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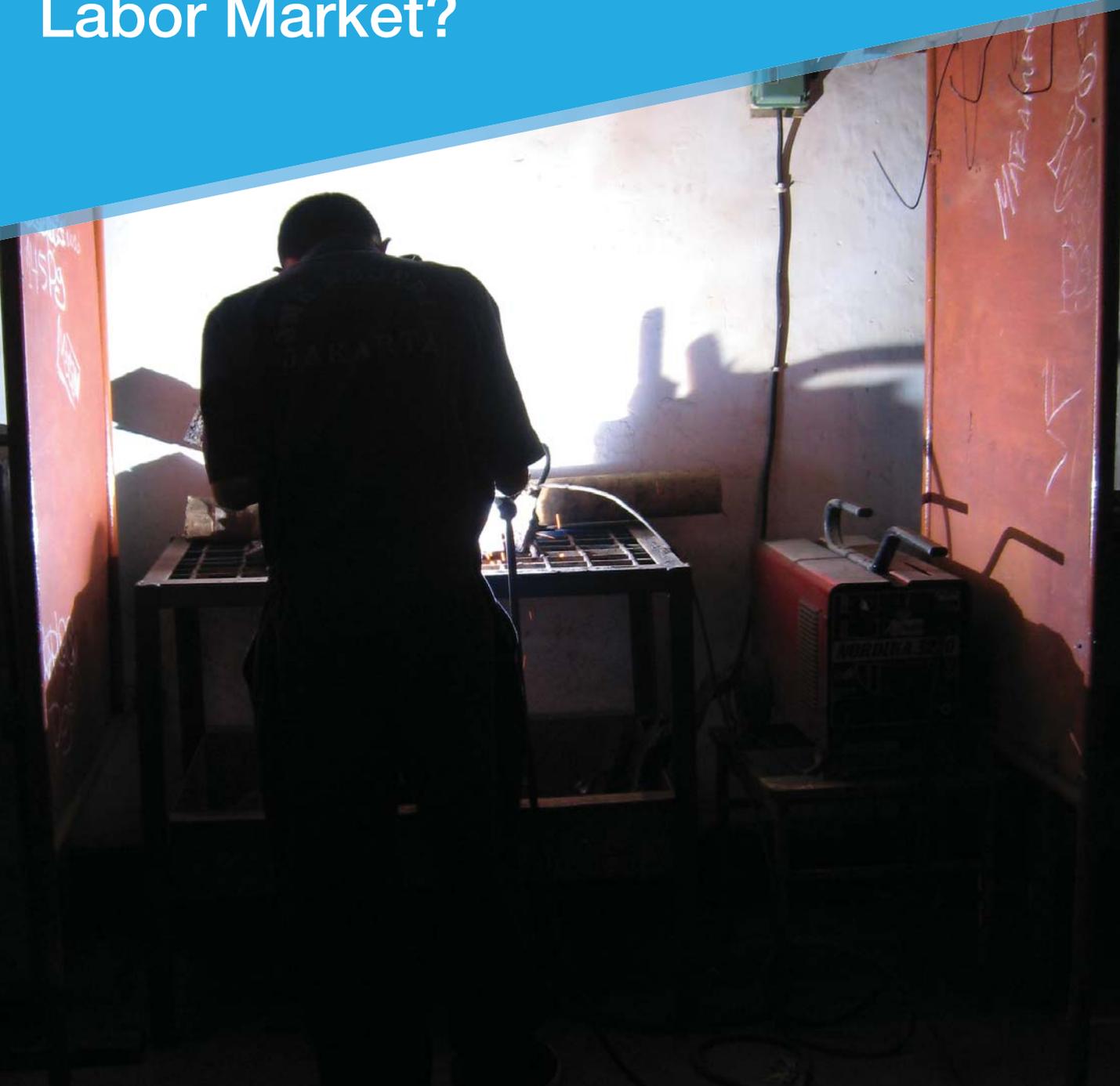
Indonesia's Higher Education System: How Responsive is it to the Labor Market?

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University graduates generally get jobs that match their skills

Chapter 1

Introduction: Why this paper?

Indonesia is at a development crossroads. It successfully weathered the 2008 international financial crisis, and it has shown resilience in the current turbulent times. Its economy is now one of the largest 20 economies in the world and it has ambitious plans to achieve high-income status and join the G-7 by 2030. Yet the challenges it faces are daunting. As highlighted in the recent Indonesia Economic Quarterly report by the World Bank¹, the status quo may not be enough to maintain current growth rates in light of domestic and policy pressures. And even maintaining the current rates of growth will not bring the country to high income status by the target year. Accelerating growth is therefore crucial to achieve the intended goals. National and international trends present both opportunities and challenges: the growing middle class and subsequent growth in the internal market, rapid urbanization, and the opening up of markets in ASEAN countries. With the right policies in place, all these trends can catapult Indonesia to faster growth, faster poverty reduction and shared prosperity. Without these policies, Indonesia risks losing a great opportunity to materialize these gains.

A skilled labor force is crucial to leveraging these opportunities. Without the right skills of the labor force in general, opening up to ASEAN may pose a problem more than an opportunity. Without the right skills of urban migrants, urbanization will not bring about the benefits of scale and agglomeration effects. Without the right skills of youth, the demand for higher quality products and services from the growing middle class may be satisfied by importing them as opposed to increasing the value added of Indonesian firms. And without ensuring that poorer segments of the population have the skills to benefit from all these trends, even if gains in productivity are realized, the benefits will fail to trickle down to disadvantaged groups.

¹ Indonesia Economic Quarterly, Pressure Mounting, July 2013, World Bank Jakarta

Innovation-driven economies require a meaningful share of the labor force with a high level of skills, and higher education is the main provider of these skills. High-income countries do not achieve this without high rates of enrollment in higher education. The skills of the labor force also matter. While international surveys do not exist for the skill level of higher education students, recent evidence² shows that the share of 15-year old performing at a high level in PISA scores has a significant effect on a country's long-term growth rates.

Understanding the importance of providing the right skills and the crucial role of education the Government of Indonesia (GoI) has made a great commitment to education. It has drastically increased investment in the sector and instituted important reforms at all levels of education. This has led to rapid increases in access, especially for the poor and in secondary education. The number of higher education students has doubled in five years. Overall spending for higher education has tripled in real terms, to over 30 trillion rupiah.

The plans for further expansion are aggressive. The GoI's plans include tripling the number of students in technical programs and increasing the number of doctoral students fivefold by 2025. The new Higher Education Law 12/2012 establishes that each district should have its own community college. Indonesia has also been putting policies in place to continue expanding access to senior secondary and higher education. In 2013, the government is starting to pilot a move from nine to 12 years compulsory education. This push, accompanied by an increasing provision of scholarship³, will increase the pool of entrants to higher education institutions (HEIs). Moreover, the opening of Community Colleges (*Akademi Komunitas*⁴) to support local development in districts, mandated by Law 12/2012, will further increase access. The country is close to meeting its 2014 GER target (30 percent) with more than 5 million enrolled students for a 27 percent GER in 2011.

Despite the increase in access and the policy changes, there are worrisome signs that employers do not find enough graduates with the right skills. In a survey of employers carried out by the World Bank in 2008, 2/3 of them complained that finding employees for professional and manager positions was difficult or very difficult⁵. A certain degree of difficulty in finding qualified workers may be a sign of a healthy economy. As new and more evolved technologies are used (broadly defined to include not only physical production but also service provision), one expects employers to have a hard time finding workers who are ready for the new technologies. However, it may also be a sign that the education sector is not providing graduates with the right skills. The level of unemployment faced by higher education graduates, which is stubbornly high until the age of 35⁶, may be a sign of the latter.

As the system expands so rapidly, it is important to ensure that the sector is preparing graduates for the labor market. This is the central question and the motivation for this paper: how can the higher education system provide graduates with the right skills for the labor market? Answering this question to the level of detail useful in designing appropriate policies is not straightforward. The recent literature on skills highlights the complexity of the skills that are demanded and used in the labor market. These go beyond technical and cognitive skills and include behavioral and social skills. There are several initiatives⁷ to

2 Organization for Economic Cooperation and Development (OECD)'s Programme for International Student Assessment (PISA) (2009) and also see discussion on Spending More or Spending Better (2013b), page 64-67.

3 See more discussion on scholarships in Equity, Access and Success in Higher Education (2013) and Improving Access and Equity to Indonesian Higher Education for Candidates from Economically Disadvantaged Backgrounds (2013)

4 Commonly expressed, community college, but it should not be seen as the US-type of community college.

5 Skills for the Labor Market in Indonesia (2011)

6 Education, Training and Labor Market Outcomes in Indonesia (2010a)

7 World Bank's Skills Toward Employment and Productivity (STEP) Skills Measurement Survey, OECD's Programme for the International Assessment of Adult Competencies (PIACC), UNESCO

try to understand and define these skills better. Several countries are carrying out surveys that try to map the supply and demand of the complete set of skills and compare them across sectors and occupations. This information can then be used to identify gaps. However, these tools are not yet available in Indonesia. In the absence of such mapping, this paper uses available data on the labor market performance of graduates from the National Labor Force Survey (Survei Tenaga Kerja Nasional, Sakernas) and employer surveys to see if there is evidence of mismatches or graduates entering the labor market without the right skills.

The analysis suggests that there are reasons for concern. Most higher education graduates go into the services sectors, especially public services (mainly education, health, and government administration). Teacher training colleges in particular account for almost 1/3 of all higher education graduates entering the labor force. Perhaps driven by the higher expected incomes promised by the Teacher Law of 2005, more students are choosing the teaching profession. But because the system cannot absorb all these graduates in civil servant positions, many end up working under difficult conditions as contract teachers who earn less than 1/3 of the starting salary of a regular teacher. Yet, in perhaps the best example of the disconnect between the system and the labor market, the demand for admission to teacher training colleges continues to increase and was the highest ever in 2013. Meanwhile, there is evidence that other sectors are severely skill constrained, especially in professional and managerial level positions. The type of degree also seems to matter in the labor market, with the demand for Diploma 1 (D1) and Diploma 2 (D2) graduates declining. In fact, the returns to education for D1 and D2 graduates have declined over the last 10 years. By 2010, a graduate of a D1 or D2 program received a salary only about 10 percent higher than a senior secondary graduate (versus 100 percent for D3 and above).

This paper is organized as follows. Section 2 presents a framework to look at incentives and argues that without the right system in place, the tendency of the education sector will not necessarily be to align its supply with the demands of the labor market. The section discusses some of key features of the system in Indonesia. Section 3 looks at the performance of higher education graduates in the labor market, their labor force participation, unemployment rates, the types of jobs they obtain and trends in the returns to higher education. Section 4 takes patterns in employment and returns to education, as well as employer surveys, to find signs of misalignment between supply and demand in the types of degrees of graduates, the sectors where they are employed and the skills they bring with them. Finally, section 5 concludes with some suggested policy directions and future research.



Female enrollment in tertiary education has surpassed male in the past decade.

Chapter 2

Why would institutions respond to employer demands? A framework

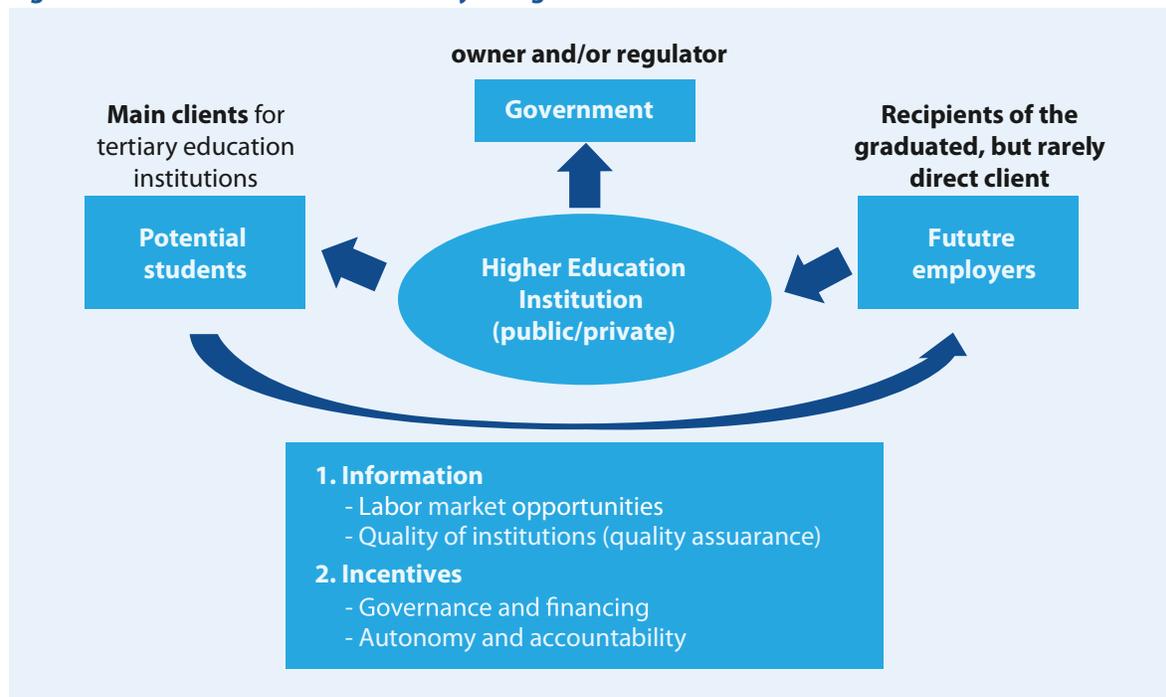
Higher education institutions do not respond naturally to the demands for skills in the labor market.

This is one of the main *disconnects* seen across most Asian countries, and identified in the recent World Bank regional report *Putting Higher Education to Work* (World Bank, 2012a). Higher education institutions tend to respond naturally to their “clients”: potential and current students. They also tend to respond to their owners or regulators. So if students’ demands are not in line with the labor market (because of lack of information, for example) or the regulatory framework prevents institutions from responding to the demands of their “clients” (rigidity, for example), the higher education system will not respond to the demands in the labor market.

Figure 1 puts this logic into a basic framework. In this framework, institutions are in the middle and have potential and current students as their main “client”. They are either privately owned or publicly owned. Both public and private institutions will respond to the regulatory framework, but public institutions will, in addition, respond to the incentives embedded in their governance and financing (how they receive their funding). The connection with employers is therefore indirect: only by aligning the demands of potential students and the regulations and incentives provided by the governance and financing system to the demands of the labor market will institutions respond.⁸

8 Labour Market Information in Solo, Indonesia (2010)

Figure 1: A framework of accountability of higher education institutions



Authors' elaboration

This alignment between the labor market demands and what students demand from institutions depends on a system, not a single policy. And while the policies in the system may differ, two key elements need to be in place: (1) providing **information** about labor market trends (for students, employers and institutions) and about the quality of institutions (*quality assurance*) and (2) providing the right **incentives** which requires *autonomy* and *accountability* (especially for public institutions), *incentives for performance* (especially for public institutions) and opportunities for *direct links between institutions and employers* (for example, apprenticeships, staff exchanges, and research collaboration). Advanced higher education systems go beyond these basic elements, trying to address further disconnects: between higher education institutions themselves, between higher education and training institutions, and between senior secondary and higher education (in addition to the role of higher education institutions as catalyzers of research and innovation).

In Indonesia, both information and incentives seem problematic. While to our knowledge there has been no systematic analysis of the access to labor market information, some studies have been conducted in local labor markets that seem to indicate that information about labor market opportunities are limited even in places with relatively more developed labor markets (such as Solo). Information about the quality of institutions or programs of study is also incomplete and scattered.

The National Accreditation Board (Badan Akreditasi Nasional Perguruan Tinggi, BAN-PT) has started a website that contains accreditation level of study programs; other websites by the Directorate General of Higher Education (DGHE) (forlap.dikti.go.id and pdpt.dikti.go.id) contain lists of study programs without accreditation information. Some study programs listed in BAN-PT's database could not be found on the other sites. Furthermore, the national accreditation system is still underdeveloped. Insufficient funding, inadequately trained accreditation experts, insufficient tools and knowledge, lack of awareness of good implementation practices, limited participation in voluntary quality assurance and accreditation processes, and poorly designed development strategies are some of the reasons cited for its underdevelopment⁹.

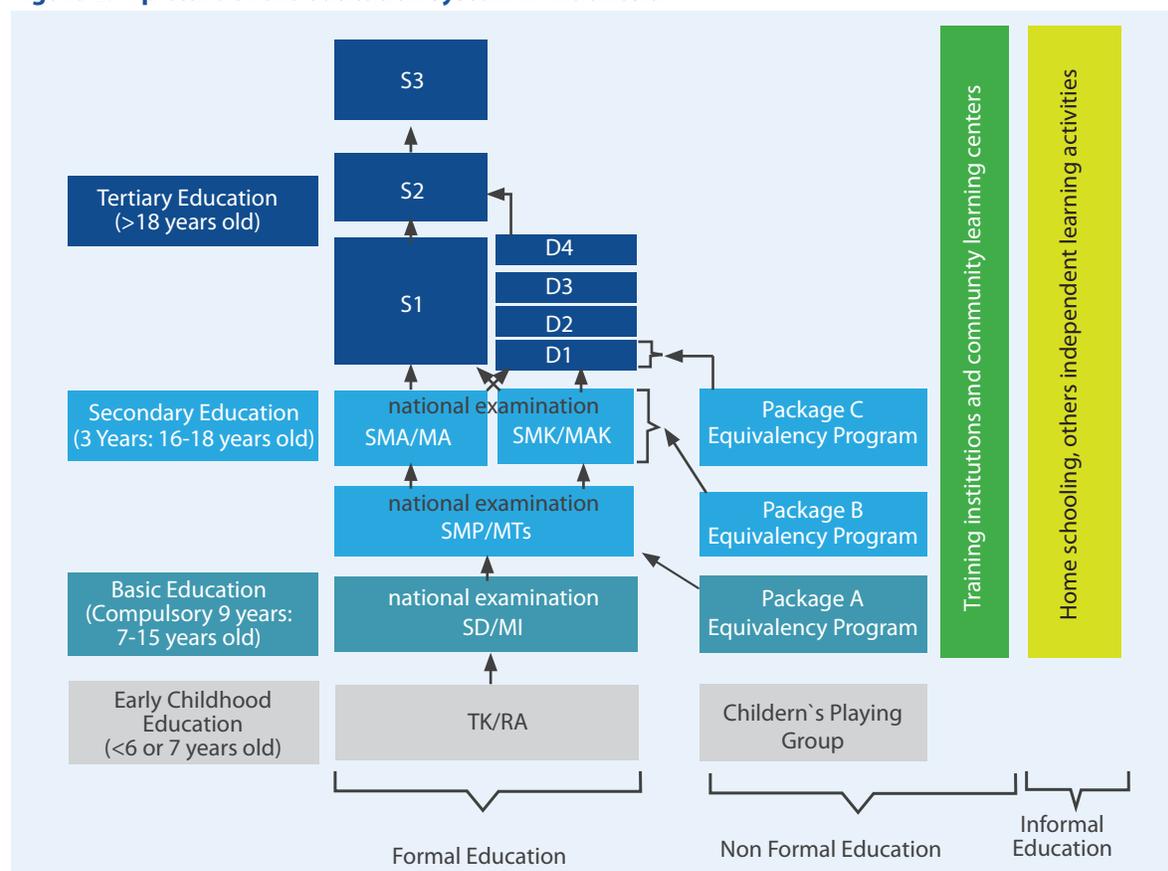
⁹ See *Quality Assurance in Indonesia: Building on Strengths, Navigating Change* (2013)

In terms of incentives, while the lack of autonomy may limit the incentives to try to respond to labor market demands for most public institutions, those that have some level of autonomy and the large number of private providers should, in principle, be more flexible in their response. However, private institutions receive no public funding; as a consequence, they may focus more on surviving financially rather than on maximizing the returns of their graduates in the labor market which in turn may push them to establish low cost programs (administration, teacher training). The characteristics of the supply of education institutions matter for their incentives. Before we analyze the performance of graduates, it is useful to highlight the main features of the Indonesian system.

What does the system look like?

In Indonesia, there are three different tracks of education: formal, non-formal and informal education (see Figure 2) spanning from early childhood education to tertiary education. Since 1994 the country has been implementing nine-year compulsory education, from primary to junior secondary level. Starting this year (2013), there will be a gradual move from 9 to twelve years of compulsory education, encouraging and eventually mandating (once the law is enacted) graduates to continue to senior secondary level. The choice of a (general) academic stream or a vocational stream starts in senior secondary; both last three years but their curricula vary. Graduates from both general (SMA/MA) and vocational secondary schools (SMK/MAK) can continue to tertiary education (higher education), either staying with their chosen stream or changing the stream (see the crossing arrows above SMA/MA and SMK/MAK in Figure 2 below).

Figure 2: A picture of the education system in Indonesia



Source: Elaboration based on Law 20/2003 and the Southeast Asian Ministers of Education Organization (2006)

At the higher education level, there is more diversity in the choice of institutions. Senior secondary students can start planning between continuing to the academic stream (*sarjana*) starting with a bachelor's degree (S1) or to the vocational stream (*diploma*); the latter has a selection of Diploma 1 to 4 (D1 – D4) degree programs (see Table 1 for a competency summary of different Diploma degree programs) with a choice to also continue toward the masters (S2) and doctoral (S3) levels after completing a D4 or a S1 degree. In short, the academic stream is mandated to be heavy in the mastery and development of science and technology, while the vocational stream focuses on preparation to work in specific vocational/technical areas (Law 12/2012). In practice, both graduates are sought in the labor market.

Table 1: Main competences of the different Diploma program

Diploma Program	Period of Study	Main Competences
Diploma 1 (D1)	1 year	Execute specific tasks and solve routine problems under guidance
D2	2 years	D1 competence + ability to work independently
D3	3 years	D1 + D2 + ability to solve unfamiliar problems and supervise and guide in a specific technical area
D4	4 years	D1 + D2 + D3 + ability to apply skills in a complex area and follow science and technology developments in his/her area of expertise

Source: summarized from National Education Standard Agency, BSNP (2011)

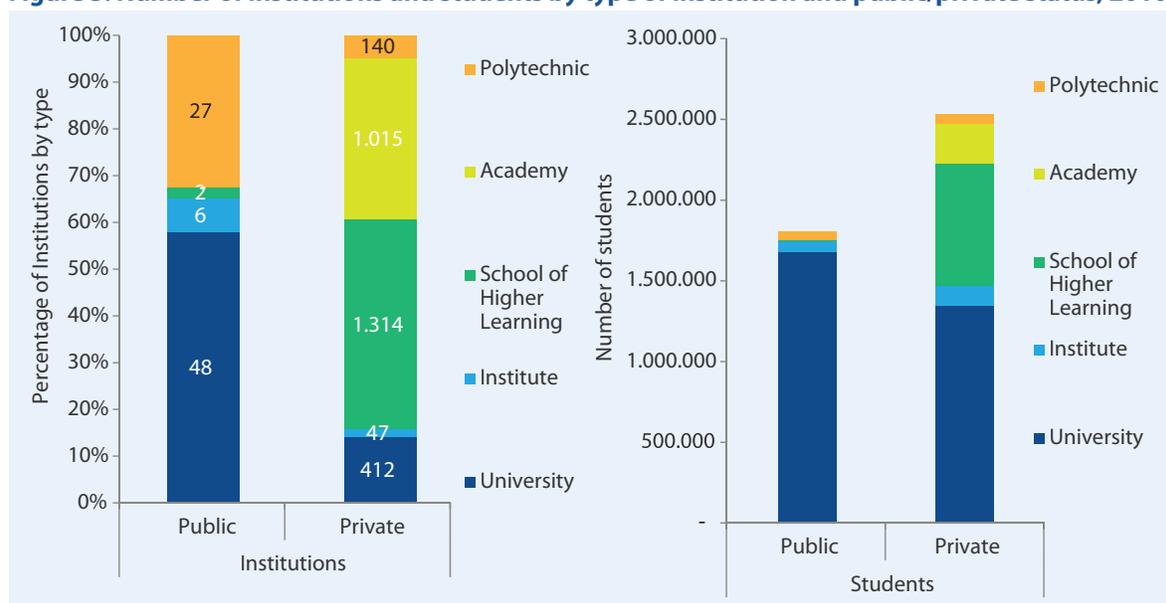
There are five types of HEIs: universities, institutes, schools of higher learning (*sekolah tinggi*), polytechnics and academies. The recent Law on Higher Education introduced a sixth type, the community college. All forms of institutions can open and deliver study programs in the vocational stream; however, polytechnics, academies and community colleges cannot deliver study programs under the academic stream. Each can either be publicly or privately established. The program can be delivered face-to-face or through distance learning mechanisms, as per regulations. The Indonesian Open University (Universitas Terbuka), for example, a public HEI, teaches up to 533,000 students (77 percent of whom are in the Teacher Training Faculty) through distance learning¹⁰.

In total there are 3813 HEIs, with ten times as many private HEIs as public ones. Most of the public HEIs are universities which also enroll most of the students. Private HEIs have a different picture with more than 65 percent of the institutions taking the form of schools of higher learning and academies with less student capacity and/or enrollment (Figure 3). The latest available data register 17,005 study programs across all those streams, levels, types of HEIs and methods of delivery with the exception of community colleges which will only start opening study programs in late 2013¹¹.

10 Universitas Terbuka web page (www.ut.ac.id) accessed on July 4th, 2013

11 DGHE web page (www.evaluasi.dikti.go.id) accessed on June 17th, 2013

Figure 3: Number of institutions and students by type of institution and public/private status, 2010



Source: MOEC

In practice, senior secondary graduates tend to have limited options due to the (relatively) high cost to attend HEIs and the high competition to enter public HEIs. The government subsidizes public HEIs on almost all fronts: operational costs, lecturer and education personnel salaries, investment and development costs. For private HEIs, the government is only mandated to support professional allowances for lecturer, distinction allowances for professors, investment and development. It is estimated that students attending higher education spend an average of IDR 13 million a year for their studies (mostly in annual living costs)¹² except for those who attend civil service-specific public HEIs where commonly students receive a full scholarship and living costs may be minimized by access to on-campus housing. Table 2 includes the number of civil service-specific public HEIs managed by different ministries, but when combined with the massive number of private HEIs, most of the HEIs in Indonesia are under MoEC and MoRA.

¹² See Equity, Access and Success in Higher Education (2013)

Table 2: Number of institutions under each ministry, 2013

Ministry	Public	Private	Total per Ministry	%
Education and Culture (MoEC)	98	3119	3217	84.4%
Religious Affairs (MoRA)	61	378	439	11.5%
Home Affairs	72	0	72	1.9%
Health	38	0	38	1.0%
Industry	7	0	7	0.2%
Agriculture	5	0	5	0.1%
Transportation	9	0	9	0.2%
Tourism	4	0	4	0.1%
Marine and Aquaculture	4	0	4	0.1%
Defence and Police	7	0	7	0.2%
Other Ministries	6	0	6	0.2%
LPNK (non-ministerial state institutes)	5	0	5	0.1%
Total	316	3497	3813	100%

Other Ministries: M. Finance, M. Social, M. Law, M. Energy, M. Comm.

LPNK: Badan Tenaga Nuklir Nasional (National Nuclear Energy Agency), BPS (Statistics), BMKG (Meteorology, Climatology), Pertanahan (Land), Lembaga Sandi Negara (State Code Agency)

Source: <http://evaluasi.dikti.go.id/database/pt>, accessed on June 18th, 2013

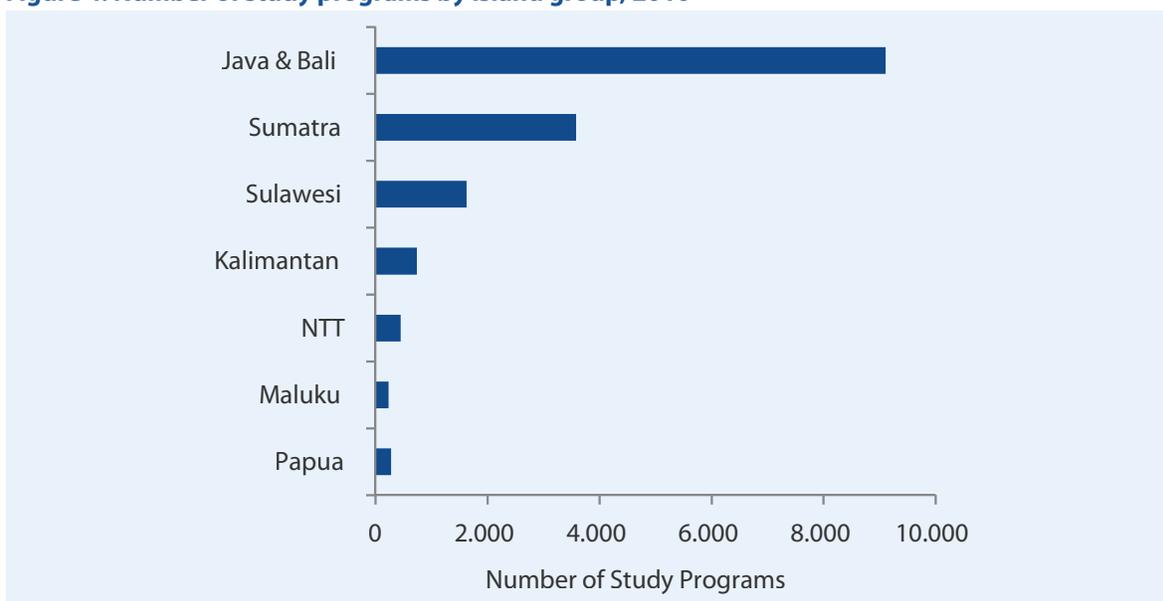
There is a more competitive selection process to enter public HEIs than private ones. Currently, there are three selection processes to enter public HEIs – the National Higher Education Entrance Exam (SNMPTN), the State University Joint Selection Entrance Exam (SBMPTN) and the independent selection process. Each public HEI can determine its admission quota for each of those tests. For example, in 2013 *Universitas Indonesia*, one of the top public HEIs in the country, applied the following quota: 50 percent for SNMPTN (2300 students), 30 percent through SBMPTN (1380 students) and 20 percent through the independent selection process -- “Simak UI” (920 students)¹³.

More than half of all study programs in Indonesia are located on Java and Bali, the most populated islands in the country. The history of higher education in Indonesia started with the development of several HEIs on Java in the late of 19th century – a medical HEI in Jakarta, followed with engineering (Bandung), agriculture (Bogor) and dentistry (Surabaya)¹⁴. Another 30 percent of the total study programs are in Sumatra and Sulawesi. The composition as seen in Figure 4 may change with the government policy to develop at least one public HEI in each province and to collaborate with local governments in establishing, to begin with, one community college in each district (Law 12/2012 on Higher Education, 2012).

13 Fewer Students Apply to UI This Year (2013)

14 Equity, Access and Success in Higher Education (2013)

Figure 4: Number of study programs by island group, 2010



Source: MoEC (2010)

Except for S3 programs, the majority of the study programs are accredited at levels B and C, echoing the need to focus not only on access but also on quality (Figure 5). Every five years, as requested by respective study programs and HEIs, the Higher Education National Accreditation Board (BAN-PT) provides a national accreditation based on self-evaluation and assessments (desk evaluations and site visits) from a panel of assessors. However, it is important to note that the accreditation level does not give a full and detailed picture of quality; it is a measuring progress against the minimum standards in seven areas¹⁵ Furthermore, most of the D2 accreditations are expired and all of those are Teacher Training program. Following the issuance of the Teacher Law in 2005, becoming a teacher requires a minimum of an S1 degree whereas previously a D2 would suffice.

¹⁵ (1) vision, mission, objective, aims and attaining strategies, (2) governance, leadership, the management system and quality assurance, (3) students and graduates, (4) human resources, (5) curriculum, instruction and academic atmosphere, (6) financing, facilities, infrastructure and information systems, (7) research, community service and partnerships.

Figure 5: Accreditation levels and the status of various degree programs in Indonesia



Source: <http://ban-pt.kemdiknas.go.id/hasil-pencarian.php>, accessed on June 17th, 2013. Note: assuming the total number of study programs is 17,005, the above graphs cover 95% of all study programs.

Study programs in public HEIs have a better accreditation level than those in private institutions.

Preliminary analysis¹⁶ shows that 75 percent of “A”-accredited study programs are in public HEIs. Further, only 10 percent of the total listed study programs (16,208) have level “A” accreditation, while almost half of them (48 percent) have C level and another 42 percent, B level. When looking at specific HE programs, at D2, D4 and S3 levels, there is a consistently higher share of public HEIs with A and B accreditation levels, with almost all “A”- accredited S3 study programs being in public HEIs.

It remains an open question whether HE “clients” (i.e., potential students) are well informed regarding the various accreditation levels granted by BAN-PT when they apply to study program(s).

The website that contains the accreditation database¹⁷ could benefit from elaborating further on the levels: for example: *how does A differ from B, or B from C?; what is missing in those C-accredited study programs?* Another site¹⁸ allows visitors to find information on a specific study program but (unfortunately) without including its accreditation status. This portal contains information on contact details, vision and mission, highest degree of teaching staff and the students’ name for each study program. An operator from each study program

16 A work in progress is assigning public and private categories to those study programs at D3, S1 and S2 levels. The available database does not differentiate public and private HEIs against each study programs.

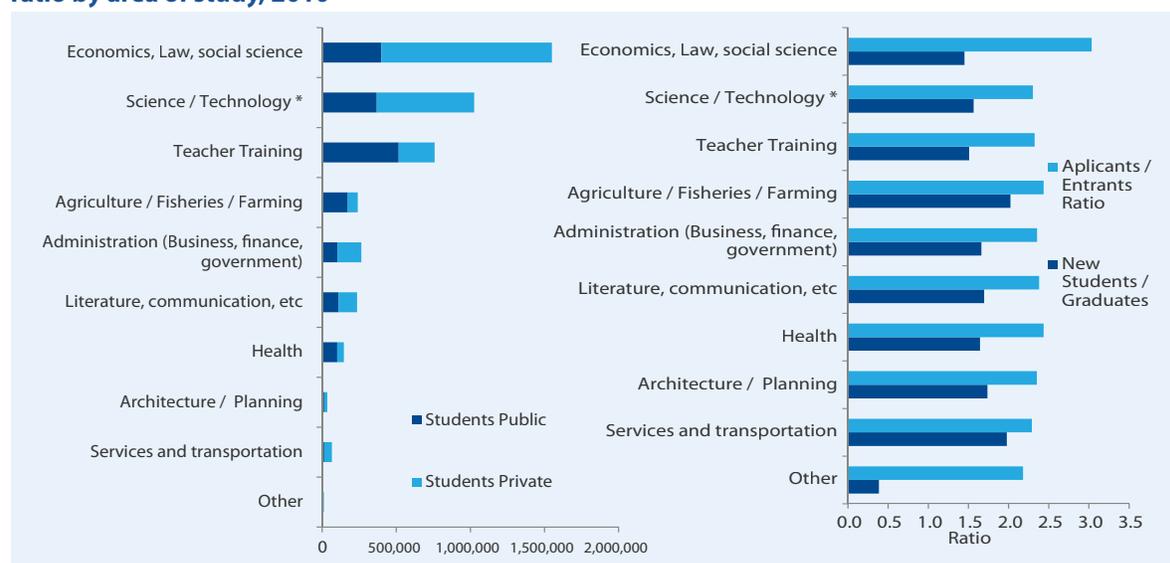
17 <http://ban-pt.kemdiknas.go.id/direktori.php>

18 <http://evaluasi.dikti.go.id/> recently (July 15th, 2013) redirected to forlap.dikti.go.id

is supposed to update these details¹⁹. As of July 29th, 2013, much of the desired information was missing. Another site²⁰ generates a summary analysis of HEIs, including the geographical spread of students, lecturers and study programs, but these are not based on accreditation level. These three separate database could be integrated to better inform potential students and employers as well as policy makers.

One out of every five HEIs students in Indonesia study economics, law and social science, while the majority of students in public HEIs enroll in teacher training programs. The high interest in economics, law and social science was confirmed with those programs having the highest applicants-to-entrants ratio compared to other study programs (see Figure 6). The high enrollment in teacher training can be attributed to the increased attractiveness of the teaching profession after the enactment of the Teacher Law in 2005, providing certified teachers a professional allowance amounting to 100 percent of the basic monthly salary. There was a growth of five times in the number of student enrolled in teacher training programs between 2005 and 2010 -- from 200,000 in 2005 to over one million students in 2010. These are recent high school graduates, excluding in-service teachers and *Universitas Terbuka* (Open University) students²¹.

Figure 6: Number of students by area of study and public/private status and applicants/entrants ratio by area of study, 2010



Source: MoEC (2010)

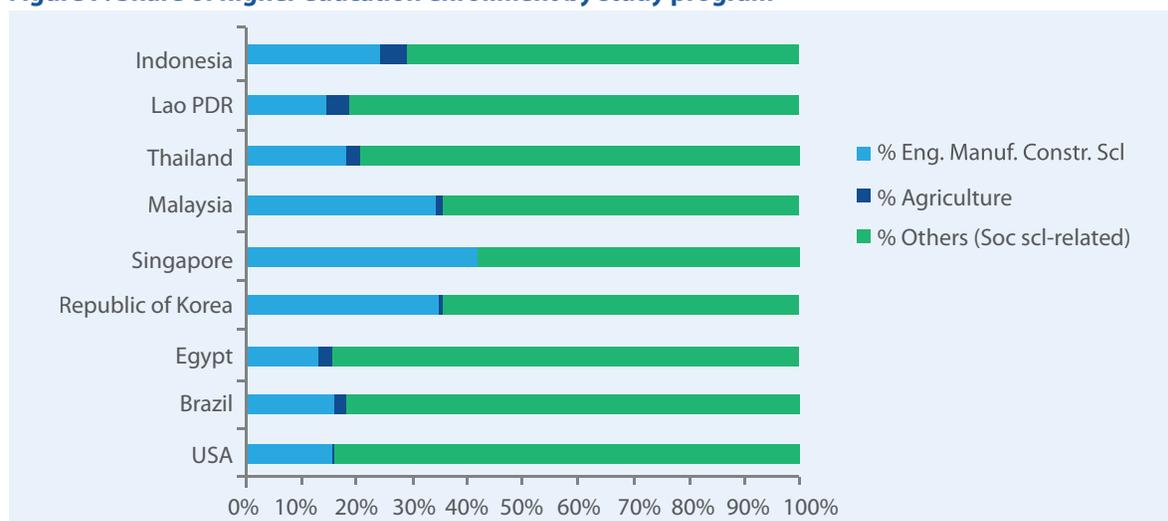
Indonesia is not an outlier in the high share of students in social science-related studies. This is the case in many countries in the East Asia Pacific region and also in highly populated countries such Brazil and the United States. In Indonesia, the share of students studying (natural) science and technology-related areas (engineering, manufacturing, construction) was a little more than 20 percent while the share exceeded 30 percent in Malaysia, Singapore and Republic of Korea.

19 Based on a recent circulation letter by Secretary General of DGHE, July 2013.

20 This portal, Pangkalan Data Pendidikan Tinggi (accessible at <http://pdpt.dikti.go.id/>), is mentioned in Chapter 56, Higher Education Law 12/2012

21 Teacher Reform in Indonesia: The Role of Politics and Evidence in Policy Making (2013a)

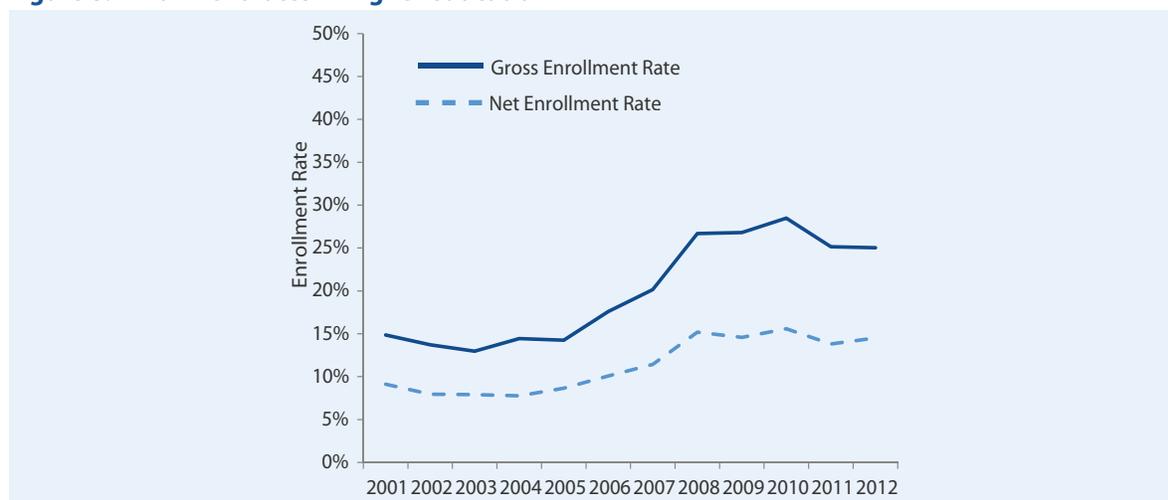
Figure 7: Share of higher education enrollment by study program



Source: <http://stats.uis.unesco.org/unesco/TableViewer/tableView.aspx> accessed on June 18th, 2013 Note: using latest available year, between 2010-2011.

There has been an impressive increase in the enrolment rate in the past decade, with female enrollment going higher than male enrollment in recent years. By 2010, the GER had doubled to 30% compared to 2001. There is an observed decrease to approximately 25 percent between 2010 and 2012. The fact that more women are enrolling in HEIs may soften the rise in earning inequality between men and women, as more women increase their productivity with more years of education. The increasing gap between NER and GER as seen in Figure 8 can be explained by the increase of out-of-age (above 19-23 years old) enrollment after the enactment of the Teacher Law in 2005, mandating all teachers to have a minimum of an S1 degree. For example, up to 500,000 in-service teachers (most likely to be above 23 years old) are actively enrolled in Open University, the traditional supplier of distance learning courses for upgrading teachers' knowledge and skills, to upgrade their current D1, D2 or D3 academic qualifications.

Figure 8: Enrollment rates in higher education

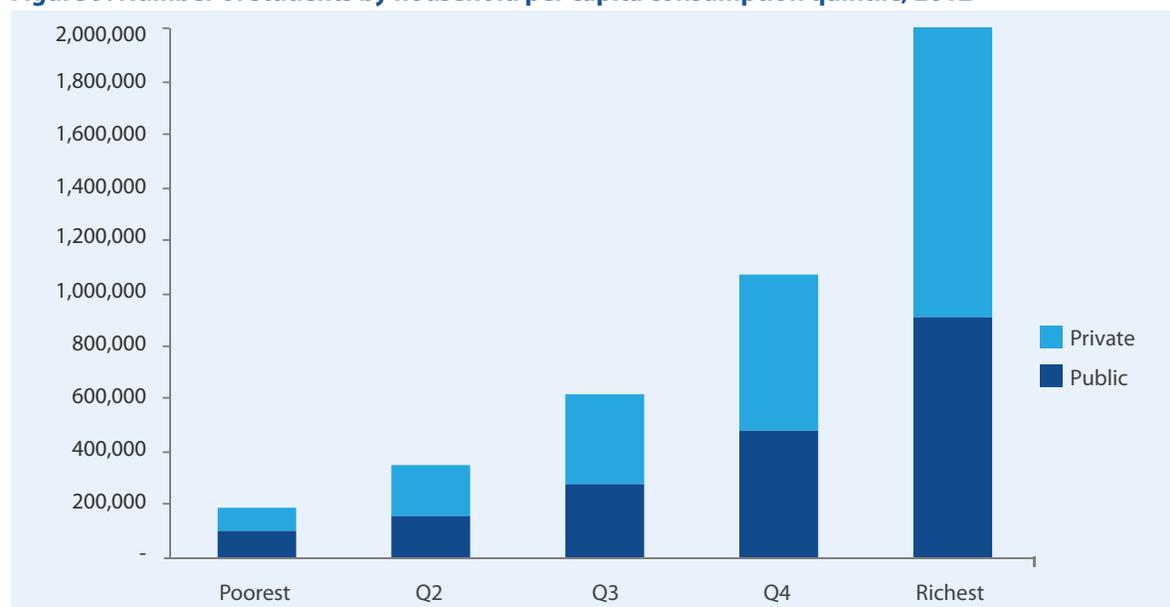


Source: Susenas (2001-2012)

The expansion will continue as the country opens up new D1 and D2 programs under Community Colleges (CC), at least one in each of the 500 districts, as mandated by the Higher Education Law 12/2012. As of mid 2013, up to 35 CC had received approval of their proposed study programs and were waiting for formalization. CC can be established out of a partnership between existing HEIs and industry or HEIs and district governments. Another 80 CCs are targeted to be formalized by the end of 2013.

Expansion in access has not been translated into an expansion in equity. The majority of HE students come from the top two richest quintiles of the society, with the biggest proportion coming from the richest group. There is only a fraction of enrolled students who come from the poorest households. Nevertheless, their continued participation reinforces the perception that higher education is important and that targeted scholarships are urgently needed in order to improve equity.

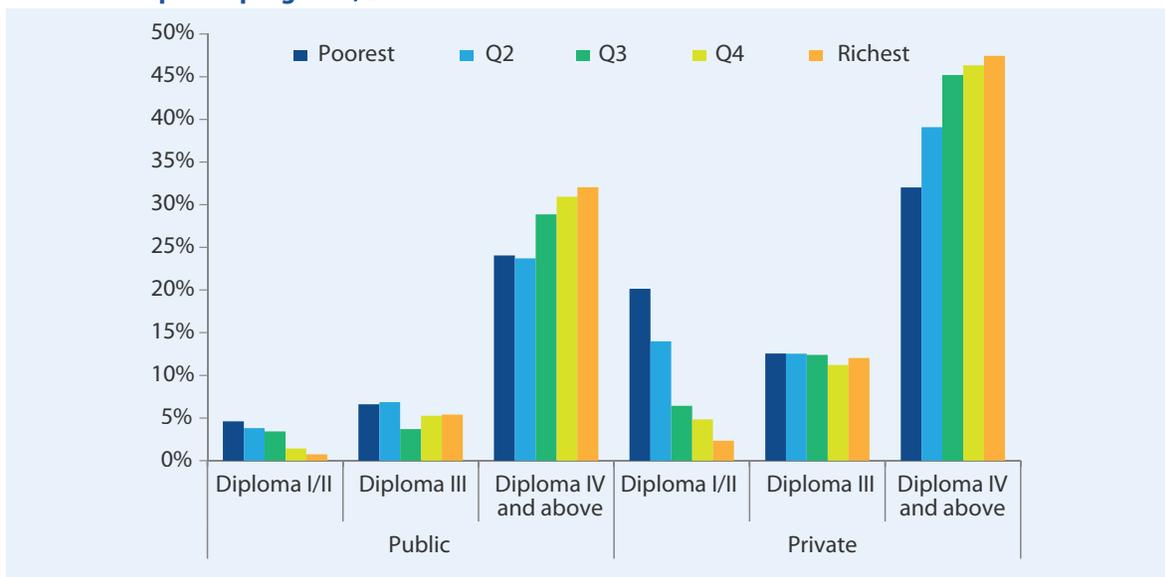
Figure 9: Number of students by household per capita consumption quintile, 2012



Source: Susenas, 2012

Students from the poorest quintiles opted more for D1 and D2 programs in both public and private HEIs, with a strikingly high share in private HEIs. A bigger share of the richest entered D4 and above programs, while at D3 there seems to be a more balanced proportion among the different quintiles. D1 and D2 entail less study time (only 1 to 2 years) and focus on getting graduates to be employed in the labor market. Smaller expenditures (i.e., tuition fees, accommodation, books) as a result of less study time may have been the rationale for the choice of the poor households.

Figure 10: Share of enrollment in public and private institutions by consumption quintile and by Diploma programs, 2009



Source: Susenas, 2009

As a summary, the higher education system has grown quickly in recent years. **Supply is concentrated in Java/Bali**, followed by Sumatra. The growth in enrollment has come mainly from the top two income quintiles, **from D4/S1 programs (as opposed to D1-D3)**, and is **biased towards social sciences (economics, law) and teacher training**. **Students from the poorest quintiles are no more likely to attend public institutions, but they are more likely to attend private D1 and D2 programs.**

A first look at the Indonesian system of higher education paints a mixed picture. As a system, not all the elements are in place (information and incentives). As a consequence, one would not expect a perfect alignment between the higher education institutions and the needs of the labor market. However, one would also not expect full isolation, especially given the large number of private providers who rely on fees for survival. So how ready are the graduates of the system? The next section looks at how graduates do in the labor market.



Public sectors, especially education, has the highest absorption of new graduates. Industry, on the other hand, absorbs fewer number of graduates, followed by the financial sector and real estate

Chapter 3

How do higher education graduates fare in the labor market?

The natural test for how well graduates are prepared to enter the labor force happens in the labor market. If graduates are active in the labor force, have “good jobs” and get a high return on their education, these are signs that their skills are demanded in the market. But this is not necessarily definitive evidence. Graduates may still not be realizing their potential if, for example, many are employed in sectors with low value added or slow growth. In this section we analyze the labor market performance of graduates.

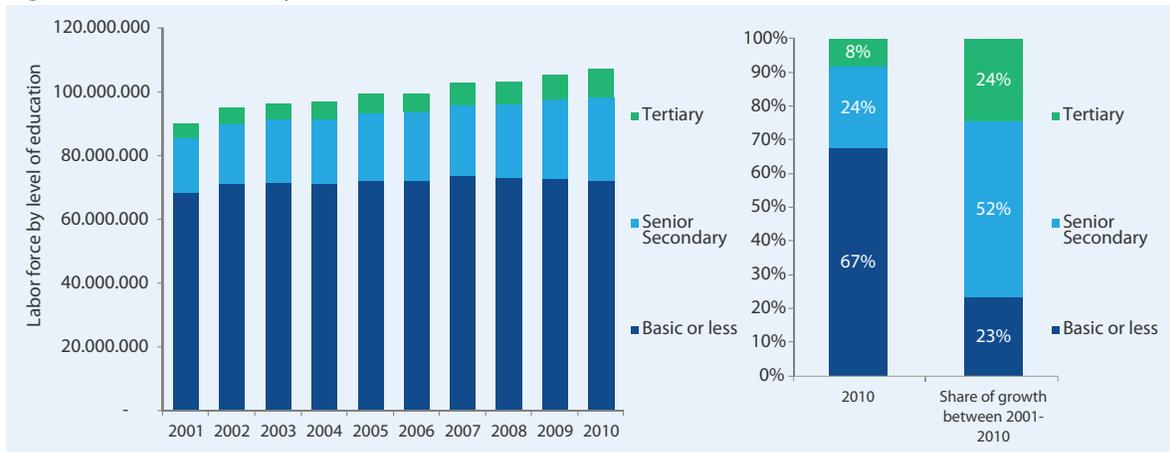
This section first analyzes the labor force for those with higher education, whether they are working, the sectors they are employed in, and the types of jobs and wage premium they get. The analysis supports the expansion of access to higher education as there is clearly room for more higher education graduates in the labor market. However, it also shows a disconnect between institutions and labor market demands, with the system producing graduates in sectors with very limited demand (teachers) while others are starved of graduates according to employers (manufacturing).

How well do workers in the labor force with higher education do?

Between 2001 and 2010, the labor force with higher education doubled, from almost 5 million to almost 10. The 5 million net increase in higher education graduates represented about 1/5 of the total growth in the labor force (Figure 11). While it is still less than the growth in the labor force with senior secondary education (a majority, with almost 1/2) and basic education or less (with 30 percent), this is a very

sizeable increase in the number of workers with higher education. However, despite this large increase, higher education graduates only accounted for 8 percent of the workforce in 2010.

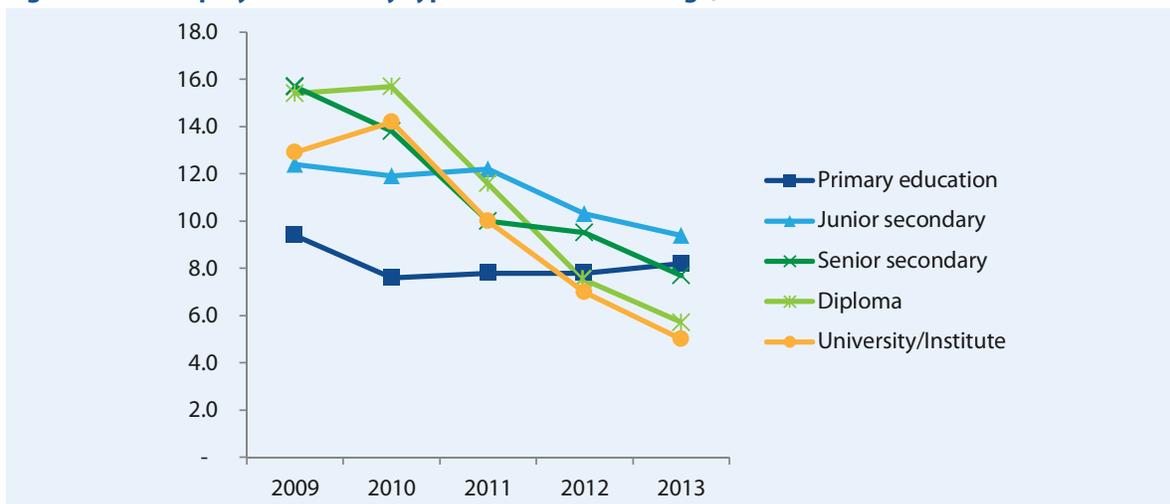
Figure 11: Labor force by level of education, 2001-2010



Source: Sakernas, various years

Higher education graduates are more likely to be active in the labor force participation. While almost $\frac{1}{4}$ and $\frac{1}{5}$ of the population of working age with basic education or less and senior secondary education, respectively, are out of the labor force, fewer than 10 percent of higher education graduates are. After reaching its peak in 2010, the unemployment rates for tertiary graduates have been declining more rapidly compared with that of junior and senior secondary graduates. It is interesting to note that the unemployment rate of the population with primary education has been slightly increasing since 2010. This trend seems to indicate that labor market opportunity for higher education graduates has been expanding significantly in recent years.

Figure 12: Unemployment rate by type of education and age, 2007-2013

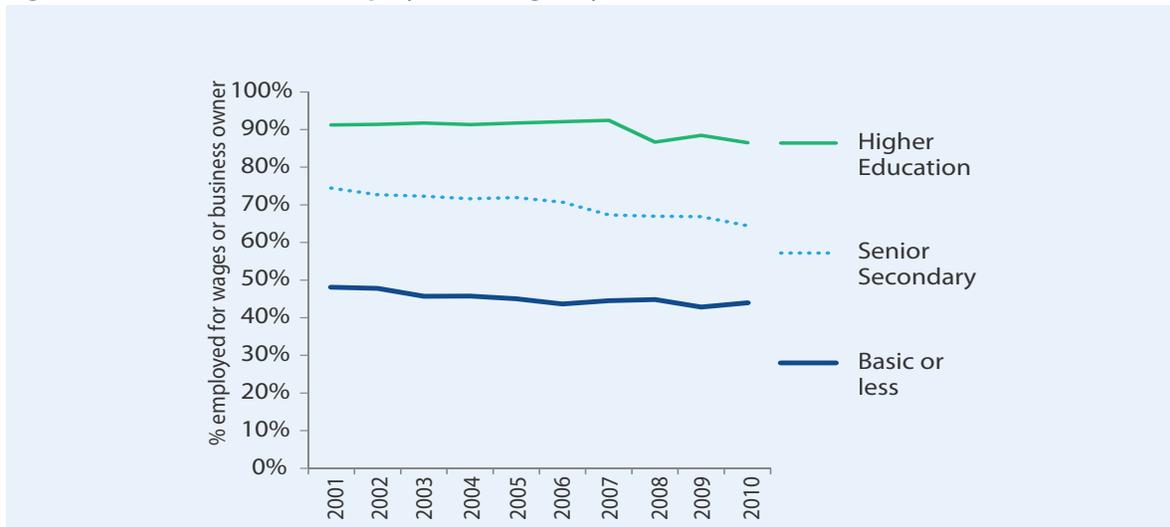


Source: BPS, 2013

When employed, higher education graduates tend to work under much better conditions. Using being employed for wages or owning a business as indicators of job quality, higher education graduates do much better than senior secondary education or basic education graduates. The percentage of those who report

being employed for wages, at 83 percent in 2010, is much higher than for senior secondary education and basic education. When adding those owning a business, the percentage is close to 95 percent.

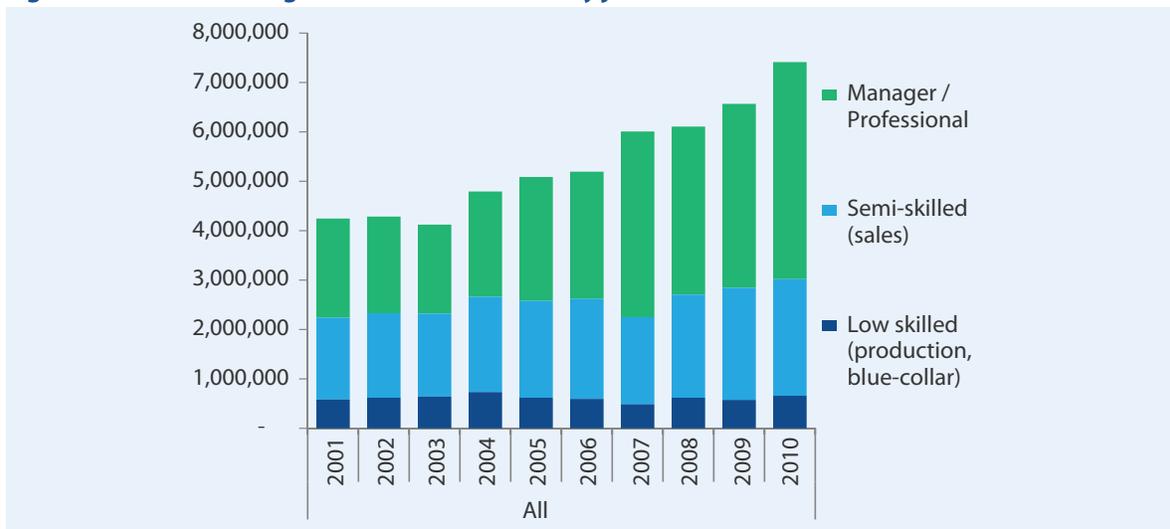
Figure 13: Share of workers employed for wages by level of education, 2001-2010



Source: Sakernas, various years

Most of these graduates are also employed in jobs according to their level of education. Most of the growth in jobs for higher education graduates has been in professional and managerial occupations, an indication that the demand for an advanced level of skills is high. By 2010, 60 percent of higher education graduates are in “manager” or “professional” functions (teachers, engineers, doctors), which require a certain degree of specialization and a high level of skills. An additional 30 percent are in semi-skilled functions (administrative professionals, sales, etc.), functions that require some skills without necessarily a high level of specialization. About 10 percent of them are in low skilled production and blue-collar jobs.

Figure 14: Number of higher education workers by job function

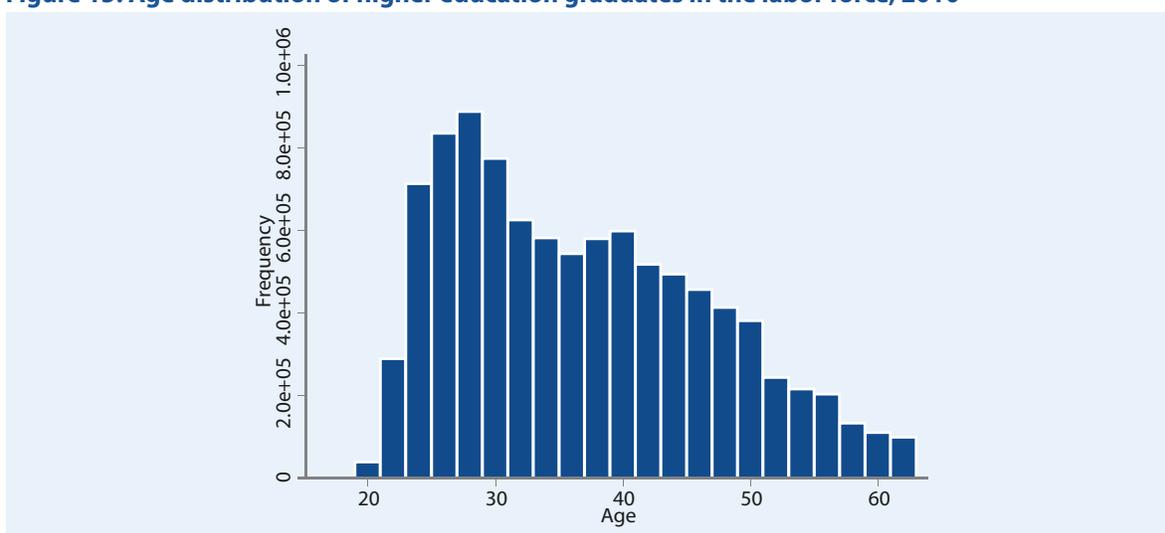


Source: Sakernas, various years

The returns to education have remained relatively constant despite the big influx of graduates, which signals that there is room for a significant expansion of the system. If the increased supply of graduates was overwhelming their demand, one would expect the returns to education to decline. This, while not necessarily a bad thing, would mean that the growth in the supply of graduates is exceeding the demand. But this is not the case in Indonesia – the demand for graduates seems to be keeping up with supply.

The population with higher education is young; 50 percent of the population with higher education is under the age of 35 (Figure 15). This group graduated within the last 10 years, and many have gone through the system recently. As the big push to increase enrollment in higher education progresses, more of these young workers will be entering the labor market. How they integrate into the market is a sign of their preparedness - a sign of the relevance of what they learned to the needs of the labor market they face. We look at how these young graduates do next.

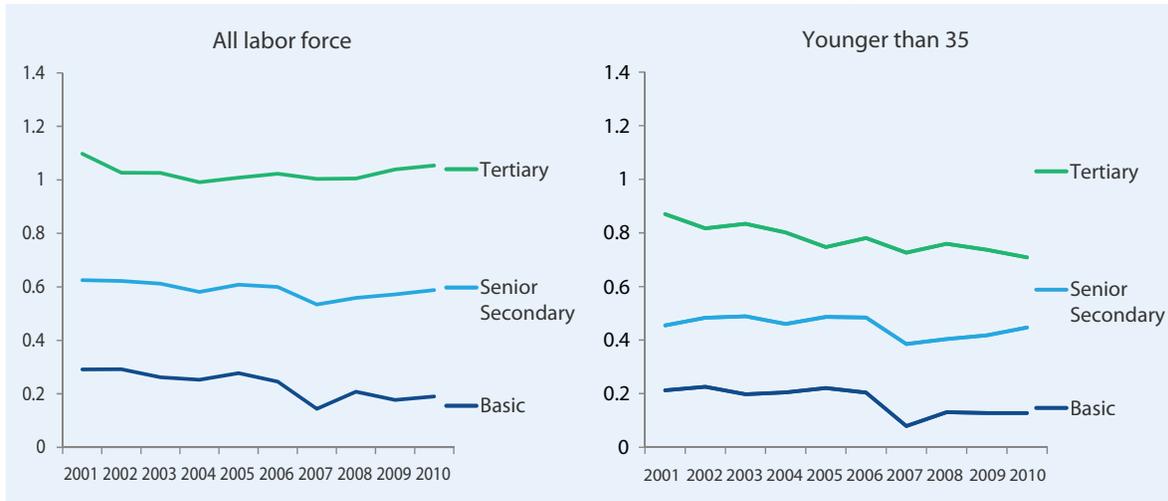
Figure 15: Age distribution of higher education graduates in the labor force, 2010



Source: Sakernas, 2010

The returns to higher education for young graduates have been declining in recent years. The decline is still slow, but understanding the reasons is important. To the extent this is due to the fact that graduates are becoming less scarce, this would be a natural result of the expansion, and the slow pace of the decline suggests there is room in the labor market. But if the decline is due to a mismatch between what graduates bring into the market and what employers demand, this may be a problem, especially as the system continues to grow quickly. Understanding where young graduates are employed may shed some light on these trends.

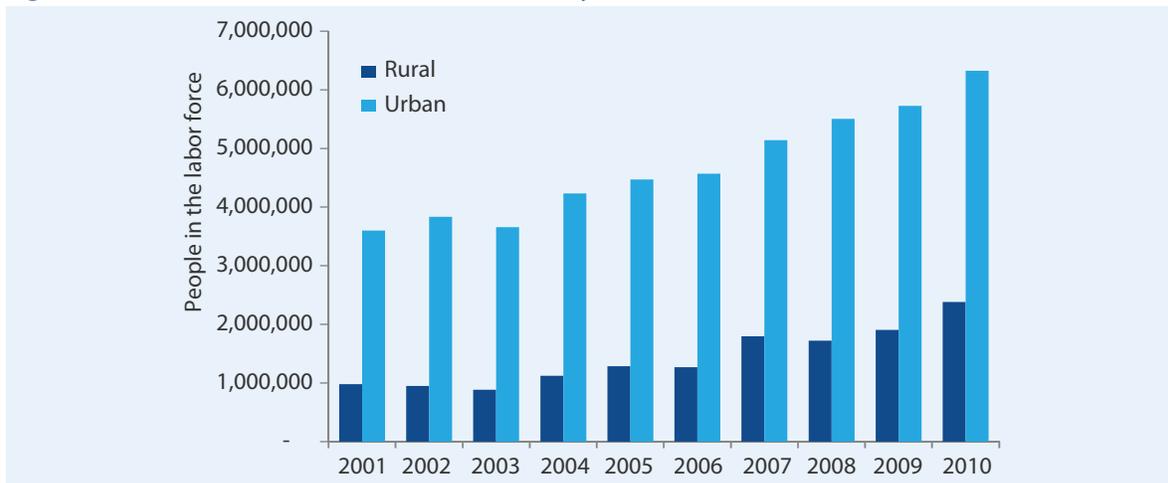
Figure 16: Trends in returns to education, all labor force and those younger than 35, 2001-2010



Source: Authors' calculations using Sakernas, employed for wages

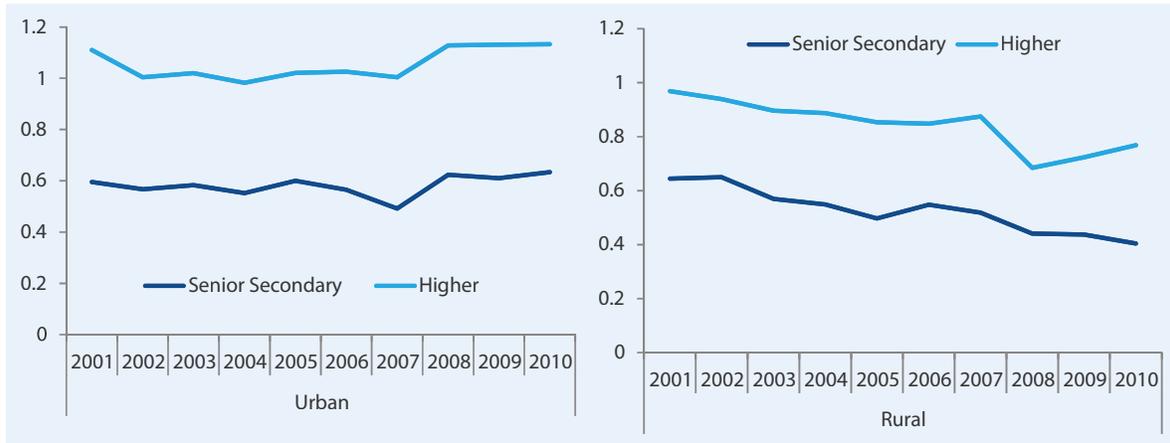
Most of the increase in the number of graduates in the labor force has been in urban areas, though in percentage terms, the number of workers with higher education in rural areas has more than doubled. At the same time, the returns to education in rural areas are falling quickly, which may partly explain the overall decline.

Figure 17: Labor force and returns to education by urban / rural location, 2001-2010



Source: Sakernas, various years

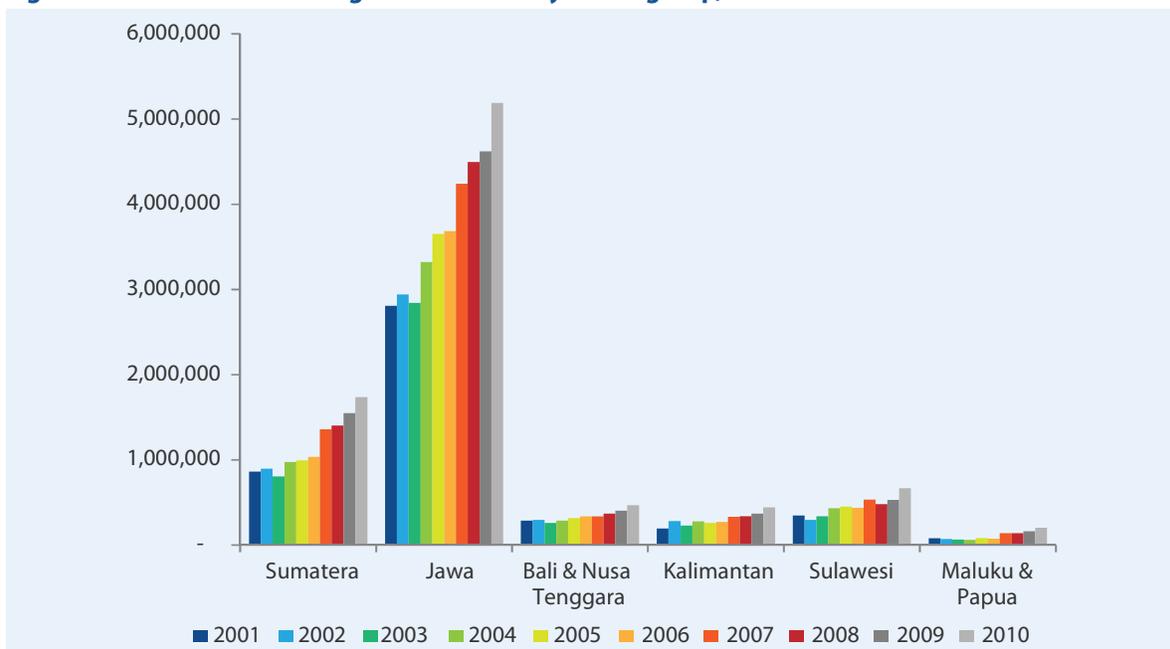
Returns to Education 2001-2010



Authors' calculations using Sakernas

Most of the growth was in Java and Sumatra: the two islands are host to 80 percent of graduates in Indonesia (60 percent in Java alone). A distant third is Sulawesi, which hosts 8 percent of graduates. In the last decade, there have been no major differences in growth rates across island groups.

Figure 18: Labor force with higher education by island group, 2001-2010



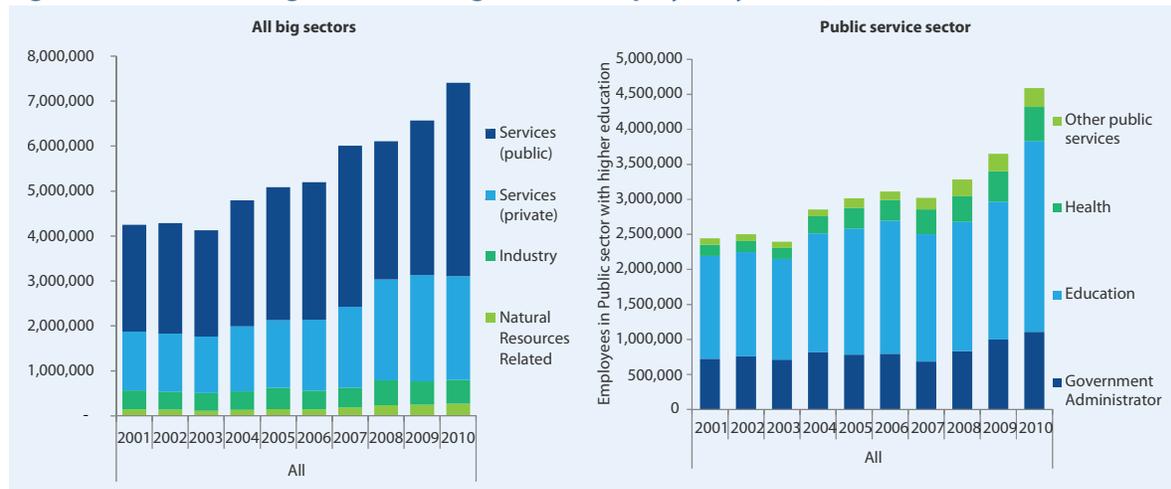
Source: Sakernas, Various years

In which sectors are higher education graduates employed?

Higher education in Indonesia produces workers mainly in the service sectors, essentially public services (education, health and government administration). Almost 2/3 of graduates are employed in sectors classified as public services (education, health care, government administration and other social services). The public services sector has also seen the fastest growth in recent years, mainly in the

education sector. Almost $\frac{3}{4}$ of higher education graduates working in the public services sector in Indonesia are employed in the education sector, mostly as teachers. Private services, which include wholesale trade, hospitality, the financial sector, construction, etc., employ the second largest share of graduates – about $\frac{1}{3}$ of graduates. The manufacturing sector employs a very small share of graduates – only 7 percent. Natural resource-related sectors (agriculture, fisheries, mining) employ a tiny share of graduates (3 percent).

Figure 19: Number of higher education graduates employed by sector, 2001-2010

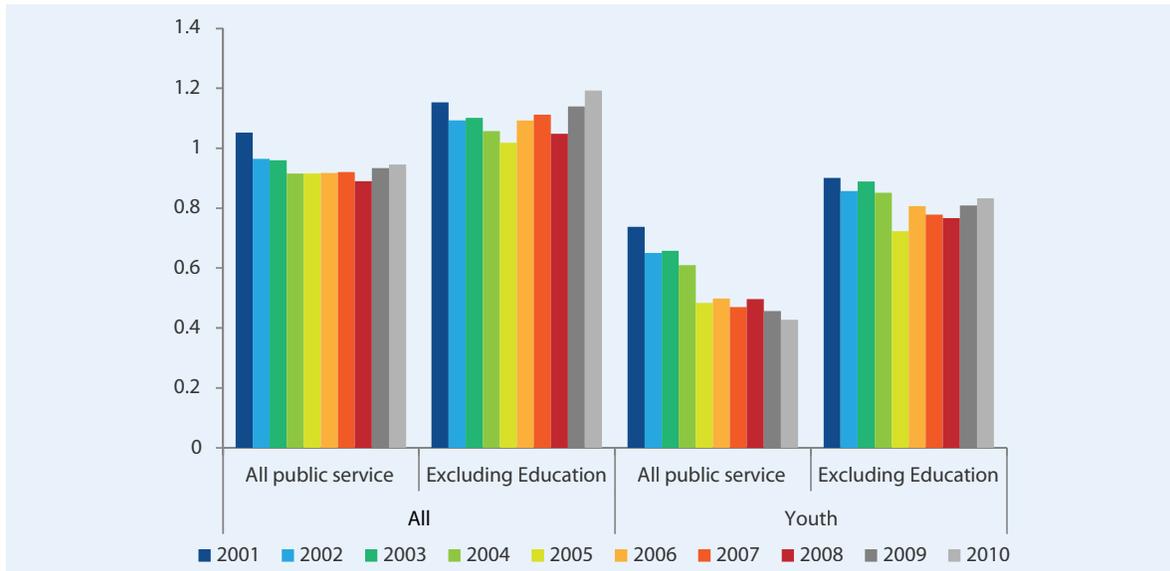


Source: Sakernas (various years)

The sectoral distribution of employment goes a long way in explaining the broad indicators of the labor market performance of graduates. As this section has shown, when looking at the entire labor force, higher education graduates seem to be doing well. They are more likely to be active in the labor force, though slightly more likely to be unemployed; they get better jobs at higher wages; and the returns to education, despite the large influx of graduates, seem to be largely constant. They are increasingly in high skilled “professional and managerial” positions. The fact that almost 60 percent are in public sector jobs and 40 percent are teachers goes a long way to explain these trends.

The influx of new graduates from teacher training colleges has resulted in a sharp drop in the returns to education in the public sector. Figure 19 shows the returns to education in the public sector for both the whole labor force and those younger than 35 years old, with and without the education sector. The education sector explains the declining trend in returns for the public sector. Excluding the education sector turns the trend flat.

Figure 20: Returns to tertiary education in the public service sector, with and without the education sector, 2001-2010

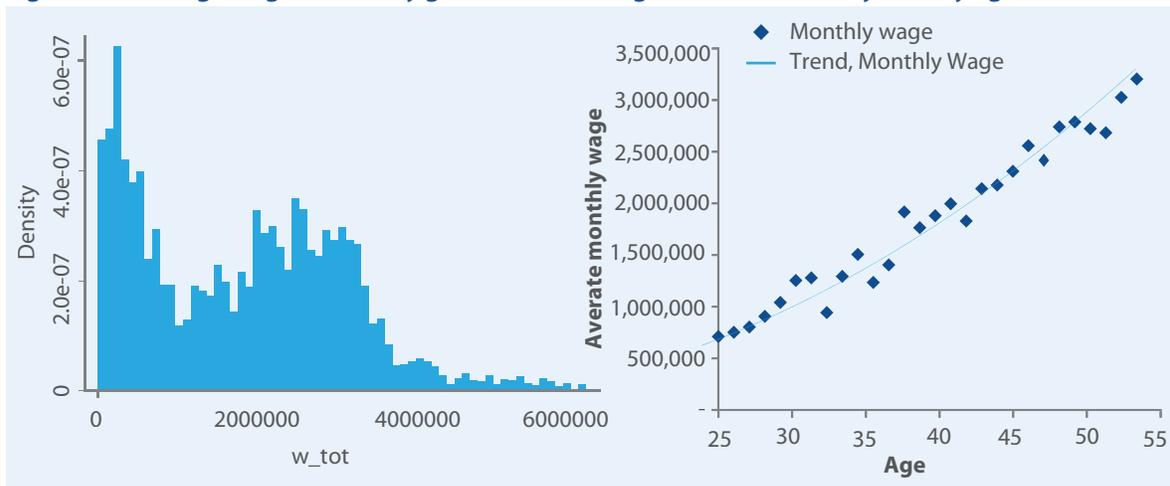


Source: Authors' calculations using Sakernas

What is driving this declining trend in wages? Despite what the teacher certification law promises, the distribution of teacher salaries is well below what the salary scale of a certified teacher promises.

In fact, about 40 percent of teachers are below the starting salary of a civil servant teacher (1.8 million, see Figure 20) which means they are under a different kind of contract. Since these teachers are not under civil servant contracts, their salaries are more likely to be driven by supply and demand. The large influx of new graduates from teacher training colleges may be driving down the returns to education for teachers.

Figure 21: Average wage of tertiary graduates working in the education system by age, 2010

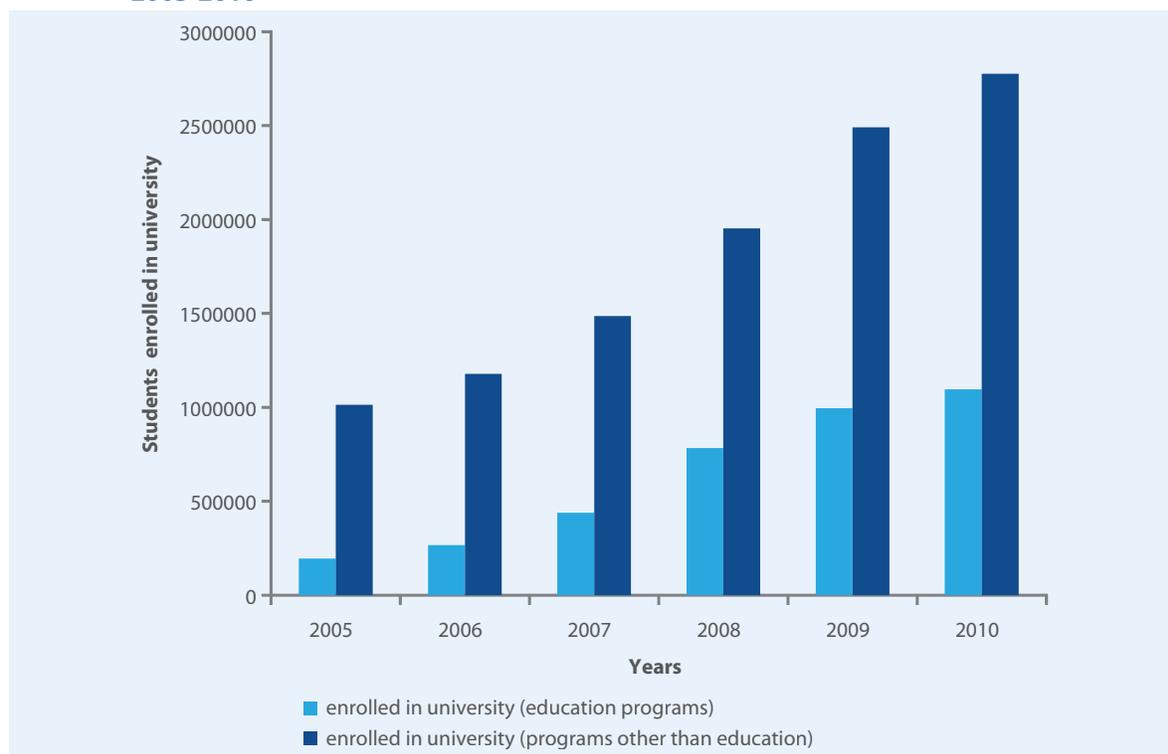


Source: Sakernas 2010

Despite the decline in the returns to education in the teaching profession, the demand for teacher training programs is not slowing down. The increased demand has resulted in a fast growth in the number of students enrolled in teacher training colleges. Enrollment in teacher training colleges tripled between

2005 and 2010. This large demand for teacher training colleges may have a bigger negative externality than only driving down contract teacher wages. To the extent that enrollments in teacher training colleges crowd-out enrollment in other degrees, thus starving non-public sectors of capable graduates, this trend may have an additional cost in terms of the competitiveness of other sectors.

Figure 22: Enrollment growth in education and non-education higher education programs, 2005-2010



Source: MoEC, DIKTI (<http://www.pdpt.dikti.go.id/dashboard/v002/>), all students of all study programs combined, then all student of education programs (excluding in-service and the Open University)

It is difficult to discern whether the higher education sector is supplying what the labor market demands. In principle, social service sector jobs may add value to the economy and may be demanded in the market. If enough public sector jobs are being offered, with the monetary and non-monetary benefits associated with them, it is only natural that the higher education sector reflects these demands. This may explain the high demand for economics, law and social science degrees, as well as teacher training colleges. But what about other sectors of the economy? Teachers and government administrators alone are unlikely to be the force for competitiveness in Indonesia. In fact, manufacturing and natural resource-related sectors are higher providers of jobs and bigger contributors to GDP growth. In the case of teachers, recent research has shown that there are too many teachers for international standards²². So why is the higher education sector producing so many teachers when there is no demand for them?

22 Spending more or Spending better: Improving Education Financing in Indonesia, World Bank (2013b)



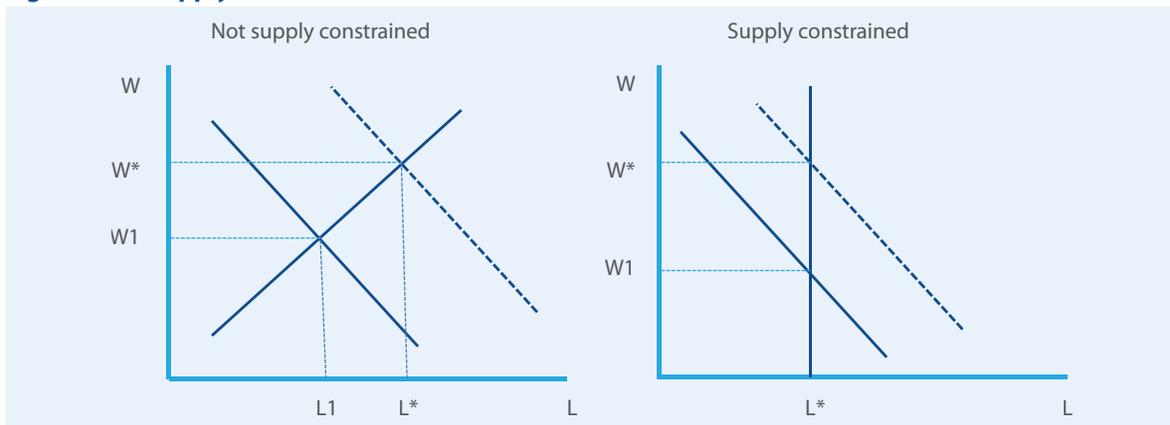
Comprehensive mapping of skills supply and demand is only useful if the resulting labor market information is both increased in volume and better distributed

Chapter 4

Identifying disconnects: Employment growth versus returns to education

There are two main ways to identify skill constraints. One is asking employers who are the recipients of graduates and are best positioned to assess the skills of applicants. One might argue that eager employers may overstate their skill constraints, but differences across sectors should reflect differences in the skills constraints. The second is to compare the growth in employment and in wages to look for indications of supply constraints. If there is a severe shortage of skilled graduates of a certain kind (sector, type of degree), one would expect the returns to education to increase more in that group while employment remains relatively constant. If graduates are too plentiful, however, employment may or may not grow but the returns will not increase and may decline. Figure 22 illustrates this with a simple supply and demand model. While the returns to education in a sector may reflect many factors, large differences in trends on returns should be a sign of a mismatch.

Figure 23: A supply constrained labor market



If we apply this logic to the different types of degrees (D1 D2, D3 and D4 and above), **it is clear that the demand for D1 and D2 graduates is decreasing rapidly**. The returns to these types of programs in the labor market have fallen rapidly over the last decade. By 2010, D1 and D2 graduates made only an average of 10 percent more than a senior secondary graduate. Considering that the share of graduates with D1 and D2 degrees also fell during the period as most D1-D2 programs were closed down, this indicates that the demand for these types of programs as they are currently delivered is very low, perhaps because of their low quality.

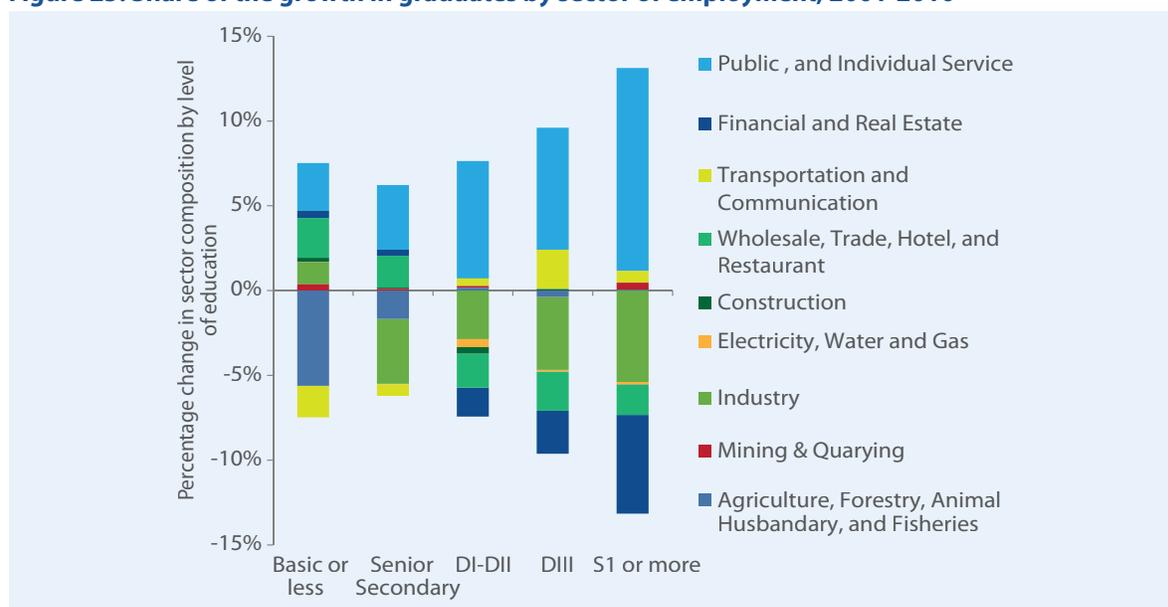
Figure 24: Returns to education by type of degree, 2001-2010



Source: Authors' calculations using Sakernas

When applying the same logic to sectors of employment, there is a clear shift in the choice of sector for new graduates, from private sector jobs to public sector jobs. Figure 24 shows the distribution of the increase in higher education graduates by sector. Sectors above the 0 line have seen an increase in higher education graduates and sectors below have seen a decrease in the share of these graduates. The sector that has received the largest share of new graduates, by far, is the public sector, especially education. Industry, on the other hand, is the sector that has received the fewest graduates, followed by the financial sector and real estate.

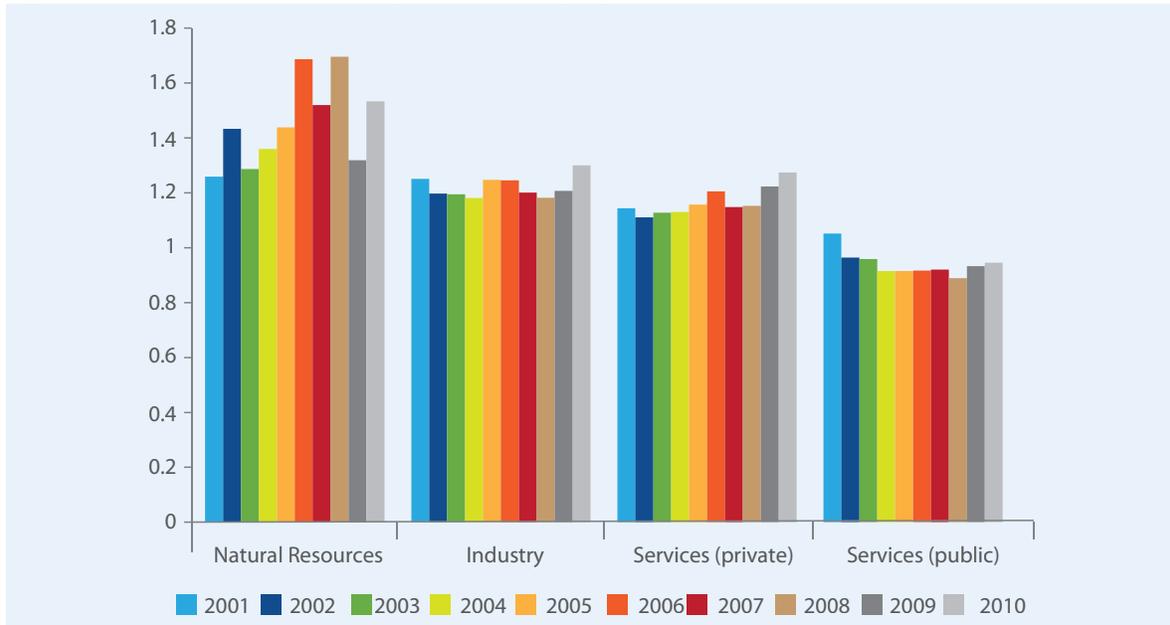
Figure 25: Share of the growth in graduates by sector of employment, 2001-2010



Source: Authors' calculations using Sakernas

At the same time, the returns to education follow the opposite trend: returns in industry and private services are increasing, while returns in the public service sector are decreasing, driven mainly by the returns to teacher training. The fact that this is not preventing increased demand for teacher training programs despite the known oversupply of teachers is an indication that the system is not responding to labor market demands.

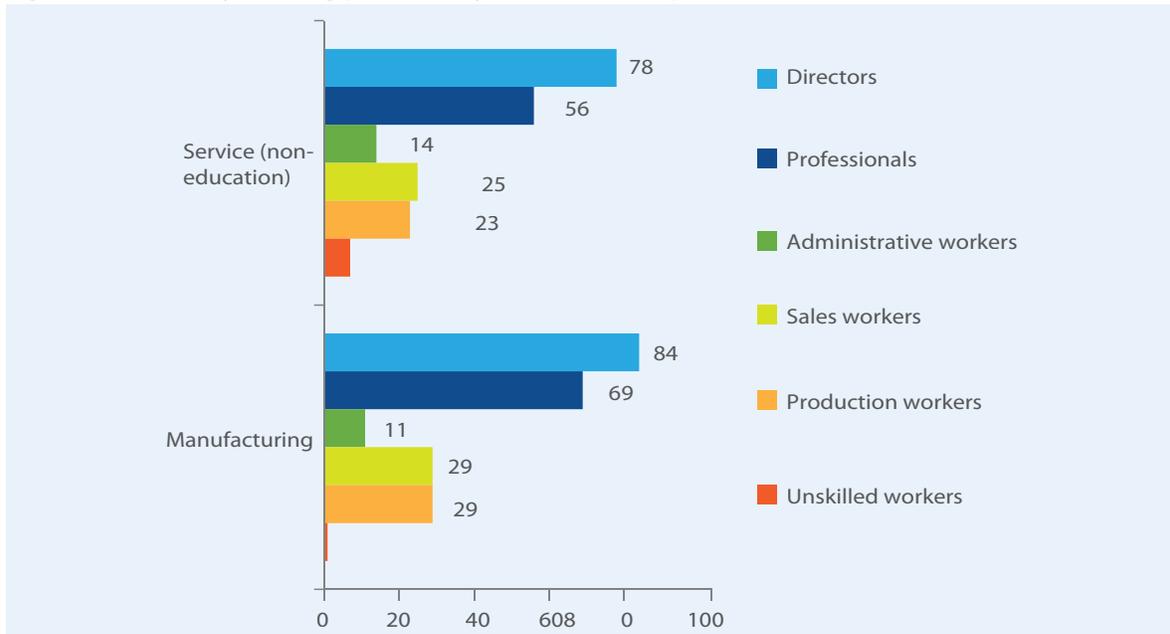
Figure 26: Returns to education by sector of employment, all labor force, 2001-2010



Source: Authors' calculations using Sakernas

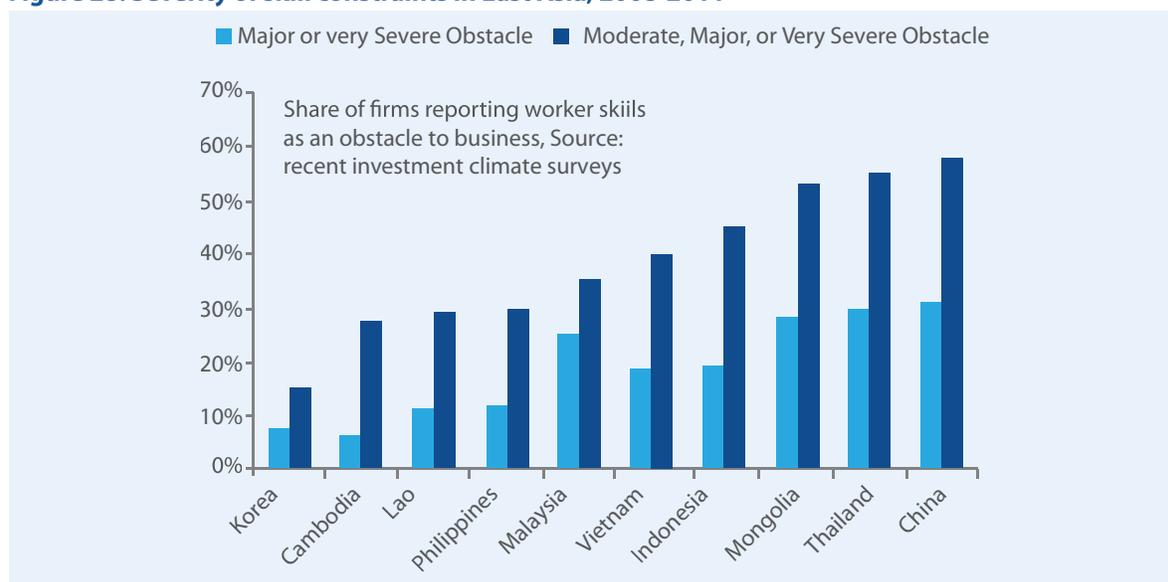
Asking employers reinforces the evidence of these mismatches. In an employer survey carried out in 2008 by the World Bank, firms in non-education services and manufacturing were already complaining about difficulties filling skilled positions. In the manufacturing sector, 69 percent of firms said it was hard or very hard to fill professional positions (engineers, for example). A worrisome trend is that compared to other countries in the region, more employers in Indonesia consider worker skills as an obstacle to business.

Figure 27: Difficulty in filling positions by level of skill required, 2008



Source: World Bank (2010b)

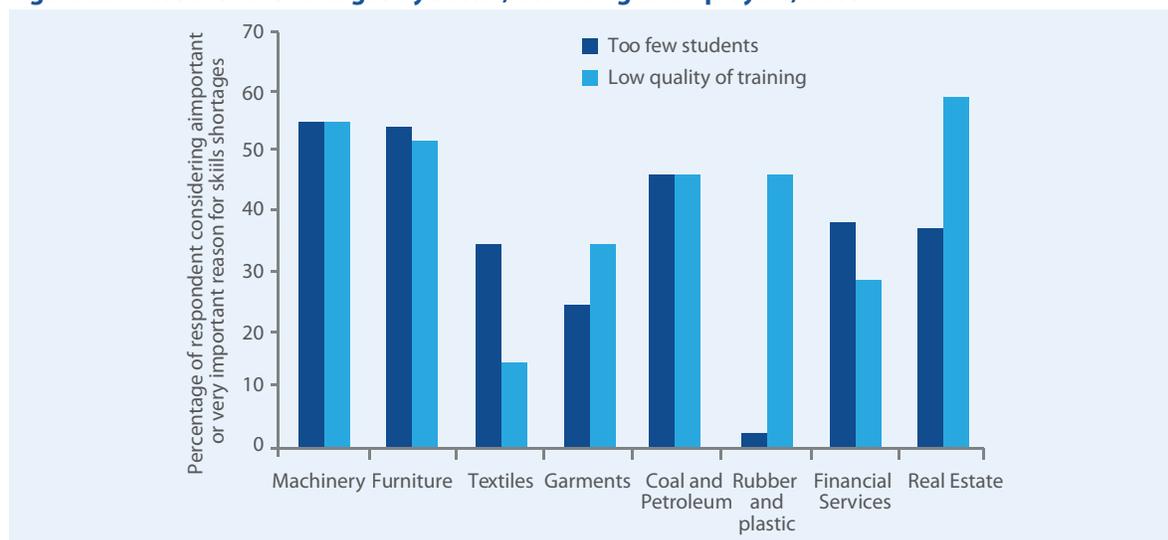
Figure 28: Severity of skill constraints in East Asia, 2008-2011*



Source: World Bank Enterprise Surveys, various years. *Note: Different years for different countries between 2008 and 2011

Asking employers also reveals important differences in the nature of the constraints: quantity or quality of skills. In many sectors employers attribute the shortage of skills in the sector to a lack of graduates (for example, financial services or textiles) more than to the quality of the skills of graduates; in other sectors (rubber and plastic or real estate, for example), it is the opposite. While the data does not allow for much analysis at this level, these differences are further indication that the system is not responding to demand. This disconnect is illustrated for the palm oil industry in Box 1.

Figure 29: Reasons for shortages by sector, according to employers, 2008



Source: World Bank (2010b)

Box 1: Demand for Professional Labor in Palm Oil Industry

The palm oil industry has been experiencing rapid growth in the last five years, driven mainly by the surge in commodity prices. As a result, demand for professional labor in this sector has been increasing both in the upstream and downstream industries. In the upstream industry, particularly for plantations and mills, there is high demand for assistant manager positions with D3 qualifications. Most employers prefer to recruit D3 graduates who are perceived as more appropriate than S1 graduates. In order to meet the demand for professional labor, the industry has either developed its own education/training institutions or developed cooperation with other independent education/training institutions.

In the downstream industry, particularly for oleochemical industry, there is high demand for chemical engineers, mechanical engineers and electronic engineers. Employers find it difficult to recruit professional labor who have familiarity with the processing systems at the factory level. A newly hired worker will need induction training and system orientation for about one year. They need to be trained in terms of both hard and soft skills. The hard skill subjects include knowledge about the industry, production processes and operation of the equipment. Meanwhile, the soft skill subjects include coaching, counseling, problem solving, decision making and supervising skills. There seems to be a shortage of professional labor at S1 and D3 level which is shown by frequent "labor hijacking"²³ among oleochemical companies.

Unfortunately, local public higher education institutions are not responsive enough to fulfill the demand for professional labor by the industry. There are several factors explaining the disconnect between higher education institutions and industry. Internally, the lack of connection between the curriculum at higher education institutions and the needs of the industry; the lack of funds and experts to develop relevant curricula; and the lack of teaching staff with industrial experiences. While externally, there is an observed lack of incentives for civil service staff in HEIs to take the extra mile in communicating and institutionalizing partnership with industry. For those HEIs who are successful in partnering with the industry, for example between Bogor Agricultural University (IPB) and PT. Sinar Mas, an identified enabling element is the active role by IPB alumni who are employees in PT. Sinar Mas.

The evidence presented suggests a significant disconnect between the higher education system and the labor market. While the sector has almost one million students getting prepared to become teachers, there are no plans to expand the current number of civil servant teachers. If one does not become a civil servant teacher, the returns to studying at a teacher training college are very small. Meanwhile, employment growth is slow in some sectors where returns are increasing. When coupled with employer surveys, the disconnect is evident.

23 Labor hijacking, referred in focus group discussions and in-depth interviews during the assessment, is a practice of recruiting (by offering higher incentives to move out) employees from other companies in order to have experienced workers, usually from competitor companies, thus resulting in access to relevant expertise with minimum re-training cost.



Evidence indicates that information on Indonesia's labor market is inadequate and unequally distributed. When parents and potential students do not have access to information about job opportunities, their choices are unlikely to reflect those opportunities.

Chapter 5

Improving the relevance of the system for current and future labor market needs: Focusing on the system

If there are two key messages to take away from this report, the first is that there is still significant room to absorb more higher education graduates, so increasing access to higher education should be a priority. The second is that the current system is not responding to the dynamics of the labor market, producing important skills mismatches. Unfortunately, finding signs of mismatches is much easier than solving them. Going back to the framework presented in Section 1, the relevance of higher education will depend on an effective system, with information and incentives as the most important components of the system. As this report has shown, the shortages in these components (information and incentives) are preventing the system from responding to labor market demands. More concretely, the analysis suggests three areas for improvement:

- i. availability of labor market information,
- ii. an improved quality assurance system, including accreditation, and
- iii. the financing and governance of institutions.

While providing detailed recommendations in each of these areas is beyond the scope of this report, in this section, we suggest the main areas for improvement, highlighting what previous and on-going work has identified potential improvements in each of these areas.

The first recommendation is to increase knowledge about the higher education system and to further identify and understand the nature of the skill mismatches. In particular, a complete mapping of the demand for and supply of skills, including cognitive, technical and non-technical (social and behavioral) skills, in different economic sectors would provide a clearer picture of what graduates are missing and where they show strengths. Tools such as the World Bank STEP survey, underway in some countries in the region, would be of great value for policy makers.

The other recommendations have to do with **information** (about labor market opportunities and the quality of institutions) and **incentives** (specifically governance and financing).

Availability of labor market information

Evidence indicates that the availability of labor market information in Indonesia is inadequate and unequally distributed. When parents and potential students do not have access to information about job opportunities, their choices are unlikely to reflect those opportunities. This may be the source of many of the inefficiencies shown in this report.

Some countries have established **labor market observatories to address this lack of information.** These observatories are searchable data platforms to compare employability and salaries across types of degrees or institutions, as well as information about the quality and cost of programs. They also provide forums and lists of job openings for both students and employers to use. These systems rely on the quality of the data available at the Ministry so it is crucial that **institutions collect more and better data on their graduates' performance in the labor market.**

Quality assurance system

The quality of higher education in Indonesia is high on the national agenda. It is also a complicated area given that it involves not only the government and higher education institutions themselves, but also the private sector and the range of quality assurance and accreditation agencies mentioned in previous sections. It is therefore imperative that the future development of the quality assurance and accreditation system and process be guided by a road map and by clearly articulated objectives and action plans.

The quality of the institutions and programs they are considering to attend is another key piece of information that parents and students need in order to make the right choice. Thus, the accreditation system should be transparent and agile to be able to respond to the continued growth in programs and institutions. The system also needs to be credible and kept current.

The availability of websites (BAN-PT's accreditation database, DGHE's database and summary analysis website, and university study programs' websites) is a step in the right direction, but they need to be consolidated into one expanded and improved system. Efforts to unify or better integrate them may help potential students (and parents) to make more informed decisions on the quality of the various streams (vocational streams such as D1, D2, D3 and D4, or the S1 academic stream) and of the thousands of study programs across the country. Additional information such as the cost of studying, the average income provided by future employers along with scholarship opportunities would enrich the integrated database. This could also be used by researchers and policy makers, especially as the various regulations and activities are being prepared based on the recently enacted Higher Education Law. A broader analysis of, and recommendations for, the quality assurance system is provided in another paper²⁴.

24 Quality Assurance in Indonesia: Building on Strengths, Navigating Change (2013)

Financing and governance

Autonomy in decision making is a pre-requisite for institutions to respond appropriately to incentives, but autonomy needs to come hand in hand with accountability. HEIs should be given adequate incentives to fulfill their objectives. The incentives should be aligned with their performance indicators, which cannot be too ambitious or complicated to monitor. HEIs' performance should be measured by their responsiveness to the need of the industry and community, their contribution to quality teaching and academic excellence, and their contribution to local economic development.

Public and private institutions respond to different incentives so it is important to more closely align these incentives so that institutions respond to labor market demands. The specific financing of public institutions has a clear set of incentives for these institutions. For example, non-autonomous universities which are financed based on inputs have many fewer incentives to adapt. Per capita financing of universities may increase their incentives to adapt (to attract more students). An even stronger incentive to capture students is faced by private institutions. Since they receive no public resources, they are likely to focus on low-cost programs. The way institutions are financed shapes their incentives so it is important that the financing system provides the right incentives, which include the following:

- Expand support to private institutions. There are externalities from higher education quality, so public support of private providers is justified.
- Move to performance-based financing of public institutions. While moving to per-capita financing is a step in the right direction, it may still not encourage adaptability to the labor market demands. However, direct incentives in the form of financing based on results (employability of graduates, for example) may work in Indonesia.
- A mix of per-student financing (including for some private institutions), performance-based financing (to provide additional funds to high performing institutions) and competitive grants (to achieve specific objectives, such as accreditation) may be best suited to address the wide variety of institutions in Indonesia²⁵.

Finally, there may be a need to explicitly establish and incentivize active forms of collaboration between higher education institutions and the private sector. These may take the form of contracts for research, internships and apprenticeships and staff exchange programs. While some of these initiatives exist in Indonesia, they are scattered and rare, mostly driven by specific initiatives in certain institutions. Institutionalizing them might require providing specific incentives and linking them more explicitly to financing and/or accreditation.

25 See options for Higher Education Financing in Indonesia (2013), draft

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