

Indonesia: Preparing Indonesian Youth for Transition

Issues and Policy Agenda for Senior Secondary Education

Human Development
East Asia and Pacific Region



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■ List of Abbreviations

APBN	State Budget (<i>Anggaran Pendapatan Belanja Negara</i>)
BAN	National Accreditation Board (<i>Badan Akreditasi Nasional</i>)
BOP	School Operational Grant from local government (<i>Bantuan Operasional Pendidikan</i>)
BOS	School Operations Grant from central government (<i>Bantuan Operasional Sekolah</i>)
BSNP	National Education Standard Agency (<i>Badan Standar Nasional Pendidikan</i>)
D1, 2, 3, 4	Post-secondary diploma (1-year), (2-year), (3-year), (4-year)
Ebtanas	National Final Learning Evaluation (<i>Evaluasi Belajar Tahap Akhir Nasional</i>)
GER	Gross Enrollment Ratio
IFLS	Indonesia Family Life Survey
KTSP	Education Unit Level Curriculum (<i>Kurikulum Tingkat Satuan Pendidikan</i>)
MI	Islamic Primary School (<i>Madrasah Ibtidaiyah</i>)
MoNE	Ministry of National Education
MSS	Minimum Service Standard
MT	Islamic Junior Secondary School (<i>Madrasah Tsanawiyah</i>)
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
PISA	Programme for International Student Assessment
PSP	Education Statistics Center (<i>Pusat Statistik Pendidikan</i>)
SMA	General Senior Secondary School (<i>Sekolah Menengah Atas</i>)
SMK	Vocational Senior Secondary School (<i>Sekolah Menengah Kejuruan</i>)
SMP	Junior Secondary School (<i>Sekolah Menengah Pertama</i>)
SAKERNAS	National Labor Force Survey (<i>Survei Angkatan Kerja Nasional</i>)
SUSENAS	National Household Socioeconomic Survey (<i>Survei Sosial Ekonomi Nasional</i>)
TIMSS	Trends in International Mathematics and Science Study

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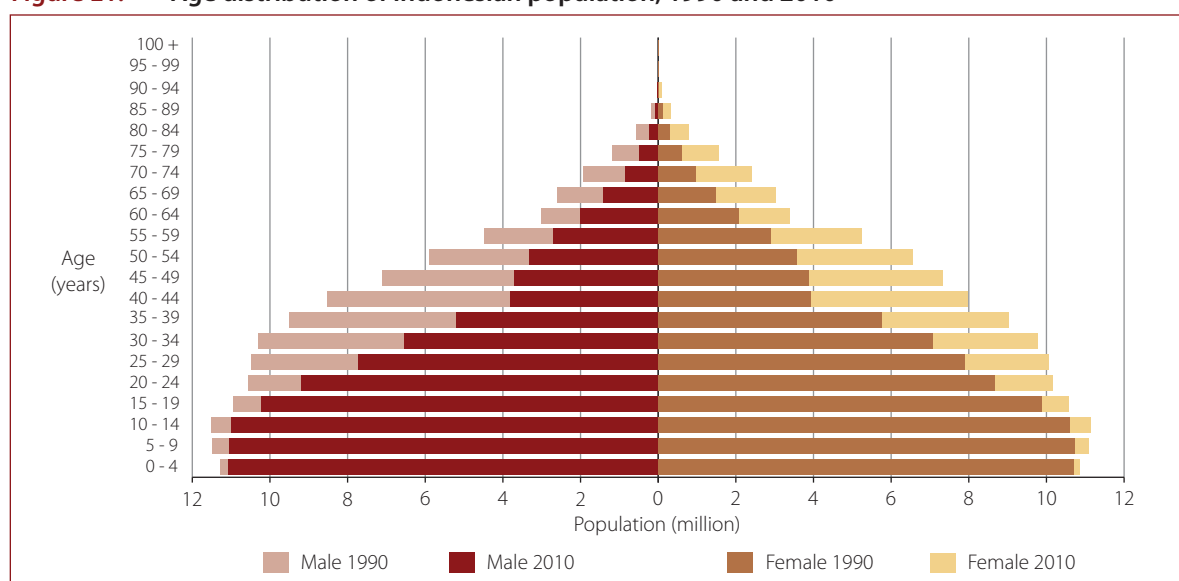
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■ Executive Summary

Senior secondary education has become of increasing importance, as most countries throughout the world have achieved universal primary education and many are well on their way towards completion of 9-year basic education or more. Indonesia is no exception to these trends and has set the goal of expanding senior secondary education most recently. Reaching this goal is not without critical challenges. In the past, senior secondary schools were designed largely to prepare elites for advanced study. Today, in contrast, they enroll a majority of the youth population in Indonesia. They are the last stage of education to do so, with around 60 percent of young Indonesians going through senior secondary education, compared with only 20 percent going through tertiary education. One out of three senior secondary graduates further advances to tertiary education, while the other two enter the labor market directly. Senior secondary education is therefore a key stage of transition to future pathways to fulfill the potentials of the youth. In this context, Indonesia's senior secondary schools today represent the last stage in the formal schooling system whose key objective is to ensure that young Indonesians leave education with at least the minimum qualifications required for employability and for further education and training.

Most recently, the Government of Indonesia unveiled plans to increase compulsory education to 12 years. Recognizing the uneven progress in achieving universal 9-year basic education, the stepping up efforts to introduce compulsory 12-year education for all Indonesian children will start with initial pilot programs in selected regions and roll out nationwide by 2014. This will be the third extension of compulsory education in the past three decades. The shift of attention and investment priority towards improving education quality and expanding access to the higher levels of learning is in part a response to the soaring demand for places in senior secondary education as the number of graduates from basic education increases rapidly. But it also reflects the belief that successful participation in the global economy requires skilled people, as production and trade patterns have become more complex than at any other time in the past. Broadening access to secondary education is thus not only a response to social pressure, but also an economic imperative.

Figure E1. Age distribution of Indonesian population, 1990 and 2010

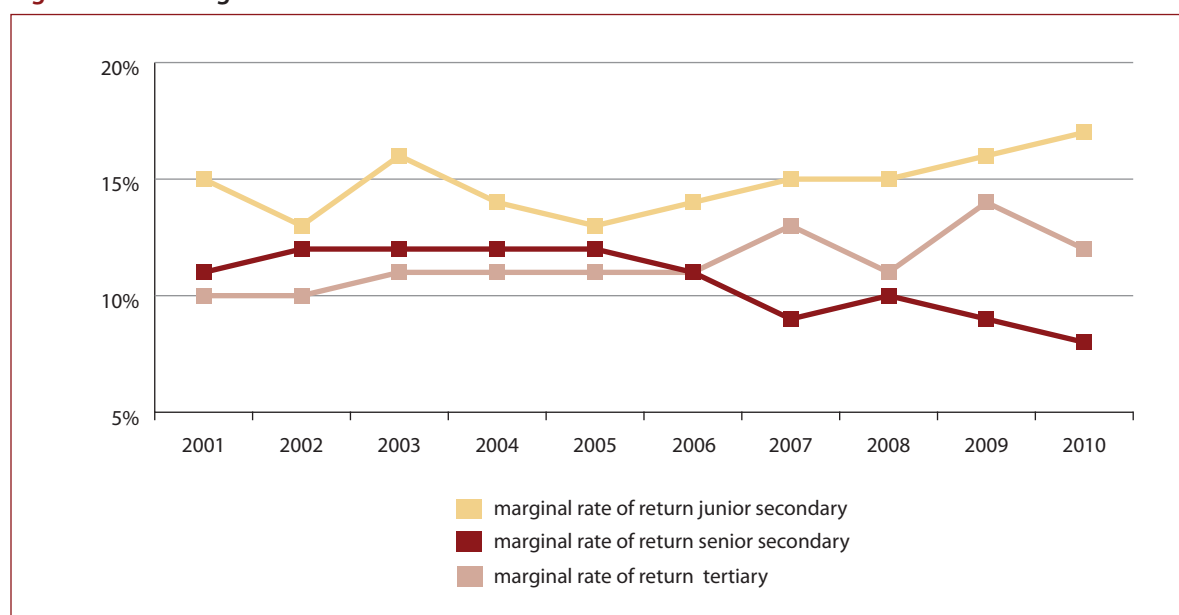


Source: Indonesia Bureaus of Statistics

In Indonesia, the productive-age population has grown fast during the past decade, resulting in the consistent decreasing of dependency ratio in recent years (Figure E1). Indonesia is currently having one of the largest ever youth cohorts. This will obviously make a difference to the society and the work place. How to educate the youth and turn them into productive labor force and future leaders is closely linked to the country's future. This is a window of opportunity that will not last for very long. The transitory nature of the “youth dividend” and the low dependency ratio that Indonesia is now experiencing can be shown from the spectrum of the current population structures of India, US, and Japan. For example, India has a population structure with under 5-year-old population being the largest, a stage that Indonesia has passed. In comparison, US and Japan's populations are experiencing stable growth and ageing respectively, stages that Indonesia will reach with continuous declining the total fertility rate in the coming decades.

With the globalized economy, well-educated youth will be critical to Indonesia's competitiveness in the future. Demand for skilled workers will increase with skill-oriented technological change. In addition, a large pool of skills also facilitates knowledge spillover and attracts technology imports. In the past decades, significant changes of Indonesia's labor market have already taken place. Non-agricultural jobs increased significantly, and skilled labor in non-agricultural sector is on higher demand. In the meantime, higher level professional and managerial jobs have also increased. In contrast, unskilled, agricultural, and administrative workers are on lower demand. Overall, the earnings differentials between people with different education levels are significant. The marginal returns to higher levels of education - senior secondary or tertiary level - are increasing (Figure E2).

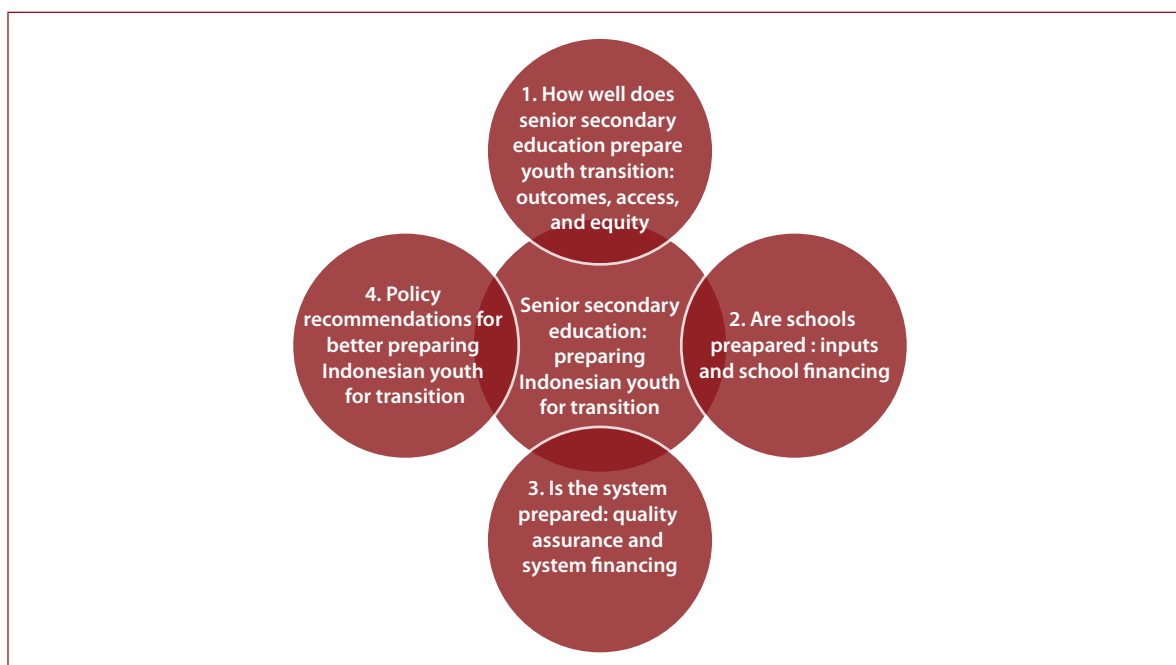
Figure E2. Marginal rates of returns to education



Source: SAKERNAS (2001-2009).

With this transition focus, this sector report attempts to assess Indonesia's senior secondary school system from three angles (Figure E3): (1) How well does the senior secondary education prepare the Indonesian youth for transition? What are the outcomes? Is there equitable access? (2) How are the senior secondary schools in Indonesia prepared for delivering their promises? Do they have adequate resources and inputs? (3) How is the system prepared? Are there effective quality assurance mechanisms? Is the system financing arrangement adequate?

Figure E3. A framework for sector assessment



How well does the senior secondary education in Indonesia prepare youth for transition: outcome, access, and equity

Indonesia ranked low on the *Programme for International Student Assessment (PISA)*, which tests 15-year-olds in reading, mathematics, and science. About half of the tested 15-year olds were sampled from senior secondary schools in Indonesia. The overall performance of Indonesia's 15-year-olds in PISA confirms that a majority of the students did not achieve beyond the rudimentary level of proficiency in reading, math, and science. In reading, 88 percent of the Indonesian 15-year-olds only reached level 2 and below, almost none reached level 4 and beyond. For math, 94 percent of Indonesian students reached only level 2 and below. What is most alarming is that 33 percent only reached level 1, and 44 percent are below level 1, which is a rudimentary level at which "students can answer questions involving familiar contexts where all relevant information is present and the questions are clearly defined".

Indonesian students with different achievement levels are often sorted into academic and vocational tracks, even though there is little evidence that different tracks of schools exacerbate the achievement differentials. The National Final Learning Evaluation (EBTANAS) results show that Indonesian junior secondary school graduates with higher scores are more likely to enter the academic track of senior secondary education (SMA). However, participating in vocational track (SMK) does not lead to widened gaps in test scores upon the graduation of senior secondary education. The achievement gaps are simply carried over and persist.

The Indonesia Skills Report (World Bank, 2010a) provides a glimpse of the employer's perception of the quality of senior secondary education. Overall, the report points to the existence of issues with the relevance and quality of skills. "Quality is a particularly critical issue for senior secondary education graduates (general and vocational), in both the manufacturing and service sector". The same report also presents the employer's perspective on the quality of newly hired graduates, which is a selected group from all the applicants in the first place. About one-fourth of employers find secondary graduates to be "below average". A comparison of performance between general and vocational school graduates also reveals a slight preference over vocational track graduates, as employers tend to give less poor ratings and more "very good" ratings for SMK graduates.

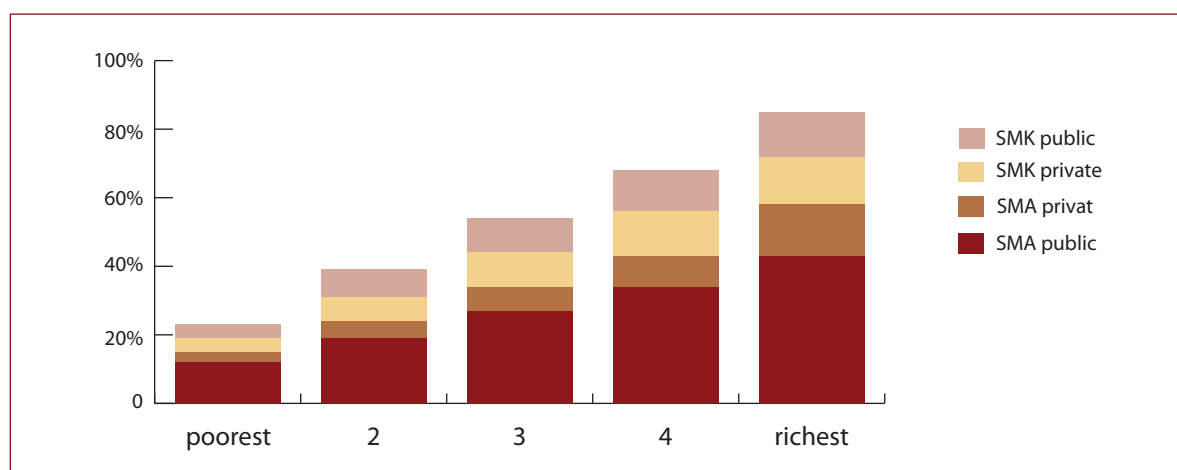
The Ministry of Education and Culture (MoEC)'s data shows that the overall enrollment at senior secondary level is continuously increasing in recent years. Several patterns emerge: enrollment in public schools has been increasing faster than that in private schools, resulting in an increase of the share of public school enrollment from 47 percent to 51 percent during the past 5 years. Most notable is the fast expansion of enrollment in vocational schools, or SMK, averaging 12-14 percent annual growth since 2004/05. Public SMA and private SMK absorb the largest share of enrollments currently. Private SMA has much smaller share of total enrollment, but remains important (20 percent of total enrollment).

Analysis of household survey data shows the distinctive regional disparities in senior secondary school enrollment - its overall level, as well as the composition by school type. For example, Maluku Province has the highest Gross Enrollment Rate (GER), at 90 percent, of which about 90 percent of the total enrollment is in SMA. In contrast, the total enrollment rate is only at around 50 percent in West Java, of which 60 of the enrollment is in SMA, and the remaining 40 percent is in SMK. Comparing GER in 2006 and 2009, almost all provinces have made progress in terms of raising GER of senior secondary education as a whole, with very few exceptions. West Java and Yogyakarta, for example, have largely stayed the same. One distinctive feature of this broad growth is that it is largely due to the accelerated expansion of SMK enrollment, while SMA enrollment growth stays more or less on the same track.

There has long been a debate on whether SMA or SMK graduates have better labor market outcome. Chen (2008) found that there were no significant differences in terms of unemployment rate upon graduation, after controlled for the selection bias caused by college entry. Comparing SMK and SMA graduates who do not go to college, SMK graduates seem to have a better chance of landing a job upon graduation. However, this simple comparison ignores the fact that a significantly larger proportion of SMA graduates go to college. The unemployment rate differentials become insignificant after this selection bias is corrected. Newhouse et al (2009) also shows that there is no significant earnings differences for fresh graduates, but the earnings of SMK graduates depreciates much faster after 7-8 years.

Both demand and supply side factors play key roles in determining senior secondary education enrollment. Statistical analysis shows that the provincial senior secondary education GER is highly correlated with provincial junior secondary school GER, but not with provincial GDP per capita, two key variables capturing the demand-side factors. In the meantime, the number of schools per million people within province - a key supply-side measure - is also statistically significant: the larger the number of schools relative to population, the higher the enrollment ratio.

Figure E4. Senior secondary GER by income quintile



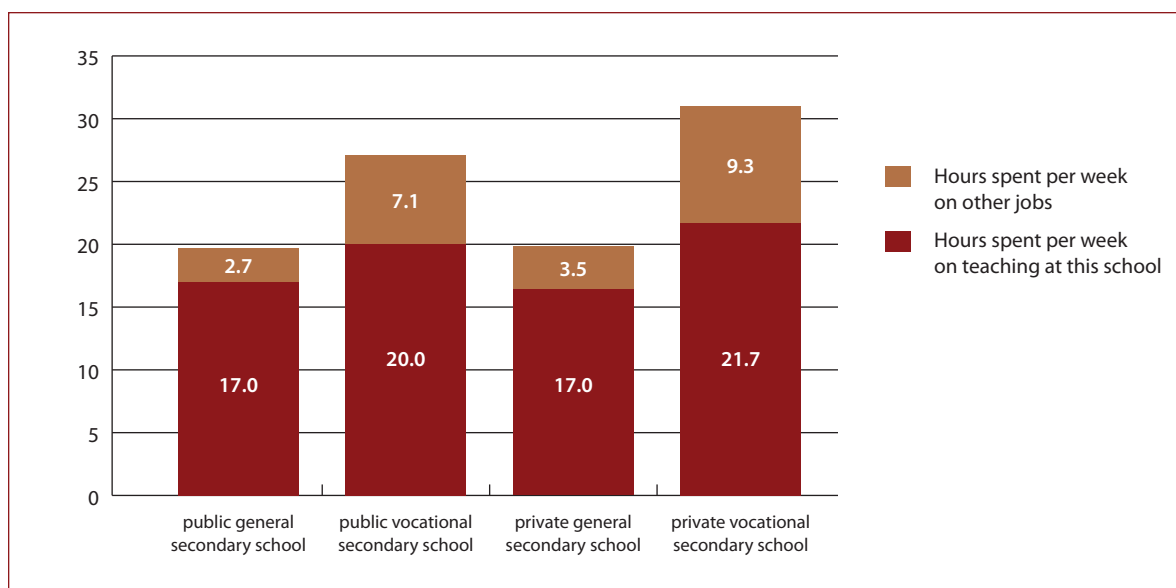
Source: SAKERNAS (2009).

Senior secondary education GER disparities across household income quintiles are large (Figure E4). Children from the richest 20 percent of households enjoy over 80 percent GER. In contrast, only a little over 20 percent of the children from the poorest 20 percent of the households can ever get enrolled in senior secondary education. However, there is negligible difference in the distribution of the types of the schools enrolled across children from families at different income levels. Private schools or vocational schools serve the rich as well as the poor.

Are schools prepared: inputs and resources

In terms of input measures of education quality, the most worrisome finding is that a significant proportion of teachers have second jobs that serve as additional income source, particularly for the private school teachers (Figure E5). While a quarter of public school teachers have second jobs, nearly half of all private school teachers do. Some of these second jobs can be teaching in other schools, but a majority of them are in other private employment. Teachers spend significant time on their second jobs. Probably because of their vocational skills, vocational school teachers spend longer hours on the second jobs. In addition, teachers in all types of schools spend less than 24 hours per week at their first teaching job – a minimum level that is stipulated by law.

Figure E5. Working hours: teaching and 2nd job



Source: SAKERNAS (2009).

Key differences exist in the compensations of public and private school teachers. Private school teachers are paid much less – on average only half of the amount of the regular remuneration of the public school teachers. Private schools teachers, however, do have more earnings from their second jobs. This dual compensation system can exist probably because that the inspiration of many private school teachers is to become public employees eventually, teaching in either public or private schools, which will give them better job security and compensation eventually.

Disparities are large in terms of resources available at school level. Resources available to public schools (including teacher salaries) on per-pupil basis are nearly twice as much as those at private schools. One key source of this difference is civil-service teacher salaries, which are much higher than those of non-civil service teachers, a majority at private schools. For non-salary resources, central government direct subsidies to schools seem to

benefit private and public schools equally. However, local government subsidies mostly benefit public schools. In addition, public schools actually charge higher school committee fees, while private schools have “other” sources of funding, mostly from private foundations or donations. Even though SMK has slightly higher per pupil spending in general, the larger resource difference lies between public and private schools.

Is the system prepared: management, quality assurance, and system financing

Set aside their validity or realism, currently, neither the National Standards nor the Minimum Service Standards are systematically enforced, regularly assessed, and timely reported. Nationwide student assessments are carried out at the end of education cycles, mostly for the selection of students to the next cycle, but not for accountability purposes. There are no established mechanisms for reporting the outcomes of student performance or average school performance. Teacher evaluation is currently going through the “certification” process, but continued performance evaluation of teachers has not been in place. In addition, no formal impact evaluation is in place on regular basis for education policies and programs. Schools are required to be “accredited”, in alignment with the National Standards in 8 areas. However, the National Accreditation Agency (BAN)’s capacity is at present severely constrained. Many schools have been given an accreditation rating at one point in time, which are rarely updated. In addition, registering private schools, and maintaining operation requirement is even more challenging, given the large and ever-increasing number and changing conditions of these schools.

Public resources for financing the sector are used more in a “uniform” manner rather than pro-poor with appropriate targeting. A per-student subsidy is provided to all schools, both public and private, to finance the education of students in basic education (Grade 1-9). The present form of the uniform unit cost does not address the need for narrowing the gap between the better-off and disadvantaged schools. There are no structured subsidies to senior secondary education at the moment. The resource differentials between public and private schools remain large. One key public resource is teachers in civil service, paid by the Government. The uneven distribution of these teachers, beyond between public and private schools, but also across schools situated in better off and disadvantaged areas, in urban and rural areas, also reflects the inequitable distribution of public resources.

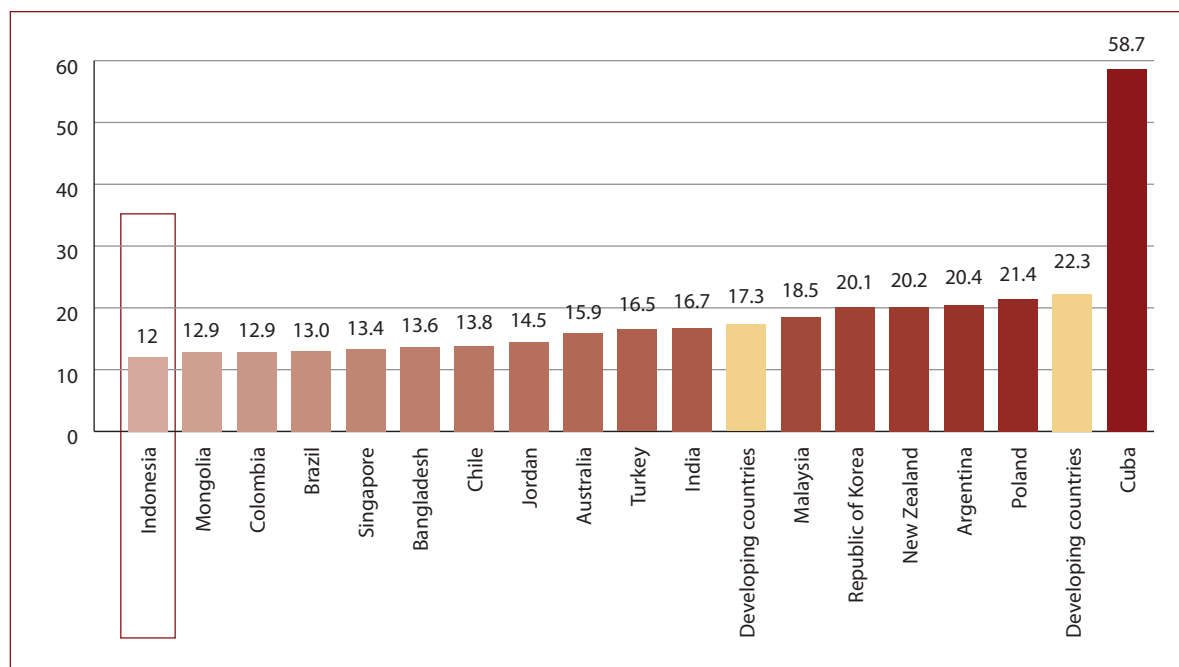
In addition, there are no accountability measures at the school level based on performance. Civil service teachers are paid based standard salary structure. Principals do perform teacher assessment, but it does not lead to rewards or sanctions. Local education officers inspect schools, but it rarely brings any real consequences either.

The per-student public spending in Indonesia is lower than developing countries’ average. Figure E6 shows that on average Indonesia spends about 12 percent of its GDP per capita on a senior secondary school student. This is lower than developing countries’ average of 17.3 percent, and developed countries’ average of 22.3 percent. This level of public spending is equivalent to about US\$300 per student, inclusive of teacher salaries.

Within this amount, it is estimated that only around 50 percent or less flow to schools directly in the form of paying teacher salaries (as often categorized as “routine” spending by school’s accounting book), and various cash subsidies to schools (“*Bantuan Operasional Sekolah*” as central government grant, and “*Bantuan Operasional Propinsi*” as local government grant). According to Indonesia Family Life Survey (IFLS)’s school survey in 2007-2008, a public senior secondary school received approximately US\$200 per student, while a private school received around US\$30. The spending that does not flow to schools represents the portion that stayed at central or local government level which is spent on behalf of schools, or for administrative purposes.

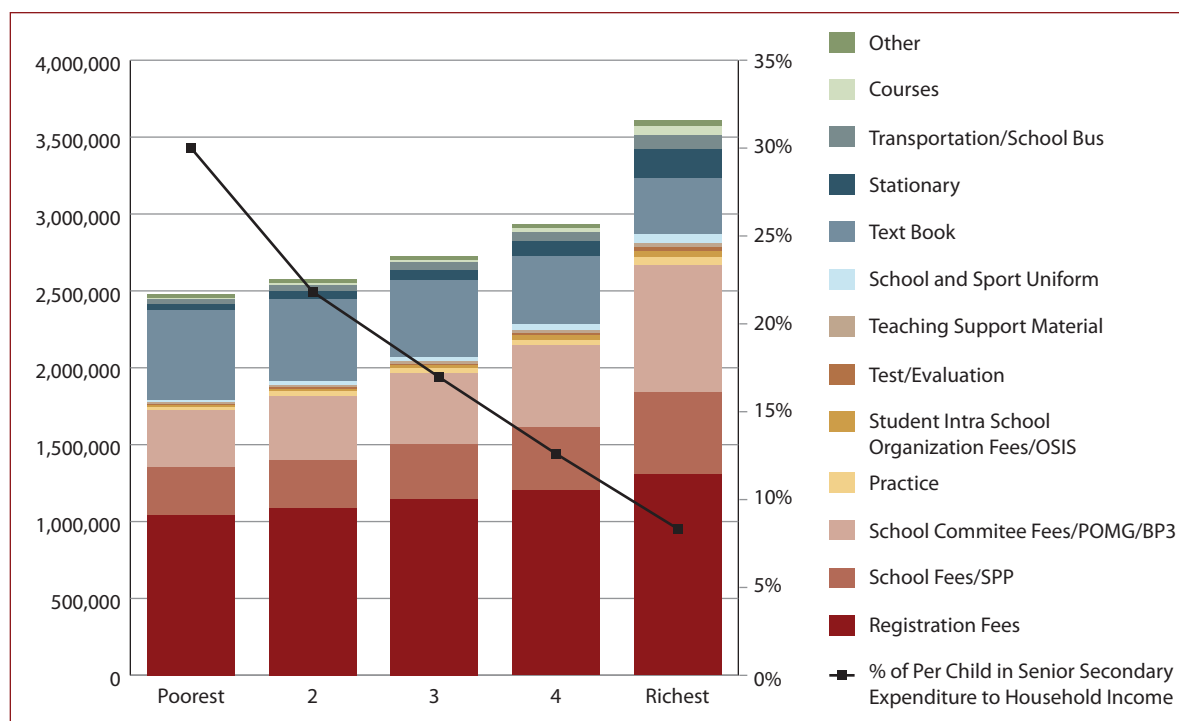
Household expenditure on senior secondary education constitutes heavy financial burden. As expected, richer households pay more out-of-pocket. However, it only comprises a small share (less than 10 percent) of the total household expenditure of the richest. In contrast, the household in the poorest income quintile can spend as much as 30 percent of household total expenditure on a child at senior secondary school (Figure E7).

Figure E6. Public current expenditure on secondary education per pupil as % of GNP per capita



Source: World Education Indicators (UNESCO, 2009).

Figure E7. Household expenditure on senior secondary education as % of total household expenditure, by income quintile



Source: SUSENAS (2009).

Policy recommendations

Looking ahead, diversified strategies are needed for expanding senior secondary education in Indonesia, given the much varied conditions of the provinces. There are some provinces where access to junior secondary education is still a major issue, and priorities should be given to junior secondary education accordingly. In many other provinces, limited school places have represented a binding constraint to further broadening senior secondary school access. Building more schools will need to be mapped according to the population distribution, and considering using existing excess teachers.

Equitable access will remain a key challenge. Nationwide, over 68 percent of the children from the lowest income quintile families are not completing Junior Secondary School. There is also a large urban/rural gap, with 60 percent of rural students not yet completing grade 9. The wealth divide in opportunities of pursuing higher educational attainment remains large. The high cost of senior secondary education has made it unreachable by the poorest. The current school-based scholarships program has not been able to reach those who were left out in the first place. Targeted and household-based voucher system will be the future for better supporting the under-privileged.

Rethinking the division of general and vocational educational track will also be needed while establishing a long term vision for senior secondary education in Indonesia. The vocational secondary school provides a fast route for training medium-level skilled workers for the immediate needs of the labor market. Widening the openings for the SMK graduates to pursue skills upgrading will be more and more needed in the future with more sophisticated demand for skills from the labor market. In the meantime, how to offer SMA graduates who do not enter tertiary education necessary labor market skills is probably more challenging. Responding to the future expansion of tertiary education as well as the labor market demand for higher level of skills, these two tracks will probably become similar in the future, and converge at an integrated system offering solid basic skills together with diversified in-school vocational training programs.

In the interim, a variety of options can be considered to strengthen the two tracks of senior secondary education. SMK's curriculum should be more flexible. A spectrum of different intensities of vocational subject deliveries can be considered. For example, some may just be vocational course work, others may require significant immersions and internships at firms or production units. The vocational certificate in addition to senior secondary school diploma can reflect these varieties. SMA students should also have access to SMK coursework through school partnerships, or even night courses offered by SMK with capacities, and obtain similar vocational training certificates.

Measuring learning outcome and skills proficiency is essential for quality improvement. The national education assessment program needs to be put in place to regularly monitor education quality, to diagnose existing quality issues, and to devise remedial measures. Localized monitoring of learning outcomes should also be put in place to serve as diagnostic, motivational, and accountability tools at individual teacher and student level. This is a necessary condition for implementing outcome-focused curriculum.

Decentralization in Indonesia has provided an overall vision of local control of education service delivery. The overall accountability arrangement and quality assurance will need a clearer definition of responsibilities across agencies, with separated but much strengthened functions in oversight, measurement, reporting, policy and programming, together with an effective mechanism to introduce accountability from local to the central level.

Expanding the access to secondary education will need more public resources at this level. It is never easy to determine what is an appropriate level of public financing of education in a given country. Currently, Indonesian families pay 3-4 times of the Government budget for the direct and indirect costs, including various fees, transportation, uniform, teaching and learning materials, and other incidentals. Comparisons with other countries can provide a useful guide for making judgment on levels of government funding.

Giving that 20 percent of Government budget has already been allocated to the education sector, intra-sectoral allocations and spending efficiencies appear to be the first order issues that need to be addressed. This will aim at maximizing the output using existing capacity. Better deployment of teachers, increase in teacher workload, reduction in their double-jobs, and improvement in their motivation, performance, and accountability, will be the most direct measures.

Better use public resources also need better targeting strategies, supporting the most disadvantaged areas and population groups. On the supply side, public resources should be used to narrow the geographic inequality due to the marked urban bias in school locations. The creation of new senior secondary schools in the coming years will present a prime opportunity to reduce the distance-to-school factor in rural areas. These new schools should carefully target for the rural kecamatan and kabupaten where presently lack senior secondary schools. On the demand side, establishing means-tested system to financially support children from families of very low income will further narrow the demand gap.

For a majority of private schools in Indonesia, being private primarily means being poor and under-resourced. It also means that without public intervention, the learning gap between public and private students will likely to increase, as private schools tend to enroll those who are not able to enter public school system with lower academic achievement at junior secondary school level. Targeted demand-side financing such as school voucher can also serve as an instrument that provides incentives and financial means to improve private schools as they make efforts to attract students and resources. Nonetheless, some public investment would be needed at the beginning, such as to upgrade school's teaching and learning conditions, to improve teacher knowledge and skills, and to improve school management, before the new mechanism can work.

International experience tells us that reforming senior secondary education will face many daunting challenges. While the reform recommendations offered here are mainly based on accumulated global experience, policy-makers need to be highly aware that the impact of reforms varies in different institutional and demographic settings. As Indonesia moves ahead towards the goal of universal 12-year education, piloting reforms in small scale before rolling out, and evaluating impacts and cost-effectiveness of these reforms are crucial to ensure their long-term success and sustainability.

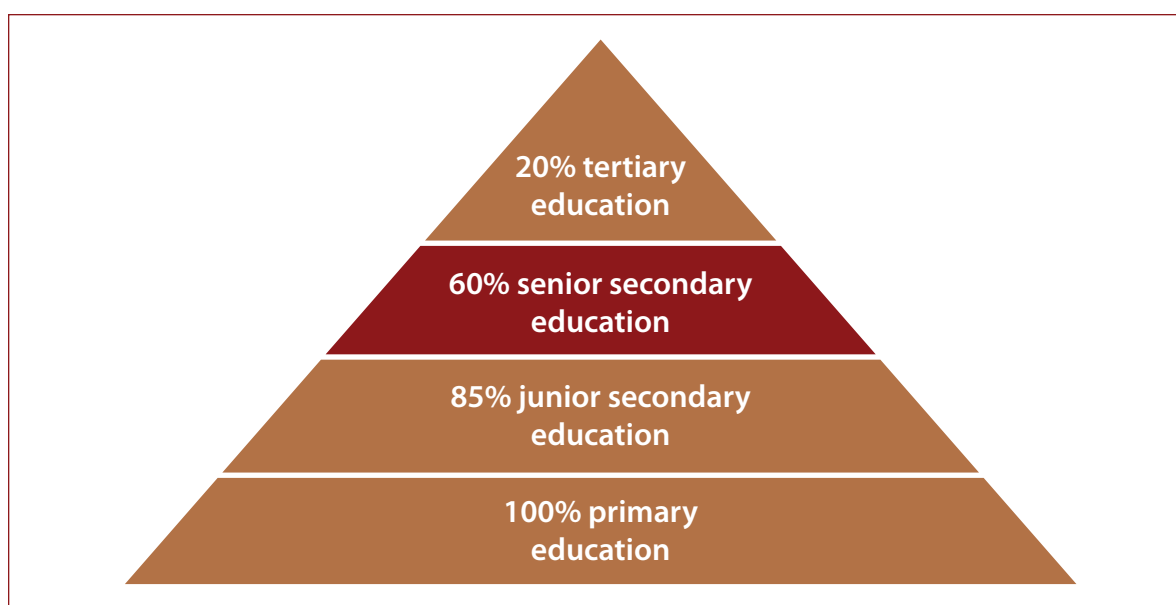


I. Preparing Indonesian Youth For Transition: Framework and Context

A. Managing senior secondary education as preparing Indonesian youth for transition

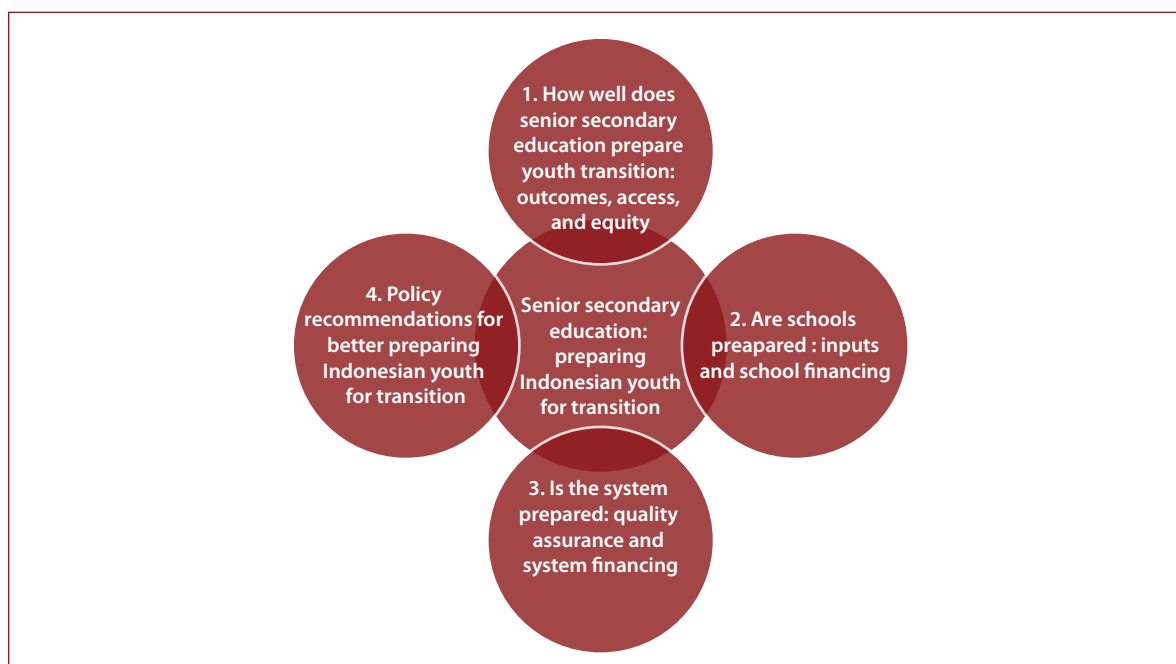
Senior secondary education has become a focal point pressing for public policy attention in Indonesia. In the past, senior secondary schools were designed largely to prepare elites for advanced study. Today, in contrast, they enroll a majority of the youth population in Indonesia. They are the last stage of education to do so, with around 60 percent of young Indonesians participating in senior secondary education compared to only 20 percent participating in tertiary education (Figure 1.1). One in three of the senior secondary graduates goes to tertiary education, while the other two enter labor market directly. Senior secondary education is therefore a key stage of transition for future pathways to fulfill the potentials of the Indonesian youth. In this context, senior secondary schools today represent the last stage in the formal schooling system whose key objective should be to ensure that young Indonesians leave education with at least the minimum qualifications required for employability and for further education and training.

Figure 1.1. Senior secondary education as transition: GER by level of education



With this transition focus, this sector report attempts to assess Indonesia's senior secondary school system from three angles (Figure 1.2): (1) How well does the senior secondary education prepare the Indonesian youth for transition? What are the outcomes? Is there equitable access? (2) How schools are prepared for delivering their promises? Do they have adequate resources and inputs? (3) How the system is prepared? Are there effective quality assurance mechanisms? Is the system financing arrangement adequate? These assessments will form the analytical base for shaping the future agenda for senior secondary education in Indonesia.

Figure 1.2. A framework for sector assessment



B. Country and sector context

Overview

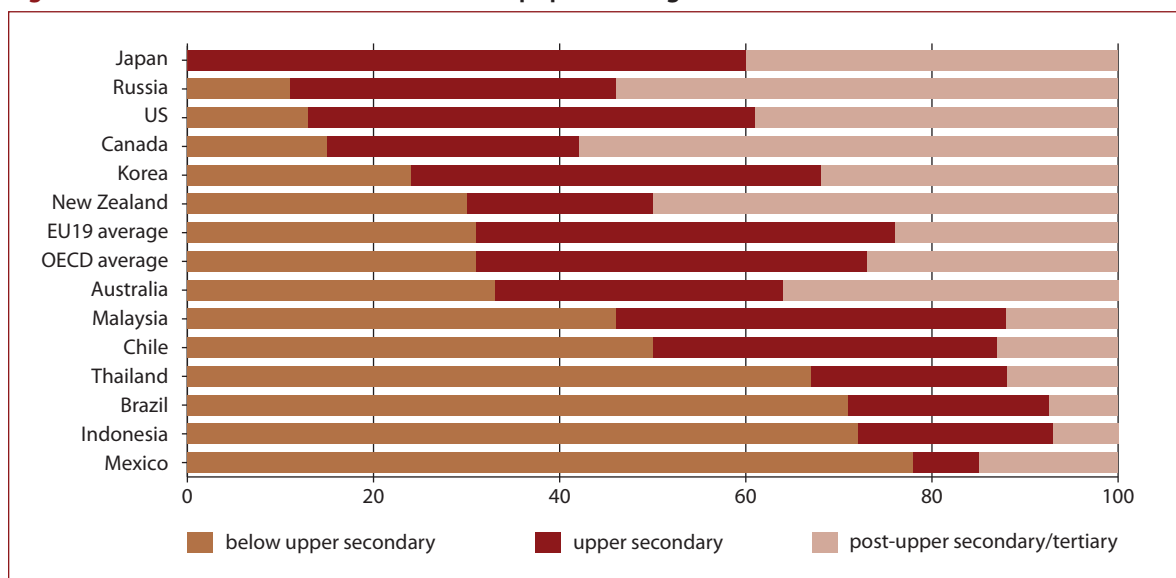
Senior secondary education has become of increasing importance, as most countries throughout the world have achieved universal primary education and many are well on their way to the universal completion of 9-year basic education. Indonesia is no exception to these trends. Since independence, the government's drive to expand education coverage has led to the continuous increase in the primary school gross enrollment rate from below 70 percent in 1975 to near universal coverage in 1995. In 1984, six-year compulsory education was introduced, ensuring that all children to attend elementary school. This was followed in 1994 by the establishment of a nine-year compulsory education system, covering the six years of primary and three years of junior secondary schooling. Currently, Indonesia is on track to providing universal nine-year basic education, with gross enrollment rates at the junior secondary level reaching over 80 percent in 2010 (SUSNAS 2010).

Most recently, the Government of Indonesia unveiled plans to increase compulsory education to 12 years. Recognizing the uneven progress in achieving universal 9-year basic education, the stepping up efforts to introduce compulsory 12-year education for all Indonesian children will start with initial pilot programs in selected regions and roll out nationwide by 2014. This will be the third extension of compulsory education in the past three decades.

The shift of attention and investment priority towards improving education quality and expanding access to the higher levels of learning is in part a response to the soaring demand for places in senior secondary education as the number of graduates from basic education increases rapidly. But it also reflects the belief that successful participation in the technology-driven global economy requires skilled people, many with advanced science and technology training. Advanced human resources foundation is essential for effective participation in the world economy that has more complex patterns of production and trade than at any other time in the past. Broadening access to secondary education is thus not only a response to social pressure, but also an economic imperative.

Indonesia's human resource base is still low as measured by the overall education attainment profile of adult population (Figure 1.3). Among adults age 25 to 64, over 70 percent have not reached senior secondary education. In comparison, OECD countries' average is around 30 percent. This is a large gap to narrow if Indonesia is inspired to be an upper-middle to high income country by 2025 (Republic of Indonesia, 2011).

Figure 1.3. Education attainment of adult population age 25-64



Source: World Education Indicators, 2009.

Indonesia's formal school system consists of: pre-school education, basic education (primary plus junior secondary education), senior secondary education, and higher education (Figure 1.4). Pre-school education is aimed at stimulating physical and mental growth of pupils outside of the family circle before entering primary education, providing an early readiness for growth and development of attitudes, knowledge, skills and initiative. Pre-school education is delivered through kindergartens or "play groups". Kindergartens are part of the school-based formal education system while the play groups are part of the non-formal system. Pre-school is provided for children from 5 to 6 years old for a period of one to two years, while play groups are usually attended by younger children.

Basic education consists of six years of primary school education and three years of junior secondary education. The goal of basic education is to provide the students with basic skills as well as to prepare them to pursue their studies in secondary education. Primary education is delivered through general primary school, or special primary school for handicapped children. Similar school types exist at junior secondary level as well. Primary and junior secondary schools usually have separate school sites, with separate teaching staff. In recent years, the program of "one-roof school" combining primary and junior secondary education is becoming ever popular as the Government makes effort to expand the access to junior secondary education particularly in remote areas. Islamic schools are also important education service providers, overseen by the Ministry of Religious Affairs, and including both Islamic primary school (Madrasah Ibtidaiyah or MI) and Islamic junior secondary school (Madrasah Tsanawiyah or MT).

One of the distinctive characteristics of senior secondary education in Indonesia is the prominence of vocational schools¹. General secondary education gives priority to expanding knowledge and developing students' skills and preparing them to continue their studies to the higher level of education. Vocational secondary education gives priority to expanding specific occupational skills and emphasizes the preparation of students to enter the world of work and to build their professional attitude. In addition, religious secondary and special secondary schools are also important providers of senior secondary education.

¹ There are vocational schools at junior secondary level as well, but with only about 10 percent of total enrollment coverage at that level.

Figure 1.4. Education system in Indonesia

Age	Year	Formal		Non-formal
		Programs	Level	
27	21	Doctorate (S3)	Higher education	Open university
26	20			
25	19			
24	18	Master (S2)		
23	17			
22	16			
21	15	undergraduate (D1, D2, D3, D4, S1)		
20	14			
19	13			
18	12	General Sr. Sec.; Vocational Sr. Sec.	Senior secondary	Package C equivalency program
17	11			
16	10			
15	9	Jr. Secondary	Basic education	Package B equivalency program
14	8			
13	7			
12	6	Primary education		Package A equivalency program
11	5			
10	4			
9	3			
8	2			
7	1			
6		OA	Kindergarten	
5		OB		

Source: www.seameo.org/index.php?option=com_content&task=view&id=62&Itemid=85

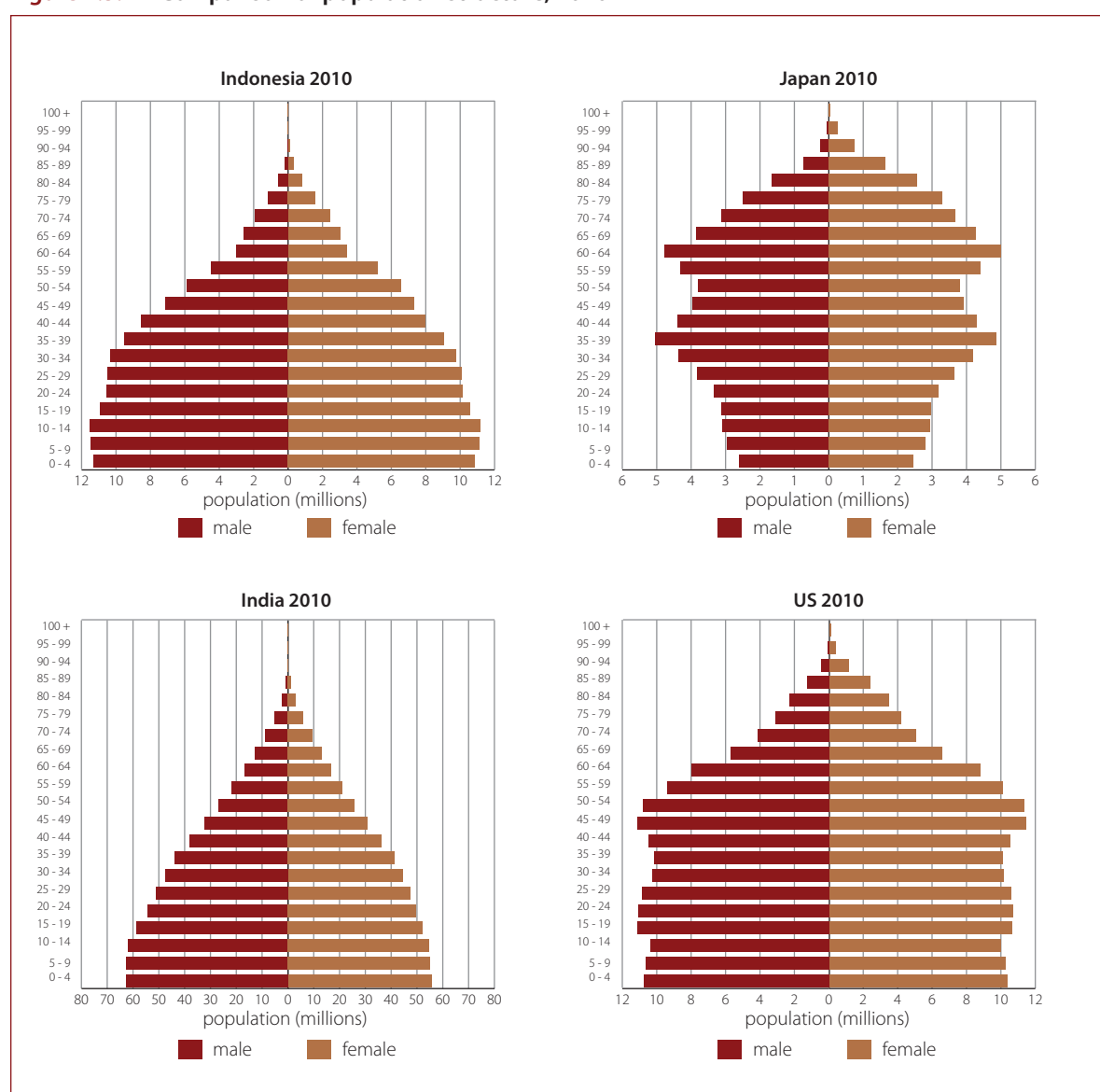
Indonesia's higher education offers 1 to 4-year diploma, as well as Bachelor's degree, and postgraduate programs. The three key objectives of higher education as stipulated by the Ministry of Education are "education, research, and community service". In recent years, the concept of "community college" has been widely discussed and recognized as an affordable and pragmatic way to provide post-secondary education and training, with focusing on professional skills to meet the local economy need. Looking ahead, a critical challenge of higher education in Indonesia also lies in producing highly skilled researchers. The extremely small number of postgraduate degree holders from Indonesian higher education institutions, together with the overall low productivity of research, will become a key bottleneck for Indonesia to develop R&D capacity and to gain a competitive edge in the global economy.

Private sector is a critical partner in providing education services at each level. The higher the education level, the larger share of enrollment is in private schools and institutions. For example, while about half of the senior secondary education enrollment is in private schools, nearly 70 percent of the higher education enrollment is covered by private higher education institutions. There has been increased public support to the private providers in recent years. Nonetheless, how to narrow the quality and resource gaps remains a key challenge.

Socioeconomic context

The demographic trend shows that Indonesia is having one of the largest youth cohorts currently. This large youth cohort will obviously make a difference to the society and the work place. How to educate them and turn them into productive labor force and future leaders is closely linked to the country's future. This is a window of opportunity that will not last for very long. Figure 1.5 compares Indonesia's current population structure with that of several other countries at different stages of demographic change. In Indonesia, the total fertility rate has been declining continuously, leading to the consistent decrease of the dependency ratio in recent years. The current population structures of India, US, and Japan provide snapshots of a typical demographic trend, illustrating the transitory nature of Indonesia's "youth dividend". In India, for example, the under 5-year-old population is still large and dependency ratio high; while US and Japan are at the stable growth and ageing stage respectively, passing through the similar early phases of demographic transition.

Figure 1.5. Comparison of population structure, 2010

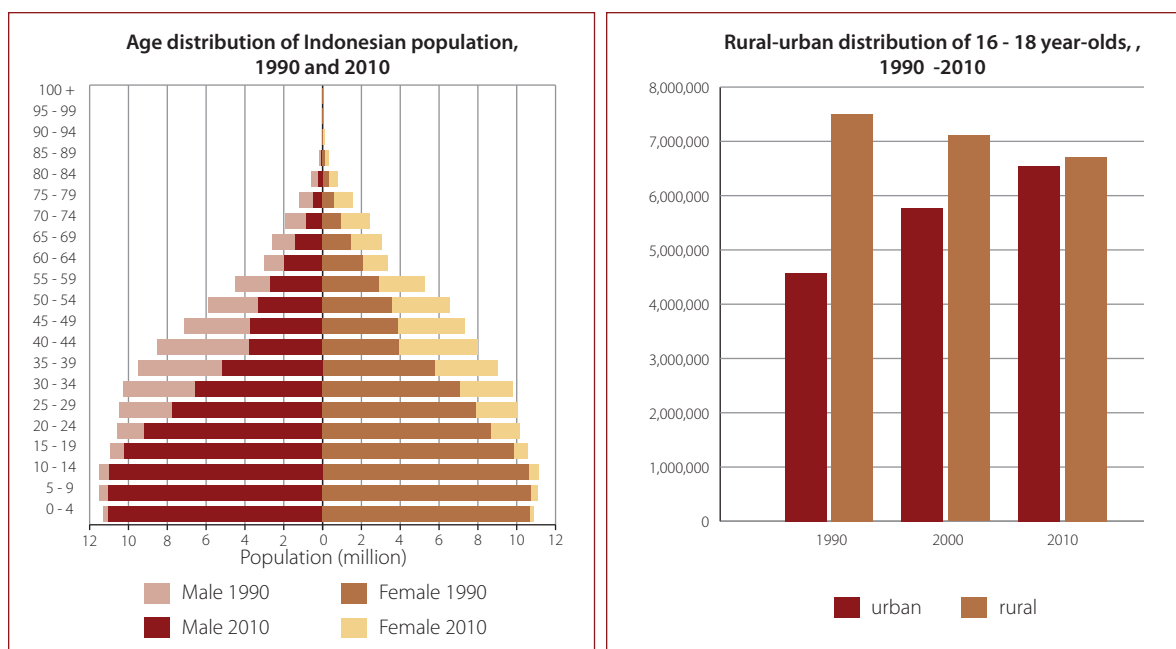


Source: International Data Base, US Census Bureau (www.census.gov/ipc/www/idb).

Indonesian data from Indonesia Bureau of Statistics (Badan Pusat Statistik Republik Indonesia. www.bps.id.co).

With slower population growth, the share of the Indonesian youth under 29 years of age has already declined from 36 percent in 2000 to 33 percent in 2010. Figure 1.6a shows the largest increase of working-age population age 40-44 during the past two decades. Fast urbanization is another striking trend during the past decades. Twenty years ago, the ratio of urban to rural population age 16-18 was about 0.6:1. It is close to 1:1 by 2010 (Figure 1.6b). The increase of this ratio has also slowed down during the most recent years. Indonesia within a decade will probably reach the end of its youth dividend that has produced expanding numbers of new labor force entrants helping keep wages low and increase output. Together with slowed urban youth population growth, it is expected that the pressure of youth unemployment rates will be reduced. However, as the overall population becomes older, economic growth will increasingly depend on the ability to expand the capital base and create a more productive workforce with higher levels of education and training.

Figure 1.6. Indonesia's demographic change, 1990-2010

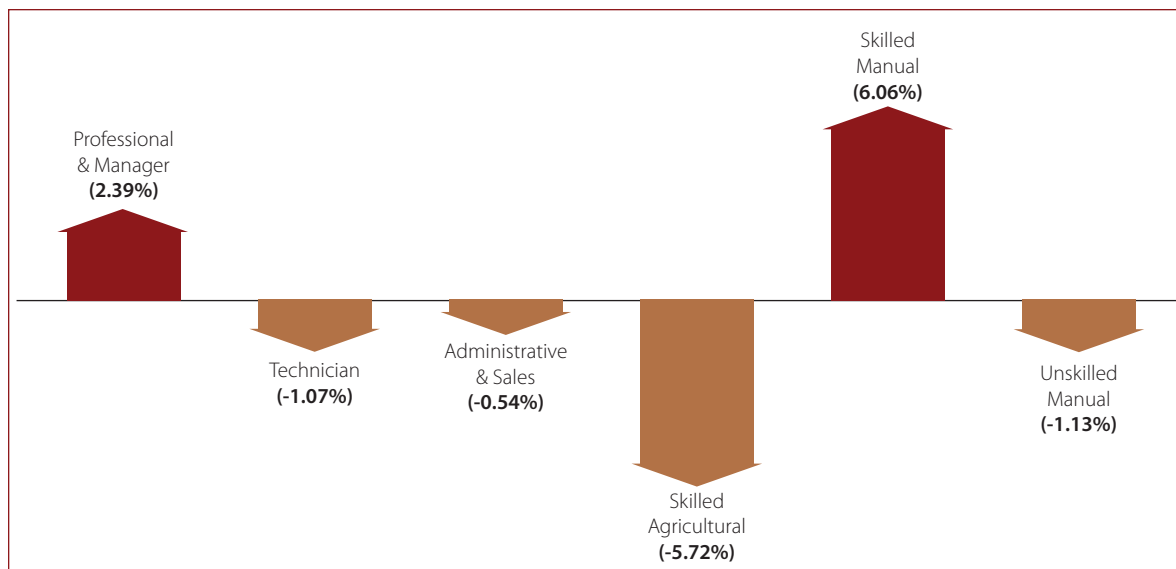


Source: Indonesia Bureau of Statistics.

Source: SUSENAS, various years.

With the globalized economy, well-educated workforce will be critical to Indonesia's competitiveness in the future. Demand for skilled workers will increase with skill-oriented technological change. In addition, a large pool of skills also facilitates knowledge spillover and attracts technology imports. In the past decades, significant changes of Indonesia's labor market have already taken place. As Figure 1.7 shows, non-agricultural jobs increased significantly, and skilled labor in non-agricultural sector is on higher demand. In the meantime, higher level professional and managerial jobs have also increased. In contrast, unskilled, agricultural, and administrative workers are set on lower demand.

Figure 1.7. Job profile change between 2001 and 2009

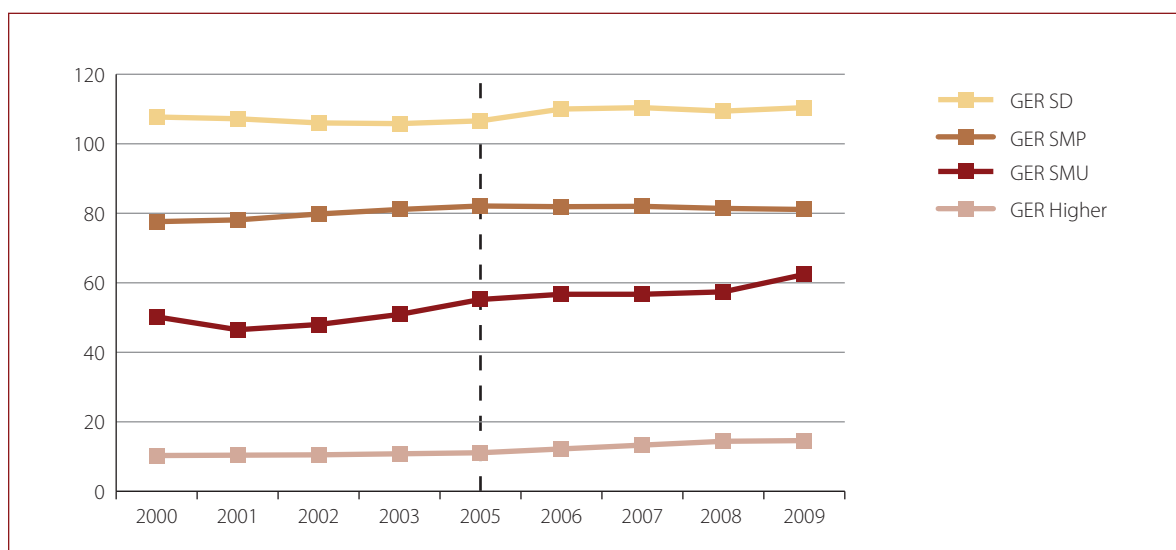


Source: SAKERNAS, 2001 and 2009.

Sector context

Indonesia has already achieved universal primary education, and is close to the goal of 9-year universal basic education. With more and more graduates from basic education, the demand for education is moving to the higher levels of the education system. Figure 1.8 shows that senior secondary and tertiary education have been the fastest-growing sub-sectors in terms of coverage during the past decade. Between 2005 and 2010 the gross enrolment ratio (GER) for primary and junior secondary education have largely been stable, while senior secondary education GER grew from 55 to 62 percent, and tertiary education from 10 to 15 percent.

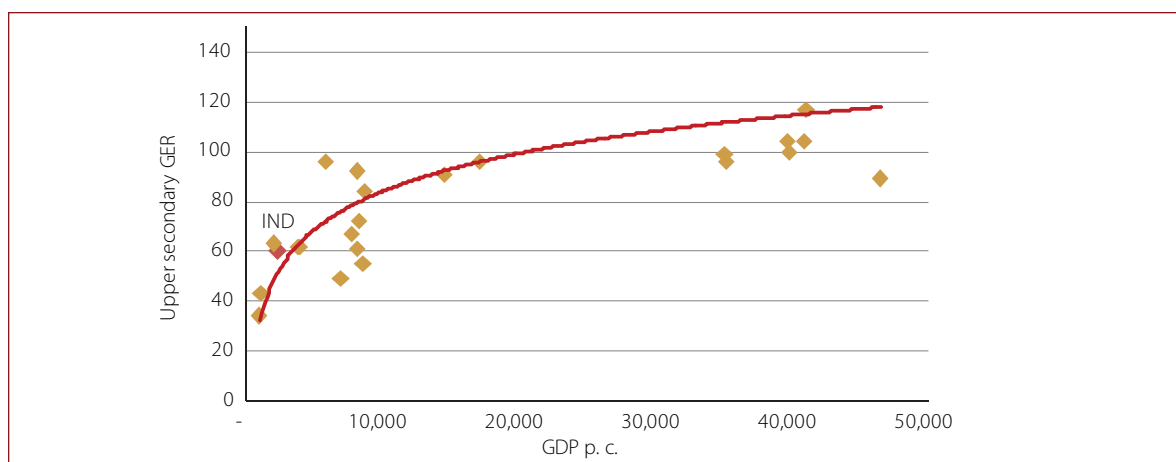
Figure 1.8. Trend of gross enrollment ratio, by education level



Source: SUSENAS (2000-2009).

The current senior secondary education coverage in Indonesia is comparable with other countries with similar levels of GDP per capita (Figure 1.9). However, even though the senior secondary enrollment rate has expanded steadily, by 2009 it had only reached 62 percent. The gap widens further when considering the overall stock of human capital. The average years of schooling of Indonesian adult population is only around 5 years, lagging behind neighboring countries such as China, Thailand, Malaysia, and the Philippines. The currently rising enrollment rate at senior secondary and tertiary education level is a promising sign that Indonesia is catching up. Ensuring a conducive policy environment for adequate demand and supply of higher levels of education will be a key challenge.

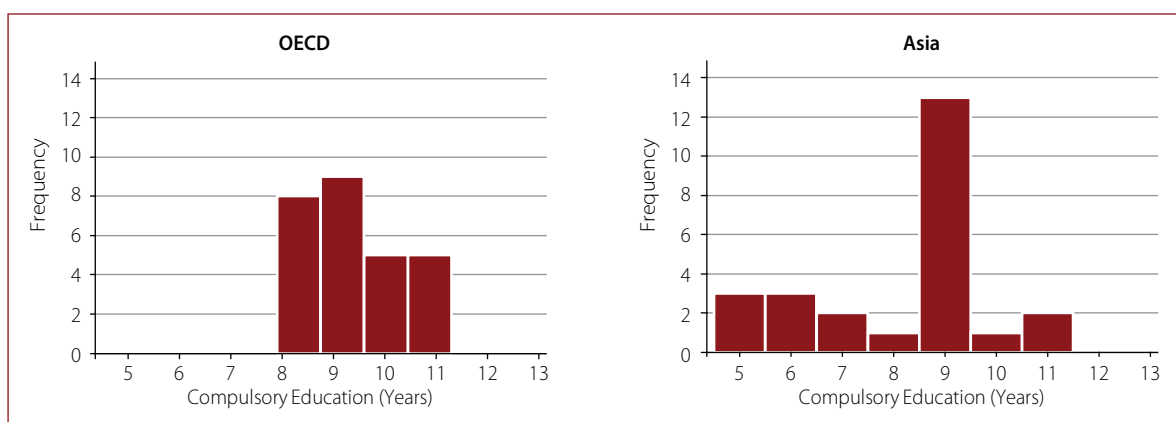
Figure 1.9. Senior secondary GER by GDP per capita, international comparisons



Source: GER from UIS, Global education digest; GDP per capital from WB in current US\$.

Moving up the ladder of education attainment of the overall population has been high on Indonesia's development agenda. Whether to extend compulsory education to senior secondary level has been debated among key policy makers in Indonesia recently. Indonesia is among the majority of the countries in the region that have 9-year compulsory education, up to junior secondary education (Figure 1.10). OECD countries on average have more years of compulsory education, together with overall higher education attainment. While making senior secondary education compulsory would certainly show the political commitment to promoting better education attainment, what it implies in terms of enforcement and public support needs to be well thought, particularly in solving both demand and supply side bottlenecks.

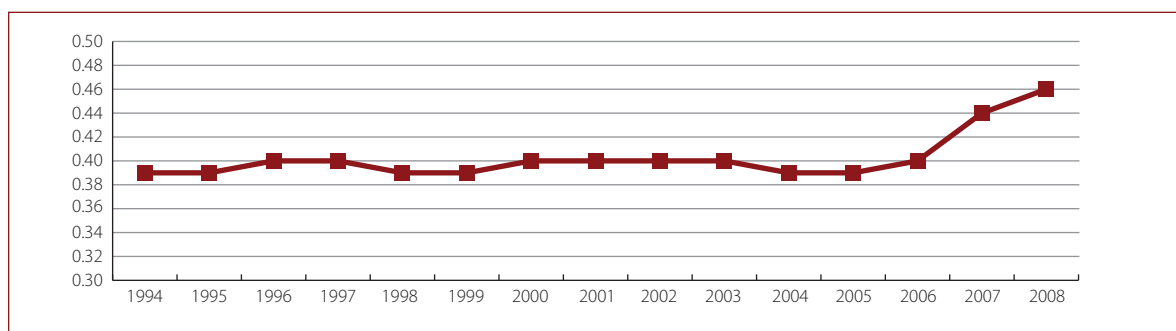
Figure 1.10. Distribution of years of compulsory education, OECD and Asian countries



Source: UNESCO website.

In addition to expanding access, a key challenge that Indonesia's senior secondary education is facing is how to balance the double roles of setting a solid foundation for advanced learning, and of providing necessary skills for those who are ready to enter the labor market. Currently, secondary school graduates appear to be the "weakest link" with regard to skills profiles. There are particularly serious gaps in practical skills (practical knowledge of the job), problem solving and creative thinking, leadership, team orientation, and ability to work independently. These are combined with very significant gaps in English and computer skills, which are critical to address the challenges of the export-oriented and technologically-intensive sector of the economy (The World Bank 2010a). The recent policy for the expansion of vocational track (SMK) of senior secondary education has pushed the share of SMK enrollment from 40 percent on average to 46 percent recently (Figure 1.11). There is critical need to review the curriculum design and delivery of both tracks aiming at building essential cognitive and non-cognitive skills for all senior secondary school students.

Figure 1.11. Enrollment share of SMK

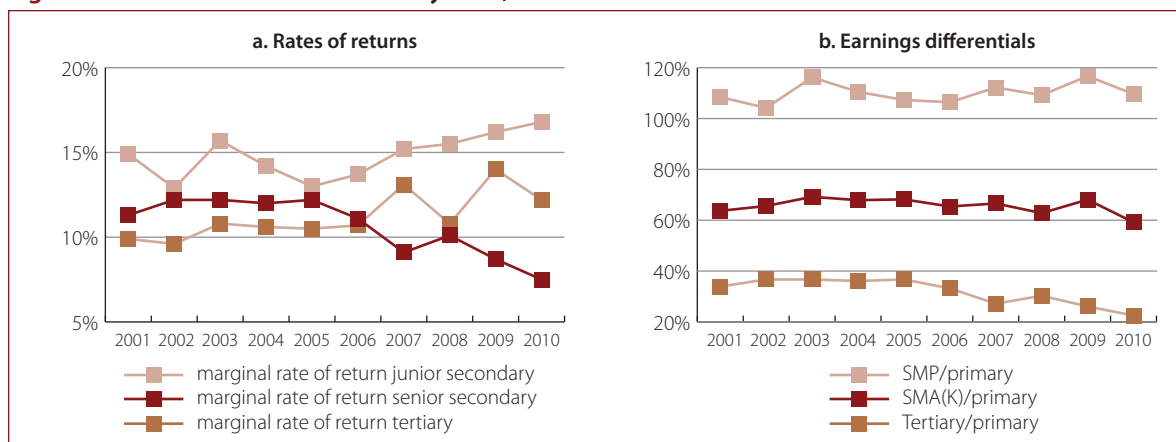


Source: MONE statistics, 1994-2008.

Justifications for increasing investment in senior secondary education

Economic analysis supports increased investment in senior secondary education, and further tertiary education. The marginal returns to secondary and tertiary education are increasing in recent years in Indonesia (Figure 1.12a), while those to junior secondary education and below are decreasing. This is probably linked to the technological innovations, openness to world trade, and sustained economic growth that have fueled demand for skilled workers. In addition, employer surveys increasingly indicate that shortages of skilled workers constitute constraints for new private sector investment and growth (World Bank, 2011). A 2008 survey of 250 companies (World Bank, 2010a) also confirmed the higher labor market demand for more complex skills.

Figure 1.12. Returns to education by level, 2001-2009

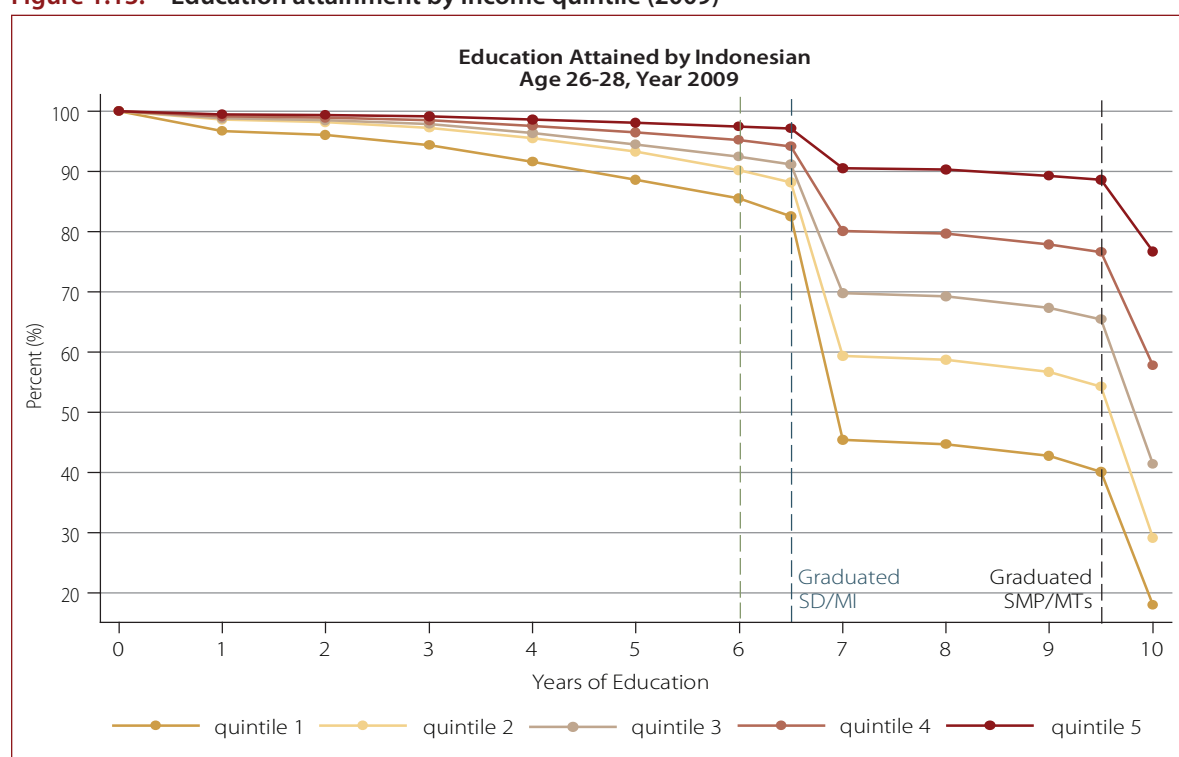


Source: SAKERNAS.

Investment in education directly generates income, and stimulates economic growth. This can be reflected by the earnings differentials by education level (Figure 1.12b). Those who have graduated senior secondary education earn 60 percent more than those who only have primary education. In addition, over the past decade, the earning differentials between workers with more education and those with less have widened, despite the expansion of the education system and an increase in the supply of educated workers at all levels.

Public investment in senior secondary education is justified on the grounds of the social benefits of secondary education. The positive externalities of secondary education on health, gender quality, and poverty reduction are even stronger than those of primary education (World Bank, 2005), although these are difficult to quantify in economic terms. Equally important, public investment in senior secondary education is critical to narrow the disparities in access to education and promote social cohesion. Figure 1.13 shows that the disparities in access to education exist at each level of education in Indonesia, but widened drastically at senior secondary level. According to SUSENAS 2009, nearly 80 percent children from the wealthiest quintile of the families can reach Grade 10, compared with less than 20 percent from the poorest quintile of the families.

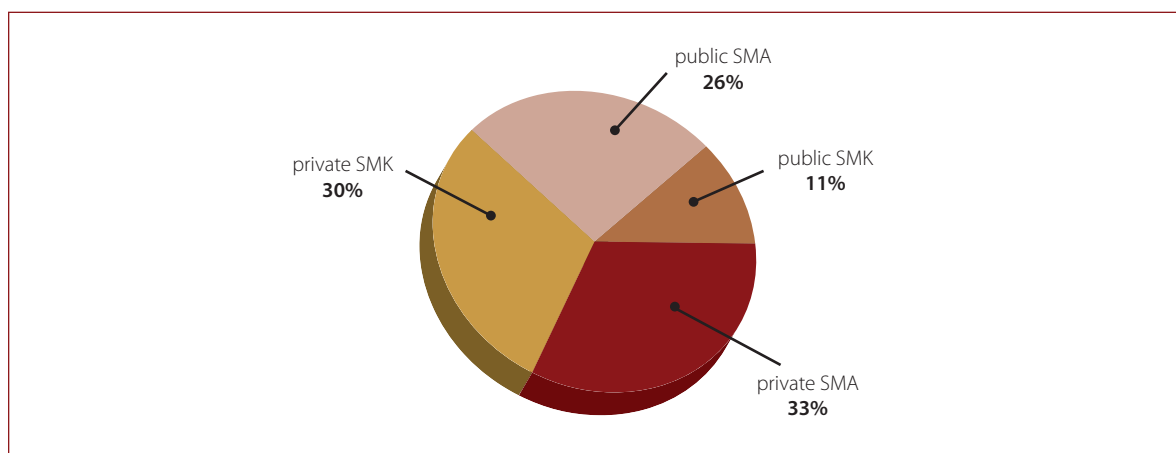
Figure 1.13. Education attainment by income quintile (2009)



Source: SAKERNAS.

Public interventions in secondary education are also essential to ensure the quality of education, given that the information on school quality is often asymmetric – known to schools but not to parents. This is particularly important in Indonesia with a large share of private schools (Figure 1.14). Private secondary schools currently cover nearly 50 percent of the total enrollment at this level. They play important roles in expanding senior secondary education provision. However, parents cannot always distinguish good versus bad schools. Government setting operational requirement and minimum service standards and enforcing them is therefore essential to protect the households as consumers of education services, ensuring that what they are paying for is not of sub-standard.


Figure 1.14. Share of types of senior secondary education providers



Source: MoNE statistics, 2008-09, PSP.

While this report focuses on senior secondary education, many of the issues are common across sub-sectors and need to be tackled at system level. Most distinctive of these issues include the quality of learning as reflected in the international comparative studies, effective teacher management; quality and resource gaps between private and public schools; and institutional arrangement for quality assurance and financing. Some other issues need to be confronted directly at the senior secondary level, such as the tracking policies of students into academic and vocational curricular streams, the large disparities in access, and the high cost to households.

Following this chapter, Chapter 2 discusses how well the senior secondary education prepares the Indonesian youth for transition, focusing on learning and labor market outcomes, and access opportunities. Chapter 3 looks into how schools are prepared for delivering services with adequate resources and inputs. Chapter 4 examines system level issues including quality assurance mechanisms and financing arrangement. Chapter 5 concludes and summarizes the policy directives.

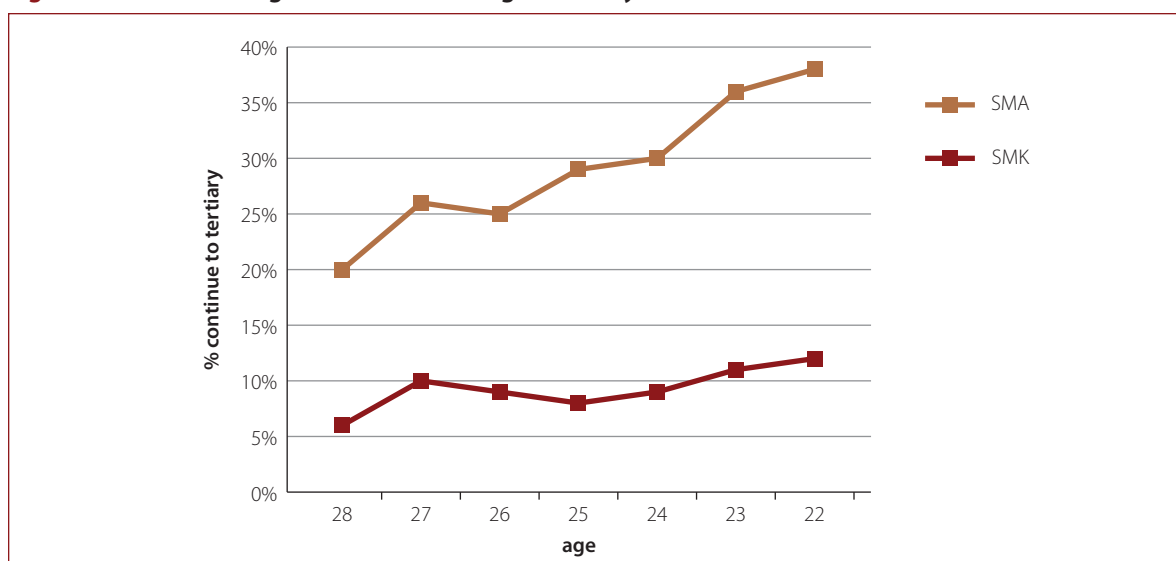


II. How Well Does Senior Secondary Education Prepare Youth for Transition: Outcome, Access, and Equity

This chapter examines the outcomes of senior secondary education in Indonesia in terms of preparing the graduates for higher level of education as well as direct entry to the labor market. In recent years, there is a growing share of Indonesian senior secondary graduates seeking higher education. But a majority of them still start work directly upon graduation. What further complicates the situation is that the academic (SMA) and vocational (SMK) tracks of senior secondary schools do not necessarily correspond exactly to the two destinations: a large share of academic track graduates enters the labor market after graduation; and in the meantime, a growing share of vocational track graduates pursues higher education (Figure 2.1). This chapter will start by examining the labor market outcomes of senior secondary graduates, followed by a close look at the learning outcomes of the Indonesian youth, particularly their performance in several international learning assessments.

This chapter will also cover the trend of access to senior secondary education in Indonesia, and its determinants, particularly to identify demand versus supply side factors that affect these trends. Equity and inclusiveness in access to senior secondary education will be an important dimension to be discussed.

Figure 2.1. Share of graduates continuing to tertiary education



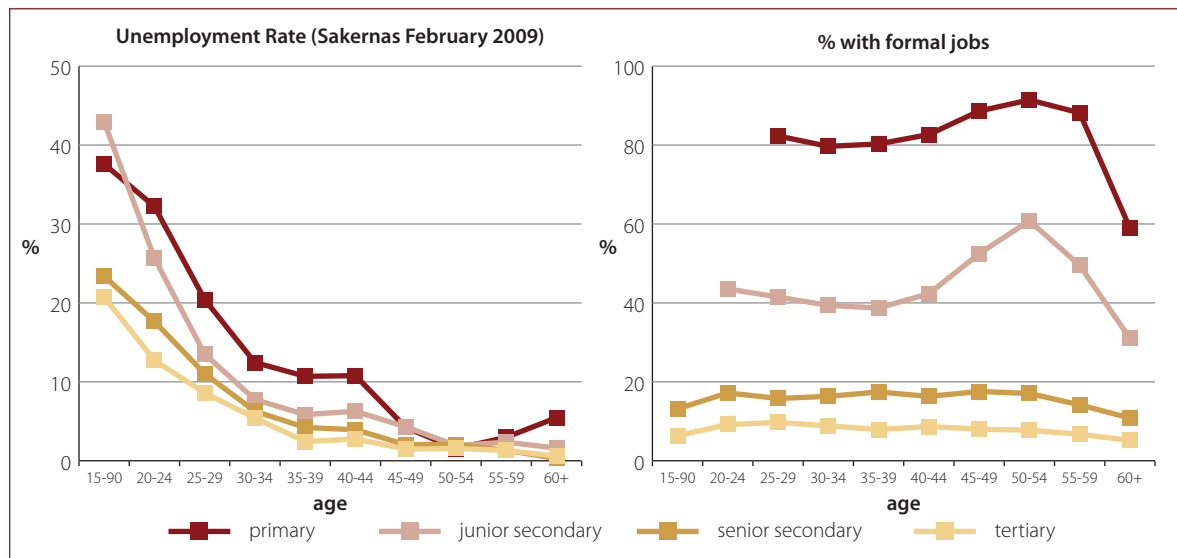
Source: Indonesia Family Life Survey 4 (IFLS4, 2007-08).

A. Outcomes of senior secondary graduates

Labor market outcome: employment opportunities and earnings

It is often observed in Indonesia that unemployment rate goes higher with higher level of education (Figure 2.2a). The aggregated unemployment rate, however, often does not distinguish the types of jobs that people with different education attainment are looking for. In Indonesia, higher unemployment rate of youth with higher education attainment, particularly immediately after graduation, can largely be explained by the difficulties of entering formal job market (World Bank, 2010b). Currently, over 60 percent of Indonesian labor force is in informal sector. The high severance pay and other rigid labor regulations have constituted key barriers of creating more formal jobs (World Bank 2010c). Nonetheless, compared with primary and junior secondary school graduates, senior secondary school graduates in Indonesia are more likely to hold a formal sector job (Figure 2.2b). The likelihood increases with labor market experience. While for primary and junior secondary graduates, the chances are relatively constant throughout the lifecycle, remaining at below 20 percent for junior secondary graduates, and below 10 percent for primary schools graduates.

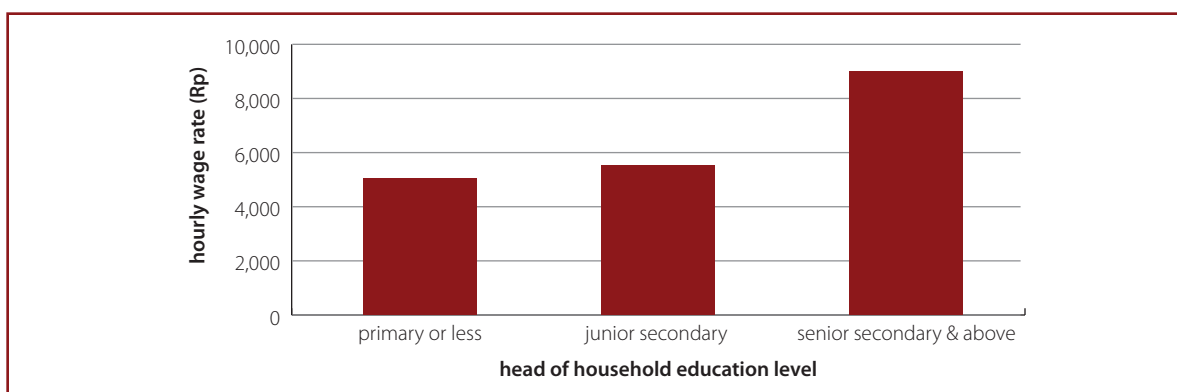
Figure 2.2. Unemployment and formal sector employment, by education level



Source: SAKERNAS, 2009.

Among senior secondary graduates, differentials in labor market outcome seem to exist, as reflected by the variations in wage rate. Figure 2.3 shows that the graduates with better family background, measured by the household's head's education level, tend to earn more on the labor market. This can be associated with better quality schools that the better-off households have access to, together with the households' direct effect on learning and securing better-paid jobs.

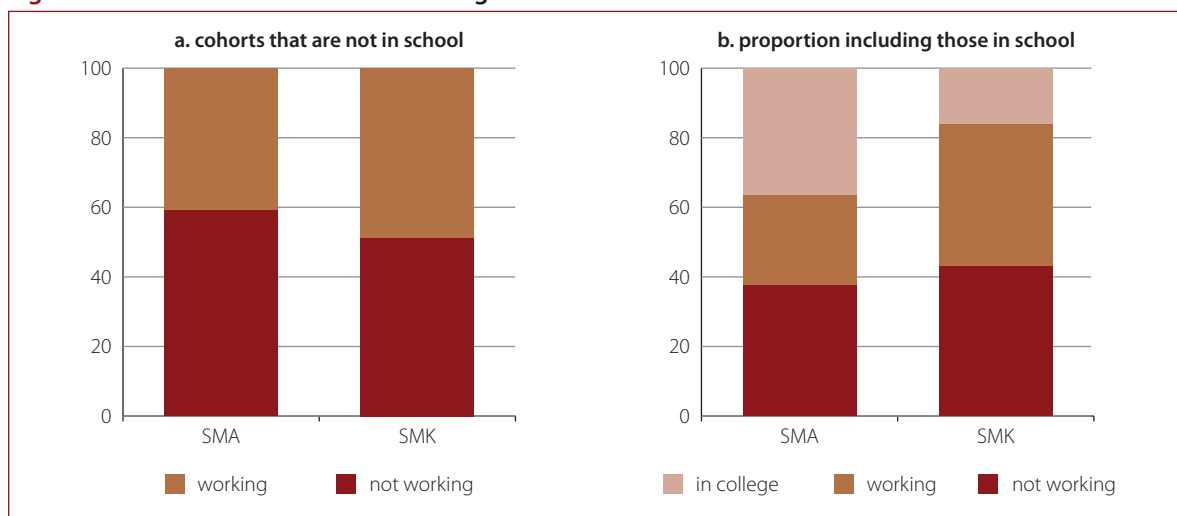
Figure 2.3. Hourly wage rate by household head's education



Source: SAKERNAS, 2009.

There has long been a debate on whether SMA or SMK graduates have better labor market outcome. Chen (2008) found that there were no significant differences in terms of unemployment rate upon graduation, after controlled for the selection bias caused by college entry. Comparing SMK and SMA graduates who do not go to college, SMK graduates seem to have a better chance of landing a job upon graduation (Figure 2.4a). However, this simple comparison does not take into consideration the fact that a significantly larger proportion of SMA graduates go to college (Figure 2.4b). Those who do not go to college constitute a selected group of the cohort. The unemployment rate differentials become insignificant after this selection bias is corrected. Newhouse et al (2009) also shows that there is no significant earnings differences for fresh senior secondary school graduates, but the earnings of SMK graduates depreciates much faster after 7-8 years.

Figure 2.4. Outcome of SMA and SMK graduates



Source: Chen (2008).

Employer's view

The Demand for Skills in Indonesia Report (World Bank 2010a) provides a glimpse of the employer's perception of the quality of senior secondary education. Overall, the report points to the issues with the relevance and quality of skills. "Quality is a particularly critical issue for senior secondary education graduates (general and vocational), in both the manufacturing and service sector".

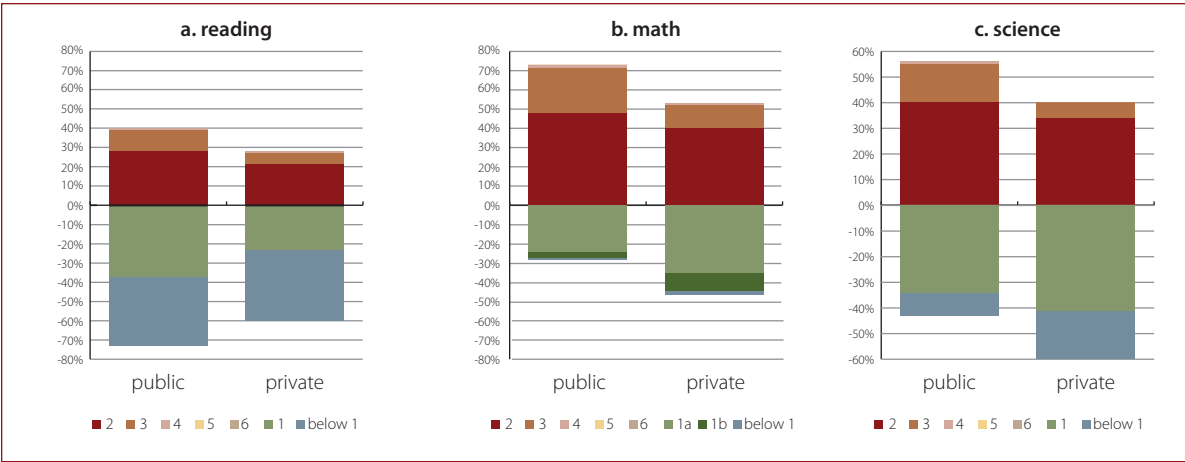
The same report also presents the employer's perspective on the quality of newly hired graduates, which is a selected group in the first place. About one-fourth of employers find secondary graduates to be "below average". A comparison of performance between general and vocational school graduates also reveals a slight preference over vocational track, as employers tend to give less poor ratings and more "very good" ratings for SMK graduates.

Learning outcome and test scores

Indonesia ranked low on international standardized tests such as the Program for International Student Assessment (PISA), which tests 15 year olds in reading, math and science proficiency. About half of the Indonesian 15-year-old sample for PISA is from grade 10, the first year of senior secondary school. Given that these students were just starting their senior secondary education, these assessment results reflect the quality of the student source of senior secondary education. Figure 2.5 shows the results from 2009 PISA. On a proficiency scale of 1 to 6, a majority of the Indonesian 10th-graders cannot reach beyond level 1 in reading, math, and science. What is the most alarming is that 30 percent of the tested 10-graders cannot even reach level 1 in math, the basic level for routine procedures with direct instructions in explicit situations². On average, private school students performed significantly worse than their peers at public schools, mainly a result of the sorting of higher-achievers to public schools where teaching and learning conditions are often much better. While the shares of students at level 1 and level 2 are largely similar between private and public schools, private schools tend to have much smaller share of relatively high performers (level 3 and above) and larger share of bottom performers (below level 1).

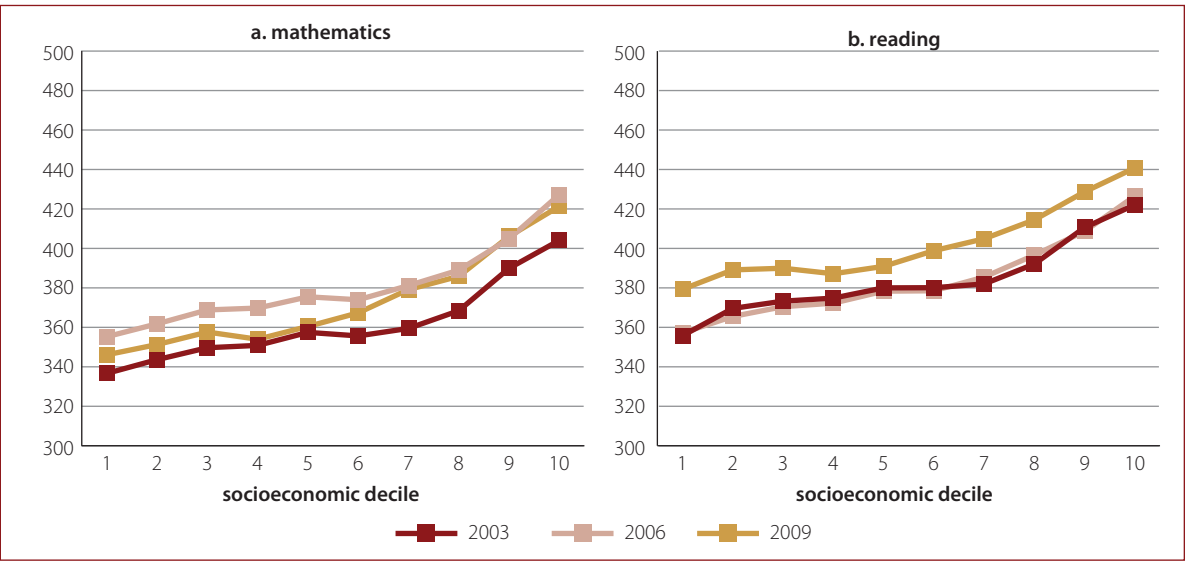
² See appendix A for a full description of all levels of proficiency in reading, math, and science in PISA

Figure 2.5. Indonesian Grade 10 student performance in PISA 2009



There is wide spread of variations in the learning outcomes of Indonesian students. The PISA results from 2003 to 2009 (Figure 2.6) shows that the achievement disparities between the well-off and the under privileged have been persistent. While reading scores improved between 2003 and 2009, the differences in scores between students of the 1st and 10th socioeconomic deciles have not been narrowed. The gains in learning outcome were almost evenly spread. What is most worrisome is what is shown in math score. Between 2006 and 2009, the average math score actually declined. However, a close examination reveals that the students from the highest socioeconomic deciles have been able to maintain the achievement, while the decline is mostly in the scores of the students from the lowest socioeconomic deciles, who had the lowest scores to start with.

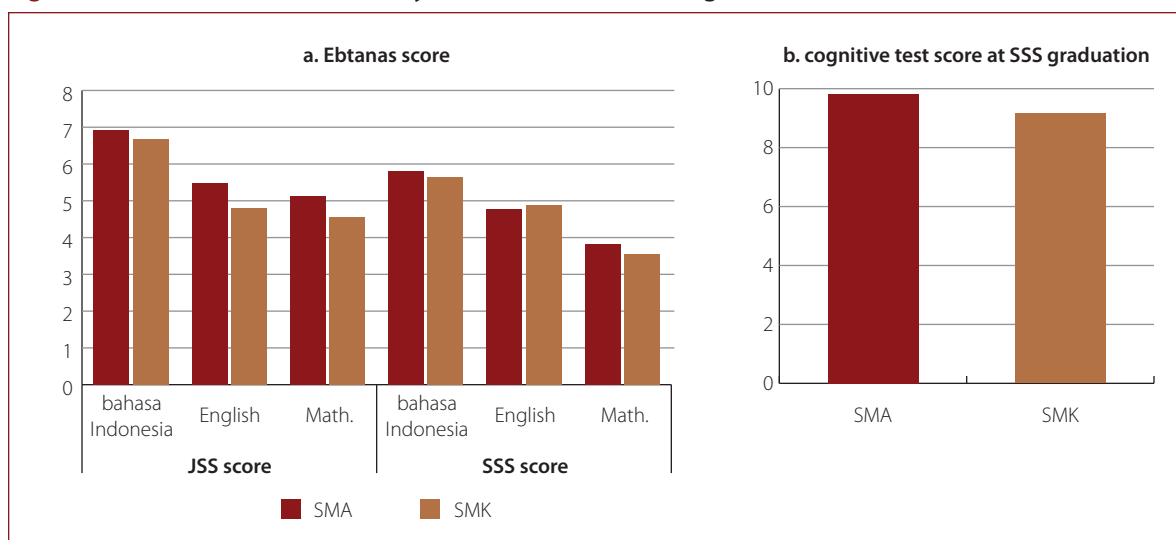
Figure 2.6. Performance of Indonesian students in international assessment 2003, 2006, and 2009 PISA results by socioeconomic decile



Source: PISA report.

National examination scores and cognitive test scores administered by the Indonesia Family Life Survey (IFLS) can also detect achievement differentials across students in different types of schools. The national test scores show that junior secondary school graduates with higher scores are more likely to enter SMA (Figure 2.7a). Upon graduation, the differences in test scores remain. These differences in national test scores between SMK and SMA graduates are also consistent with what is shown in the cognitive test scores administered under IFLS (Figure 2.7b). However, controlled for junior secondary test score, going to SMK does not seem to lead to any widening of the academic achievement gaps.

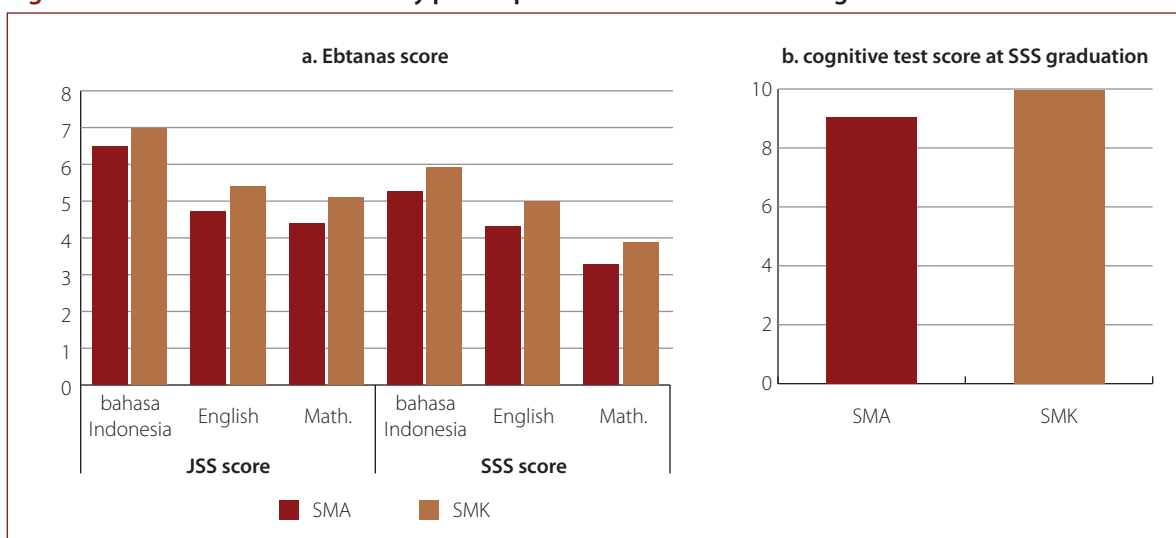
Figure 2.7. National test scores by SMK/SMA entrants and graduates



Source: IFLS 2 and IFLS 3.

Same patterns exist for the test score differences between public and private schools (Figure 2.8). Students with higher junior secondary graduation scores are more likely to be admitted to public senior secondary schools, while being in a public or private school does not seem to lead widened test score differences upon graduation.

Figure 2.8. National test scores by public/private school entrants and graduates

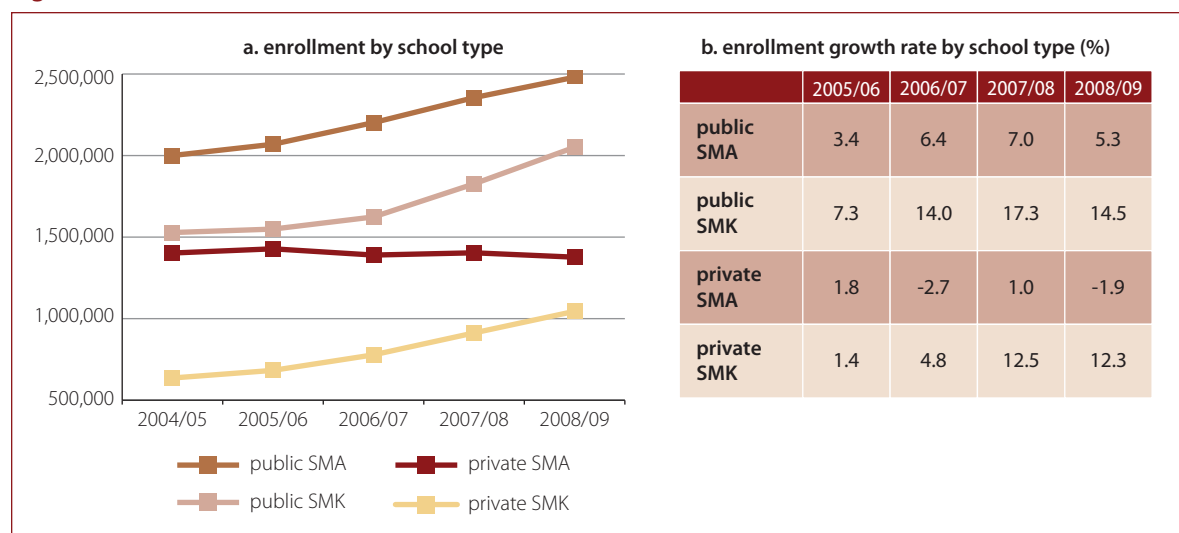


Source: IFLS 2 and IFLS 3.

B. Equitable access to senior secondary education

The Ministry of Education and Culture (MoEC)'s data shows that the overall enrollment at senior secondary level is continuously increasing in recent years. Several patterns have emerged: enrollment in public schools has been increasing faster than that in private schools, resulting in an increase of the share of public school enrollment from 47 percent to 51 percent during the past 5 years. Most notable is the fast expansion of enrollment in vocational secondary schools, or SMK, averaging 12-14 percent annual growth since 2004/05. Public SMA and private SMK absorb the largest enrollments. Private SMA has much smaller share of enrollment, but remains important, absorbing 20 percent of the total senior secondary enrollment (Figure 2.9).

Figure 2.9. Enrollment increase 2004-2009



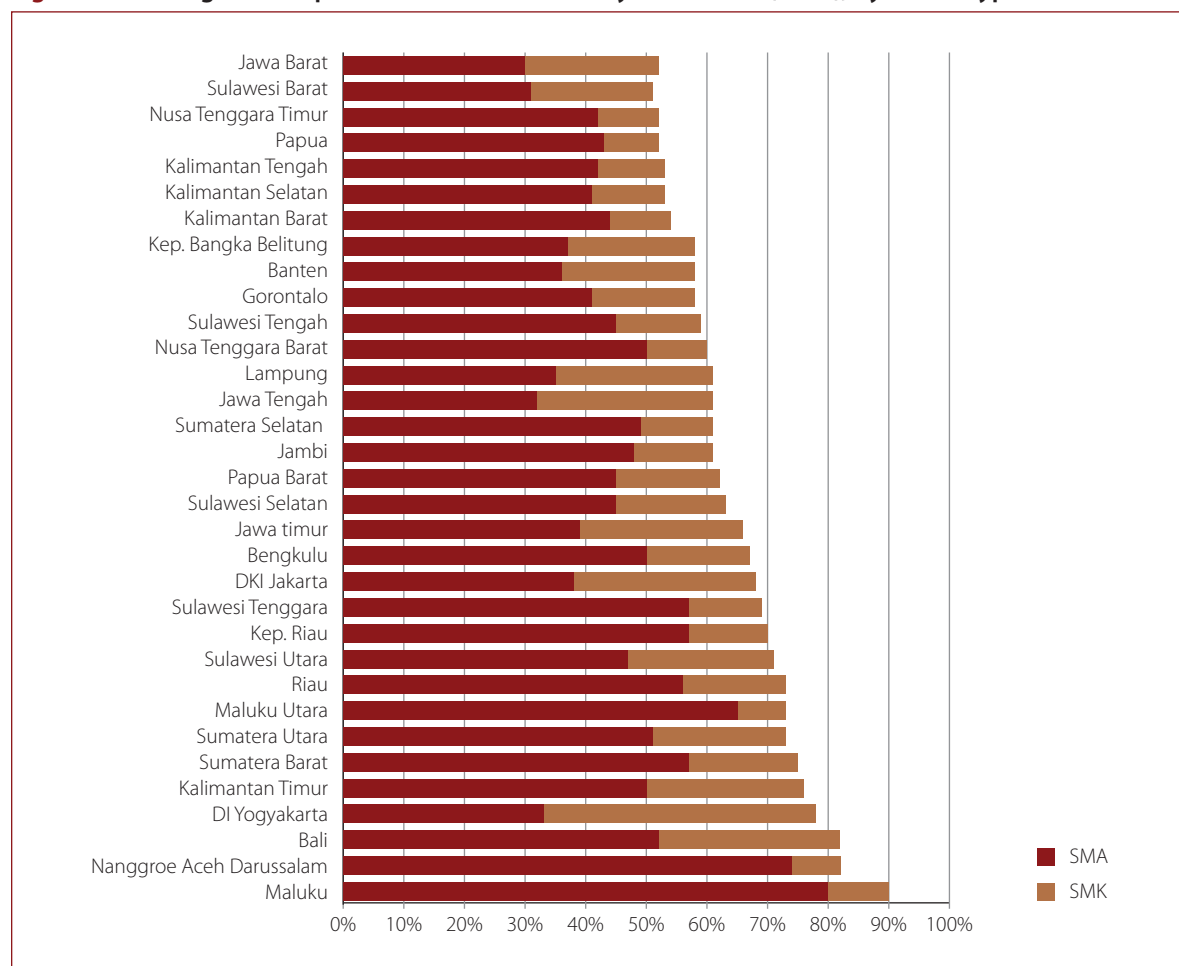
Source: MoEC, PSP.

Analysis of household survey data shows the distinctive regional disparities in senior secondary school enrollment - its overall level, as well as the enrollment composition by type of schools. Figure 2.10 shows that Maluku Province has the highest enrollment rate, at 90 percent, of which about 90 percent of the total enrollment is in SMA³. In contrast, the total enrollment rate is only at around 50 percent in West Java Province, of which 60 of the total enrollment is in SMA, and the remaining 40 percent in SMK. Another noticeable pattern is that Central Java Province and Yogyakarta Regency (also located within Central Java) have the highest share of enrollment in vocational schools: nearly half in Central Java, and above half in Yogyakarta.

Ordinary Least Square (OLS) estimates show that senior secondary school enrollment ratio is determined by both demand and supply side factors (Table 2.1). Using provincial level GER as dependent variable, the regression results show that the enrollment at provincial level is correlated with provincial junior secondary school GER, but not with provincial GDP per capita, two key variables capturing the demand-side factors. In the meantime, the number of schools per million people within a province - a key supply-side measure - is also statistically significant: the more existing schools relative to population, the higher the enrollment. Therefore, both demand and supply-side factors matter in determining the provincial level senior secondary school GER.

³ The relatively high level of educational achievement in terms of school enrollment and national examination scores is well documented, such as in EFA 2000 Assessment (World Education Forum) and ILO (2011). Further research is needed to identify the key factors that contribute to Maluku province's education sector performance.

Figure 2.10. Regional Disparities in senior secondary school GER (2009), by school type



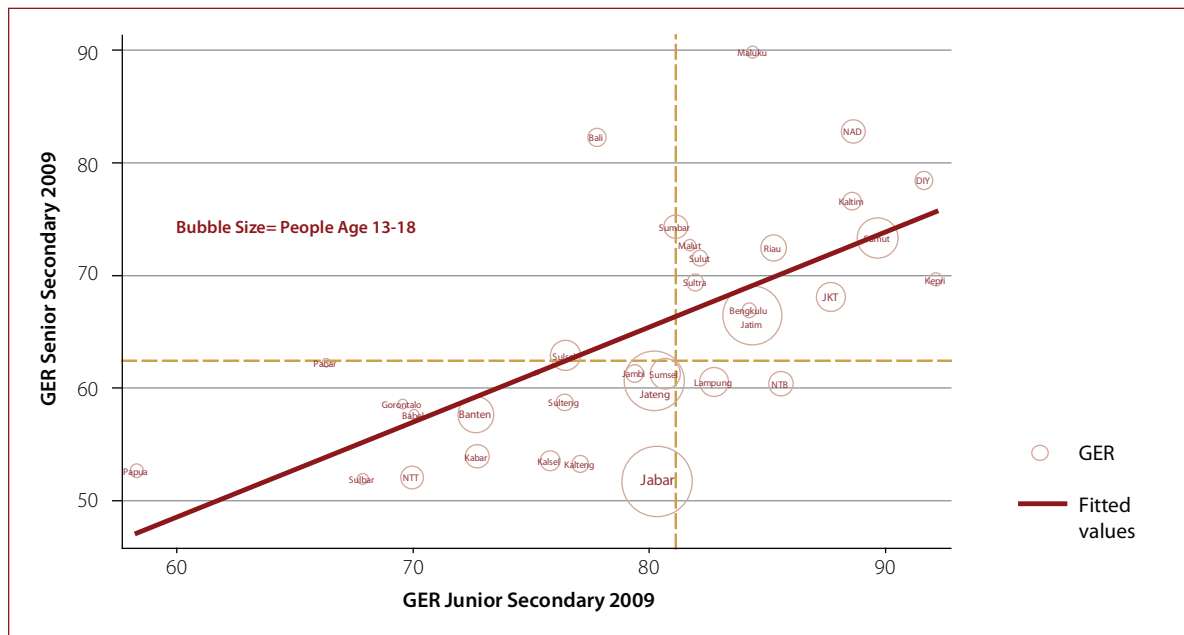
Source: SUSENAS 2009.

Table 2.1. OLS results: total senior secondary education GER

	Coefficient estimate	Standard error	T	P>t
GDP per capita	0.0000	0.0000	0.2200	0.8240
School-age population ***	0.0015	0.0005	3.0900	0.0040
SMP GER ***	0.6897	0.1703	4.0500	0.000

Figure 2.11 illustrates the above results by plotting the senior secondary school GER against junior secondary school GER, with the population size reflected by the size of the circle representing each province. Provinces with larger population tend to have lower senior secondary school GER, given similar junior secondary school GER. Figure 2.11 also divides the provinces into quadrants of four categories: provinces falling within upper and lower left quadrants still have lower than average junior secondary education enrollment, and thus policy focus should continue to on the achievement of 9-year basic education. The lower-right quadrant represents the provinces with lower than average senior secondary GER, even though their junior secondary education has better than average coverage. The policy focus can therefore start to shift towards improving senior secondary GER. The provinces in the upper-right quadrant can aim at balanced expansion at both levels.

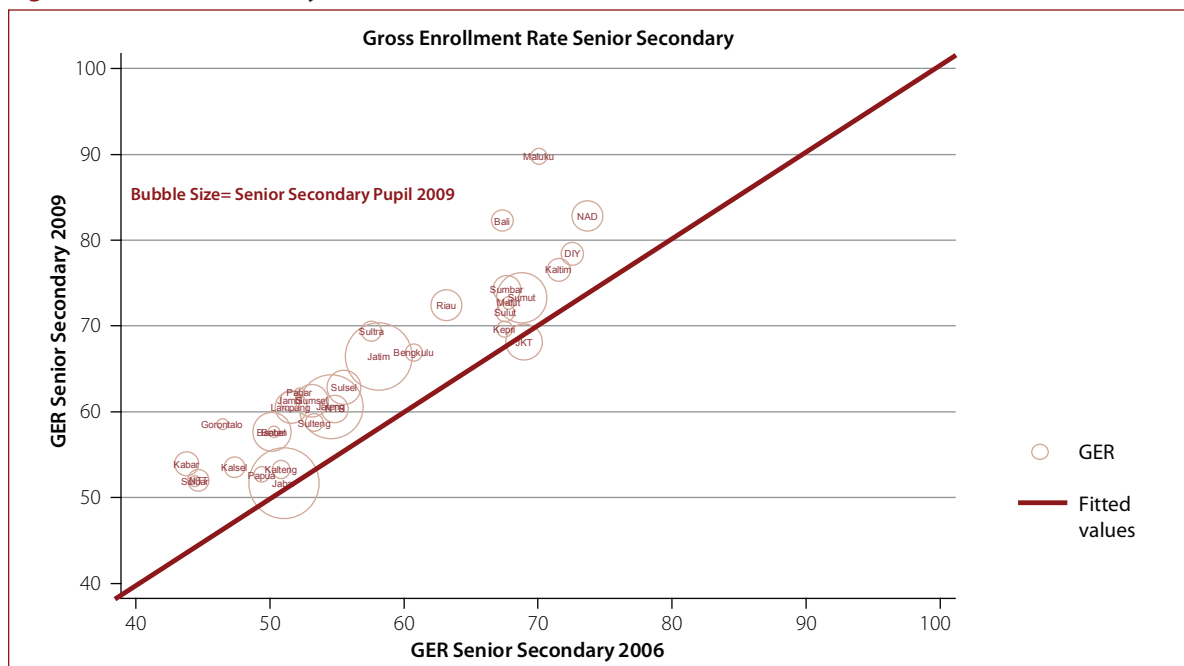
Figure 2.11. Sr. secondary GER vs Jr. Secondary GER, by province



Source: SUSENAS 2009.

Comparing GER in 2006 and 2009, almost all provinces have made progress in terms of raising GER of senior secondary education, with very few exceptions (Figure 2.12). GER in West Java and Yogyakarta, for example, has more or less stayed the same. A consistent pattern across provinces is that the overall progress in senior secondary education coverage is largely due to SMK enrollment expansion.

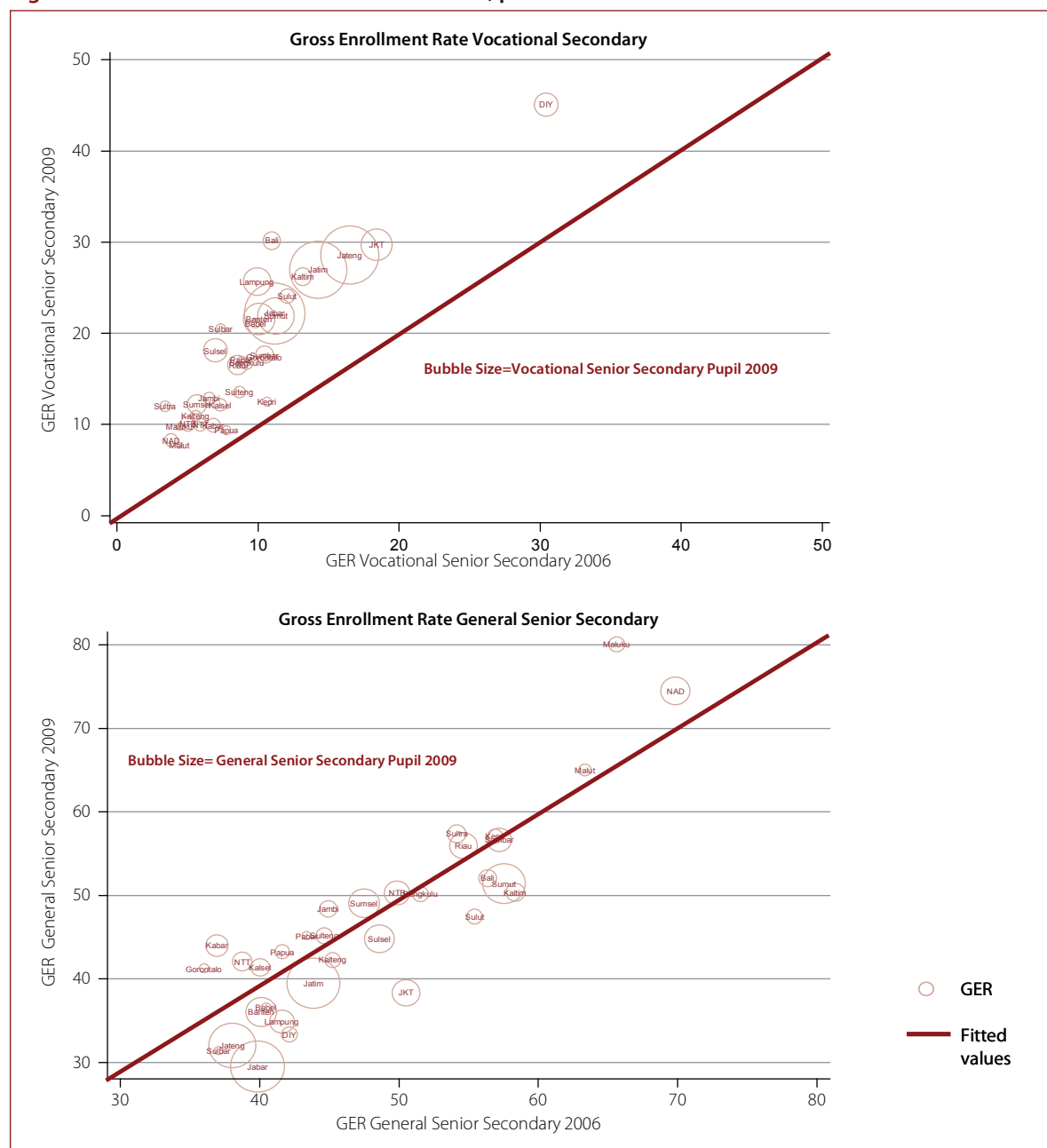
Figure 2.12. Sr. secondary school GER, 2006 vs 2009



Source: SUSENAS 2006, 2009.

As illustrated in Figure 2.13, between 2006 and 2009, all provinces experienced large GER growth of SMK. Many provinces actually had GER declines in SMA during this period, particularly the more populated provinces such as those on Java and Sumatra island.

Figure 2.13. SMK and SMA GER: 2006 vs. 2009, provincial data

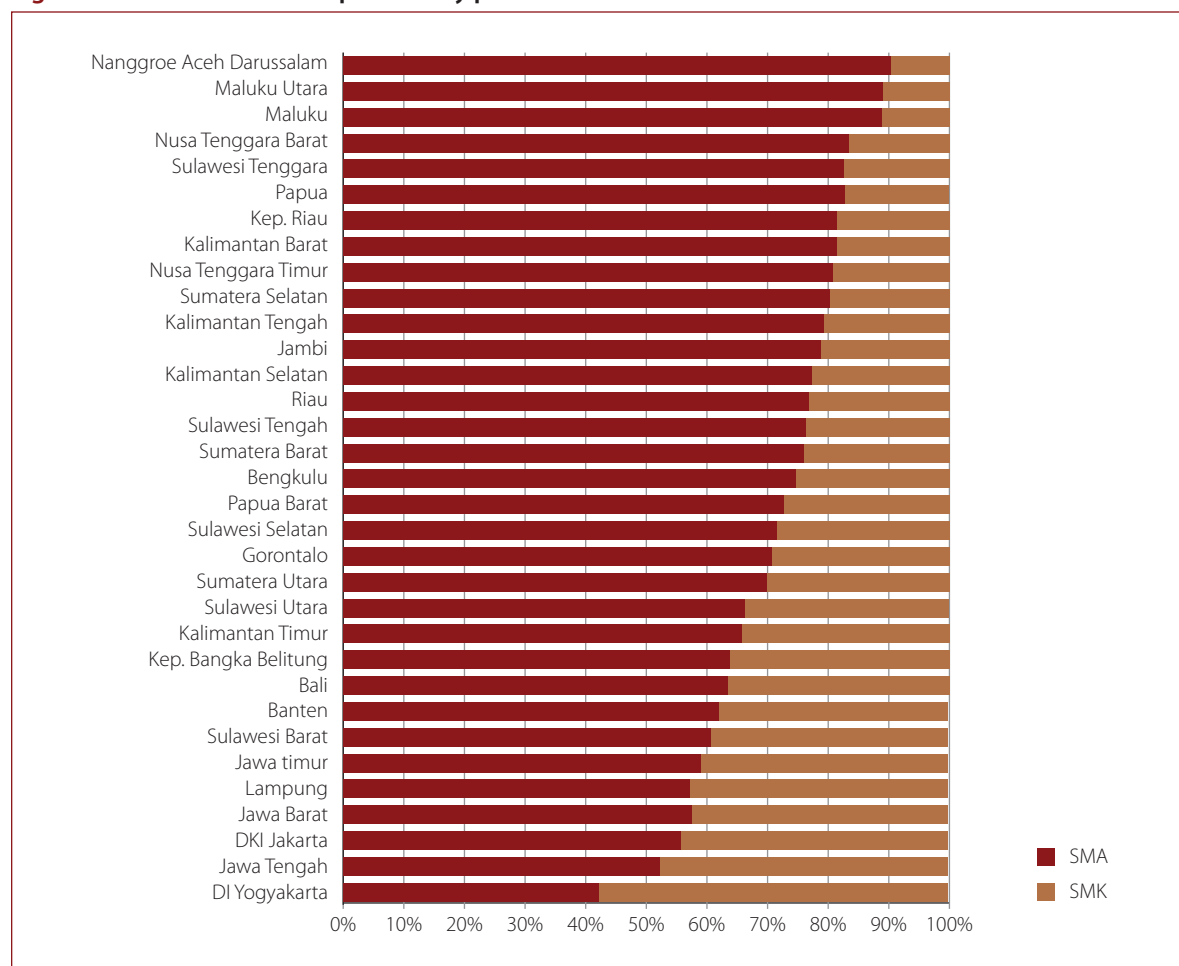


Source: SUSENAS 2006, 2009.

Currently the enrollment composition by SMK and SMA varies greatly across provinces. Figure 2.14 shows the enrollment share of these two types of schools in all provinces. More populated or industrialized provinces tend to have higher shares of enrollment in SMK. What factors determine the choice of SMA versus SMK enroll-

ment? Previous studies based on household survey data have shown that the choice of SMK over SMA seems to be mostly driven by supply side factors: the relative availability of SMK versus SMA in the province or district increases a child's likelihood of being enrolled in SMK (Chen 2008).

Figure 2.14. SMA/SMK composition by province



Source: SUSENAS 2009.

Provincial level data also points to the same supply side factors: the larger the SMK share among all senior secondary schools in a province, the higher the provincial SMK enrollment ratio (Table 2.2). In the meantime, the presence of private schools also seems to have a positive effect on SMK enrollment. This may be due to the fact that a majority of private schools are vocational schools, and they tend to be more actively seeking enrollment than public schools.

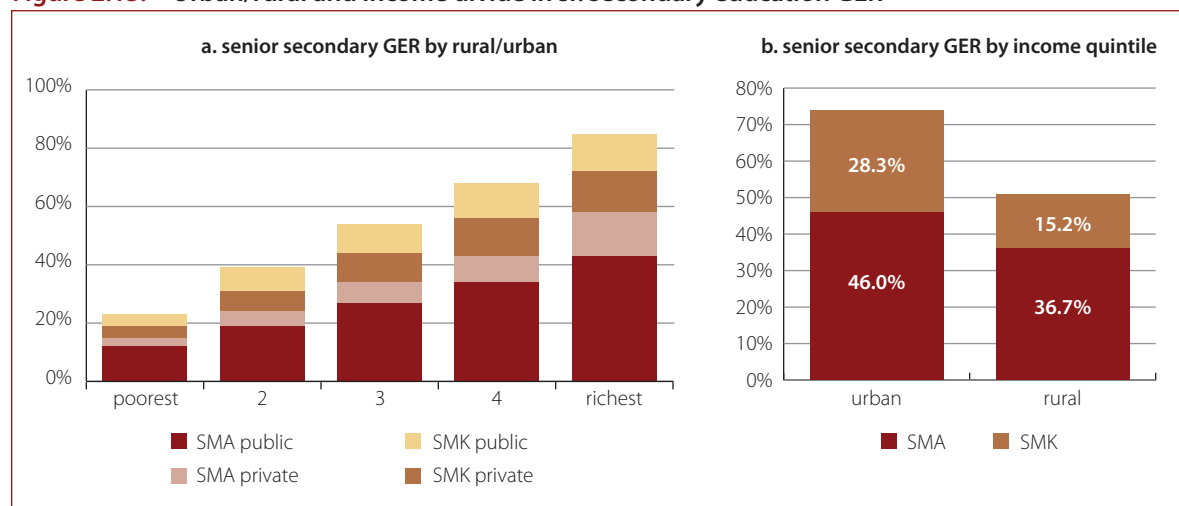
Table 2.2. OLS of Provincial SMK GER

SMK GER	Coef	Std Err	t	P>t
SMP GER***	0.4198	0.1502	2.7900	0.0090
GDP per capita	0.0000	0.0000	0.0800	0.9350
Proportion of private schools***	0.4535	0.0800	5.6700	0.000
Proportion of SMK***	35.3280	9.6888	3.6500	0.0010
School-age population*	-0.0007	0.0004	-1.8000	0.0820

Source: SUSENAS 2009.

Urban-rural and income divide is large in terms of overall enrollment in senior secondary education, and the composition of enrollment in SMA or in SMK. Senior secondary GER in urban area is much higher (74 percent) than that in rural area (51 percent). In addition, SMK appears to be more an urban phenomenon: nearly 40 percent of the enrollment in urban areas is in SMK, compared with only less than 30 percent in rural area (Figure 2.15a).

Figure 2.15. Urban/rural and income divide in sr. secondary education GER



Source: SUSENAS 2009.

The disparities in access to senior secondary education across household income quintile are the most distinctive (Figure 2.15b). Over 80 percent of the children from the richest 20 percent of the households can participate in senior secondary education. In contrast, only a little over 20 percent of the children from the poorest 20 percent of the households can ever get enrolled in senior secondary education. However, there is negligible difference in the distribution of the types of the schools enrolled. Private schools or vocational schools serve the rich as well as the poor.

Box 2.1. Previous studies of vocational school

Chen (2008) compared SMK and SMA in terms of their effects on the ability and likelihood of attaining employment; labor market earnings; and participation in tertiary education in the Indonesian context. Using a panel from IFLS 2 and IFLS 3 in 1997 and 2000, a cohort of high school students in 1997 is tracked to determine their schooling and employment status in 2000. It is found that attendance at vocational secondary schools results in neither market advantage nor disadvantage in terms of employment opportunities and/or earnings premium. Relative supply of SMK versus SMA is a key determinant of household choice of SMK.

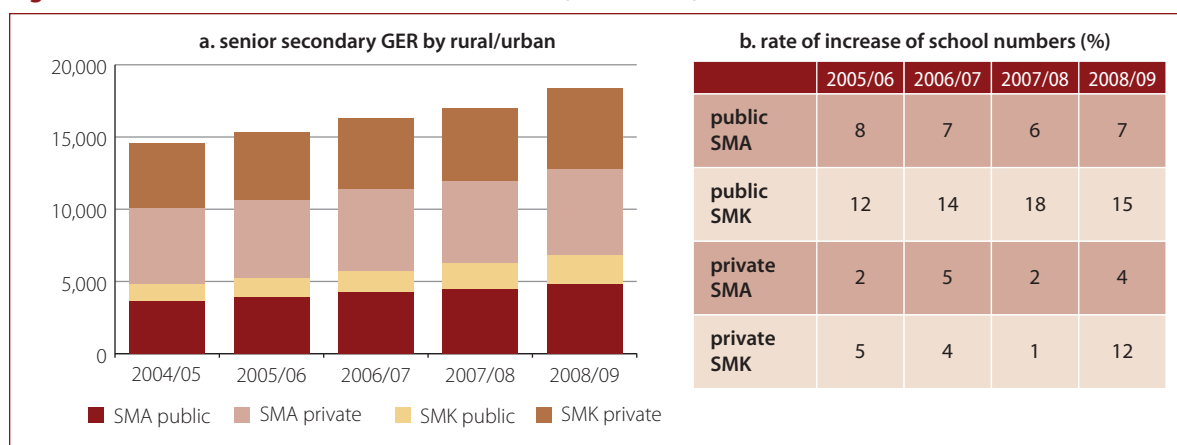
Park (2009) illustrated Korea's experience in attempting to increase the proportion of vocational high school enrollments to 50 percent from 24 percent in late 80s and early 90s. The Korean Government promoted the expansion of freshmen enrollment in existing vocational high schools, established new schools, and to converted many general academic high schools to comprehensive schools. After the share of vocational high school enrollment peaked in 1995 at 42 percent, it started to decrease – to 36 percent in 2000 and further to 29 percent in 2005. Park highlighted several reasons that led to this result: i) insufficient budget commitment for the construction of new schools; ii) lack of academic high schools that volunteered to become vocational high schools; iii) resistance from parents, alumni, and communities of academic high schools that were designated to be transformed to vocational high schools; and iv) opposition from teachers who were worried about the problem of oversupply of academic subjects due to transformation of academic high schools into vocational high schools. Most of these problems were not fully anticipated and discussed in the stage of policy preparation.

Source: Chen (2008); Park (2009).

Supply

As shown earlier in this chapter, the supply of school places has significant effect on the overall enrollment in senior secondary schools. This section tries to capture the patterns and trends of school supply. In the past 5 years, there has been nearly 30 percent increase of the total number of senior secondary schools. The number of public schools, and the number of SMK (both public and private) grow the fastest (Figure 2.16a). This is closely related to the drive started by MoEC several years ago aiming at increasing the SMK enrollment share up to 70 percent of the total senior secondary enrollment. One of the key investments has been building new SMK. This is clearly reflected in the fast growth shown in Figure 2.16b: the number of public SMK has experienced double-digit growth year-to-year for the past 5 years, compared with that of SMA growth at around 7 percent annually. Private SMK had a jump start growth between 2008 and 2009, when the expansion of SMK enrollment was highly encouraged by various policy campaigns.

Figure 2.16. Increase of the number of schools (2004-2009)



Source: MoEC, PSP.

Gaps exist in school availability to urban and rural households. IFLS shows that a majority of senior secondary schools are located in urban areas. There are no significant differences in terms of the shares of public and private school between urban and rural areas. However, compared with rural households, urban households tend to mention SMK more frequently when being asked about their knowledge on the availability of senior secondary schools (Figure 2.17). This is consistent with the enrollment data derived from SUSENAS, showing higher enrollment of urban children than rural children in SMK.

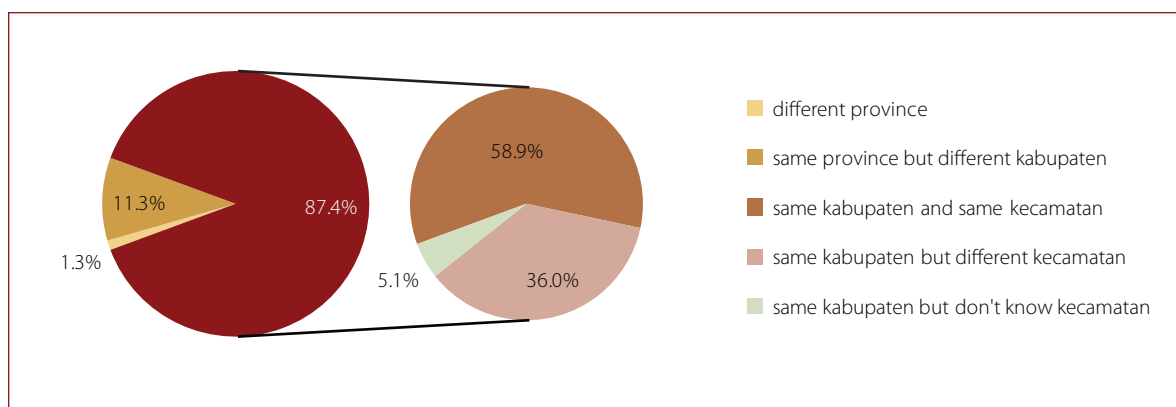
Figure 2.17. % of the most-mentioned sr. secondary schools by household



Source: MoEC, PSP.

Identifying school-going behavior of households is important for the planning of the expansion of school supply. IFLS data shows that households rarely go out of provincial boundaries for senior secondary schooling. In addition, over 87 percent of the households choose schools within their districts (*kabupaten*), among which nearly 60 percent stay in the same sub-district (*kecamatan*) (Figure 2.18). These patterns make future school supply planning somewhat easy as education service delivery largely falls under the mandate of local governments at district level. Given that “cross-border” school attendance in adjacent districts still exists, involving local governments within province is also essential for coordination.

Figure 2.18. How far from home to attend a senior secondary school

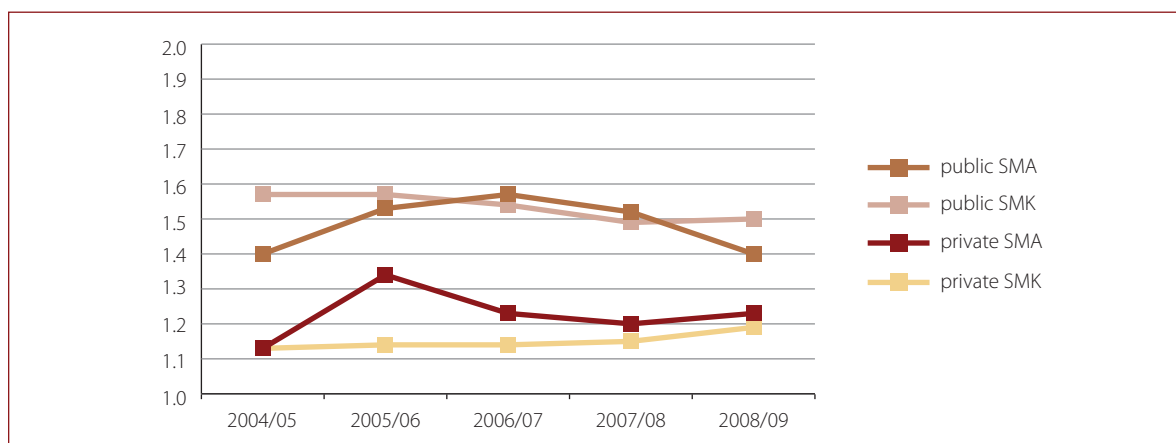


Source: IFLS 4

Demand

There is clear indication that the demand for attending senior secondary schools is not fully met currently. According to the records from schools on the application and admission data, all types of schools have more applications than what the existing school places can accommodate (Figure 2.19). Public schools are generally most desirable. The recent expansion of public SMK seems to reduce the application/admission ratio slightly, but the ratio is still at around 3:2 by school year 2008/09. Private schools absorb a significant proportion of excess demand, with application/admission ratio close to 1. But even in private schools this ratio is on the rise in recent years, particularly for private SMK.

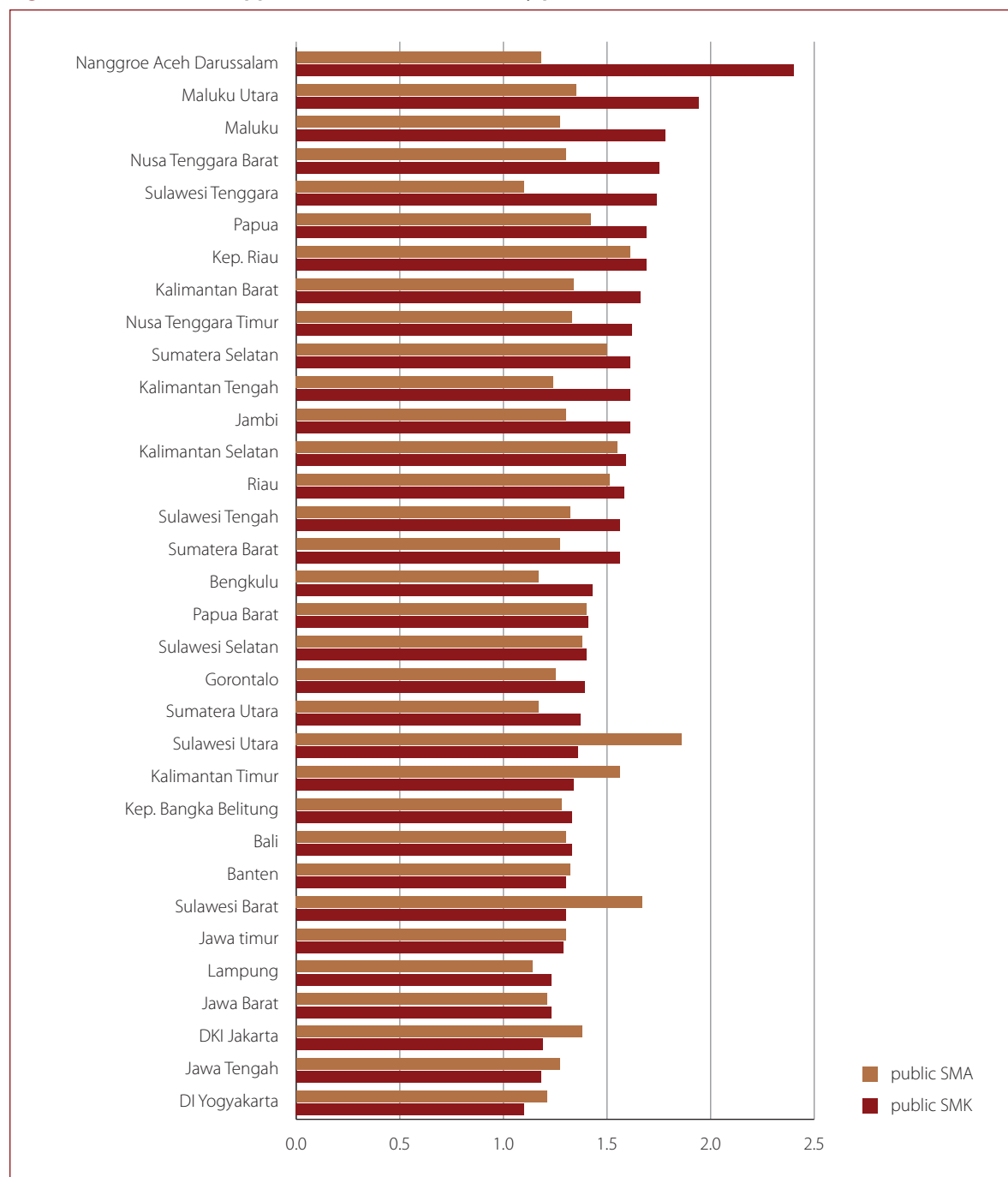
Figure 2.19. Application/admission ratio, 2004-2009



Source: MoNE, PSP

Given that a majority of households stay within province for senior secondary attendance, Provincial level differences in application/admission ratio can indicate where the expansion of school places is most needed. Figure 2.20 shows that in school year 2008/09, a majority of provinces have higher application/admission ratio for SMK than for SMA. North Maluku, Riau, and West Nusa Tenggara have the highest ratio of over 2:1 on average. Very few provinces have higher application/admission ratio for SMA – Jakarta and South Kalimantan stand out.

Figure 2.20. 2008/09 application/admission ratio, by province



Source: MoNE PSP.

In summary, there is clear evidence that the demand for senior secondary education is on the rise, and has surpassed the expansions in supply in Indonesia in recent years. Further public investment in expanding access, however, needs to give greater attention to narrowing the disparities between provinces, rural and urban areas, and households with different socioeconomic status. Improving learning achievement and labor market outcome has to be put at the center of any reforms at senior secondary level, and necessarily starts at the lower cycles of schooling. Without significant improvement in quality, any investment, whether it is from public or private source, will not get its full value. The quality improvement should also aim at narrowing the gaps between public and private schools – reducing the sorting effect and giving low performing student opportunities to catch up and close the learning gaps.

The debate on the optimal ratio between SMA and SMK will continue. The currently higher desirability of SMK by households seems to be derived from the perception of immediate employability upon graduation. As Indonesia's economy grows and technologies advance, demand for wider academic base for more advanced learning and skills development will rise, as reflected by other countries' experience. Balancing SMA and SMK is therefore a dynamic process, and requires a system with great flexibility and adaptability.



III. Are Schools Prepared? School Inputs, Resources, and Governance

Improving the quality of senior secondary education cannot succeed without good quality schools, the frontline of teaching and learning. Knowing the conditions and understanding the challenges is the starting point of a roadmap to future improvements and reforms. A wide range of school characteristics are relevant to educational quality. First and foremost is an adequate supply of qualified teachers who are motivated to work. Other traditionally valued educational inputs include teaching and learning materials, and the conditions of classrooms and supporting facilities, including laboratories and ICT facilities. Curriculum, which provides a blueprint for teaching and learning, is a key determinant of education quality. However, it is often not its design, but its implementation that poses more challenges. Overall financial resource available to schools is an important factor that affects the quantity and quality of these educational inputs. This chapter will focus on these school inputs and further relates these inputs to school financing issues⁴.

Indonesia's private secondary schools particularly face challenges in this regard. Unlike those in more advanced economies, only very few private schools in Indonesia are elite schools. The majority caters the excess demand by providing school places to those who do not score high enough in national examinations to compete for limited public school places. Therefore, most private schools get lower-performing students to start with. Qualified teachers also tend to be teaching at public schools, with secured posts in civil service – a highly sought status among Indonesian teachers. The divide between Indonesia's public and private schools in terms of school inputs and resource can easily be detected as illustrated in the analyses in this chapter.

A. Teachers

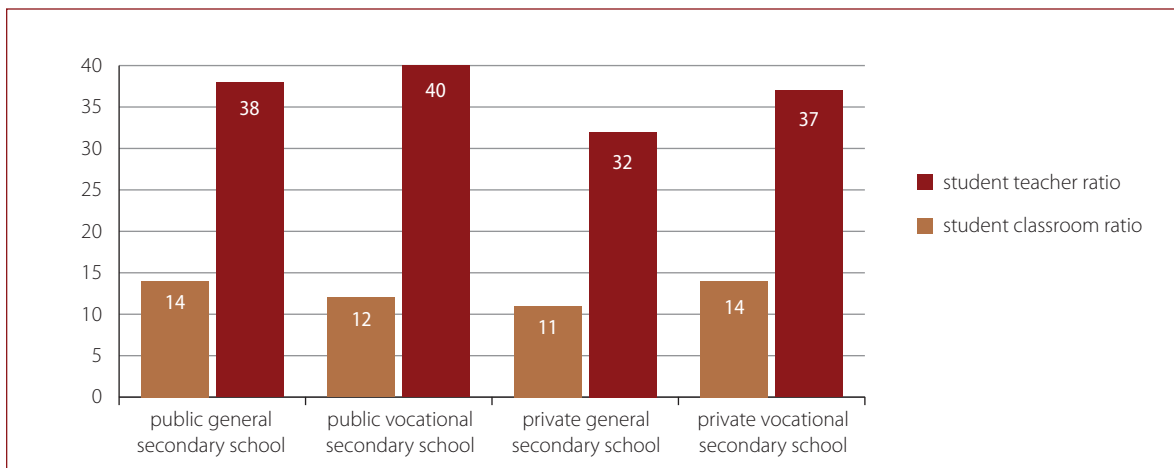
There is global evidence that the quality of education cannot exceed the quality of teachers. Indonesia's 2005 Teacher Law aimed to improve the quality of the Indonesian education system by addressing the weaknesses in teacher competencies, their low motivation and poor levels of pay. Teachers are required to be certified with demonstrated professional competency. It is expected that by 2015, all active teachers should be certified. Strong incentives were also introduced which entitled certified teachers to a professional allowance equivalent to their basic pay. Since 2005, approximately one million teachers, or about one-third of the total teaching force, have been certified. The immediate value of certifying in-service teachers is perceived as improving their morale and upgrading their knowledge and skills. In the longer term, the effect of higher qualification requirement together with higher compensation is expected to be more significant in terms of attracting high caliber people into teaching profession.

Teacher availability is not of concern in Indonesia. As a matter of fact, Indonesia's teacher supply can be characterized by the over-supply of teachers but shortage of qualified teachers. Chen (2009) uses a theoretical framework of government-dominated market with government-set wage rate and demand for teachers to examine how teacher supply, particularly the composition of the teaching force with low or high qualification, would be determined by current and future public policies. Using 2001 to 2008 Indonesian Labor Force Survey data, it is found that the relative wage rate of teachers and that of alternative occupations significantly influence the decision of college educated workers to become teachers. It is also found that the wage rate set by the 2005 teacher law would increase the share of teachers in the college-educated labor force.

With the currently large size of teaching force, the student-teacher ratio is quite low across all types of schools in Indonesia. One pattern emerging as illustrated in Figure 3.1 is the large differences between student-teacher ratio and class size, an indication that teachers may not be fully utilized in terms of total working hours. The current Teacher Law stipulates that the standard working hours for teachers is 24 hours per week, which is quite low by international standard. In reality, the actual number of working hours of Indonesian teacher is even lower.

⁴ Unless otherwise indicated, the analyses in this section use the school survey accompanied by the IFLS 4. The schools in the sample represent the most frequently mentioned schools by households, not a geographically representative sample of schools nationwide.

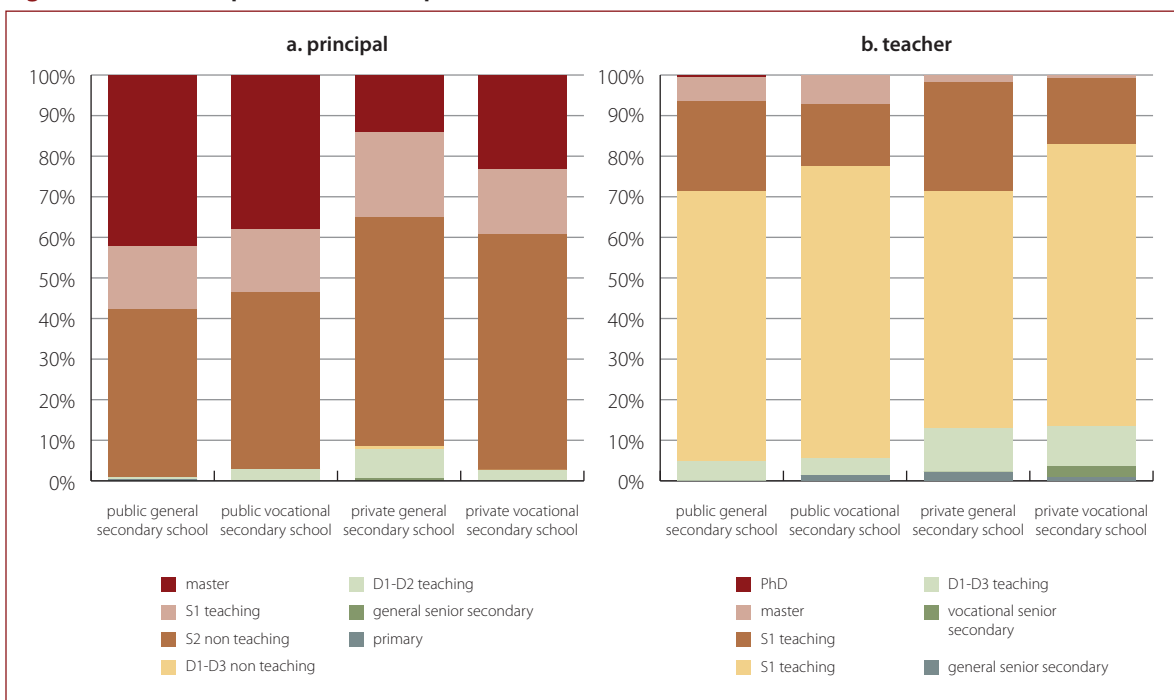
Figure 3.1. Student-teacher ratio and class size, by school type



Source: IFLS 2007-08

The qualifications of Indonesia's senior secondary school principal's and teacher's, as measured by their academic background, are generally good. A majority of principals and teachers have either Bachelor's degree or Master's degree. There are not significant differences in qualifications between principals and teachers in private and public schools, except that a larger proportion of principals in public schools have Master's degree (Figure 3.2).

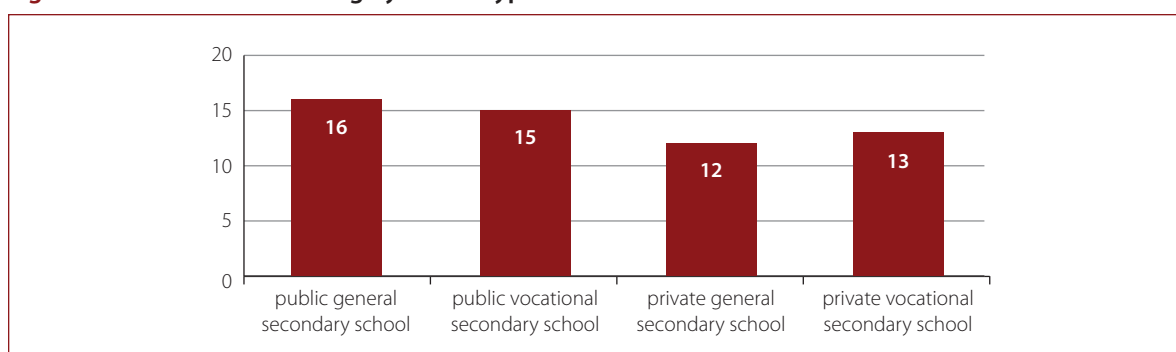
Figure 3.2. Principal and teacher qualification



Source: IFLS 4.

One difference that exists between private and public school teachers is the teaching tenure (Figure 3.3). Public school teachers on average have 3 more years of teaching experience than private school teachers. This difference is not large, but statistically significant. This may reflect the slightly higher teacher turnovers at private schools, as well as the fact the some teachers who start their teaching career at private schools eventually find jobs at public schools, as civil servant teachers, with better pay and better job security – a much preferred option by almost all Indonesian teachers.

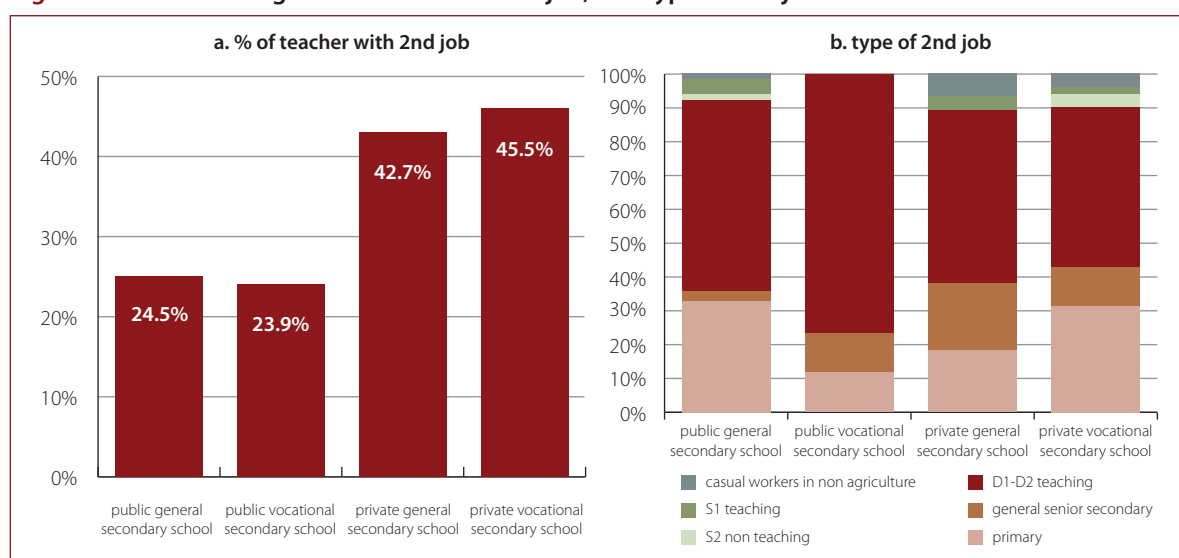
Figure 3.3. Years of teaching by school type



Source: IFLS 2007-08

The most worrisome finding is that a significant proportion of Indonesian secondary school teachers have second jobs, particularly private school teachers. Figure 3.4 shows that nearly a quarter of public school teachers, and close to half of all private school teachers have second jobs. Some of these second jobs can be teaching in other schools. Our data cannot distinguish between teaching and non-teaching jobs in private employment. However, given the very low student-teacher ratio nationwide, it is likely that a majority of these private employment jobs are non-teaching jobs. Teachers from public vocational schools are the most likely to work simultaneously as private employees, while a significant share of all teachers work as self-employed as well.

Figure 3.4. Percentage of teachers with 2nd job, and type of 2nd job

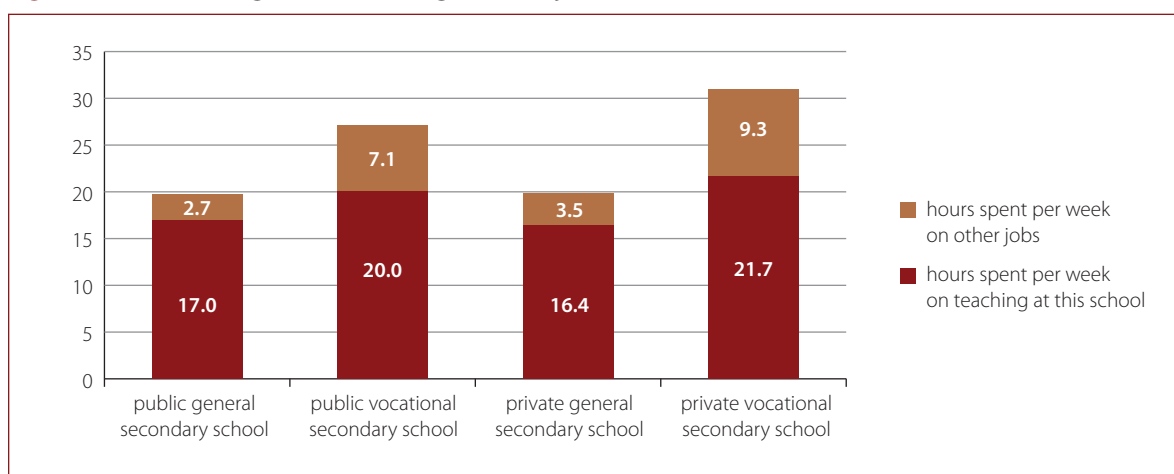


Source: IFLS 4.

The workload for the main teaching job is light, and working hours short for a majority of teachers. On average, a general secondary school teacher works 16-17 hours per week for their main teaching job. Vocational school teachers work slightly longer hours, around 20-22 hours per week (Figure 3.5). The difference may be the result of the relatively smaller number of vocational subject teachers overall. There is no difference in teaching hours between public and private school teachers. Overall, teachers in all types of schools spend less than 24 hours per week at their main teaching job – a minimum level that is stipulated by law.

Figure 3.5 also shows that teachers spend significant time on their second jobs. Probably because of the advantage of possessing specific vocational skills, vocational school teachers tend to work longer hours on the second jobs than general or academic school teachers. On average, they spend 7-9 hours per week on their second jobs, compared to 2-4 hours of their peers at general secondary schools. Private school teachers tend to work slightly longer hours at their second jobs, probably a result of the low pay from their main teaching job.

Figure 3.5. Working hours: teaching and 2nd job



Source: IFLS 4

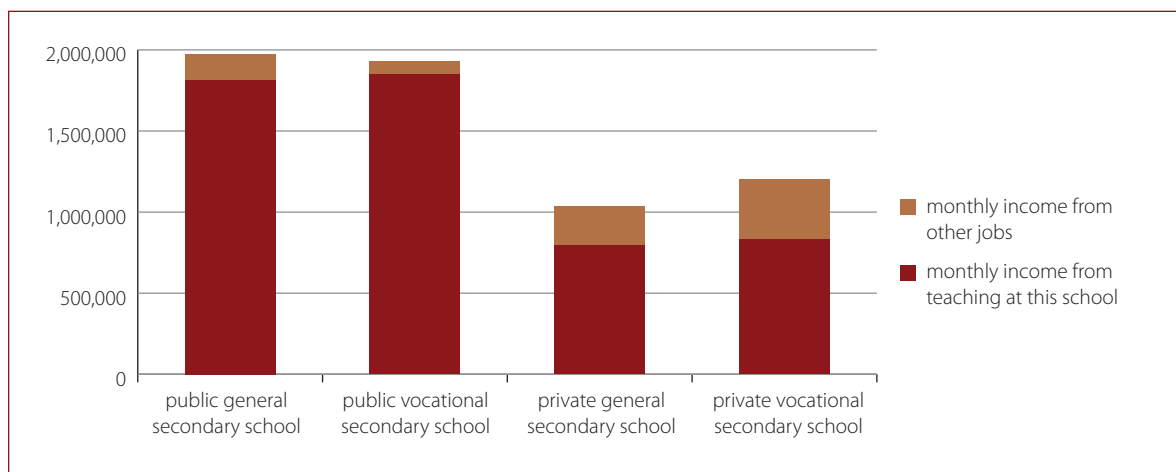
With the pay increase and the emphasis of minimum 24 working hours per week of certified teachers, the implementation of teacher certification following the 2005 Teacher Law does seem to have reduced the proportion of teachers holding second jobs and reporting financial difficulties. De Ree (2012) has found that among primary and junior secondary school teachers, the magnitudes of these effects are substantial. Certification can cause a 27 percentage point decrease in the likelihood of having a second job.

Figure 3.6 shows the large pay gaps between public and private school teachers. Private school teachers are paid much less than public school teachers: only half of the amount on average. Private schools teachers, however, do have more earnings from their second jobs. Nonetheless, even with a quarter to a third of their income from other jobs, private school teachers' total take home pay is much lower than that of public school teachers. At 2007/08 price, the average monthly income of a private school teacher is just above Rp 1 million, or a little over US\$100. Public school teachers, on the other hand, can earn close to Rp 2 million, or US\$200 per month.

Teacher certification started in 2005 has likely made significant impact on teacher's salary structure today. Certified teachers are entitled to have their salary doubled. By end of 2011, a significant proportion of senior secondary school teachers have been certified. However, the certification priority given to public school teachers also likely to have increased the pay gap between public and private school teachers. This dual compensation system can exist largely because that the inspiration of many private school teachers is to become public employees,

teaching in either public or private schools, which would give them better job security and pay eventually. While this situation may lead to the lowered average teacher pay and seemingly lower cost of service delivery for the time being, it also creates a constant pressure to continuously enlarge the civil-service size, and eventually results in an unsustainably low student-teacher ratio and much larger teacher salary bill as a whole.

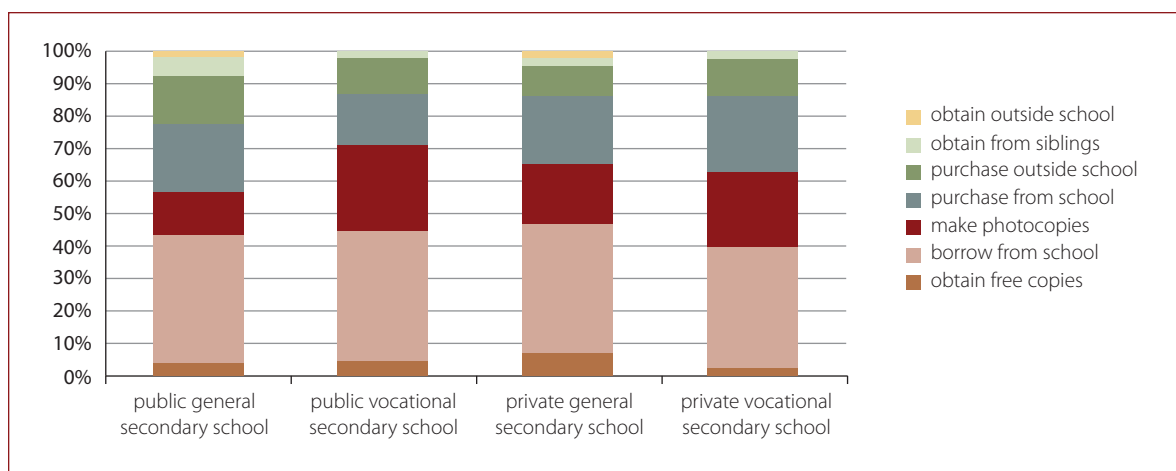
Figure 3.6. Teacher monthly income from teaching and 2nd job



B. Textbooks

Textbooks availability is not of concern in a majority of Indonesia's senior secondary schools. Almost all students have access to textbooks of core subject, with 1:1 student:textbook ratio. Purchasing textbooks is still common even though MoEC has made electronic textbooks available for downloading online. This may reflect the fact that the infrastructure has not been able to keep up to make internet downloading easy for many schools.

Figure 3.7. Source of textbooks



C. School infrastructure

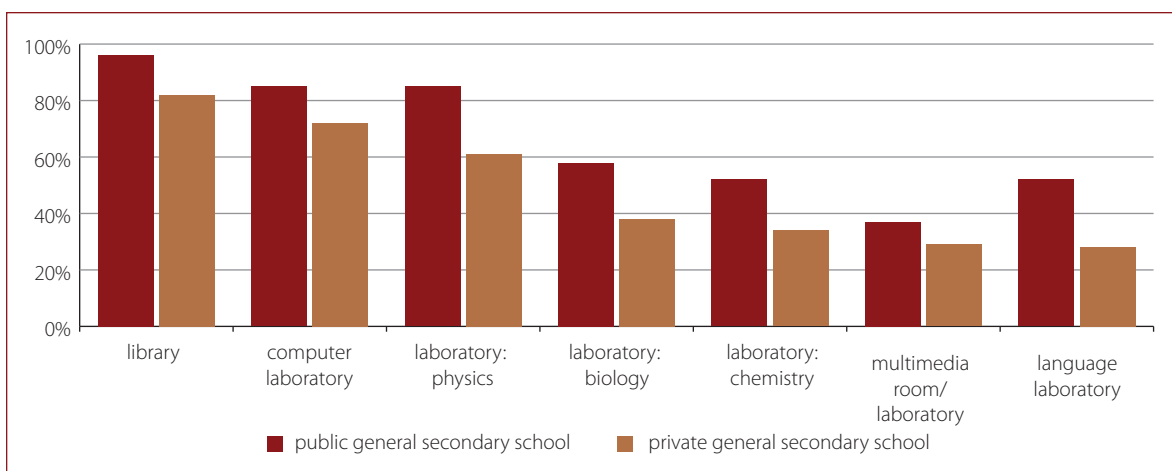
Classrooms at senior secondary schools do not seem to be in shortage to accommodate the admitted students. In other words, schools do not crowd their classrooms to accommodate all demand. However, rain water and leak seem to be more common problems that schools have to face from time to time (Table 3.1).

Table 3.1. Conditions of classrooms and sanitary facilities at schools (%)

	Classroom using electrical lighting	Classroom ever lost electrical power and disrupt the study	Substitute electricity source available	Classroom experienced problems with leak	Classroom experienced problems with flood	Classroom experienced problems with flash rain	Toilet available for teachers	Running water in teacher toilet	Toilet available for students	Running water in student toilet
Public General Secondary School	93.8	14.8	34.2	9.9	2.6	8.4	99.6	90.2	99.3	89.3
Private General Secondary School	89.3	9.4	33.3	12.9	3.9	15.7	97.2	89.7	96.6	87.6
Public Vocational Secondary School	91.5	16.9	27.3	12.7	2.8	14.1	100.0	98.6	98.6	97.1
Private Vocational Secondary School	91.1	13.7	28.6	10.7	3.6	10.7	95.5	95.0	99.1	96.4

One key shortage in school infrastructure is of laboratories. Figure 3.8 shows that computer labs are becoming more common now, but a majority of schools do not have labs for core subjects such as chemistry, biology, or language. Even though lab shortage is common, public schools are better equipped in general than private schools.

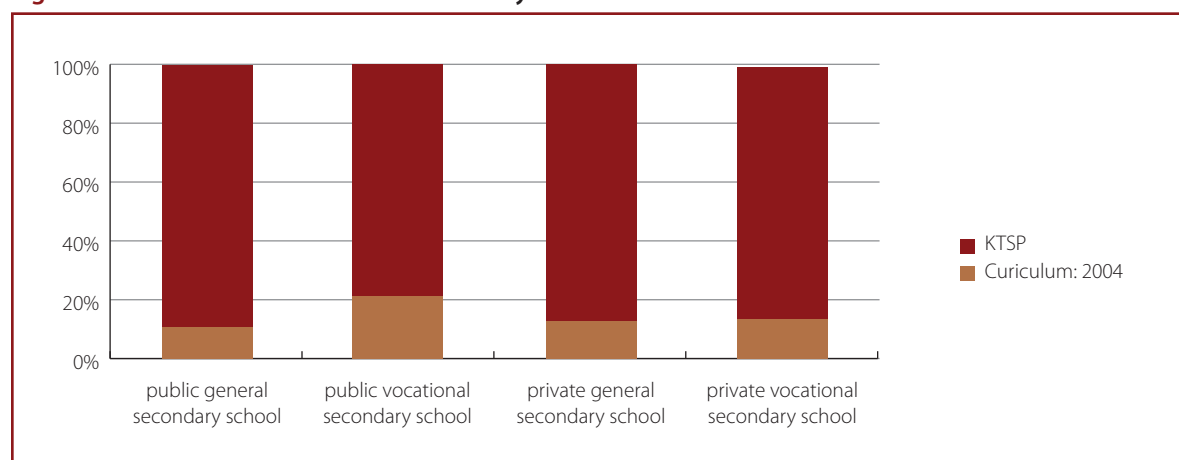
Figure 3.8. Percentage of schools with labs, by subject



D. Curriculum

Since 1984, the curriculum reform in Indonesia has spoken of “overloaded” curriculum, but the senior secondary curriculum in Indonesia remains one of the most overloaded in the world today. Following the international trend at the time, the 1994 curriculum began the curricular decentralization process, but other than a small amount of “local content,” up to 20 percent at lower levels and 5 percent at the senior secondary level, the curriculum remains predominantly centralized phenomenon in Indonesia. There is still no room for elective courses, with the exception of electing which stream (such as natural science, social science or language streams) to enter at grade 11.

Figure 3.9. Curriculum in senior secondary schools



Source: IFLS 4

In 2002/2004, a competency-based curriculum was introduced, theoretically based on the knowledge, skills and values needed for success in contemporary Indonesian society. As with the other reforms, while standards or competencies, benchmarks and other components of a standard-based curriculum can be found in many curriculum documents, too many are stated as broad goals and are seldom put into practice in the classroom or are carefully assessed to assure that students have actually attained the stated competence.

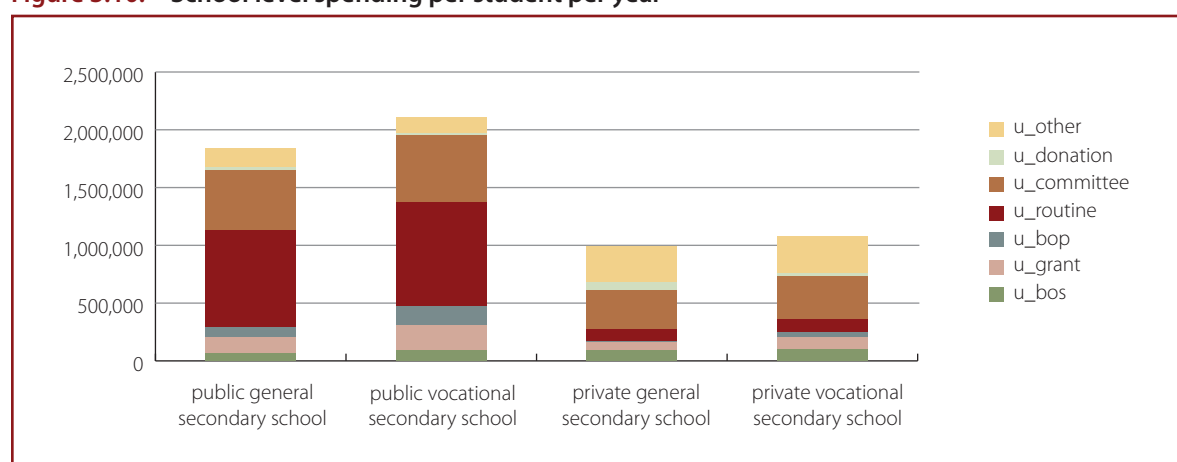
Figure 3.9 shows that a majority of senior secondary school today has adopted the latest “Education Unit Level Curriculum” (*Kurikulum Tingkat Satuan Pendidikan*, KTSP) started in 2005. By design, KTSP is characterized by the achievement of packages of competencies rather than on subject matter, including individual student competencies and learning outcomes, together with a variety of approaches and methods, use of sources, and new assessments processes and procedures to assure the attainment of these competencies. These admirable goals remain to be put into practice. The implementation of KTSP at school level remains primarily an “input model,” with required courses to be taken, number of hours of class to be held, topics to be covered, and credits to be given. High-stake testing at the completion of junior and senior secondary primarily rewards the memorization of information, rather than the stated curriculum goals of “creativity, higher order thinking skills, mastery of competencies or vocational competence.”

A fundamental difference between KTSP and previous competency-based curricula (2002 and 2004) was that schools were to be given full authority to plan for education to meet the standards that had been set, to structure the goal, the vision and mission, define the methods of learning, set the school calendar, and develop syllabi. So far there appears to have been little actual experimentation at any level with the implementation of this decentralized vision of KTSP.

E. School financial resource

Disparities are large in terms of resources available at school level. Resources available to public schools (including teacher salaries) are nearly twice as much as those at private schools (Figure 3.10). One key source of this difference is the payment for teacher salaries. Central government's non-salary spending in the form of direct school subsidy benefits private and public schools equally. However, local government's direct subsidy mostly benefits public schools. Public schools actually charge higher school committee fees, while private schools have "other" sources of funding, which can be from private foundations or other ad-hoc fees from parents⁵. Even though SMK has slightly higher per pupil spending in general, the larger resource difference lies between public and private schools. These resource differences are consistent with the input quality differences as presented in the previous chapter, particularly in terms of teacher compensation differentials.

Figure 3.10. School level spending per student per year




Source: IFLS 4

Effective schools generally require the right combination of trained personnel, appropriate curricula, adequate facilities and teaching and learning materials. A word of caution is that research usually shows a weak relationship between educational resources and student performance, with more variation explained by the quality of human resources (i.e. teachers and school principals) than by material and financial resources (Fuller, 1987; Rivkin, Hanushek and Kain, 2005). The generally weak relationship between resources and performance is also seen in PISA. At the level of the education system, accounting for the level of national income, the only type of resource that PISA shows to be correlated with student performance is the level of teachers' salaries relative to national income. Within school systems, only 5 percent of the variation in student performance is attributable solely to the differences in the educational resources to the schools. In contrast, 18 percent of the variation in student performance is attributable jointly to spending on education and the socio-economic and demographic background of students and schools (OECD 2010).

⁵ Private schools have a tendency to charge other ad-hoc fees for a variety of school activities throughout the year. From household's perspective, attending a private school still costs more. See Chapter 4 for details.

There are two distinctive lessons that Indonesia's senior secondary school system can learn from these comparative results. First, with similar level of spending, priority should be given to teacher quality rather than quantity. Learning performance can potentially gain from the trade-off between higher teacher salaries and lower student-teacher ratios. Second, the achievement gap between public and private school students cannot be closed by narrowing the resource gap alone. The effort needs to start from addressing the issue of sorting high and low performing students into different schools, and narrowing the learning gaps between students of different socioeconomic background at lower cycles of education.



IV. Is the System Prepared? Governance and Financing

How school inputs and resources can be translated into outcomes will depend on a range of systemic factors, among which a governance system with strong accountability focus is crucial. How such system can work is further affected by how the system is financed, in other words, how the public and private funding is accounted for in terms of producing learning outcome and narrowing inequalities. This chapter provides a snapshot assessment of the current institutional arrangement of Indonesia's education governance and financing system. While the focus is on senior secondary education, most of the analyses also apply to the overall education system in Indonesia. World Bank (2007) provides a useful framework to identify individuals and institutions affecting education service delivery, the key functions of an education governance system, and the reform needs for an education system that is geared towards better performance.

A. Governance

The education governance system in Indonesia can be assessed in the following key areas: performance standards, assessment, and reporting; impact evaluation of education policies and programs; requirement for schools to operate; and autonomy and accountability.

Performance standards, assessments and reporting

Indonesian Government's Regulation No. 19 of Year 2005 sets up the framework of the National Education Standards. The framework includes 8 dimensions: (1) content standards; (2) process standards; (3) graduate competency standards; (4) teacher and personnel standards; (5) facilities and infrastructure standards; (6) management standards (7) financing standards; and (8) assessment standards. Between 2006 and 2009, numerous ministerial regulations were issued describing these standards in great details⁶.

The general sentiment among Indonesian educators and general public on these national standards is that they are mostly beyond reach in many schools in Indonesia. They are regarded as more inspirational than operational. In order to provide a set of standards that schools can actually measure themselves, the "Minimum Service Standards" (MSS) have been developed since 2004. Some examples of the content of draft MSS is presented in Table 4.1. Up to now, the MSS have not been turned into government regulations, and they are yet to be tested on the ground.

The debate on the content of MSS continues. One distinctive critique on these "static" standards is that there are many schools that for reasons of poverty, parental education, remoteness, and a range of other factors, are below these standards. While striving for performing heroically, they may remain below MSS for some time to come. It is important that schools be judged as having made genuine and important progress and be rewarded in some manner.

Another legitimate critique is that some standards seem to go against the trend following the sector progress over time. For example, with enrollment increasing, dropout rate will likely to rise. This pattern has been seen in developed countries. For example, in the United States, most of its 16 year old young people are enrolled in school. However, its graduation rate nationwide is only 73 percent, and many urban systems graduate less than 50 percent of the age group. Rather than setting an arbitrary 1 percent drop-out rate, it would be of much greater value if a set of realistic academic or practical competency goals were set, and schools are measured against progresses towards these goals.

⁶ See www.bnspp-indonesia.org for a complete list and full content of the regulations.

Table 4.1. Draft minimum standards for senior secondary education

No	Current MSS Indicator
a.	60 percent of youths in the age group 16-18 attend SMA/MA's
b.	The drop-out rate doesn't exceed 1 percent of the number of students who go to school
c.	90 percent of schools have the minimum facilities and infrastructure to meet the nationally set technical standards
d.	80 percent of schools have non-teaching staff to run administrative tasks and other non-teaching activities
e.	90 percent of schools have the required number of SMA/MA teachers
f.	90 percent of SMA/MA teachers have the qualifications which meet the nationally set competency standards
g.	100 percent of students have complete sets of textbooks for every school subject
h.	The number of students per class in SMA/MA's comprises 30-40 students per class
i.	90 percent of students who have participated in quality sampling tests of national standard education, have achieved "satisfactory" scores in English, Geography, Basic Mathematics for classes I and II
j.	25 percent of SMA/MAs graduates continue their study to accredited Universities

The MSS are heavily input-focused, however they lack clear standards for teacher quality performance – the most important educational input. International studies on trade-offs between teacher quality and quantity have shown that it is more critical that teachers be appropriately certified and expert in their subject matter and pedagogical knowledge, and have incentives for good performance, than it is to have a fixed number of teachers. Size of class in senior academic secondary is not as critical as in the early grades of primary. In fact, international research has found that there is little difference in most settings between 20 and 40 students.

The stipulation of the learning outcome standards is also not straightforward: What are the "satisfactory scores"? Why only in English, Geography and Basic Mathematics in classes I and II? What are the "quality sampling tests"? What about students who are not sampled? In terms of transition to higher education, what percentage of students should continue to higher education depends on the stages of economic development and needs of a society. In addition to the seemingly arbitrary 25 percent transition rate, this outcome standard seems to exclude transitions to a range of non-university tertiary institutions such as polytechnics, community or junior colleges that may be some of the best places for a large percentage of secondary graduates, where sufficient "technician" level human resources can be produced for the economy.

Most importantly, for the MSS to be useful in practice, they need to be closely related to accountability. The current MSS seem to mix performance goals at school level and other administrative levels (either district or provincial level). For example, the 60 percent participation rate of senior secondary schools can neither be a sole responsibility, nor a relevant measure at individual school level. Transition to tertiary education also depends on the availabilities of tertiary institutions. Whose ultimate responsibility it is in terms of school infrastructure development is also unclear.

Currently, neither National Education Standards nor Minimum Service Standards are systematically enforced, regularly assessed, and reported. Nationwide student assessments are carried out at the end of education cycles, mostly for graduation certification and selection of students to the next cycle, but not for accountability purposes. There are no other established external assessments for monitoring and reporting the outcomes of student performance or average school performance. Teacher evaluation is currently going through the "certification" process, but continued performance evaluation of teachers has not been in place.

Impact evaluation of education policies and programs

In Indonesia, even though there have been some donor-supported impact evaluations of educational policies (e.g. teacher certification, community grant to support early childhood development, and school-based management), mechanisms have yet to be formally established for evaluating the impact of education policies and programs. The R&D arm of MoNE ("*Batlitbang*") currently does not have sufficient funding and human capacity to design and implement rigorous impact evaluation of education policies and programs.

Requirement to operate and accreditation

With the fast growth of new senior secondary schools, maintaining adequate school operational requirement is the first line to assure service delivery quality. Since decentralization, district local government has been the main responsible government agency for establishing new public schools and granting permit to the operation of private schools. Registering private schools and maintaining operation requirement is becoming more challenging, as the number of schools is growing, with many schools going through frequent changes over time to adapt to the demand.

Once schools start operation, they are required accredited and given accreditation ratings from A to C. School accreditation has continued to be implemented centrally by the National Accreditation Agency (BAN) and its branch offices. The set of accreditation instruments are aligned with the National Education Standards in 8 areas. BAN's capacity is at present severely constrained. Many schools have been given an accreditation rating at one point in time, which are rarely updated.

Autonomy and accountability

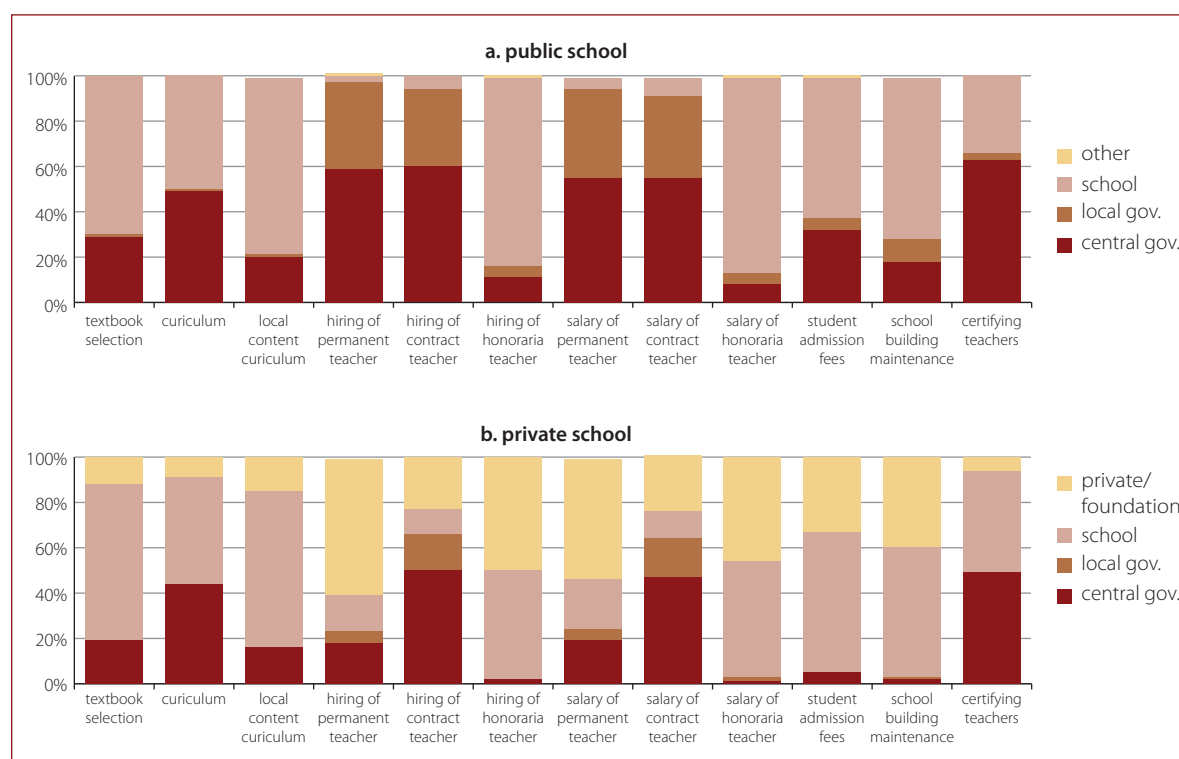
In 2003, the Indonesian government began to decentralize the governance of its primary and secondary education system as part of its decentralization of responsibilities to district governments, initiated to strengthen the country's democratic processes. While local government has started to assume expanded roles in service delivery, the limited capacity has constrained their full function. For example, the ultimate authority of hiring civil service teachers (*pegawai negeri sipil*, PNS) remains at the central government under the Civil Service Board, and financed by the central government budget transfer. In addition, the Institute for Assuring the Quality of Educational Personnel (*Lembaga Peningkatan Mutu Pendidikan*, LPMP) with locations in various provinces remains a central institution under MoEC.

One of the most significant developments in decentralizing service delivery is at school level. Schools were given broad authority to design, implement, and manage their educational programs and classroom instruction in accordance with local social norms and culture. Although the operational authority was devolved to schools, schools were also mandated to establish an advisory school committee (SC) whose functions include giving input on school educational policy and programs, budget plans, and teacher training; increasing society's attention and commitment to quality education; motivating parents to participate in their children's education; collecting money in support of education; and supervising educational policy and program implementation. To promote transparency, SC members were to be elected and broadly representative of the community.

Schools were directed to formulate vision, mission, and goals on "the basis of inputs from all stakeholders including the SC and decided by a teaching board meeting chaired by the principal" and to develop a four-year and an annual plan, the latter to be approved by the teaching board and subject to the input of the SC. Monitoring of school management was to be exercised by the SC on a regular and continuous basis, and supervision over academic management was to be exercised by the principal and the district. The education district's role was limited to validating the plans and coordinating and supervising the development of their schools' curriculum.

The IFLS school survey shows that schools have since played important roles in decision making: notably in non-PNS teacher hiring, student affairs, school maintenance, textbooks selection, and local content in curriculum (Figure 4.1). However, central government influence is still strong particularly in setting teacher salary standards, and in other areas of teacher management including teacher certification.

Figure 3.10. School level spending per student per year

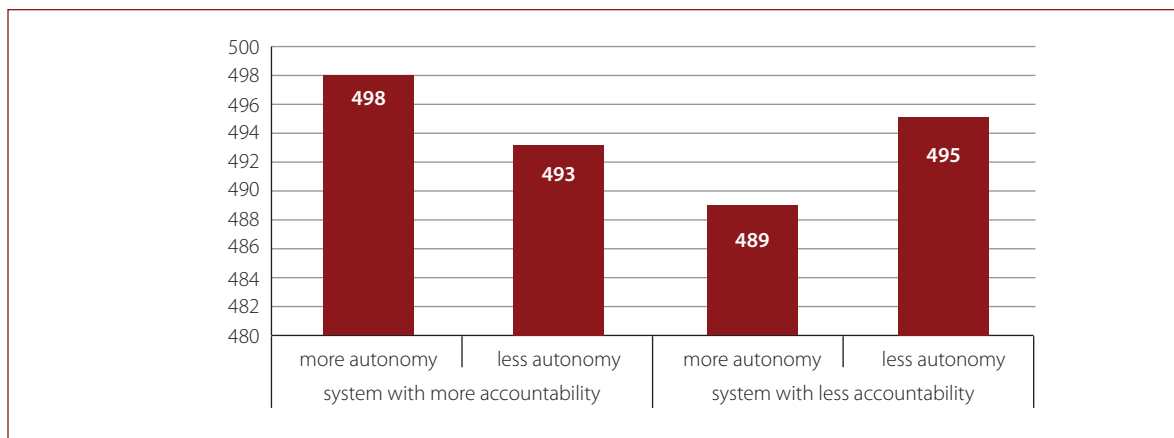


Source: IFLS 4

The relations between school autonomy and performance are quite nuanced according to cross-country analyses. PISA results suggest that the prevalence of schools' autonomy to define and elaborate their curricula and assessment relates positively to the performance of school system, even after accounting for national income. School systems that provide schools with greater discretion in deciding student-assessment policies, the courses offered, and course content and the textbooks used are also school systems that perform at higher levels in reading. In contrast, the relationship is less clear when the autonomy concerns school resources allocation such as hiring and firing teachers, determining teacher salaries, formulating school budget, and deciding on budget allocations within the school.

Nonetheless, within countries, the relationships between the autonomy of schools in allocating resources and learning outcomes are related to system's accountability arrangements in important ways. For example, information on the results of external examinations and assessments often provides an important framework for the autonomy of schools by providing a basis for schools and parents to make appropriate decisions for students (Fuchs and Woessmann, 2008). Data from PISA show that in school system where most school post achievement data publicly, there is a positive relationship between school autonomy in resource allocation and student performance. In short, school autonomy in allocating resources tends to be associated with good performance in those education systems where most schools post achievement data publicly. This suggests that it is a combination of several autonomy and accountability policies, not just a single isolated policy, that is related to better student outcomes (Figure 4.2).

Figure 4.2. 2009 PISA reading score by governance characteristics



Source: OECD (2010).

The accountability arrangement is particularly weak in Indonesia's school system, starting from standards setting to assessments and consequences. Local education officers inspect schools, but it rarely brings any real consequences, and the feedback to schools is not often useful in improving teaching and learning, as viewed by teachers. Principals do perform teacher assessment, but it lacks valid student assessment tools, and does not lead to rewards or sanctions. The deficiency in accountability of schools (particularly the downward accountability to communities and parents) seems to be rooted in Indonesia's current regulatory framework. Legally speaking, the public schools in Indonesia are not autonomous. Schools are categorized as "technical units" in the government bureaucratic system, following the same budgeting and reporting procedures as a government office. A law was drafted on "education entity" in 2009 aiming at granting all schools autonomous status, but it did not receive parliament support, and was eventually cancelled.

The capacity of teachers and schools also need to be much strengthened in order for the autonomy-accountability nexus to work effectively. A recent World Bank study on school-based management (SBM) in Indonesia (World Bank, 2012) found that principals, teachers, and school committee members had insufficient understanding of what SBM required of them and of the functions attributed to the school committee. For instance, they understood SBM's theory and overall purposes (school autonomy, community participation) but not necessarily the responsibilities and the required actions they implied. Most principals and school committee members had some misconceptions regarding the functions of the school committee. In addition, a majority of principals said that they were not well prepared to provide effective leadership and perform such SBM-related activities as formulating a vision for school staff, developing a plan for school academic improvement, and making decisions on school curriculum. Similarly, a majority of teachers reported they were not well prepared to plan effective lessons and use various instructional methods and, hence, were unprepared to try alternatives to their routine instructional practices. District staff members, including supervisors, were even less positive about principal and teacher preparedness.

Without the strong capacity of teachers and schools to implement policies and practices, and their understanding and agreement on what the students need to know and should be able to do, pushing authority down to school level can be counterproductive. Indonesia's success in building a strong education governance system will depend greatly on creating and executing a plan that produce the maximum coherence of the system. Decentralization in Indonesia has provided an overall vision of local control of education service delivery. The overall accountability arrangement and quality assurance will need a clearer definition of responsibilities across agencies, with separated but much strengthened functions in oversight, measurement, reporting, policy and programming, together with an effective mechanism to introduce accountability from local to the central level.

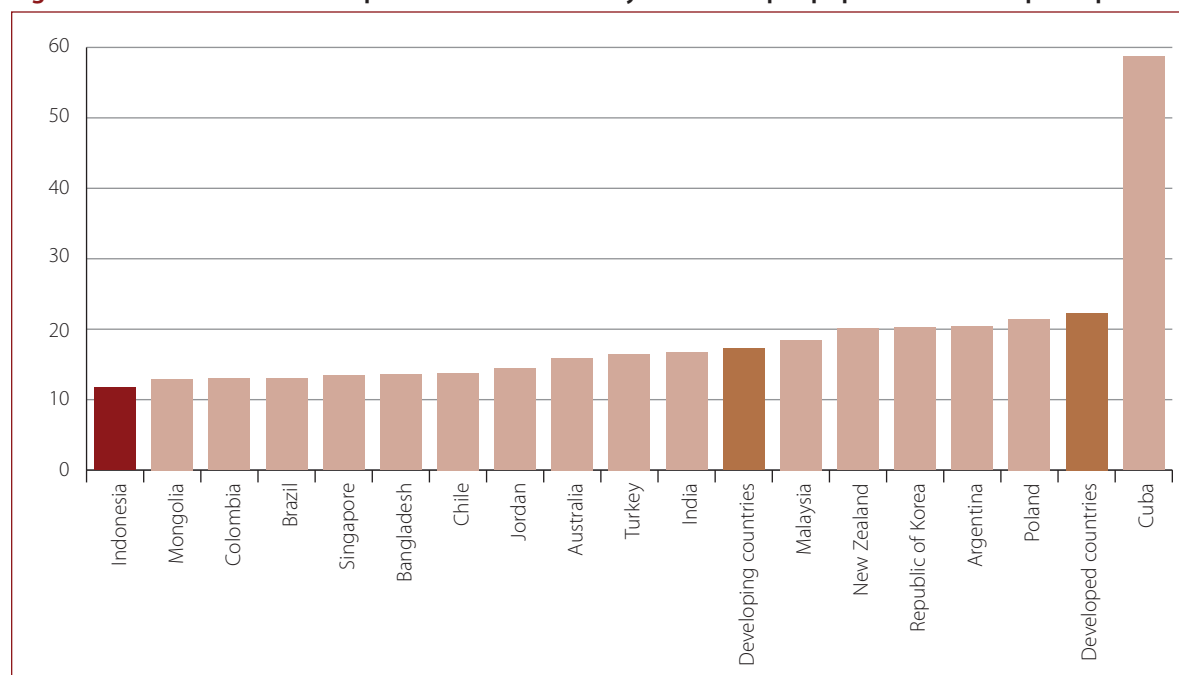
B. Financing

The financial commitment of Indonesian government to education, including senior secondary education, increased substantially over the past several years. Indonesia's constitution stipulates that 20 percent of the total Government expenditure should go to education. The enforcement of the 20 percent allocation that started in 2008 has resulted in significant increase of public resources to education. While the emphasis of public spending has been on the achievement of 9-year universal basic education in the past few years, key policies start to emerge to move towards the expansion of senior secondary education. Recently, MoEC announced the new policy of compulsory 12-year education, to be gradually rolled out towards achieving universal 12-year education by 2014. This policy follows the increasingly common concerns that Indonesia does not have a sufficient number of skilled young workers to meet the need of the labor market for accelerated economic growth. With the backdrop of these concerns and policy debates, this section attempts to look into the key financing issues facing Indonesia's senior secondary education: whether Indonesia is investing sufficient public resources on senior secondary education; whether public resources are used equitably and effectively, particularly in terms of the large spending item such as teacher's salary bill; and how much households contribute to financing senior secondary education, and whether it is affordable and sustainable.

Overall public financing

Currently, public spending on senior secondary education in Indonesia is on the low side. This can be seen from comparing the public spending per student at this level across a few developing and developed countries. Figure 4.3 shows that on average Indonesia spends about 12 percent of its GDP per capita on a senior secondary school student. This is lower than developing countries' average of 17.3 percent, and developed countries' average of 22.3 percent. This level of public spending is equivalent to about US\$300 per student, inclusive of teacher salaries.

Figure 4.3. Public current expenditure on secondary education per pupil as % of GNP per capita



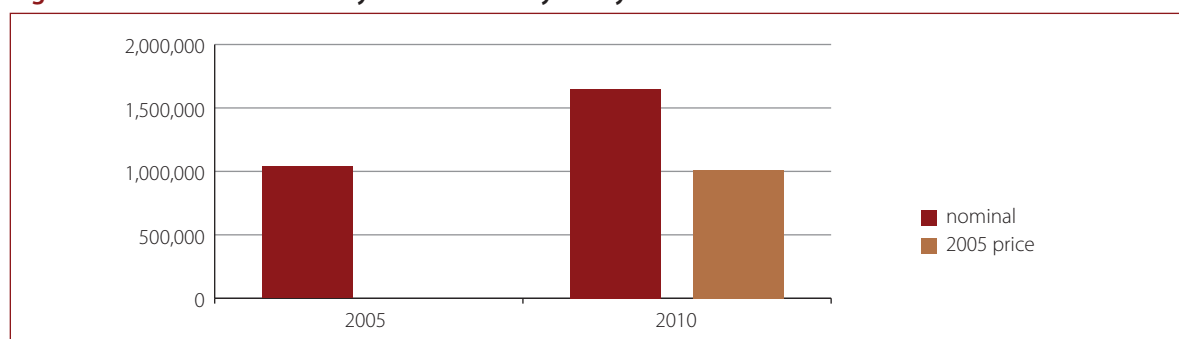
Source: OECD (2010).

Within this amount, we estimate that only around 50 percent or less flow to schools directly in the form of paying teacher salaries (as often categorized as “routine” spending by school’s accounting book), together with other different forms of cash subsidies to schools (e.g., “BOS” as central government grant, and “BOP” as local government grant). According to IFLS’s school survey in 2007–2008, a public senior secondary school received approximately US\$200 per student, while a private school received around US\$30. The spending that does not flow to schools represents the portion that stayed at central or local government level which was spent on behalf of schools, or for administrative purposes.

Teacher salaries

A World Bank study (2009c) shows that Indonesian teachers are on average paid less than workers with similar academic background. The teacher certification started in 2005 has introduced teacher “professional allowance”, which doubles the salaries of certified teachers. With the implementation of teacher certification more than half way through, it seems that teacher’s nominal salaries have indeed increased at the aggregated level. In particular, the nominal salaries of teachers have been able to increase faster than workers with comparable background. However, after inflation is accounted for, the real salaries of teachers remain the same (Figure 4.4) (while the real salaries of their counterparts decreased).

Figure 4.4. Senior secondary school monthly salary



Source: OECD (2010).

As multiple of GDP per capita, Indonesian teachers’ average salary level is about 0.8 (or 80 percent) of GDP per capita, lower than Asian countries’ average of 1.8 or Latin American countries’ average of 1.9 (Carnoy and Weldon, 1996). Nonetheless, the large number of teachers relative to students, or low student-teacher ratio, still leads to the large salary bill for teachers, even though the average salary level remains relatively low. As illustrated in the previous chapter, there could be potential gains in system performance from trading-off teacher quality and quantity. In other words, with total teacher salary bill constant, the system will be better off in terms of producing learning performance if the public spending can be reallocated to raising salaries to attract better teachers and in the meantime to weed out the unqualified teachers.

Equity and household expenditure

Given that the enrollment at senior secondary education level is highly biased towards children from socioeconomically better-off households and from urban areas, public spending at this level therefore disproportionately benefits the relatively advantaged population groups. Public spending on education has largely been emphasizing more on “uniform” than on “equitable”. For example, a per-student fixed amount subsidy (“BOS”) is provided to all schools, both public and private, to finance the education of students in basic education (Grade 1–9). The

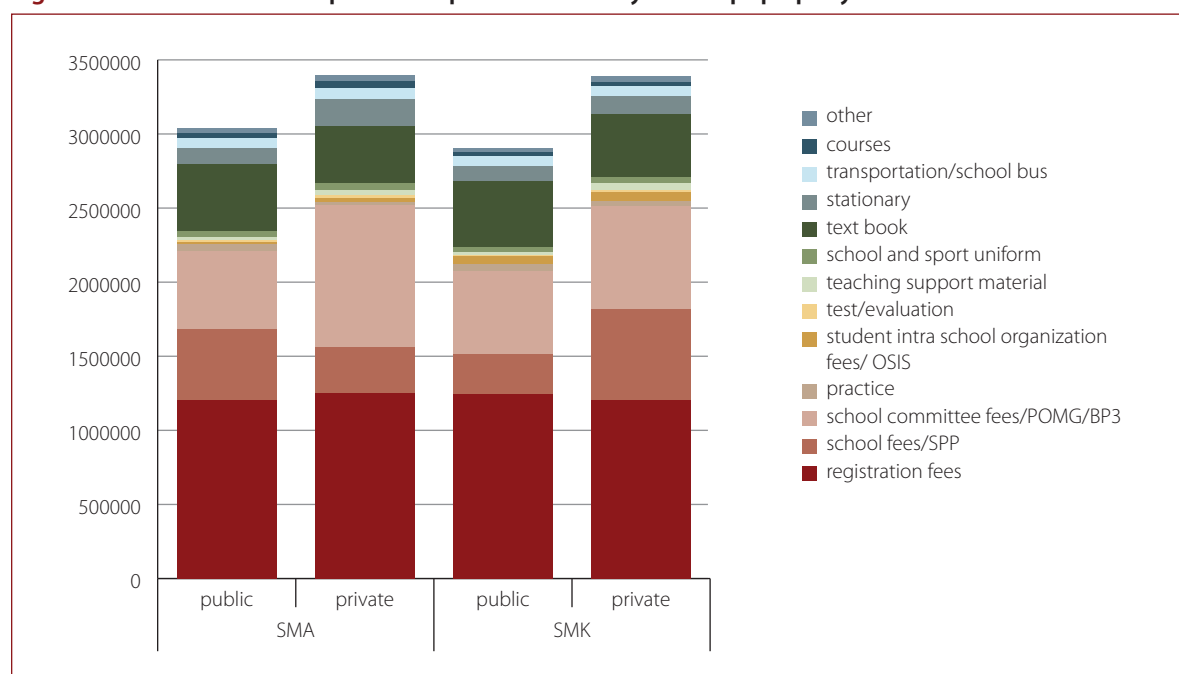
present form of the uniform unit cost does not address the need for narrowing the gap between better off and disadvantaged schools. There are yet to be any structured subsidies to senior secondary education. It is clear that the higher the level of education, the more the “uniformed” financing will benefit the better off, and thus more targeted spending is needed.

The resource differentials between public and private schools remain large. One key public resource is teachers in civil service, paid by the Government. The uneven distribution of these teachers, beyond in public and private schools, but also across schools in better off and disadvantaged areas, and in urban and rural areas, reflects largely the inequitable distribution of public resources.

The central government has put in place scholarship programs aiming at narrowing the gaps between individual students. However, the coverage of this program remains small, and the school-based implementation has left out by design many children or youth who are out of school system already.

Low public spending on senior secondary education leads to the significant financial contribution from households either through out-of-pocket spending for their children to go to senior secondary schools, or paying schools directly in the form of various fees. Figure 4.5 shows that parents pay more for their children to go to private schools, averaging around USD 400 per year. Registration fees, school committee fees, and textbooks are the most costly items. This exceeds what Government pays in total, and nearly 3 times of government funding that flows down to school level to directly support school operations.

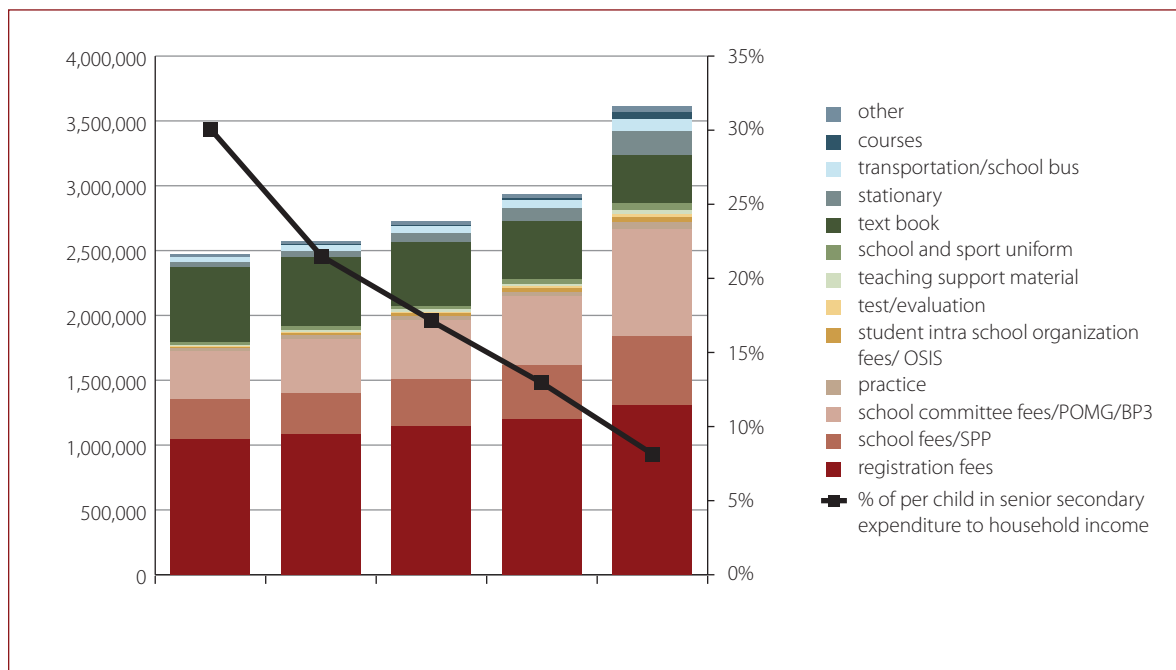
Figure 4.5. Household expenditure per sr. secondary school pupil per year



Source: OECD (2010).

Household expenditure on senior secondary education constitutes heavy financial burdens. As expected, well-off households pay more out-of-pocket than poor households do. However, these payments only comprise a small share (less than 10 percent) of total household expenditure for well-off households. In contrast, the households in the poorest income quintile can spend as much as 30 percent of their total expenditure on sending a child to senior secondary school (Figure 4.6).

Figure 4.6. Household expenditure on senior secondary education as % of total household expenditure, by income quintile



Source: OECD (2010).

Looking ahead, strengthening public financing of senior secondary education need to aim at narrowing two disparities: the disparities between private and public schools, and between poor and well-off households. The majority of private schools have been absorbing the students who are not able to enter public schools, which represent nearly half of the total senior secondary enrollment. Compared with those attending public schools, the students at private schools need more learning support. In addition, the household “wealth divide” in terms of senior secondary education participation points to the need of targeted government funding to support their demand and ensure affordability.



V. Towards Better Preparing Indonesian Youth For Transition

Investing in senior secondary education has become crucial in preparing the Indonesian youth for making transitions to advancing their knowledge and skills and participating in the job world. Indonesia is at the right moment of expanding investment in senior secondary education. This is not only because of the demand pressure from more and more graduates finishing 9 years of basic education, it is also an imperative for global competitiveness and necessary skills upgrading of labor force. The labor market signals have also created the right incentives for Indonesian youth to invest in higher levels of education.

A. Main findings

The key challenges that the current senior secondary education is facing are multi-faceted. Neither the learning outcomes nor the practical skills possessed by the current graduates are adequate to help them make successful transitions. Access to senior secondary education is largely inequitable – rural and poorer households often have fewer or none accessible schools, and have little resources to support their children to pursue education at this level. Provincial level disparities are also large in access. Although SMK has gained ground in expanding enrollment in recent years, it still seems to be unattractive to top students, to have lower likelihood for its graduates to pursue higher education or advanced professional training. In the meantime, for the significant share of SMA graduates who are not able to participate in tertiary education, the lack of necessary labor market skills as perceived by many employers is also of concern.

Schools also face challenges in delivering the promises. The most important resource for schools is teachers. Even though there is no lack of teachers at Indonesian's senior secondary schools, they don't seem to be adequately incentivized to deliver results. Many of them hold multiple jobs for additional income. Teachers are particularly underpaid in private schools, where resources are scarce. The resource gaps between public and private schools are large, which is not only reflected by the gaps in teacher salaries, but also in key teaching and learning facilities such as laboratories.

At system level, the key institutions necessary for a quality assurance system are in place. However, how to make the system work needs to clearly identify their mandates, and to put in place a strong accountability system. Neither national standards nor minimum standards are currently enforced, assessed, and reported. Nationwide student assessments are carried out at the end of education cycles, mostly for the selection of students to the next cycle, but not for accountability purposes. There are no established mechanisms for reporting the outcomes of student performance or average school performance. Teacher evaluation is currently going through the "certification" process, but continued performance evaluation of teachers has not been in place. School accreditation is not regularly carried out, particularly for a majority of private schools.

Overall public financing for senior secondary education is low, which is reflected by the low unit public spending per student compared with that of other countries. Funding at school level is particularly inadequate considering that a significant portion of public funding stays at central and local government level, without directly flowing to schools. Households still pay a significant share of the expenditures at school and student level (estimated at 75 percent), a fact that is closely associated with the huge disparities in senior secondary education participation between rich and poor households. The way that the public resources are currently used is not able to have significant effect on narrowing these gaps. The pro-poor scholarships are given to students at schools, not those who have dropped out, thus excluding the poorest or the neediest by design.

B. Policy implications

Looking ahead, diversified strategies are needed given the much varied conditions of the provinces. There are some provinces where access to junior secondary education is still a major issue, and priorities should be given to junior secondary education accordingly. In many other provinces, limited school places have represented a

binding constraint to further broadening senior secondary school expansion. Building more schools will need to be mapped according to the population distribution, and considering using existing excess teachers.

Equitable access will remain a key challenge. The wealth divide in the opportunities of pursuing higher educational attainment remains large. The high cost born by households has made senior secondary education unreachable by the poorest. The current school-based scholarships program has not been able to reach those who were left out in the first place. Targeted and household-based voucher system should be considered for better supporting the under-privileged.

Rethinking the division of general and vocational educational track will also be needed while establishing a long-term vision for senior secondary education in Indonesia. The vocational secondary school provides a fast route for training mid-level skilled workers for the immediate needs of the labor market. Widening the openings for the SMK graduates to pursue skills upgrading will be increasingly needed in the future with more sophisticated demand for skills from the labor market. In the meantime, how to offer SMA graduates who do not enter tertiary education the opportunities of obtaining necessary labor market skills is also challenging. Responding to the future expansion of tertiary education as well as the labor market demand for higher level of skills, the two tracks are likely to become similar in the future, and converge at an integrated system of offering solid basic skills as well as in-school vocational training programs.

In the interim, a variety of options can be considered to strengthen the two tracks of senior secondary education. SMK's curriculum can be made more flexible. A spectrum of different intensities of vocational subjects can be considered. For example, some may just be vocational course work, while others may require significant immersions and internships at firms or production units. The vocational certificate in addition to senior secondary school diploma can reflect these varieties. SMA students can also have access to SMK coursework through school partnerships, or even night courses offered by SMK with capacities, and obtain similar vocational training certificates.

The "3+1" program, which has been put forward by MoEC in 2010 has offered another alternative for streamlining the senior secondary education. After 3 years of solid education, a fourth year can offer a variety of options for senior secondary graduates: to sharpen vocational skills through practices in the real job world, or to continue with advanced course work preparing for entering polytechnics. New education and training institutions can also be considered such as the "Training and Further Education" institutes in Australia (Box 5.1). Some high capacity SMK may have the potential to be given these additional responsibilities.

Currently, the flexible pathways to achieve various educational goals have been in the design, but more challenges will lie in the implementation, which needs commitment and concerted effort from many stakeholders for a solid quality assurance system, and operationalize the national qualification framework and a functional skills assessment system for both cognitive and vocational skills.

Box 5.1. Training and further education in Australia

In Australia, **training and further education** or **TAFE** institutions provide a wide range of predominantly vocational tertiary education courses, mostly qualifying courses under the National Training System/Australian Qualifications Framework/Australian Quality Training Framework. Fields covered include business, finance, hospitality, tourism, construction, engineering, visual arts, information technology and community work.

Individual TAFE institutions (usually with many campuses) are known as either colleges or institutes, depending on the state or territory. TAFE colleges are owned, operated and financed by the various state and territory governments. This is in contrast to the higher education sector, whose funding is predominantly the domain of the Commonwealth government and whose universities are predominantly owned by the state governments.

Measuring learning outcome and skills proficiency is also essential for quality improvement. The national education assessment program needs to be put in place to regularly monitor education quality, and diagnose existing quality issues and devise remedial measures. Localized monitoring of learning outcomes should also be put in place to serve as diagnostic, motivational, and accountability tools at individual teachers and student level. This is also necessary for implementing outcome-focused curriculum.

An effective quality assurance system needs to clearly define each stakeholder's roles and responsibilities, and build strong accountability mechanisms. Table 5.1 provides a summary of the roles that need to be strengthened for a well-functioning system.

Table 5.1. Strengthening quality assurance system

	Schools	Accreditation Agency (BAN)	Standards Agency (BSNP)	Local government	Central government
Performance standards	Teaching and learning following performance standards		Set up performance standards (8 areas)		
Performance assessments	Carry out regular student and teacher performance assessments		Develop assessment instrument	Carry out regular school assessment Set up local policies promoting assessment at schools level	Set up national policies promoting performance assessment
Performance reporting	Report assessment results to local government			Provide assessment information to central government as policy input or feedback	
Program impact evaluations					Carry out program impact evaluations regularly, on national programs, as well as some local programs
Requirements for schools to operate		Developing accreditation instruments based on standards; implement accreditation		Set up operational requirement for schools; Register schools based on operational requirement	Set national guideline for operation requirement of schools
Adequate and equitable resources	Provide more resources including teaching resources to disadvantaged students			Allocation of resources to narrow the gaps across schools	National resources to narrow regional gaps
Autonomy, intervention, and support				Support, supervise schools	Support local governments
Accountability and consequences	Hold teachers accountable for student performance; install reward and sanction system			Hold schools accountable for teachers and students performance; install rewards and sanction system	Hold local government accountable in using central resources in an effective and equitable way; fund flow based on performance

Expanding the access to secondary education will need more public resources at this level. It is never easy to determine what is an appropriate level of public financing of education in a given country. Currently, Indonesian families pay 3-4 times of the Government budget for the direct and indirect costs, including various fees, transportation, uniform, teaching and learning materials, and other incidentals. Comparisons with other countries can provide a useful guide for making judgment on levels of government funding.

Giving that 20 percent of Government budget has already been allocated to the education sector, intra-sectoral allocations and spending efficiencies appear to be the first order issues that need to be addressed. This will aim at maximizing the output using existing capacity. Better quality and deployment of teachers, increase in teacher workload, reduction in their double-jobs, and improvement in teacher motivation, performance, and accountability, will be the most direct measures.

Better use public resources also need better targeting strategies, supporting the most disadvantaged areas and population groups. On the supply side, public resources should be used to narrow the geographic inequality due to the marked urban bias in school locations. The creation of new senior secondary schools in the coming years will present a prime opportunity to reduce the distance-to-school in rural areas. These new schools should carefully target the rural *kecamatan* and *kabupaten* where presently lack senior secondary schools. On the demand side, establishing means-tested system to financially support children from the families of very low income will further narrow the demand gap.

For a majority of private schools in Indonesia, being private primarily means being poor and under-resourced. It also means that without public intervention, the learning gap between public and private students will likely to increase, as private schools tend to enroll those who are not able to enter public school system with lower academic achievement at junior secondary school level. Targeted demand-side financing such as school voucher can also serve as an instrument that provides incentives and financial means to improve private schools as they make efforts to attract students and resources. Nonetheless, some public investment would be needed at the beginning, such as to upgrade school's teaching and learning conditions, to improve teacher knowledge and skills, and to improve school management, before the new mechanism can work, and the quality can continue improving through competition for students and resources.

International experience tells us that reforming senior secondary education will face many daunting challenges. While the reform recommendations offered here are mainly based on accumulated global experience, policy-makers need to be highly aware that the impact of reforms varies in different institutional and demographic settings. As Indonesia moves ahead towards the goal of universal 12-year education, piloting reforms in small scale before rolling out, and evaluating impacts and cost-effectiveness of these reforms are crucial to ensure their long-term success and sustainability.

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APPENDIX:

Summary Description of Reading, Math, And Science Proficiency in Pisa

Level	Reading	Math	Science
6	Tasks at this level typically require the reader to make multiple inferences, comparisons and contrasts that are both detailed and precise. They require demonstration of a full and detailed understanding of one or more texts and may involve integrating information from more than one text. Tasks may require the reader to deal with unfamiliar ideas, in the presence of prominent competing information, and to generate abstract categories for interpretations. Reflect and evaluate tasks may require the reader to hypothesize about or critically evaluate a complex text on an unfamiliar topic, taking into account multiple criteria or perspectives, and applying sophisticated understandings from beyond the text. A salient condition for access and retrieve tasks at this level is precision of analysis and fine attention to detail that is inconspicuous in the texts	Students can conceptualize, generalize and utilize information based on their investigations and modeling of complex problem situations. They can link different information sources and representations and flexibly translate between them. Students at this level are capable of advanced mathematical thinking and reasoning. These students can apply this insight and understanding along with a mastery of symbolic and formal mathematical operations and relationships to develop new approaches and strategies for attacking novel situations. Students at this level can formulate and precisely communicate their actions and reflections regarding their findings, interpretations, arguments, and the appropriateness of these to the original situations.	Students can consistently identify, explain and apply scientific knowledge and knowledge about science in a variety of complex life situations. They can link different information sources and explanations and use evidence from those sources to justify decisions. They clearly and consistently demonstrate advanced scientific thinking and reasoning, and they demonstrate willingness to use their scientific understanding in support of solutions to unfamiliar scientific and technological situations. Students at this level can use scientific knowledge and develop arguments in support of recommendations and decisions that centre on personal, social or global situations.
5	Tasks at this level that involve retrieving information require the reader to locate and organize several pieces of deeply embedded information, inferring which information in the text is relevant. Reflective tasks require critical evaluation or hypothesis, drawing on specialized knowledge. Both interpretative and reflective tasks require a full and detailed understanding of a text whose content or form is unfamiliar. For all aspects of reading, tasks at this level typically involve dealing with concepts that are contrary to expectations.	Students can develop and work with models for complex situations, identifying constraints and specifying assumptions. They can select, compare, and evaluate appropriate problem-solving strategies for dealing with complex problems related to these models. Students at this level can work strategically using broad, well-developed thinking and reasoning skills, appropriately linked representations, symbolic and formal characterizations, and insight pertaining to these situations. They can reflect on their actions and formulate and communicate their interpretations and reasoning.	At Level 5, students can identify the scientific components of many complex life situations, apply both scientific concepts and knowledge about science to these situations, and can compare, select and evaluate appropriate scientific evidence for responding to life situations. Students at this level can use well-developed inquiry abilities, link knowledge appropriately and bring critical insights to situations. They can construct explanations based on evidence and arguments based on their critical analysis.
4	Tasks at this level that involve retrieving information require the reader to locate and organize several pieces of embedded information. Some tasks at this level require interpreting the meaning of nuances of language in a section of text by taking into account the text as a whole. Other interpretative tasks require understanding and applying categories in an unfamiliar context. Reflective tasks at this level require readers to use formal or public knowledge to hypothesize about or critically evaluate a text. Readers must demonstrate an accurate understanding of long or complex texts whose content or form may be unfamiliar	At Level 4 students can work effectively with explicit models for complex concrete situations that may involve constraints or call for making assumptions. They can select and integrate different representations, including symbolic representations, linking them directly to aspects of real-world situations. Students at this level can utilize well-developed skills and reason flexibly, with some insight, in these contexts. They can construct and communicate explanations and arguments based on their interpretations, arguments and actions.	At Level 4, students can work effectively with situations and issues that may involve explicit phenomena requiring them to make inferences about the role of science or technology. They can select and integrate explanations from different disciplines of science or technology and link those explanations directly to aspects of life situations. Students at this level can reflect on their actions and they can communicate decisions using scientific knowledge and evidence.

Level	Reading	Math	Science
3	Tasks at this level require the reader to locate, and in some cases recognize the relationship between, several pieces of information that must meet multiple conditions. Interpretative tasks at this level require the reader to integrate several parts of a text in order to identify a main idea, understand a relationship or construe the meaning of a word or phrase. They need to take into account many features in comparing, contrasting or categorizing. Often the required information is not prominent or there is much competing information; or there are other obstacles in the text, such as ideas that are contrary to expectation or negatively worded. Reflective tasks at this level may require connections, comparisons, and explanations, or they may require the reader to evaluate a feature of the text. Some reflective tasks require readers to demonstrate a fine understanding of the text in relation to familiar, everyday knowledge. Other tasks do not require detailed text comprehension but require the reader to draw on less common knowledge.	Students can execute clearly described procedures, including those that require sequential decisions. They can select and apply simple problem-solving strategies. Students at this level can interpret and use representations based on different information sources and reason directly from them. They can develop short communications reporting their interpretations, results and reasoning.	Students can identify clearly described scientific issues in a range of contexts. They can select facts and knowledge to explain phenomena and apply simple models or inquiry strategies. Students at this level can interpret and use scientific concepts from different disciplines and can apply them directly. They can develop short statements using facts and make decisions based on scientific knowledge.
2	Some tasks at this level require the reader to locate one or more pieces of information, which may need to be inferred and may need to meet several conditions. Others require recognizing the main idea in a text, understanding relationships, or construing meaning within a limited part of the text when the information is not prominent and the reader must make low level inferences. Tasks at this level may involve comparisons or contrasts based on a single feature in the text. Typical reflective tasks at this level require readers to make a comparison or several connections between the text and outside knowledge, by drawing on personal experience and attitudes.	Students can interpret and recognize situations in contexts that require no more than direct inference. They can extract relevant information from a single source and make use of a single representational mode. Students at this level can employ basic algorithms, formulae, procedures, or conventions. They are capable of direct reasoning and literal interpretations of the results.	
1b/1	Tasks at this level require the reader: to locate one or more independent pieces of explicitly stated information; to recognize the main theme or author's purpose in a text about a familiar topic; or to make a simple connection between information in the text and common, everyday knowledge. Typically the required information in the text is prominent and there is little, if any, competing information. The reader is explicitly directed to consider relevant factors in the task and in the text.	Students can answer questions involving familiar contexts where all relevant information is present and the questions are clearly defined. They are able to identify information and to carry out routine procedures according to direct instructions in explicit situations. They can perform actions that are obvious and follow immediately from the given stimuli.	Students have such a limited scientific knowledge that it can only be applied to a few, familiar situations. They can present scientific explanations that are obvious and follow explicitly from given evidence.

Level	Reading	Math	Science
1a	Tasks at this level require the reader to locate a single piece of explicitly stated information in a prominent position in a short, syntactically simple text with a familiar context and text type, such as a narrative or a simple list. The text typically provides support to the reader, such as repetition of information, pictures or familiar symbols. There is minimal competing information. In tasks requiring interpretation the reader may need to make simple connections between adjacent pieces of information.		



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