,882	1,225,163	25,370	258	2,791,204

Note: Data obtained from Direktorat Jenderal Peningkatan Mutu Pendidik dan Tenaga Kependidikan, Kementerian Pendidikan Nasional (Directorate General of Educators and Educational Personnel Quality Improvement, Ministry of National Education).

4.4 Outcomes and Quality

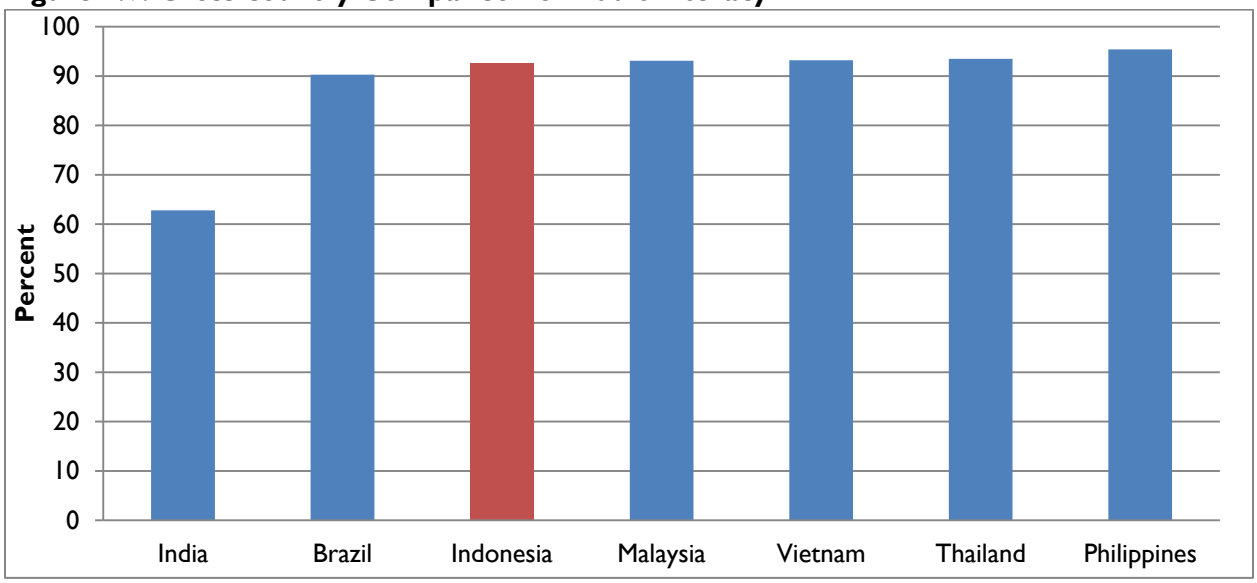
For education, it is important to not only explore broad educational attainment (in terms of highest level of education reached and gross enrollment ratios), but also analyze the skill level of the population. Though equitable access to education and the institutional framework of the education system are important, the quality of the education provided leads to a more knowledgeable and competitive

workforce. We focus on literacy and test scores as measures of educational quality and review general analyses of quality for secondary and tertiary education.

4.4.1 Literacy

The literacy rate is a key measurement of the quality of education in Indonesia. All else equal, the higher the quality of the education in a country, the higher the level of literacy. Figure 4.7 compares literacy in the adult population in Indonesia against comparator countries. At the national level, Indonesia's adult literacy rates are on par with their peers and exceed rates in countries with higher GDP, such as Brazil. An estimated 93 percent of adults over the age of 15 are literate in Indonesia, which is a drastic improvement from 82 percent in 1990.

Figure 4.7: Cross-country Comparison of Adult Literacy



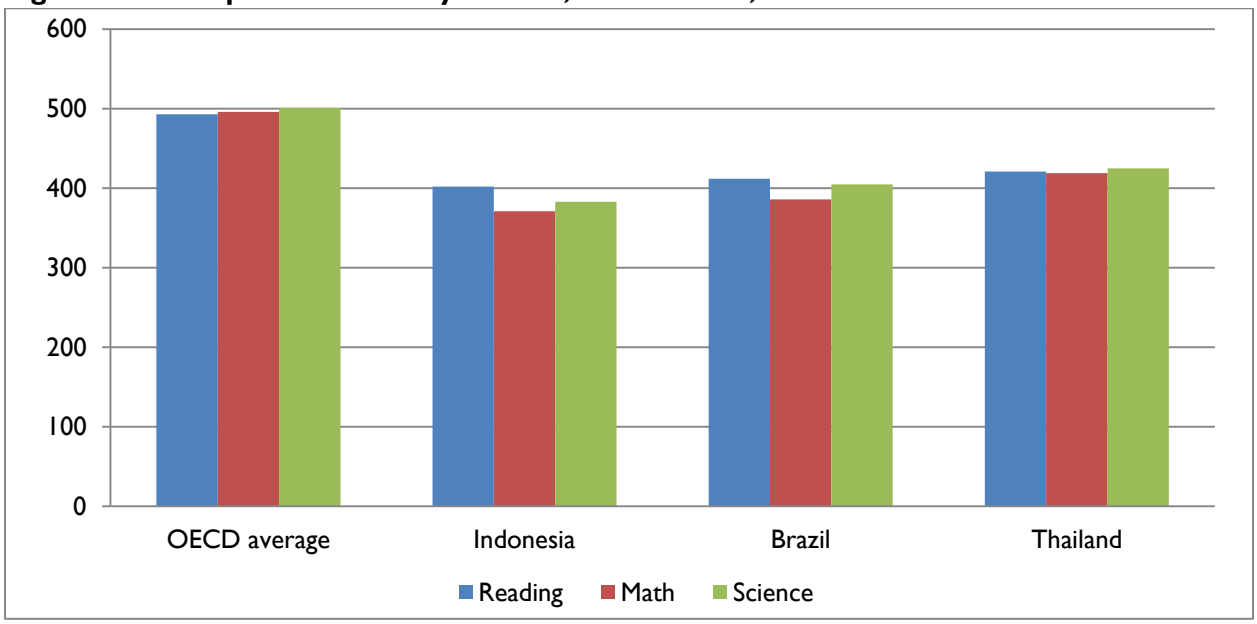
Note: Data from UNESCO Institute for Statistics. Data from most recent year available used. Data for Malaysia and Vietnam from 2010; Brazil and Indonesia, 2009; Philippines, 2008; India, 2006; Thailand, 2005.

According to the 2007 DHS, there are varying degrees of literacy throughout Indonesia where rural residents average a literacy rate of 83 percent and urban residents average 94 percent. Despite higher national and urban levels, several provinces still have low literacy rates. For example, Papua and West Nusa Tenggara have literacy rates of 57 percent and 76 percent, respectively. Surprisingly, literacy rates in Central and East Java, two provinces on the most populous and developed island of Indonesia, are also low. This disparity illustrates inadequate education service provision in these more remote and less populated areas.

4.4.2 Test Scores

International test scores also provide perspective on the quality of education in Indonesia by showing the knowledge base of the student populace against international standards. The OECD's Program for International Student Assessment (PISA) measures competencies in math and science for 15 year olds and compares them against other OECD countries. Unfortunately, most of the comparator countries used for this study are not captured in the OECD test scores. However, data is available for Thailand, Brazil and an OECD Average. As is apparent in Figure 4.8, Indonesia lags significantly behind the OECD average and lags slightly against Thailand and Brazil. Though scores are low, Indonesian students increased their average math score by 30 points and in 2009 the scores showed over 20 points of improvement. Reading scores also showed improvement in the last three years.

Figure 4.8: Competencies of 15-year olds, PISA Scores, 2009



Note: Data from OECD PISA 2009

The poor test results against comparators are confirmed by the results of the most recent assessment by Third International Mathematics and Science Study (TIMSS). Table 4.6 shows that eighth graders in Indonesia perform below international and comparator standards. TIMSS conducts comprehensive state-of the-art assessments of student achievement supported with extensive data about country, school, and classroom learning environments. At each grade level, the scale center point of 500 is set to correspond to the mean of the overall achievement distribution. The table below shows the scores (and standard deviations) for Indonesia and the available comparators. Indonesia scores below comparators and considerably lower than the mean for the assessment. Indonesia only outperforms African countries with lower incomes per capita. TIMSS also breaks down the results by gender. In 2011 females outperform males in mathematics with scores of 392 and 379, respectively. In science females also outscored males with scores of 409 and 402.

Table 4.6: National Science and Math TIMSS Scores, 2007 and 2011

	Science 8th Grade		Math 8th Grade	
	2011	2007	2011	2007
Indonesia	406 (4.5)	427 (3.4)	386 (4.3)	397 (3.8)
Thailand	472 (5.6)	471 (6.0)	427 (4.3)	441 (5.0)
Malaysia	426 (6.3)	471 (4.3)	440 (5.4)	474 (5.0)

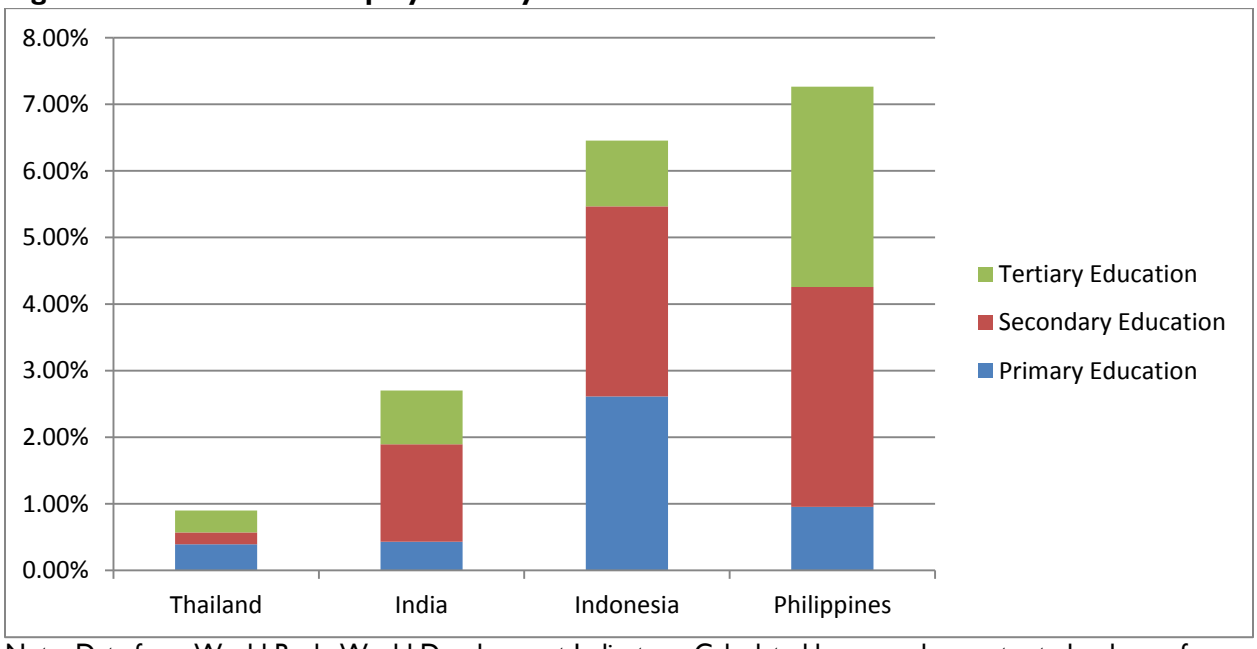
Note: Data from TIMSS.org. Standard errors reported in parentheses.

4.5 Impact of Education on Employment and Earnings

We assesses how well the education system prepares students for direct entry into the labor market by analyzing the unemployment rates at various levels of education, differentials in wage earnings by education level, and estimating the returns to educational attainment and years of schooling.

The overall unemployment rate has fluctuated over the last decade with a high of 11 percent in 2005 and a low of 7 percent in 2010. Figure 4.9 shows that Indonesia experiences less unemployment than the Philippines and greater unemployment than India or Thailand. The shares of unemployment by educational attainment differ between Indonesia and comparators as well, with Indonesia having relatively high rates of unemployment for both primary and secondary graduates.

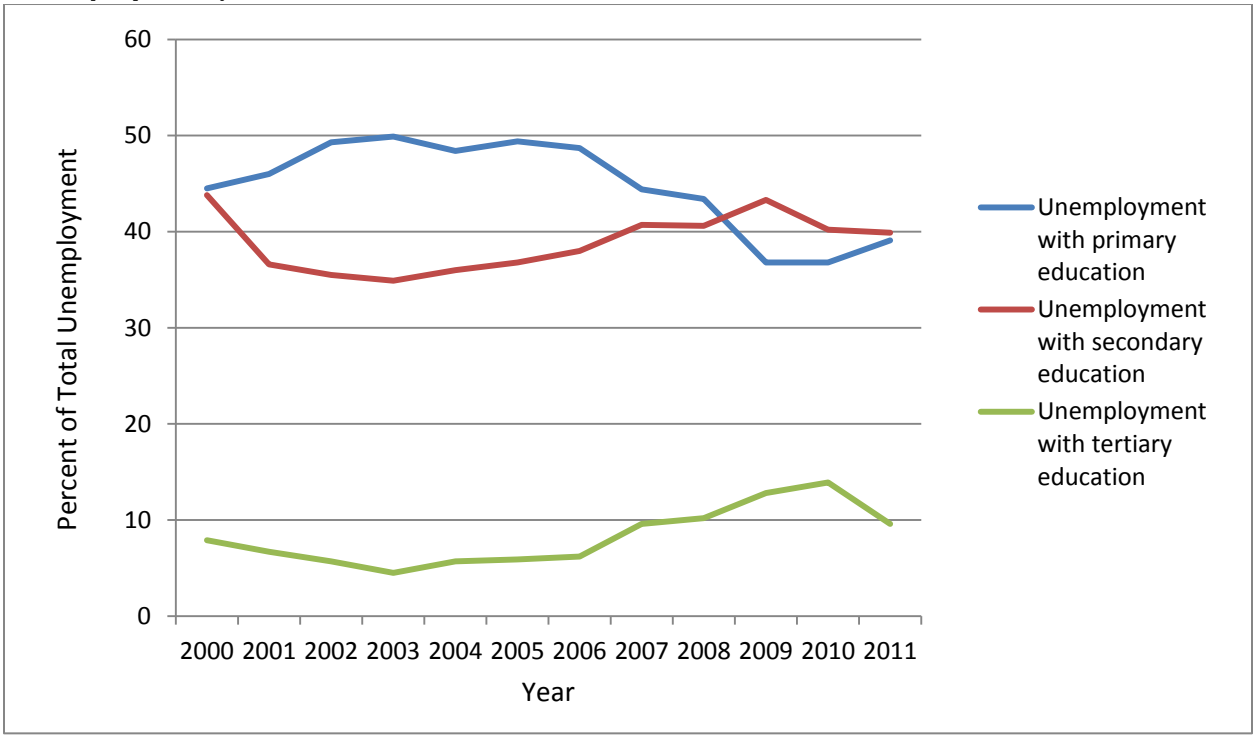
Figure 4.9: Share of Unemployment by School Attainment 2010



Note: Data from World Bank, World Development Indicators. Calculated by unemployment rate by share of unemployment by school attainment. Available at http://databank.worldbank.org.

As shown in Figure 4.10, in the last five years, there has been a decrease in unemployment for those with only primary schooling as a percentage of total unemployment and an increase in unemployment for those with tertiary and secondary schooling as a percentage of total unemployment, although those with tertiary schooling make up a far lower percentage of the unemployed. As of 2008, 43 percent of those unemployed had achieved only a primary education, 40 percent had attained only secondary schooling, while around 10 percent had a tertiary education.

Figure 4.10: Share of Unemployment by Educational Attainment (Percent of Total Unemployment) in Indonesia



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

According to the International Labor Organization (ILO), Indonesian youth[18] unemployment is higher for higher education levels. ILO argues that this trend is partially attributed to the fact that young people who are less educated begin working at a younger age and therefore have more exposure to the labor force and a larger amount of time to locate work. The unemployment rate for youth in 2009 with no schooling experience was 2.3 percent; youth with primary education experience a 12 percent unemployment rate; junior secondary, 17.3 percent; senior secondary, 26.2 percent; and higher education, 26.2 percent. However, the average wages for youth increase as education level increases. Based on ILO calculations, youth employed with no schooling make Rp. 595,962; youth with only primary schooling earn Rp. 642,788; youth with only junior secondary schooling earn Rp. 721,708; youth with only senior secondary schooling earn Rp. 976,863; and youth with higher education earn Rp. 1,240,352 (Understanding Children's Work Programme 2012). [19]

Various studies have used available data to analyze the returns to education. Duflo (2001) accounts for repetition and drop-outs (major concerns in developing countries) and additionally controls for household fixed effects. Her rates are considered the most rigorously estimated for Indonesia, lying in the range of 6.8 percent to 10.6 percent increase in annual income per additional year of schooling.

Sohn (2013) draws on the longitudinal Indonesia Family Life Survey (IFLS) fielded from June through November, 2000, and found a rate of return to an additional year of schooling of 10.7 percent, which is in line with other estimates in the literature. Also, when private costs of education are taken into account, between-(education) group earnings inequality is not as severe as in developed countries. The

[18] Workers 15-24

[19] Wages calculated based on 2010 SUSENAS. Average wage is calculated for non-student employed youth with non-zero wage.

rate of return to years of schooling is 5.5 percentage points lower for the self-employed than for the paid-employed.

A study by Carneiro, Lokshin, Ridao-Cano, & Umapathi (2011), also based on the IFLS3 fielded in 2000, found that the return to upper secondary schooling varies widely across individuals: it can be as high as 50 percent per year of schooling for those very likely to enroll in upper secondary schooling, or as low as 10 percent for those very unlikely to do so. The returns to upper secondary school for a random person is 12.3 percent; whereas the returns for those enrolled in upper secondary schooling is considerably higher, at 26.9 percent. The analysis also showed that individuals with upper secondary or higher levels of education have, on average, 108 percent higher wages than those with lower education.

Adding to the previous literature, we analyze both the SUSENAS 2011 data and the 2007/2008 Indonesian Family Life Survey (IFLS4) to determine the rate of return for education. The first analysis (see Table 4.7) was based on IFLS4 fielded in late 2007 and early 2008 and shows an average return of 14.0 percent for an additional year of schooling, although it is higher for females (15.5 percent) than males (13.1 percent).

Table 4.7: Returns to Education Regression Results based on IFLS4 (2007/2008)

Coefficient	(1) Total	(2) Female	(3) Male	(4) Total	(5) Female	(6) Male
Constant	5.842 (0.223)	4.354 (0.535)	6.323 (0.238)	6.437 (0.223)	4.944 (0.531)	6.939 (0.239)
Labor Market Experience	0.056 (0.003)	0.060 (0.004)	0.045 (0.003)	0.062 (0.003)	0.068 (0.004)	0.049 (0.003)
Labor Market Experience^2	-0.001 (0.000)	-0.001 (0.000)	-0.000 (0.000)	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)
Years Schooling	0.140 (0.003)	0.155 (0.004)	0.131 (0.003)	--	--	--
Completed Elementary	--	--	--	0.253 (0.040)	0.167 (0.070)	0.229 (0.047)
Completed Junior High	--	--	--	0.561 (0.042)	0.546 (0.076)	0.505 (0.050)
Completed High School	--	--	--	1.039 (0.038)	1.098 (0.069)	0.938 (0.046)
Completed College or Above	--	--	--	1.699 (0.040)	1.811 (0.070)	1.605 (0.050)
No. Observations	6,545	2,331	4,214	6,545	2,331	4,214
R^2	0.383	0.433	0.353	0.384	0.446	0.355

Note: Coefficients reported with standard errors reported in parentheses. Data taken from IFLS4 (2007/2008) survey. Regressions are authors' own.

The results of our analysis using SUSENAS 2011 data is presented in Table 4.8 and shows the returns to completing an additional year of education to be around 11 percent, which is in line with other studies. Disaggregating by gender reveals that women experience higher returns to additional years of education 13.8 percent) than men (10 percent). Indonesia's provinces were grouped into one of seven geographic regions in order to control for region-specific effects as well as a national estimate. Table 4.9 shows how results vary across provinces, with Java having the highest returns at 13.2 percent; and Sumatra having the lowest returns at 9 percent on average.

Table 4.8: Returns to Education Regression Results based on SUSENAS 2011

Coefficient	(1) Total	(2) Female	(3) Male	(4) Total	(5) Female	(6) Male
Constant	7.275 (0.029)	6.812 (0.059)	7.459 (0.033)	7.789 (0.030)	7.412 (0.061)	7.97 (0.033)
Labor Market Experience	0.057 (0.001)	0.051 (0.001)	0.055 (0.001)	0.058 (0.001)	0.054 (0.001)	0.055 (0.001)
Labor Market Experience^2	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)	-0.001 (0.000)
Years Schooling	0.110 (0.001)	0.138 (0.002)	0.100 (0.003)	--	--	--
Completed Elementary	--	--	--	0.191 (0.015)	0.200 (0.029)	0.148 (0.017)
Completed Junior High	--	--	--	0.397 (0.016)	0.525 (0.032)	0.301 (0.018)
Completed High School	--	--	--	0.790 (0.014)	1.063. (0.029)	0.656 (0.016)
Completed College or Above	--	--	--	1.401 (0.015)	1.7091 (0.029)	1.304 (0.018)
No. Observations	37,720	11,945	25,775	37,720	11,945	25,775
R^2	0.373	0.455	0.343	0.373	0.459	0.351

Note: Coefficients reported with standard errors reported in parentheses. Data taken from SUSENAS 2011 survey. Regressions are authors' own.

Table 4.9: Returns to Education (Additional Year) Across Indonesian Regions

Geographic Scope	Male	Female	Both
National	**0.100**	**0.138**	**0.110**
Java	0.123	0.143	0.132
Kalimantan	0.093	0.129	0.100
Maluku	0.097	0.134	0.104
Nusa Tenggara	0.113	0.149	0.125

Papua	0.091	0.127	0.097
Sulawesi	0.100	0.149	0.108
Sumatra	0.076	0.128	0.089

Note: All coefficients significant at the 1% level. Data from SUSENAS 2011.

The return to an additional year of schooling using a national regression for males and females with province fixed effects is 11 percent with SUSENAS and approximately 14 percent with IFLS4. However, the results vary by geographic areas in SUSENAS when Mincer regressions are run for each area. While there could be several factors driving the difference between IFSL4 and SUSENAS estimates, the two results are mutually reinforcing and in line with previous estimates in the literature. A return of 10 to 15 percent for each year of schooling is substantial and suggests investment in secondary and higher education would lead to increased wages.

In addition to looking at returns to schooling, we estimate in Table 4.10 the wage premium from completing an additional level of education (e.g. elementary, junior high, high school, college and above) as is done in both the USAID Growth Diagnostic reports for the Dominican Republic and El Salvador (Brooks, et al. 2012). At the national level we estimate a male with a college degree to earn a wage 130 percent higher than a male that had not completed elementary school. The wage premium varies by sex, with higher returns for females at all levels of education. Further, there is significant variation between regions. A male in Sumatra with a college degree earns on average 103 percent more than a male that has not completed elementary school; compared to a 160 percent premium in Java.

Table 4.10: Wage Premium from an Additional Level of Education

		Completed Elementary	Completed Lower Secondary School	Completed Upper Secondary	Completed College or above
National	Both	**0.191 *****	**0.397 *****	**0.79 *****	**1.401 *****
	Male	0.148 ***	0.301 ***	0.656 ***	1.304 ***
	Female	0.2 ***	0.525 ***	1.063 ***	1.709 ***
Java	Both	0.271 ***	0.57 ***	1.037 ***	1.726 ***
	Male	0.201 ***	0.42 ***	0.842 ***	1.603 ***
	Female	0.219 ***	0.629 ***	1.166 ***	1.818 ***
Kalimantan	Both	0.205 ***	0.396 ***	0.776 ***	1.295 ***
	Male	0.152 ***	0.336 ***	0.696 ***	1.222 ***
	Female	0.319 ***	0.42 ***	1.017 ***	1.666 ***
Maluku	Both	0.086	0.359 ***	0.694 ***	1.217 ***
	Male	0.055	0.272 **	0.581 ***	1.158 ***
	Female	0.141	0.591 *	1.157 ***	1.655 ***
Nusa Tenggara	Both	0.244 ***	0.573 ***	1.081 ***	1.627 ***
	Male	0.197 **	0.479 ***	0.963 ***	1.471 ***
	Female	0.298 **	0.71 ***	1.324 ***	1.954 ***
Papua	Both	0.395 ***	0.536 ***	0.912 ***	1.345 ***
	Male	0.366 ***	0.553 ***	0.872 ***	1.288 ***
	Female	0.781 **	0.818 ***	1.439 ***	1.936 ***

		Completed Elementary	Completed Lower Secondary School	Completed Upper Secondary	Completed College or above
Sulawesi	Both	0.227 ***	0.448 ***	0.77 ***	1.399 ***
	Male	0.235 ***	0.398 ***	0.714 ***	1.38 ***
	Female	0.276 **	0.692 ***	1.15 ***	1.838 ***
Sumatra	Both	0.162 ***	0.224 ***	0.568 ***	1.134 ***
	Male	0.086 ***	0.135 ***	0.434 ***	1.027 ***
	Female	0.203 ***	0.279 ***	0.872 ***	1.523 ***

Note: Regression coefficients are reported from data using the SUSENAS 2011. *** = Significant at 0.01 level, ** = Significant at 0.05 level, * = Significant at 0.10 level.

To put Indonesia's returns to education in context, Table 4.11 gives the rates of return to education in comparator countries through a literature review of Mincer Rates in comparator countries. Indonesia outperforms Vietnam and India in the return to a year of schooling estimations. Additionally estimations for returns to a graduate degree are higher in Indonesia than both India and Brazil (Binelli, Meghir and Menezes-Filho 2008). Overall, returns to education in Indonesia are higher than comparators.

Table 4.11: Returns to Education Across Countries from Identified Studies

Country	Mincer Rates	Year of Data	Year of Analysis	Source
Brazil	Between 12.8 and 15.1	n/a	1993	(Griffin & Edwards, 1993, vol. 12, issue 3)
India	9.2	2004-2005	2012	(Kharbanda, November 8, 2012)
Philippines	11.6 (Male)	1999	2006	(Patrinos, Ridao-Cano , & Sakellariou, 2006)
Vietnam	9.5	2008	2010	(Doan, Oct 2010)

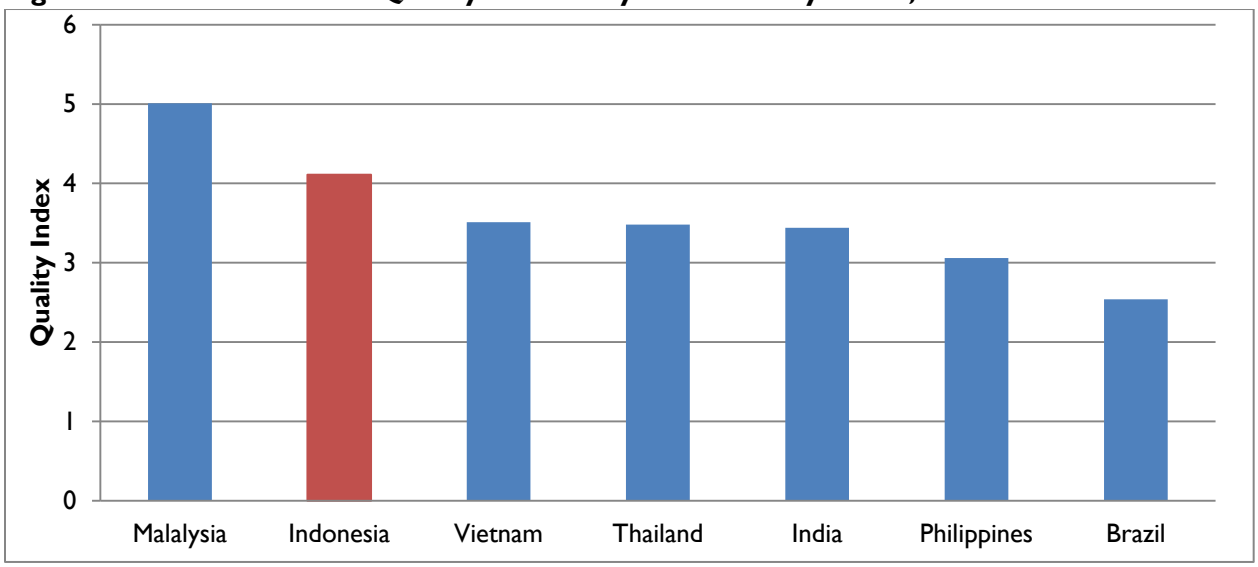
4.6 Firm Perception of Labor Force

Firm perception is another way of understanding the demand for skilled workers in Indonesia. Overall, firms find that the number of workers available to them is suitable. Indonesia generally has enough workers as evidenced by the limited number of vacancies in the workplace. The issue for firms overall is the quality of its workforce. When compared internationally, workers with low educational attainment are ranked highly. However, the quality of vocational and secondary recruits remains subpar according to employers.

The World Economic Forum's Global Competitiveness report published yearly measures the overall quality of education according to the rankings by businesses in country and ranks them internationally.[20] Against comparators, in quality of primary education, Indonesia scored highly in 2011, with only Malaysia outperforming them (see Figure 4.11). In 2012, Indonesia was ranked 51st in the world.

[20] World Economic Forum's Executive Opinion Survey samples 85 firms in Indonesia. Percentage of firms by size: 35 percent have less than 101 employees; 23 percent, 101-500; 17 percent, 501-1000; 1000-5000, 14 percent; 1 percent, 5001-20000; 8 percent had greater than 20000 employees. 16 percent of firms were from the agriculture sector; 27 percent, manufacturing industry; 22 percent, non-manufacturing industry; 35 percent, services (Browne & Geiger, 2012)

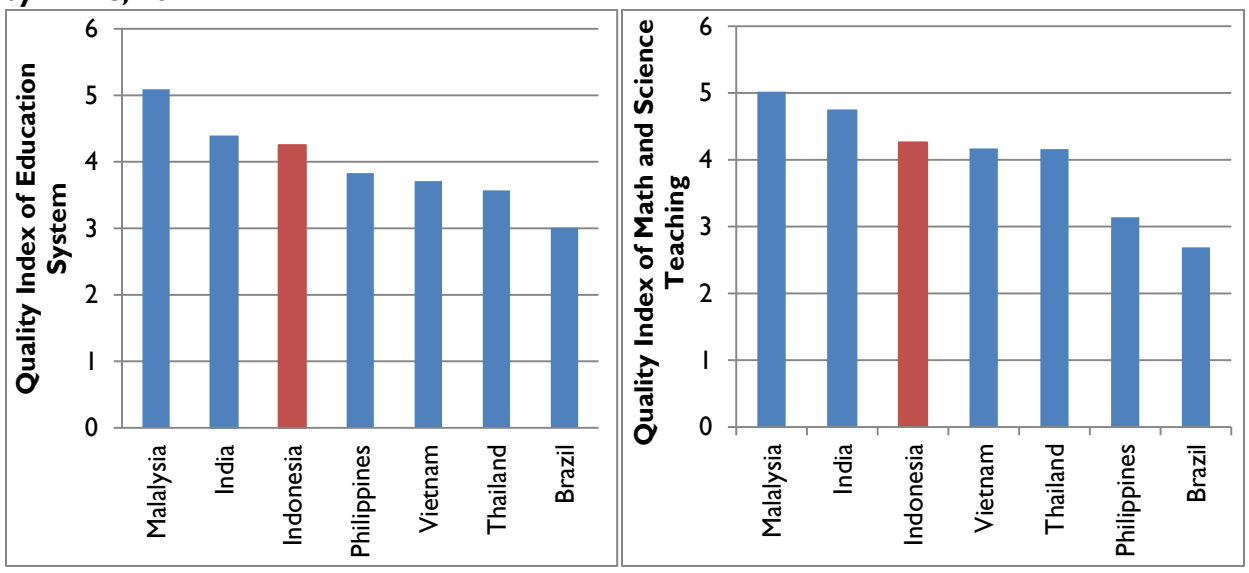
Figure 4.11: Assessment of Quality of Primary Education by Firms, 2011



Note: World Economic Forum Global Competitiveness Report, 2011. Index ranges from 1 to 7, with 1 indicating poor quality of primary schools and 7 indicating excellent quality.

The report also asks businesses to rank the overall quality of the education system and its math and science programs. Figure 4.12 shows that Indonesia scored 4.25 out of 7 in quality of education for 2011, indicating the system is of moderate quality. However, Indonesia outperforms most comparators, with India and Malaysia scoring higher. In 2011, Indonesia scored third among comparators on the quality of its math and science programs, once again with only Malaysia and India scoring higher.

Figure 4.12: Assessment of Quality of Educational System and Math and Science Teaching by Firms, 2011

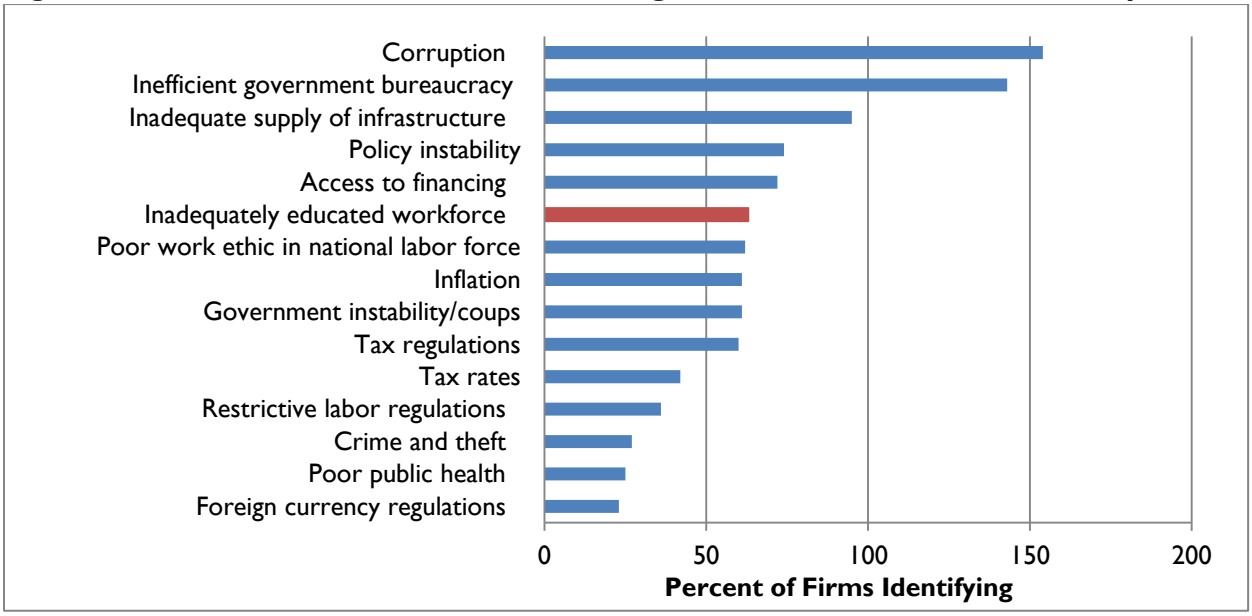


Note: World Economic Forum Global Competitiveness Report, 2011. Index ranges from 1 to 7, with 1 indicating poor quality and 7 indicating excellent quality.

In 2011, the World Economic Forum performed a survey of over 13,000 business leaders in 133 countries. The survey is designed to capture a broad range of factors affecting an economy's business climate. The report includes comprehensive listings of the main strengths and weaknesses of countries,

making it possible to identify key priorities for policy reform. Figure 4.13 displays the most problematic factors identified for doing business in Indonesia. Of 15 factors affecting the business climate in Indonesia, an inadequately educated workforce is ranked 6th behind other key issues, including corruption, political instability, and infrastructure.

Figure 4.13: Most Problematic Factors for Doing Business in Indonesia Identified by Firms



Note: Data from World Bank, Enterprise Survey, 2009. Of all these factors, respondent firms selected the five most problematic and ranked them between one (most problematic) and five. The survey results above depict responses weighted by their rankings.

Similar to the Employer/Employee Survey, the World Bank Enterprise Surveys analyze firms' perceptions on labor from the perspective of business managers. According to the 2009 survey, only 4.5 percent of firms identify an inadequately educated workforce as a major constraint to economic growth or business expansion. A slightly larger percentage of large size firms found the education of the workforce an issue, 6.3 percent. The subset of enterprises with the largest percentage identifying education as an issue are foreign owned businesses (13 percent) and business in South Sulawesi province (16 percent). By comparison firms in all comparator countries identified education as more of an issue than Indonesian firms: specifically, 70 percent of firms in Brazil, 21 percent of firms in Thailand, 15 percent of firms in India, 20 percent in Malaysia, and 9 percent of firms in Vietnam.[21]

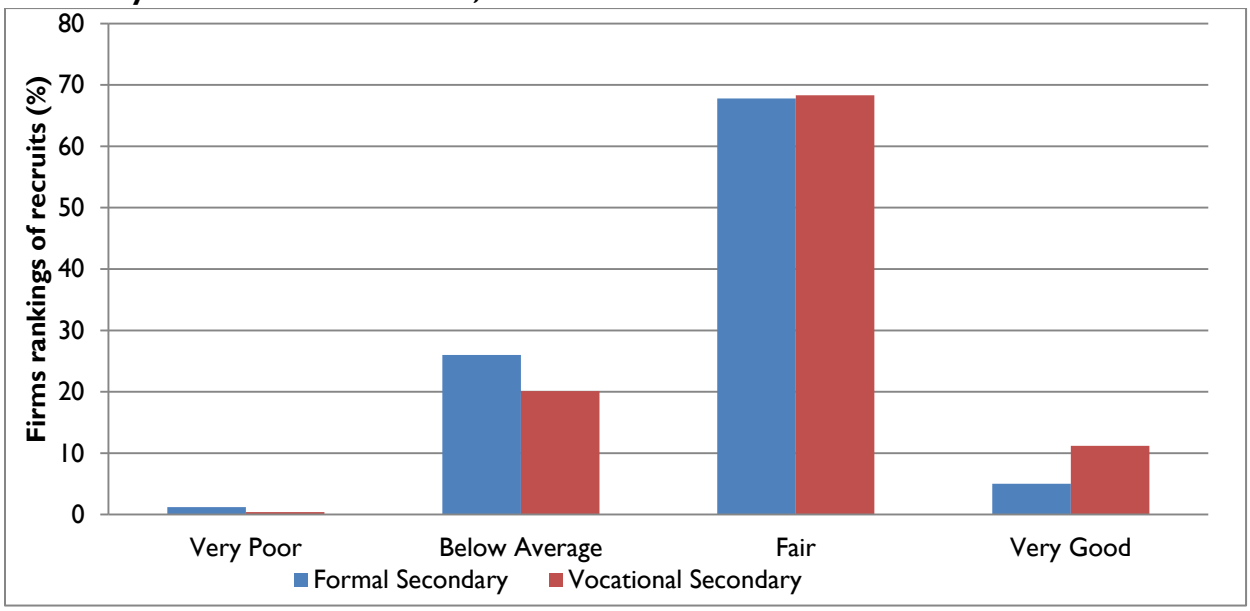
According to these surveys, firms do not perceive the education system and the education level of the workforce to be a constraint to business. However, the private sector does have concerns in matching the needs of a firm with the available pool of applicants. Eighty-four percent of manufacturing firms and 78 percent of service firms identify an issue with skills mismatch at the director level, calling it very or rather difficult (di Gropello, Kruse and Tandon 2011). Di Gropello, Kruse, and Tandon (2011) indicate that the lack of firms that are hiring, the availability of formal channels of placement, and, perhaps, an extremely large pool of candidates causes this skill mismatch.

In some opposition to the prevailing business sentiment on the sufficient supply of labor, firms are also critical of the quality of newly hired graduates in secondary education. In 2008, the World Bank initiated the Indonesia Employer/Employee Survey of Skills/Labor Demand and Job Vacancies. Firms actively

[21] Values for Brazil, India and Malaysia are from the 2009 Enterprise survey. Values for Thailand and Malaysia are from 2007.

seeking employees rated the overall quality of recruits from formal secondary and vocational schools as fair; 67 percent for recruits from SMAs and 68 percent of recruits from vocational secondary schools are considered of fair quality (see Figure 4.14).

Figure 4.14: Employer Assessment of Quality of Indonesian Recruits from Formal Secondary and Vocational Schools, 2008

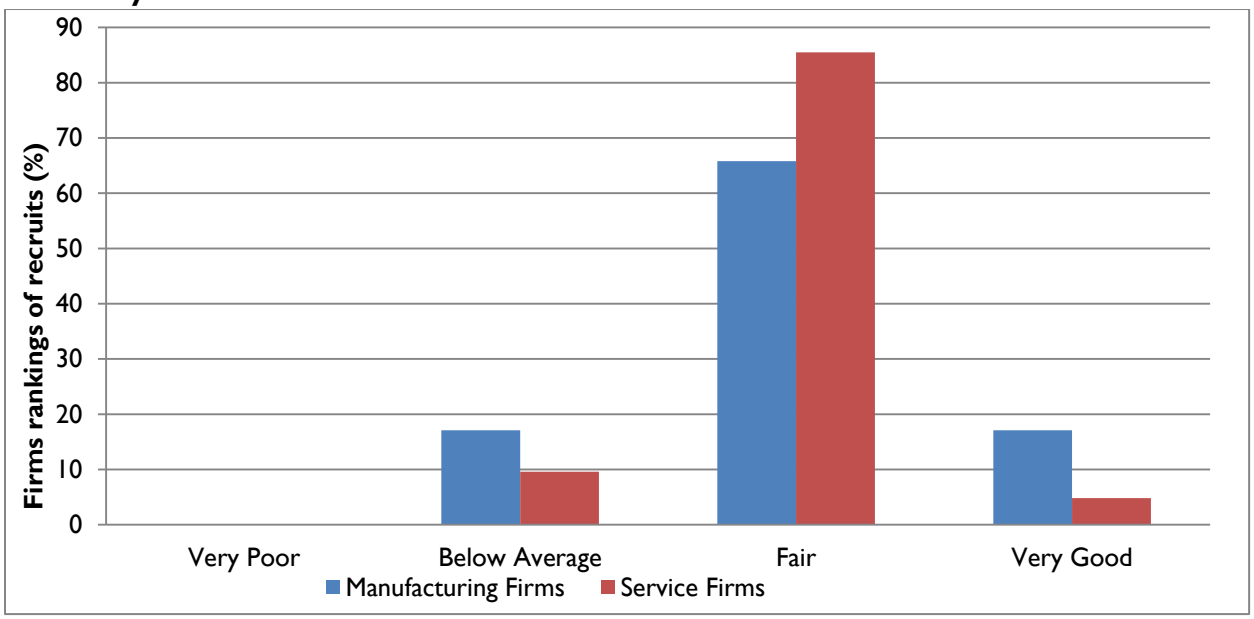


Note: Indonesia Employer/Employee Survey of Skills/Labor Demand and Job Vacancies, 2008

Another way to understand the criticism of labor quality is the share of staff that requires training after being hired. According to the 2008 survey, 32 percent of employees with general upper secondary and 29 percent of employees with vocational upper secondary schooling required training. By comparison, only 18 percent of those with primary education need training (di Gropello, Kruse and Tandon 2011). Thus at the required skill level of the job, those with secondary and vocational schooling still require a fairly significant amount of training.

Comparing Figures 4.14 and 4.15 on firm perceptions of secondary and tertiary education, firms perceive higher relative quality in tertiary education compared to secondary education, a higher percentage of recruits from tertiary institutions are considered very good, of fair quality, and a lower percentage considered below average.

Figure 4.15: Employer Assessment of Quality of Indonesian Recruits with Formal University Education

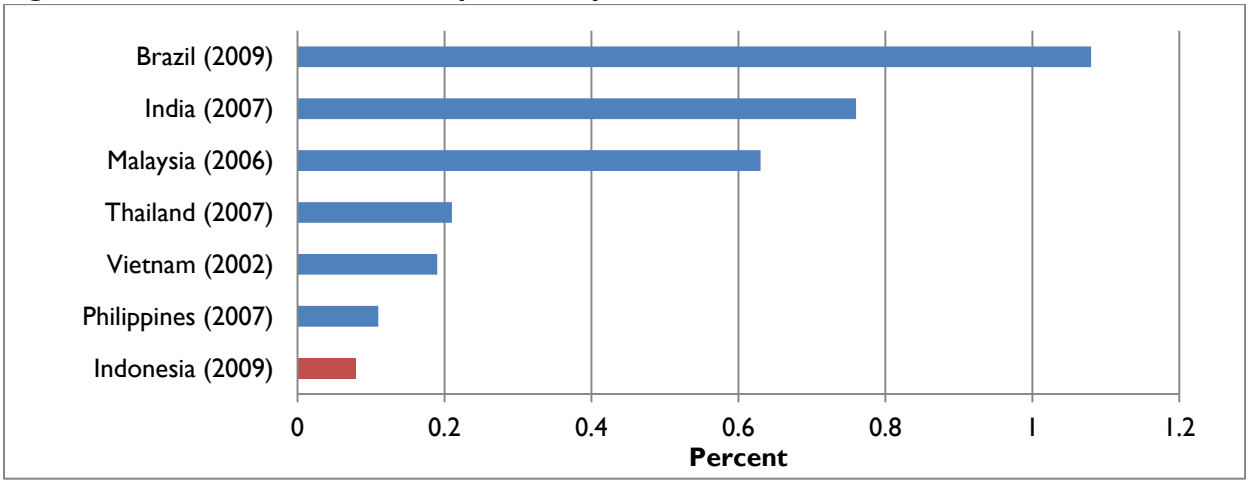


Note: Indonesia Employer/Employee Survey of Skills/Labor Demand and Job Vacancies, 2008

4.7 Research and Development (R&D) and Innovation

Another key measure of the quality of the education system is the extent of research and innovation. Research and Development (R&D) expenditure in Indonesia as a percentage of GDP has never exceeded 0.2 percent and, as is seen in Figure 4.16 below, ranks last among comparator countries.

Figure 4.16: Research and Development Expenditures as a Percent of GDP



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

Additionally, according to the World Bank, only 90 people per million worked in research and development in 2009. Most of R&D in Indonesia occurs in the public sector as "domestic firms have never made any significant commitment to R&D" (Hill and Tandon 2010). Unlike other Asian economies, conglomerates have not supported any major innovation programs. The government has focused its efforts in the most recent years on food resilience, renewable energy, transportation and health (Hill and Tandon 2010).

Table 4.12 displays the number of patents filed per million people in Indonesia, providing a measure of innovation and advancement within the country. Indonesia has the lowest amount of patents per million at 0.07 per million, while Malaysia has a considerably higher amount of 9.5 per million.

Table 4.12: Patent Cooperation Treaty Patents, Per Million People

Country	2005	2012
Indonesia	0.02	0.07
Vietnam	0.01	0.1
Philippines	0.26	0.3
Thailand	0.28	0.64
India	0.34	1.16
Brazil	0.59	2.77
Malaysia	3.21	9.57

Note: Data from World Economic Forum

The final indicator that demonstrates the level of R&D or innovation in Indonesia is the number of scientific and engineering articles published in the following fields: physics, biology, chemistry, mathematics, clinical medicine, biomedical research, engineering and technology, and earth and space sciences (see Table 4.13). In 2009, 262 articles were published in Indonesia. Though this number has increased significantly from the 1989 level of 86 articles, the number remains significantly below most comparators.

Table 4.13: Number of Scientific and Technical Journal Articles Published

Country	2000	2004	2005	2006	2007	2008	2009
Brazil	6,407	9,573	9,897	10,800	11,891	12,909	12,306
India	10,276	13,369	14,635	16,743	18,203	18,987	19,917
Indonesia	182	182	205	215	198	219	262
Malaysia	460	586	615	724	808	951	1,351
Philippines	185	163	178	181	195	224	223
Thailand	663	1,131	1,249	1,568	1,728	1,960	2,033
Vietnam	147	167	221	225	283	363	326

Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

Furthermore, Indonesian firms feel the availability of research and training services is mediocre (4.34 on a scale from 1 being poor and 7 being excellent) (World Economic Forum 2013).[22]

4.8 Is Lack of Education a Binding Constraint to Growth?

Overall, due to mandates and efforts of the Indonesian government, the system in place has led to an increasing number of school graduates at all levels. Though the levels may not be completely on par with comparators, enrollment rates nationally have led to a sufficient supply of workers with degrees, though types and levels vary. In other words, the "supply" of workers or the amount of skilled and unskilled labor is not a binding constraint in Indonesia.

[22] Based on the Global Competitiveness Index (2013), this statistic is higher than firm opinions in India, Philippines, Thailand and Vietnam.

The returns to education imply that additional years of schooling and advanced schooling lead to higher wages; employers demand high skilled labor and are willing to pay a premium for it. Very low vacancy rates suggest consistent demand for skilled and unskilled labor alike. Therefore, because of the high employer demand for labor, the high returns to education, and the satisfactory level of quality of workers that employers report, labor quality as a whole is not a binding constraint to growth in Indonesia. However, there appears to room for improving the ability of secondary education institutions to prepare laborers for the workplace. The primary complaint of the private sector is not the availability of workers but the need for higher quality skilled labor, especially from those graduating from SMAs and SMKs.

Further, Indonesia will not be able to ensure long term growth without investment into research and innovation. Without quality tertiary education and research facilities, growth led by higher skill jobs will not be achieved.

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5. Human Capital: Health

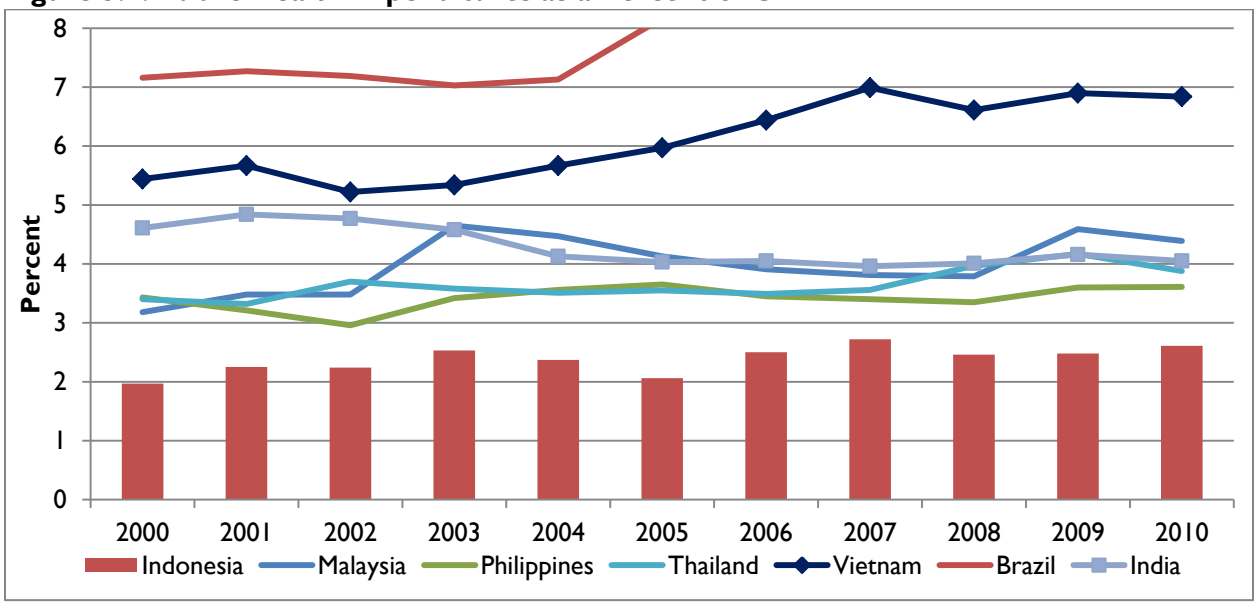
Adverse health outcomes can potentially impact the productivity of labor through lost days worked and reduced ability to complete tasks, which translates into lower income for the person in poor health and increased vulnerability to poverty from lost wages and the cost of medical care. On the other hand, increased wages can lead to better nutrition and health care, mitigating negative health outcomes. In this section we find that:

- Indonesia has some of the worst health outcomes among its peers with infant mortality, under-five mortality, and life expectancy worse than all its comparators except India.
- Indonesia spends less on public health as a share of GDP than all of its peers. Per capita expenditures on health care in 2010 averaged $77 per person.
- Tuberculosis, malaria, and stunting from malnutrition are the most pervasive health outcomes that adversely affect Indonesia's labor force.
- Even in the presence of poor health indicators, we conclude that adverse health outcomes in Indonesia are not a binding constraint on growth. Improved health when unaccompanied by increased salaries or employment opportunities are less likely to have significant impacts on economic growth. Though causality often runs in both directions and appears to be country specific, there is some evidence to suggest that removing other binding constraints to growth will cause greater improvements to health outcomes for the poorest Indonesians.

5.1 Health Expenditures

Indonesia's expenditures on public health services as a percentage of GDP, as shown in figure 5.1, is small relative to comparators. Though there is an upward trend over the last decade, it is inconsistent and small. Indonesia's health expenditures per capita are also on the low end, besting only India and tying the Philippines. As table 5.1 shows, Indonesia spent on average $77 per person on health care, relative to Brazil's $990 per person and Malaysia's $368 per person.

Figure 5.1: Public Health Expenditures as a Percent of GDP



Note: Data from World Bank World Development Indicators, 2011.

Table 5.1: Health Expenditures Per Capita (Current US$), 2010

Country	2010
Brazil	990
India	54
Indonesia	77
Malaysia	368
Philippines	77
Thailand	179
Vietnam	83

Note: Data from World Bank World Development Indicators, 2011.

5.2 Indonesia's Adverse Health Outcomes

Overall health indicators shown in Table 5.2 illustrates that Indonesia underperforms against comparator countries. In fact, Indonesia has worse indicators against all comparators in most categories, with the exception of India. When compared to historical data, Indonesia is dramatically improving, however not at the speed or level of Malaysia or Thailand.

Table 5.2: Mortality and Life Expectancy for 2011

Country	Mortality rate, infant (per 1,000 live births)	Mortality rate, under-5 (per 1,000 live births)	Life expectancy at birth, total (years)
Indonesia	**24.8**	**31.8**	**69.3**
Brazil	13.9	15.6	73.4
India	47.2	61.3	65.5
Malaysia	5.6	6.5	74.3
Philippines	20.2	25.4	68.8
Thailand	10.6	12.3	74.1
Vietnam	17.3	21.7	75.1

Note: Data from World Bank World Development Indicators, 2011.

Indonesia's poor performance on mortality rates and life expectancy are the result of adverse health outcomes. Table 5.3 lists the death rates for all communicable, maternal, perinatal, and nutritional conditions, but not for non-communicable diseases or injuries.

Table 5.3: 2008 Death Rates from Identified Health Problem (Deaths per 100,000)

	Indonesia	Brazil	India	Malaysia	Philippines	Thailand	Viet Nam	Comparator Average
Overall Infectious and parasitic diseases	**84.7**	**31.8**	**181.9**	**79.6**	**67.6**	**97.7**	**66.4**	87.5
Tuberculosis	**30.4**	**2.9**	**23.7**	**15.0**	**39.7**	**19.3**	**34.1**	22.5
STDs excluding HIV	**1.6**	**0.1**	**3.1**	**0.0**	**0.0**	**0.4**	**0.9**	0.8
HIV/AIDS (f)	**2.8**	**7.5**	**15.7**	**21.0**	**0.2**	**43.4**	**15.7**	17.2
Diarrheal diseases	**13.3**	**3.5**	**91.9**	**0.8**	**7.3**	**11.8**	**3.5**	19.8
Childhood-cluster diseases	**3.6**	**0.1**	**18.8**	**0.3**	**3.4**	**0.4**	**1.0**	4.0

Measles	2.9	-	8.7	0.0	2.3	0.0	0.6	1.9
Meningitis	**3.2**	**1.1**	**7.4**	**0.5**	**2.9**	**0.8**	**1.1**	2.3
Hepatitis B (g)	**1.4**	**0.6**	**3.5**	**0.4**	**1.0**	**4.2**	**1.2**	1.8
Malaria	**3.2**	**0.1**	**1.9**	**0.1**	**0.2**	**0.4**	**0.1**	0.5
Overall Respiratory infections	**76.1**	**31.9**	**57.6**	**34.9**	**52.1**	**35.5**	**25.8**	39.6
Lower respiratory infections	75.4	31.7	56.8	34.9	51.9	35.0	24.7	39.2
Upper respiratory infections	0.7	0.1	0.8	0.0	0.1	0.5	1.1	0.4
Maternal conditions	**4.4**	**0.9**	**5.3**	**0.6**	**2.3**	**0.5**	**1.0**	1.8
Perinatal conditions (h)	**28.7**	**18.2**	**61.5**	**4.1**	**44.7**	**8.1**	**14.5**	25.2
Prematurity and low birth weight	15.2	5.9	20.9	2.8	3.0	5.4	9.8	8.0
Birth asphyxia and birth trauma	8.0	3.9	16.1	1.1	2.8	2.1	3.9	5.0
Neonatal infections and other conditions (i)	5.4	8.4	24.6	0.2	38.9	0.6	0.8	12.2
Nutritional deficiencies	**10.3**	**6.2**	**4.6**	**1.0**	**6.6**	**3.3**	**0.7**	3.7
Protein-energy malnutrition	5.7	4.4	2.0	0.2	3.5	3.3	0.2	2.3
Iron-deficiency anemia	3.2	1.3	0.8	0.7	2.5	0.0	0.1	0.9

Note: Data from World Health Organization, Global Health Estimates, April 2011

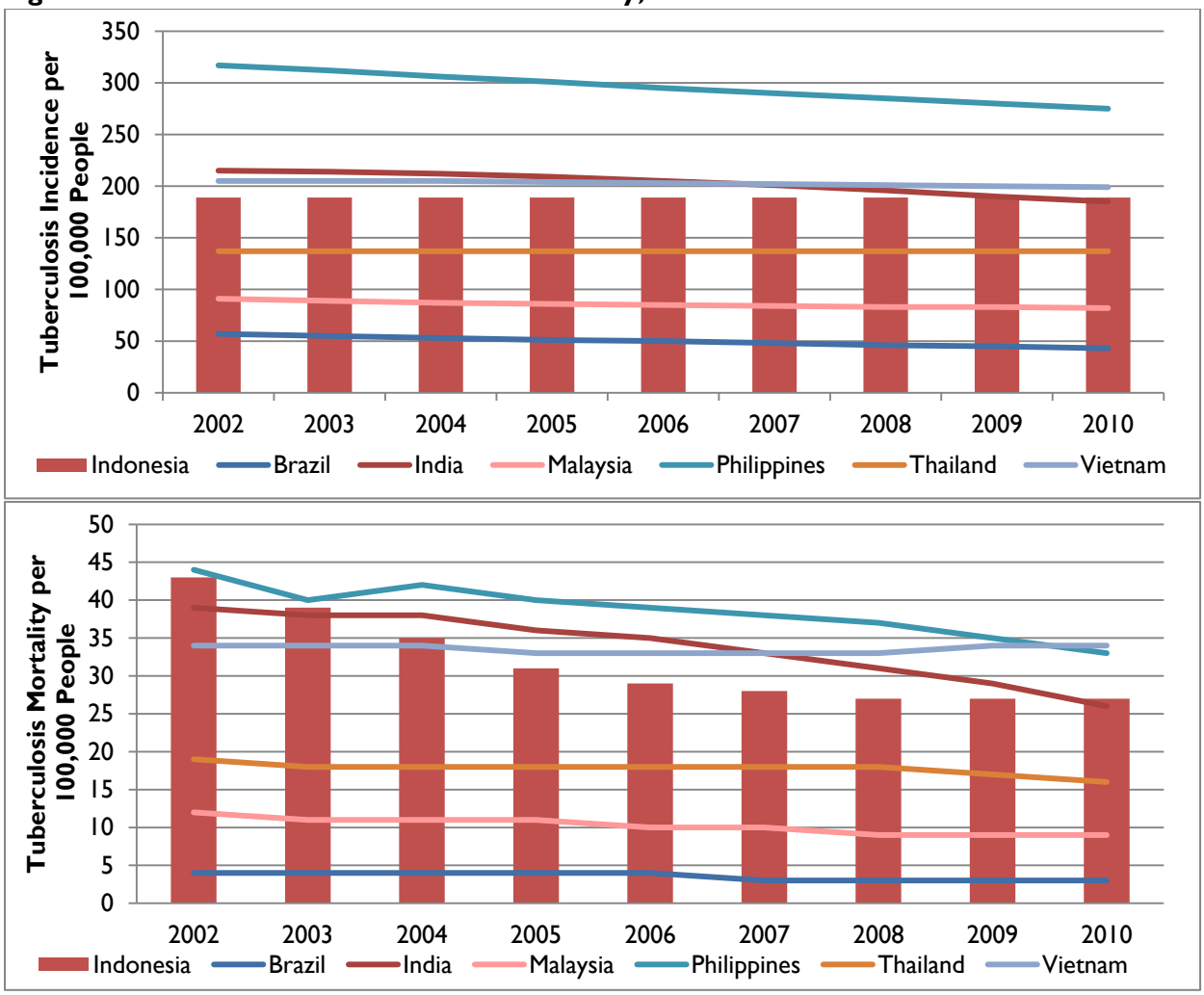
The table above indicates several key health deficiencies: tuberculosis, childhood-cluster diseases,[23] measles, and respiratory infections. Malnutrition is also a major concern, affecting maternal and child health outcomes, notably in childhood diseases, maternal conditions, premature births and low birth weight, and birth asphyxia and birth trauma. We now explore the prevalence of these diseases and disorders and their effect on inclusive growth.

5.3 Tuberculosis and Malaria

The social and economic costs of Tuberculosis (TB) to families in Indonesia can be very high because of its debilitating effects, the number of people infected, its long-course of ill-health, and the stigma associated with it. Because a majority of the cases affect those of productive, working age, it can create an economic loss for Indonesia by preventing individuals from working resulting in lost wages and increased poverty. The World Health Organization (WHO) estimates that a death from TB results in an average of 12.8 years of productive life lost with a projected cost of $11,490 per person. As seen in Figure 5.4, the estimated incidence of tuberculosis over time has remained at 189 cases per 100,000 people, lower than the Philippines and Vietnam. However, over the last decade, rates of mortality due to TB have decreased dramatically to 27 percent in 2010. Indonesia falls in the middle of comparators.

[23] Childhood-cluster diseases include the following diseases especially known to be contracted by children: pertussis, poliomyelitis, diphtheria, measles and tetanus.

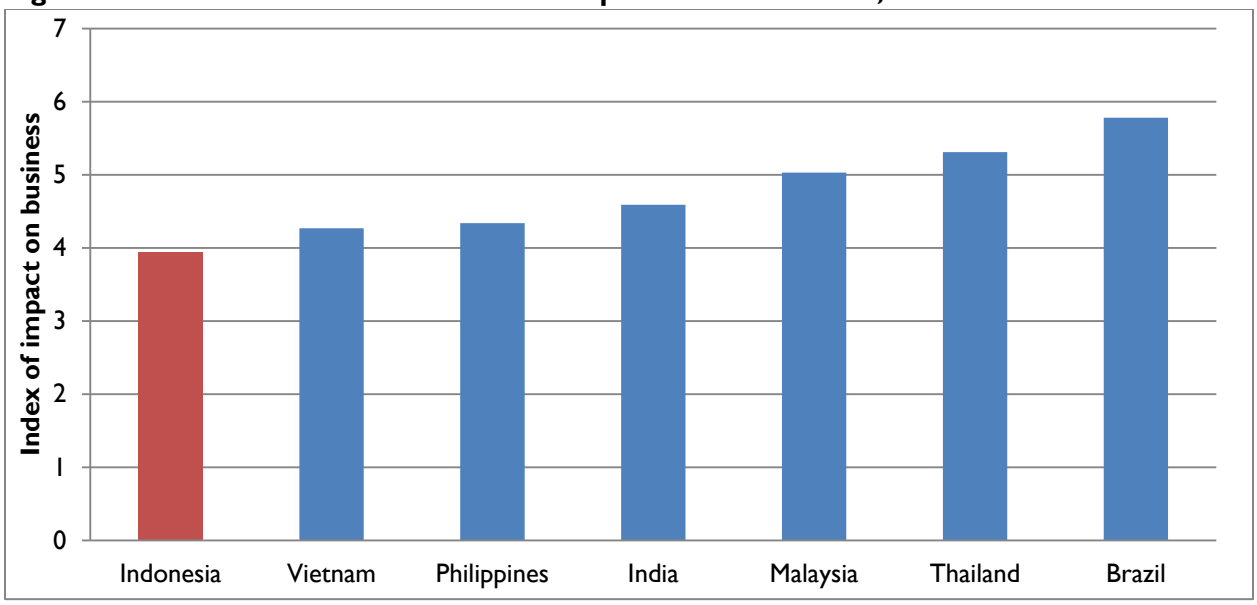
Figure 5.4: Tuberculosis Incidence and Mortality, 2002-2010



Note: Data from World Health Organization, Global Tuberculosis Database. Tuberculosis mortality includes all forms, except HIV. Tuberculosis incidence includes all forms.

Despite the improvements in TB mortality, the private sector in Indonesia still views the disease as having a continuing impact on business relative to its peers. When asked "How serious an impact do you consider TB will have on your company in the next five years (e.g., death, disability, medical and funeral expenses, productivity and absenteeism, recruitment and training expenses, revenues),"companies in Indonesia scored the impact at 3.94, with one being a serious impact and seven being no impact at all. Figure 5.5 displays Indonesia having the lowest score of all comparators where data was available.

Figure 5.5: Firm Assessment of Business Impact of Tuberculosis, 2011

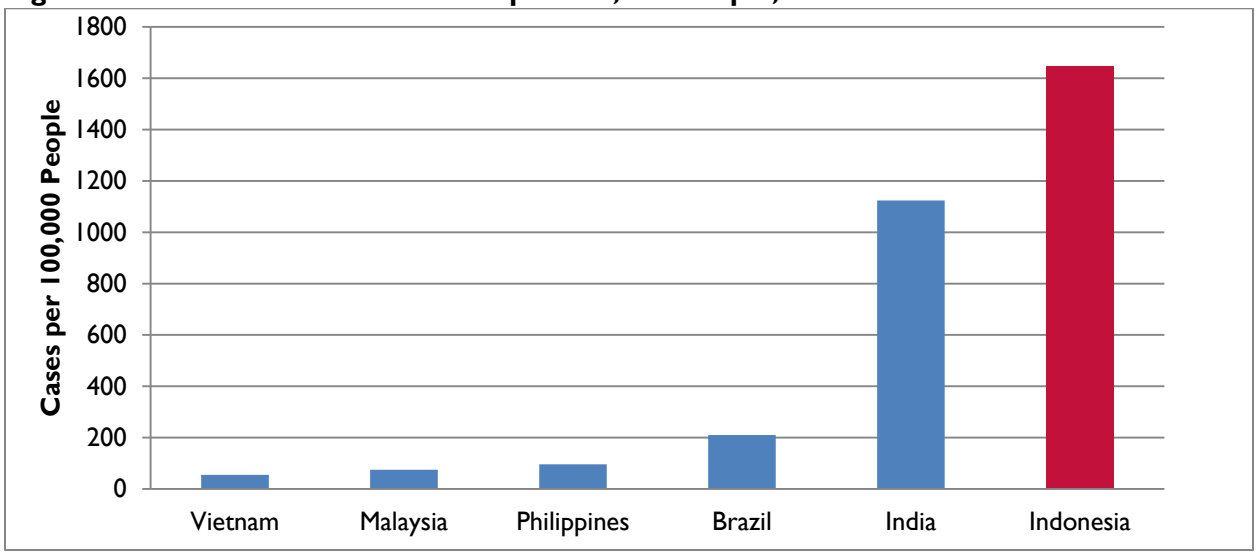


Note: Data from World Economic Forum. Index ranges from 1 to 7, with 1 indicating tuberculosis to have a serious impact on business in the next five year (due to death, disability, medical and funeral expenses, absenteeism, and other affects) and 7 indicating no impact at all.

Despite improvements, malaria is still a health concern in Indonesia with 30 million cases, 120,000 deaths a year (Asih, et al. 2012), and 45 percent of the population living in malaria endemic areas (Sudarnika, et al. 2009). Gallup and Sachs (2001) found that the costs of malaria in a country may be as high as 1.3 percentage points of that country's growth rate, based on estimates of expenditure and income attributed to fewer days worked. Malaria also negatively impacts schooling, as it causes both lower educational attainment and increased school absenteeism (Miller, Rosso and Arlianti 2009).

Figure 5.6 demonstrates that the rate of notified cases per 100,000 people in Indonesia is considerably higher than comparator countries, including India. The rate of malaria in school-aged children in Papua is 70 percent; 15 percent in NTT, and more than 20 percent in Pabar (Miller, Rosso and Arlianti 2009).

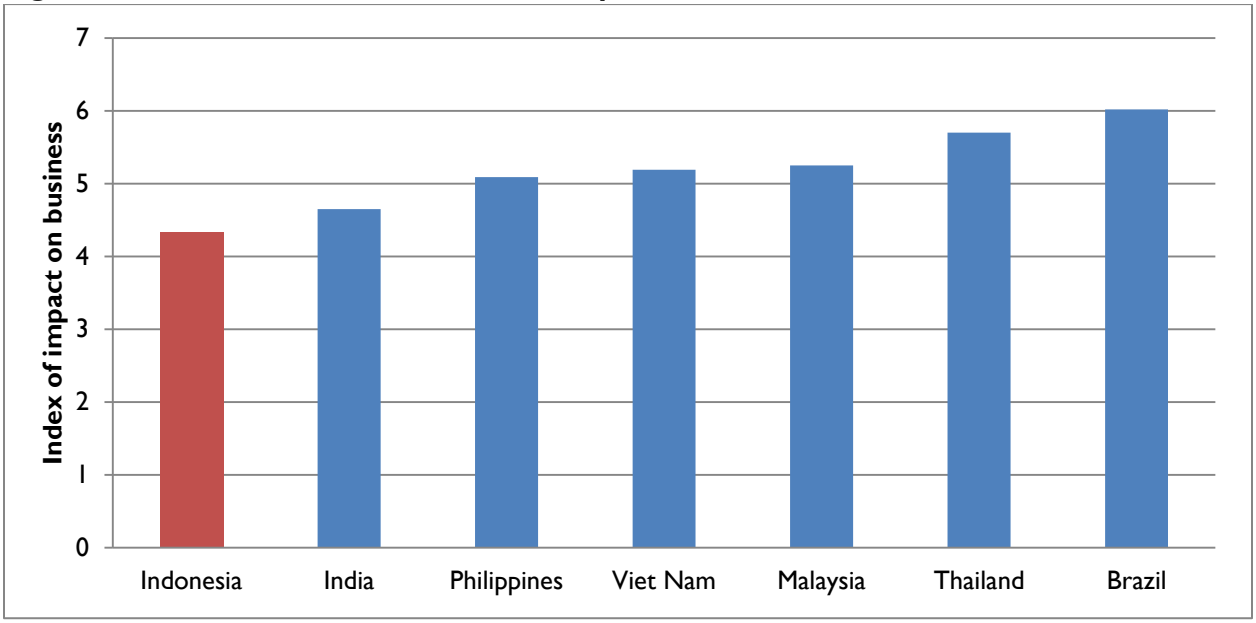
Figure 5.6: Notified Cases of Malaria per 100,000 People, 2008



Note: Data taken from the World Bank's World Development Indicators.

Though there has been some improvement in treatment for malaria, the Indonesian private sector still views it as somewhat of a threat relative to peers. When asked "how serious an impact do you consider malaria is/will have on your company in the next five years" companies in Indonesia scored the impact at 4.34 (see Figure 5.7), with one being a serious impact and seven being no impact at all. This is the lowest score amongst comparators.

Figure 5.7: Firm Assessment of Business Impact of Malaria, 2011



Note: Data from World Economic Forum. Index ranges from 1 to 7, with 1 indicating malaria to have a serious impact on business in the next five year (due to death, disability, medical and funeral expenses, absenteeism, and other affects) and 7 indicating no impact at all.

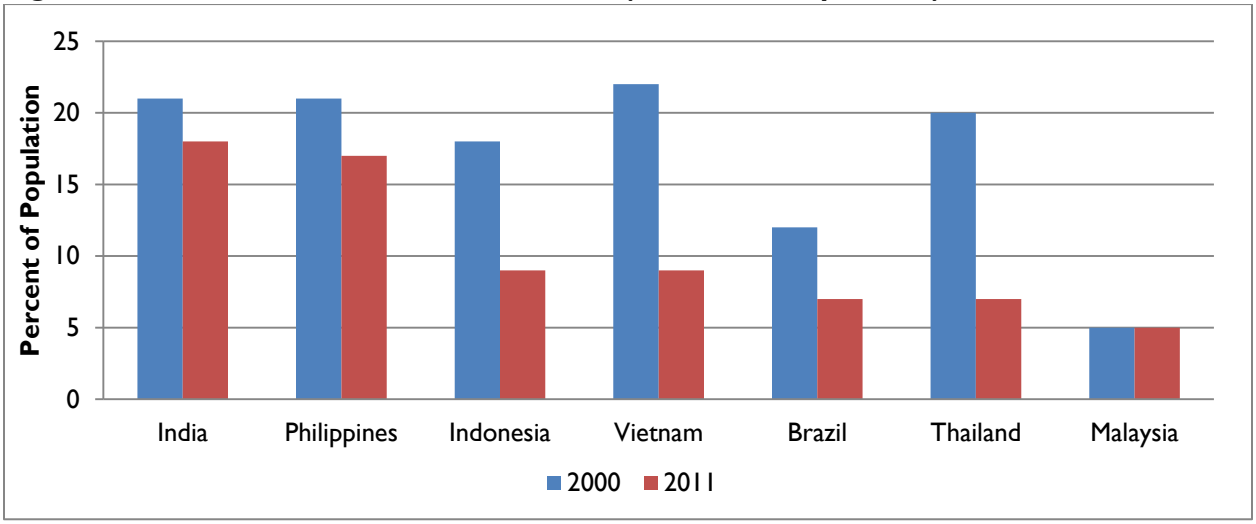
5.4 Malnutrition

Malnutrition, an important aspect of health, has both direct and indirect effects on the productivity of the workforce. In a 2008 series of papers sponsored by the World Health Organization (WHO), authors argued that malnutrition in early life can cause permanent deficiencies that can last generations. The scientists identified correlations between malnutrition and height, less schooling and reduced economic productivity. Overall they show that undernutrition affects cognitive development by causing damage to the brain, impairing motor development, and altering the way in which individuals learn (Victora, et al. 2008). Additional work by Alderman, Hoogeveen and Rossi (2009) found that children who are malnourished have lower educational attainment and delay school entry. Therefore, malnutrition directly effects the educational attainment of the population and causes long term damage to the workforce. A 2006 World Bank study found that malnutrition on its own can cost a country 2-3 percent of GDP (World Bank 2006). Moreover, malnutrition exacerbates the impact and prevalence of infectious diseases. Malnutrition decreases one's immune-system so that they are more susceptible to disease. For example, patients who are infected with latent TB are more likely to progress to active TB under conditions of chronic malnutrition. Malnourished patients with HIV are more likely to acquire AIDS.

Over the past decade, the overall prevalence of underweight children has fallen and Indonesia has made strides to reaching their goal of reducing the percentage of underweight children to 20 percent nationally. Figure 5.8 displays the progress Indonesia has made in fighting malnutrition moving from 18 percent of the population being undernourished to only 9 percent. Against comparator countries, both

India and Philippines have higher levels of undernourishment and only Vietnam and Thailand have experienced greater progress. However, the situation is much different when looking at acute and chronic malnutrition.

Figure 5.8: Prevalence of Undernourishment (Percent of Population)

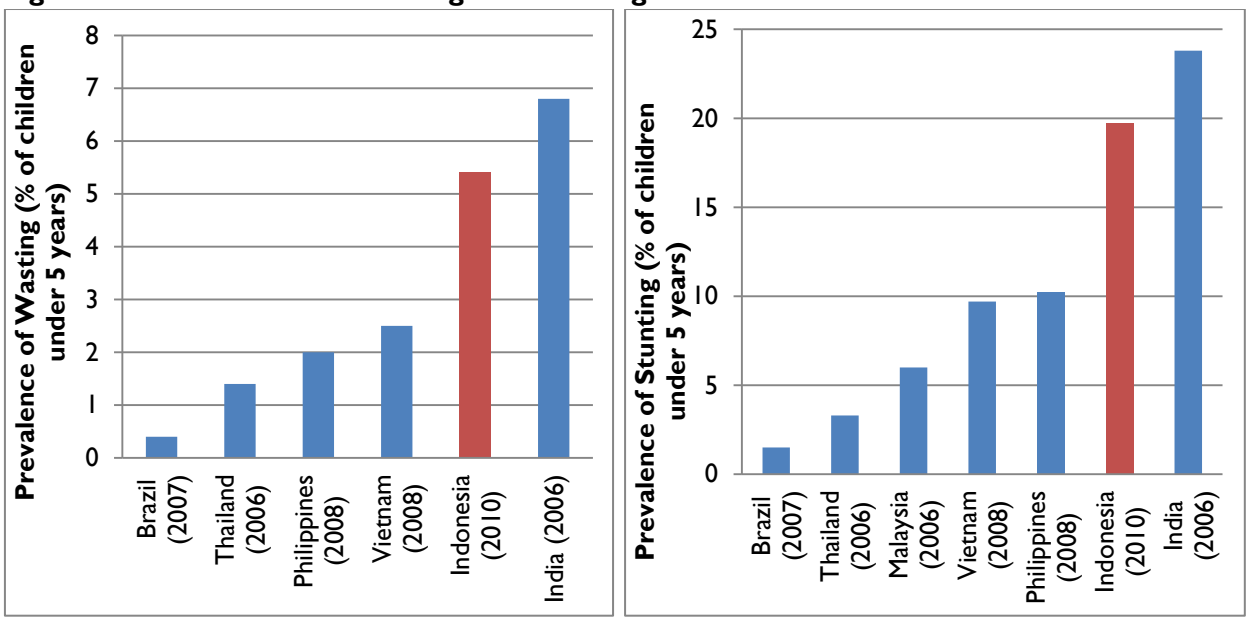


Note: Data from World Bank World Development Indicators

International indicators on nutrition attempt to identify acute and chronic malnutrition. Weight-for-age is an index used to measure the prevalence of wasting caused by a condition of acute malnutrition. Height-for-age is an index used to measure stunting or chronic malnutrition and is reflective of cumulative periods of malnourishment. A child whose percentages for height-for-age, weight-for-age, or weight-for-height are more than two standard deviations beneath the median of the reference populace is considered moderately or severely stunted, underweight, or wasted. Those more than three standard deviations beneath the median of the reference populace are considered severely stunted, underweight, or wasted. Figure 5.9 demonstrates that Indonesia's rates of stunting and wasting are significantly higher than most comparators, second only to India. [24]

[24] Note that the 2010 data from Figure 5.9 are from the World Development Indicators while the data from Table 5.4 is from an Indonesian Ministry of Health report based on 2007 data.

Figure 5.9: Prevalence of Wasting and Stunting



Note: Data from World Bank World Development Indicators

Based on the 2007 RISKENAS health survey reported in Table 5.4, nationally, 18.4 percent of children are underweight, 36.8 percent are stunted, and 13.6 are wasted. Malnutrition varies substantially across provinces. For example, the percentage of the population with severe and moderate malnutrition in East Nusa Tenggara is 33.6 percent, three times higher than Yogyakarta at 10.9 percent. Though NTT has the largest percentage, the greatest number of severely and moderately malnourished children is in Sumatra and Java: More than 50 percent of Indonesia's stunted children are located in East, West and Central Java and North Sumatra (Dickey, Boedihardjo and Bardosono 2010).

Table 5.4: Malnutrition Indicators for Children Under 5, by Province, 2007

	Percentage of Children Under 5 who are Underweight	Percentage of Children Under 5 with Stunting	Percentage of Children Under 5 with Wasting
National	18.4	36.8	13.6
NAD	26.5	44.6	18.6
North Sumatra	22.7	43.1	17
West Sumatra	20.2	36.5	15.3
Riau	21.4	33	22.1
Jambi	18.9	36.4	19.2
South Sumatra	18.2	44.7	15.8
Bengkulu	16.7	36	14.2
Lampung	17.5	38.7	13.7
Bangka Belitung	18.3	35.6	10.8
Kepulauan Riau	12.4	26.1	13.5
DKI Jakarta	12.9	26.7	17
West Java	15	35.4	9

Central Java	16	36.4	11.8
DI Yogyakarta	10.9	27.6	9
East Java	17.4	34.8	13.7
Banten	16.6	38.9	14.1
Bali	11.4	31	10
West Nusa Tenggara	24.8	43.7	15.5
East Nusa Tenggara	33.6	46.7	20
West Kalimantan	22.5	39.2	17.4
Central Kalimantan	24.2	42.8	16.9
South Kalimantan	26.6	41.8	16.3
East Kalimantan	19.3	35.2	15.9
North Sulawesi	15.8	31.2	10.2
Central Sulawesi	27.6	40.3	15.5
South Sulawesi	17.6	29.1	13.7
Southeast Sulawesi	22.7	40.5	14.6
Gorontalo	25.4	39.9	16.7
West Sulawesi	25.4	44.5	16.8
Maluku	27.8	45.8	17.2
North Maluku	22.8	40.2	14.9
West Papua	23.2	39.4	16.4
Papua	21.2	37.6	12.4

Note: Data from RISKESDAS, 2007. Underweight is defined by being more than two standard deviations away from the mean weight for age. Stunting is defined as more than two but less than three standard deviations away from the mean height for age. Wasting is defined as more than two but less than three standard deviations away from the mean weight for height.

The high levels of malnutrition in Indonesia can be explained in part by a low awareness of the importance of a varied diet, particularly for children. Rice, a national staple, is overly relied upon and leads to an unbalanced diet (Connor 2007). Also, the country is experiencing harmful patterns that include decreasing rates of exclusive breast feeding.

Vitamin and nutrient deficiencies, which can stem from unbalanced diets, plague Indonesia. One-fifth of preschool aged children and pregnant women are deficient in Vitamin A (World Health Organization 2009). Similarly, more than half of preschool-aged children and pregnant women suffer from anemia, which is due to iron deficiency (World Health Organization 2008). A 2005 Mercy corps study also found that 55 percent of school-aged were iron deficient (Miller, Rosso and Arlianti 2009). Additionally, 35 percent of the population is at risk of poor zinc intake, an important supplement that can reduce morbidity during diarrheal episodes by 40 percent.

A lack of adequate sanitation, especially when water is scarce, leads to infection and malnutrition caused from diarrhea (Connor 2007). According to the 2007 DHS survey, nationwide, 13.7 percent of deaths are due to diarrheal disease, with it causing 21 percent of deaths in children 12-23 months and 18 percent of deaths in children 6-11 months (Dickey, Boedihardjo and Bardosono 2010). As demonstrated in Table 5.5, Indonesia underperforms against most comparators (the notable exception being India) in terms of improved sanitation and improved water sources, both in rural areas and nationally. Nationally, over 24 percent of households do not own a toilet. In terms of the disparity across provinces, NTB has

49.1 percent of people lacking access to sanitation facilities, West Sulawesi 47.9 percent, Central Sulawesi 42.8 percent, and Gorontolo 42.2 percent (Dickey, Boedihardjo and Bardosono 2010).

Table 5.5: Share of Population with Access to Improved Sanitation and Water, 2010

Country	Improved sanitation facilities[25]		Improved water source[26]	
	Total	Rural	Total	Rural
Indonesia	54	39	82	74
Brazil	79	44	98	85
India	34	23	92	90
Malaysia	96	95	100	99
Philippines	74	69	92	92
Thailand	96	96	96	95
Vietnam	76	68	95	93

Source: World Bank World Development Indicators, 2010.

5.5 Health Outcomes, Economic Growth and Causality

The impact of adverse health outcomes on economic growth is well researched in the literature, but the results are mixed (Subramanian and Kawachi 2005). The causality can run in both directions and seems to vary by country; improved health can lead to higher productivity and wages (Bloom, Canning and Sevilla 2004, Bhargava, et al. 2001, Weil 2007, Grimm 2011) but increased wages can also lead to improved health outcomes (Ettner 1996, Frijters, Haisken-DeNew and Shields 2005). The evidence presented thus far suggests that adverse health outcomes are pervasive within Indonesia and that they can impact economic growth for the poorest populations. However, we cannot conclude decisively that this constraint is *binding*, noting that inclusive economic growth may cause improved health incomes.

Sparrow et al. (2012) analyze the effects of an ill-health event on the most economically disadvantaged Indonesians and the coping mechanisms associated with that ill-health. The bottom quartile of the population experienced a 15 percent reduction in wages and the second poorest quartile saw a decrease of 22 percent associated with an ill-health event. Overall, those in the Agriculture sector experienced a 7 percent reduction in household wages and those in the non-agriculture self-employed sector experienced a 41 percent reduction in wages. The findings suggest that opportunity costs of poor health outcomes are higher for those with higher incomes. Thus, the poorest quartile and Agriculture sector workers lose less than the second poorest quartile and non-agriculture self-employed workers because they have less to lose.

In a recently completed study commissioned by the Partnership for Maternal, Newborn & Child Health (PMNCH), authors Amiri and Gerdtham (2013) find that the direction of causality for health and growth varies by country. They also present evidence that the magnitude of the impact of increased GDP on

[25] "Access to improved sanitation facilities refers to the percentage of the population with at least adequate access to excreta disposal facilities that can effectively prevent human, animal, and insect contact with excreta. Improved facilities range from simple but protected pit latrines to flush toilets with a sewerage connection. To be effective, facilities must be correctly constructed and properly maintained" (World Bank 2013).

[26] "Access to an improved water source refers to the percentage of the population with reasonable access to an adequate amount of water from an improved source, such as a household connection, public standpipe, borehole, protected well or spring, and rainwater collection. Unimproved sources include vendors, tanker trucks, and unprotected wells and springs. Reasonable access is defined as the availability of at least 20 liters a person a day from a source within one kilometer of the dwelling" (World Bank 2013).

maternal and child health outcomes is greater in low income countries relative to high income countries. The opposite is true for the magnitude of impact of improved health outcomes on GDP. They note that causality in Indonesia is in both directions. Erdil and Yetkiner (2009) also conclude that causality is generally bidirectional, but note that it more commonly runs from income to health in low and middle income countries.

Some studies find no causal relationship between health outcomes and growth. Acemoglu and Johnson (2007) provide one dissenting voice and give evidence that improved health outcomes have not significantly impacted economic growth. Ashraf, Lester, and Weil (2008) add their dissent by concluding that "proponents of efforts to improve health in developing countries should rely on humanitarian rather than economic arguments."

Despite the debate in the literature, there is sufficient evidence to conclude that health is an important contributing factor to the productivity and performance of Indonesia's economy. The private sector in Indonesia notes that the onset of infectious diseases can impact their employees and therefore their business. However, given the bidirectional causality between health outcomes on economic growth, combined with the evidence that in low-income countries the stronger causal effect runs from income growth to improved health, we conclude that health is not a binding constraint to growth for the poorest Indonesians. If health outcomes were improved in Indonesia, more binding constraints discussed in this Inclusive Growth Diagnostic would also have to be removed to realize a corresponding increase in economic growth for the poorest Indonesians.

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6. Infrastructure

It is widely recognized that infrastructure is particularly poor in Indonesia and that the country is not well connected within itself nor with other countries. Large regional disparities in quality and access to infrastructure severely limit development in islands outside Java and Sumatra (Asian Development Bank, International Labour Organization, and Islamic Development Bank 2010). Indonesian investment in infrastructure has declined since the Asian financial crisis, dropping from 8 percent of GDP in 1997 to a low of around 2 percent in 2000, and gradually increasing thereafter to around 3.5 percent of GDP in 2006 (Islamic Development Bank 2010). Furthermore, Indonesia spends less on average than many of its comparator countries (Islamic Development Bank 2010).

Investment in transport infrastructure and irrigation systems has been consistently below 1.5 percent of GDP and below 0.5 percent of GDP, respectively, since 1996. Investment in energy decreased drastically from nearly 4.5 percent of GDP in 1997 to around 0.5 percent of GDP in 2006 (Islamic Development Bank 2010).

In this section we identify that lack of infrastructure and infrastructure spending is a binding constraint on inclusive economic growth in Indonesia. Our main findings are:

- Roads are by far the most important means of transportation in Indonesia, accounting for 92 percent of all freight transported. However, Indonesia has one of the lowest road densities relative to comparator countries.
- While many of the roads are paved, significant portions are of prohibitively poor quality, especially roads whose maintenance falls under the jurisdiction of provincial and local government.
- Trucking and freight companies are subject to corrupt and opportunistic rent seeking that account for as much as 10 percent of total shipping costs.
- Though Indonesia has large ports, they are some of the most inefficient in Southeast Asia. A substantial portion of a ship's total delivery time is spent waiting in port for a berth and delays in loading/unloading cargo.
- Railway infrastructure is mainly single track and largely limited to Sumatra and Java. Indonesia has one of the lowest railway densities among comparator countries, but has the highest quantity of goods transported per kilometer of rail. Improved railway networks and double tracking could lead to significant cost savings that promote inclusive growth.
- Indonesia has the highest proportion of population without access to electricity.
- Electricity tariffs are some of the lowest in Southeast Asia and below cost, thus hindering both state-owned and private sector producers from expanding capacity. The tariff structure of electricity is uniform across the country, which hinders the provision of services to more costly regions.
- One of the main hindrances to infrastructure investment is the expenditure of funds according to Government of Indonesia budgets.

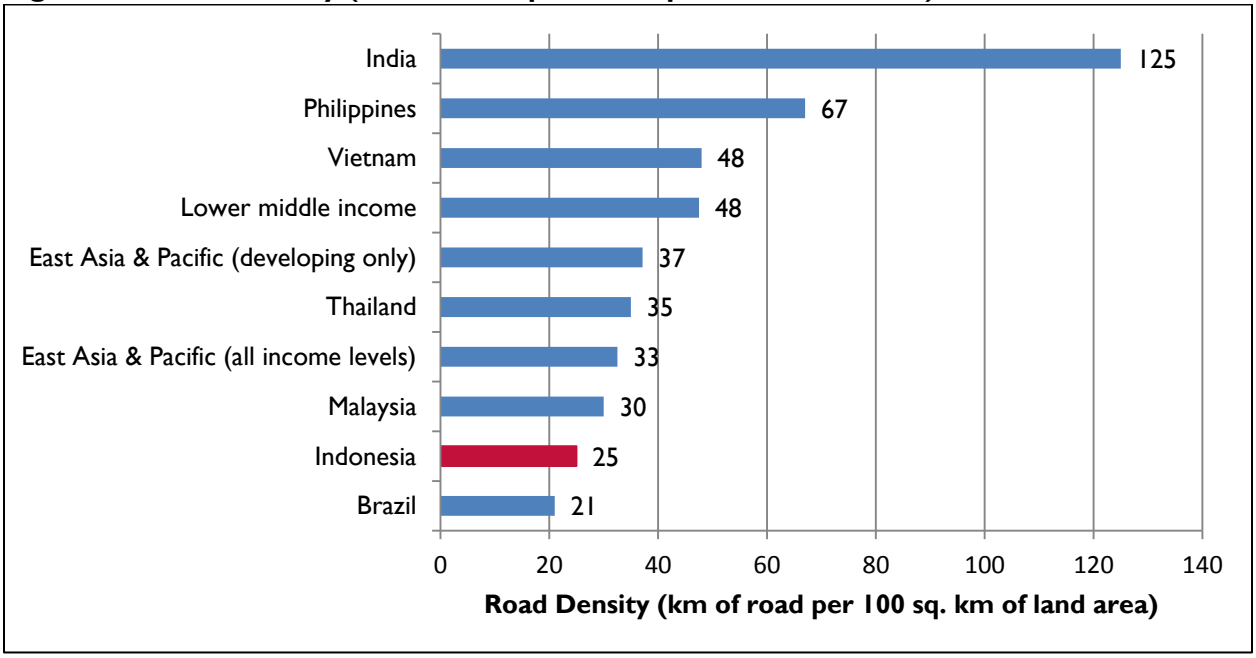
6.1 Roads

Though Indonesia is an archipelago, most freight is transported by roads. Inter- and intra-island shipping comprise 7 percent of freight and passenger movement while roads comprise 92 percent of freight and

84 percent of passenger movement. By comparison rail accounts for only 1 percent of freight and 7 percent of passengers (Islamic Development Bank 2010). Thus Indonesia's road network is very important to its economy.

However, Indonesia is not well connected by roads. As can be seen in Figure 6.1, Indonesia has some of the lowest road densities per square kilometer of land area, suggesting a low availability of roads. Only Brazil is lower (though note that the latest year available for Brazil and Malaysia are for 2004 while latest Indonesian data is from 2009).

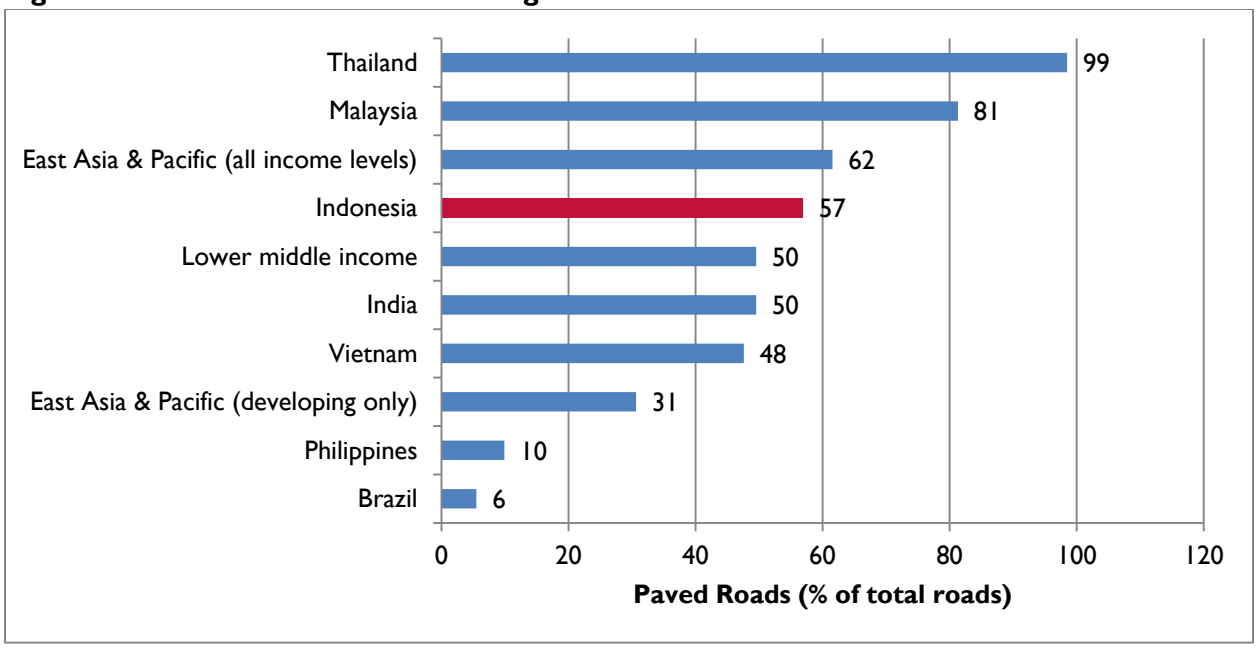
Figure 6.1: Road Density (Km of Road per 100 Sq. Km of Land Area)



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org. Indonesia, East Asia & Pacific (developing and all) from 2009; India and Lower Middle Income from 2008; Vietnam, 2007; Thailand, 2006; Brazil and Malaysia, 2004; Philippines, 2003.

As can be seen in Figure 6.2, 57 percent of existing roads are paved, on par with comparators such as India and Vietnam. However, the quality of even paved roads is often poor, with 46 percent of the overall road network considered in poor or bad condition in 2009 (World Bank 2012b). In 2007 36 percent of roads were considered damaged or severely damaged (Asian Development Bank, International Labour Organization, and Islamic Development Bank 2010). Most of these damaged roads were under the jurisdiction of district governments. Decentralization, a lack of capacity in district governments, and low allocation of funding for infrastructure, prevents district governments from ensuring adequate maintenance of roads. In fact, 39 percent of roads under the jurisdiction of district governments were considered damaged or severely damaged. In contrast, most of the national roads are of good quality with 86 percent of them considered in good or fair condition as of 2009. These national roads also are the most frequently used, as 34 percent of all vehicle-kilometers per year are comprised of national road traffic, even though they constitute only 8.8 percent of the road network. District and city owned roads comprise 80 percent of the road network, are of poor quality with 57 percent of district/city roads considered in poor or fair condition, and are underutilized; 33 percent of annual vehicle-kilometers are from traffic on district/city roads (World Bank 2012b).

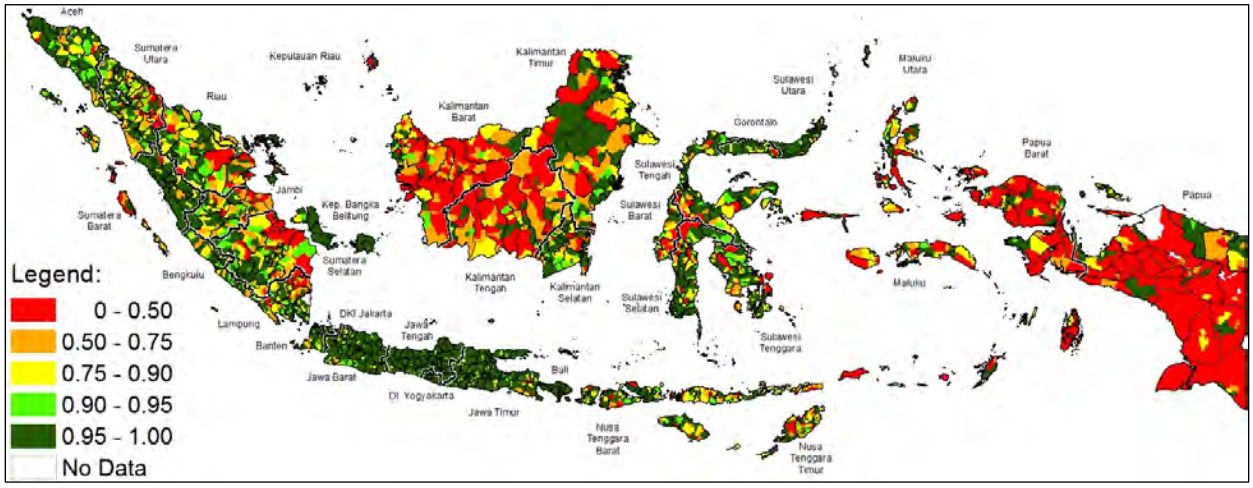
Figure 6.2: Paved Roads as a Percentage of All Roads



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org. Indonesia, East Asia & Pacific (developing and all), and Lower Middle Income from 2009; India from 2008; Vietnam, 2007; Malaysia, 2004; Philippines, 2003; Brazil and Thailand, 2000.

There are large regional disparities within Indonesia in both the quantity and quality of roads. Figure 6.3 shows the proportion of villages with roads whose surface is asphalt, gravel, or stone across Indonesia. One sees that in most of the Eastern islands, large parts of Kalimantan, and large areas of Sumatra do not have some minimum quality standard of roads. This hinders connectivity and access to markets in these areas.

Figure 6.3: Proportion of Villages with Roads Surfaced with Asphalt, Gravel, or Stone

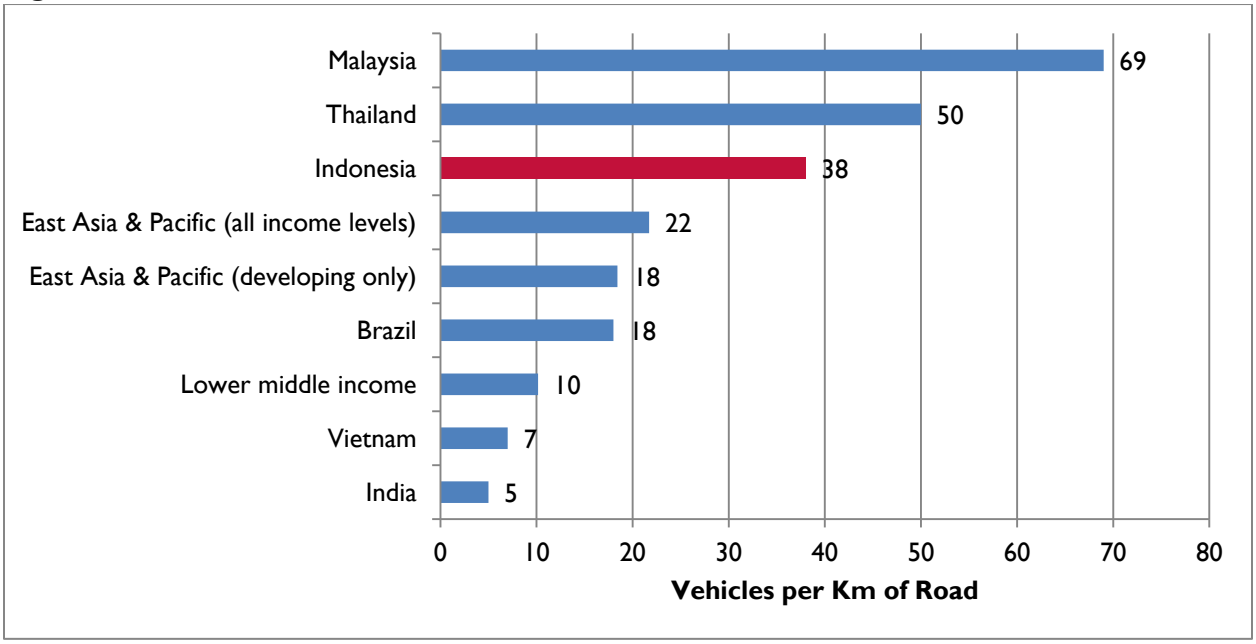


Note: Data taken from PODES (Potensi Desa) database housed at Indonesia's Central Statistics Body (BPS). Graphic from World Bank (2012a) presentation.

One result of a low road density and quality is congestion on the higher quality and well maintained roads. Figure 6.4 shows that Indonesia has the third largest number of vehicles per kilometer of road. A

2006 study estimated 43 percent of Java's road networks are congested and estimated that 55 percent of Java's main roads were to become congested in 2010 (Islamic Development Bank 2010).

Figure 6.4: Vehicles Per Km of Road

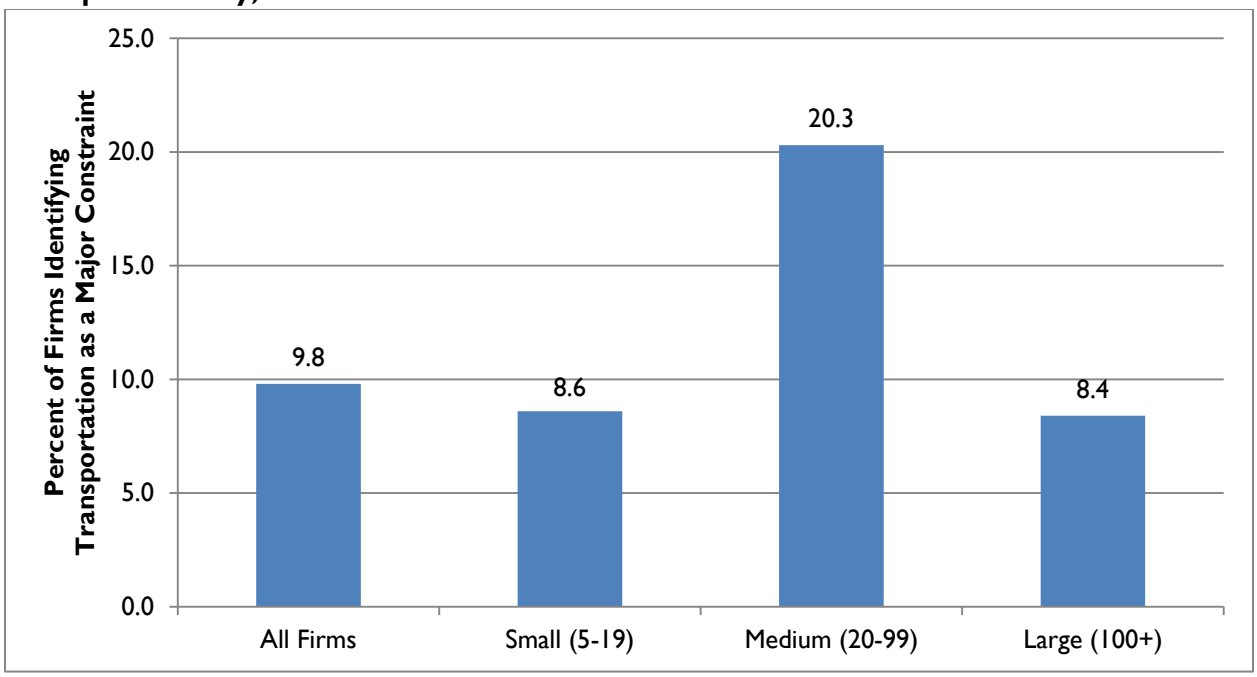


Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org. Indonesia and East Asia & Pacific (developing and all) from 2009; India and Lower Middle Income, 2008; Vietnam, 2007; Thailand, 2006; Brazil and Malaysia, 2004.

Besides the poor quality and high congestion of Indonesia's roads network, opportunistic rent-seeking is raising the cost of freight trucked through roads. A 2007 study conducted by the Asian Foundation and the Institute for Economic and Social research (LPEM) estimated that such rent seeking activities added 10 percent to operational cost of trucking freight. The study estimated that vehicle operating costs for trucking were 34 US cents per kilometer in Indonesia, higher than the average operating costs of 22 US cents per kilometer in China, Malaysia, Thailand, and Vietnam. On the Malang-Surabaya route, truckers paid an average of Rp. 6.4 million per month in such illegal payments (Islamic Development Bank 2010).

The notion that roads are a large constraint is reflected in the perceptions of firms in Indonesia, with 20.3 percent of medium-sized firms identifying transportation as a major constraint (see Figure 6.5).

Figure 6.5: Percent of Indonesian Firms Identifying Transportation as a Major Constraint Enterprise Survey, 2009



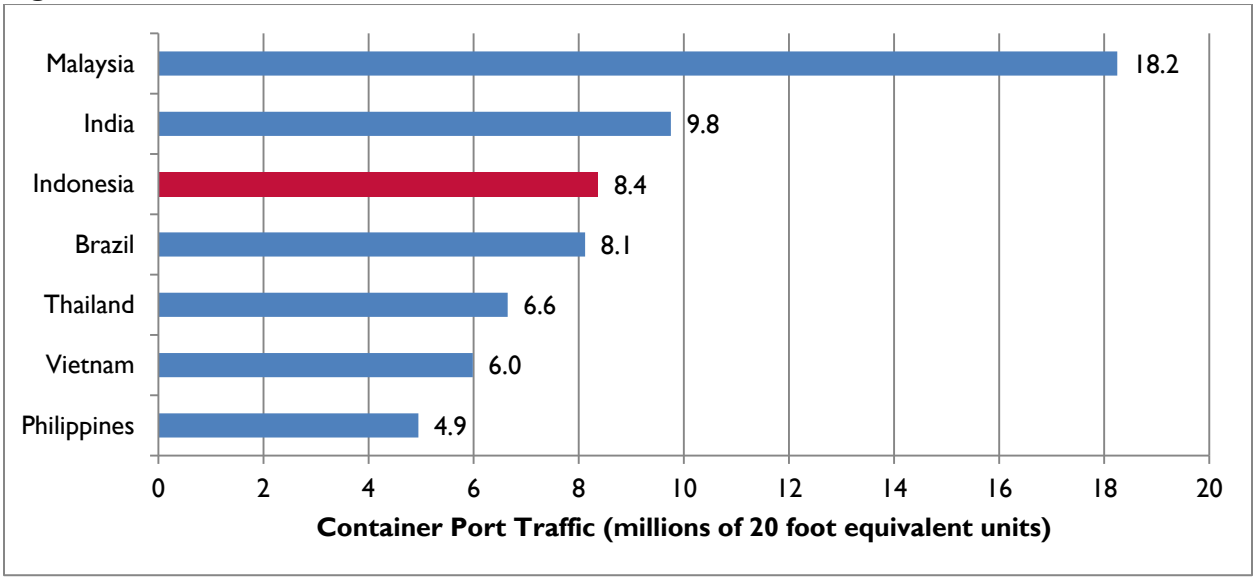
Note: Data from World Bank, Enterprise Survey, 2009. Available at http://www.enterprisesurveys.org.

A large factor hindering road development is land acquisition, especially when considering a private-public partnership through toll road development. More specifically, the delay in acquiring land is settling on a price to compensate those whose land will be used, requiring lengthy negotiations and made more complicated by land speculators. Corruption is also a major problem in terms of land acquisition, as confidential information on upcoming government plans on development projects is leaked out to land speculators. Because the final price paid for land has skyrocketed during these negotiations, banks have been reluctant to lend to private sector partners developing toll roads. This situation is very costly in urban areas, where land can comprise half of the project costs. While legal means exist for using eminent domain for infrastructure projects, such as through Presidential Regulation 65/2006, the government is not willing to use these legal provisions due to their unpopularity and authoritarian nature (Islamic Development Bank 2010).

6.2 Ports

A large volume of traffic comes through Indonesian ports. As can be seen in Figure 6.6, port traffic as measured by standard sized container units (20 foot containers) is the third largest among country comparators. Indonesia is also ranked as 24th in the world for volume as measured by TEUs, 20-foot equivalent units (World Shipping Council 2012). Ports are critical infrastructure components of the Indonesian economy as over 90 percent of external trade comes through sea ports (Arianto, Nurridzki and Rivayani 2007).

Figure 6.6: Container Port Traffic, 2010

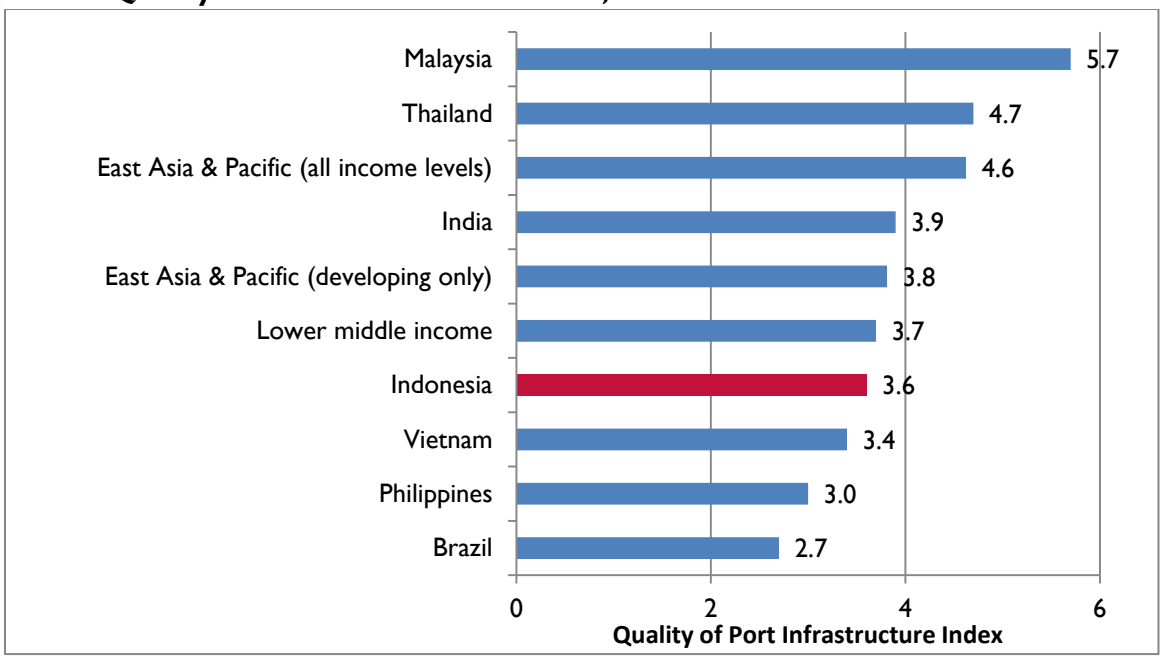


Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

Most of the goods entering Indonesia are processed through three of Indonesia's ports: Tanjung Emas in Semarang, Tanjung Perak in Surabaya, and Tanjung Priok in Jakarta. Jakarta's Tanjung Priok is Indonesia's largest port but its service lags behind other ports in the region. Smaller ports besides the three large ones service mostly interisland trade (Asian Development Bank, International Labour Organization, and Islamic Development Bank 2010). There are also ports run by private and state companies that serve their own benefit (Ray 2009).

That Indonesia's ports lag behind the region and its comparators can be seen in figure 6.7 which ranks the quality of port infrastructure for Indonesia and its comparators. Indonesia fares better than only Brazil and the Philippines. Indonesia's largest and best performing port, Tanjung Priok, is one of Southeast Asia's worst performing ports in terms of productivity and unit costs. Jakarta's port in 2002 was experiencing 30-40 container moves per hour (the number of shipping containers a port moves), which is a measure of how quickly the port can off-load or load shipping containers and thus quickly move cargo. In mid-2008, container moves per hour had increased to the 40-45 range. In contrast, Singapore's transshipment port experienced 100-110 moves per hour, over twice as fast. Because of such delays, many shippers often leave the port without being fully loaded in order to keep a predetermined shipping schedule. When ships leave without a full load they incur a large opportunity cost (Ray, Indonesian Port Sector Reform and the 2008 Shipping Law 2009).

Figure 6.7: Quality of Port Infrastructure Index, 2011



Note: Data from World Economic Forum, Global Competitiveness Index. Index ranges from 1 to 7, with 1 indicating extremely underdeveloped port infrastructure and 7 indicating well developed and efficient port infrastructure by international standards.

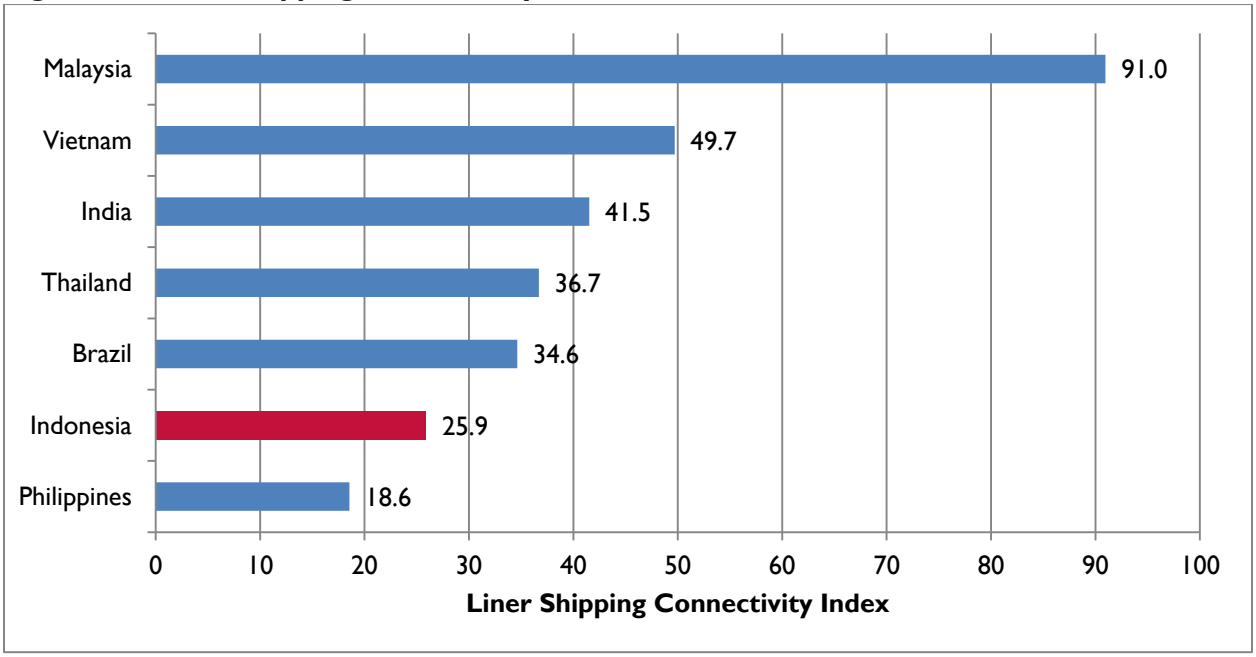
The quality of Indonesia's ports is reflected by metrics for berth occupancy rates, average turnaround, and the proportion of work time in turnaround time not meeting international standards, resulting in shipping vessels spending too much time at berths or in queues waiting to enter ports.[27] Berth occupancy rates have not changed much since the late 1990s and were 57.6 percent in 2006, above the international standard of 40 percent. High berth occupancy rates indicate that the ports do not have enough excess capacity to accommodate increases in demand in the future which will increase waiting time for vessels. Turnaround time, a measure of the total time a vessel spends at the port, was an average of 82 hours in 2006, suggesting vessels are spending too much time at the port. Effective working time as a percent of turnaround time is an indication of how much time a vessel is spending at port without being serviced. In 2006 vessels spent 44.5 percent of their time at port actually being serviced, thus more than half is wasted at port (Ray, Indonesian Port Sector Reform and the 2008 Shipping Law 2009).

Despite the volume of containers passing through Indonesia's port system, the country is not well connected to international shipping networks. This is evident from figure 6.8, which displays an index from the United Nations Conference on Trade and Development (UNCTAD) that measures the connectivity of a country to international shipping networks through five component indicators of a country's maritime transport sector: the number of ships, ship container-carrying capacity, the maximum vessel size, the number of services, and the number of companies that deploy container ships in a country's ports. Indonesia has the second lowest connectivity relative to its comparators. There is also a lack of connectivity within Indonesia; it is cheaper to transport goods from Jakarta to Rotterdam than from Jakarta to Jayapura (Sandee 2012). In fact, 50 percent of Indonesian exporters' costs of transport is incurred before the stage where they ship internationally (Carana Corporation 2004). For example, for shipping furniture from Samarang, Indonesia to Valencia, Italy, 45 percent of the freight costs is incurred

[27] Berths refer to the designated place for a ship at a dock or wharf.

in the first 600 miles to the regional hub port in Singapore, which comprises only 10 percent of the total distance (Carana Corporation 2004).

Figure 6.8: Liner Shipping Connectivity Index, 2011



Note: Data from United Nations Conference on Trade and Development, Review of Maritime Transport. Maximum value in 2004 for this index is 100 (a country with 100 in 2004 would be the country with the highest average of all 5 components of the index for 2004).[28]

Most of Indonesia's ports, including the three major ones, are operated by state-owned enterprises known as Pelindo I, II, III, and IV (Ray, Indonesian Port Sector Reform and the 2008 Shipping Law 2009).[29] Law No. 21/1992 gave control over the main "strategic" commercial ports to the Pelindos. The Pelindos acted as both port authority (landlords and regulators of the ports) and providers of port services, and had regulatory authority over ports run by the private sector, and thus was a self-regulating body. Moreover, the law prohibited private sector competition with the four Pelindos as well as competition between Pelindos, requiring profitable Pelindos to subsidize unprofitable ones. The central government generally determines port tariffs which are set uniformly across ports, without regard to differing cost structures (Kent 2012, Ray, Indonesian Port Sector Reform and the 2008 Shipping Law 2009). The requirement for the Pelindos to subsidize each other and legislated, uniform tariffs reduces incentives for efficiency and investment.

The Shipping Law, Law No. 17/2008, started reform of the port system by enabling competition and private sector participation in Indonesian ports. More specifically, it allows private sector participation in port services. Moreover, the law separates the function of port regulator and port service provider (Kent 2012, Ray, Indonesian Port Sector Reform and the 2008 Shipping Law 2009). However, the implementation of the law has been slow. There is also a concern that the port authorities, who still govern privately operated ports and are staffed by civil servants that have a long relationship with the Pelindos, will lead to discrimination against new entrants (Ray, Indonesian Port Sector Reform and the 2008 Shipping Law 2009, Islamic Development Bank 2010). This is quite worrisome as the Pelindos also

[28] The five components of the index are the number of ships in country's maritime transport sector, its container-carrying capacity, its maximum vessel size, its number of services, its number of companies with container vessels in that country's ports.

[29] Pelindo is an acronym for Pelabuhan Indonesia.

still have control over the land in which they operate and there is no deadline for them relinquishing this control and they are exempt from competition laws (Kent 2012).

6.2.1 Constraints of Ports

According to the literature, there are several underlying causes driving the poor quality of the port system in Indonesia. The factors that are constraining the performance of Indonesian ports are:

- Almost all ports in Indonesia have shallow waters, especially along the north coast of Java, which are the busiest ports, hindering the size of ships that can enter port.
- Most ports also have unstable alluvial soils and rivers that cause siltation which requires constant and costly dredging in many ports.
- Poor infrastructure at the ports, especially in the regional ports, forces shippers to use their own gear and limited space for container storage, requiring the trucking of cargo directly from the ship to the customer or container freight station, compounding congestion at the port and causing more delays.
- Many ports only have 1 shift of labor and strict break times that aren't staggered, causing all work to stop for a period.
- Because of the lack of infrastructure for moving cargo and storage, shippers are required to pay informal payments to reduce waiting time (Ray, Indonesian Port Sector Reform and the 2008 Shipping Law 2009, Islamic Development Bank 2010).
- For smaller ports, there are not enough berth lengths (the place designated for a ship at a dock) or equipment, and shallow sea lanes (Asian Development Bank, International Labour Organization, and Islamic Development Bank 2010).
- The biggest constraint is the lack of competition in the port industry due to the monopolistic power of the state-owned port enterprises and the regulations that enable this lack of competition (Ray, Indonesian Port Sector Reform and the 2008 Shipping Law 2009).
- According to a World Bank study, as of July 2011, the largest portion of cargo dwell time, or the time elapsed from when cargo enters the port until it leaves the port, is from the pre-clearance process (Sandee 2012).

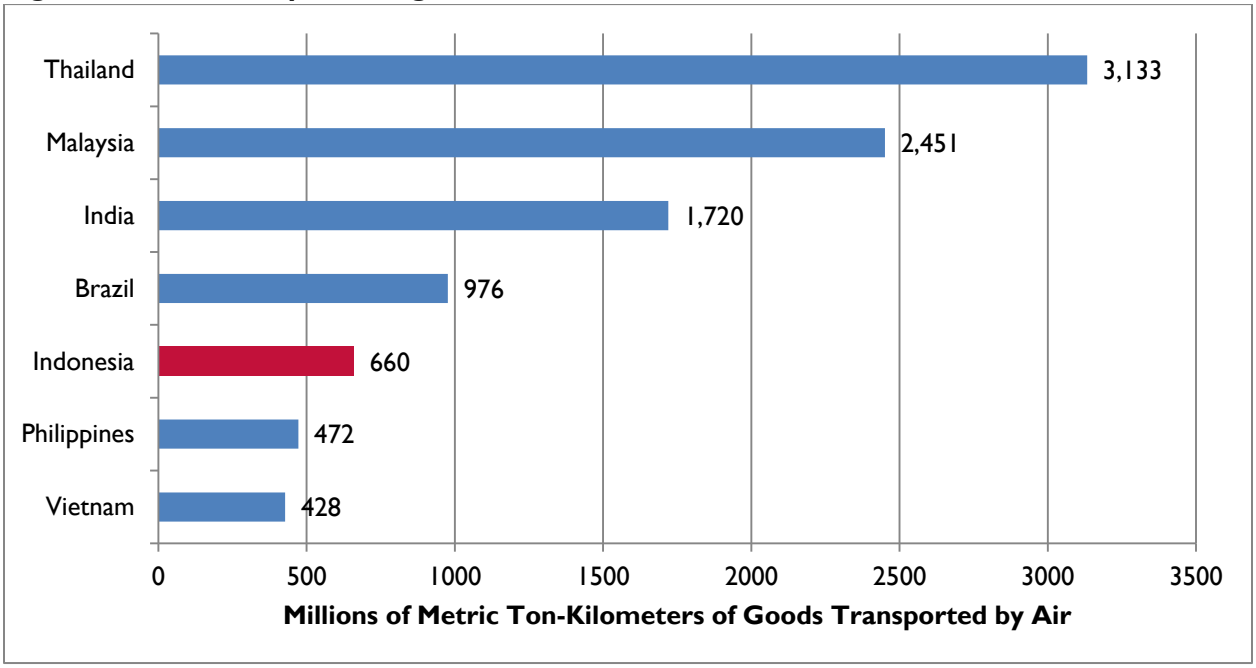
A global trend noted in sea freight is the increasing use of larger container vessels (those with over 12,000 TEU (20-foot equivalent units)) to transport freight to reduce transportation cost per unit. To accommodate these larger ships, Indonesian ports, notably the main ports, will require deeper port waters, heavier equipment, and more efficient cargo handling (Ray, Indonesian Port Sector Reform and the 2008 Shipping Law 2009). Thus, Indonesian ports, which are underperforming now, will continue to fall even further behind in the future if more isn't done to increase efficiency, competition, and investment while improving incentives for performance. Ports are a major binding constraint to growth in Indonesia.

6.3 Air transit

Figure 6.9 illustrates the volume of goods transported by air. Among its comparator countries, Indonesia has the fifth largest volume of freight transported by air. Air transport in Indonesia has unfortunately become a victim of its success: in 1999, the airline industry was deregulated and many new airlines entered the market, lowering fares, increasing frequency of flights, and expanding the number of flight destinations. This resulted in a 5 fold increase in air passenger traffic in 2006 compared to 1999. However, this has caused congestion in airports and inadequate air traffic control (Asian Development

Bank, International Labour Organization, and Islamic Development Bank 2010). Moreover, the number of planes expected in Indonesia's skies will triple in the next 15-20 years (Gahan 2012). Jakarta's airport, Soekarno-Hatta Airport, currently has approximately two times as many passengers as its terminal capacity (Fairbanks 2012). However, since a relatively small portion of goods are transported by air, it is not a significant barrier to economic growth relative to other constraints.

Figure 6.9: Air Transport Freight, 2010



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org. Volume is measured by the distance traveled in kilometers from takeoff to landing of aircraft transporting goods multiplied by the weight of goods transported in metric tons.

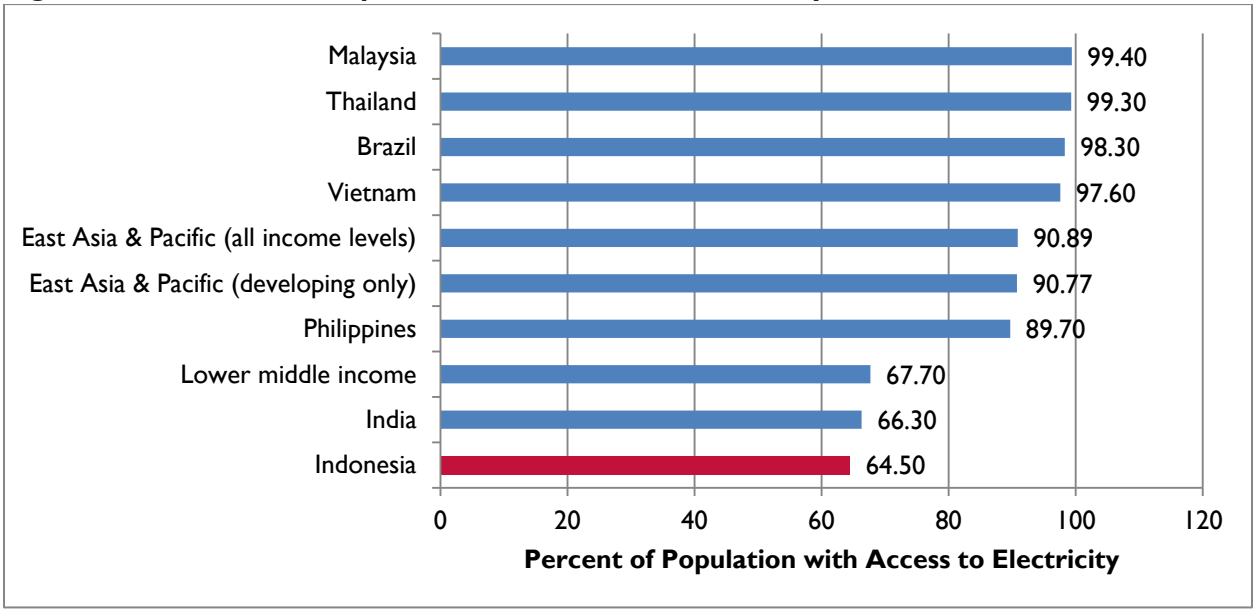
6.4 Electricity

After experiencing excess capacity in electricity before the 1997 Asian Financial Crisis, Indonesia's electricity capacity has declined, resulting in power shortages (World Bank 2006). Most of Indonesia's electricity is produced by the state-owned electric company, Perusahaan Listrik Negara (PLN), which produces 57 percent of the country's electricity. Thirty-three percent of electricity is produced by private industrial and manufacturing companies for their own use because PLN did not provide service in their area or was found to be to unreliable. This is particularly true of large and medium firms; nearly 60 percent of large firms own a generator (Asian Development Bank, International Labour Organization, and Islamic Development Bank 2010). This demonstrates how significant a constraint the lack of adequate electricity is to business. It is expensive to produce one's own electricity, especially for small and medium firms and individual consumers.

Electricity tariffs in Indonesia are some of the lowest in Southeast Asia and below the cost production, thus hindering PLN from expanding capacity. These low tariffs also act as a disincentive for private electric companies to compete or provide more capacity (Asian Development Bank, International Labour Organization, and Islamic Development Bank 2010). Furthermore, the tariff structure of electricity is uniform across the country, which in a country with many remote islands, hinders providing service to more costly regions (World Bank 2006).

In the latest World Development Indicator data displayed in Figure 6.10, only 65 percent of the population in Indonesia had access to electricity in 2009. The World Bank (2006) estimated that of those without access to electricity, over 50 percent live outside of Java and Bali and around 80 percent live in rural areas. In estimates from 2004, the electrification rate ranged from a high of 86 percent of the population on Bali, to a low of 22 percent in Papua (World Bank 2006).

Figure 6.10: Percent of Population with Access to Electricity, 2009



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

Law No. 15/1985 placed responsibility for regulating the electricity industry on the government; PLN controlled the production, transmission and distribution of electricity.[30] Law No. 20/2002 reformed the industry by increasing competition, enabling a role for the private sector, and allowing multiple companies to generate power; unbundled the various supply chain functions from PLN; established a path for adjusting electricity tariffs; and other provisions. However, the Constitutional Court annulled the law in December 2004 by interpreting a clause in the Constitution to mean the government should operate essential sectors of production. As a result Law No. 30/2009 was enacted, which again tried to reform the industry, though not the same extent as 2002 law. This law allows electricity tariffs to vary and private companies to transmit and distribute electricity directly to end-users. However, PLN is still given priority to conduct business in an unserved area before private companies can be offered that business. Since PLN remains the only company that owns transmission and distribution assets, which entails a large up-front investment, they effectively have maintained a monopoly on these functions. Furthermore, the implementing regulations are still being written and it is unclear if this law will have the same fate as the 2002 law (Islamic Development Bank 2010, Price Waterhouse Coopers 2011).

Independent Power Producers (IPPs) are companies that contract with PLN to generate electricity in order to sell to PLN. This could be a way to expand the capacity of PLN. However, problems in land acquisition, the difficulty in obtaining bank financing for these projects because of past PLN defaults on previous agreements, and the poor pricing of electricity sold to PLN hinders the emergence of IPPs. For instance, the price for which PLN buys electricity from an IPP is based on a formula that uses the

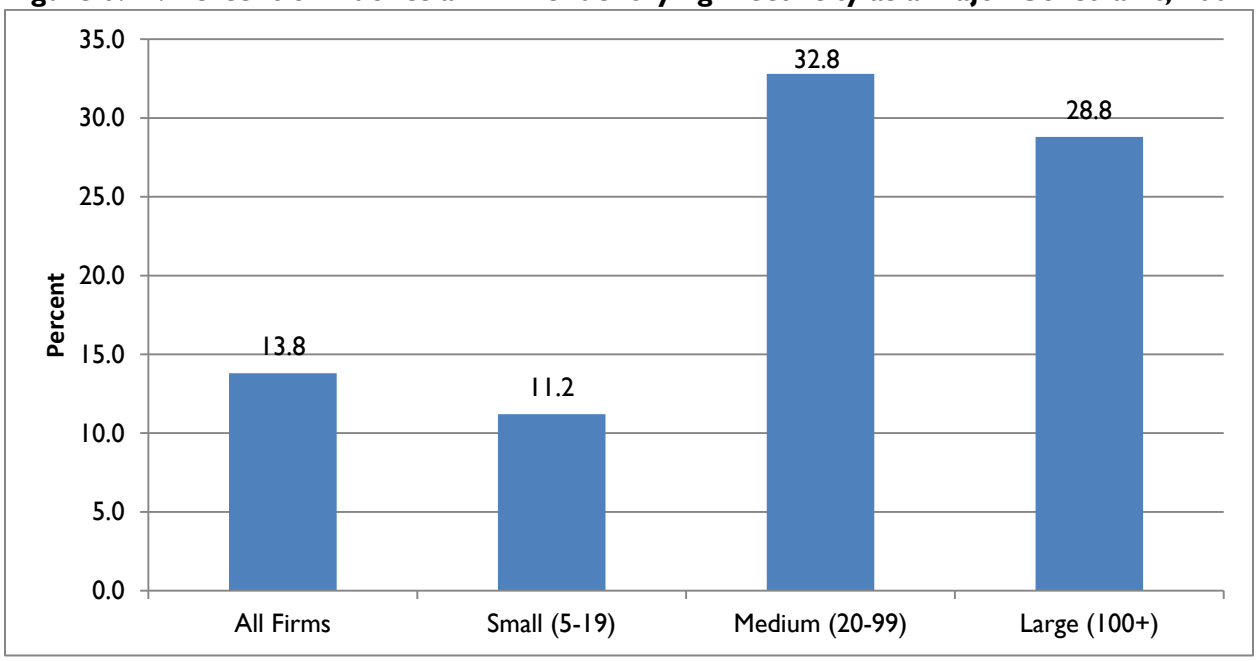
[30] Generation refers to creating electricity. Transmission refers to moving electricity in bulk from its creation point to points where it can be distributed to customers. Distribution refers to getting electricity to end customers.

national uniform tariff, which, as we stated previously, does not cover all costs, and so these contracts are not always financially viable (Islamic Development Bank 2010, Price Waterhouse Coopers 2011).

Other constraints to developing and expanding the electricity network are derived from difficulties in obtaining land, as it is for other infrastructure projects. If new land is required to build a power plant or to erect transmission or distribution lines, either by PLN or a private company, the process to acquire such land is prohibitive, often driving up the price of land before negotiations are finalized (Islamic Development Bank 2010).

That electricity is a constraint is demonstrated by the opinion of Indonesian firms; they rank electricity as the fourth most important constraint to businesses in the World Bank's 2009 Enterprise Survey. Electricity as a constraint is more prevalent among large and medium firms, of which 30 percent identify it as prohibitive to business (see Figure 6.11).

Figure 6.11: Percent of Indonesian Firms Identifying Electricity as a Major Constraint, 2009

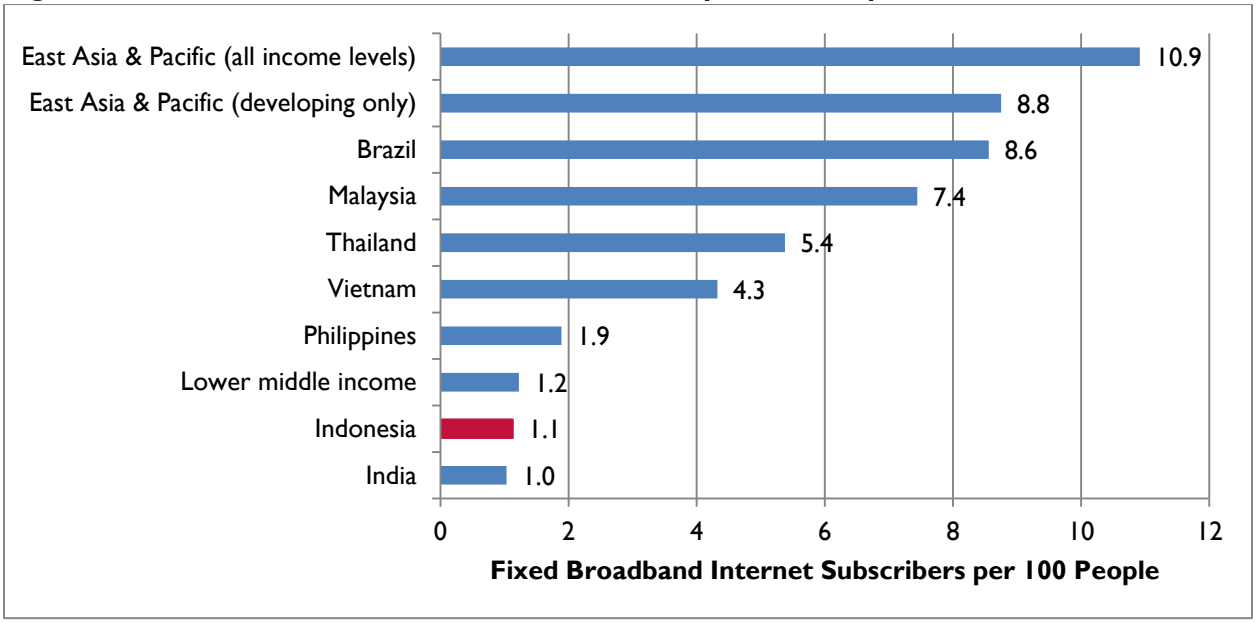


Note: Data from World Bank, Enterprise Survey, 2009. Available at http://www.enterprisesurveys.org.

6.5 Telecommunications

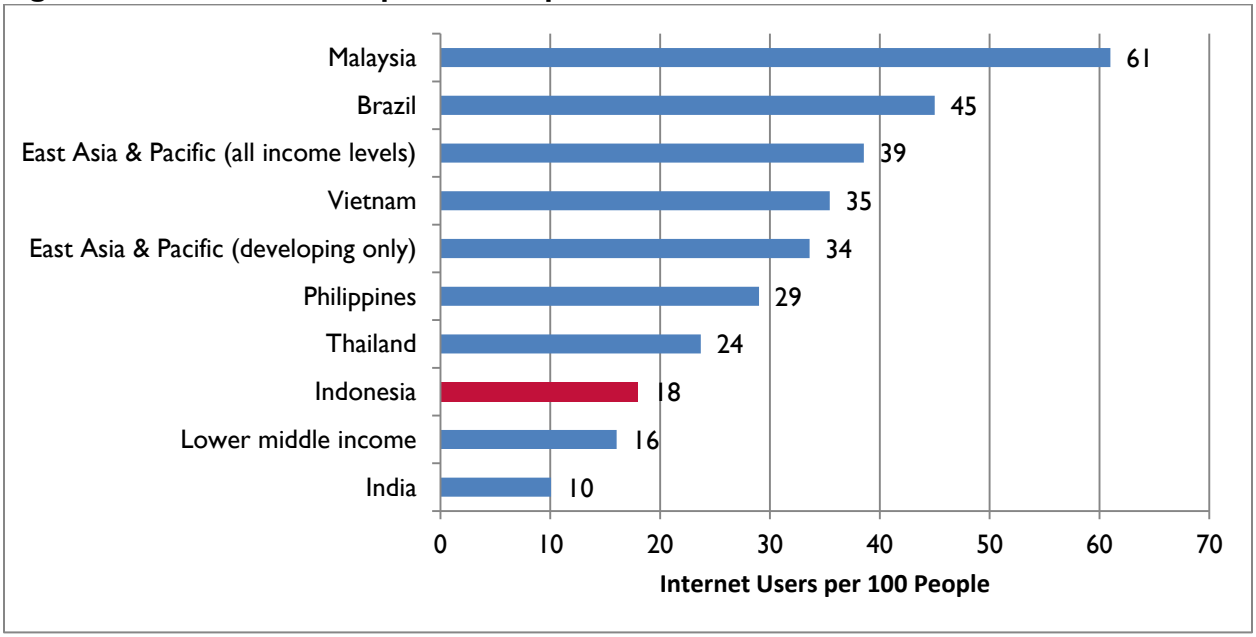
Indonesia has a large digital divide. As seen in Figure 6.12, Indonesia has the second lowest number of broadband internet subscribers per 100 people among its peers and, as seen in Figure 6.13, the third to the lowest internet users per 100 people.

Figure 6.12: Fixed Broadband Internet Subscribers per 100 People, 2011



Note: Data from International Telecommunication Union, World Telecommunication/ICT Development Report and database, and World Bank estimates. Available at http://databank.worldbank.org.

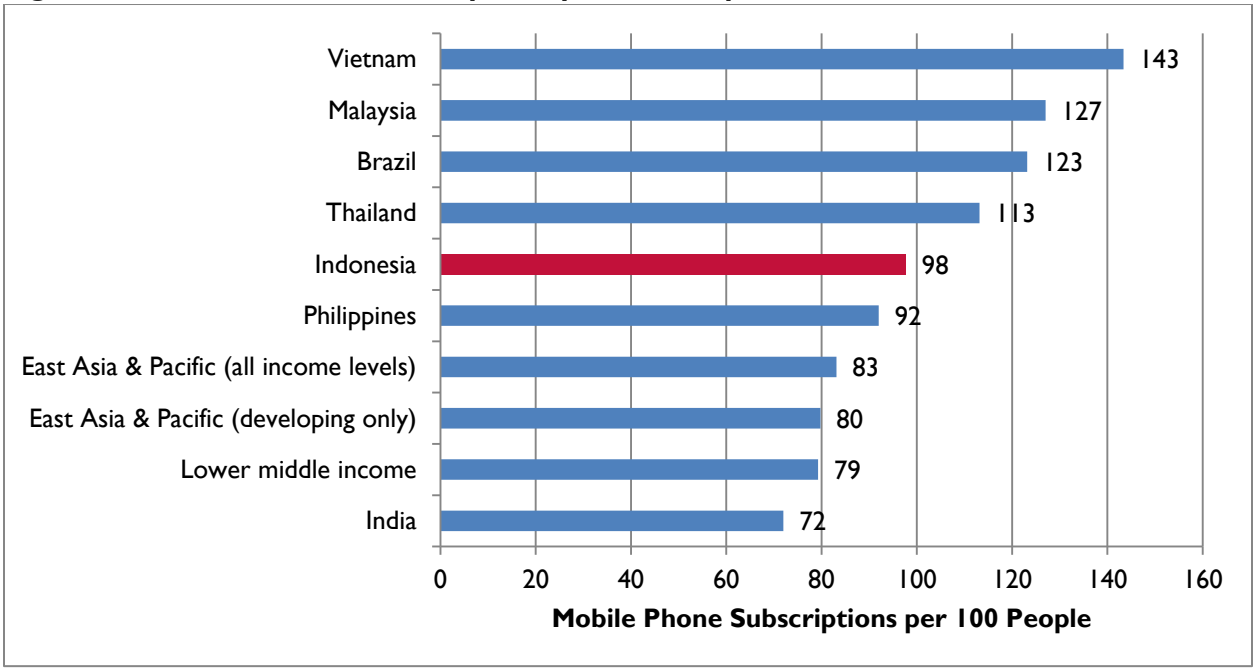
Figure 6.13: Internet Users per 100 People, 2011



Note: Data from International Telecommunication Union, World Telecommunication/ICT Development Report and database, and World Bank estimates. Available at http://databank.worldbank.org.

However, Indonesia is relatively well connected through cellular phone access. As evident by Figure 6.14, Indonesia is roughly average relative to comparators for mobile phone subscribers, having 98 cell phone subscriptions per 100 people.

Figure 6.14: Mobile Phone Subscriptions per 100 People, 2011



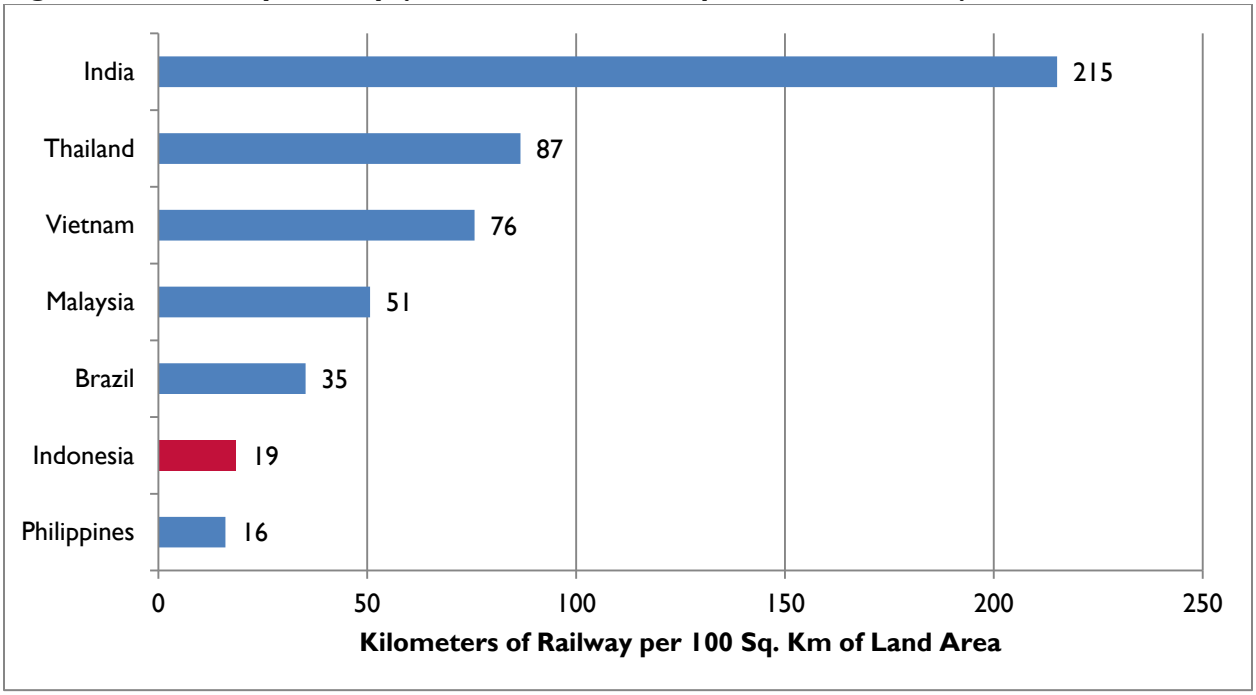
Note: Data from International Telecommunication Union, World Telecommunication/ICT Development Report and database, and World Bank estimates. Available at http://databank.worldbank.org.

Although 21 percent of firm surveyed in 2008 identified telecommunication availability as a constraint to their operations, Indonesia's use and prevalence of telecommunications is sufficient to prevent it from being a binding constraint to inclusive growth (Islamic Development Bank 2010).

6.6 Railway

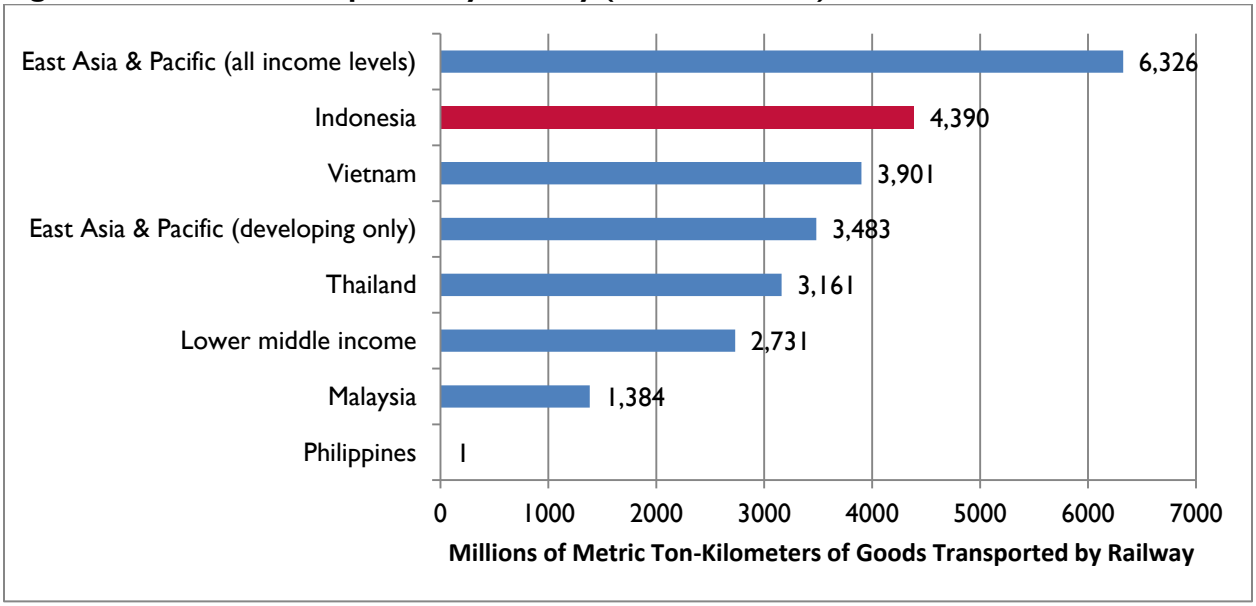
Indonesia has a relatively limited railway network but still transports a large amount of goods through rail. Figure 6.15 shows that Indonesia has the second smallest rail network among its comparators – having 19 kilometers of rail per every 100 square kilometer of land area. Figure 6.16 shows that Indonesia has one of the largest volumes of goods transported by rail relative to comparators with over 4 billion ton-kilometers transported. However, the volume of goods transported by rail in Indonesia is only a fraction of the volume in Brazil and India, whose values could not be placed on the graphic because they transport over 267 billion ton-km and 600 billion ton-km by rail, respectively.

Figure 6.15: Railway Density (Km of Rail Per 100 Sq. Km of Land Area)



Note: Data from World Bank, World Development Indicators, 2012 (available at http://databank.worldbank.org), and author's calculations. Calculations dividing "rail lines (total route-km)" by "land area (sq. km)". Data for Brazil, India, Malaysia, Thailand, and Vietnam from 2010; Indonesia and Philippines from 2008.

Figure 6.16: Goods Transported by Railway (million ton-km)



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org. Volume is measured by the distance traveled in kilometers of transporting goods multiplied by the weight of goods transported in metric tons. Data for Brazil, India, Malaysia, Thailand, and Vietnam from 2010; East Asia & Pacific (all), Indonesia, and Lower Middle Income, 2008; East Asia & Pacific (developing), 2005; Philippines, 2004.

There are large geographical discrepancies in the availability of rail within Indonesia. Most of Indonesia's railway system is limited to the islands of Java and Sumatra and is single-track; only one pair of track

lines limits transportation to one direction at a time, significantly increasing travel time. Of the freight transported by rail, 80 percent occurs in within Sumatra (Asian Development Bank, International Labour Organization, and Islamic Development Bank 2010).

Rail transportation by itself is an unlikely candidate for a binding constraint to growth in Indonesia. Improved road and port efficiencies alone would be sufficient to spur growth. However, improved rail transportation efficiency could reduce congestion on existing roads, reduce the number of nuisance and illegal payments associated with road transportation, and improve efficiency of port operations. We therefore conclude that transportation infrastructure as a whole is a binding constraint to growth.

6.7 Budget Execution

One major impediment to all infrastructure development is very sluggish budget execution by the government in implementing planned infrastructure projects. Actual expenditures on infrastructure projects consistently have been below planned expenditures. Of the revised 2010 and 2011 budgets, less than 85 percent was actually disbursed and over half of the disbursements were in the last quarter of the fiscal year. However, the government has instated a task force called the Tim Evaluasi dan Pengawasan Penyerapan Anggaran (TEPPA), or Budget Absorption Oversight and Evaluation Team, to identify and remove obstacles to more efficient budget execution (Fiscal Policy Office of the Indonesian Ministry of Finance, Institute for Economic and Social Research - Facullty of Economics - University of Indonesia, World Bank 2012, World Bank 2012b).

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7. Microeconomic Risks and the Business Enabling Environment

The private sector will only invest in a market when they expect to capture adequate returns on investment. This appropriability can be easily threatened by both government and market failure. Any law, policy, or bottleneck that weakens or decreases such returns will discourage investment and ultimately slow economic growth. Microeconomic risks based on government failures may include weak rule of law, overly burdensome taxation or regulation, labor-capital conflicts, insecurity and corruption (Asian Development Bank, International Labour Organization, and Islamic Development Bank 2010).

We begin the analysis of micro-economic appropriability issues with an overview of the available international business and investment climate indicators, including the World Bank Doing Business Indicators (WBDB), World Bank Enterprise Surveys, Global Competitiveness Surveys, and Worldwide Governance Indicators. If a constraint impacts a large segment of the economy, it naturally leads to a larger impact on economic activity and growth. Using this framework, the size and severity of the potential impact can act as a guide for focusing analysis on areas suspected to be constraining growth in the Indonesian context.

The following are major conclusions about the micro-economic risks in Indonesia:

- Though real estate markets are sufficiently developed in Indonesia, the costs, length of time, and complexity of registering property are high with some nebulous provisions in laws governing ownership, especially in rural areas. Binding aspects of property rights and land tenure are also discussed in the sections on *Infrastructure* and *Environmentally Sustainable and Inclusive Economic Growth*.
- While simplification of tax regulation is warranted for competitiveness, it is not a binding constraint to growth.
- Though the process of starting a business has improved significantly over the past few years, the number and costliness of regulations and processes remain a binding constraint to growth.
- Closing a business in Indonesia is a slow, difficult and expensive process which prevents good businesses from entering the formal sector. The regulations and policies governing bankruptcy and closing a business is a binding constraint to growth.
- Contract enforcement in Indonesia is time-consuming, unpredictable, complicated and expensive. Businesses are deterred from entering into contracts and financial arrangements with individuals or companies with whom they have no prior relationship. Due to the low rankings in this area, the lack of a robust judicial system for contract enforcement indicates that this is a binding constraint to Indonesia's economic growth.
- Labor Rigidity: While the legal framework would indicate rigidity in labor to the point of becoming a binding constraint to growth, the lack of enforcement and ability of employers to circumvent regulation relieves this pressure and so, for now, labor regulations are not a binding constraint to growth.

7.1 Property Rights

The ability to utilize, transfer and own land is held to be a determining factor in the willingness of a producer to invest in land-based capital and other assets. In developing and middle-income nations,

property rights can have weaknesses that hamper this investment. According to the World Bank's Enterprise Survey, Indonesian firms identified "access to land" as a constraint to firm investment.

As indicated in Table 7.1, the 2012 Doing Business indicator on 'time to register property' ranks relatively poorly, 99th out of 183 countries, dropping from 96th one year earlier. The survey estimates that it takes six procedures and 22 days to register property in urban areas of Indonesia. This process also costs upwards of 10.8 percent of the value of the property itself to complete. While 22 days is quite low relative to comparator economies (see Table 7.2), the cost to register property in Indonesia, not including bribes and other costs often incurred, is almost triple that of some comparators.

Table 7.1: The Ease of Registering Property in Indonesia by Doing Business Indicators

Indicator	DB2010	DB2011	DB2012
Rank	-	96	99
Procedures (number)	6	6	6
Time (days)	22	22	22
Cost (% of property value)	10.7	10.9	10.8

Note: Data from World Bank, Doing Business Indicators. Available at http://www.doingbusiness.org/custom-quiery.

Table 7.2: Ease of Registering Property in Indonesia and Comparator Countries, 2012

Country	Registering Property			
	Rank	Procedures (number)	Time (days)	Cost (% of property value)
Brazil	105	13	33	2.6
India	97	5	44	7.3
Indonesia	99	6	22	10.8
Malaysia	62	5	48	3.3
Philippines	120	8	39	4.8
Thailand	27	2	2	6.3
Vietnam	48	4	57	0.6

Note: Data from World Bank, Doing Business Indicators. Available at http://www.doingbusiness.org/custom-quiery.

The time required to register property in Indonesia varies by city. Table 7.3 shows that across 20 of Indonesia's cities, the amount of time required to register property ranges from as little as 12 days to as many as 54. The costs are fairly consistent, however, ranging from only 10.81-11.03 percent of the value of the property (with Batam acting as an outlier at a higher 13.35 percent). Procedures are also relatively consistent across cities.

Table 7.3: Ease of Registering Property for 20 Regions within Indonesia, 2012

	Registering Property		
Indonesia City/Region	**Procedures (number)**	**Time (days)**	**Cost (% of property value)**
Balikpapan	6	39	10.9
Banda Aceh	6	39	10.9
Bandung	6	19	10.9
Batam	7	54	13.3
Denpasar	6	39	10.9

Gorontalo	6	31	10.9
Jakarta	6	22	10.8
Jambi	6	37	10.9
Makassar	6	38	10.9
Manado	6	12	11
Mataram	6	25	10.9
Medan	6	37	10.9
Palangka Raya	6	15	11
Palembang	6	21	10.9
Pekanbaru	6	29	10.9
Pontianak	6	38	10.9
Semarang	7	43	10.9
Surabaya	6	39	10.8
Surakarta	6	54	10.9
Yogyakarta	6	36	10.9

Note: Data from World Bank, Doing Business Indicators. Available at http://www.doingbusiness.org/custom-quiery.

In rural areas of Indonesia, the picture is somewhat worse. The Asian Development Bank, International Labour Organization, and the Islamic Development Bank (2010) report that only a quarter of rural landholders have a formal certificate for their land. They also note that some of Indonesia's peers have near universal land certification while others are above the 90 percent mark.

There are a myriad of benefits from having a system that efficiently and inexpensively registers property. Formalized land titles enable entrepreneurs to offer their land as collateral, which increases credit supply and fosters investment and economic growth. Formalizing and registering properties has the added benefit to government of increased tax revenue through a broadened tax revenue base. After a project in Thailand increased land-titling, property values increased by anywhere from 75 percent up to 197 percent after registration (International Finance Corporation and World Bank 2012b).

Due to the cost of titling land and the vast quantity of land that remains untitled, land tenure issues appear to be a constraint to growth. Based on interviews and desk research, the issue of land tenure is likely of higher concern on islands outside of Java and Sumatra, where businesses tend to be smaller and more poorly capitalized, and who cannot strongly shoulder the regulatory burden associated with registering title to land. While the high cost relative to neighboring and similar economies of registering purchased land provides a disincentive for foreign businesses to invest in Indonesia and discourages informal businesses from formalizing, land rights in urban and commercial areas are relatively secure.

7.2 Taxation

In every country taxation is a delicate albeit necessary tool for nations to generate revenue in order to provide essential public goods including infrastructure and social services. Low collections create unsustainable deficits, which harms growth as described in the section on *Macroeconomic Constraints*. However, taxation introduces market distortions to economies' ability to efficiently allocate resources of production. When taxes reach a high level of burden, they can reduce significantly expected private returns on investment, which reduce economic actors' incentives and desire to invest, thus hampering the overall growth of the economy. Additionally, it encourages the existence of an informal sector where taxes are not levied (International Finance Corporation and World Bank 2012a).

Table 7.4 provides a comparison of tax rates and tax-paying burden in Indonesia over the past five years. Indonesia ranks low in the Doing Business indicators in taxation, ranked at 131st out of 183. While tax

rates, at 34.5 percent, have improved since last year from 37.3 percent and are similar to comparator countries in East Asia and the Pacific, the burden of payment as evidenced by the number of payments required per year is relatively high.

Table 7.4: Businesses' Tax Burden in Indonesia Since 2007

Indicator	2007	2008	2009	2010	2011	2012
Overall Rank	-	-	-	-	134	131
Payments (number per year)	51	51	51	51	51	51
Time (hours per year)	576	266	266	266	266	266
Total tax rate (% of profit)	37.3	37.3	37.3	37.6	37.3	34.5

Note: Data from World Bank, Doing Business Indicators. Available at http://www.doingbusiness.org/custom-quiery.

Table 7.5 shows the tax burden for several Southeast Asian countries. Medium-sized companies in Indonesia average 51 tax payments each year, over twice as much as the regional average of 25 and spend approximately 266 labor hours per year filing taxes compared to 216 annual labor hours regionally. While tax rates are similar to those of other economies, paying taxes is a relatively more cumbersome process in Indonesia. However, the "Extent and Effect of Taxation" measure in Indonesia's Global Competitiveness Index places Indonesia 30th in the world out of 144 ranked economies (Global Competitiveness Index, 2011-2012). This rather high global ranking helps confirm that while the tax system could be simplified to encourage investment, it is not a binding constraint to Indonesia's growth.

Table 7.5: Tax Burden in Comparator Countries in Southeast Asia, 2012

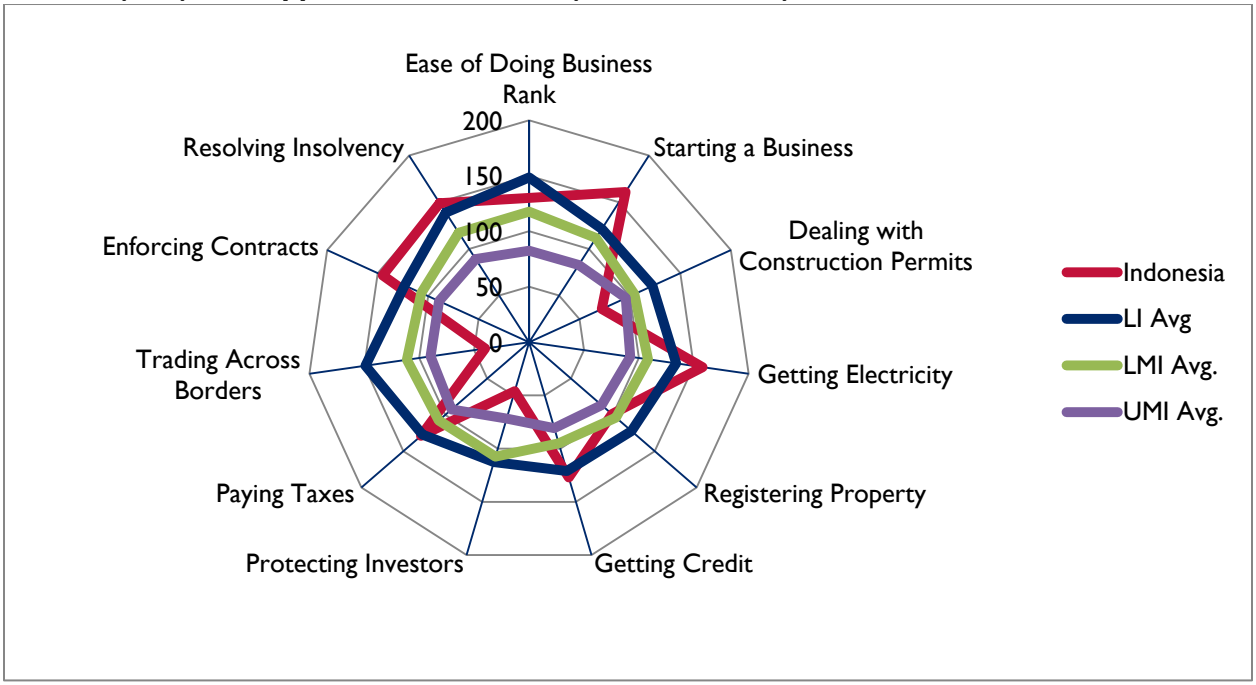
Country	Tax Rank	Payments (number per year)	Time (hours per year)	Total tax rate (% of profit)
Singapore	4	5	84	27.1
Malaysia	25	13	133	34
Cambodia	61	39	173	22.5
Thailand	92	22	264	37.5
Lao PDR	122	34	362	33.3
Indonesia	**129**	**51**	**266**	**34.5**
Philippines	136	47	195	46.5
India	149	33	254	61.8
Vietnam	153	32	941	40.1
Brazil	154	9	2,600	67.1

Note: Data from World Bank, Doing Business Indicators. Available at http://www.doingbusiness.org/custom-quiery.

7.3 Business Enabling Environment (BEE)

The business outlook in Indonesia rests on a new growth frontier, with high levels of optimism emanating from a domestically driven and fundamentally sound economy. However, there exist bottlenecks, which, if not rooted out and addressed, can hamper the overall growth of the economy. The business-enabling environment consists of several key elements which can be measured to detect areas of weaknesses in policy and regulatory environments.

Figure 7.1: World Bank Doing Business Rankings for Low Income (LI), Lower-Middle Income (LMI) and Upper-Middle Income (UMI Countries), 2012



Note: Data from World Bank, Doing Business Indicators. Available at http://www.doingbusiness.org/custom-quiery.

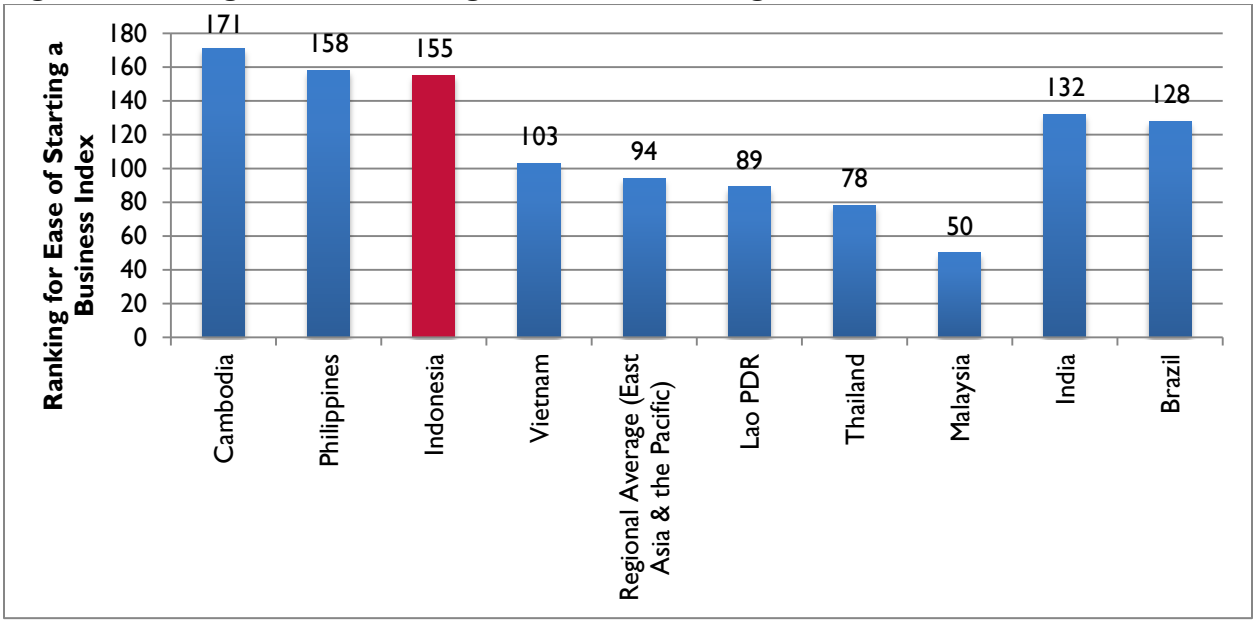
The almost concentric rings in Figure 7.1 indicate a correlation between income status and Doing Business rankings and show several areas where Indonesia, a lower-middle income nation, needs to focus to catch up with its peer group nations (note that a better business environment or a higher rank corresponds to lower values or a smaller circle in the graphic). As indicated by this figure Indonesia is ranked significantly more poorly than comparator economies in several categories: the ease with which one can start a business; the ability to get electricity; the ability to find needed credit; paying taxes; resolving insolvency; and enforcing contracts. As the ability to obtain electricity and credit and taxation are covered elsewhere in this report (see the discussions on infrastructure and access to financing), we focus on the remaining areas of starting a business, enforcing contracts, and closing a business (resolving insolvency). Although labor rigidity and labor regulations are discussed thoroughly in the *Labor and Wages Policy Environment* section, we will briefly discuss how they relate to the business-enabling environment.

7.3.1 Ease of Starting a Business

One of the most common measurements of the efficiency of a national framework for commerce is the ease or difficulty with which one can start a business. The costs associated with this metric can be both financial, as in fees and bribes, or costs associated with time, such as onerous registration requirements and drawn out timelines to the completion of registration. As these costs to start or operate a business in the open market are high, they act as a binding constraint to growth, pushing businesses either out of the country, or into black and grey markets where they cannot be monitored, properly regulated or taxed for the benefit of public goods. For businesses that stay local but informal, such high cost in registering a business also prevents growth of these businesses; if a business becomes too large, it is more easily caught by regulators and forced to comply with regulations.

As indicated in Figure 7.2, Indonesia ranks quite low in ease of starting a business, at 155th of 183 countries. This ranking is significantly lower than the regional average, indicating that Indonesia is at a disadvantage compared to its neighboring competitors.

Figure 7.2: Doing Business Rankings for Ease of Starting a Business, 2012



Note: Data from World Bank, Doing Business Indicators. Available at http://www.doingbusiness.org/custom-quiery.

As exhibited in Table 7.6, Indonesia has made demonstrable progress towards a more streamlined and efficient system of starting and formalizing a business over the past few years. Twenty-five percent of the previously required procedures have been eliminated, reducing the previous twelve steps down to eight. Positive, too, is that the length of procedures has decreased by over half from an average of 105 down to 45 days. Additionally, the cost to start a business has decreased immensely, from 80 percent to17.9 percent of income per capita. The minimum required start-up capital of 46.6 percent income per capita, while higher than it was in 2008 (38.4 percent), has decreased considerably from the 74.2 percent level of 2009. These trends point optimistically towards a political will to ease the burden of formalizing a business in Indonesia.

Table 7.6: Formalizing a Business in Indonesia

Indicator	2008	2009	2010	2011	2012
Rank	..	..	..	156	155
Number of Procedures	12	11	9	9	8
Length of Procedures (days)	105	76	60	47	45
Cost (% of income per capita)	80	76.7	25	21.5	17.9
Paid-in Min. Capital (% of income per capita)	38.4	74.2	59.7	53.1	46.6

Note: Data from World Bank, Doing Business Indicators. Available at http://www.doingbusiness.org/custom-quiery.

This optimistic view, however, is somewhat tempered when measured against comparator economies. As demonstrated in Table 7.7, Indonesia ranks below the regional average in each of the components of starting a business. The number of procedures required to formalize has been decreasing over the past few years and is now approaching the regional average. Similarly, although it takes over two weeks longer than the regional average, the difference between the Indonesian time requirement to start a

business and the regional time requirement is decreasing. The cost as a percentage of income per capita is very near the regional average and seems to remain quite competitive among neighboring comparator economies but the minimum capital requirements remain almost three times higher than the regional average and significantly higher than comparators.

Table 7.7: Ease of Starting a Business in Indonesia and Comparator Countries, 2012

Economy	Ease of Doing Business Rank	Ease of Starting a Business Rank	Procedures (number)	Time (days)	Cost (% of income per capita)	Paid-in Min. Capital (% of income per capita)
Singapore	1	4	3	3	0.7	0
Malaysia	14	50	3	6	16.4	0
Thailand	17	78	5	29	7	0
East Asia and Pacific Average	84	94	7	32	21.3	16.7
Vietnam	99	103	10	38	10.6	0
Brazil	128	122	13	119	5.4	0
Indonesia	130	155	9	47	23.5	46.6
India	132	169	12	29	46.8	149.6
Philippines	136	158	16	36	19.1	5.2
Cambodia	141	171	9	85	109.7	31.3
Lao PDR	166	89	7	93	7.6	0

Note: Data from World Bank, Doing Business Indicators. Available at http://www.doingbusiness.org/custom-quiery.

Ultimately, these low rankings indicate a constraint to growth for domestic entrepreneurs not yet formalized, as the incentive and ability to register a business remains out of reach for the smallest firms. However, in the context of competitiveness in attracting foreign investment and business establishment versus comparator countries throughout East Asia, Indonesia, while not the region's elite, remains rather competitive. Compared to other elements of the business enabling environment, it appears that the negative impacts of being less competitive in this regard are not seriously hampering economic growth, but are perhaps hurting the Government of Indonesia's ability to properly oversee commerce and ensure a broad business tax-base. However, if the trends towards simplification and reductions in cost and time continue, Indonesia should become even more competitive in the region and difficulties starting a business will not severely constrain growth.

7.3.2 Ease of Resolving Insolvency

Resolving insolvency, or closing a formalized business, acts as an important filter to an economy by allowing resources that are being used inefficiently to be reallocated to more profitable sectors. A properly structured insolvency proceeding can

> "result in the speedy return of businesses to normal operation and increase returns to creditors. By improving the expectations of creditors and debtors about the outcome of insolvency proceedings, well-functioning insolvency systems can facilitate access to finance, save more viable businesses and thereby improve growth and sustainability in the economy overall" (International Finance Corporation and World Bank 2012a).

However, in Indonesia, a bankruptcy proceeding is a difficult and lengthy process. In order to resolve insolvency, procedures can require up to 5.5 years and cost upwards of 18 percent of the value of the estate with a recovery rate of around $0.138 per dollar invested. Consequently the long, backlogged process of bankruptcy has created severe bottlenecks that drastically cut the amount of funding that claimants could recover. According to the Doing Business indicators, Indonesia ranked 149th of 183 in ease of resolving insolvency in 2012 as shown in Table 7.8.

Table 7.8: Ease of Resolving Insolvency in Indonesia and Comparator Countries, 2012

		Resolving Insolvency			
Economy	**Ease of Doing Business Rank**	**Rank**	**Time (years)**	**Cost (% of estate)**	**Recovery rate (cents on the dollar)**
Singapore	1	2	0.8	1	91.3
Malaysia	14	48	1.5	15	44.6
Thailand	17	52	2.7	36	43.3
East Asia and the Pacific Average	87	105	2.9	22	34.9
India	132	109	4.3	9	27.6
Brazil	128	139	4	12	17.9
Vietnam	99	145	5	15	16.5
Indonesia	130	149	5.5	18	13.8
Cambodia	141	152	6	15	12.6
Philippines	136	166	5.7	38	4.7
Lao PDR	166	185	no practice	no practice	no practice

Note: Data from World Bank, Doing Business Indicators. Available at http://www.doingbusiness.org/custom-quiery.

The high costs, lengthy procedural delays and low rate of recovery for investors and financiers destroys the incentives for financial institutions to lend to businesses and increases the risk to owning a business as well. Therefore, Indonesia ranks significantly lower than the average East Asian and Pacific comparator countries and, as a result, will be less competitive in attracting investment in business. For these reasons, the ease of resolving insolvency is a significant and binding constraint to growth.

7.3.3 Contract Enforcement

In a manner similar to property rights and the ability to hold tenure over land, the ability to enforce contractual obligations is paramount to ensure that transactions are fairly and consistently acted upon. Contract enforcement procedures provide incentive to create complex commercial agreements only when they are low-cost and impartial. This facilitates trade and aids in economic growth. Dispute resolution frameworks, when functioning properly and efficiently, guarantee that enterprises—both domestic and international—are confident and able to engage in long-term business investment. On the other hand, without these assurances that a contract will be enforced by the political and judicial systems, private sector actors cannot use contracts, particularly for financing, leading to a rise in the incidence of cash-only transactions and short-term procurement and investment. "Without effective contract enforcement, people might well do business only with family, friends and others with whom they have established relationships" (International Finance Corporation and World Bank 2012a).

Well-functioning and accessible institutions for contract enforcement have other positive social effects, namely the promotion of equality throughout the populace. Impartial enforcement without barriers of high costs creates an avenue by which competition and market participation may be entered into by

anyone, particularly the low- and middle-income individual, because of the reduced transaction costs of conducting business. History shows, however, that in an environment in which institutions for the enforcement of contracts are weak, poorly designed, or non-existent, only large and powerfully connected interests are able to operate successfully. This situation comes at the cost of the disenfranchisement of the marginalized groups, whether on the basis of income, gender, or ethnicity.

In the 2012 World Bank Doing Business Surveys, enforcement of contracts in Indonesia is quite poor. Currently in Indonesia, enforcing a contract requires 40 procedures and around 498 days to complete, and costs an untenable 139.4 percent of the value of the claim. As a result, Indonesia stands at 145th out of 183 economies on 'ease of enforcing contracts'. Table 7.9 provides benchmarks against comparator economies, indicating that Indonesia seriously lags behind regional comparators in contract adjudication.

Table 7.9: Ease of Enforcing Contracts in Indonesia and Comparator Countries, 2012

Economy	Ease of Doing Business Rank	Enforcing Contracts			
		Rank	Time (days)	Cost (% of claim)	Procedures (number)
Singapore	1	13	150	25.8	21
Thailand	17	26	479	15	36
Malaysia	14	31	425	27.5	29
East Asia & Pacific Average	87	87	523	48.6	37
Philippines	136	109	842	26	37
Lao PDR	166	113	443	31.6	42
Brazil	128	120	731	16.5	45
Cambodia	141	144	401	103.4	44
Indonesia	130	145	498	139.4	40
India	132	184	1,420	39.6	46

Note: Data from World Bank, Doing Business Indicators. Available at http://www.doingbusiness.org/custom-quiery.

As indicated in Table 7.10, Indonesia has seen very little movement in improving the enforcement of contracts in their justice system. The Doing Business Survey has uncovered that lack of contract enforcement does decrease the number of investments that firms initiate and that when a firm does choose to do so it will generally be only among small groups of connected investors who know each other well. This reduces their collective risk exposure. In Indonesia, contract enforcement is generally known to be "uncertain, unpredictable, and costly, undermining the adequacy of the law" (Asian Development Bank, International Labour Organization, and Islamic Development Bank 2010). Due to the large and negative impact of the lack of ease of enforcing contacts in Indonesia, the economy falters in its search for new entrants and contract enforcement is found to be a critical constraint to growth. This is particularly difficult for small and medium-sized enterprises to overcome as they tend to be less connected to able investors.

Table 7.10: Ease of Enforcing Contracts in Indonesia Over Time

	2009	2010	2011	2012
Time (Days)	498	498	498	498
Cost (% of claim)	139.4	139.4	139.4	139.4
Procedures (number)	40	40	40	40

Note: Data from World Bank, Doing Business Indicators. Available at http://www.doingbusiness.org/custom-query.

7.3.4 Labor Rigidity

Indonesia's labor regulation is perceived to be among the most rigid in the region, with high costs of redundancy and termination of employees. It is possible that this rigid and artificially expensive labor market could be a critical constraint to growth, as minimum wage and severance regulations are quite onerous. However, the lack of legal execution and the ability of firms to skirt these labor regulations by hiring casual employees or by outsourcing and contracting avoids the costs imposed by these regulations and may partly explain the lack of importance placed on labor rigidity in Indonesia. According to the Asian Development Bank, International Labour Organization, and Islamic Development Bank (2010), "while the Indonesian labor markets are perceived to be rigid, this may not be a critical constraint to investment." Additionally, the Asian Development Bank, International Labour Organization, and Islamic Development Bank (2010) find that there is not a strong correlation between investment and labor market rigidity in Indonesia and that rigidity is not among the top five hindrances to business executives in Indonesia.

While these surveys and studies take into account the opinions of businesses currently operating in Indonesia, it is more difficult to identify losses from investments that do not occur due to the outward appearance and lack of stability produced by these regulations. This labor market rigidity could cause investors to choose a country that has less rigid labor regulations than Indonesia. While we determine that labor market rigidity in Indonesia is not a binding constraint to growth, we concede that our understanding of how it empirically affects foreign investment is limited. In theory, if regulations were better enforced, greater transparency and stability would attract investment while higher labor costs would discourage it. Which effect would dominate remains speculative.

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8. Governance

Governance in Indonesia has transformed over the last fifteen years with decentralization playing a major role in changing the socio-political landscape. The 1997 crisis began as a financial crisis and grew into an economic and socio-political one that complicated the recovery effort in a multitude of ways. Decentralization was seen as a strategy that would promote good governance by making regional governments more efficient and effective since local officials better know the unique needs of their localities and it is theorized that the citizens can more easily engage and monitor local governments.

Decentralization has touched all aspects of governance, including the regulatory environment, political stability, security, and corruption. Our major findings regarding governance as a constraint to growth are:

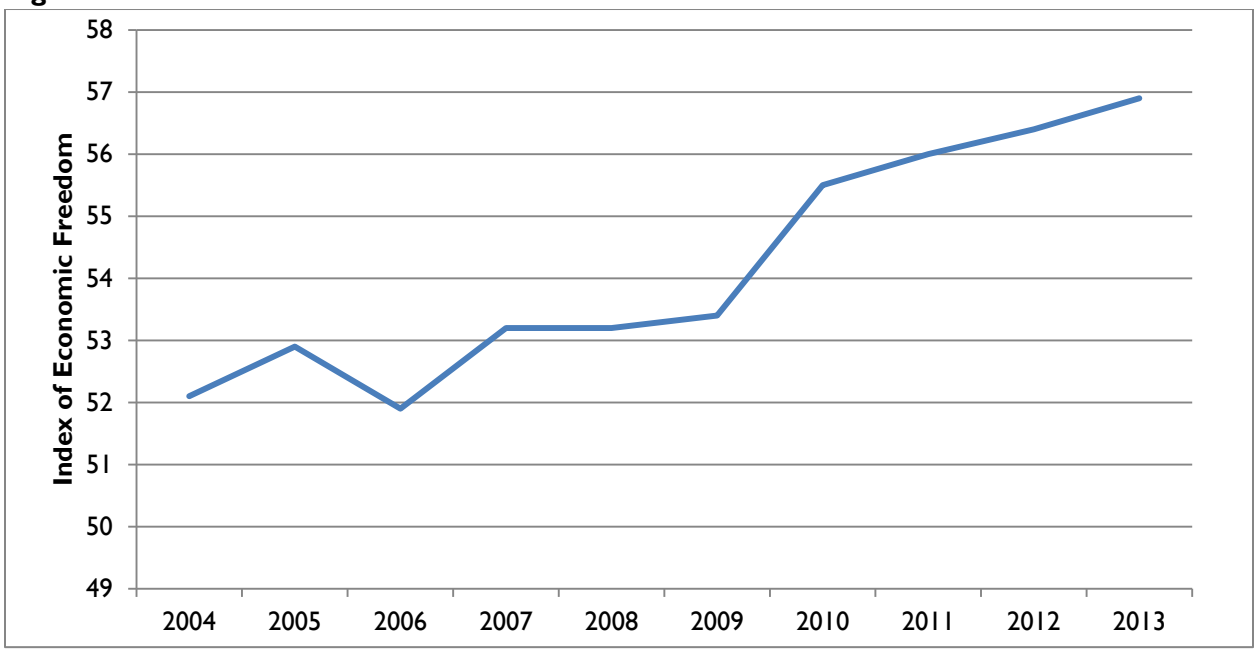
- The implementation of decentralization has become a barrier to growth by creating a myriad of local level laws and regulations, including fees and other nuisance taxes for formal sector businesses, labor regulations such as licensing and minimum wage levels, and rules governing the provision of services.
- Overlapping jurisdictions in procurement are a significant barrier to private sector actors bidding on public procurement opportunities.
- Trade between provinces within Indonesia is hampered by nuisance taxes and fees.
- Measures of political stability are on an upward trend, but instances of ethnic and religious conflict remain. Internal migration plays a role, especially in the province of Papua.
- Past acts of terror are causally linked with drops in foreign direct investment. However, the government has grown adept at preventing attacks. Any future attack could substantially impact tourism and other important industries.
- The exercise of public power for private gain is rampant in all aspects of doing business in Indonesia and is a binding constraint to growth, discouraging both foreign and local investment. Indonesia has one of the worst perceptions of corruption relative to comparator countries, though its ranking in the Transparency International Corruption Perception Index has improved steadily over the last several years.

8.1 Decentralization Issues

The constitutional reform process which lasted from 1999 to 2002 implemented some important constitutional amendments that laid the foundation for decentralized governance which made sense for such a diverse country spread out over two million square kilometers on 17,000 islands[31]. Overall, political and economic freedoms have been on the rise – Freedom House ranks Indonesia as 'free' overall, and the Heritage Foundation has documented an increasing trend in economic freedom. Figure 8.1 shows the economic freedom index score for Indonesia, which consists of measures for property rights, freedom from corruption, labor freedom, trade freedom, and investment freedom among others, stands at 56.9, which is slightly below the regional average of 57.4.

[31] Law 22 of 1999 on Local Autonomy and Law 25 of 1999 on Fiscal Relations between Central and Local Governments.

Figure 8.1: Index of Economic Freedom in Indonesia



Note: Data from the Heritage Foundation, Index of Economic Freedom. Index of Economic Freedom ranges from 0 to 100, with 100 being the most free.

The decentralized system has allowed for significant advances in democracy and civil society, but has also caused serious challenges in service delivery, corruption control, and the business enabling environment in general. The four major issues Deuster (2002) cites that Indonesia is still tackling as a result of decentralization are economic stabilization and recovery, democratic transition and political reform, decentralization of political power, and redefinition of political power.

Some of the more important policy changes of decentralization have been the transfer of responsibility for health, education, basic infrastructure, and other services from central government to the district government, which consists of both city (*kota*) and regency (*kabupaten*) governments – a fairly low level of government, bypassing the provinces. Although all major tax bases are still controlled by the central government, local governments are given full discretion in expenditure decision-making.

Decentralization has hampered the economic recovery in a few important ways. The 'big bang'[32] approach that was taken led to some counter-productive policies and confusion between federal and local regulations. For instance, district governments have been given the authority to set the minimum wage level in their respective jurisdictions. This complete autonomy in setting the minimum wage has led to vast differentials in wages as well as arbitrary and unpredictable rises in wages in different regions. There is an 80 percent difference between the minimum wage in the province of Gorontalo (INR 837,000) and the minimum wage in the province of Papua (INR 1.5 million). Of the 34 provinces in Indonesia, 30 gave raises in minimum wages of different amounts (Wage Indicator Foundation 2012), potentially inducing some firms to move to districts having lower minimum wages; although there may be no guarantee of the stability of wages if minimum wages adjust frequently.

A lack of clarity in the original legislation on decentralization has led to confusion about the extent of the authority of district governments. In Law 22/1999, a residual approach of power delegation was used that only detailed the functions of central and provincial governments, and left 'the rest' to local

[32] Within two years, the central government would transfer all its major responsibilities (except foreign affairs, defense, trade policy, monetary policy, fiscal policy, and religion) and two thirds of the central government workforce to the nearly 500 districts.

governments (Perdana and Friawan 2007). This left a legislative gap between central and district government functions that has created disputes between both levels of government, as well as for businesses. It has also created new opportunities for power creation, exploitation, and corruption.

District governments, which are not permitted to tax incomes and assets, are authorized to levy other kinds of user charges and fees via Law 34/2000. This has left trade as an obvious and easy target for district governments to impose distortionary regulations as a means of raising their own revenue. Businesses became targets for a flood of new taxes and levies that are issued by districts which indirectly affects the bankability of many investments.

A feature of many local regulations is that they are often drawn up with no clear objective, or they are not designed to protect public interests but to raise revenue. Local governments rely on the use of *retribusi* charges, which can be characterized as public service, business, or licensing levies. These nuisance taxes offer little or no benefits to firms. An example of this was in North Sulawesi in 2002 when the Provincial Government imposed a 'retribusi' charge on all exporters of cloves and cinnamon to fund 'development and quality control measures.' Funds collected through this mechanism were divided between the district government and local governments – but there was no indication as to how the funds were used to develop the sector or to develop quality control (Ray 2009).

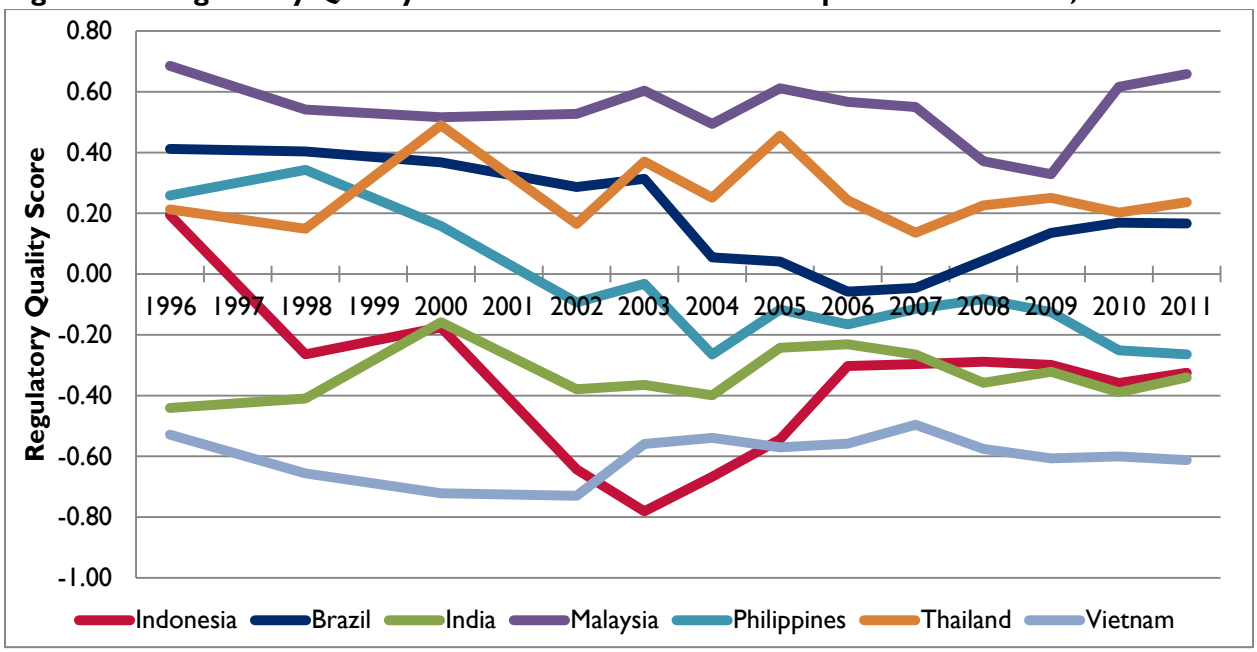
The lower capacity of policy-makers at the district level is an obvious concern as this lower capacity causes poor quality of service provision, hampers efficiency of the useful functions of government, and propagates poor policy choices. An example of counterproductive policy choices is the banning of sugar from East Java which benefitted sugar cane farmers, but imposed higher costs on other producers, consumers, and on the economy as a whole (Ray 2009).

In 2002, the Regional Economic Development Institute (REDI) (2003) in Indonesia surveyed 1026 business owners in 12 provinces and found that only 14 percent responded that stakeholder participation in the policy process had improved under decentralization. This is a strong signal of the dissatisfaction of Indonesian businesses of the regulatory quality of the business environment – but as we will discuss in the next section, perceptions of this are improving.

8.2 Regulatory Quality

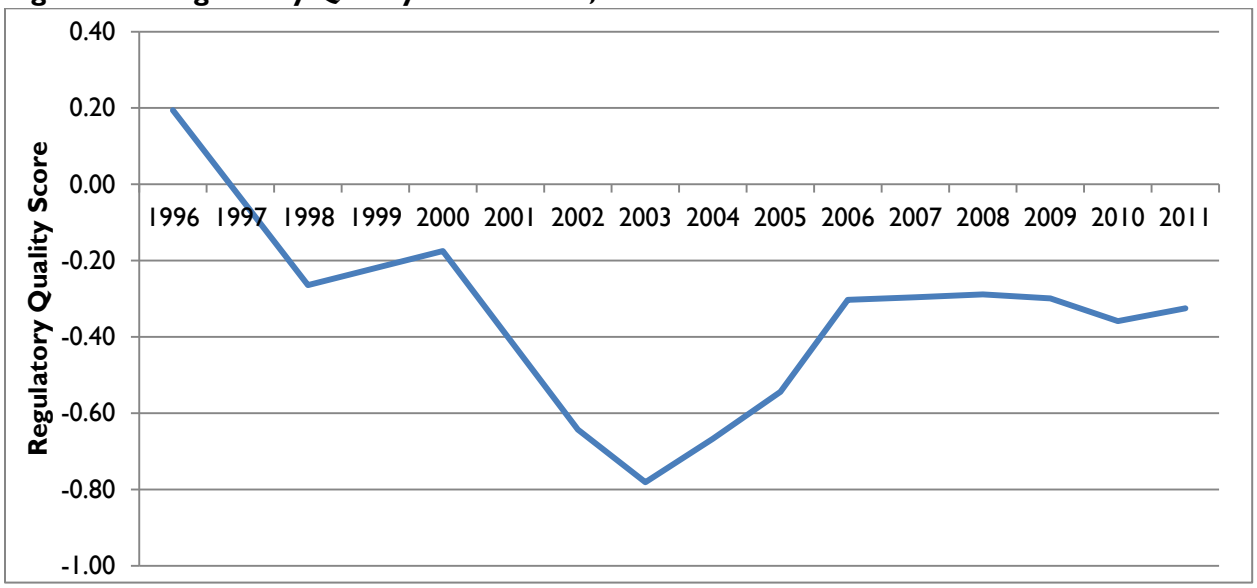
As seen in Figure 8.2, the World Governance Indicators show that Indonesia is amongst the worst performers for regulatory quality compared to other major Southeast Asian countries. Before the 1997 financial crisis, regulatory quality was positive, but became negative soon afterwards and has stayed such. Figure 8.3 shows that the period immediately following decentralization experienced a significant decline in regulatory quality for reasons discussed above, but shows an improvement shortly after the 2002 Presidential elections. However, the index recently has stayed flat. For all World Governance Indicators illustrations, the values are on a -2.5 to +2.5 scale, where a value close to -2.5 represents the worst perception of the ability of the government to formulate and implement sound policies that promote private sector development and a value close to +2.5 indicates perception of high ability.

Figure 8.2: Regulatory Quality Index for Indonesia and Comparator Countries, 1996-2011



Note: Data from Worldwide Governance Indicators, September 2012. Scores range from -2.5 to 2.5 and correspond to standard deviations from the mean score of the index, with higher values representing better regulatory quality. Available at www.govindicators.org.

Figure 8.3: Regulatory Quality in Indonesia, 1996-2011



Note: Data from Worldwide Governance Indicators, September 2012. Scores range from -2.5 to 2.5 and correspond to standard deviations from the mean score of the index, with higher values representing better regulatory quality. Available at www.govindicators.org.

Indicative also of regulatory quality of the business sector is the World Bank's 2009 Enterprise Survey for Indonesia which shows that 29.1 percent of firms formally register when starting operations compared to the Southeast Asia average of 83.9 percent. Currently, 36.9 percent of MSMEs are not formalized at all. This implies significant deterrence for firms to enter or remain in the formal sector.

Indonesia's legal system has made some important progress in the post-Suharto era with several amendments to the original 1945 constitution regarding limits to power, decentralization, and the creation of additional state bodies (Laiman, et al. 2009). The 2011 Global Integrity Report (2011), which considers transparency of the public procurement process, media freedom, asset disclosure requirements, and conflict of interest regulations, currently gives Indonesia an overall strong rating of 81 out of 100. The report also gives the legal framework a high score of 95 out of 100, but with an actual implementation score of 69 out of 100. The weakest integrity indicators identified in the report are "political financing transparency" and "judicial independence, fairness, and citizen's access to justice" which are important factors that influence investment decisions locally and internationally (Global Integrity 2011).

Private sector consultations reveal, however, that several other regulatory issues, such as inconsistent procurement regulations, advertisement of procurement opportunities, and dispute resolution are not clear and well-functioning (Transparency International 2011). One frequently cited complaint is the confusion around the many different interpretations of procurement rules from overlapping jurisdictions. This is particularly important in Indonesia because of the major economic importance of public procurement – roughly one third of the total national budget, or US$160 billion in 2012, is used for procurement (Government of Indonesia 2012). Moreover, district government expenditure accounts for a significant proportion of total public expenditure. Immediately after the decentralization decree, sub-national governments were able to develop their own procurement regulations. Soon after, Presidential decree 80/2003 was issued on public procurement which, although providing some clarity, ultimately exacerbated the risk of overlapping jurisdictions.

Some sub-national governments have used their expanded powers through decentralization to raise funds but without increased spending on services. Ray (2009) outlines some of the various extraneous and burdensome regulations that local governments may impose on businesses, such as trade tariffs, certificates of origin, loading/unloading fees, and transportation charges. Licensing and permitting procedures in Indonesia are complicated, expensive, can be corrupt, and thus hinder efforts of businesses to join the formal sector. A recent USAID Indonesia regulatory study found that several of these procedures were complex, overlapping, redundant, and imposed high compliance costs (Ray and Efrulwan 2009).

In particular, business licensing has been shown to be linked to corruption. Britot-Bigott et al. (2008) argue that complex business regulations can induce more corruption as shown by their analysis of the relationship between corruption and the number of procedures, time involved, and costs paid to start and close a business, register property, and enforce contracts.

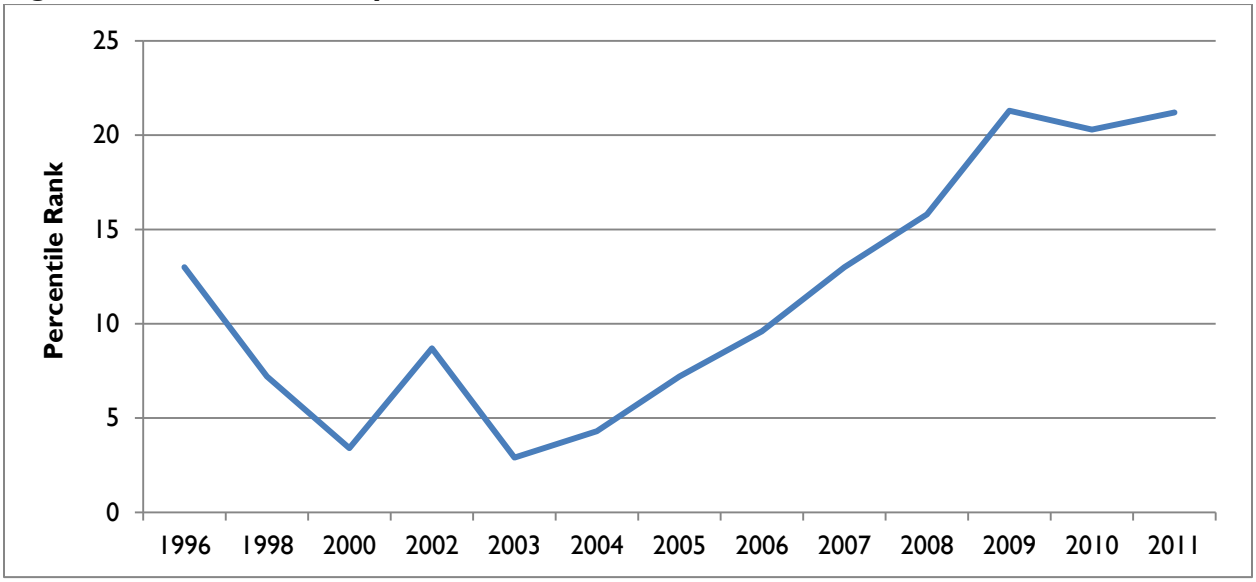
Not enough Indonesian ministries and local governments have undertaken enough regulatory reform to mitigate the regulatory environment as a binding constraint to growth. Also, many of these institutions lack the technical capacity and human resources to carry out meaningful and systematic regulatory review. More NGOs and private sector participants are pushing for regulatory reform, and KPPOD, the Regional Autonomy Watch, publishes annual surveys regarding the business friendliness of localities in Indonesia.

8.3 Political Stability

Indonesia's Political Stability and Absence of Violence ranking from the World Governance Indicators have remained below 25 percent since 1996, as shown in Figure 8.4. In 2004 the Indonesian people elected Susilo Bambang Yudhoyono, who won the popular vote by 61 percent. National and local elections since then have been largely free and fair, and accountability has been steadily rising. President Yudhoyono was peacefully re-elected in 2009 which helped to solidify gains in the perception of political

stability in Indonesia. Occasional terrorist attacks and violent skirmishes, however, have hampered Indonesia's rankings.

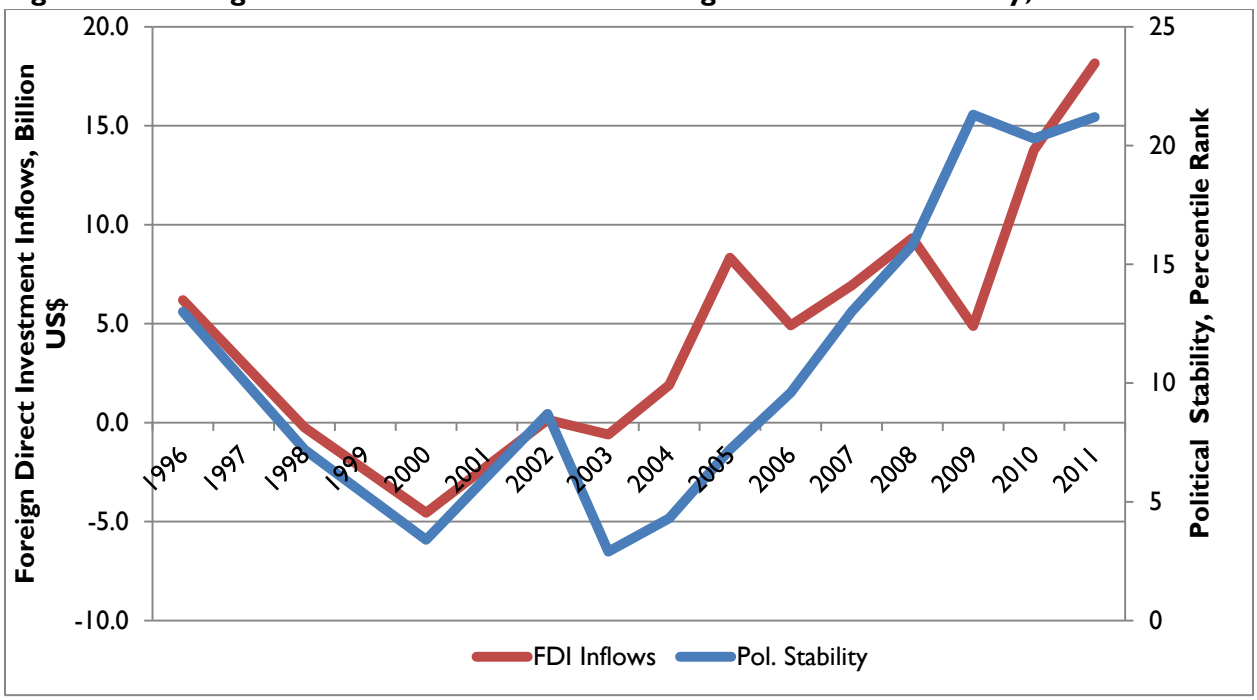
Figure 8.4: Political Stability and Absence of Violence Percentile Rank, 1996-2011



Note: Data from Worldwide Governance Indicators, 2012. Percentile rank ranges from 0 (lowest political stability and absence of violence among all countries) to 100 (highest). Available at www.govindicators.org.

The improvement of the political stability ranking is a result of a vast and deep rooted systematic overhaul that has played a role in the improvement of investor confidence in Indonesia. Figure 8.5 shows a fairly sensitive relationship between political stability and foreign direct investment inflows, although this does not imply direct causality. The terrorist attacks of 2003 and 2005 had visible effects on FDI inflows. It should also be noted that the steep decline in the late nineties is also attributed to the Asian Financial Crisis.

Figure 8.5: Foreign Direct Investment Inflows Along with Political Stability, 1996-2011

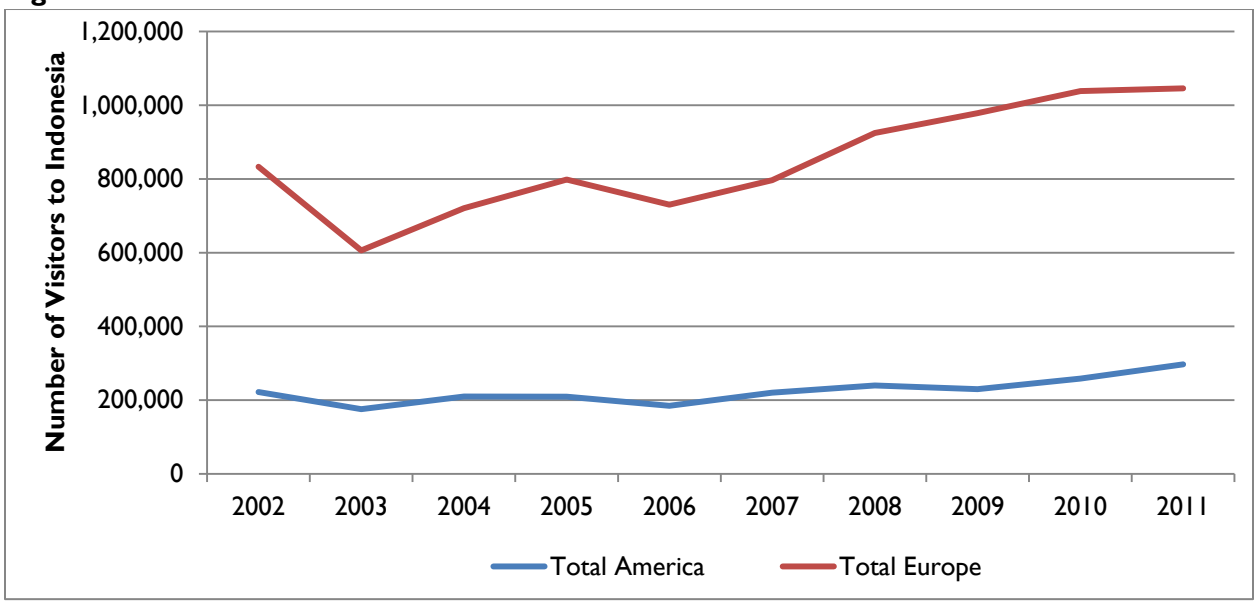


Note: Foreign Direct Investment data from World Bank, World Development Indicators. Political Stability data from Worldwide Governance Indicators. Political Stability percentile rank ranges from 0 (lowest political stability and absence of violence among all countries) to 100 (highest).

8.4 Security Threats

Terrorism has become a growing concern over the past ten years. The 2002 bombing in the tourist district of Bali and the 2003 bombing of the Marriott Hotel were perhaps the most visible events, and caused damage to the tourism industry, which is worth about 3 percent of total GDP and is expected to contribute up to 7 percent of GDP over the next ten years (World Travel and Tourism Council 2012). As can be seen from the trend in visitors to Indonesia presented in Figure 8.6, tourism took a hit in the aftermath of the terrorist attacks in Indonesia (2003, 2005), especially for Europeans. Since the Bali and Marriott attacks, Indonesian authorities have become much more adept at intercepting terrorist activity; the police force in Indonesia was given greater authority to gather information on suspected terrorists through recently enacted legislation.

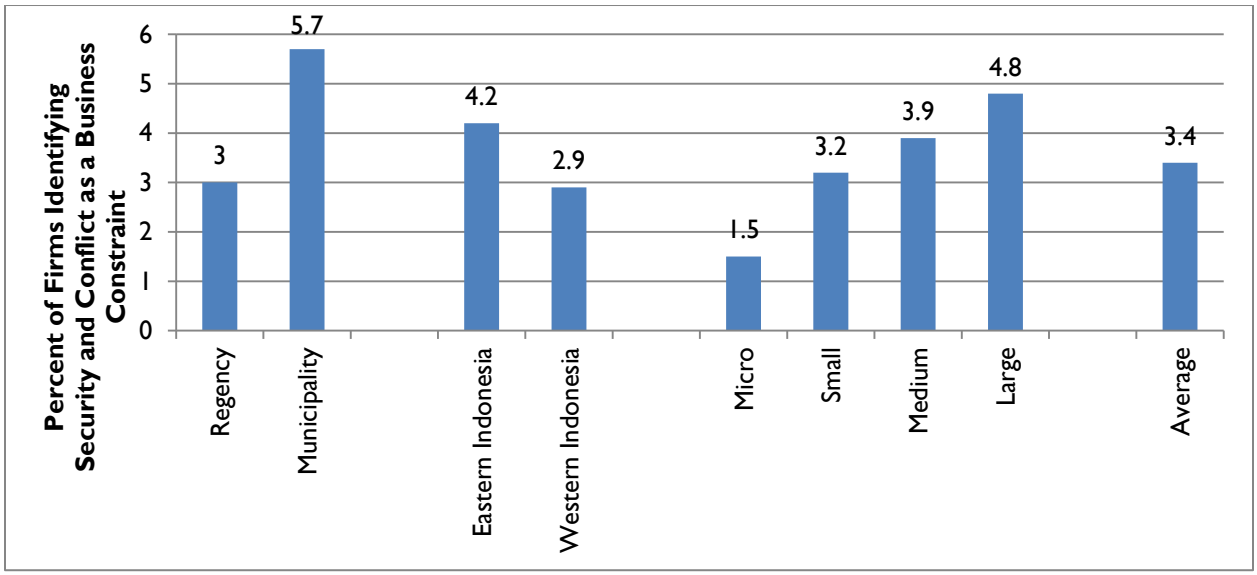
Figure 8.6: Total Visitors to Indonesia



Note: Data from BPS (Indonesian Bureau for Statistics, Badan Pusat Statistik), 2012

On a lower level, the most common type of crime is theft (Komite Pemantauan Pelaksanaan Otonomi Daerah and Asia Foundation 2011). According to the 2011 KPPOD Local Economic Governance (LEG) Survey, Lampung, Jambi, and Papua are the provinces with the highest theft rates of 35 percent, 34 percent, and 30 percent respectively. About 73 percent of business operators felt that police work minimized losses to the business community, and 74 percent felt that police did not create losses for companies when handling crimes. But the level of trust in the quality of police's handing of crimes was inversely proportional to the scale of the business where a higher percentage of micro business operators felt that the police handled cases well. Nationally, only about 3.4 percent of business operators felt security was a constraint to their companies' performance, although larger firms felt security problems hindered their business performance more so than smaller firms. These results are depicted in Figure 8.7.

Figure 8.7: Indonesian Firms Identifying Security as a Constraint by Location and Firm Size, 2011

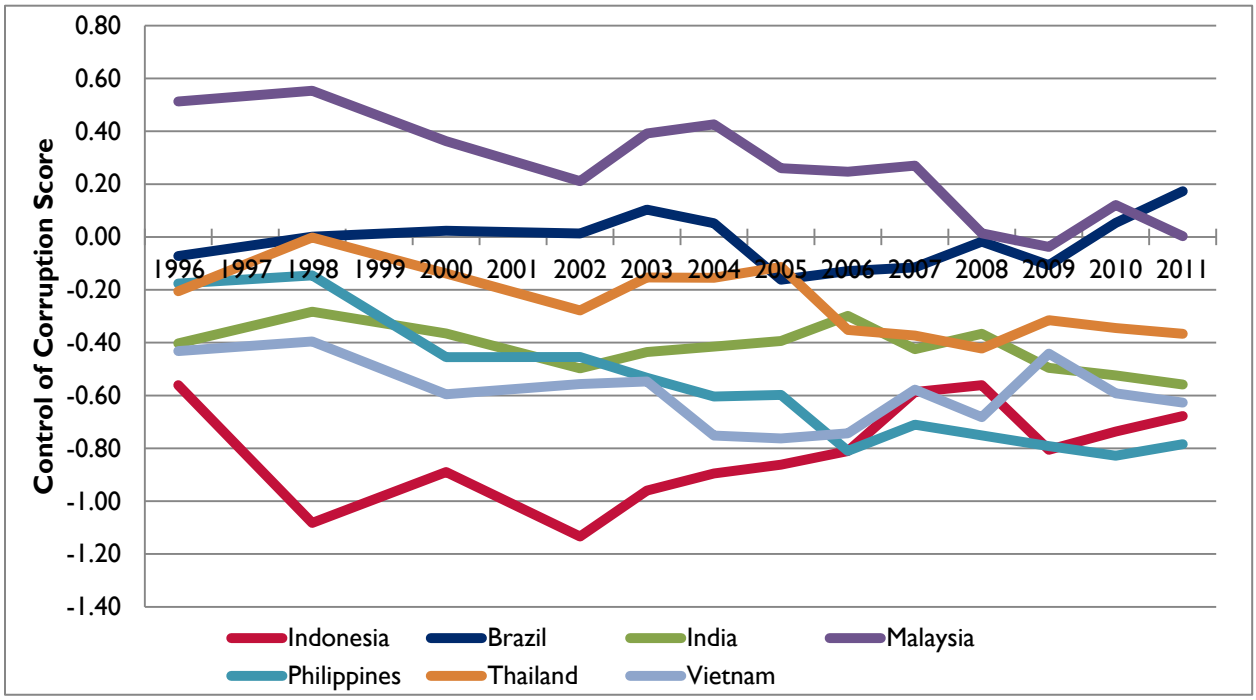


Note: Data from Local Economic Governance Survey (Komite Pemantauan Pelaksanaan Otonomi Daerah and Asia Foundation 2011)

8.5 Corruption

Corruption is defined here as the extent to which public power is exercised for private gain – this includes both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. In Indonesia, corruption remains high on the list of barriers to doing business, although efforts have been made to improve governance-related legislation. As much progress as has been made, Indonesia still has amongst the worst perceptions of corruption among other Southeast Asian countries and comparator countries as can be observed in Figure 8.8.

Figure 8.8: Control of Corruption for Indonesia and Comparator Countries, 1996-2011



Note: Data from Worldwide Governance Indicators, September 2012. Scores range from -2.5 to 2.5 and correspond to standard deviations from the mean score of the index, with higher values representing better control of corruption. Available at www.govindicators.org.

The legislative framework to combat corruption has improved over the last decade. The establishment of the Corruption Eradication Commission (KPK) is considered a major step forward, especially as the agency has shown no bias for pursuing prosecutions at all levels of Government. Since 2007 a total of 42 lawmakers from the House of Representatives have been imprisoned (Global Integrity 2011). Such public pursuit has emboldened civil society activists and the spotlight on offenders has intensified.

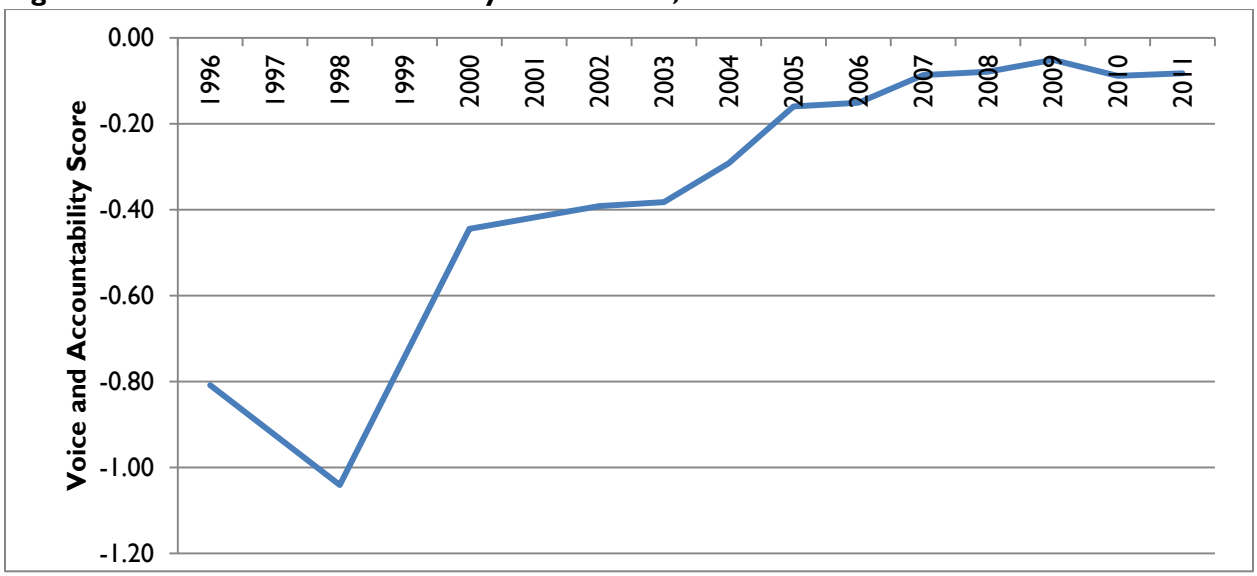
Another recent improvement has been the access to information via the implementation of the freedom of information legislation (Public Information Disclosure Act) which came into effect on May 1, 2010 (Government of Indonesia 2010). An essential tenet of the law is the allowance of an appeal from a refusal to release information by government agencies. Although this signifies a big step forward for civil society, it is not yet fully understood what the impact or reach of the law will be. Initial reports have noted a success rate of information requests to the Government stands at around 46 percent (Freedom Info 2012).

The impact of these reforms is noticeable in the Indonesia's ranking in Transparency International's Corruption Perception Index. The 2011 Corruption Perception Index used the averages of 12 surveys to rank Indonesia at 100th globally, and 20th regionally. In 2010, Indonesia ranked 110th globally, and in 2008, ranked 126th (Transparency International 2011, Transparency International 2009, Transparency International 2010). This improvement amongst the worst performers in the world demonstrates momentum in a direction that will improve economic growth.

However, the ranking still reflects a substantial presence of corrupt practices that manifest as a binding constraint on inclusive economic growth. One continuing setback for corruption and public accountability in Indonesia is the lack of regulation on the topic of political financing and asset disclosures by public officials. There is no professional audit that is carried out on statements of earnings and wealth by public officials (Global Integrity 2011). Figure 8.9 shows a moderate improvement in Voice

and Accountability in Indonesia, but the improved media freedoms that were implemented at the beginning of President Yudhoyono's tenure might be the most prominent feature of this period.

Figure 8.9: Voice and Accountability in Indonesia, 1996-2011

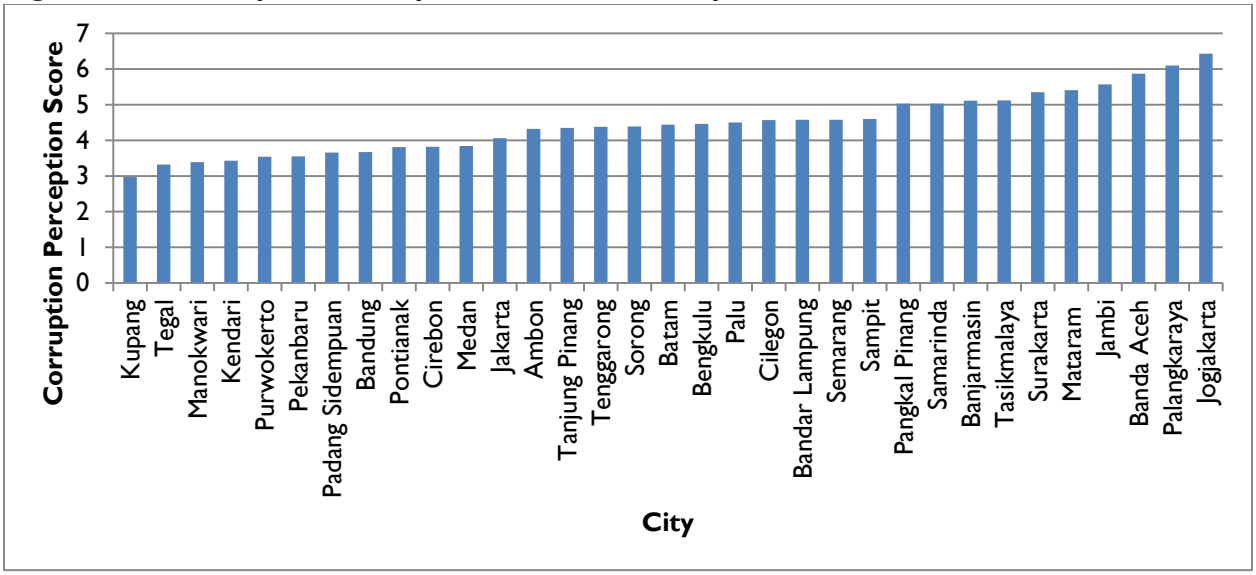


Note: Data from Worldwide Governance Indicators, September 2012. Scores range from -2.5 to 2.5 and correspond to standard deviations from the mean score of the index, with higher values representing greater voice and accountability. Available at www.govindicators.org.

It is also important to note the varying experiences of corruption in different parts of the country due to the decentralization process. In the eastern region of Papua, for instance, where the Supreme Audit Agency reported the misuse of $2.2 billion by the local government, all 44 members of the West Papua Provincial Legislature are suspects in a corruption case (Freedom House 2012).

In 2008, the Indonesian chapter of Transparency International conducted a survey of 2,371 businesspersons in 50 cities around the country on their perceptions of bribery – in particular, on applying for business permits, public utility procedures, annual tax payments, awarding of public contracts, judicial decisions, and the influence of regulations. Questions were also asked about perceptions of the seriousness with which local governments were trying to reduce and prosecute corruption. Respondents were asked to give responses on a scale of 0 (common) to 10 (uncommon). Figure 8.10 shows the highest performing cities in this survey, meaning the cities where corruption was perceived to be lowest, as Jogjakarta, Palangkaraya, and Banda Aceh. On the contrary, Manokwari, Tegal, and Kupang were the cities where corruption was perceived to be very common. Jakarta was ranked 36th out of the 50 cities.

Figure 8.10: Corruption Perception Index for a Sample of Indonesian Cities, 2008



Note: Data from Transparency International (2008). The Corruption Perception Index ranges from 0 (most corrupt) to 10 (least corrupt) and created from a survey of local businesses.

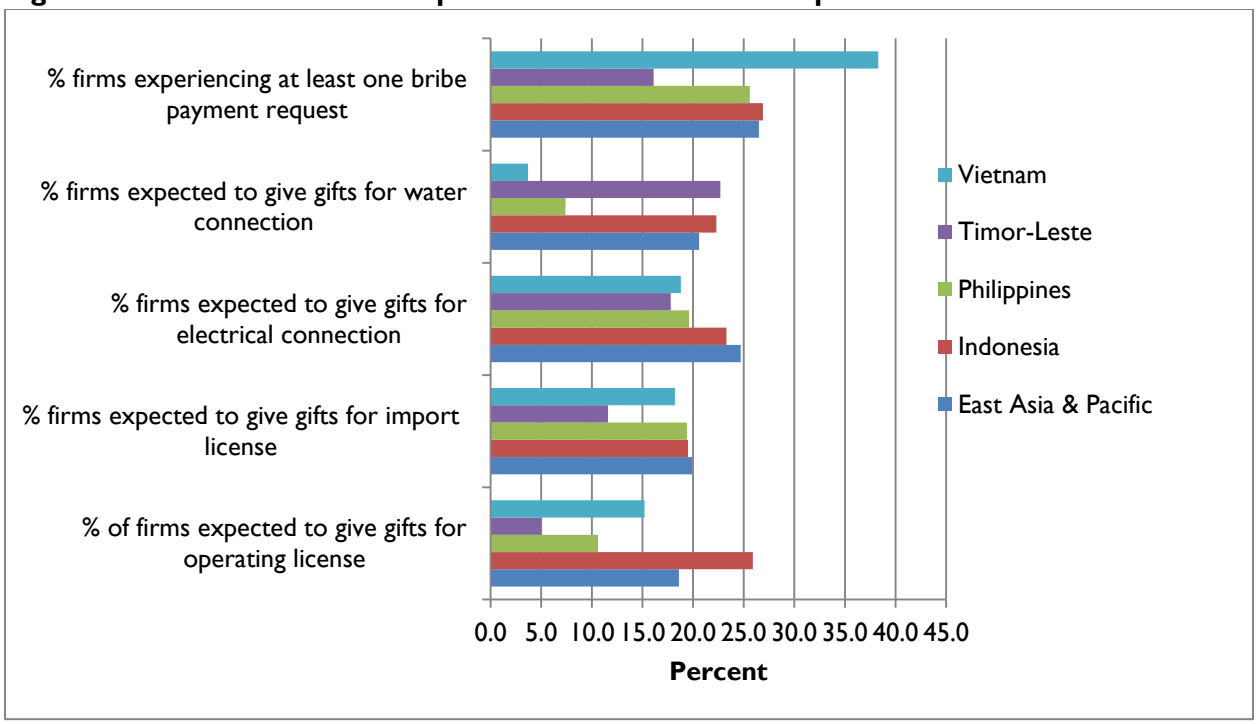
8.5.1 Shadow Price of Corruption

To determine the extent corruption hinders business in Indonesia, we turn to estimating the costs firms incur or the costs incurred by the economy at large. The World Bank estimates that annual worldwide bribery alone is worth $1 trillion, and this does not include embezzlement of public funds, or outright theft of public assets (World Bank 2012). Corruption comes at a cost to the Indonesian government, and significantly undermines the capability of and efforts by the government to invest in the most important priorities for growth. Public investment can be distorted in favor of specific types of spending for which rent-seeking is easier and better concealed.

Corruption is a notoriously difficult phenomenon to measure by its nature, because generally speaking, the perpetrators of corruption are actively trying to hide their activities for fear of prosecution. There are, however, several indications of the high cost of corruption in Indonesia. In the forestry sector alone, the Government of Indonesia estimates that lost forest revenue due to illegal logging, corruption, and mismanagement is costing up to US$2 billion per year (Human Rights Watch 2009). In December 2011, the head of the Supreme Audit Agency (BPK), which answers only to Parliament, estimated that in the previous five years, the state had lost the equivalent of US$3.3 billion to embezzlement (The Jakarta Globe 2011).

The effects of corruption on a micro level are highlighted by the 2009 Enterprise Survey wherein businesses claimed 23 percent of transactions were accompanied by a request for a gift or informal payment. Amongst all the comparator countries listed in Figure 8.11, Indonesia was listed as the country where the highest percentage of firms expected to give gifts in order to get an operational license and is amongst the highest for firms experiencing at least one bribe payment.

Figure 8.11: Indicators of Corruption in Indonesia and Comparator Countries

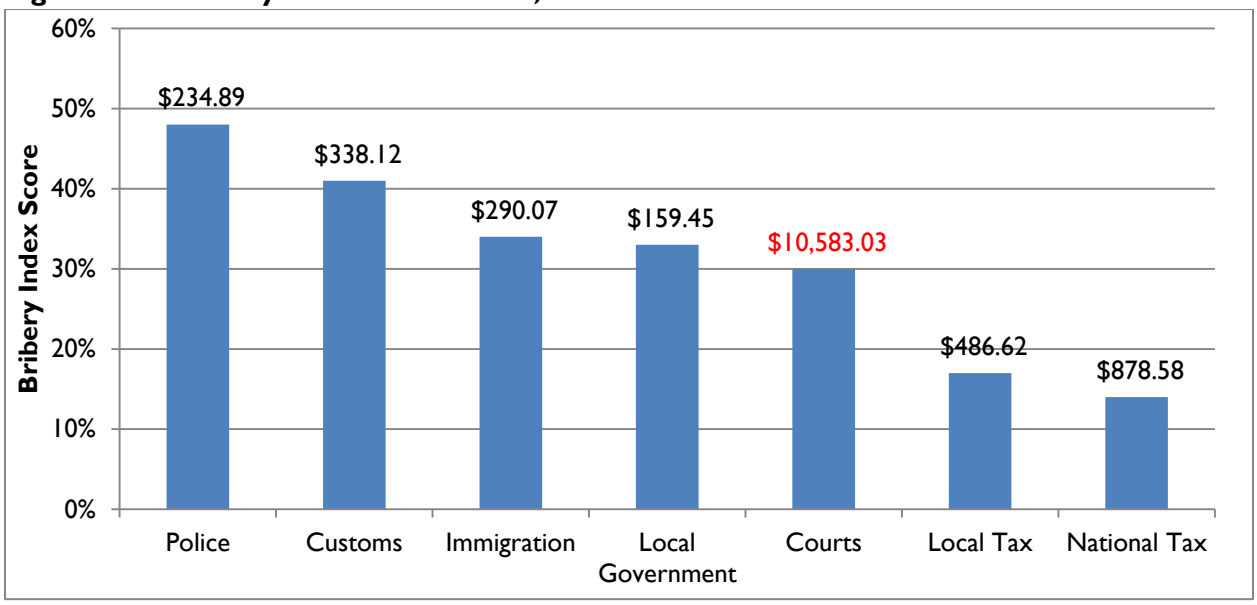


Note: Data from World Bank, Enterprise Survey, 2009

The Transparency International (2008) survey depicted in Figure 8.10 also created a bribery index which captured the frequency and cost to businesspersons of contact with different institutions. Figure 8.12 reports the percentage of times a bribe was requested from the stated institution from a business's contact with that institution. The dollar value reported at the top of the bars captures the average value of bribes that were solicited. The institution with the highest amount of contact with businesses was the police, but the institution with the highest amounts of bribes solicited on average was the courts.

Another estimate of the value of corruption comes from Fisman (2001), who estimated the value of political connections in Indonesia by comparing the returns of firms with differing degrees of political exposure with a number of episodes during which there were adverse rumors about the state of Suharto's health. He found that in every case, the returns of shares of politically dependent firms were considerably lower than the returns of less dependent firms. This suggests that a large percentage of a well-connected firm's value may be derived from political connections, and the 25 business groups that were associated with these firms had revenues worth about 30 percent of Indonesia's GDP.

Figure 8.12: Bribery Index in Indonesia, 2008



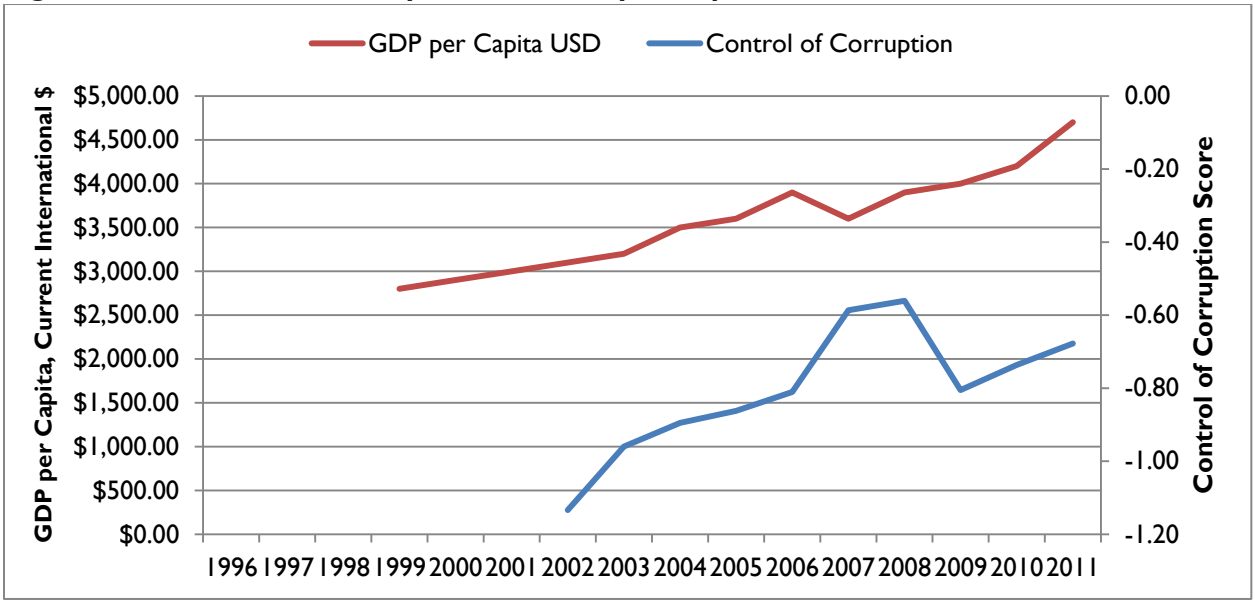
Note: Data from Transparency International (2008). The vertical axis and corresponding bar bars depict the average percentage of the times businesses were requested bribes from the corresponding institution based on all interactions with that institution. The dollar figures above the bar graphs depict the average bribe paid in businesses' last interaction with the corresponding institution.

8.5.2 Does Corruption Significantly Affect Growth?

The World Bank shows that there is a '400 percent governance dividend' of corruption control, which dictates that in general, in the long run, there is a fourfold increase in incomes per capita for countries that reduce corruption. Their research also shows that the business sector grows significantly faster (3 percent per annum) where corruption is lower (World Bank 2012).

This relationship between growth and corruption is demonstrated for Indonesia in Figure 8.13, where improvements in the control of corruption have coincided with growth of GDP per capita over time – although this does not imply direct causality. The improved control of corruption occurred and is occurring against a backdrop of a dramatic change in governance that has contributed to this growth.

Figure 8.13: Control of Corruption and GDP per Capita in Indonesia, 1999-2011



Note: GDP per capita (current international $) taken from World Bank, World Development Indicators, 2012. Data on control of corruption taken from Worldwide Governance Indicators, 2012. Control of corruption scores range from -2.5 to 2.5 and correspond to standard deviations from the mean score of the index, with higher values representing greater control of corruption.

8.5.3 Are Businesses Actively Trying to Bypass Corruption

It is difficult for firms in the formal sector to avoid corruption where authorities are able to extort payments for the service, good, or requirement provided. Since the formal sector requires more interaction with government officials, the large informal sector of Indonesia may be indicative of the high cost of corruption incurred by firms. Note that the share of informal employment was 59 percent in 2010, which is significantly higher than in comparator countries. In another example, as discussed above, the potential bribery costs for dealing with the court system can be prohibitively high which leads some domestic and foreign businesses to settle disputes outside of the court system. Since Indonesia is a signatory of the Convention on Settlement of Investment Disputes between States and Nationals of Other States (ICSID), foreign investors are often encouraged by legal experts to settle disputes through arbitration outside of Indonesia (Business Anti-Corruption Portal 2012). High use of arbitration can be interpreted as representing the high costs of using the Indonesian court system.

8.6 The Costs of Corruption

Our analysis demonstrates that one of the most significant barriers to growth in Indonesia is corruption and weak governance. Corruption imposes a high cost on businesses and the labor they employ. Further, certain types of corruption can be disproportionately borne by smaller firms who are thus further unable to grow, employ Indonesians, or even start their business. Regulatory quality still poses significant challenges for domestic and foreign investors. An illustration of the nexus between poor regulatory quality and corruption is the large informal sector in Indonesia which is populated in part by businesses circumventing extraneous regulations and the illegal 'fees' demanded by public officials.

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9. Macroeconomic Risks

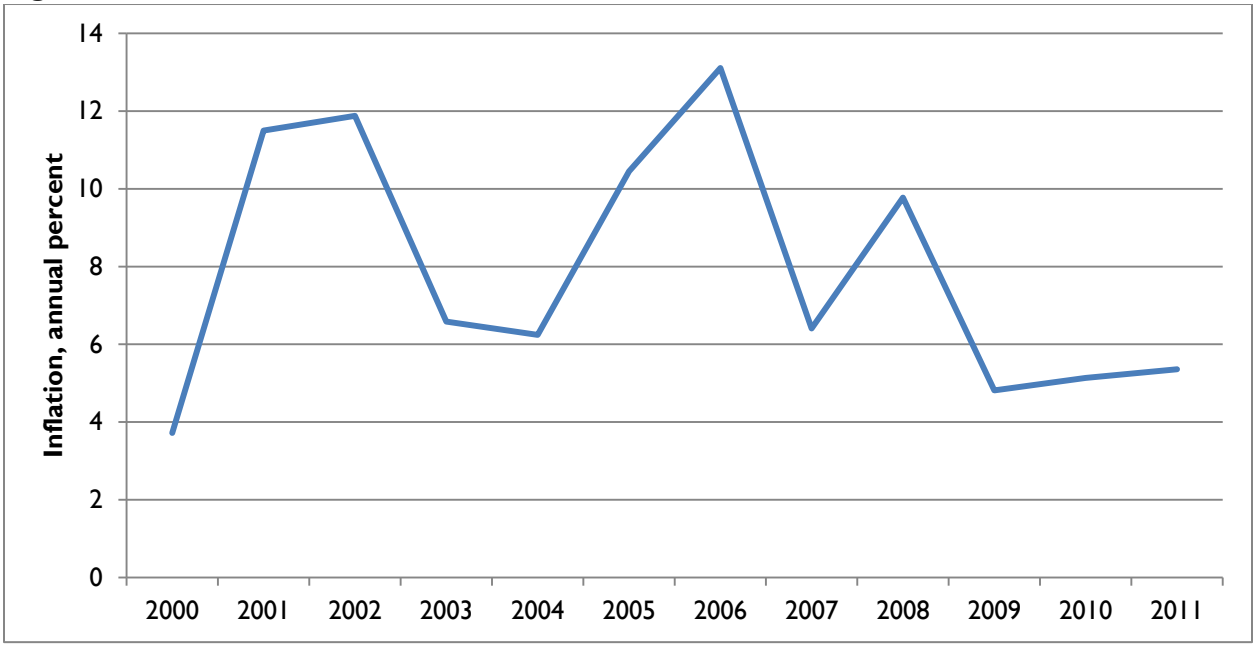
One of the first fundamentals to achieving inclusive and sustainable economic growth is having a stable and prudent macroeconomic environment. Indonesia has performed well on managing fiscal and monetary policy since conditions for IMF support were imposed after the Asian financial crisis. These reforms have largely continued. In this section we find that:

- Inflation in Indonesia has roller coasted over the last 10 years, but is currently stable at around 5.5 percent. However, recent import restrictions on agricultural products caused food price inflation to soar and overall inflation to increase.
- Though it has experienced a recent depreciation, Indonesia's currency exchange rate has remained quite steady since 2000.
- Indonesia's current account balance was negative in 2012 for the first time since the Asian financial crisis. Experts attribute it to low external demand, a decline in commodity prices for resources exported by Indonesia, and the importation of subsidized fuel to meet growing demand.
- Indonesia's capital account balance has been generally positive since the Asian financial crisis, meaning foreign direct investment exceeds capital outflows. Exceptions exist for the 2008 global recession and after the tsunami in 2004. Though positive, the capital account balance has trended downward since 2009.
- Indonesia's deficit spending is the lowest among its comparators as is its debt to GDP ratio. A subsidy for fuel is the largest problem facing government budgeting and debt.
- Indonesia's external debt is large, but manageable.
- Though Indonesia is facing some resurgence of macroeconomic turmoil, the institutions in place have a solid track record of managing macroeconomic risks and we do not find fiscal or monetary policy to be a binding constraint on growth.

9.1 Inflation

Inflation is an important indicator of economic health because high inflation erodes purchasing power, eats away at the real rate of return on investments and causes interest rates to rise. As Figure 9.1 shows, inflation rates in Indonesia have roller coasted over the last several years, reaching as high as 13 percent, but never dropping below 4 percent. However, rates have remained relatively stable and manageable since 2009. In 2005, Bank Indonesia overtly targeted inflation, helping to stem the impact of rising food and fuel prices in 2005 and 2008 (Asian Development Bank, International Labour Organization, and Islamic Development Bank 2010).

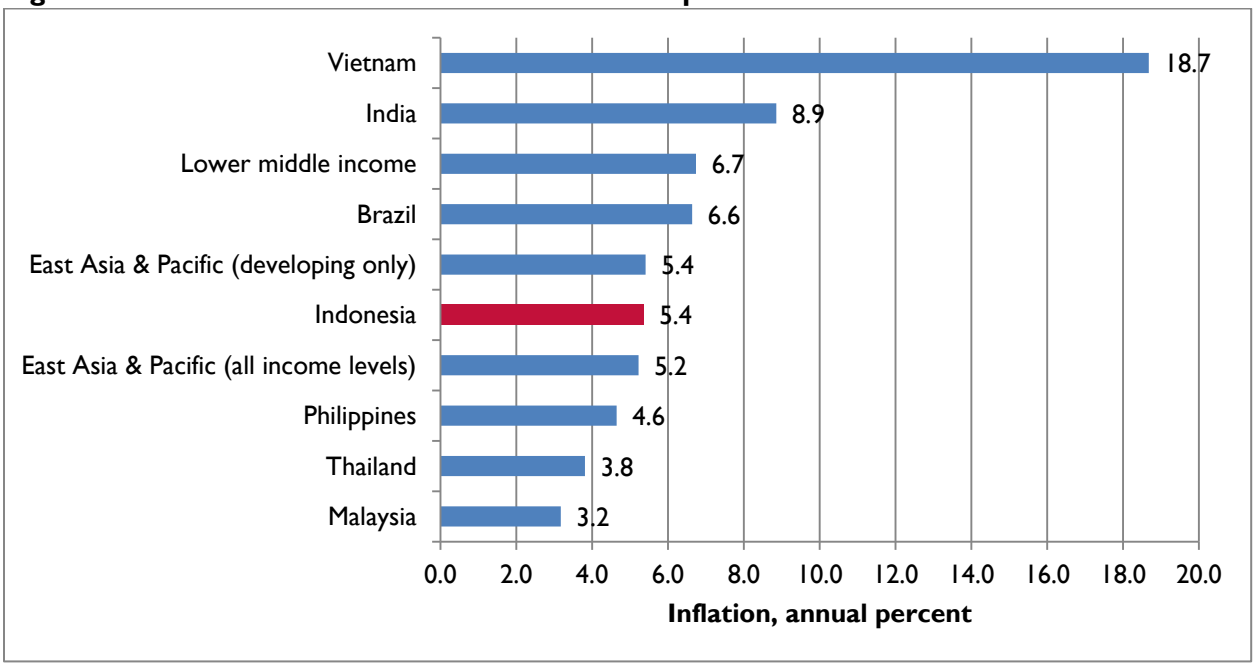
Figure 9.1: Inflation Based on Consumer Price Index in Indonesia, 2000-2011



Note: Data from World Bank, World Development Indicators, 2012. Inflation based on consumer prices. Available at http://databank.worldbank.org.

The impact of policies aimed at reducing inflation can be seen in Figure 9.2. Indonesia's 2011 inflation level is roughly average relative to its comparators and is on par with the East Asia and Pacific developing nation average of 5.4 percent. Estimates from July 2012 show that inflation stayed low but rose slightly due to the decline in global oil prices and the failure to reduce fuel subsidies (World Bank 2012b). This pattern demonstrates the ability of Indonesian institutions to manage inflation.

Figure 9.2: Inflation in 2011 in Indonesia and Comparator Countries

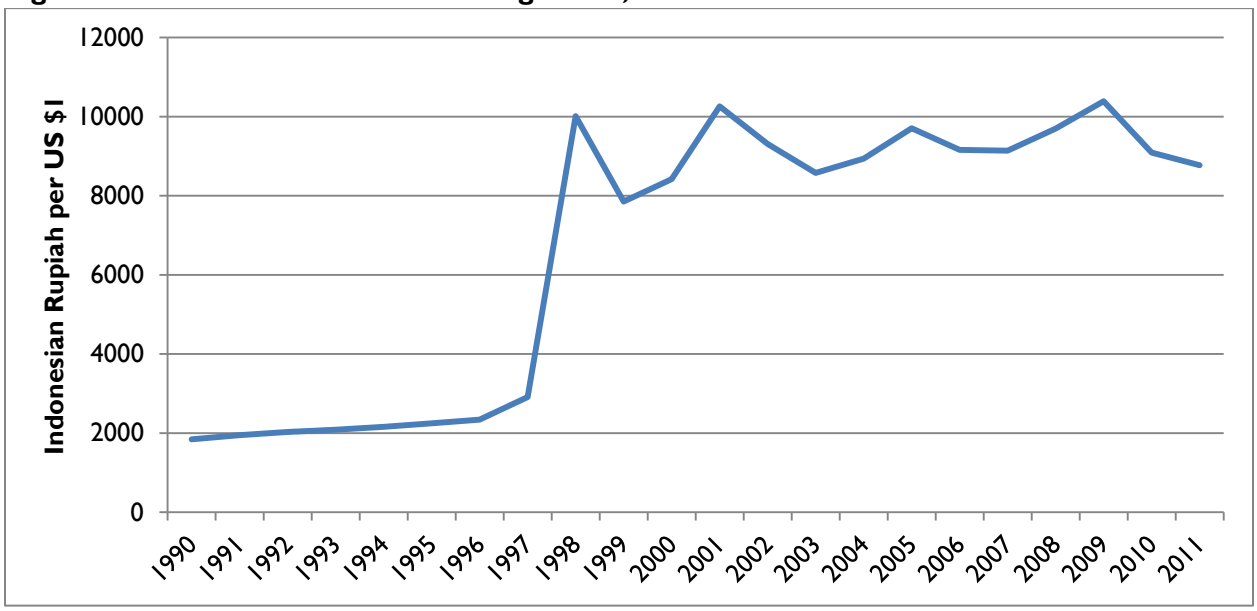


Note: Data from World Bank, World Development Indicators, 2012. Inflation based on consumer prices. Available at http://databank.worldbank.org.

9.2 Exchange Rate

As seen in Figure 9.3, Indonesia's exchange hovered around Rp. 2000 to the US dollar until after the Asian Financial Crisis in 1997, when the rupiah's value plummeted to around Rp. 10,000 per US dollar; it has hovered between Rp. 8500-10,500 since 2000. According to Bank Indonesia (2011), in 2011 the rupiah appreciated slightly with a low average volatility of 0.15 percent . For 2012, the International Monetary Fund (2012) predict that the rupiah is moderately undervalued by 0-10 percent due to short-term foreign portfolio capital outflows. However, there is a risk of rapid depreciation of the rupiah if a shock suddenly reversed liquid capital inflows. Indonesia's central bank has successfully used their reserves to intervene and mitigate the large depreciations that occurred in 2008, 2010, and the third quarter in 2011 (World Bank 2011b, World Bank 2012b). The evidence suggests that Indonesian institutions have the ability to manage their foreign exchange.

Figure 9.3: Indonesian Official Exchange Rate, 1990-2011



Note: Data from World Bank, World Development Indicators, 2012. Official exchange rate is the average of the year of all monthly official exchange rates. Available at http://databank.worldbank.org.

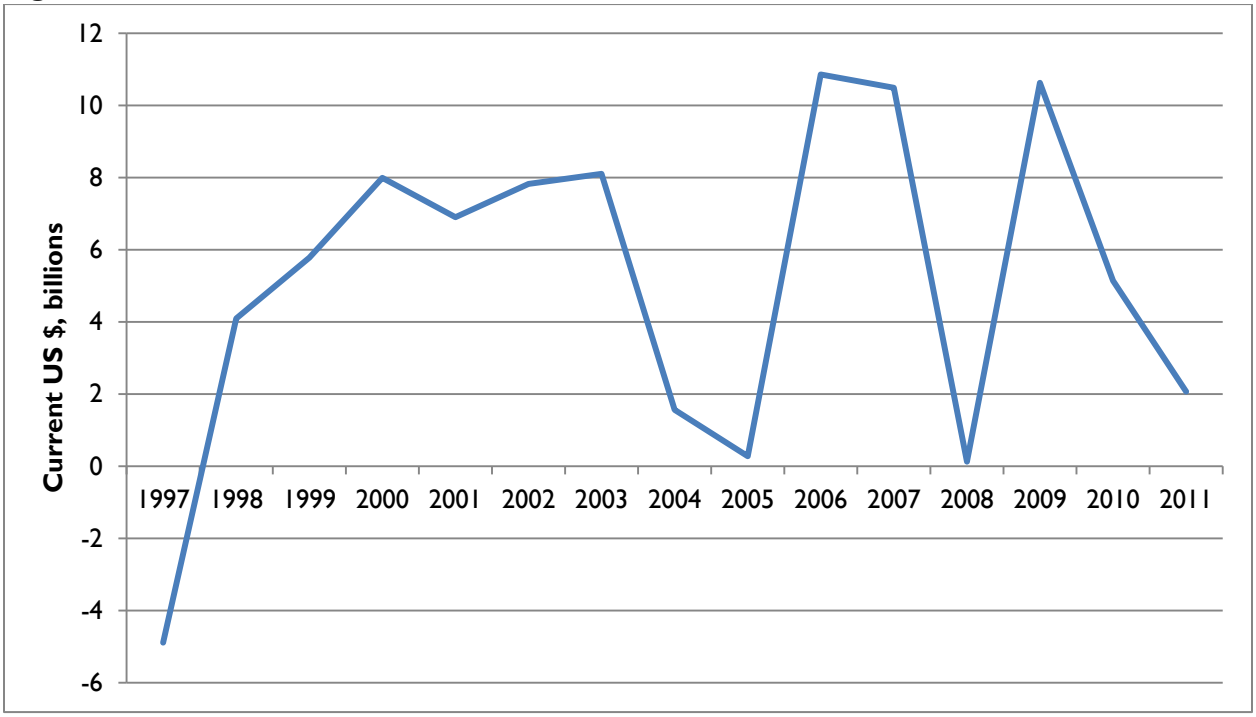
9.3 Current Account

Because of strong exports with high commodity prices, a stable currency, robust demand, and remittances, Indonesia's current account balance has been in a surplus (positive) since the Asian Financial Crisis in 1997 (Asian Development Bank, International Labour Organization, and Islamic Development Bank 2010). However, Figure 9.4 shows that the current account was severely weakened, though still positive, in 2005 and 2008. Indonesia's current account balance has been weakening in recent years and dropped into the negative in 2012 due to a decline in commodity prices for Indonesia's major exports (oil, coal, rubber, palm oil, and copper); weaker demand and economic turmoil outside of Indonesia; and import growth from strong domestic demand for capital and intermediate goods (World Bank 2012b).[33]

[33] Figure 9.4 does not show 2012 data because that data is not yet available on the International Financial Statistics (IFS). However, the World Bank (2012b) predict that the annual current account balance for 2012 will be an overall deficit. Reviewing quarterly data, Indonesia's current account balance became negative in the fourth quarter of 2011 and the first quarter of 2012 (World Bank 2012b).

The relatively mild deficit is expected to be sustainable and funded by Indonesia's high growth and high foreign direct investment, which does not create debt for Indonesians to pay back (World Bank 2012b, International Monetary Fund 2012).

Figure 9.4: Indonesia's Current Account Balance, 1997-2011



Note: Data from International Monetary Fund's International Financial Statistics (IFS), September 2012.

9.4 Capital Account

Through the period of the International Monetary Fund's International Financial Statistics (IFS) availability[34], Indonesia's capital and financial account has largely been in surplus.[35] The line in Figure 9.5 illustrates the balance on the capital and financial account while the stacked bar graphs illustrate the magnitudes and signs of the components of the capital and financial accounts. Most of the influx of capital is from foreign portfolio investments inside Indonesia. Most of these inflows are buying SUNs (Surat Utang Negara), Indonesian sovereign bonds, and SBIs (Sertifikat Bank Indonesia), Bank Indonesia certificates, most of which have short tenures (World Bank 2010b, World Bank 2010a).

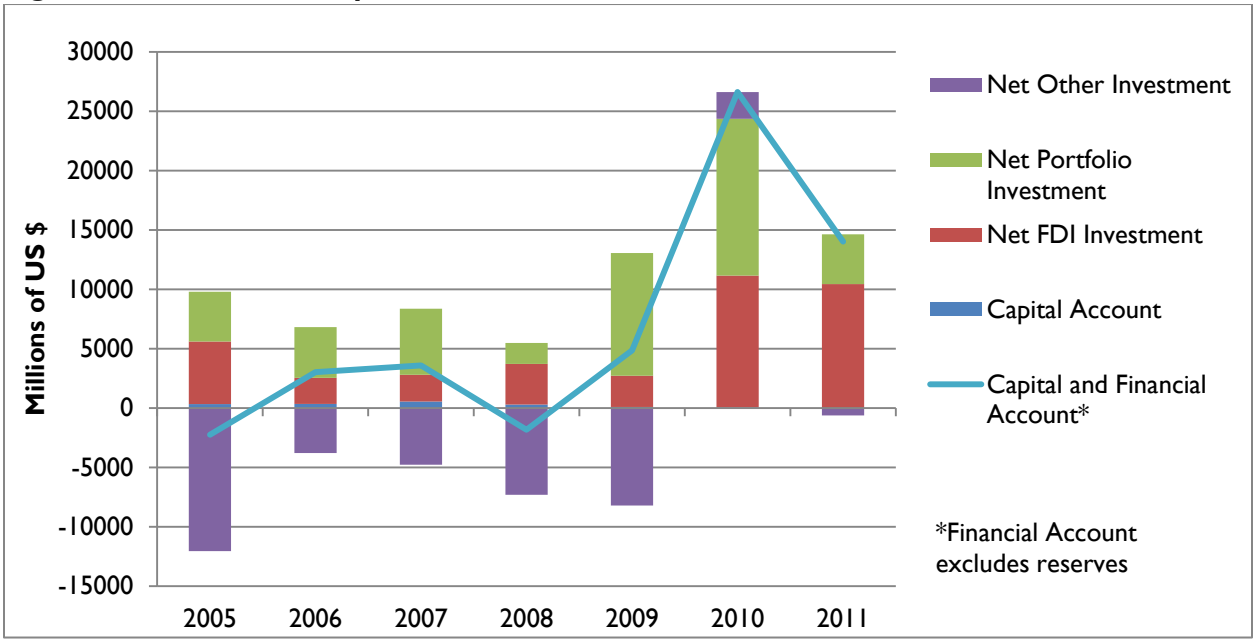
Another significant source of foreign capital inflows into Indonesia is foreign direct investment (FDI). With Indonesia's economy shielded from the 2007 global financial crisis due to high domestic consumption, Indonesia's high interest rates have attracted foreign investor's excess cash. While this is positive for Indonesia's economic growth, especially highlighting the fact that investors are less pessimistic about the stability of Indonesian markets after the 1997 Asian financial crisis, it also represents a risk if the flows of this liquid foreign capital reverse suddenly from an outside or domestic shock, as seen in October 2008, when the capital and financial account went into deficit. This reversal caused the rupiah to depreciate to Rp. 13,000 per U.S. dollar and a 50 percent drop in the stock market

[34] IFS data for Indonesia's capital account is only available as far back as 2005.

[35] For this discussion, the capital and financial account (also called the Capital Account in some circles) includes the IMF's Capital Account and Financial Account but the Financial Account does not include reserve transactions.

(Bank Indonesia 2011). Because of this risk, Bank Indonesia has lengthened the maturities on its SBIs (World Bank 2011b, World Bank 2012b, International Monetary Fund 2012).

Figure 9.5: Indonesia's Capital and Financial Account, 2005-2011



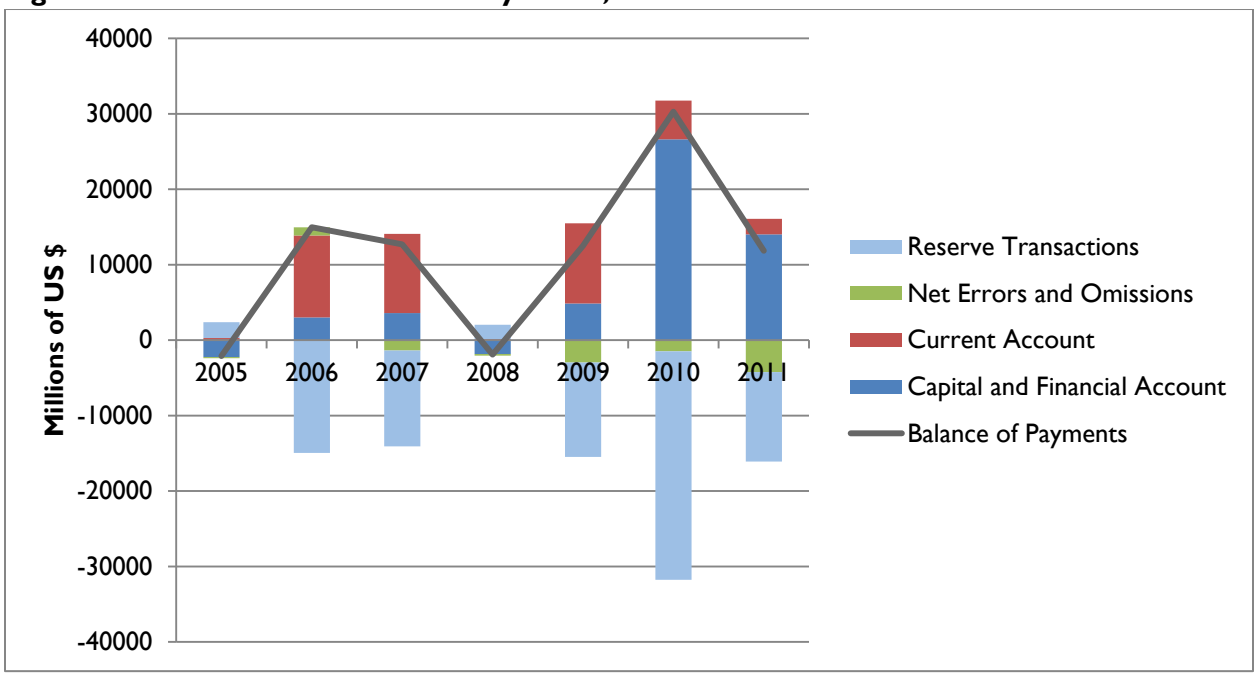
Note: Data from International Monetary Fund's International Financial Statistics (IFS), September 2012, and author's own calculations.

9.5 Balance of Payments

Since 2009, the balance of payments for Indonesia has run relatively large surpluses, driven by capital and financial account surpluses in 2010 and 2011 due to the influx of foreign capital (see Figure 9.6). [36] Previously, the current account played a larger role in the balance of payments surpluses. The balance of payments surpluses have contributed to an increase in foreign exchange reserves which helps Bank Indonesia intervene during periods of excessive capital flight.

[36] For Balance of Payments we refer to the Current Account + Capital Account + Financial Account (excluding reserve transactions) + statistical discrepancy.

Figure 9.6: Indonesia's Balance of Payments, 2005-2011

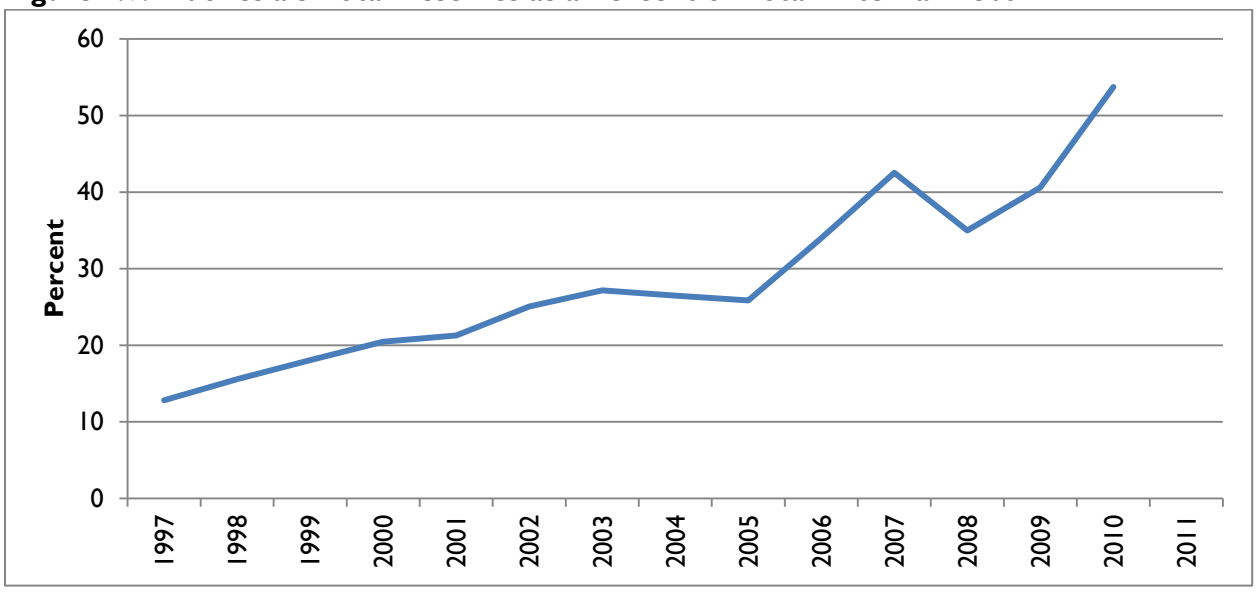


Note: Data from International Monetary Fund's International Financial Statistics (IFS), September 2012, and author's own calculations.

9.6 Reserves

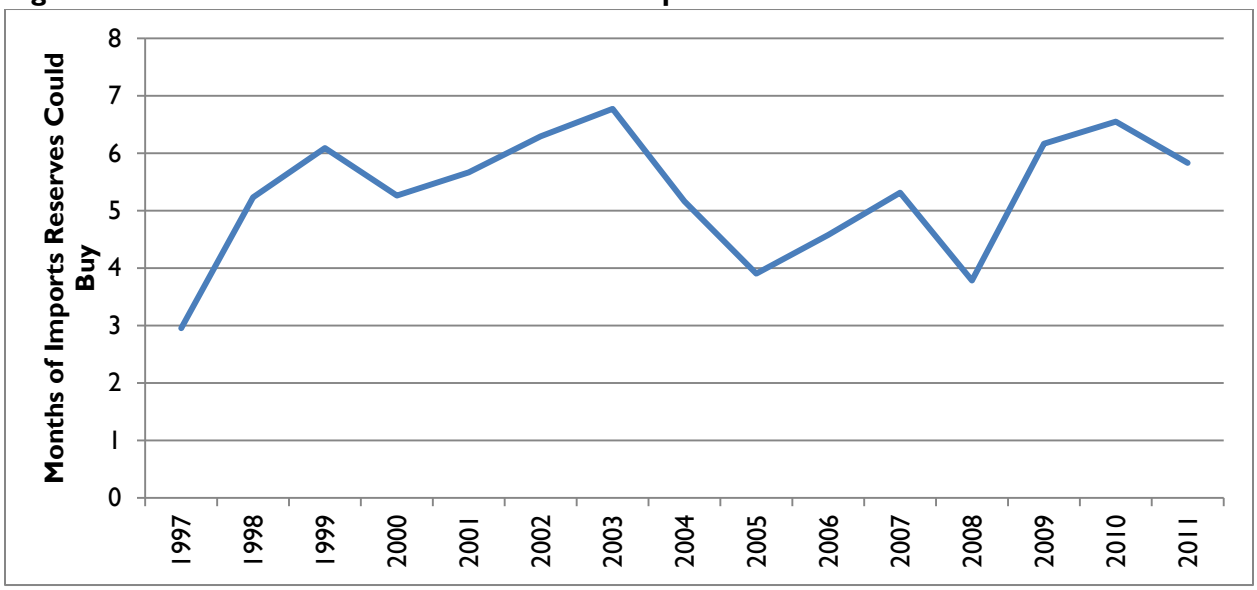
Since the 1997 Asian Financial Crisis, Indonesia's foreign exchange reserves have steadily increased, reaching over 50 percent of external debt in 2010 as shown in Figure 9.7, and covering almost 6 months of imports since 2011 as shown in Figure 9.8. This demonstrates Indonesia's healthy stock of reserves and their ability to utilize them to stabilize foreign exchange rates, which Bank Indonesia has a track record of doing (World Bank 2012b, World Bank 2011b).

Figure 9.7: Indonesia's Total Reserves as a Percent of Total External Debt



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

Figure 9.8: Indonesia's Reserves in Months of Imports

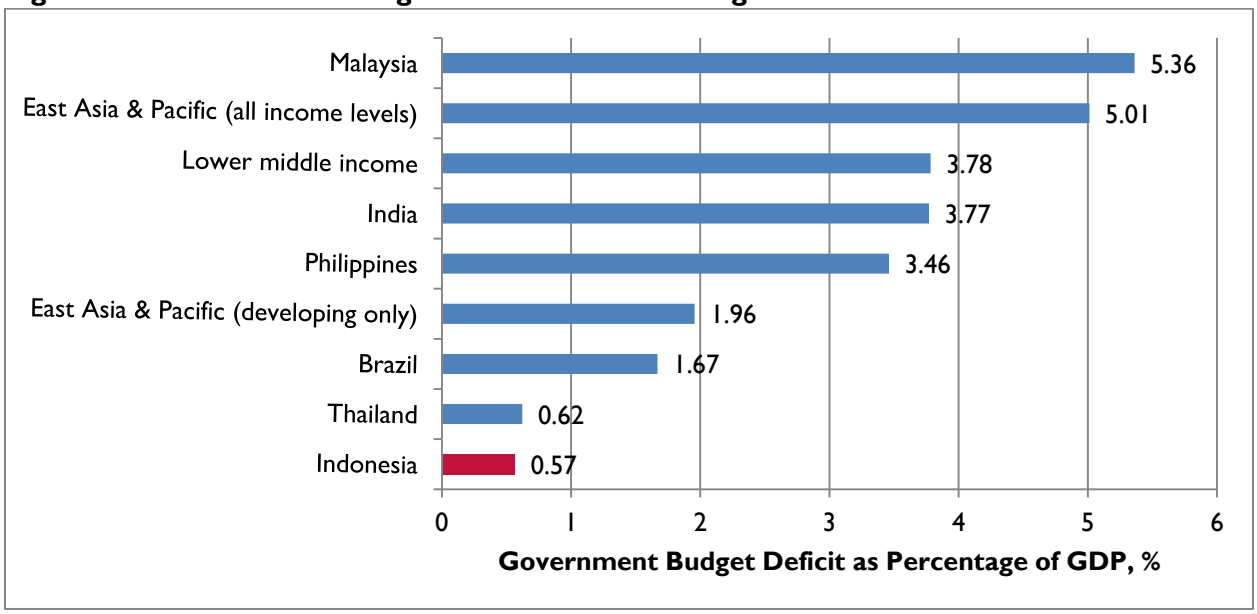


Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

9.7 Fiscal Space and Public Debt

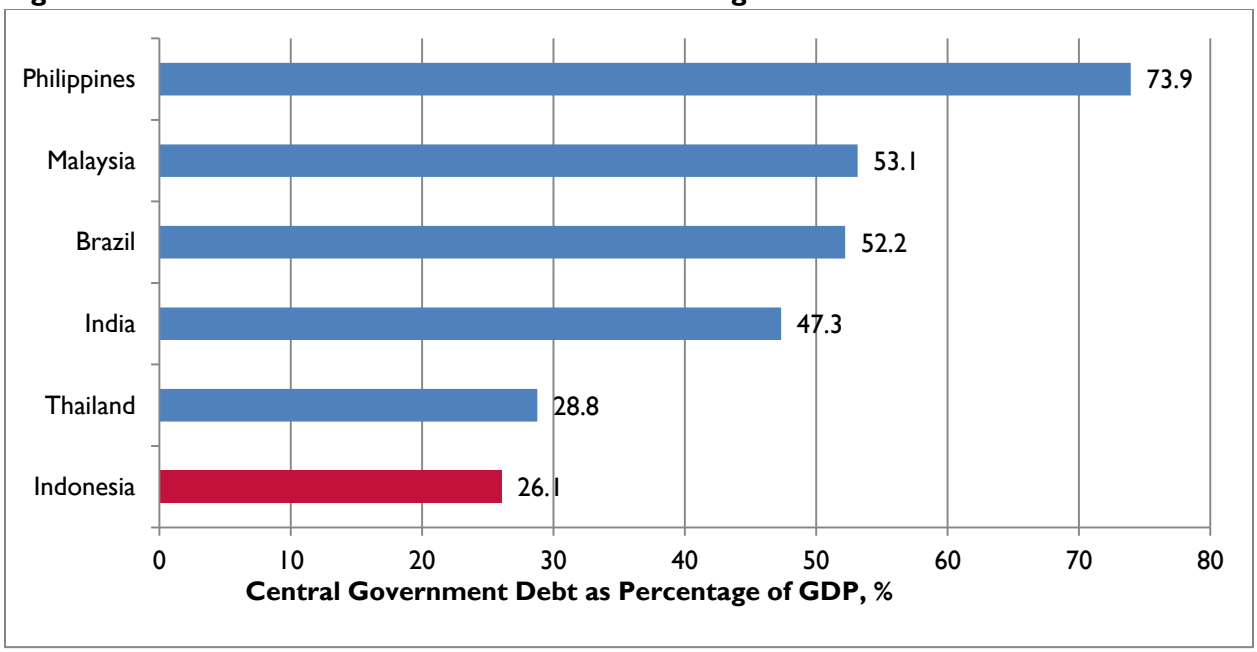
Figure 9.9 demonstrates that Indonesia has a very low deficit, comprising 0.57 percent of its GDP, the lowest of its comparators. Central government debt has dropped steadily in the past decade, partly attributed to Law No. 17 in 2003 which established caps on the budget deficit and overall government debt levels (Asian Development Bank, International Labour Organization, and Islamic Development Bank 2010). Indonesia's overall debt as a share of GDP can be seen in Figure 9.10. Again, Indonesia ranks the lowest among comparators, with central government debt comprising 26.1 percent of its GDP.

Figure 9.9: Government Budget Deficit as a Percentage of GDP



Note: Data from World Bank, World Development Indicators, 2012. All data from 2010, except East Asia & Pacific (developing only), which is from 2004.

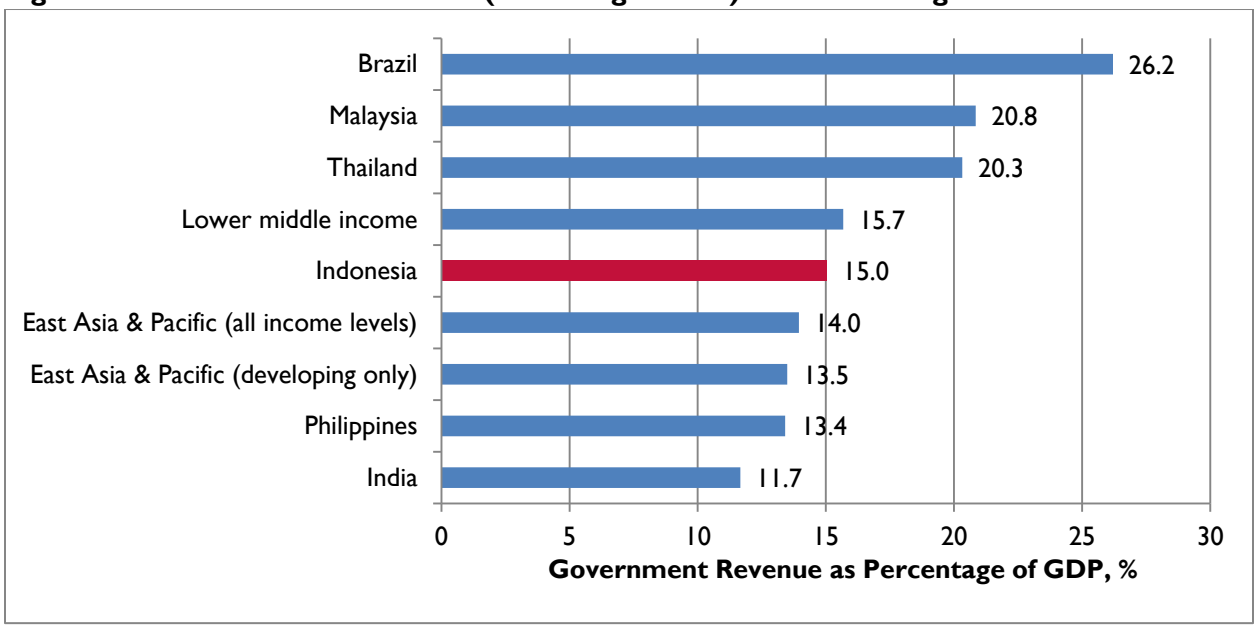
Figure 9.10: Central Government Debt as a Percentage of GDP



Note: Data from World Bank, World Development Indicators, 2012. All data from 2010, except the Philippines, which is from 2004.

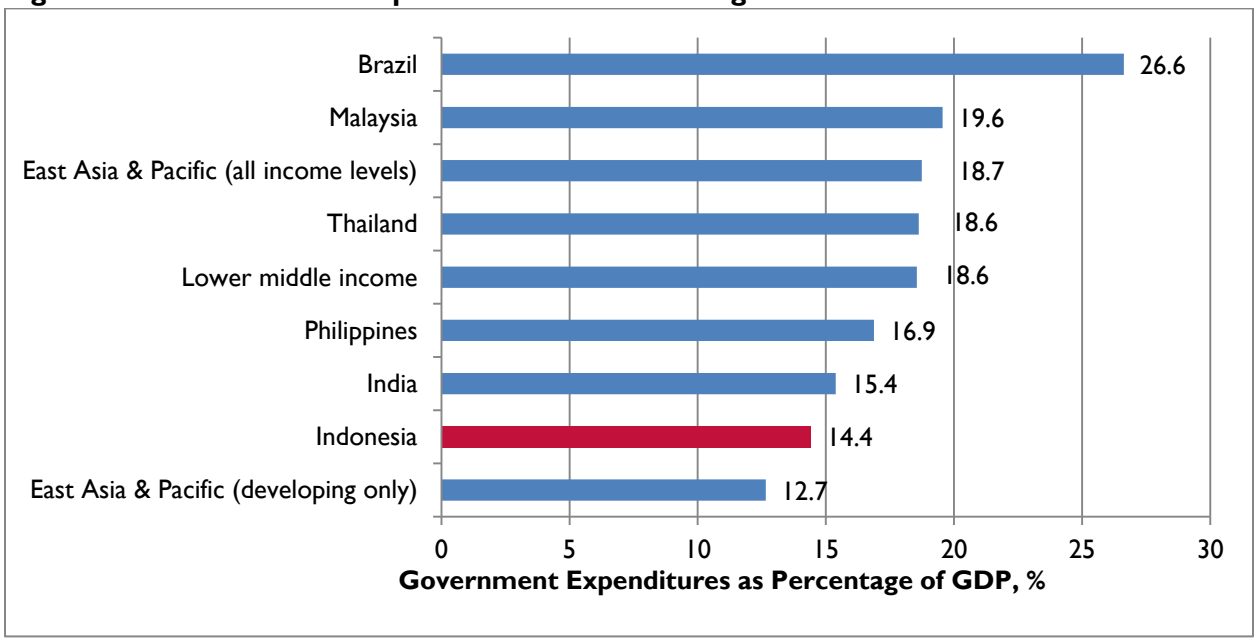
Indonesia's strong public debt position comes more from their difficulty in expending funds than it does from their ability to collect revenues. Figure 9.11 shows that Indonesia's revenue is average at 15 percent of GDP, on par with its comparators. However, Figure 9.12 shows that expenditures are relatively low compared to its peers at just 14.4 percent of GDP. In the past, Indonesia has demonstrated difficulties with budget execution, especially for capital expenditures. It has improved recently, perhaps due to a Government of Indonesia task force assigned to increase execution (Fiscal Policy Office of the Indonesian Ministry of Finance, Institute for Economic and Social Research - Facullty of Economics - University of Indonesia, World Bank 2012, World Bank 2012b). One major problem hindering budget execution on capital expenditure projects is land acquisition, though a new land law to ease the situation has been recently passed. Establishing the implementing regulations for the new law may take some time (World Bank 2012b).

Figure 9.11: Government Revenue (Excluding Grants) as a Percentage of GDP



Note: Data from World Bank, World Development Indicators, 2012. All data from 2010, except East Asia & Pacific (developing only), which is from 2009. Government revenue excludes grants.

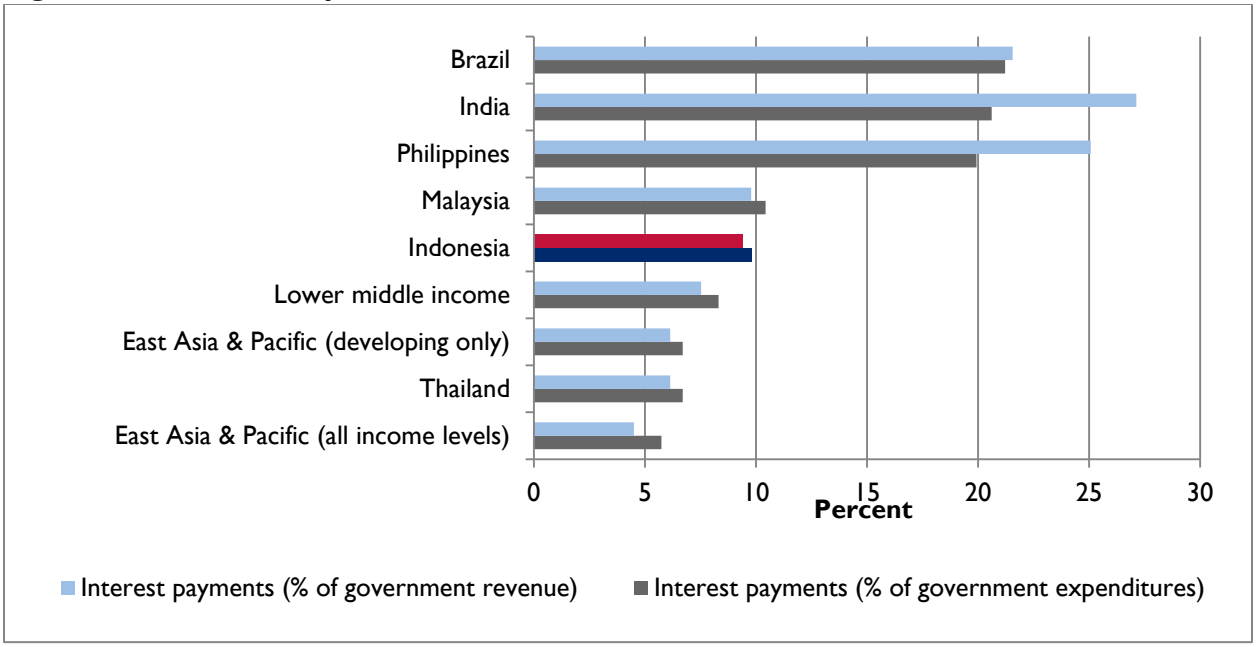
Figure 9.12: Government Expenditures as a Percentage of GDP



Note: Data from World Bank, World Development Indicators, 2012. All data from 2010, except East Asia & Pacific (developing only), which is from 2004.

Indonesia is average among comparators for the amount of interest it pays on public debt as shown in Figure 9.13, demonstrating further that public debt is not a major constraint to growth.

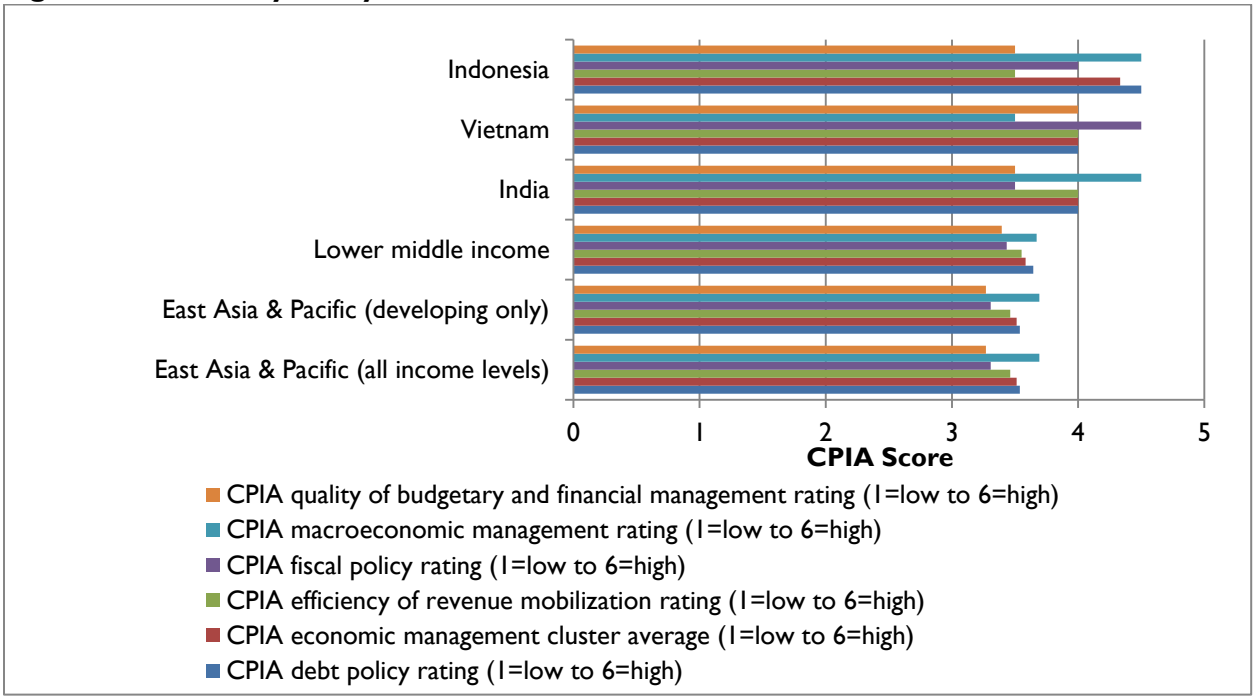
Figure 9.13: Interest Payments on Public Debt, 2010



Note: Data from World Bank, World Development Indicators, 2012. Indonesia's interest payments as a percentage of revenue is red, and its interest payments as a percentage of expenditures is dark blue.

Overall, Indonesia's macroeconomic and public financial management is quite good. As illustrated by the CPIA (Country Policy and Institutional Assessment) indices on this topic, Indonesia scores a little above the middle range on the quality of its financial management and efficiency of its revenue mobilization and scores highest in macroeconomic management and debt policy rating. Figure 9.14 shows that Indonesia also performs well overall against comparators.

Figure 9.14: Country Policy and Institutional Assessment Scores



Note: Data from World Bank, World Development Indicators, January 2013. All data from 2011, except Indonesia is from 2006. The CPIA scores range from a low of 1 to a high of 6, with higher scores indicating better economic management, etc.

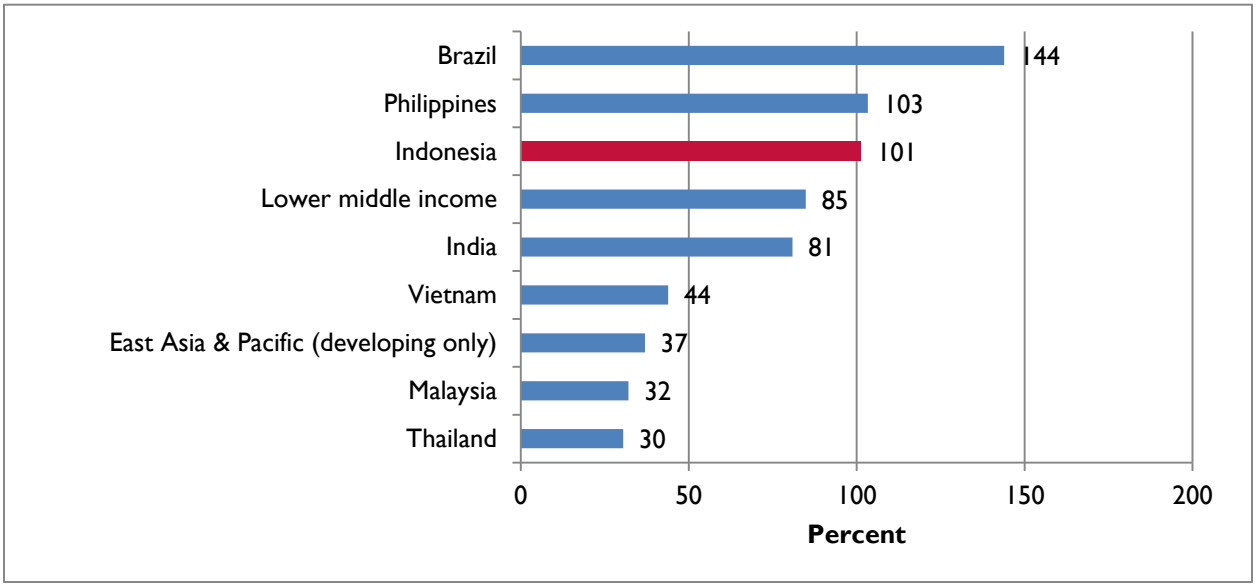
Though Indonesia's public debt and fiscal position are not major constraints to growth, there is one area of potential concern. Existing and future expenditures on fuel subsidies exerts pressure on the fiscal space and public debt. Fuel subsidies comprise a large portion of central government spending and drain fiscal resources away from more productive spending. For instance, in 2008, fuel subsidies were twice that of capital investment expenditures and four times more than targeted social safety net expenditures. From 2004 to 2010, fuel subsidies, comprised between a low of 7 percent of the central government budget in 2009 when oil prices collapsed, to a high of almost 30 percent during an oil price spike in 2005. Furthermore, oil price volatility increases fiscal risks due to poor budgeting; realized spending on fuel subsidies is almost always higher than amounts budgeted and was three times the budgeted amount in 2008 (World Bank 2011a). As of March 2012, the government of Indonesia was effectively paying a subsidy of Rp 5,600 per liter of fuel (World Bank 2012a). However, the subsidy was partially reduced in June 2013 in exchange for a temporary cash transfer to the most vulnerable households. Even with the reduction in the subsidy, fluctuations in the price of oil can still have an adverse effect on Indonesia's fiscal position as will increased demand for fuel consumption from a rising middle class.

Another impact of the fuel subsidy is its regressive nature; it disproportionately benefits the wealthy, who can afford larger vehicles and consume more fuel than the poor. Estimates suggest that fuel subsidies transfer Rp 1,115,000 per month to car owners (which correspond to wealthier households), assuming they consume 200 liters of gasoline a month. In comparison, fuel subsidies transfer an estimated Rp 111,000 per month to motorcycle owners (corresponding to poorer households), assuming consumption of 20 liters a month. Under these assumptions wealthier households with cars receive 10 times more than poorer households. Moreover, two-thirds of the poor and near poor consume no gasoline and so do not directly benefit from the fuel subsidy. Of those that do consume fuel, the low income half of consumers account for only16 percent of the fuel consumption (World Bank 2012a).

9.8 External Debt

External debt, the amount of public and private debt a nation owes to foreign debtors, can impact both financial and currency stability. Indonesia has the third largest external debt among its comparators, with external debt comprising 101 percent of its exports of goods, services, and income (see Figure 9.15).

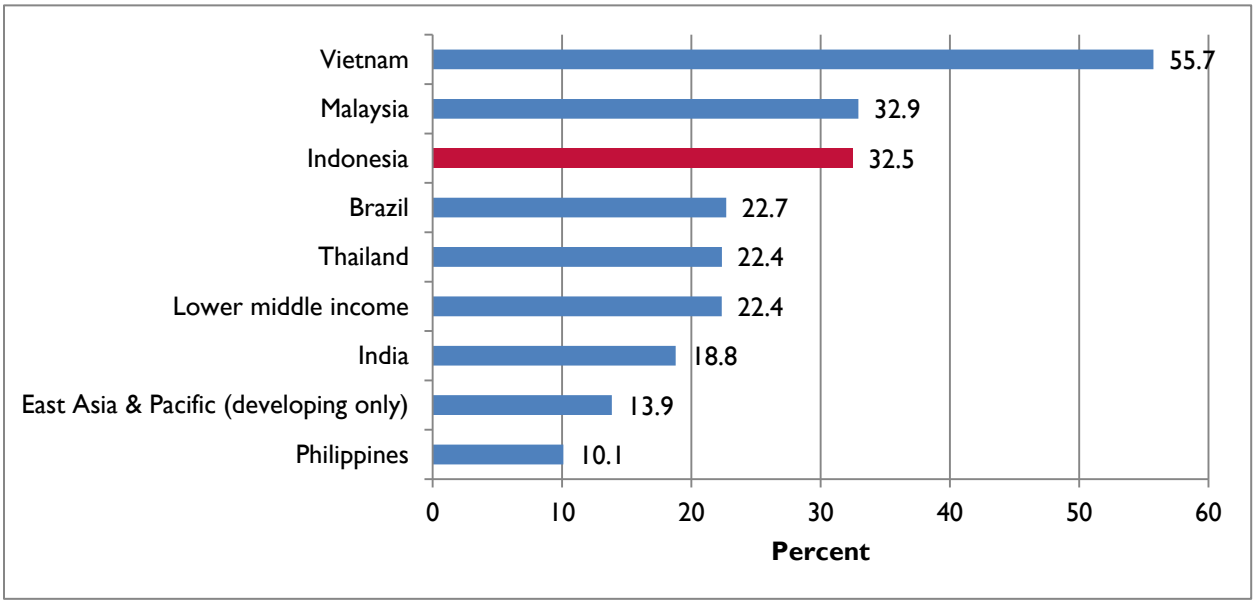
Figure 9.15: External Debt Stocks as a Percentage of Exports of Goods, Services, and Income, 2010



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

The manageability of a large debt to income ratio depends on the relative weight of short-term debt in the country's portfolio. A country should have sufficient foreign currency reserves to pay off short-term debt. As can be seen in Figure 9.16, Indonesia has the third highest short-term debt relative to its reserves among its peers.

Figure 9.16: Short-term External Debt as a Percentage of Total Reserves, 2010

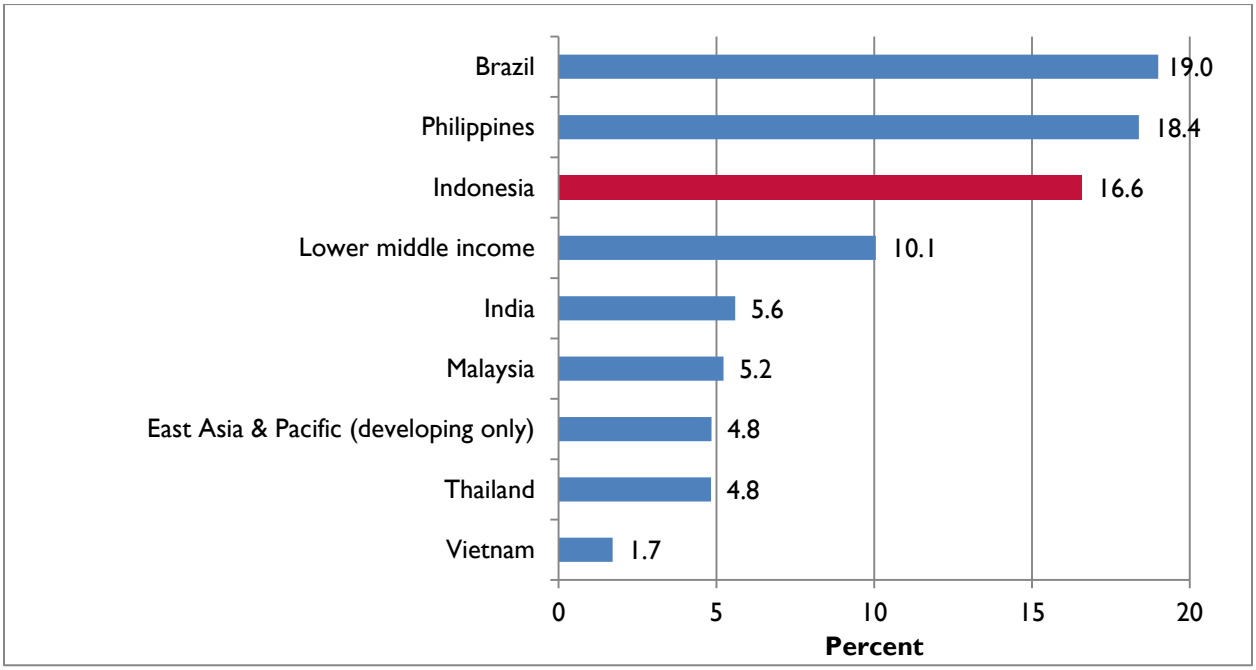


Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

Indonesia's ability to service its debt depends on the terms of the debt. Higher interest rates on short-term debt may reduce Indonesia's ability to service a debt. Debt service refers to the periodic payments of principal and interest that must be made according to the terms on its debt. Thus an overly high debt service relative to its supply of foreign currency (as measured by exports) would indicate a nation is

taking on more debt than it can afford to service. As seen in Figure 9.17, Indonesia's total debt service is the third highest compared to its exports of goods, services, and income relative to its comparators (16.6 percent of its exports of goods, services, and income).

Figure 9.17: Total External Debt Service as a Percentage of Exports of Goods, Services, and Income, 2010



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

Despite its rankings relative to comparators in size of external debt and ability to service that debt, Indonesia still operates within reasonably expected limits. The IMF (2012) found that Indonesia's external debt is at a manageable level in the medium term and is expected to continue on a downward path, becoming 19 percent of GDP by 2017. Such a downward trend is expected despite current account deficits because of assumptions in favor of strong growth; increasing FDI, which is an external financing mechanism that does not cause debt; and real appreciation of the rupiah (International Monetary Fund 2012). With the potential for capital reversals, as occurred in 2008, external debt is still a macroeconomic concern for Indonesia, but not a binding constraint. Bank Indonesia has a track record of appropriate intervention including the buying of Indonesian government bonds, lengthening maturities on short-term central bank bills, and establishing a 6 month holding period on SBIs (World Bank 2011b, World Bank 2012b, International Monetary Fund 2012). We conclude that external debt is not a binding constraint to growth, but recognize that a change in macroeconomic policy interventions may cause it to become a binding constraint in the future.

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10. Access to Finance

Through an examination of indicators of price and access, this section aims to answer the question: is access to finance a binding constraint to investment and growth? While finance remains a constraint for an important sector of the economy -- micro, small and medium enterprises (MSMEs) -- on an aggregate level finance is not among the most binding constraints to investment, and therefore growth, in Indonesia. We find that:

- Indonesia's financial sector and assets are small relative to comparator countries due to low participation in the formal financial sector. However, participation has been growing steadily.
- Real interest rates in Indonesia are high relative to comparator countries as are its savings rates. But the spread between interest paid on deposits and interest received on loans is among the highest of all comparator countries.
- Firms in general report that access to finance is a large constraint on business, but it is more pronounced among small and medium sized firms.

10.1 Overview of the Indonesian Financial Sector

The size of Indonesia's financial sector is small relative to benchmark countries in the region. As shown in Table 10.1, Indonesia's financial sector assets were only 103 percent of GDP in 2008, roughly half the comparable indicators for Brazil and Thailand, and less than a third of Malaysia. Similarly, credit to the private sector as a percentage of GDP is also lower in Indonesia than Malaysia, India, Thailand, and Brazil.

Table 10.1: Regional Comparison of Financial Sector Indicators, 2007

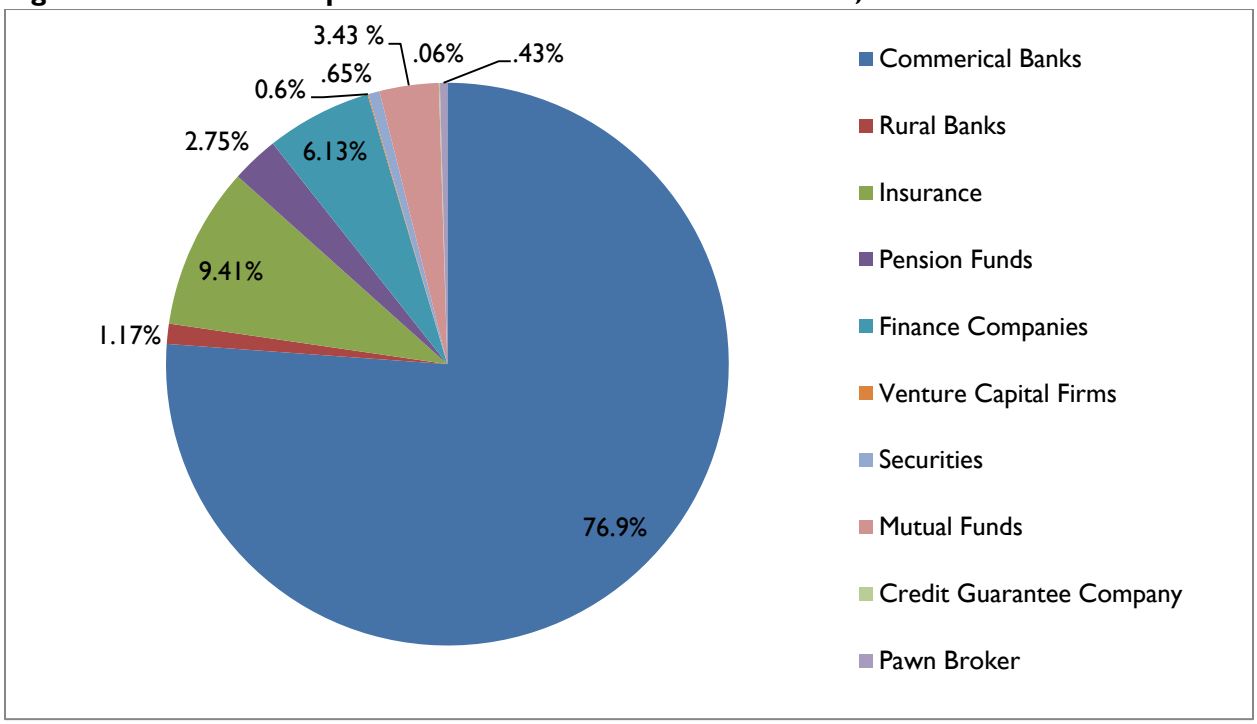
	Total Financial Assets (%GDP)	Credit to Private Sector (%GDP)
Malaysia	383.5	108.8
India	298.3	47.4
Thailand	210.6	84.2
Brazil	205.1	49.8
Philippines	128.7	23.8
Indonesia	103.6	25.4

Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

Indonesia's financial sector is also relatively shallow. Banks have historically dominated the Indonesian financial system, a trend which continues.[37] As depicted in Figure 10.1, commercial banks accounted for over 76 percent of the assets of the system in 2012. Rural banks (Bank Percreditan Rakyat, or BPRs), which differ from commercial banks in that they are not directly involved in the payment system and are restricted by regulation to serve only their local geographic area, constituted an additional 1.17 percent of assets in 2012. However, while banks control over three quarters of the financial sector assets today, this represents a decline from the 91 percent that they controlled in 2003. The non-bank financial sector is growing, albeit slowly and from a very small base. Insurance, for example, has tripled its share of total assets from 3 percent in 2003 to 9.41 percent in 2012, and mutual funds have grown to 3.43 percent from essentially zero in 2003 (Bank Indonesia 2003).

[37] For a brief overview of the evolution of state-owned banks and the banking sector, see "The Role of State vs. Private Banks in Indonesia" in the (World Bank 2010).

Figure 10.1: Asset Composition of Indonesian Financial Sector, 2012



Note: Data from Bank Indonesia (2012)

As of 2012 (see Table 10.2), there were 120 commercial banks, including 4 state banks (Bank Mandiri, Bank Rakyat Indonesia, Bank Negara Indonesia and Bank Tabungan Negara) and 116 private banks. There were also 1669 rural banks (Bank Indonesia 2012). As a result of a policy of consolidation implemented following the Asian Financial Crisis of 97/98, these figures represent a significant drop from pre-crisis numbers. In 2000, there were 151 commercial banks, and 2,419 rural banks (World Bank 2010).

Table 10.2: Number of Indonesian Financial Institutions, 2012

Institution	Number
Commercial Banks	120
Rural Banks	1669
Insurance	141
Pension Funds	272
Finance Companies	194
Venture Capital Firms	71
Securities	147
Mutual Funds	647
Credit Guarantee Company	4
Pawn Broker	1

Note: Data from Bank Indonesia (2012)

While the number of institutions remains relatively large, the banking sector is concentrated, with a small sub-set responsible for the majority of activity. In 2010 the top three state-owned commercial banks constituted approximately one third of the sector's asset base, and the top 15 banks accounted for roughly 70 percent (International Monetary Fund 2010).

While the number of banks has declined since the Asian Financial crisis, their outreach has increased over the same period. The number of commercial bank branches increased 70 percent between 2000-2008, from 6,374 to 10, 868 (World Bank 2010). Indicators for commercial bank density (see Table 10.3) have also improved, with the number of commercial bank branches per 1000 km^2 increasing by 85 percent between 2004-2011, and the number of commercial bank branches per 100,000 adults increasing by 68 percent over the same period.

Table 10.3: Indonesian Commercial Bank Branch Density

Commercial Bank Branches	2004	2005	2006	2007	2008	2009	2010	2011
Per 1,000 km^2	4.46	4.62	5.10	5.42	6.07	7.15	7.71	8.23
Per 100,000 adults	5.07	5.17	5.61	5.86	6.47	7.51	7.98	8.52

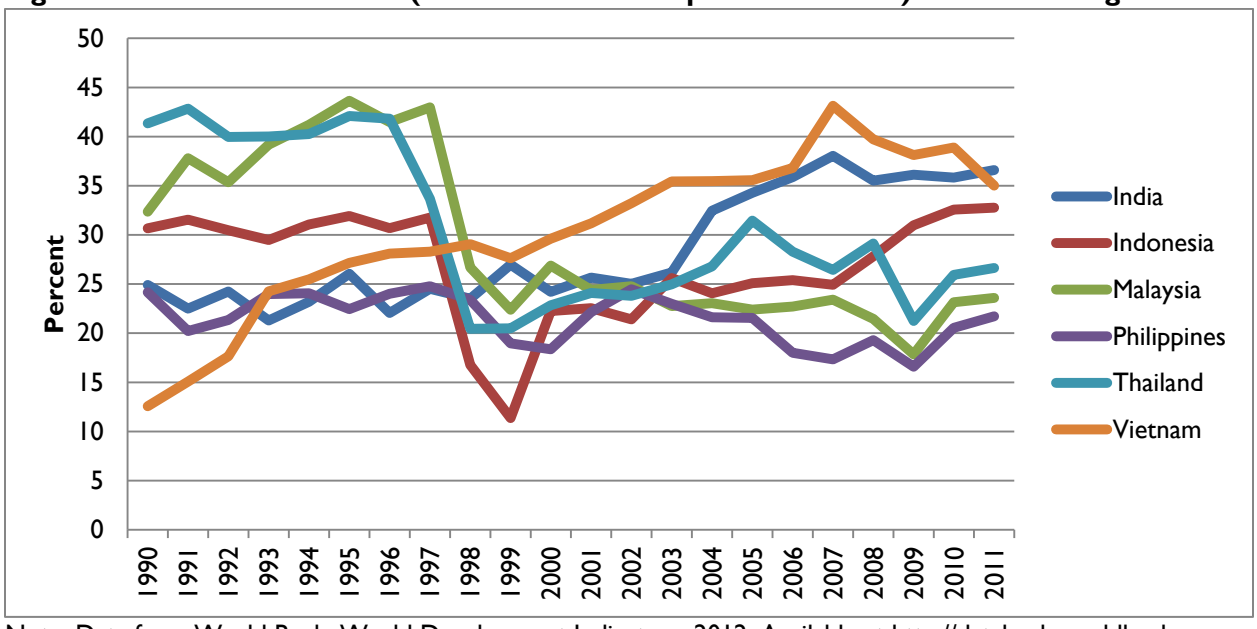
Note: Data from IMF, Financial Access Survey

The banking sector is relatively open to foreign ownership. By mid-2011, approximately half of all banks in Indonesia were either partially or fully foreign owned, including several among the 10 largest banks (such as CIMB, Danamon, and Permata). Foreign and joint venture banks control a little less than a third of all assets (Bank Indonesia January 2013).

10.2 Cost of Finance

Indonesia's investment level has only recently recovered to the levels it sustained prior to the Asian financial crisis. Between 1990-1997, Indonesia maintained an investment rate between 30-32 percent, which dropped to 11 percent in 1999 (see Figure 10.2). Between 2000-2007 this rate rebounded and remained between 21-25 percent. Since 2009 following the global financial crisis, investment levels have once again risen to the 30-32 percent range. This corresponds with GDP growth that is beginning to approach pre-crisis levels; between 1992-1996, GDP growth ranged from 7-8 percent, and since 2008, it has reached over 6 percent.

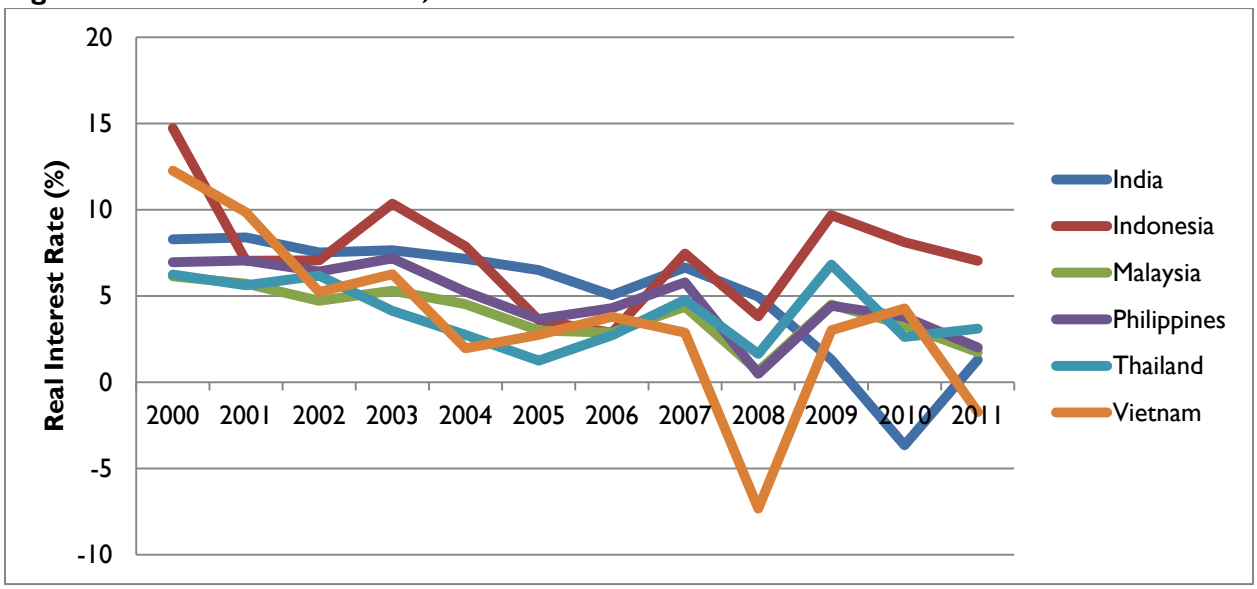
Figure 10.2: Investment Rate (Gross Domestic Capital Formation) as a Percentage of GDP



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

To what extent is the cost of finance a constraint to this investment and growth? With the exception of a period of high inflation during 2005-06, Indonesia's real domestic interest rate[38] has been higher than most other emerging economies in the region, without any clear declining trend (see Figure 10.3).

Figure 10.3: Real Interest Rate, 2000-2011



Note: Data from IMF, International Financial Statistics, 2012

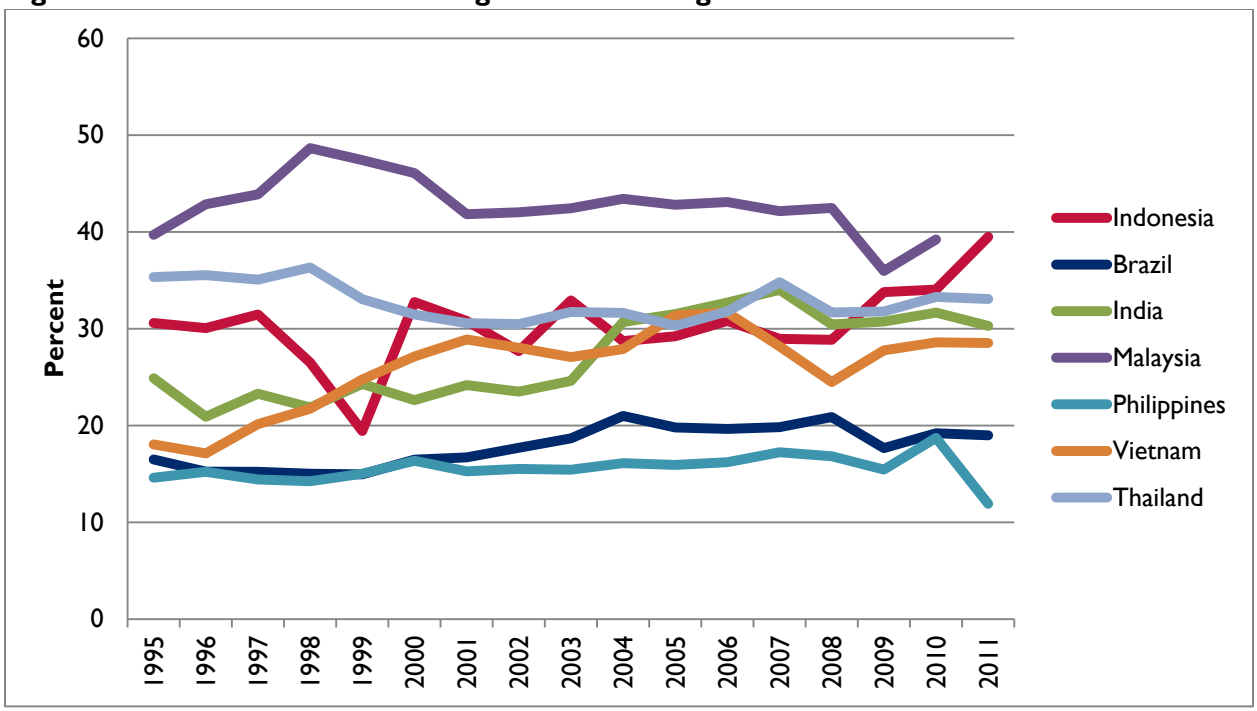
Lack of access to international and domestic savings can increase the cost of finance by making funds to lend more scarce. Poor domestic financial intermediation can also cause a higher cost of finance through inefficient channeling of savings to profitable investment. The following two sections will assess the contribution of each of these two potential factors.

10.2.1 Domestic Savings and Access to International Finance

Although Indonesia's domestic savings has been consistently lower than that of Malaysia, since 2009 it has been above that of benchmark countries in the region (see Figure 10.4).

[38] Real domestic interest rate was estimate from the lending rate minus inflation (consumer prices).

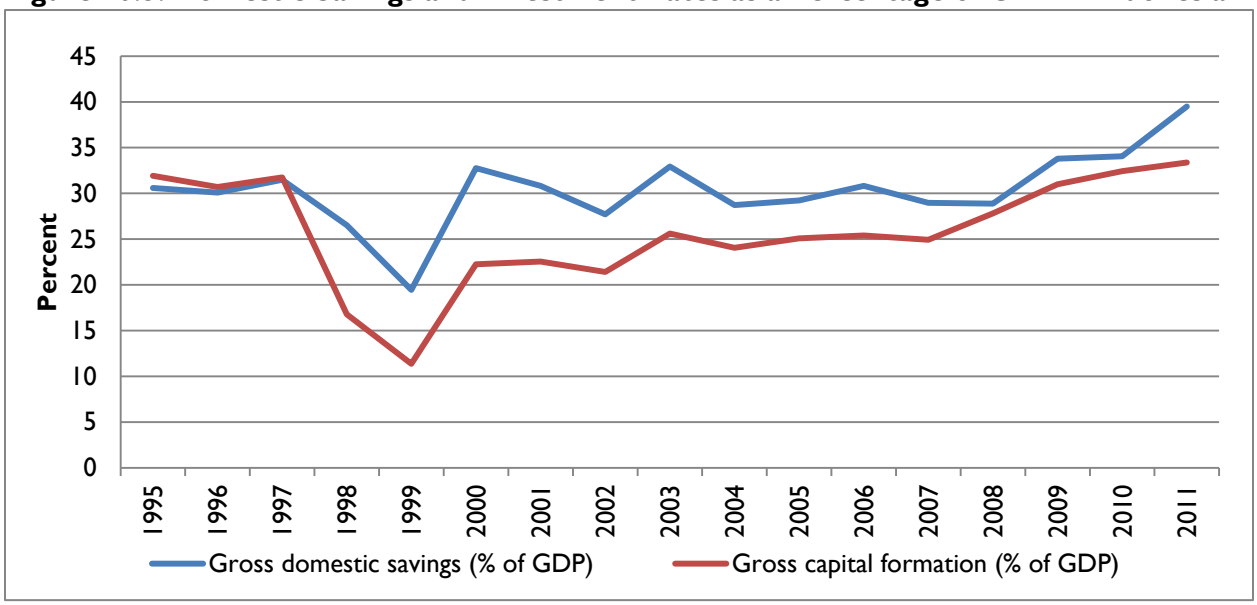
Figure 10.4: Gross Domestic Savings as a Percentage of GDP



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

Moreover, Indonesia's domestic savings is not below its investment rates, as can be seen in Figure 10.5. This suggests that the Indonesian financial system might have sufficient capital to finance the country's investment needs, so lack of savings may not be a determining factor in the country's high interest rate.

Figure 10.5: Domestic Savings and Investment Rates as a Percentage of GDP in Indonesia



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

Particularly since the global financial crisis of 2008, Indonesia's cost to access international markets has decreased. In 2011-2012, both Moody's and Fitch Ratings gave Indonesia an investment grade rating, the first time Indonesia has had that rating since the Asian Financial Crisis. As shown in Table 10.4, this

upgrade puts Indonesia on par with India and ahead of Philippines and Vietnam, but still below Thailand in terms of perceived risk.

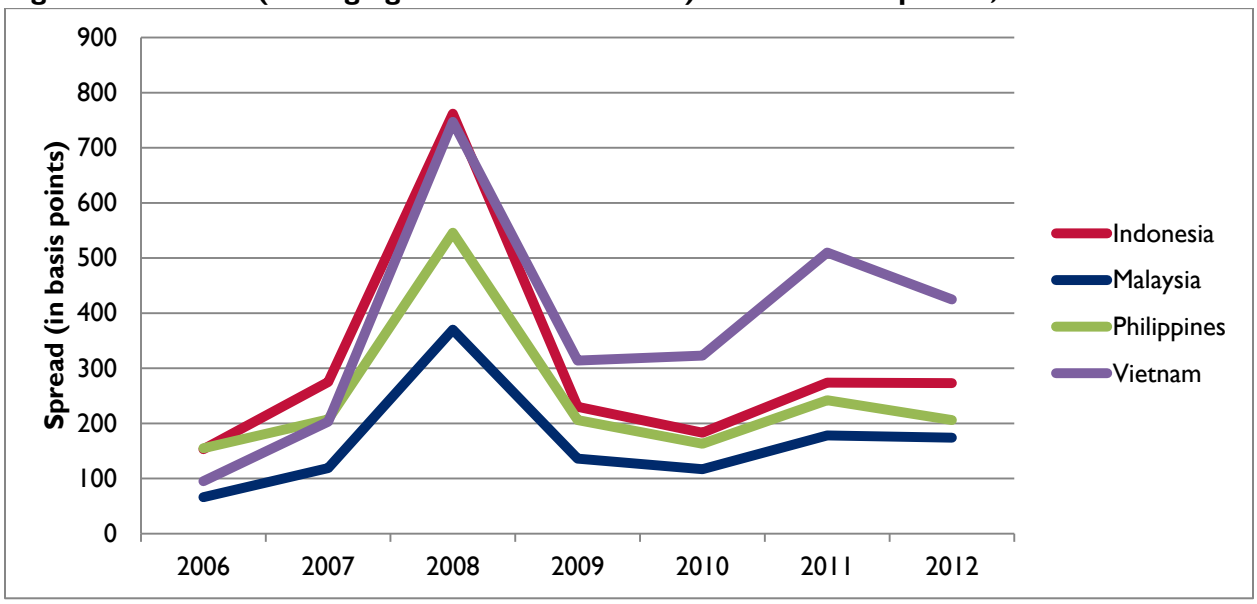
Table 10.4: Sovereign Credit Ratings, January 2013

	Moody's	Standard and Poor's	Fitch Ratings
Indonesia	Baa3	BB+	BBB-
India	Baa3	BBB-	BBB-
Malaysia	A3	A-	A-
Philippines	Ba1	BB+	BB+
Thailand	Baa1	BBB+	BBB
Vietnam	B2	BB-	B+

Note: Data from Moody's, Standard and Poor's, Fitch Ratings, January 2013

While still higher than other countries in the region, Indonesia's sovereign spreads have also fallen since the global financial crisis (see Figure 10.6). Since 2012, Indonesia's bond issuances have been oversubscribed and bond yields have fallen, both indicating improving terms for accessing international finance.

Figure 10.6: EMBI (Emerging Markets Bond Index) Global Yield Spreads, 2006-2012



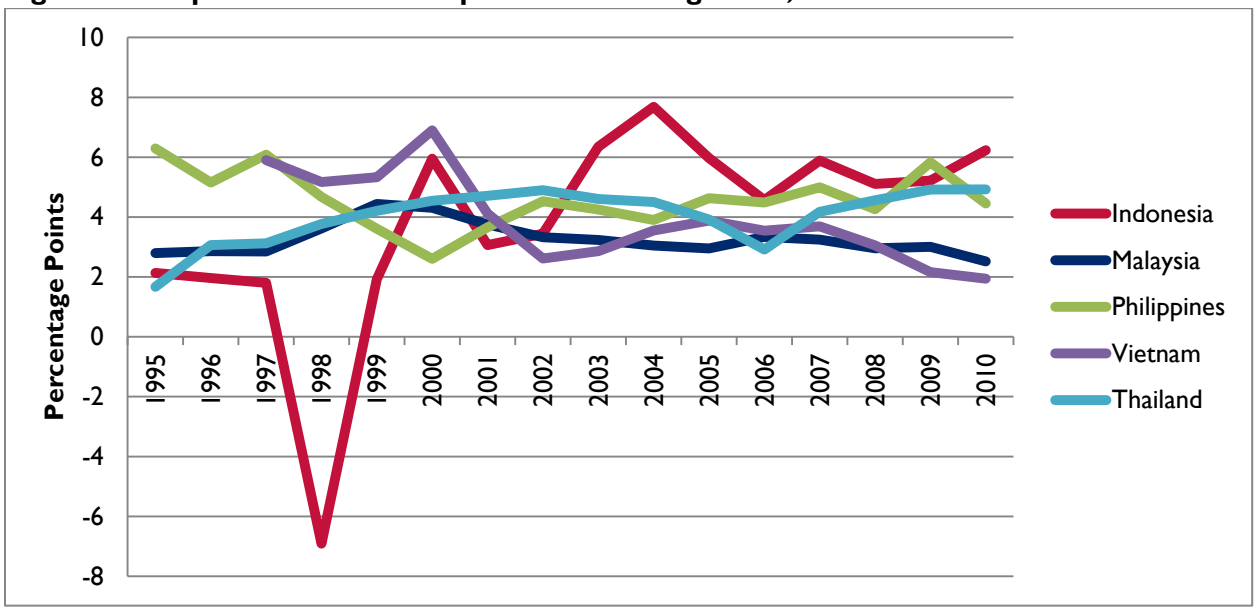
Note: Data from IMF Global Financial Stability Reports, October 2012 and April 2008.

To some extent this improvement is due to external factors (such as expansionary fiscal policy and near zero interest rates in parts of the developed world) that may not be sustainable. However, when combined with sufficient domestic savings, the combination suggests that cost of funds might not be the most significant factor in Indonesia's high interest rates.

10.2.2 Poor Domestic Intermediation

Indonesia's bank margin (the spread between interest rates offered for lending and deposits) has been higher than all benchmark countries since 2002, indicating a lower level of efficiency (see Figure 10.7).

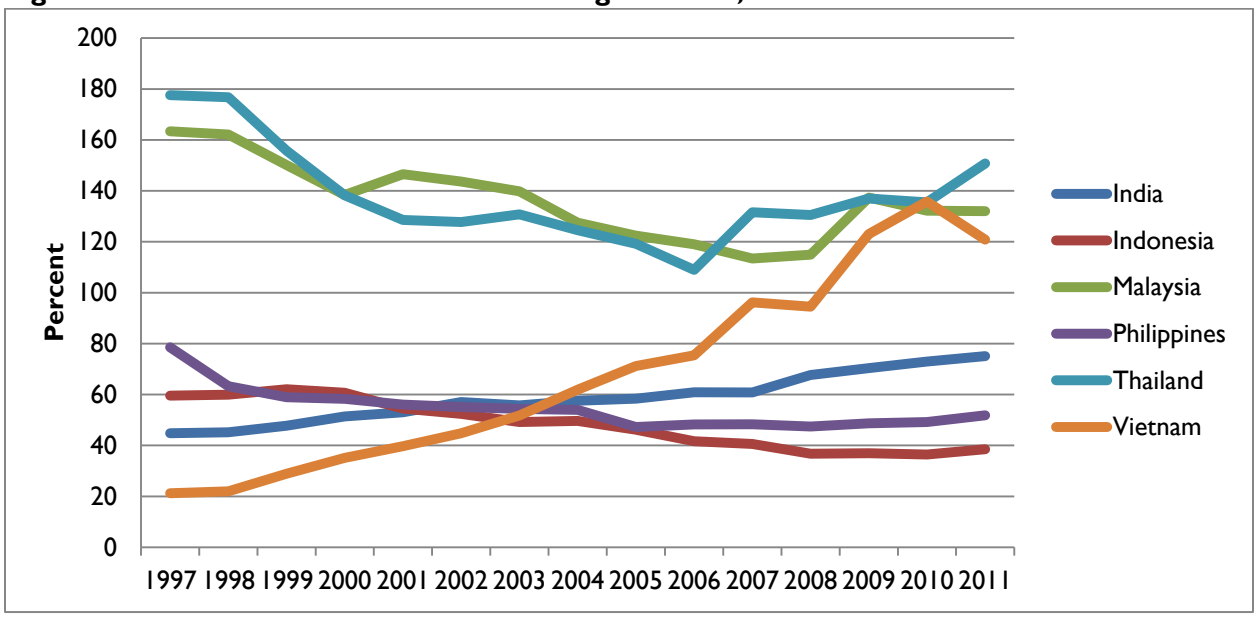
Figure 10.7: Spreads Between Deposit and Lending Rates, 1995-2010



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

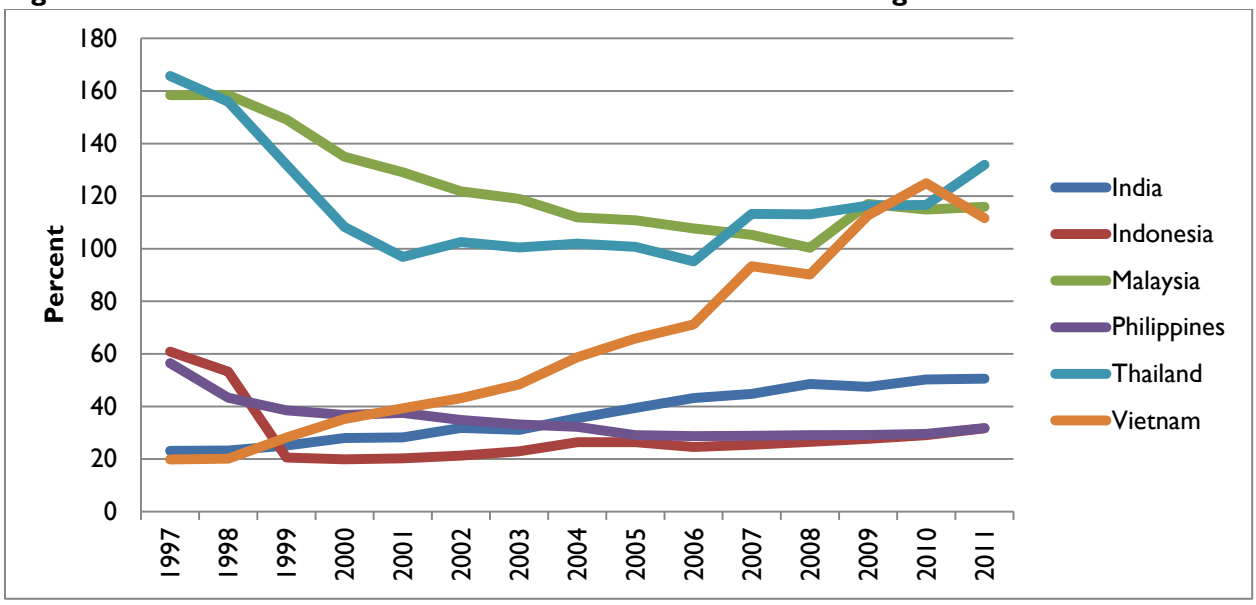
Similarly, the level of credit extended by the banking sector in Indonesia is low relative to benchmark countries. While domestic credit as a percentage of GDP stood at nearly 60 percent prior to the Asian Financial Crisis, it has steadily declined, despite positive GDP growth in Indonesia (see Figure 10.8). Similarly, domestic credit to the private sector as a percentage of GDP has not recovered to the pre-Asian Financial Crisis levels and remains lower than all comparator countries (see Figure 10.9).

Figure 10.8: Domestic Credit as a Percentage of GDP, 1997-2011



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

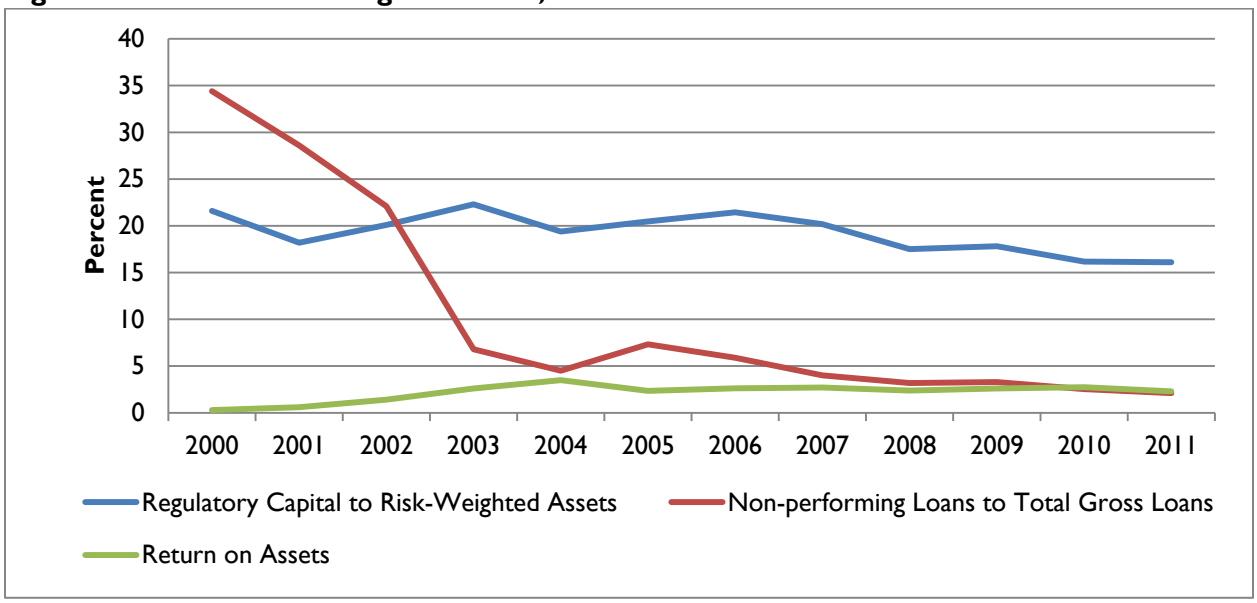
Figure 10.9: Domestic Credit to the Private Sector as a Percentage of GDP



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

The health and liquidity of the banking sector do not appear to be responsible for this inefficient or stagnant intermediation. The banking sector has excess liquidity and is holding reserves in excess of Bank Indonesia's requirements ((Bank Indonesia January 2013). This would indicate that banks have money to lend. The average loan-to deposit ratio for the banking sector in March 2012 was 79.8 percent, suggesting that at present most deposits are being channeled to loans (Bank Indonesia January 2013). Similarly, a decrease in non-performing loans along with stabilizing capital adequacy and return on assets after the Asian Financial Crisis indicate the overall system is sound (see Figure 10.10).

Figure 10.10: Select Banking Indicators, 2000-2011



Note: Data from IMF, Financial Soundness Index, 2012

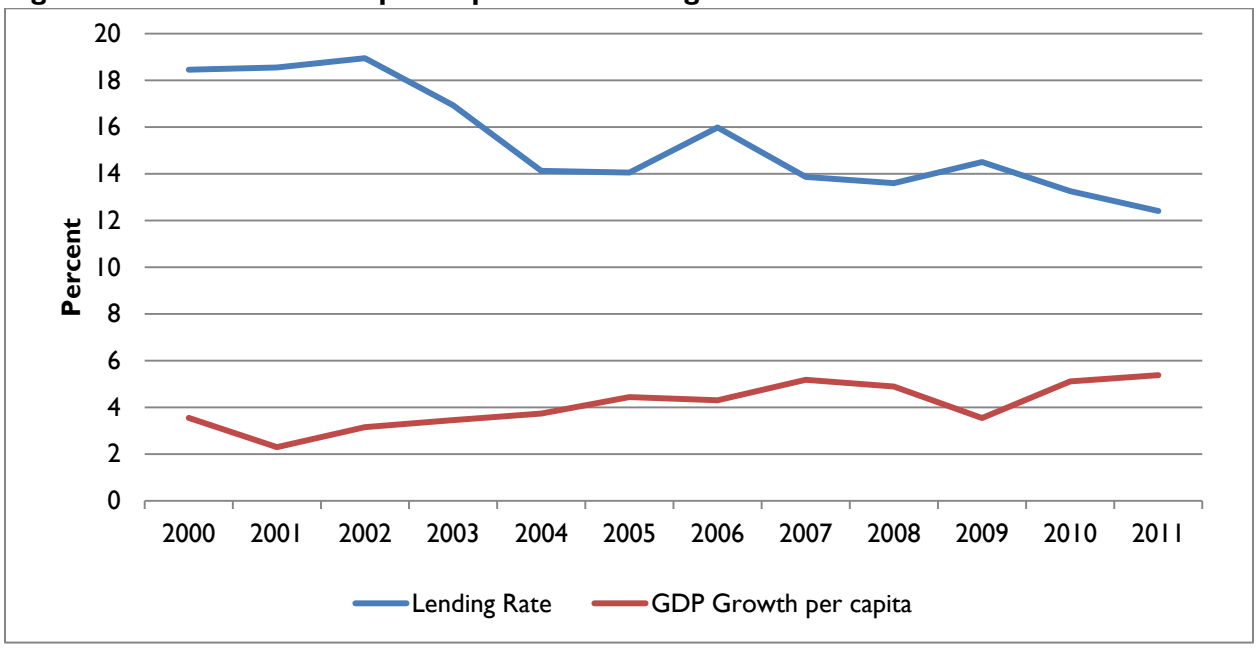
Other factors that may be causing this inefficiency include:

- Lack of competition: Concentration in the banking sector is high, a result of explicit government policy following the Asian Financial Crisis. Combined with policy requirements that make entry more difficult, this has meant it is difficult for new banks to compete with existing players and has resulted in most new banks being formed from mergers or acquisitions.
- Higher risk: Indonesia's regulatory environment is relatively weak with respect to several indicators relevant to facilitating access to finance and improving its allocation, contributing to higher risk for banks. The World Bank's Doing Business "Getting Credit" indicator measures the strength of legal rights of borrowers and lenders in secured transactions and bankruptcy laws; the depth of credit information assesses the coverage, scope and quality of credit information available through public credit registries and private credit bureaus. Indonesia was ranked 126 in 2012 (down from 116 in 2011). This ranking puts Indonesia on par with Philippines, but well below Malaysia (ranked 1st), Vietnam (ranked 24th) and Thailand (ranked 67th). For example, only 31.8 percent of adults were covered by public registry in 2012 (up from 0 percent in 2006), and no private credit bureaus yet exist. With banks increasing their exposure to the SME segment – both as a result of the government policy encouraging increased lending to SMEs and banks increasingly seeing the segment as attractive given shrinking margins in some traditional segments – the IMF noted that weak information may expose banks to new risks (International Monetary Fund 2010).

10.3 Is Cost a Binding Constraint?

According to the Growth Diagnostic methodology, the cost of finance can be a binding constraint if the price is high, changes in price map to changes in growth and investment, and firms are willing to go to great lengths to secure financing. As can be seen in Figure 10.11, Indonesia's interest rate is relatively high, and there is some correlation between the lending rate and GDP growth.

Figure 10.11: GDP Growth per Capita and Lending Rates



Note: Data from World Bank, World Development Indicators, 2012. Available at http://databank.worldbank.org.

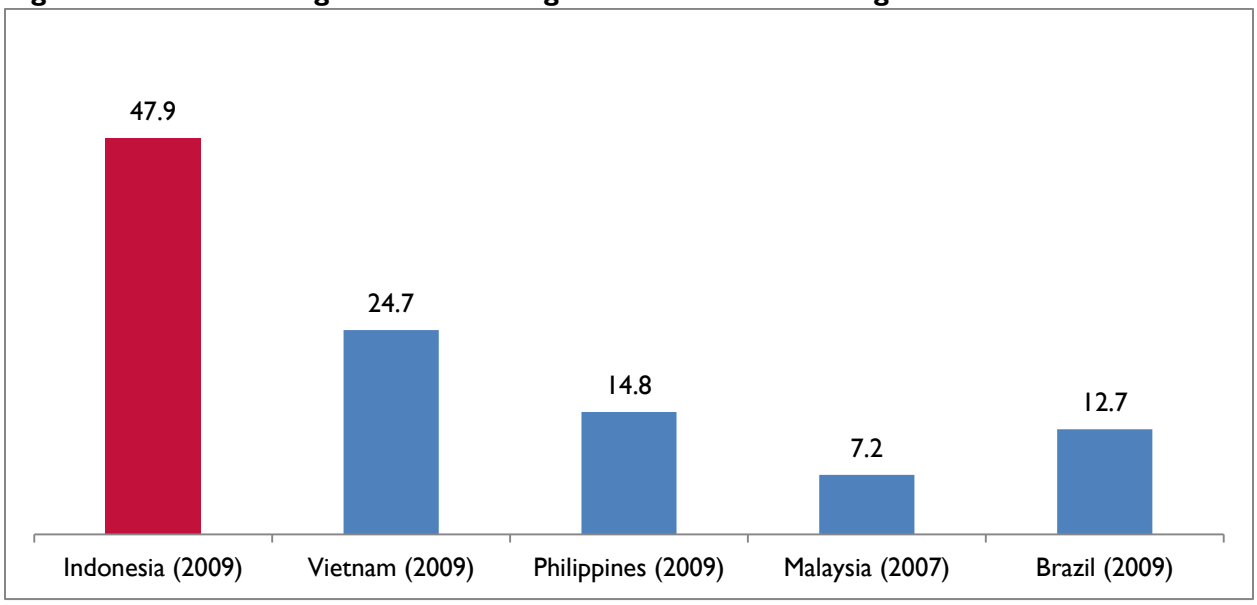
However, evidence is not conclusive as to whether finance is amongst the most binding constraints. Several enterprise surveys suggest it is not, at least among large firms. Surveys of Indonesian businesses

conducted by the ADB and World Bank prior to the 2008 global crisis indicated that access and cost of finance were not considered in the top 10 major constraints for business (Asian Development Bank and World Bank 2005, Lembaga Penyelidikan Ekonomi dan Masyarakat 2007).

While finance might not be among the most binding constraints to investment and growth in Indonesia, numerous studies have pointed to finance as a key challenge for micro, small and medium enterprise (MSMEs). Such a constraint could potentially be significant, given the disproportionate role this sector plays in not only the number of enterprises in Indonesia but in generating employment. As of 2011, MSMEs constituted 99 percent of the number of firms in Indonesia, and provided 97 percent of employment. Collectively, MSMEs also contribute to approximately 57 percent of GDP (Ministry of Small and Medium Enterprises and Cooperatives 2013).

Evidence from the World Bank Enterprise survey from 2009, which covers small, medium and large firms, would seem to suggest that finance is a significant constraint, but might not be binding. At the aggregate level, nearly half of all Indonesian firms citing finance as the key constraint to their business, well above countries like Vietnam and the Philippines that were surveyed the same year.

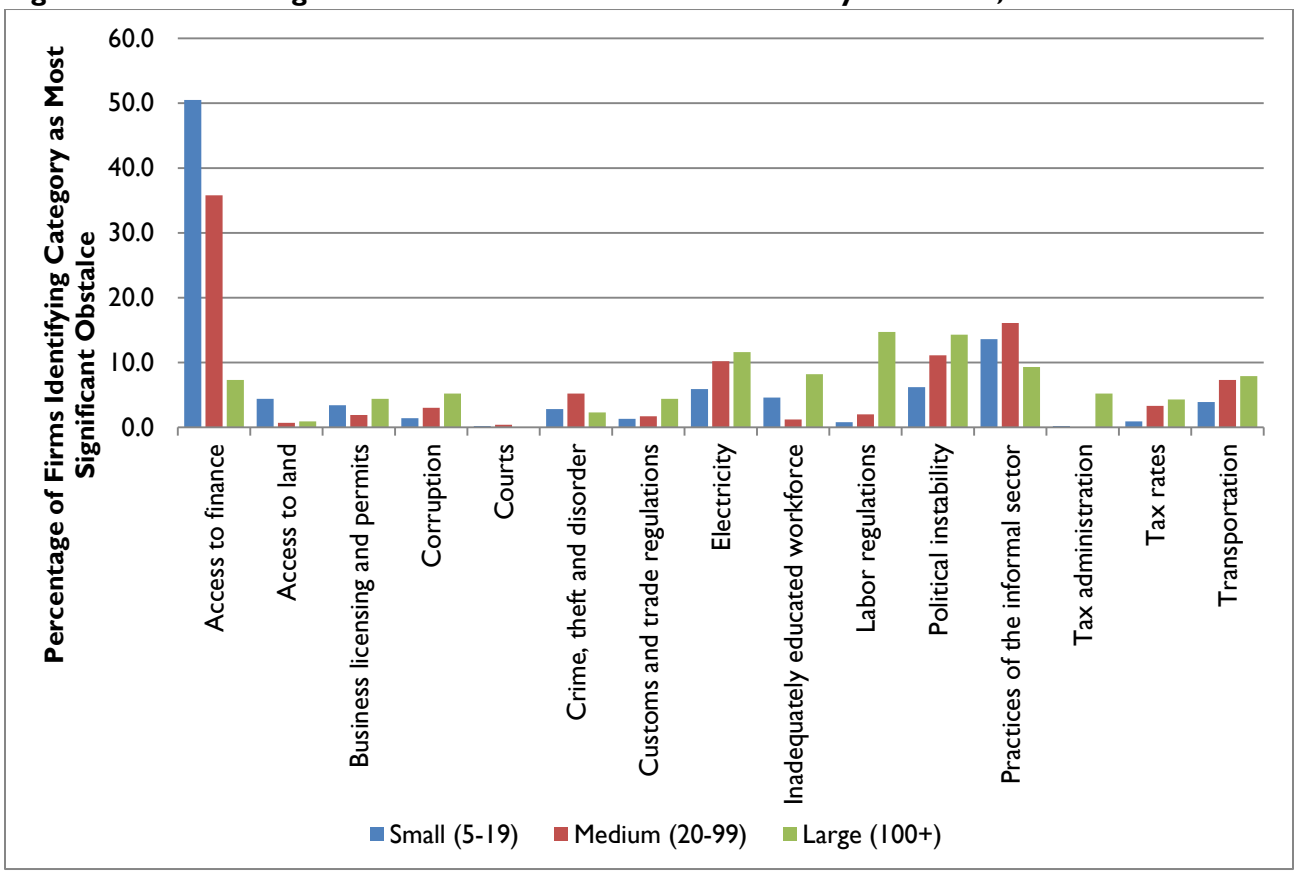
Figure 10.12: Percentage of Firms Citing Finance as the Most Significant Constraint



Note: Data from World Bank, Enterprise Survey. All data from 2009, except Malaysia, which is from 2007.

Further disaggregation by firm size (see Figure 10.12) reinforces the significance that SMEs, particularly small firms, attribute to finance. 50.5 percent of small firms viewed access to finance as their most significant obstacle, well above the practices of the informal sector, the second most cited obstacle, at 13.6 percent. Similarly, medium enterprises also cited finance, at 35.8 percent, twice as often the next most commonly cited, practices of the informal sector, at 16.1 percent. Only large firms did not consider finance as one of the their top 3 constraints, citing labor regulations (14.7 percent), political instability (14.3 percent), electricity (11.6 percent), inadequately educated workforce (8.2 percent) and transportation (7.9 percent) more often than finance (7.3 percent).

Figure 10.13: Most Significant Obstacle of Indonesian Firms by Firm Size, 2009



Note: Data from World Bank, Enterprise Survey, 2009

However, further analysis appears to suggest that this constraint might not be binding. Even when indicating finance was their most significant constraint, the majority of firms irrespective of size did not consider it a major obstacle (see Figure 10.13). As can be seen in Table 10.5, only 14.5 percent of firms considered access to finance a "major" or "very severe" obstacle, compared to nearly 56.8 percent that reported it was "no obstacle" or a "minor obstacle." Small firms found finance a major or severe obstacle at nearly twice the rate of large firms, but their percentage was surprisingly small 14.8 percent.

Table 10.5: Percent of Indonesian Firms Identifying the Intensity of Access to Finance as an Obstacle, 2009

Size of Firm	Number of Firms	Is access to finance No Obstacle, a Minor Obstacle, a Moderate Obstacle, a Major Obstacle, or a Very Severe Obstacle to the current operations of this establishment?						
		No Obstacle	Minor Obstacle	Moderate Obstacle	Major Obstacle	Very Severe Obstacle	Do not know	Does not apply
All	**308,394**	**31.8%**	**25.0%**	**19.9%**	**12.1%**	**2.4%**	**2.5%**	**6.3%**
Large >=100	4,720	44.1%	28.4%	18.4%	6.0%	0.4%	1.4%	1.3%
Medium >= 20 and <=99	15,475	38.2%	21.9%	23.4%	11.5%	0.9%	1.1%	2.9%
Small >=5 and <=19	288,199	31.2%	25.1%	19.8%	12.3%	2.5%	2.6%	6.6%

Note: Data from World Bank, Enterprise Survey, 2009

If binding, there would be some evidence of firms going to great lengths to overcome the lack of finance. However, this does not seem to be the case; few used informal sources of finance or supplier credit, relying instead on internal funding. The majority of firms financed their investments internally, with little variation between firm sizes: 86.2 percent for small firms, 85 percent for medium firms, and 81.9 percent for large firms. In all firm size categories, the majority of firms did not apply for a loan or line of credit in the previous fiscal year (see Table 10.6) and the most common reason cited by firms of all sizes was lack of need: 31.8 percent for large firms, 33 percent for medium firms, and 22.1 percent for small firms. That said, a greater number of small firms pointed to constraints related to access (complex application procedures, not believing they would be approved – 20.3 percent) and cost (collateral requirements too high, interest rates not favorable: 27 percent).

Table 10.6: Percent of Indonesian Firms that Applied for Loans or Lines of Credit, 2009

Size of Firm	Number of Firms	Yes	No	Do not know
All	**308,394**	**15.2%**	**82.5%**	**2.3%**
Large >=100	4,720	30.9%	60.2%	8.9%
Medium >= 20 and <=99	15,475	22.9%	72.3%	4.8%
Small >=5 and <=19	288,199	14.5%	83.5%	2.0%

Note: Data from World Bank, Enterprise Survey, 2009

Overall, the Enterprise survey does suggest finance is a bigger constraint for smaller firms, but is not conclusive as to whether the constraint is binding. However, while covering small and medium enterprises, the survey does not assess the needs of micro-enterprises, limiting its generalizability across the entire economy. A 2010 World Bank survey on access to financial services covering the poor can provide insight on the micro segment. Although it covers households and not explicitly micro-enterprises, at the micro level this can serve as a proxy. One of the challenges with bank data on micro-enterprises is that it is often difficult to know how the loan was used; a motorcycle could be used to

take a child to school as well as goods to market, making the distinction between consumption and business loans hard to delineate. The data from this survey reduces that problem, as the data on the main purpose of the loan comes from the user of the loan and not the bank.

According to the survey of Indonesians who borrow money (reported in Table 10.7), most tend to do so from informal sources. Only 27 percent of borrowers received loans from formal financial institutions such as a bank or microfinance institution.

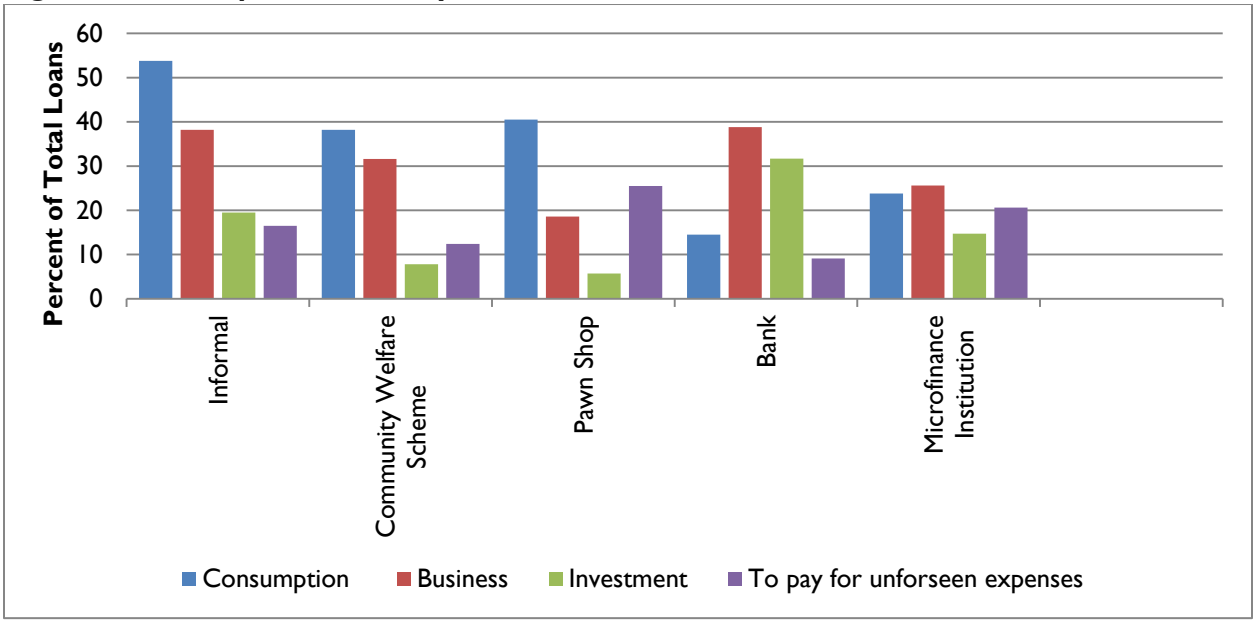
Table 10.7: Percentage of Indonesian Borrowers by Service Provider

Source of Loan	Percentage of Borrowers
Informal	43%
Bank	17%
Microfinance Institution	10%
Community Welfare Scheme	6%
Pawnshop	3%

Note: Data from World Bank, Improving Access to Financial Services in Indonesia (2010)

This higher use of informal sources or non-traditional financing institutions such as community welfare schemes and pawn shops might represent borrowers having to go to greater lengths to access finance, an indication of a binding constraint. However, the breakdown of the purpose of the loan by service provider in Figure 10.14 does not provide a clear affirmation of this hypothesis. Loans from informal sources, welfare schemes and pawnshops went primarily to consumption: 53.8 percent of loans from informal sources went to consumption and only 19.5 percent to investment. Loans from more formal institutions like banks and microfinance institutions more commonly went to fund investment: 31.7 percent of bank loans went to investment, as did 14.7 percent of microfinance loans. While the survey did not compare reasons for going to informal sources versus a formal one for credit, the preponderance of borrowers turning to informal schemes for consumption might indicate that inability to get investment loans from a bank was not their main driver in selecting their service provider.

Figure 10.14: Purpose of Loan by Service Provider in Indonesia



Note: Data from World Bank, Improving Access to Financial Services in Indonesia (2010)

Overall, these enterprise surveys do suggest that financing is a constraint, with the importance of that constraint increasing as the size of the firm decreases. However, without clear evidence that firms find it necessary to overcome the obstacle with much effort they do not provide conclusive evidence of a constraint that is binding at the aggregate level.

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11. Environmentally Sustainable and Inclusive Economic Growth

The purpose of this section is to provide environmental boundaries to our discussion of inclusive economic growth. Economic growth in Indonesia is inextricably linked to its environment. Impressive rates of economic growth have been accompanied by equally impressive rates of deforestation and pollution. From 2000 to 2008, per capita GDP (constant 2000 $US) increased by 36 percent. Carbon emissions (kilotons) increased by 57 percent over the same period.[39] With economic growth comes an increased demand for energy, transportation infrastructure and clean water, all of which affect the natural resource base. The causality can also be reversed; the harvesting of natural resources can lead to job creation, poverty reduction, and economic growth.

A challenge for those engaged in reducing poverty and facilitating economic growth is to do so without simultaneously encouraging undesirable environmental practices or the destruction of natural resources.

In this section we find that:

- Ecosystem service outcomes can be sustainable or unsustainable. Ecosystems can produce different streams of revenue derived from provisioning services (goods and services traded in the market such as paper, food, and water), regulating services (activities that contribute to production processes such as climate change mitigation or pollination), and cultural services (aesthetic, religious, cultural value).
- The benefits and costs associated with a specific ecosystem outcome differ across different populations. The disadvantaged often bear the cost of unsustainable outcomes while revenues accrue to the elite. The Rest of World also bears a substantial cost from unsustainable outcomes due to the loss of cultural services as well as through global impacts associated with climate change.
- Governments and other entities are making payments to Indonesia in order to obtain sustainable ecosystem outcomes, reflecting the value placed on sustainable outcomes by the Rest of World and the existence of Coasian type bargaining.
- Sustainable outcomes are constrained by the lack of enforceable property rights, corruption, and asymmetric information on the part of disadvantaged populations within communities.

To have an *empirical* discussion about the effect environmental constraints have on inclusive economic growth, two key pieces of information are needed. First, the real net value of ecosystem services needs to be correctly measured. Second, the distribution of the benefits and costs of ecosystem services across the population must also be identified. Unfortunately, there are significant challenges to measuring the true value of ecosystem services and how these values are distributed among the population. However, sufficient information from the theoretical and applied literature exists to allow us to draw well-reasoned conclusions about what factors hinder sustainable and inclusive economic growth in Indonesia.

The remainder of this section is outlined as follows. First, we discuss a popular framework for valuing ecosystem services. Then we present how the distribution of ecosystem service values might differ between our target population (Indonesian Poor) and other beneficiaries (Rest of World). The

[39] Author's calculations using World Bank Indicators. http://databank.worldbank.org.

discussion is framed in the context of Coasian bargaining (Coase 1960). We draw on both a theoretical and applied literature to demonstrate that the binding constraints to sustainable and inclusive economic growth are the same regardless of which ecosystem service outcome, sustainable or unsustainable, the Indonesian Poor value most.

11.1 Valuing Ecosystem Services

Ever since Harold Hotelling (1949) developed a method for estimating the value of recreational services provided by national parks, an extensive literature has developed that attempts to measure the economic value on environmental goods and services. Two methodologies are generally used to estimate the value of nonmarket environmental goods and services. The first are *revealed preference* methods. These are derived from observable data and include hedonic pricing methods, averting behavior, the travel cost method, and more (Boyer and Polasky 2004, Freeman 2003). A more popular method utilizes data derived from a statement of willingness to pay for certain ecosystem services or a willingness to accept payment for the loss of certain ecosystem services. These *stated preference* models are often referred to as Contingent Valuation studies because the results are contingent on the hypothetical situation presented in the survey.[40] However, Contingent Valuation methods have been legitimately challenged in the economics literature. Hausman (2012) argues that the methodology is riddled with error such as hypothetical response bias that cannot be overcome and is hopeless as a policy or policy analysis tool. Whittington and Pagiola (2012) are less critical of the methodology, but conclude that the studies reviewed in their survey of the literature are low-quality and of "limited policy relevance."

The literature has more recently focused on valuing "ecosystem services" by looking at different service components separately (Vincent 2012). According to the Millennium Ecosystem Assessment (Hassan, et al. 2005), ecosystem services can be divided into four categories that all provide economic value: provisioning services, regulating services, cultural services, and supporting services. *Provisioning services* are those goods and services that are derived directly from the ecosystem and are relatively easy to value in economic terms because they are bought and sold in markets. These include products such as timber, fish, water, food, fiber, and fuel. Those who argue that environmental conservation comes at the cost of economic progress are often narrowly focused on the value of provisioning services only. But other services also provide economic rents. *Regulating services* are those that contribute to a production process. For example, an ecosystem may purify water, pollinate crops, or even stabilize the climate at both micro and macro levels. Third, ecosystems provide *cultural services* or amenities valued for spiritual, ethical, aesthetic, or other reasons. Cultural services include ecotourism, national parks, and some aspects of biodiversity.[41] Fourth, ecological processes such as decomposition and nutrient cycling provide *supporting services*.[42]

Since this differentiation of services first appeared in the Millennium Ecosystem Assessment (Hassan, et al. 2005), researchers have been able to model regulating services as production inputs to provisioning services (Vincent 2012). Different studies often limit their focus to valuing specific regulating services, such as clean water, pollination, climate change, or flood control. But even in this relatively new framework, the empirical results for valuing regulating services are mixed. Vincent (2012) notes that many studies tend to overstate the economic value regulating services contribute and offers a literature review that highlights several conflicting results. The literature has yet to reach consensus on whether

[40] See Carson (2011) for a comprehensive review of the contingent valuation literature.

[41] Biodiversity doesn't have a tidy home in this breakdown. It can be valued for cultural reasons, but can also provide supporting services or even regulating services. See Mace et al. (2012) and Elmqvist et al. (2010).

[42] Others have consolidated supporting services and regulating services into the same category (Kumar 2010).

the value of ecological processes and regulating services is large or small compared to the value of ecologically unsustainable provisioning services.

Significant problems also remain with estimating the economic value of cultural services (Atkinson, Bateman and Mourato 2012). These are not easily quantified as production inputs and the nonmarket valuation techniques required to estimate their value continue to be challenged in the literature. The potential value placed on an ecosystem by global citizens for ethical reasons alone could be substantial. Even though we are unable to properly value all ecosystem service components, we are still able to draw conclusions by exploring the potential distribution of costs and benefits across different populations.

11.2 Distribution of Costs and Benefits of Ecosystem Services

A theoretical framework in which ecosystem services are divided into various components facilitates a discussion of the distributional costs and benefits of ecosystem services for different populations. These costs and benefits can accrue to different populations in different ways, either within a single ecosystem service component or between different ecosystem service components. For example, harvesting an old growth forest in an unsustainable manner may yield revenues from provisioning services for one population while imposing an opportunity cost for the loss of cultural and regulating services on another population.

If the benefits and costs of ecosystem service components are measurable and attributable to specific populations, an efficient outcome can be negotiated even in the absence of government intervention (Coase 1960). Regardless of who owns the resource, the most valued ecosystem outcome will be realized because the party who values the resource the most will be willing to compensate the owner for the rights to said resource.

The applicability of the Coase Theorem to the provision of ecosystem services is being debated in the current literature. Two underlying philosophies have emerged for Payment for Ecosystem Services (PES) studies. One advocates for bringing ecosystem services into the market by facilitating Coasian bargaining, emphasizing gains from efficiency and maximizing collective social welfare, and has been referred to as the "environmental economics" approach (Wunder 2005, Wunder, Engel and Pagiola 2008, Pagiola, Arcenas and Platais 2005, Engel, Pagiola and Wunder 2008). An alternative approach places priority on ecological sustainability and the just distribution of benefits from ecosystem services and has been referred to as the "ecological economics" approach (Muradian, et al. 2010, Farley and Costanza 2010).

Proponents of the ecological economics approach point out that Coasian bargaining can only take place when certain conditions are satisfied, conditions which Coase himself clearly states are rarely satisfied in reality (Coase 1960, Coase 1990). First, property rights have to be well established and enforced and second, the transaction costs of negotiating between parties must be low. Transaction costs for negotiating payments for desired ecosystem outcomes can be particularly high when considering the negotiation must take place between the Rest of the World and local Indonesian populations. While government intervention can facilitate negotiations and reduce transactions costs, neither the ecological nor environmental economics approach will be successful in achieving a sustainable outcome in the absence of well-defined and enforceable property rights.

Despite the theoretical and moral debate in the literature, Indonesia as a country is already a participant in Coasian type negotiations and PES schemes. We see foreign government, civil society, and private sector actors attempt to pay for preferred ecosystem outcomes. For example, the Government of Norway made a USD 1 billion payment to the government of Indonesia in exchange for a moratorium on the conversion of primary forests and peat land (Edwards, Koh and Laurance 2012). The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+) program represents another Coasian mechanism for reducing the

transaction costs of transferring payments from global citizens to Indonesians in exchange for a preferred ecosystem service outcome (Corbera and Schroeder 2011). Though the impacts of PES schemes are not conclusive, they are being explored through trial implementations and the body of evidence on their impact is growing.

11.3 Barriers to Environmentally Sustainable and Inclusive Economic Growth in Indonesia

With a theoretical framework for valuing ecosystem services and an established theory for compensating owners of natural resources, we now ask the primary question in reference to the Indonesian Poor: Does the economic value of unsustainable natural resource exploitation exceed the economic value of alternative sustainable activities? Given the status of the current debate in the literature, academic honesty at this juncture requires us to admit that either a "yes" or a "no" answer is plausible and that we do not yet know which is correct.

It is possible that the provisioning services generated from unsustainable resource use is the most profitable alternative for the Indonesian Poor and may exceed the value they place on regulating or cultural services. Indeed, the fact that this is in many cases the observed outcome in Indonesia suggests it may be an accurate scenario. Even if natural resource ownership lies with wealthy private sector or government elites, the poor may still benefit from the exploitation of natural resources through increased local employment and economic activity. If we also assume that the Rest of the World places a high value on the same unsustainable outcome, or even if they don't place as high a value on the alternative sustainable outcome, then we would conclude that the observed outcome maximizes social welfare and further analysis would be of little use.

However, there is plenty of evidence to suggest that the Rest of the World places substantial value on the regulating and cultural services provided by sustainable ecosystems. The volume of foreign aid and other resources donated to combat unsustainable outcomes in Indonesia suggests as much. Data from the OECD show that 5-year cumulative aid given for environmental protection (series 410) to Indonesia from 2007-2011 totaled more than $2 billion in constant 2010 USD.

If the Indonesian Poor do receive a greater economic benefit from unsustainable activities, compensation can be made by Rest of World to secure a sustainable ecosystem service outcome. Alternatively, it is plausible that the Indonesian Poor in reality benefit from a sustainable ecosystem outcome. The provisioning services utilized by the many marginalized groups are often ecologically sustainable and include hunting/gathering activities, clean water, wood for fuel, and more (Farley and Costanza 2010).

Regardless of whether the Indonesian Poor value the sustainable or unsustainable ecosystem outcome *and* assuming that Rest of World values a sustainable ecosystem outcome more than others value the unsustainable alternative, the fact that we observe deforestation implies a market failure or barrier to maximizing social welfare. In both cases, the ability of the Indonesian Poor to receive the benefit of the environmentally sustainable outcome, either through a transfer payment or from the stream of ecosystem services, is impeded. We posit that the barriers to inclusive and environmentally sustainable economic growth are the same regardless of the underlying reality. The barriers are 1) lack of enforceable property rights 2) corruption 3) asymmetric information. We do not include transactions costs as a binding constraint due to the observed transfers from Rest of World through their respective governments to the Government of Indonesia in exchange for sustainable ecosystem outcomes.

11.3.1 Property Rights

Property rights in Indonesia are governed by several different pieces of legislation. The most notable is the Basic Agrarian Law (BAL) of 1960, which defines rights of ownership for land. The law recognizes two types of land rights. The first are communal rights known as *adat.* These empower communities to

manage property according to tradition through community consent. However, *adat* rights are subject to other provisions set out in the BAL that outline more western notions of individual property rights (United States Agency for International Development 2010, Wollenberg, et al. 2006). In practice, land rights recognized by communities can differ greatly from land rights recognized by the state. Even when there is no ambiguity over state versus communal rights, communities often continue to exercise their historical rights through protest and other measures. This has led to conflict across the archipelago (Wollenberg, et al. 2006).

Two other laws passed in 1967 have a significant impact on natural resource use and placed the rights of ownership for mining (Law on Mining) and forestland (Basic Forestry Law) strictly with the state. After decentralization occurred following the fall of the Suharto regime, the Basic Forestry Law was amended in 1999 and returned forestry rights to local communities. Engel et al. (2006) note that in Kalimantan, a provincial level law was passed that required firms to pay compensation to local communities for harvesting rights. However, these agreements are often not honored and are enforced only by the community staging protests or destroying equipment (Barr, et al. 2006, Wollenberg, et al. 2006).

Because of the ambiguity in the ownership of rights, a Coasian transaction is difficult to facilitate. Though Global Citizens may indeed be willing to pay for a set of ecosystem services, to whom do they make the payment: the local government, the community, or the party that wishes to engage in the unsustainable activity?

Clearly defined property rights at the community level would not be sufficient to guarantee that benefits derived from ecosystem services would be inclusive. The poor and disadvantaged within the community would have to have equal rights and the same ownership as other citizens, which may not be the case if they are ex ante identified as disadvantaged.

11.3.2 Corruption

Even when property rights are clearly and legally defined, corruption or the lack of enforcement can lead to less efficient outcomes. The ambiguity surrounding property rights in Indonesia allows for corruption to benefit small segments of the population who may profit from unsustainable activities but have no right to the land and, therefore, no grounds for compensation under a legal and transparent Coasian transaction.[43]

Burgess et al. (2012) find that illegal deforestation increases in the year prior to a local election, suggesting that concessions are given in exchange for political and financial support. This also implies that the local government has some power over decisions to allow or disallow activities. Palmer and Engel (2007) discuss the many ways in which corrupt rent-seeking behaviors can eliminate the potential benefits from Coasian bargaining. For example, a community that negotiates a payment for the rights to extract natural resources may contain elements of the population who unilaterally limit the production (through blockades or other means) in violation of the agreement and in exchange for a small payoff. This type of corruption can decrease the bargaining power of the community as a whole. Other observed outcomes involve the elite or elected official accepting payment on behalf of the community, but not distributing the payment and claiming to the populace that payment was not received. Alternatively, the elite responsible for enforcement may accept an additional payment in exchange for allowing the firm to breach the agreement with the community by taking more of the resource than agreed upon.

Corruption is a binding constraint to markets that would otherwise allow ecosystem services to be properly valued, leading to sustainable and inclusive growth.

[43] Paying someone who *can* affect the ecosystem outcome even if they do not have the right to it would require a payment to every group or entity that *can* and has incentive to affect the ecosystem outcome. Thus, well-defined and enforceable property rights are a key element of Coasian bargaining.

11.3.3 Asymmetric Information

Another possible cause of unsustainable ecosystem outcomes may be the lack of information in communities on the real costs associated with that outcome. Less educated segments of the population may not be aware of the true costs they pay when they engage in environmentally unsustainable economic activities. They do not connect the value of regulating services to ecosystem outcomes. For example, the costs associated with severe flooding may not be linked to deforestation from the perspective of the economically disadvantaged. Further, they may not realize the full value of the provisioning services derived from natural resource exploitation. With full information, they could at the very least extract higher rents, leading to more inclusive distribution of revenues generated from ecosystem services. Asymmetric information represents a market failure that could be overcome through increased education, information campaigns, or government regulation, though making the latter effective requires mitigating the adverse impacts of corruption.

11.4 Will Payment for Ecosystem Services Work?

The actual value placed on alternative ecosystem service outcomes by various Indonesian actors is largely irrelevant in achieving a sustainable ecosystem outcome *if* the Rest of World values the sustainable outcome more than Indonesians value the rents from depleting the natural resource. In the context of Coasian bargaining, the barriers to the sustainable outcome are the same regardless of the alternative costs and benefits faced by the Indonesian Poor. A lack of clear and enforceable property rights is a barrier to achieving environmentally sustainable and inclusive economic growth. A lack of clarity concerning property rights will prevent the Indonesian Poor from receiving a transfer payment for a specific ecosystem service outcome. Further, even in the presence of well-defined property rights, the presence of corruption may lead to unsustainable ecosystem service outcomes at the expense of the poor and disadvantaged. Empowering communities with information on the value derived from sustainable ecosystem outcomes combined with enforceable property rights and minimum corruption are necessary conditions to achieving ecologically sustainable and inclusive economic growth.

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