WORKFORCE CONNECTIONS

Analysis of Skills Demand in Indonesia

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This publication was prepared by John Lindsay, Lara Goldmark, Alec Hansen, Caroline Fawcett, and Eleanor Wang through FHI 360's Workforce Connections project. This work is in response to a request from USAID/Indonesia to support the Mission to better understand the drivers of skills needs in Indonesia. This publication is not a complete labor market analysis, but is intended to be a roadmap highlighting trends for future in-depth study. It is the result of a literature review, web research, and conversations with key actors and would not be possible without input and contributions from USAID and donors, implementers, Government of Indonesia officials, and the many stakeholders who took their time to share their experiences and materials with the team. This work was supported by the FHI 360 Workforce Connections team and by Jona Lai of USAID/Indonesia. We thank them for their guidance, planning, and inputs throughout the process.

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I. Introduction to the Assessment

This Assessment

To effectively design and deliver Workforce Development programs requires an understanding of the trends in skill demand, skill supply, and the economic and policy drivers impacting those trends. It is especially important to understand private sector skill demand, otherwise educational, service, and policy interventions are likely to fall short of their target. It is the concern that skills needs for private sector employment in Indonesia are not fully understood, which led to the request for this assessment.

This assessment takes a systems-based approach to understanding how economic activity in Indonesia drives the demand for skilled labor. It takes the reader through the issues associated with identifying skill needs to provide an understanding of how to assess these needs in a comprehensive manner that includes both desk and field research. It then examines specific Indonesian markets, on different levels (province, district, sector, value chain), to provide examples of the different types of analyses that can inform effective and targeted program design.

How can education and training institutions in Indonesia better prepare the poor and vulnerable for employment?

The purpose of this desk assessment is to assist USAID/Indonesia in addressing this question by utilizing a demand led approach with specific examples to better understand the drivers of skill needs in Indonesia.

The assessment uses systems, skills, and value chain frameworks to identify a set of economic patterns that workforce development activities can be structured around to support employment growth that is inclusive of poor and vulnerable populations. This is not a complete labor market analysis, but is intended to be a roadmap highlighting trends for future in-depth research.

The Workforce Connections project promotes evidence based learning and peer-to-peer knowledge exchange in international workforce development. Funded by the USAID Office of Education and managed by FHI 360, Workforce Connections brings together thinking across relevant disciplines to develop a technically sound and accessible body of knowledge, and build the capacity of practitioners.

Labor Market Patterns

Taking a systems approach is necessary for understanding labor markets, including those in Indonesia, as labor markets are not driven by any single actor or skill need but are comprised of interconnected institutions embedded in patterns of economic activity. In Indonesia these patterns repeat themselves across geographical areas. In response to these patterns the assessment analyzed economic data from around the country and ascertained that there is a set of four economic patterns (more or less) occurring repeatedly in each province. The assessment then focuses on private sector skill demand within those patterns, with the goal of identifying the skills requirements that are embedded in the products and services produced by high-growth value chains. Using this framework and working backwards then highlights the appropriate role for Indonesian educational institutions/service providers and district[1] or other government actors.

[1] Throughout this assessment the term 'district' refers to the Kabupaten/Kota administrative level in Indonesia.

Framework for Understanding Skill Demand in Indonesia

In many places where there is high unemployment, where educational institutions are not seen to be responding to private sector demand for skills, or where specific groups are excluded from the workforce, the term "skills gap" is used to describe the problem. Though this may be the case at times[2], the characterization is unfortunate because it overly simplifies the issues as there are a wide variety of factors influencing employment. . If it was just a 'skills-gap' simple training programs should be able to solve the problem by closing the gap, but his has not worked. This is especially true in Indonesia which has a diverse and dynamic economy, labor force, and geography. At any given time there will always be a number of skills needed by industry, and a set of actors who are/should be taking action to address these needs. Often the real problem lies in the inability of the two sets of actors to work together effectively: employers on the one hand, who are demanding skills; and on the other hand education and other service providers as well as policymakers and civil society groups who must draw on their strengths and assets, and use those collectively within the labor market system to maximize the contribution a region's workforce can make to its economic development.

In order to fully address the disparity between the simplistic way the problem is often viewed, the problem's actual intrinsic complexity and dynamic nature, a common language and set of approaches are needed. This assessment provides a framework which can be employed in Indonesia and elsewhere to "translate" industry skill needs into concrete actions for public and private regional actors. In order to ensure the framework is not simply theoretical, we have embedded real data on the skills needs in the aftermarket automotive component manufacturing value chain in West Java province into the analysis. The same framework and analytical steps can be used again - in any industry or province in which USAID/Indonesia chooses to work.

The graphic below, *Stages of Skill Acquisition* (Figure 1), presents a generalizable version of the first framework showing in general the role of public versus private providers of education and training in making sure the workforce is equipped with the right skills. It shows that skill deliver and funding roles vary depending on the type of skill that is needed, who the target group is, and how the training is likely to be funded. In addition it also shows how skills build upon each other, from foundational to work readiness, and how employers generally engage, or don't, in the various types of skill development.

The methodology behind the *Stages of Skill Acquisition* framework is further explained below. Later on in this report it is used in the Indonesia aftermarket automotive component value chain example.

[2] "Think about what we would expect to find if there really were a skills shortage. Above all, we should see workers with the right skills doing well, while only those without those skills are doing badly. We don't. … If employers are really crying out for certain skills, they should be willing to offer higher wages to attract workers with those skills. In reality, however, it's very hard to find groups of workers getting big wage increases" Paul Krugman. *Jobs and Skills and Zombies.* http://www.nytimes.com/2014/03/31/opinion/krugman-jobs-and-skills-and-zombies.html?_r=0

Figure 1. Stages of Skill Acquisition

The first level of the framework shows, *Foundational Skills*, this is where school-aged children learn basic skills including reading, writing, math, and other skills that relate to their ability to learn. At this level, the private sector expects that education will be publicly funded, but may be engaged in dialogue or other coordinated efforts to ensure labor market relevance. The second level, *Work-Readiness Skills,* is where young people who have completed their schooling and are entering the labor market acquire those skills that help them get and succeed in a job. These can include skills (commonly referred to as "soft skills") such as leadership, time management, persuasiveness, and initiative taking. At this level the private sector may be willing to support training in community or other organizations, to ensure their new hires arrive with these skills. There are some soft skills that may be delivered through the public education system (OECD countries have been building soft skills into basic education curricula for over a decade), and soft skills, just like academic skills, build on each other. The third level, *On-the-Job Training*, depicts the types of training employers are typically willing to both fund and deliver. In the framework skills have been building upon each other, but that does not mean third-level training is only for higher level occupations. The on-the-job training an employer is providing could be for line workers, or for managers, or both. What matters is that employers are willing to invest in those skills. In this manner the pyramid can be expanded and customized to contain a set of stacked skills, however the three categories above are broad and indicative and the content may vary depending on industry sector, region, etc.

Later on in the assessment, this framework, *Stages of Skill Acquisition,* will be combined with a second framework, a *value chain map with a skills overlay* (shown in Section 3c), to better understand skill needs. The value chain map is meant to be immediately understandable (and verifiable) by industry players. Using the value chain map, demand for skills is then identified, working backwards from market trends and end-market demand. In this way channels, or distribution relationships with certain types of

clients (export versus domestic, formal versus informal) are directly linked to different levels and types of needed skills.[3]

Utilizing these frameworks the Indonesia labor market assessment then looks at a specific example, the West Java aftermarket automotive component manufacturing sector, utilizing both frameworks and their two key visuals to help the viewer to quickly understand how economic activity drives the demand for skills in Indonesia and what the implications are for local actors interested in workforce strengthening.[4]

The Indonesian Labor Market System

It's not just about skills, it's about labor market systems. Indonesia's labor market needs are challenging because they're not just about skills, or a skills gap – they are about local labor markets. The most successful countries have organized their workforce development system within the larger framework of their economic system. There are several pre-requisites for Indonesia towards building an inclusive, well-functioning labor market. The nation or a region needs to: (1) have an economic vision around which players are aligned, (2) have mechanisms for translating employer demand to educational instruction and for educational institutions to respond to that demand, and (3) offer a range of services (to prepare people for jobs and help them find them, etc.) which can be accessed by all segments of the population.

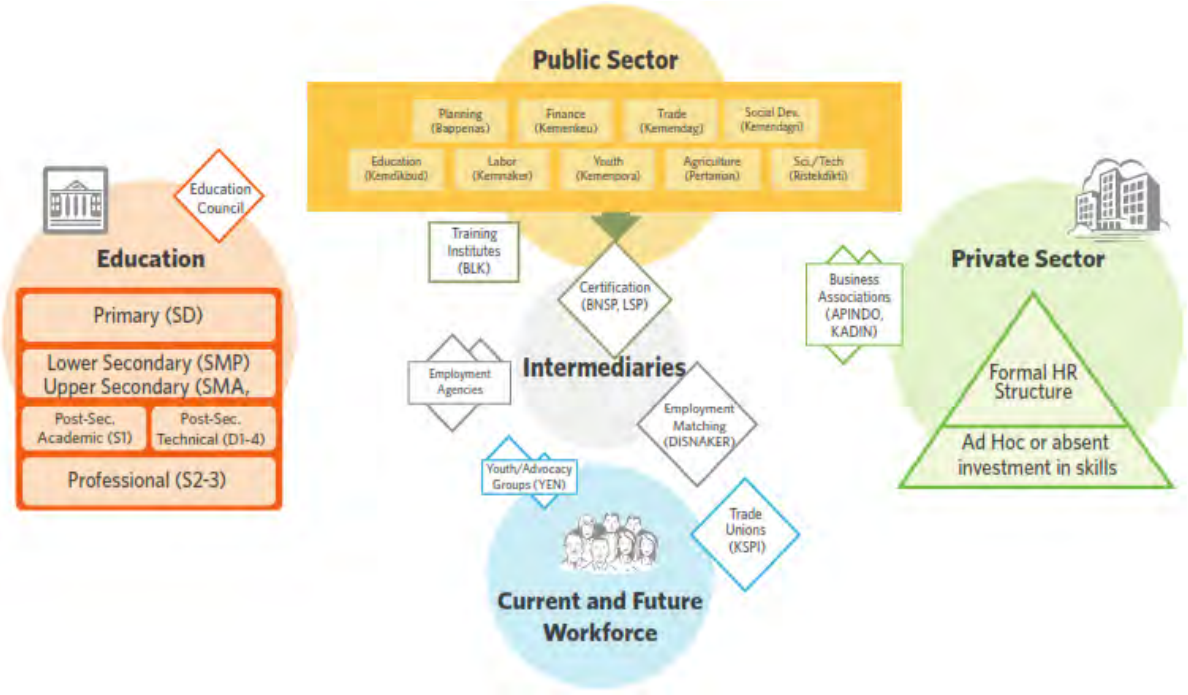
Labor market systems that work well do so because of the effectiveness of the connective tissue. Conversely, labor markets such as those in Indonesia that do not work well in terms of adapting to new skills, or preparing labor for even basic skills needed, have very limited or poor connectivity. In almost all labor market systems, the most fundamental causes for lack of connectivity are related to the skewed incentives that link the private and public sectors (such as, dysfunctional public resource flows, rent-seeking behavior on the part of business owners, "turf" battles between ministries that should be collaborating, etc.) Other causes for lack of connectivity include the immaturity of specialty service markets like employment services, sector specific skills development services, labor market information systems (LMIS), mentoring programs, research, etc.

More conventional workforce development approaches have tended to overlook the importance of understanding, analyzing, and designing interventions around improving the connectedness of these systems; this is a mistake any approach in Indonesia must not make. Figure 2 below is an example of a typical formal labor market system, with slight customization, i.e. the abbreviated names of the relevant Indonesian organizations at the national level have been inserted where relevant. Typically this is done at the national level, however as will be explained later in this assessment, the economic landscape and thus the labor market and policy environment in Indonesia is geographically very diverse, and to get a handle on the labor market would require this type of system mapping on the provincial/district or value chain level for the target growth areas.

[3] Value Chain analysis has a well established methodology. To learn about value chains and the steps of a typical analysis please see USAID Microlinks. https://www.microlinks.org/good-practice-center/value-chain-wiki/32-value-chain-analysis

[4] The illustrative examples used in this report and based primarily on desk research. A full analysis would require field research and additional analysis.

Figure 2. Stylized Depiction of the Indonesian Labor Market System



The advantage of initially mapping the system is that this information can be used as a baseline, with key variables that include "connective tissue" measurable through techniques such as Social Network Analysis (SNA). In addition, the map can be used as a conversation piece during stakeholder meetings – why, for example, aren't the existing mechanisms for communication about skills supply and demand working as effectively as they could be? And finally, how to best draw on the system's assets to catalyze skills-led growth? For example, a positive feedback loop would begin with investment in skills for which there is market demand, lead to increased investments in growing value chains, resulting in continued investment in skills, and continued growth. A negative feedback loop would begin with a case where growth is constrained by lack of skills, and the education system is not producing skilled graduates. This would result in lower investment overall (including in skills) by private sector actors, and lead to even slower (or negative) growth. A mapping and understanding Indonesian labor market systems will help to avoid these pitfalls.

II. Background – Indonesia

Overall Economic Trends in Indonesia

Indonesia has been a growth success story with GDP increasing to five times its size since 2000 - from 165 billion USD in 2000 to 868 billion USD in 2013[5]; however this growth is now hitting the following limits: (a) geography – Jakarta, the Capitol of Indonesia and driver of regional growth, has become a mega city, and is now tripping over itself as investments in infrastructure and services have not kept up with growth; (b) reforms - top-down interventions in fiscal/monetary policy have been accomplished and growth mileage has been gotten out of them whereas the next level of needed reforms is more complex and decentralized; and (c) skilled workforce - the rapid economic growth has put the existing skilled people to work, and Indonesia needs a new and increasing crop of skilled people. Increases are needed in the numbers of skilled workers, the types of skills they have, and the level of complexity of those skills. On the public sector side, to continue Indonesia's pace of growth the next level of needed reforms are deeper, requiring institutional change, and will take more time. Likewise, further private sector growth will require not only improved skills, but adaptation in focus, incentives, and business culture[6].

Overall, Southeast Asia's economic success has been linked to export growth. For Indonesia, export growth has been primarily in low value-added, low technology-intensive sectors, with investors taking advantage Indonesia's low wage rates and low cost environment in areas such as apparel and footwear. Export growth if it is to come needs to be in higher value-added products and services and this will bring higher skills requirements.

Indonesia's primary export drivers have been natural resource-based industries and light manufacturing, as the economy has grown this has not yet changed. Recently there has been significant growth in domestic markets and what we are seeing now is a diversified (aka more modern) economy domestically. The next logical step for Indonesia's economic development (the most efficient way to expand Indonesia's slice of the global trade pie) is to enter and be competitive in a greater number of higher value added sectors for export. For example it would make sense to move out of natural resources and light manufacturing, and move in to the export of advanced manufacturing products and services.

By definition, GDP growth comes from two sources: increases in labor input (population growth and labor force participation rates) and increases in labor productivity. Over the past 20 years, 39% of GDP growth in Indonesia has come from labor input, with the remaining 61% coming from productivity growth. In many countries, productivity grows primarily through a shift of workers from relatively low productivity agriculture to other higher productivity sectors. While this phenomenon explains about 18% of the growth in Indonesia, an in-depth analysis by McKinsey[7] found that "the majority of Indonesia's productivity gain has come not from a shift of workers from lower-productivity agriculture into more productive sectors, but from productivity improvements within sectors." This is encouraging,

[5] http://data.worldbank.org/indicator/NY.GDP.MKTP.CD/countries/ID?page=2&display=default

[6] For example, home accessories buyers have, despite Indonesia's excellent designs, become frustrated with repeated failure to deliver high quality on time. Production has been shifting to nearby countries such as Vietnam. USAID SENADA. End Market Analysis. Furniture Industry Value Chain. 2007 DAI.

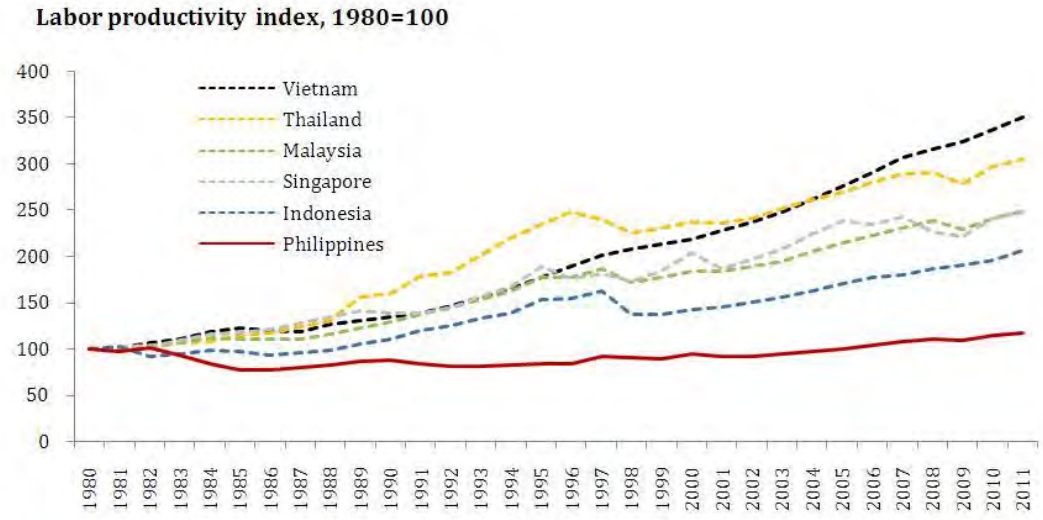
[7] "The Archipelago Economy: Unleashing Indonesia's Potential," McKinsey Global Institute, September, 2012.

since increased competitiveness is ultimately derived from an economy's ability to upgrade its intrinsic productivity.[8]

Productivity gains in all sectors, and employment shifts across sectors explain much of the recent economic growth in Indonesia. These gains have not been focused on any single area as the major economic sectors of: agriculture, resources, manufacturing, and most importantly services—have all contributed productivity gains, boosting GDP. The Indonesian productivity pattern is unique to ASEAN countries (the Asian Tiger's success model was one of export led growth), in that Indonesia with a high level of consumption, has grown a robust domestic service sector that has become the most significant driver for the economic growth.

Each Indonesian worker is now contributing on average more to GDP than ever before. Concurrent with productivity increases, employment in Indonesia has also been increasing, showing that productivity increases do not have to lead to job losses. Despite these significant gains, Indonesian labor productivity has been growing from a relatively low level and the labor productivity of each Indonesian worker is still below that of most Southeast Asian peers. The 1997-1998 Asian Financial Crisis pushed productivity in Indonesia downward relative to the other countries. Since that time Indonesia and its neighboring countries of Malaysia and Singapore have witnessed similar labor productivity growth rates (slope of the line), yet Indonesia still finds itself well below these other countries labor productivity. Table 1 below presents national labor productivity rates for South East Asian countries, including Indonesia.[9]

Table 1. National Labor Productivity Rates for South East Asian Countries



Source: The Conference Board; Note: Labor productivity per person employed is defined as GDP per person in constant 1990 US$ converted ar GK$ PPP. "GK" stands for the originators of this PPP formula, Geary Khamis.

The long-term comparisons in Table 1. above provide an excellent snapshot of the productivity of the overall Indonesian economy growing relative to its peers, and the estimates are useful when analyzing

[8] "On Competition," Michael Porter, Harvard Business Review Press, 2008.

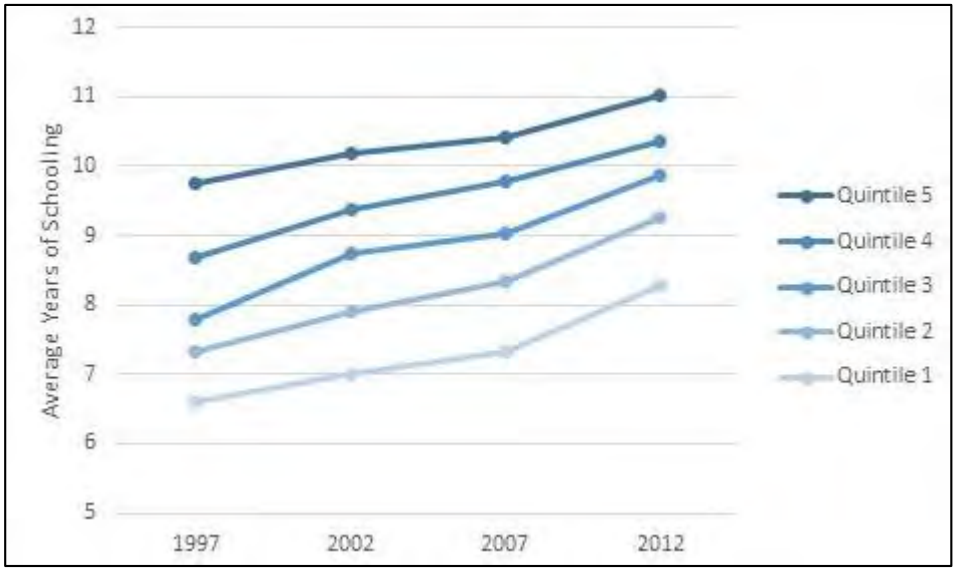
[9] Productivity is an average measure of the efficiency of production. For ease of comparison, the country productivity estimates are indexed to 1980. See Annex 2 for a detailed description of what productivity measures, represents and means.

country competitiveness across the ASEAN region.[10] Ensuring the continuation of this pattern of productivity increases coupled with job growth will be key, as Indonesia still needs significant productivity gains to catch up with regional competitors; of which skills development is a key component.

Education and Skills

Education providers in Indonesia consist of public education, non-formal education, and the private sector. Public education in primary, lower secondary, and upper secondary focus on the foundational skills of math and literacy. The Ministry of Education also provides vocational education and higher education curricula that focus on preparing students for the labor market through work-readiness skills. Table 2 below shows improving educational attainment at all income levels in Indonesia. From 1997 to 2012, there has been a steady increase in the average years of schooling. However, there is a 'floor' below which formal sector employers are generally not willing to train and hire, that floor is completing lower secondary, i.e. 9th grade.[11] Figure 1 shows that the poorest 20%, Quintile 1, on average do not yet meet that minimum employment threshold.

Table 2: Average Years of Schooling in Indonesia, Individuals Age 15-19 by Income Quintile 1997-2012



Note: Quintile 1 represents the poorest 20%, quintile 5 represents the richest 20%.
Source: World Bank EdStats.

Despite increasing educational attainment across all levels and The Ministry of Education's (MoEC) push to increase vocational education, the quality of institutions remain a concern with many firms reporting that these graduates, despite going further in education, are still not well-prepared for the labor market. Individuals, particularly poor and vulnerable populations, may also acquire work-readiness skills through non-formal education. These education and training programs are mainly provided by MoEC, The Ministry of Labor (MoMT), non-governmental organizations, and the private sector. These programs are often a source of second chance education for disadvantaged groups; however, there is much variation

[10] For a sector specific look at productivity in Indonesia see Annex 3.
[11] USAID HELM *Firms Perceptions of Graduates Competencies*

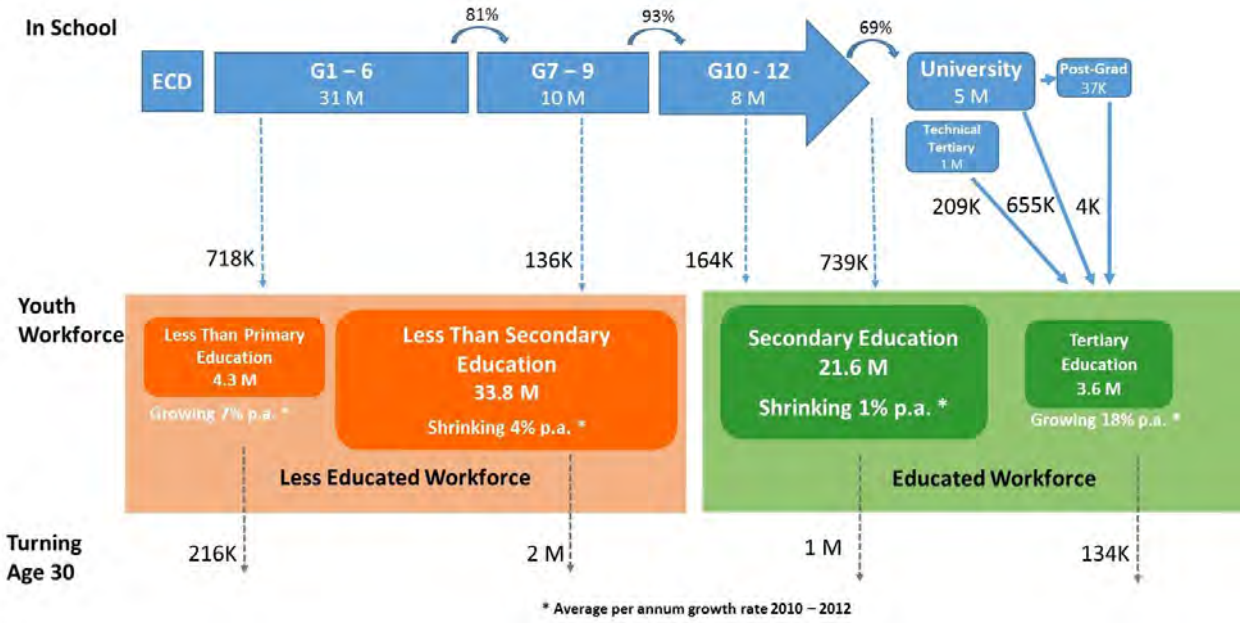
in the quality of these programs with firms often unaware of these programs' existence and certifications.

In 2014, The Ministry of Education increased compulsory education to 12 years of schooling. This will allow more students from the lower quintiles to meet firms' minimum education requirements, and trends in Table 2 are promising, suggesting average schooling across individuals from all quintile levels will increase. Nonetheless, school fees, the need for immediate employment, and other barriers to education remain, and many of the poor and vulnerable from the poorest 20% are not able to complete lower secondary education. Individuals in this group will not be able to meet the firms' minimum requirements and thus become excluded from Indonesia's future working-class. To reach the poor and vulnerable will require a complementary set of interventions including support for home-based enterprises, building bridges for cyclical informal sector activity[12], and offering a more diverse set of services beyond skills interventions. (To better map out these activities requires fieldwork.)

These challenges around education ultimately impact how skilled workforce enters the employment market. Indonesia's growing economy will require ever greater levels and numbers of skilled workers. Yet, while economic growth in Indonesia has been accompanied by significant public investment in education, challenges noted above undermine this investment resulting in fewer and lower quality graduates. Demand for skilled labor will require sustained increases in the bandwidth (quantity/quality) of supply coming out of secondary and tertiary institutions over time. We are seeing increasing numbers of young people achieve higher levels of qualifications, though not at the scale demanded by the growing economy.

[12] Much informal sector business growth is counter-cyclical, i.e. during times of economic hardship many people use self-employment options as a fallback. In the economy, we often see a set of low-productivity, low-growth potential enterprises expand, essentially serving as a social safety net. This was clearly the case in Indonesia after the 2008 global financial crisis. Some informal sector enterprise activity, however, is cyclical – grows with the economy – due to business relationships (for example, informal suppliers or distributors in a growing value chain). For individuals working in these types of informal enterprises, there may be opportunities to build a career path that crosses over into the formal sector. For those who choose to remain in the informal sector, services can help owners and workers achieve more stable income patterns.

Figure 3. Stocks and Flows: Indonesia's Education to the Labor Market



The above diagram is a representation of Indonesia's formal education system as of 2012 (the education flows), as well as the stock of the youth workforce, aged 15 to 30, by level of educational attainment. The top level of the diagram is a snapshot of the formal education system, based on gross enrollment rates for 2012. While the bottom half of the diagram shows four stocks of the youth workforce: those with less than a primary education, those with a primary education but less that a secondary education, those with a secondary education, and those with a tertiary education. These stocks were based on the 2010 population census, and updated for each year between 2010 and 2012 based on a "stock-and-flow"' methodology developed by Workforce Connections. The dotted lines between the education flow and youth workforce stocks represent the youth, aged 15, that are exiting the formal education system in 2013 to enter into the workforce. The numbers next to the bottom four dashed arrows represent the outflow from these "stocks" of workforce – our best estimate of the number in each category who turn 30 and are no longer counted as "youth".

The largest proportion of youth are those that have completed primary school but have not attained a secondary education, making up 53 percent of the total youth workforce. This is followed by those with a secondary education (34 percent of the youth workforce). Tertiary educated youth is the fastest growing population with an average 18 percent growth rate from 2010 to 2012. This shows that the majority of youth in the Indonesian workforce do not meet the basic educational requirements for formal sector employment. Furthermore, despite the gains in basic education, those gains are not keeping up with population growth as the stock of young people in the labor force with less than primary education is growing at a rate of 7% per year. While the number of young people in the labor market with only a secondary education is decreasing, this is probably due to the significant gains in tertiary education, increasing at 18% per year.

Pre- and Post-Employment Training

In Indonesia the insufficient quantity and quality of pre-employment training institutions have led many firms to invest in internal and external on-the-job training for their young workers. These firms focus on job-technical and behavioral skills, and often partner with government institutions or the private sector to provide this training. Results of employer surveys have been promising, suggesting that these post-employment trainings, particularly among private service providers, are providing high levels of relevance and quality. This experience, and global evidence, shows that despite the viability of private sector funding for skills post-employment, public sector policymakers and service providers should not ignore this category. If anything, they should pay close attention to what is being taught and learned in privately funded training in order to adapt and improve earlier stages of education.

Types of Work, and the Skills needed to perform them, are continually evolving.

Over the past few decades, companies in developed countries made major advances in improving the productivity of jobs, automating wherever possible. Multinational companies either have automated or are automating production to lower costs, improve quality, and deliver faster, while improving their corporate social responsibility performance in labor and the environment.

For example, garment assembly has been a source of employment for the poor in many developing nations. However, with lean production techniques, the work of several hundred garment workers can be done by a few teams of four or five people who interact with a computer to design and produce the garment, taking less time and with fewer errors. Instead of being unskilled, these individuals need to have the technical and soft skills required for lean production. The five workers interacting with a computer demonstrate what McKinsey considers interactive work—the engine of knowledge economies.

Interactive work constitutes the fastest growing category of employment in developed countries and is the direction in which many developing economies will be moving as they seek to attract better jobs via foreign direct investment. Unlike transaction jobs, for interactive jobs technology tends to complement, not substitute for jobs.

Source: Skills for Jobs for Growth. Aring, Monika and Lara Goldmark. Field Report #17. FHI 360.

In addition there is evidence that in Indonesia insufficient private investment is directed towards on-the-job learning. Policymakers will want to consider incentives to catalyze greater investment (among other

ideas, some countries have organized competitions which recognize the best workplaces, including investments in learning).

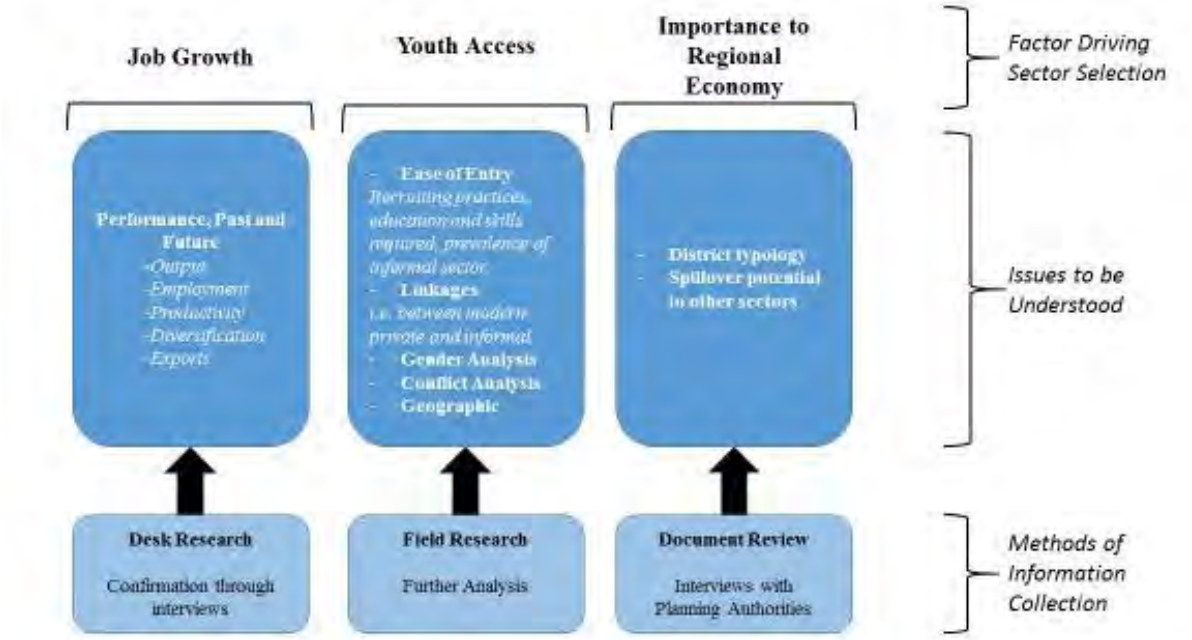
III. Priority Sectors for Investment

Private investors, governments, donors – all have different motivations and expectations for the investments they make. In Indonesia to achieve a coherent set of aligned investments where investments in skills prepare the workforce for future jobs requires analysis of past sector performance, and to understand current and likely future trends in sector growth.

This purpose of this sector selection framework is to assist understanding and undertake targeting prior to implementation and can be applied to all potential workforce development intervention areas in Indonesia. The process involves initial data analysis, which can be done based on desk research and the production of a dashboard; it then involves field research to better target specific opportunities for vulnerable populations and confirm findings. This analysis is not extremely complex and can be conducted by local implementers.

It is possible to develop a sector-focused project, or, in a sector-agnostic project simply to use sector analysis tools to understand the growth, jobs, and skills dynamics in sectors that are exhibiting high demand for skills. Attempting to understand and disaggregate in all sectors simultaneously consumes too many planning resources. Generally there are a handful of sectors that are most 'strategic' in a given region. The key selection criterion for picking sectors will vary depending on the type of programs, geographic location, or groups that are being targeted. Based on the Indonesian context and priorities of USAID/Indonesia the following three key sector selection criteria have been identified: *job growth, youth access to employment*, and *importance to the regional economy*, and are summarized in Figure 4 below.

Figure 4. Sector Selection Criteria[13]



Job growth is the overriding criterion. For a purely economic growth-driven design, the question might be, 'Which sectors in Indonesia are most likely to have a higher increase in employment as a result of the project?' However, for a workforce program, the question becomes, which sectors in Indonesia are likely to absorb large numbers of new workers over the next few years? Some sectors, such as oil extraction and export, will grow regardless of donor activity, because private sector incentives are present and companies can provide their own specialized training as necessary. These sectors, however, may not be very labor intensive, and they may not be interested in public-private partnerships to develop skills. Other sectors may request support, however they may not be competitive and support might simply serve to prop up a declining industry. The challenge is to identify sectors where job growth is likely, and/or where labor intensity is high enough that growth leads to large volumes of new hires. The primary task of combined desk and field research under the job growth analysis is to identify which sectors are experiencing constraints which, if they could be addressed by USAID activities, are most likely to generate significantly stronger job growth. For example, in the case of West Java, horticulture and automotive components show strong local capabilities and market demand, but face limitations which upgrading activities can address.

To evaluate the potential *youth access* into a sector, it is only possible to get an initial indicative understanding, because the specific factors limiting youth access must be understood. As shown in the automotive components value chain in the next section, certain potential youth entry points, such as welders, can be suggested, but would need to be ground-truthed before committing project resources. Often unexpected factors, such as lack of lighting and security at manufacturing facilities in the evenings, or provision of child care explains why, for example, women don't feel comfortable taking certain jobs.

[13] In this Figure "Methods of Information Collection" refers to a best practice example including both primary and secondary research. For the purposes of this research only secondary sources were utilized.

Developing a good understanding of which sectors will be able to absorb relatively low skilled, inexperienced youth requires a good understanding of the sector dynamics and a bit of creativity.

Importance to the regional economy is about the absolute number of jobs generated and income earned, not nationally, but locally. However, some sectors have a far more significant spillover effect than others, stimulating broader economic growth. For example, product space analysis[14] for Indonesia shows that sectors such as tea and coffee have very limited spillovers to other sectors, while the dairy sectors has a far wider variety of local economic linkages – not just supply chains but also related skills and capabilities that can stimulate and support the growth of other sectors. Local employment opportunities are especially important in Indonesia as the island geography impedes labor mobility.

Based on desk research we have been able to target specific sectors within two of USAID Indonesia's priority Provinces, West Java and South Sumatra.

Key Sectors in West Java and South Sulawesi

Using the framework above to the extent possible given time and data limitations, West Java and South Sulawesi have been chosen to provide representative examples of the types of labor market analysis that could be undertaken in Indonesia. Based on the sectoral analysis, for West Java the sectors of particular interest are horticulture and the related fresh food value chain, automobile components and assembly, and IT. For South Sulawesi, the focus is on cocoa and transportation services.[15]

Table 3. Key Sectors for Future Skills Demand in Target Provinces

Province	Sector
West Java	Automotive Components
West Java	Horticulture and Fresh Food
West Java	Information Technology (IT)
South Sulawesi	Transportation Services
South Sulawesi	Cocoa

West Java

Automotive components - Due to its strategic location adjacent to Jakarta and its ports, West Java is the primary location within Indonesia for the production of cars and their components. Indonesia currently imports non-original aftermarket parts from Vietnam, Thailand and China, where prices are as low as one-fifth that of OEM (original equipment manufacturer) parts. New government regulations are just this year coming into force which will enforce percentage targets of domestic production of automotive parts within assembled vehicles, and Tata Motors Indonesia plans to establish 300 auto-parts outlets throughout Indonesia by 2015. As a result, the market for non-OEM parts manufacturers is expected to grow rapidly over the coming years, which represents an excellent opportunity to foster the establishment of new enterprises at the low end, while assisting existing producers to upgrade quality so as to qualify for the more lucrative OEM (domestic and export) side of the market.

[14] "The Atlas of Economic Complexity: Mapping Paths to Prosperity," Ricardo Hausmann and Cesar Hidalgo, Harvard and MIT Media Lab, 2012.

[15] While not a complete list of all sectors with potential, the sectors identified here do exhibit those key characteristics of Job growth, Youth Access, and Regional relevance based on available materials.

Horticulture and Fresh Food Value Chain - West Java is already one of the top producers of horticulture in Indonesia, with a production in 2013 of over 29 million tons of horticultural products, 16% of Indonesia's total. Despite the province's relatively high sectoral diversity and rate of urbanization, West Java still has the largest number of mouths to feed (highest population in Indonesia) and with its proximity to Jakarta, the biggest domestic market next door, so horticulture remains vitally important for its 3.9 million agricultural workers. Horticulture production is intimately connected with the subsequent stages in the value chain – post-harvest handling, distribution, and marketing – and since these distribution networks are generally interlinked with the fresh meat and fresh fish value chains through transportation and cold storage. Particularly in the lucrative Jakarta supermarket channel, products from West Java compete with imports, and therefore even incremental improvements in quality, packaging, and overall professionalism can make local products far more competitive.

Information Technology (IT) - India, China, Malaysia and the Philippines have all witnessed (and actively supported to various degrees) the emergence of IT hubs which have not only accelerated direct growth in employment and incomes, but also had extensive spillover effects in terms of more rapid uptake of IT applications nationally. Indonesia has not yet formally designated an IT hub, but West Java is the logical place for this industry's central hub to flourish. Jakarta is too congested and lacks available real estate for a new center, but nevertheless proximity to Jakarta is a key success factor. Bandung's prestigious Bandung Institute of Technology represents a key foundation around which other entities can be leveraged. The growth of a vibrant IT industry, especially in software development, can also support the more rapid development of other related sectors, especially financial services and transportation & logistics.

South Sulawesi

Cocoa - Worldwide demand for Cocoa is expected to increase 50% over the next decade, while production is likely to stagnate, mainly due to persistent productivity issues in the two largest producers, Côte d'Ivoire and Ghana. As the third-largest producer in the world, Indonesia has an opportunity to expand its already large base to capture more of the shortfall in what will be an increasingly lucrative, price inelastic market. West and South Sulawesi account for 75% of Indonesia's production, and opportunities to increase quantity, upgrade quality, expand processing capabilities and improve branding in this very strong market are excellent. South Sulawesi boasts other high value agricultural products, such as coffee, shrimp and mango; but cocoa is definitely one of the prime opportunities given the short and medium-term market outlook.

Transportation services - South Sulawesi serves as a trade hub not only for the rest of Sulawesi but also for much of Eastern Indonesia, due to its strategic geographic position and historical factors. This perception has been reinforced by research which found that increased economic activity in South Sulawesi appeared to have significant spillover effects on other provinces in Eastern Indonesia, especially other parts of Sulawesi and the Malukus. Two of South Sulawesi's districts, Makassar Kota and Pare-Pare Kota, have location quotients higher than 2.0, indicating a high employment concentration in trade and transportation-related services (only 6% of Indonesia's 497 districts have LQ's this high). Improving South Sulawesi's ability to effectively manage distribution networks throughout the remote islands would boost the efficiency of the entire system, lowering prices, improving reliability, and ultimately, making the whole eastern region more competitive.

IV. Understanding Demand Means Understanding the Value Chains

Only by understanding the needs of the market can we understand the private sector demand for skills. As the market is the driver for products and services, our approach starts here, working backwards into skills and then finally education and training. In markets the composition and quality of products and services drive the skills needed to produce those products and services. Sectors tell you the type of economic activity that is taking place, but that is not a sufficient level of analysis to understand the demand for skills.[16] The method by which we zero in on specific skills demand within a priority sector is value chain analysis.[17]

Within any one sector there are numerous value chains. These value chains can also cut across sectors. Within specific value chains there are also multiple channels. It is because of this complexity that they must be understood to get a handle on the skills employers are hiring for. Despite this complexity, value chains are approachable and understandable, one of the best ways to do is by examining the final market (also known as end market) for the product or service.

As an indicative example we have chosen the *Indonesian Automotive Components* value chain. This value chain has been identified as a prime end market opportunity with potential to increase the competitiveness of Indonesian enterprises.[18] Within this value chain there are two main channels defined by their end markets, the OEM and domestic aftermarket channels. We are focusing on the *domestic aftermarket channel* as it also offers employment opportunities for young people with entry level skills.

Indonesia's automotive component industry is one of the fastest growing and most valuable in the country. The original equipment manufacturers (OEM), consisting of foreign manufacturers (e.g., Honda, Yamaha), have traditionally dominated the high-end market through both the production of automobiles and their components (original components). However, with the recent upsurge in demand in Indonesia for lower cost spare parts (the 'aftermarket'), there is a growing niche for non-OEM component manufacturers. These second-tier domestic producers (e.g., Astra, Indoparts, Auto Bridal) tend to be small and medium-sized enterprises, with less formal relationships with distributors and wholesalers. They tend to sell directly to repair shops and to the shops supplying parts to the do-it-yourself repair market.

Value chains are best understood by mapping them. Figure 5 below presents an initial illustration of Indonesia's automotive components industry for the OEM and aftermarket (non-OEM) channels from inputs to end markets. Both OEM and aftermarket producers receive automotive inputs from raw

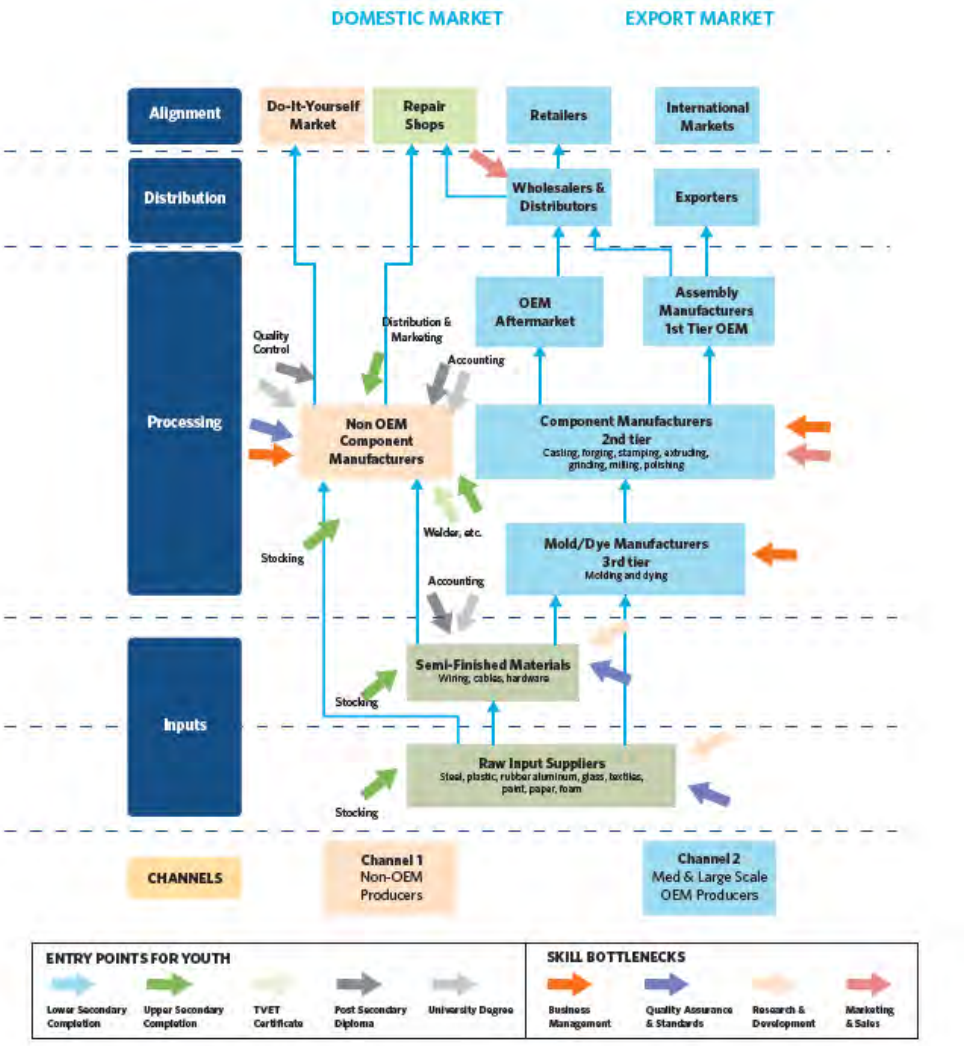
[16] It is common in analyses that use a sectoral framework to understand skill demand to see the results as a generic list of skills that could apply to almost any enterprise or country. This is because on the sectoral level there are too many divergent types of activities going on to be able to focus in on any specific skill need. In this manner many biding skill constraints get missed as they are lost in the 'noise'. This is also a common result from sector or provincial level employer surveys, the results of which tend to focus on cross-cutting generic skills that may or may not be constraints to growth.

[17] Value chains are defined as the process or activities by which value is added to an article, including production, marketing, and the provision of after-sales service.

[18] USAID SENADA Automotive Component Value Chain Overview.

suppliers and semi-finished materials. These inputs are then processed and distributed to the end markets (e.g., repair shops, exporters). The pink boxes on the left show the aftermarket (non-OEM) channel while the blue boxes on the right show the OEM channel.

Figure 5. Value Chain Map with Entry Points for Youth and Skill Bottlenecks



The key differentiator between the two channels is not the products, it is the end markets for these products, and the level of quality being demanded by those markets. OEM products produced in Indonesia are sold domestically and are exported. These are parts produced by and for interracially recognized brands such as Honda, Yamaha, and Toyota and the quality standards for these products are high and are benchmarked to international standards. To produce parts that meet these international export quality standards, regardless of where their end market is, requires productive workers with higher level skills. The second channel is supplying the domestic aftermarket (non-OEM) with the same types of parts, albeit at lower prices and lower quality standards. This has consequences for the skills needed by employers in the two channels. The lower quality standards of the aftermarket sector provide more opportunities for youth and others who may have less formal qualifications.

In previous decades Indonesian parts production and market had been dominated by OEM parts and foreign manufacturers. Since the 1997 Asian financial crisis a new market has emerged for mid-priced off brand replacement parts. The lower end of this market has been dominated by cut-rate imports from China, India, Vietnam and others. That leaves an important middle segment, of higher quality but not OEM parts, that Indonesian firms are now targeting. Auto sales in Indonesia are expected to reach one million vehicles, while there is already 1 motorcycle for every two Indonesians making it one of the world's largest markets for both cars and motorcycles. These trends indicate that demand for aftermarket parts is going to continue growing. This growing demand for products, coupled with the lower skill requirements for the aftermarket channel make it a value chain with potential for workforce development.

The two channels are producing essentially the same products, though with different quality standards, different brands, and different prices. As the essential product line up is the same, the occupational framework needed in the two value chains will also mirror each other. On the occupation level what will vary are the numbers needed in the different occupations, and the skill levels employees need to be hired into those occupations. Again looking at the end markets, the OEM value chain sells more to distributors, exporters, wholesalers, and a limited number of retailers. The aftermarket channel sells more directly to retailers and small repair shops. This means that the aftermarket enterprises will need more back office staff to handle the increased accounting, sales, and customer service roles. However, since the aftermarket channel is producing at a lower quality, the skill levels within occupations (and thus the wage rates) will be less.

The arrows in the automotive components value chain map seen earlier highlight potential *entry points for youth* in the aftermarket channel by education level. Youth with less than a secondary education can enter in product stocking or welding positions at the input or processing stage of the value chain. More highly skilled youth with upper secondary or higher education can enter in accounting, quality control, or marketing. Furthermore, these higher skilled positions exhibit more gender equality than the lower skilled worker as both men and women have opportunities to enter into these positions.

The entry points for youth with limited skills will be more plentiful in the non-OEM companies because those companies are less demanding of skills – it is less productive and the compensation is far lower than at the OEM manufacturers, but when the only other option is operating a push cart, these jobs provide a first step on what can become a career ladder to increasingly higher skilled and better paying jobs.

Without strict requirements for licensing and qualifications for their employees in technical and administrative positions, aftermarket manufacturers are a much better target for new market entrants with limited skills and experience, especially youth. Within these enterprises, there are extensive opportunities for youth as line workers (e.g., welders) who may be more able to gain entry into these lower skill demanding enterprises than through the OEM channel, which may require higher skill levels of TVET and above. Similarly, at earlier stages of the supply chain (e.g., Inputs), there are opportunities for literate but not formally educated youth with some primary education for stocking and moving inventory.

In addition, each of these aftermarket enterprises needs to expand their operations in areas such as quality control, accounting, marketing and distribution at later stages of the supply chain (e.g., Processing). Especially when coupled with a value chain upgrading project which is assisting these

enterprises to raise their standards and become more competitive, the number of positions in these ancillary (non-line worker) and higher skill demanding positions should expand. Individuals in these positions will require upper secondary education or higher education. In the longer term as the domestic aftermarket improves quality and builds brand awareness this could serve as a stepping stone into eventual expansion into the export market, raising skills and wages of their workforce along with it.

Indicative Skill Needs[19]

The Figure below is a sample illustration applying the stages of skill acquisition framework to skilled workers in the Indonesian automotive parts industry. It represents the skills needed by employers for two occupations: Industrial Engineering Technicians and Bookkeeping, Accounting, Auditing Clerks.

Figure 6. Indicative Skill Needs by Occupation in Automotive Components Enterprises

These two occupations were chosen as they represent the two sides of an aftermarket parts firms, the production side, and the management and administrative side. In a growing value chain such as this these are both opportunities for employment for young people, albeit at slightly higher levels than some other occupations such as assemblers or stockist. This framework can be used to understand skill needs for virtually any occupation, and then translate those needs to the appropriate institutional response.

It is not necessary to focus only on occupational structures. For example, if there is an opportunity to partner with the private sector, it may be better to look at those skills across several occupations that an employer is willing to invest in (identifying "families of occupations," and jobs with characteristics that imply the private sector will be more willing to invest in work readiness - for example high-churn or

[19] These skill needs are based on an initial understanding of the situation and must be ground truthed before implementation.

high-turnover positions, positions where large numbers of fresh graduates are typically needed, or positions where intense customer interaction requires continuous investment in soft skill learning). In addition to soft skills which may be common across occupations, there are sets of technical skills that are deemed useful throughout the value chain – see relevant skills for the automotive sector in Table 4 below.

Table 4. Skills Training in which Automotive Parts Firms Are Likely to Invest

Engineering and development	drawing, specifications, prototype, product quality standard
Tooling & fabrication	mold and dyes, jigs and checking fixtures
Production	coating, shearing, pressing, casting, forging, machining
Quality control	process control, final inspection

V. Typologies (or patterns) of Economic Activity in Indonesia

When examining labor markets, one of the main advantages of using a systems lens is that systems contain patterns; these patterns, if correctly identified, are likely to repeat themselves and tend to respond in similar ways to specific intervention approaches.

In Indonesia, local labor markets matter, a lot. Indonesia's island economy means that the nation does face distinctive labor market challenges. Indonesia's geography restricts all forms of mobility, this includes: people mobility – the movement of people to where the jobs are; jobs mobility – the movement of jobs to where the people are; and skills mobility – the movement of people across skill sets or occupations.

There are patterns of local economic activity that repeat themselves in Indonesia. We originally thought about creating a typology of economic activity by Province, and you certainly could do that in Indonesia. For example one type is the Provincial mega-city economy stemming from Jakarta, a second type is the remote rural Province dependent on agriculture, etc. However by analyzing economic data from around the country, we ascertained that you have the same set of four economic patterns (more or less) occurring repeatedly in each province. Each province is likely to have at least two or three of these patterns. So the typology is using patterns of economic activity rather than "types of provincial economies".

Indonesia's provinces are so large and heterogeneous that it can be misleading to make generalizations about priorities for any given province as a whole. The population of West Java, for example, is comparable to that of Spain, and although it is one of the most urbanized and industrialized provinces in Indonesia, it is still the 3rd-largest producer of agricultural products in the country. To facilitate a more accurate understanding of the target regions, we recommend working at the district level (using *kabupatens* and *kotas*) and utilizing the following typology based on the dominance of employment by economic sectors in each district.

Four clear types of districts are clearly apparent when one uses location quotients[20] (LQ) as a measure of employment concentration, as shown in Annex 4. Usually the provincial capital and several other cities

[20] *Location quotients* (LQ) indicate whether the share of employment in a given sector in each region is under, equal to, or over the average share for the entire country (https://en.wikipedia.org/wiki/Economic_base_analysis).

function as administrative centers, with concentrations in the most specialized, high-wage services such as medical, education, finance, transportation and distribution. Even Jakarta fits into this typology, with a relatively typical concentration of employment in manufacturing as compared with the national average, while several of the adjacent districts within West Java are more than twice as concentrated as the national average, with LQs ranging from 2.6 – 2.9. The major industrial centers are often adjacent to these cities, with a greater focus on manufacturing and directly related services. A number of regions have some kind of sector-specific focus, usually driven by the availability of natural resources, such as mining, energy, utilities, construction or tourism. Most of the remaining districts are primarily dependent on agriculture and related activities.

Table 5: Economic Functions at District Level (e.g. within Provinces)

TYPE	EXAMPLES	DRIVERS
Administrative Center (Urban)	Bandung Kota, Bogor Kota, Sukabumi Kota, Depok, Makassar, Pare-Pare	Financial, social and transportation services
Industrial Center (Urban)	Bandung Kab, Bekasi, Cimahi, Taskimalaya Luwu	Manufacturing and related services
Sector Specific Focus	Cirebon, Purwakarta, Sukabumi Kab, Bantaeng, Barru, Maros, Luwu Timur	"Resource Driven": tourism, construction, energy, utilities, and mining
Agricultural regions	Cianjur, Enrekang, Tana Toraja, Sinjai, Bone, Jeneponto	Dependent on agriculture, forestry, fisheries

Indonesia's decentralization policy already takes these dynamics into account, but lacks effective mechanisms to accelerate the differentiation of roles among districts in each province. Some public-private mechanisms (e.g. cluster development) represent powerful tools to accelerate this decentralization process, with obvious implications for workforce development.

There are examples of how these archetypal stories have played out in other developing countries, such as in Mumbai, Monterrey, and Bangalore. The three examples below describe how in some cases, areas have found and implemented successful strategies. We've identified similar successful patterns of how other areas have got incentives right. They should be read as examples of where/how/what can be the endpoint, if a positive dynamic is achieved in a sector. These are examples of what Indonesian stakeholders should be thinking about as they set the vision they are aiming for.

LQs for individual districts (*kabupaten* and *kota* level) in West Java and South Sulawesi were calculated using the World Bank's disaggregated data covering all 497 districts (http://data.worldbank.org/data-catalog/indonesia-database-for-policy-and-economic-research).

Skills-led Growth in the IT Sector	Skills-led Growth in Rural Agricultural Chains Supplying Urban Areas	Skills-led Growth in Manufacturing
The case of Bangalore, India demonstrates one of the most rapid expansions of a nascent service cluster in history – with 90,000 new jobs over a 5-year period in the late 1990's. Several factors converged to allow for this rapid transformation into one of the leading high tech regions in the world: 1) Bangalore had a critical mass of high quality universities creating a highly skilled workforce; 2) Government-driven Public Sector Units allowed for the early arrival and accelerated evolution of the tech sector; and 3) The concentration of other industry-related institutions promoted the establishment of an innovative "IT cluster" in Bangalore. This momentum was thrust into hyperdrive when Indians working in Silicon Valley saw the advantages of Bangalore and invested there, creating a 'reverse diaspora'. This foundation allowed Bangalore to evolve from international electronics hub into an international outsourcing capital renowned for high quality service at a low cost. As a result, multi-national corporations began arriving in droves in the mid 1990's through the mid 2000's, and new companies continue	Rural areas in India generate the most employment, and the leader of the pack is the state of Maharashtra. The rapid economic growth of Mumbai is generating demand for services and products of smaller towns, and the rural non-farm sector is creating high numbers of jobs. As a result, Maharashtra has the top employment growth of all states for the last six years, and is second in terms of enterprise growth. This increase is driven by the rural non-farm sector – around 75 percent of rural job growth is in the non-farm economy – where rural job growth is estimated at 3.29 percent compared to urban job growth at .91 percent. Maharashtra ranks second in terms of enterprise growth, with the majority of these enterprises (85 percent) being non-farm enterprises. What is the success underlying Maharashtra's job creation strategy? The key policies supporting this strategy are: 1) promoting the commercial and industrial lines of agricultural development; 2) strengthening the global competiveness of farmers; 3) addressing the needs of vulnerable labor, both skilled and unskilled; 4) preparing a plan of action for water; 5) and investing in key areas, including rural road infrastructure, technical universities, and management and storage of	Investing in skills, through local technical education, paid off for the private sector in Monterrey where local investors collaborated and invested together. These investments catalyzed the already favorable business environment as trade liberalization in the 1980s spurred private sector development and innovation. This growth was building on the strong industrial foundations erected by family-owned firms mid-century. Joining international trade agreements such as NAFTA lowered tariffs, opened the country to foreign capital, and strengthened the role of privately owned enterprises. A more open, competitive economy encouraged greater efficiency among Mexican firms, leading to higher quality, lower costs, and greater innovation in both product and process. Low labor costs and proximity to US markets bolstered the manufacturing sector in particular. During the transition period from protectionism, large firms provided "incubation services" to small business owners. Monterrey increasingly concentrated efforts in "core competencies," and this focus on vertical disintegration created opportunities for the establishment of numerous smaller companies. (Many of the "incubator" companies later became

to concentrate operations in the city each month. The IT sector in Bangalore remains dynamic by constantly adapting to new domains and changes in technology. West Java's Bandung has many of the key elements in place to foster a similar dynamic, including the Bandung Institute of Technology.[21]	key agricultural products. The success of the Maharashtra strategy is seen in the increased gains in agricultural productivity, largely as a result of technological improvements. The increasingly technological content of the agriculture demands more workers and new skills. Gross enrollment rates in basic education in Maharashtra are already estimated at 80 percent providing a great foundation for the entry of workers into these new skilled positions.[22]	customers.) Combined with favorable government policies aimed at promoting innovation, entrepreneurism greatly expanded throughout the 1990s and 2000s. Public support of local universities such as the Monterrey Institute of Technology was critical to the rapid economic growth of Monterrey. Educational institutions not only produced a talented labor force, but also worked closely with the local business community to strengthen and improve operations.[23]

An example like Monterrey would makes sense as an illustration for light manufacturing areas and involves local investors collaborating and putting their money towards a skills institute. Or Mumbai could be an example of a collaborative effort between agriculture value chain leaders in West Java with Jakarta businesses to make the supply chain for food for the local market more efficient, in such a way that everyone wins, including a smart sequence of public and private investments. For IT in Indonesia you could construct a narrative that makes sense for the country based on the successful example of Bangalore.

[21] Bangalore: The Success Story of ICT Industry. The Hindu. By Deepa Kurup. 28 September 2010. http://www.thehindu.com/books/bangalore-the-success-story-of-ict-industry/article800792.ece
The Bangalore Story: Becoming the Outsourcing Capital of the World. Tholons. April 2010. http://www.tholons.com/nl_pdf/The_Bangalore_Story.pdf
[22] Caroline Fawcett. EDC 2005
[23] Geo-Mexico: the Geography and Dynamics of Modern Mexico. January 2010. By Richard Rhoda and Tony Burton. http://geo-mexico.com/?p=9862
The Growth of Knowledge-based Small Firms. Texas Business Review. February 2008. By. Elsie Echeverri-Carroll. http://repositories.lib.utexas.edu/bitstream/handle/2152/14465/tbr-2008.02.pdf?sequence=2

VI. Conclusions and Recommendations

Conclusion

The primary role of the Government of Indonesia is to catalyze skills-led growth through a virtuous investment-to-skills-to-growth feedback loop. Labor market systems that work well drive this type of growth.

Government leadership in Indonesia has long understood the economic policy imperatives linked to the country's position in the global market as well as its natural endowments; and as discussed earlier in this report some progress has been made on fiscal/monetary reforms, though a set of deeper institutional changes are still needed. An additional challenge concerns the very structure of the Indonesian archipelago - the future of Indonesian competitiveness and employment growth lies in a set of fragmented value chains and labor markets.

The systems, skills, and value chain frameworks highlighted in this report, help to identify a set of activities to support proactive provincial and district governments to build stronger connective tissue in labor markets. USAID/Indonesia can build specific activities targeted at the poor and vulnerable on this foundation. As we have seen, Indonesia's diverse economic landscape can be organized into a typology of patterns of economic activity, with certain types of programming more appropriate for certain categories of economic activity. Ideally, programming would be initiated first in one or two regions/sectors and then rolled out by the different provincial/district governments.

Government can support the orientation of these systems through facilitating the alignment of different actors around a common regional or sectoral economic development vision. One example of how governments have created this type of organization is through the creation of sector bodies, which bring together stakeholders to translate private needs into public supply.

Mobilization of the public sector to provide labor market relevant skills is only part of the picture. Engaging Indonesian employers is arguably a more difficult case, the key is to make the business case for training. This is especially true when targeting inclusion of the poor and vulnerable.

As we have seen earlier productivity drives growth in an economy[24]. To understand how productivity drives growth for firms, we also have to understand the end market demand for their products and services. End markets, viewed through the lens of a value chain with products and services flowing through competing channels, dictate the need for skills felt by a business owner. Business owners may have some leeway to make adjustments, based on tweaks to their business model – for example, retail firms may choose to squeeze labor to keep costs down, or to invest in training for their sales force while providing incentives for increased revenues. Understanding how this dynamic works in each value chain can help partners develop the business value within skills development, which in turn ensures employer participation.

To provide an employer with the business value they need, as well as serve the needs of the labor market and target populations, a package of services can be offered. These packages respond to both

[24] Indeed, the original definition of competitiveness, from the first set of OECD industry studies conducted by Michael Porter, was "sustained increases in productivity." Porter, M.E. *The Competitive Advantage of Nations*. New York. Free Press. 1990.

value chain and individual firm needs. In large enterprises such a package might first address bottleneck skills – for example, at the middle management level - then roll out to include training for entry- level positions. Addressing the bottleneck skills provides a critical foundation that adds value to a firm and once that is established, firms will be more willing and capable to invest in further training and employment. For example, automotive parts manufacturers in Indonesia report that they have a shortage among critical business management skills[25]. A package deal with an education service provider would provide that mid-level training. These managers would then be better equipped to organize the production workers to achieve higher productivity levels, and to support a learning environment where the firm invests in training for entry-level workers (whether on-the-job or pre-service). Without the critical skills coming first, the investments in further training may not make financial sense to the firm. Programs for MSMEs would approach the business case differently, as smaller firms' needs tend to be different. The package could provide individual placements in areas MSMEs are traditionally weak in such as accounting, human resources, marketing, etc., in tandem with technical assistance to support the adoption of these new employee's functions into the firm's operations.

Regardless of the type of package, if it is based on a business case, and the firm's investment in skill development has a measurable pay off, then the employer is more likely to be willing to contribute to placing youth in entry level jobs, including the poor and vulnerable.

Recommendations

Within labor markets no single actor, including the Government of Indonesia, has the resources to single-handedly align supply and demand while providing intermediary services. This is why the key to successful USAID intervention lies in supporting the strengthening of the connections between system stakeholders, and then implementing specific activities for target group skills development aligned with end market demand. These interventions should be undertaken at different levels; supporting system strengthening and labor markets at both the *national* and *district* levels.

Programs to improve *national level* labor market functioning would include:

- *Strengthening workforce development systems for alignment of demand with supply*: Workforce development systems need to become demand driven and focus on end markets. These systems should facilitate collaborative action centered on particular value chains or clusters that can provide a center for defining and pursuing common interests among key stakeholders including employers, education and training institutions, local governments, and target populations. USAID can leverage its existing private sector partnerships to strengthen human capital development in specific sectors.

- *Improved labor market information flows*: Information asymmetry is a major labor market constraint. Statistics Indonesia (BPS) collects and disseminates national level labor market information, however in a top-down manner that is not translated for use by education institutions, employers, or job seekers. USAID could support the government and partners (including the private sector) to strengthen LMIS, as well as working with industries to develop outreach strategies that inform youth and educational institutions about trends, entry points

[25] SENADA. Automotive Component value Chain Overview. Market Justification and Strategies for Domestic Component Market Upgrading. USAID 2007.

and required qualifications, and career pathways. There is a real opportunity today to develop a next generation LMIS given that advances in technology allow for novel methods of data collection, analysis and dissemination including: mobiles, the emergence of open source and 'big' data, social media, and social network analysis.

- *Better coordination across authorities for policy implementation:* Indonesia's decentralization process has created weaknesses in coordination among the national, provincial, and district levels, and between government and the private sector on key cross-cutting policy priorities such as in responding to the needs of regional labor markets for skills. USAID could facilitate interaction between the private and public sectors by updating policies for improved market relevance of education and training, increased quality, results-focused approaches to certification, and access to services for the poor and vulnerable.

Potential for Tailored Responses by Economic Geography in Indonesia

This assessment has shown the importance of understanding the labor market as a system; mapping sectors with high potential for employment growth and identifying common patterns of economic activity through analysis of location quotient data, and understanding how end markets define demand for skills. Interventions will be most likely to succeed if they are grounded in these system and market dynamics. The primary space in which these markets operate and can be addressed is at the *district level*.

Based on specific examples of economic activity and patterns identified through data analysis, a tailored response by economic geography framework is proposed (Table 6 below). This framework is built on four patterns of economic activity, interventions in: administrative centers, industrial centers, sector specific regions, and agricultural regions. Within the four patterns of economic activity, the framework classifies potential interventions with the questions:

- Who are poor and vulnerable and what are the challenges they face?
- What might potential approaches look like by economic geography?
- Which local actors might lead the activities?
- Which economic geographies (sectors / districts) to start out in?
- What are the barriers to women's employment?

The interventions detailed in the framework have been chosen as workforce development activities most likely to support Indonesian economic and employment growth, ensuring high rates of employer participation and allowing USAID to build targeted programs for the poor and vulnerable on this foundation.

- Interventions for the *administrative centers* support the financial, social and transportation businesses who provide these services to the entire region. These businesses play a central role by providing connectivity to larger markets.
- Interventions for the *industrial centers and sector specific regions* provide a business case for training based on productivity drivers and end market demand.
- Interventions for the agricultural regions drive agricultural growth through integrating smallholders and vulnerable households into markets.

Analysis is part of Intervention

Framed in the right way, analysis is part of intervention. We recommend that USAID/Indonesia adopt a strategy based on continuous monitoring of key workforce system indicators, combined with the development and refinement of simple mechanisms to identify, translate, and operationalize skills demand and the appropriate response from service providers.[26] By collecting and analyzing relevant sectoral data on growth, productivity, skills, and alignment at the provincial and value chain level, USAID's efforts in this area can be monitored in real time, allowing for mid-term adjustments and improvements to programming that leads to scalable, sustainable results. This alignment helps ensure a smooth transition from project intervention to evaluation. Below is an indicative list of measures that could be used to measure sector specific results.

Measures Relevant to the West Java OEM Sector:

- Utilization of CNC technologies among non-OEM enterprises,
- Number of technical workers who obtained certifications,
- Establishment and effectiveness of supporting organizations (captured using SNA),
- Changes in the employment concentration ratio (LQ) in this sector over time.
- Partnerships established.

Measures related to South Sulawesi's cacao sector:

- The rate of adoption of high yielding varieties,
- Share of output which is processed locally,
- Loss rate throughout the transport and distribution network
- Increase in quality measures of the product.

Access for Poor and Vulnerable

Table 2 in Section 2 illustrates improvement in educational attainment at all income levels in Indonesia since 1997. However, for young people in the lowest income quintile, they are still not completing 9 years (lower secondary – SMP) of basic education. Having completed lower secondary is generally considered by formal sector employers as a 'floor' below which they are generally not willing to train and hire.[27] By definition this lowest quintile is the poor and vulnerable. Simply addressing and measuring access will not however address their root causes for unemployment.

These young people need a range of services, including basic education and foundational skills before they are ready for further training or employment. A number of measures (and their attendant indicators) to understand the needs to get them to the point where access is an issue are a necessary precondition.

[26] This would also support the design, implementation, monitoring and evaluation of grant and award programs.
[27] USAID HELM *Firms Perceptions of Graduates Competencies*

Table 6. Potential for Tailored Responses by Economic Geography in Indonesia

Economic Geographies	Agriculture Based Districts	Resource Driven Districts	Industrial Districts	Administrative / Service Districts
Who are poor and vulnerable and what are the challenges they face?	Small producers, landless, or migrants with limited access to public services, education, or training.	Employed in low skilled occupations, dependent on a concentrated sector with few alternatives.	Migrants and P&V in urban areas relying on informal work. Lack financial resources to access available services.	Migrants and urban P&V relying on informal work. Lack financial resources to access available services.
What might potential approaches look like by economic geography?	Building diverse skills for resilience. Creative uses of technology for outreach, referral, and delivery. Integration into value chains.	Skills for local supply chain strengthening. Career pathways within concentrated sector. Diversification activities.	Remedial foundational education, short courses that integrate technical & soft skills, targeted interventions to address firm bottlenecks.	More intensive basic education integrating skills such as critical thinking, teamwork, and communication, Language and IT training.
Which local actors might lead the activities?	NGOs, Large private agribusiness partners, Medium sized agriculture partners, Buyers, Suppliers, Cooperatives.	Dominant sector, Local government, Local businesses interested in participating in supply chain, NGOs.	Employers, pro-active public training institutes, private training providers and employment agencies, industry bodies.	Employers, pro-active public training institutes, private training providers and employment agencies, industry bodies.
Which economic geographies (sectors / districts) to start out in?	Coffee, Tea, Cocoa, Cassava, Seafood, Rubber, Copra. / Cianjur, Enrekang, Tana Toraja, Sinjai, Bone, Jeneponto.	Tourism, Mining, Energy, Utilities, Construction. / Cirebon, Banteng, Purwakarta, Barru, Sukabumi, Maros, Luwu Timur.	Automobile, Electronics, Footwear, Textiles, Paper, Furniture. / Bandung, Bekasi, Cimahi, Tasikmalaya, Luwu,	Transportation, Communication, Wholesale and retail trade, Construction. / Bandung, Bogor, Sukabumi, Depok, Makassar, Pare-Pare.
What are the barriers to women's employment?	Reduced access to education. Increased likelihood of early/arranged marriages. Pressure to migrate for work to send remittances.	Women face legal restrictions, in movement or access to work, with curfews. Lack of safe and appropriate transportation to jobs.	Limited access to training due to social pressure or discrimination. Work that pays less, has higher risks, is more demeaning and demanding. Few pathways to better jobs.	Exclusion from higher level jobs, few role models, pay disparity, fewer benefits if married. Unhealthy restrictions around menstruation, pregnancy, and childcare.

VII. Annexes

Annex 1. Average Years of Schooling of Individuals Aged 15-19 by Income Quintile 1997-2012

Income	1997	2002	2007	2012	% change
Quintile 5	9.75	10.18	10.41	11.01	13%
Quintile 4	8.68	9.37	9.78	10.35	19%
Quintile 3	7.79	8.73	9.04	9.87	27%
Quintile 2	7.32	7.91	8.35	9.25	26%
Quintile 1	6.61	7.01	7.33	8.29	25%

Source: World Bank EdStats.

Annex 2. Productivity 101

Productivity is an average measure of the efficiency of production, and uses the ratio of output (e.g. product output) to inputs (labor, land, capital or technology) i.e. output per unit of input. Why is this important? Because increased competitiveness is ultimately derived from an economy's ability to upgrade its intrinsic productivity. Productivity rates tell us what economic activities are most efficient, in terms of how much output to we get for a specific amount of input, and the concept can be applied to all types of economic analysis: firm efficiency, industry or sector efficiency, national economic efficiency.

Productivity is a crucial factor in production performance of firms and nations. Increasing national productivity can raise living standards because more real income improves people's ability to purchase goods and services, enjoy leisure, improve housing and education and contribute to social and environmental programs. Productivity growth also helps businesses to be more profitable.

The drivers of productivity are diverse, and reflect the quantity and quality of inputs used in the production process-- labor, capital and technology. The main drivers are:

- Investment is in physical capital — machinery, equipment and buildings. The more capital workers have at their disposal, generally the better they are able to do their jobs, producing more and better quality output.
- Innovation is the successful exploitation of new ideas. New ideas can take the form of new technologies, new products or new corporate structures and ways of working. Such innovations can boost productivity, for example as better equipment works faster and more efficiently, or better organization increases motivation at work.
- Skills are defined as the quantity and quality of labor of different types available in an economy. Skills complement physical capital, and are needed to take advantage of investment in new technologies and organizational structures.
- Enterprise is defined as the seizing of new business opportunities by both start-ups and existing firms. New enterprises compete with existing firms by new ideas and technologies increasing competition. Entrepreneurs are able to combine factors of production and new technologies forcing existing firms to adapt or exit the market.

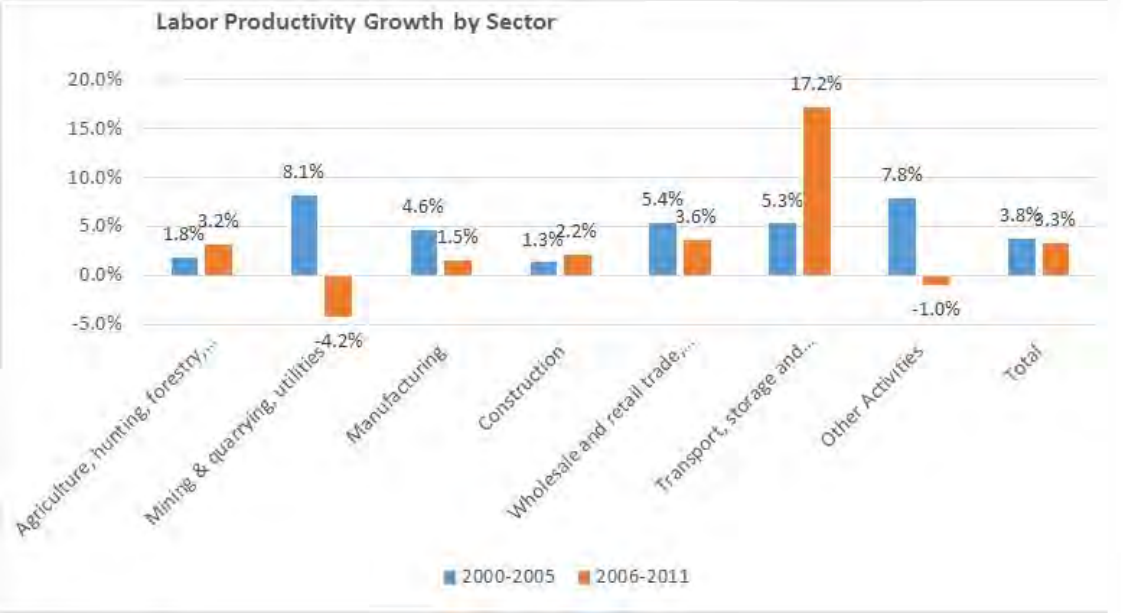
- Competition improves productivity by creating incentives to innovate and ensures that resources are allocated to the most efficient firms. It also forces existing firms to organize work more effectively through imitations of organizational structures and technology.

Economists have developed an easy way to measure productivity at the national and sector level of the economy. The annual value-added GDP (gross domestic product) measures the value of the product summing up the value-added created in the national economy, and then subtracting the value of the intermediate inputs from the outputs due to the sales of product and services. The estimate of national value-added GDP is an estimate of the value of the total output of a national economy. This information is found in the National Accounts data of a country.

The most common measure of productivity is labor productivity, where the national constant GDP value-added estimate is divided by the total labor input, usually expressed as the number of workers, or the number of hours worked. To calculate, simply divide the national constant GDP value-added amount by the total number of employed workers to estimate average labor productivity for the national economy.

Annex 3. Sector Specific view of Productivity in Indonesia

A second macroeconomic measure of productivity is the labor productivity by GDP sector/sub-sector, a measure that estimates the average efficiency between various economic sectors/sub-sectors of a national economy. To construct this measure, economists first disaggregate the national value-added GDP by sector, calculating a GDP sector estimate; then the GDP by sector estimates is divided by the total employed labor within each sector. Based on these annual statistics, economists calculate an average sector growth rates of labor productivity for specific time periods. Below we see an example of average labor productivity growth rates for by sector for Indonesia using two time periods: 2000-2005; 2006-2011.



Based on these annualized growth rates by sector, specific sector trends can be identified over the 2000-2011 period:

- Agriculture. Once considered the sleeping giant of the Indonesian economy, the agriculture sector is on a productivity comeback, and has achieved 3-4 percent growth since 2010.
- Mining and Resource Industries. No longer is the resource sector the main driver of the Indonesian economy; and has witnessed a serious downturn with falling oil and commodity price in 2014.
- Manufacturing. Indonesia manufacturers are in the midst of an economic transformation, moving from high labor-intensity of light manufacturing to lower labor-intensity of complex specialized manufacturing. Top productive sectors within manufacturing are transport equipment and apparatus manufacturing.
- Construction. A consistent performer in terms of labor productivity, construction has important value chains to transport equipment and road infrastructure development.
- Wholesale and retail trade. A wide range of retail services are included under this category, and it has achieved significant productivity gains in the 5 percent range. Retail sector has been considered a top productivity performer in the last ten years.
- Transport, Storage and Telecommunications. Since 2006 the services industries connected to communications and transport sectors has boomed, witnessing 17 percent productivity growth. Today this service sector is considered the top performer, with telecommunications leading the way.

Annex 4. Location Quotients for Jakarta, West Java and South Sulawesi at District Level

(Value of 1.00 indicates employment concentration is equal to Indonesian average for that sector; 2 or above indicates high concentration)

KABUPATEN/KOTA	Agriculture, Forestry & Fishery	Construction Sector	Electricity & Utilities Sector	Financial Services Sector	Industrial/ Manufacturing Sector	Mining & Quarrying Sector	Social Services Sector	Trade, Hotel & Restaurant Sector	Transportation & Telecom Sector
JAKARTA									
Jakarta Barat, Kota	0.02	0.57	-	3.15	1.49	0.16	1.45	1.79	1.64
Jakarta Pusat, Kota	-	0.35	0.93	3.58	0.69	-	2.45	1.60	1.80
Jakarta Selatan, Kota	0.00	0.58	0.49	6.13	0.46	0.18	1.93	1.76	1.82
Jakarta Timur, Kota	0.03	0.86	0.94	3.46	1.34	0.44	1.85	1.39	1.82
Jakarta Utara, Kota	0.01	0.42	0.63	2.27	1.01	0.14	2.31	1.33	3.03
WEST JAVA									
Bandung Barat, Kab.	0.74	2.36	0.73	0.53	1.35	0.50	0.98	0.83	1.36
Bandung, Kab.	0.44	1.55	0.44	0.94	2.63	0.35	0.64	0.97	1.20
Bandung, Kota	0.03	0.78	2.56	2.82	1.77	0.23	1.28	1.70	1.48
Banjar, Kota	0.39	1.40	1.01	1.12	1.55	0.34	1.24	1.24	1.72
Bekasi, Kab.	0.30	0.54	0.42	1.16	2.92	0.03	0.84	1.09	1.48
Bekasi, Kota	0.01	0.96	1.91	3.65	1.70	0.52	1.92	1.15	1.41
Bogor, Kab.	0.38	0.94	0.51	1.02	2.08	2.85	0.89	1.23	1.32
Bogor, Kota	0.05	0.75	1.73	3.55	1.27	0.14	1.91	1.44	1.63
Ciamis, Kab.	0.97	1.02	1.03	0.94	1.42	0.32	0.73	1.08	0.77
Cianjur, Kab	1.28	1.22	-	0.25	0.57	1.06	0.88	0.94	0.95
Cimahi, Kota	0.05	1.03	2.02	2.08	2.09	0.17	1.60	1.34	0.93
Cirebon, Kab.	0.73	1.70	0.56	0.36	0.57	0.45	0.69	1.79	1.41
Cirebon, Kota	0.02	1.15	1.89	1.68	0.74	0.12	1.37	2.35	1.59
Depok, Kota	0.06	1.52	4.90	2.45	0.94	0.48	1.85	1.53	1.64
Garut, Kab.	1.09	1.05	0.48	0.22	0.71	0.33	1.07	1.04	1.38
Indramayu, Kab.	1.09	0.79	0.50	0.72	0.44	0.47	0.95	1.36	1.14
Karawang, Kab.	0.52	0.56	1.87	0.91	1.91	0.22	0.86	1.45	1.15
Kuningan, Kab.	0.99	1.38	0.93	0.57	0.68	0.38	0.89	1.40	0.49
Majalengka, Kab.	1.02	1.87	0.39	0.54	0.92	0.26	0.93	1.02	0.58
Purwakarta, Kab.	0.66	2.46	1.34	0.43	1.46	1.37	0.78	0.99	1.22
Subang, Kab.	1.27	0.81	1.38	0.36	1.07	0.42	0.56	1.01	0.88
Sukabumi, Kab.	0.96	1.27	3.26	0.39	1.28	1.32	0.65	0.92	1.77
Sukabumi, Kota	0.11	0.98	1.77	2.84	0.85	-	1.43	1.79	2.54
Sumedang, Kab.	1.04	1.51	1.95	0.63	0.88	0.39	1.06	0.86	1.16
Tasikmalaya, Kab.	0.84	0.81	-	0.35	1.74	0.45	0.81	1.00	1.48
Tasikmalaya, Kota	0.23	1.10	-	0.48	2.63	0.67	0.94	1.28	1.19
SOUTH SULAWESI									
Bantaeng, Kab.	1.53	0.66	2.34	0.39	0.32	0.30	1.17	0.59	1.23
Barru, Kab.	1.32	0.80	2.94	0.11	0.32	0.74	1.54	0.74	0.72
Bone, Kab.	1.71	0.57	0.92	0.12	0.29	0.17	0.85	0.63	1.21
Bulukumba, Kab.	1.62	0.63	0.41	0.82	0.46	-	0.58	0.80	1.16

KABUPATEN/KOTA	Agriculture, Forestry & Fishery	Construction Sector	Electricity & Utilities Sector	Financial Services Sector	Industrial/ Manufacturing Sector	Mining & Quarrying Sector	Social Services Sector	Trade, Hotel & Restaurant Sector	Transportation & Telecom Sector
Enrekang, Kab.	2.02	0.43	-	0.26	0.20	0.47	0.79	0.42	0.38
Gowa, Kab.	1.23	0.97	1.79	0.68	0.87	0.67	0.78	0.91	1.03
Jeneponto, Kab.	1.75	1.13	0.21	0.14	0.15	0.84	0.46	0.64	1.71
Luwu Timur, Kab.	1.28	1.07	-	1.06	0.52	4.81	0.90	0.70	0.70
Luwu Utara, Kab.	1.74	0.64	-	0.43	0.42	0.80	0.79	0.64	0.31
Luwu, Kab.	1.45	0.58	-	0.45	1.14	0.24	0.82	0.57	0.87
Makassar, Kota	0.01	1.50	6.76	2.02	0.40	-	2.39	1.53	2.09
Maros, Kab.	0.95	0.86	2.66	0.92	0.79	-	1.30	1.04	1.33
Palopo, Kota	0.59	0.84	2.36	0.55	0.63	0.72	1.45	1.56	1.63
Pangkajene Kepulauan, Kab.	0.80	1.02	0.49	0.37	0.87	1.32	1.29	1.14	1.54
Pare-Pare, Kota	0.13	1.23	1.73	1.31	0.41	-	2.02	1.82	2.05
Pinrang, Kab.	1.50	0.66	0.50	1.02	0.36	0.43	0.93	0.89	0.52
Selayar, Kab.	1.38	0.64	0.74	0.16	0.90	0.45	1.10	0.70	0.56
Sidenreng Rappang,	1.20	0.44	1.87	0.63	0.64	1.06	0.92	1.01	1.65
Sinjai, Kab.	1.86	0.31	0.31	0.32	0.24	0.12	0.93	0.53	0.69
Soppeng, Kab.	1.91	0.29	-	0.77	0.28	-	0.80	0.54	0.40
Takalar, Kab.	1.14	1.95	-	0.58	0.43	1.92	0.85	0.84	1.62
Tana Toraja, Kab.	2.19	0.67	1.04	0.18	0.12	-	0.55	0.19	1.00
Toraja Utara, Kab.	2.09	0.67	-	0.34	0.14	0.18	0.72	0.27	0.65
Wajo, Kab.	1.40	0.81	3.44	0.18	0.80	0.35	0.70	0.90	0.77

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