

Indonesia

Spending more or spending better: Improving education financing in Indonesia

East Asia and Pacific Region



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List of Abbreviations

APBD	Anggaran Pendapatan dan Belanja Daerah	Provincial or District Government Budget
APBN	Anggaran Pendapatan dan Belanja Negara	National Budget
ASEAN	Perhimpunan Bangsa-Bangsa Asia Tenggara	Association of Southeast Asian Nations
AusAid	Badan Kerjasama Pembangunan Internasional Australia	Australian Agency for International Development
BAPPENAS	Badan Perencanaan Pembangunan Nasional	National Development Planning Agency
BEC – TF	Dana Program Pengembangan Kapasitas Pendidikan Dasar (Bank Dunia)	Basic Education Capacity Trust Fund (World Bank)
BERMUTU	Pendidikan Lebih Baik Melalui Reformasi Manajemen dan Peningkatan Menyeluruh Guru	Better Education through Reformed Management and Universal Teacher Upgrading
BKD	Badan Kepegawaian Daerah	Regional Civil Service Board
BKN	Badan Kepegawaian Negara	National Civil Service Board
BLU	Badan Layanan Umum	General Services Agency
BOMM	Bantuan Operasional Manajemen Mutu	Operational Assistance for Quality Management
BOS	Bantuan Operasional Sekolah	School Operation Fund (Provided by the Central Government)
BOSDA	Bantuan Operasional Sekolah Daerah	Local BOS/Local School Grants
BOS-KITA	Peningkatan Pengetahuan untuk Transparansi dan Akuntabilitas BOS	BOS Knowledge Improvement for Transparency and Accountability
BPS	Biro Pusat Statistik	Central Bureau of Statistics
BSM	Bantuan Siswa Miskin	Scholarship for Poor Students
BSNP	Badan Standar Nasional Pendidikan	National Education Standards Agency
D1,2,3,4	Diploma Tingkat (1-tahun), (2-tahun), (3-tahun), (4-tahun)	Post Secondary Diploma Level (1-year), (2-year), (3-year), (4-year)
DAK	Dana Alokasi Khusus	Special Allocation Fund
DAU	Dana Alokasi Umum	General Allocation Fund (Central Transfer to Regional Budgets in the form of an Unrestricted Block Grant)
Dekon	Dekonsentrasi	De-concentration (budget and decision-making transfer from the central to the provincial government)
ECD	Pendidikan Anak Usia Dini	Early Childhood Education
ESWG	Kelompok Kerja Sektor Pendidikan	Education Sector Working Group
EU	Uni Eropa	European Union
GDP	Produk Domestik Bruto	Gross Domestic Product
GER	Angka Partisipasi Kasar	Gross Enrollment Rate

Gol	Pemerintah Republik Indonesia	Government of Indonesia
IDR	Rupiah	Indonesian Rupiah
JSS	Sekolah Menengah Pertama (SMP)	Junior Secondary School
MA	Madrasah Aliyah	Islamic Senior Secondary School
MBS	Manajemen Berbasis Sekolah	School Based Management
MDG	Tujuan Pembangunan Milenium	Millennium Development Goals
MenPAN	Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi	Ministry of State Personnel and Bureaucracy Reform
MGMP	Musyawaharah Guru Mata Pelajaran	Secondary School Subject Teacher's Working Group
MI	Madrasah Ibtidaiyah	Islamic Primary School
MoF	Kementerian Keuangan	Ministry of Finance
MoHA	Kementerian Dalam Negeri	Ministry of Home Affairs
MoEC	Kementerian Pendidikan dan Kebudayaan	Ministry of Education and Culture
MoRA	Kementerian Agama	Ministry of Religious Affairs
MoU	Nota Kesepahaman	Memorandum of Understanding
MTs	Madrasah Tsanawiyah	Islamic Junior Secondary School
NER	Angka Partisipasi Murni	Net Enrollment Rate
NUPTK	Nomor Unik Pendidik dan Tenaga Kependidikan	Unique Identification Number for Teachers and Teaching Personnel
OECD	Organisasi untuk Kerjasama Ekonomi dan Pembangunan	Organization for Economic Cooperation and Development
PAD	Pendapatan Asli Daerah	Regional Own Source Revenues
PAUD	Pendidikan Anak Usia Dini	Early Childhood Education
PER	Kajian Belanja Publik	Public Expenditure Review
PIRLS	Studi Internasional tentang Literasi Membaca	Progress in International Reading Literacy Study
PISA	Program Penilaian Siswa Internasional	Program for International Student Assessment
PNS	Pegawai Negeri Sipil	Civil Servant
PP	Peraturan Pemerintah	Government Regulation
PT	Perguruan Tinggi	Higher Education Institution
PTAI	Perguruan Tinggi Agama Islam	Islamic Higher Education Institution
PTK	Perguruan Tinggi Kedinasan	Higher Education Institution held by other Technical Ministries besides MoEC dan MoRA
Puspendik	Pusat Penilaian Pendidikan, Kementrian Pendidikan dan Kebudayaan	Center for Education Assesment, Ministry of Education and Culture
RA	Raudhatul Atfal	Islamic Kindergarten/Early Childhood Center
RENSTRA	Rencana Strategis	5-year Strategic Plan
RKP	Rencana Keuangan Pendidikan	Education Financial Plan

RPJMN	Rencana Pembangunan Jangka Menengah Nasional	Medium-term National Government Development Plan
S1, S2, S3	Sarjana 1, Sarjana 2, Sarjana 3	Degree equivalent to Bachelor's Degree, Master's Degree and PhD respectively
SBM	Manajemen Berbasis Sekolah (MBS)	School Based Management
SD	Sekolah Dasar	Primary School
SIKD	Sistem Informasi Keuangan Daerah	Regional Financial Information System
Sisdiknas	Sistem Pendidikan Nasional	National Education System
SK	Surat Keputusan	Decree
SKPD	Satuan Kerja Perangkat Daerah	Local Government Technical Department (or Regional Government's Working Unit)
SMA	Sekolah Menengah Atas	Senior Secondary School
SMK	Sekolah Menengah Kejuruan	Vocational Secondary School
SMP	Sekolah Menengah Pertama	Junior Secondary School
SNP	Standar Nasional Pendidikan	National Education Standards
SPM	Standar Pelayanan Minimal	Minimum Service Standards (MSS)
STR	Rasio Siswa Guru	Student-Teacher Ratio
SUSENAS	Survei Sosial Ekonomi Nasional	National Socio Economic Survey
TIMSS	Studi Internasional tentang Matematika dan Ilmu Pengetahuan Alam	Trends in International Mathematics and Science Study (TIMSS)
TP	Tugas Pembantuan	Co-administered Task
TK	Taman Kanak-Kanak	Kindergarten (PreSchool)
UKP4	Unit Kerja Presiden bidang Pengawasan dan Pengendalian Pembangunan	Presidential Working Unit of Supervision and Control of Development
UKMP3	Unit Kegiatan Menteri Pengawasan dan Pengendalian Pembangunan	Ministerial Working Unit of Supervision and Control of Development
UNESCO	Organisasi Pendidikan, Ilmu Pengetahuan, dan Kebudayaan PBB	United Nations Educational, Scientific, and Cultural Organization
UT	Universitas Terbuka	Open University
UU	Undang Undang	National Law
UUD	Undang-Undang Dasar	Basic Law
WB	Bank Dunia	World Bank
	Dinas	<i>A Provincial, District, Sub-District Office with sectoral responsibilities</i>
	Kabupaten	<i>District (Regency)</i>
	Kota	<i>Autonomous City</i>
	Komite Sekolah	<i>School Committee</i>
	Madrasah	<i>Islamic School</i>

Executive Summary

Indonesia has made a clear commitment to education – passing a constitutional mandate to allocate at least 20 percent of the total government budget to education (the “20 percent rule”). This has led to a large increase in resources, more than doubling education spending in real terms since the passage of the constitutional amendment in 2002. The rule’s mandate was fully met for the first time in 2009, when the government allocated more than 20 percent of the state budget to education. The goal of this report is to understand how these additional resources were spent and the extent to which they have translated into educational outcomes. The report provides recommendations to improve the quality of spending by improving the education financing system.

The “20 percent rule” has resulted in a rapid increase in the education budget, but has also complicated budget management. One of the biggest drawbacks of the 20 percent rule is that earmarking funds reduces the incentives to optimize their use. The link between policy planning and resources is broken; large exogenous increases to the budget (regardless of results and independent of planning) can create inefficiencies in spending. Earmarking funds also creates rigidities in the budget and limits the capacity of the government to optimize the allocation of resources across sectors. Lastly, because the rule applies to both the planned and the revised budgets, it makes the education budget unpredictable and creates large budget “windfalls”: with the budget highly dependent on the price of oil due to fuel subsidies, every adjustment to oil prices results in large fluctuations in total government spending. These windfalls have proven difficult to manage, despite Government of Indonesia (GOI)’s creation of the National Education Development Fund.

The biggest payoff for this increase in spending has been in terms of access and equity, but access to senior secondary and tertiary education still remains extremely low for the poor. There has been rapid progress in access and equity, with children from poor families enrolling earlier and staying in school longer. The share of 15 year olds from the poorest consumption quintile who are enrolled in school increased from 60 to 80 percent between 2006 and 2010. However, beyond the age of 15, enrollment from this quintile drops dramatically, and by higher education, falls to less than 2 percent.

Learning outcomes are still poor and show some worrisome trends in math and science. Meanwhile, the share of top performers is extremely low. Indonesia generally scores on the bottom on international tests (TIMSS, PIRLS and PISA), including compared with other countries in the region. On the PISA, the test with the most recent result and the longest time trend, the scores are mixed: while reading scores have shown steady improvement since 2000, math and science scores have not. In math, a promising increase in scores between 2000 and 2006 was set back in 2009, when scores declined for all socioeconomic deciles. In science, the trend has been flat since 2000. Equally alarming is the small number of top performers on both the TIMSS and the PIRLS, while on PISA, no student in the sample performed at level 6 (the highest) in math or science in 2009. Given recent evidence linking PISA scores and the share of top performers with GDP growth, it is evident that increasing quality of education must be a priority.

Part of these trends is explained by patterns in spending: most of the additional resources went to basic education, for teacher salaries and teacher certification. Two-thirds of the additional resources went for teacher salaries and certification, yet as we shall see, studies have shown that adding teachers does not correlate with improved educational results. Higher education also received a significant increase in resources, as did scholarship programs after 2009. Capital spending also increased in the last decade, especially at the district level (presumably on schools). The Gol's focus on expanding access to 9 years of basic education was reflected in the budget, but there are signs the government is putting more emphasis on expanding access and quality to senior secondary and beyond.

The increase in spending on teacher salaries was driven both by increases in the total number of teachers and by "regularizing" contract teachers to civil servant status. The patterns were different across levels. Conversions occurred mostly in early childhood education (ECD), and at the junior and senior secondary levels, while the increase in teachers in primary education was due mainly to the addition of contract teachers. Whereas 60 percent of the additional teachers were contract teachers, the trends in regularization and the Gol's implicit policy to have all teachers converted to civil servant status and certified are worrisome. What keeps the salary bill low in Indonesia despite the extremely low student-teacher ratio (STR) is the high prevalence of contract teachers. Estimates of the cost of conversion and certification suggest it would lead to an unsustainable doubling of the salary bill.

It is unlikely that the observed patterns of spending will translate into increased quality of education. At the current student-teacher ratios, there is no correlation between increasing the number of teachers and learning outcomes. At 17-1 in primary and 13-1 in secondary schools, STRs in Indonesia are low by international standards; given these ratios, adding more teachers is unlikely to lead to improved outcomes. Moreover, the teacher certification program, which absorbed a large chunk of additional funds, is not (yet) showing the expected impact. An early evaluation of the teacher certification program shows that while the program improved the livelihoods of teachers, it did not lead to improvements in learning outcomes for students.

Indonesia needs to alter its education spending patterns to ensure that resources produce improved outcomes. Judging by international comparisons, ECD and senior secondary education are underfunded. Scholarships received only 1 percent of the total budget in 2009. While the planned budget for scholarships increased significantly between 2009 and 2011, there is room for expansion and improvement of the program. However beyond these broad indications, improving the quality of spending is not straightforward. Within each level of education, it implies different adjustments. Given the importance of *basic education* in the budget and as the basis for future learning, this report goes into detail on improving the quality of spending in this area. Some on-going studies have looked at senior secondary education in detail. Future work should examine other levels.

What does "spending better" mean in basic education?

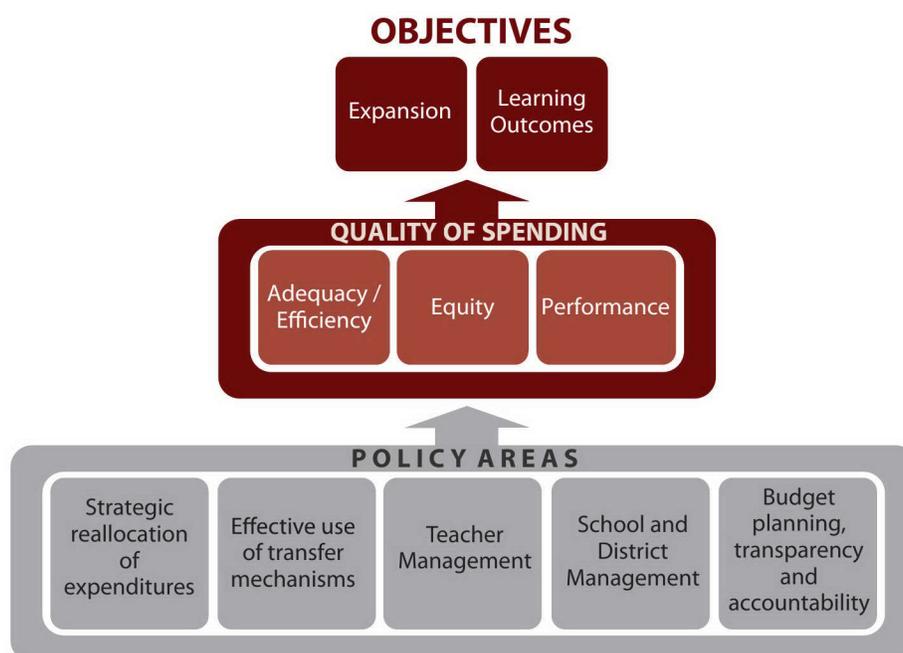
Spending better means ensuring resources are allocated more effectively to produce better outcomes with regard to access and learning. Given the complexity of the governance of the system in Indonesia, this is a difficult task, and one that should focus on the districts' capacity to manage the system. Districts own schools and manage teachers, the two main inputs in the learning process. But since districts rely on central government transfers for the majority of their budgets, spending is influenced by the incentives embedded in the transfer formulas. A look at these incentive structures goes a long way to explaining why districts spend mostly on one of these inputs (teachers) while their support for schools is still very limited. Improving spending in basic education will mean achieving more balanced spending at the district level and ensuring that incentives are in line with the objective of improving the quality of education.

This report highlights three broad areas for improvement in education financing, focusing on increasing efficiency, equity and performance:

In terms of **efficiency in the use of resources**, while the overall availability of resources seems largely adequate (relative to the state budget), the breakdown by level is still biased towards basic education when compared to other countries in the region. While ECD, senior secondary and higher education are likely to receive a larger share of resources in the future, liberating the resources for this increased spending will necessarily mean improving efficiency in current spending, especially when it comes to basic education, and especially on teachers. If Indonesia wants to be able to afford increased spending on non-basic education, and meet its goal for all teachers to be certified civil servants, it is imperative that it improve the efficiency of spending.

In terms of **equity**, while the focus on basic education is more progressive than spending on higher levels of education (when children from poor backgrounds frequently are no longer enrolled), an uneven distribution of teachers results in vast differences in spending per student across schools and across districts. In addition, uneven distribution in terms of teacher qualifications (measured by education level) compounds the problem. Rural and remote areas have fewer and less qualified teachers.

In terms of **incentives for performance**, the financing system has very few. With the focus of financing still on inputs (teachers, school infrastructure), districts face strong incentives to manage the inputs mechanically, adding inputs proportionately to the budget increases, and not necessarily to optimize their performance. That said, at the school level, administrators face pressure from communities to improve the quality of education. Ultimately, it is at the school level that most of the potential to optimize spending lies, but the central government can provide the right incentives to districts and schools to achieve these goals.



The key to improving quality of spending in basic education is to improve district performance in managing budgets – however, the central government’s role is fundamental. As noted, districts manage two of the most important inputs in basic education, schools and teachers, but they receive most of their funds from central government transfers and are subject to central government regulations. As a consequence, the first tool the government has at its disposal to improve the quality of spending is a *strategic reallocation of spending towards underfunded programs and levels of education*, including scholarship programs and early childhood as well as post-basic education. However, given that the funds are managed locally, improving the quality of spending has to occur at the district and, ultimately, the school level, and districts must be incentivized to make good decisions. We recommend the following areas for central government action to improve district performance: first, setting up the right incentives through *a more effective use of transfers mechanisms*; providing tools for districts to *improve teacher management*, and increasing the role of districts in *managing and funding schools*. Improving transparency and accountability in budget management can support all these reforms.

Strategic reallocation of resources

Indonesia can reallocate resources strategically towards programs that are underfunded, such as expanding access to ECD or senior secondary. However, increasing resources is not sufficient. It is important to keep in mind that additional resources do not always result in improvements in outcomes, so drastically expanding access requires careful planning to ensure sustainability and efficiency. While this report does not go into these sub-sector issues because they are beyond its scope, estimates of the cost of expanding access to senior secondary education show that the model chosen for expansion can have dramatic effects on the cost. Small changes in per student spending have big effects on the budget. Different financing mechanisms have different effects on equity and access.

ECD and senior secondary education are clear candidates for more resources. The evidence supporting ECD internationally is overwhelming. Given the current low level of spending on ECD, increasing resources in this area seems desirable. Senior secondary education, which still relies largely on student fees, should also receive increased funding; the Gol’s plans to expand compulsory education to this level demonstrates its commitment to expanded access. Whether the expansion is carried out by providing free senior secondary or through targeted scholarships will have serious budget implications.

Expanding and improving the Scholarship for Poor Students program (Bantuan Siswa Miskin) is critical for supporting expansion and equity: this will require increasing funding and coverage, improving the targeting of the program, aligning the disbursement of the benefit with the timing of expenditures and possibly providing a transition bonus. The ideal scenario would cover 100 percent of the cost for all poor students from SD to SMU, providing a transition bonus for those moving from SD to SMP and from SMP to SMU. This would ensure that cost is not a reason for dropping out, and provide incentives for students who are deciding whether to continue their education.

Improving district spending

A key element in improving the quality of spending on education is improving teacher management. Districts face incentives to overstaff from two sources: i) the sub-national General Allocation Fund transfer formula (Dana Alokasi Umum, DAU) and ii) the guidelines for teacher distribution. The Basic Allocation component of the DAU formula (the main transfer from central to sub-national governments) is based partly on the number of civil servants in a district, which provides an incentive to hire teachers rather than redistribute them when needed. In addition, the guidelines for teacher entitlement formulas, which establish the minimum number of teachers a school should have depending on its characteristics, tend to support high teacher numbers, especially in small schools, as they are based on teaching groups rather than on student-

teacher ratios. The combination of these two factors results in schools requesting additional teachers based on entitlement formulas, and districts preferring to hire before redistributing teachers from overstaffed to understaffed schools. If there is one message to take away from this report, it is that tackling these two issues is crucial to meeting Indonesia's goals.

a) Effective use of transfer mechanisms

Breaking the link between transfers and hiring. The consequences of the DAU have been studied extensively, and there seems to be a consensus in this body of research that the revisions of Laws no. 32 and 33 governing decentralization ought to eliminate incentives for overstaffing by removing the Basic Allocation element from the DAU formula. This would go a long way towards making future teacher hiring more efficient by reducing incentives to overstaff, but this change would not rationalize teacher management instantly. Teachers already hired need to be managed more efficiently. Most importantly, while it would eliminate one of the clearest incentives for districts to overstaff, changing the transfer formula alone may not guarantee the elimination of the problem of overstaffing completely. Faced with the obligation to spend on education and the lack of alternative ways to allocate resources, districts may still choose to hire additional teachers, even if the DAU formula is changed.

Increase performance-based transfers. In order to further incentivize districts to focus on performance, the performance component of central government transfers, such as the incentive grant to local and provincial governments earmarked for education (Dana Insentif Daerah, DID), should be expanded. These performance-based incentives can be linked to either specific policies (for example, to the provision of local school grants (Bantuan Operasional Sekolah Daerah, BOSDA) by the district or to enrollments and/or other outcome indicators.

Both of these changes are largely out of the control of Ministry of Education and Culture (MoEC) – lying instead under the responsibility of the Ministry of Finance and Ministry of Home Affairs. These changes by themselves will not solve the problems with the quality of spending on education, but they have important implications for education. Regardless of whether they occur, the problems with teacher management still need to be addressed.

b) Improving Teacher Management

Teacher management is critical to improving the efficiency and equity of spending in education. The current low STR would be fiscally unaffordable if it were not for the high prevalence of contract teachers. Continuing the trend of converting contract teachers to civil servants in secondary education will drive up the salary bill up if the allocation of teachers is not improved. Finding a sustainable way to deal with contract teachers will be crucial in the future. On equity, despite the low STR, there are massive differences in the availability and qualifications of teachers across schools and regions, with a clear disadvantage for rural and remote areas, but large variability even within districts.

The estimated efficiency gains from reallocating teachers are substantial. Small improvements in the efficiency of teacher allocation can have large budget implications: increasing STRs by five students can result in a one-third reduction of in per student spending. Increasing STRs can be the key to liberating resources to achieve the desired results for the future. However, existing efforts to increase STRs have had limited success. Currently, the guidelines are based on learning groups (rombels) and not on student-teacher ratios. Thus if schools break down students into smaller learning groups, it can lead to an overestimation of the number of teachers needed.

The magnitude of the reallocation needed to improve efficiency and equity in the allocation of teachers is massive. Using the latest government guidelines for teacher allocation, which came out of a joint decree for teacher management and establish the minimum number of students in a school, about 340,000 teachers or 17 percent of the teaching force would need to be reallocated to ensure that all schools have at least the minimum

number of teachers. While most of this reallocation can occur within districts, which is logistically simpler, there is still a need to reallocate teachers across districts and even across provinces. The sheer size of the reallocation, and the lack of clear mechanisms for these transfers, make realizing these efficiency and equity gains difficult to achieve in the short period of the decree's validity.

A large constraint in Indonesia's education system is the high number of small schools. The high prevalence of small schools increases the need for teachers. Revisiting school planning should be considered as a medium-term strategy, but more immediate measures (some already underway) could be expanded. **Multi-grade** teaching can be an effective way to deal with small schools, but there need to be provisions in place to support districts in its implementation. In senior secondary, **cluster teaching** (whereby teachers are allowed to teach more than one subject) can go a long a long way to improving efficiency. Lastly, incentives for **teaching in remote areas** should be elaborated and expanded.

In order to adapt more quickly, contract teachers could be used more strategically, but their working conditions and career prospects need to be improved. Ideally, teachers would be fungible and flexible, available for assignment where they are most needed. However in the absence of this mobility across subjects, levels of education and schools, contract teachers can be used to deal with shortages. In many countries contract teachers have proven to be effective at supporting expansion, and they are significantly easier to move across schools. However, without effective regulations on contract teachers, defined career prospects and improved working conditions, there is a risk that high turnover and the use of unqualified teachers may harm the quality of education.

The teacher certification program needs to be reassessed, since it is not delivering the expected results. Studies have shown that while certified teachers are less likely to hold second jobs, students of certified teachers do not perform significantly better on tests. To a large extent, the creation of a simplified procedure for certification (based on submitting a "portfolio" of teaching experience, training courses or workshops) seems to have weakened the effects of the program, but the introduction of recertification requirements may improve the outlook. A promising step in 2012 is the inclusion of a competency test to determine eligibility for the certification process.

c) Improving School and District Management

While districts are responsible for both teachers and schools, 80 percent of their spending goes to salaries. School budgets, therefore, are left with only a small portion, if any, of district funds. Almost half of schools report receiving no funds from district or provincial governments.

Still many districts and provinces do support schools directly by providing (small) discretionary funds through the BOSDA program. More than half of local governments receive BOSDA, and a majority of them provide top-up funds using the same per student formula as the central government's School Assistance Program (BOS). A few are experimenting with alternative formulas (per school, per teacher, equity-based formulas and even some performance-based formulas).

Additional discretionary funds from BOSDA are associated with better learning outcomes. Using detailed budget data, the report shows that schools that get BOSDA do not shift their big categories of spending in major ways. The additional funds, however, have a positive effect on learning outcomes both in math and Bahasa Indonesian.

Expanding the BOSDA program offers a promising format for increased district support to schools. By experimenting with different formulas, BOSDA has the potential to play a stronger role in improving district management by allocating resources in a more equitable way and by introducing a more active district involvement in school management.

Improving Budget Planning, Transparency and Accountability.

In addition to the specific measures above, ensuring accountability and transparency in the process of planning and allocating resources is crucial to improving the quality of spending. The 20 percent rule makes it more challenging to hold spending agencies accountable because budgetary decisions are divorced from educational results (ie. the funding for education is guaranteed regardless of results). The 20 percent funding should not be taken for granted, however, but rather viewed as an opportunity to improve educational outcomes and access. Every effort should be made to ensure that funds are spent in a transparent manner, based on long-term development objectives and linked to specific program needs.

Improving budget transparency requires improved education budget reporting at the sub-national levels and improved reporting on budget priorities for mid-year windfalls at the national level. This report mentions several problematic areas in the current education data reporting, particularly when it comes to sub-national data, which lags two years behind, covers only 70 percent of districts and does not provide basic data breakdowns. Encouraging more up-to-date and detailed sub-national data reporting and providing reporting guidelines to districts and provinces to ensure consistency in methodology and calculations is an important element in improving education budget transparency. Also, given the recent large windfalls resulting from the 20 percent rule, it is important to renew and expand the education line ministries' 2010 practice of providing detailed budget plans describing windfall allocations to specific programs and activities.

Ensuring the link between program planning and budgeting, and linking these to performance is likely to result in better quality spending. MoEC has led the way by measuring outcomes and evaluating performance and using this information to inform its budgeting. Since 2010, MoEC has been collaborating with the Vice President's Office to report on improvements in the government's priority programs and ensure consistency between program planning and implementation. Expanding and improving the current Monitoring and Evaluation (M&E) effort and moving towards performance-informed budgeting should allow MoEC to reap further rewards in terms of improved quality of spending and improved outcomes.

Moreover, given the constraints and challenges associated with the 20 percent rule, it will be important to develop better contingency planning strategies in education budget management. As previously mentioned, the 20 percent rule makes the education budget unpredictable, especially as it also applies to the revised budget. High volatility in the education budget should be mitigated by better use of the National Education Development Fund; this will require the development of clear guidelines and a mid-term expenditure framework on windfall allocations to the Fund, as well as instructions on how and under what scenarios the Fund's resources can be used.

Going forward...

Implementing all of these reforms will be a major challenge: the political economy of these reforms is complex. Reforms that involve one stakeholder can be relatively easy to implement given the will and the proper resources. Some of these reforms, such as expanding BSM or funding for higher education, are relatively straightforward. However reforms that involve multiple stakeholders, each with their own interests, can prove impossible if the interests are not aligned. Reforming the transfer system is outside of the control of MoEC, and has consequences for many sectors, not only education. Balancing the various interests and incentives will be complex, requiring better coordination among stakeholders.

The sequencing of reforms is important. Some issues are more pressing than others. One of the most important is teacher management, which must be dealt with urgently in order to liberate resources and stop the trend of excessive hiring. Improving budget planning and transparency are also key. These two reforms would set the stage for a more sustainable expansion in the future. Other reforms require careful reflection. For example,

while increasing spending in ECD seems desirable, current funding sources need to be evaluated and a more sustainable financing scheme developed.

Reforming transfer mechanisms is notoriously difficult—but even in the absence of such reforms, MoEC can still improve the system significantly. Expanding and improving strategic programs such as BSM, and incentivizing and supporting districts, would be major steps in the right direction. Providing districts with clear guidelines for teacher management and extending multi-grade teaching in small schools would improve the efficiency and equity of the system, even if the current DAU formula remains. Such reforms would liberate resources to fund key programs, including to improve teacher quality. Modifying the teacher certification program to ensure that it results in improved outcomes is also a priority. Exploiting the BOSDA model to expand district support and accountability can also have a major effect on the quality of education, as can the expansion of national programs for accountability and transparency.

It is time to translate the strong commitment to education into higher quality education and better outcomes. Indonesia is ready for that qualitative leap. It will require the collaboration and coordination of many actors, but the potential gains are plentiful. As Indonesia consolidates its status as a middle-income country, the skills of its labor force will be crucial. Improving the quality of education by improving the quality of spending would be a major step toward ensuring the labor force is prepared.

■ Introduction: Why another public expenditure review?

Few countries in the world have increased public expenditure on education by over 60 percent in real terms over a five-year period, as Indonesia did between 2005 and 2009. During that time, a constitutionally mandated allocation of 20 percent of government expenditure to education (hereafter “the 20 percent rule”) was defined and implemented. The rule led to a massive increase in resources for education, making education the largest government expenditure after energy subsidies.¹ This rapid and significant increase in resources, and the need to evaluate where resources went and whether they translated into better educational outcomes, are the motivation for this report.

The large increase in expenditures addressed one of the main concerns of the last Education Public Expenditure Review (PER)² – the lack of resources for education – but the problems with the distribution of resources persist. That PER, carried out in 2007 using 2006 data, highlighted that Indonesia’s spending on education was lower than would be expected for the country’s level of development. As this report shows, the massive increase in spending has brought Indonesia closer to other middle income countries in terms of spending as a share of the total government budget. The second challenge identified in the last PER has not yet been addressed however: the distribution of resources. The structural inconsistencies between central and district spending and responsibilities are still present. Districts control the largest share of the budget, but they spend mainly on salaries. Problems with teacher management are more serious now, as the number of teachers has continued to increase since 2006. The high cost of certification anticipated in the previous PER and in subsequent World Bank reports on teacher management³ has materialized and promises to become more severe if the problems with teacher oversupply and distribution are not addressed.

As a consequence, improving the quality of spending in the education sector is now critical. Education is crucial for Indonesia’s plans to consolidate as a middle-income country and to accelerate its transformation into a high-income country. Human resource development is a pillar of the recently approved Masterplan for Economic Transformation⁴, and as the country integrates with ASEAN and other trading partners, improving the quality of human resources must be central to its development strategy. It is also key to avoiding the middle-income trap, whereby countries fail to transition from middle-income to higher-income status because they remain specialized in lower value-added activities. However, after the rapid increase in resources in recent years, total spending on education is unlikely to increase at a faster pace than the overall government budget. In this context, it is all the more important to examine how resources are currently spent and to ensure they are used efficiently and effectively to meet the remaining challenges in the sector.

This report focuses on how changes to the financing and governance systems can improve equity in access to education and the quality of education, and provides recommendations to improve government spending. Analyzing the consequences of the 20 percent rule for education budget management, this report describes where the additional resources went and highlights the main challenges in the sector - continuing to expand access, especially for the poor, and improving quality. With those two problems being too complex to tackle comprehensively in a Public Expenditure Review, the report focuses on the effects of the current financing and governance systems on access and quality. When it comes to teachers and teacher management,

1 Indonesia Economic Quarterly, World Bank (2012a)

2 World Bank (2007) Investing in Indonesia’s Education, Allocation, Equity and Efficiency of Public Expenditures

3 See Transforming Indonesia’s Teaching Force, World Bank (2010b)

4 Masterplan for the Acceleration and Expansion of Indonesia Economic Development 2011-2025, retrieved from http://www.ekon.go.id/media/filemanager/2011/05/27/p/d/pdf_mp3ei.pdf

for example, the report examines how transfer mechanisms and differences in district capacity lead to a poor distribution of teachers, which eventually has a negative effect on learning. This ignores, for example, problems with pre-service teacher training, or ineffective teacher career management. This compromise is necessary given the nature of this report. Other work from the World Bank does cover these issues.⁵

While the analysis of the trends in spending span over all levels of education and includes the various ministries involved in education, the specific analysis on quality of spending is focused mainly on basic education. This, for two reasons: basic education absorbs most of the budget and, being managed by district governments and with school autonomy, basic education has the most complex financing and governance structure in the sector. In addition, a high-quality basic education is critical both for economic growth and employability. Ensuring good quality basic education is a necessary condition for the development of the rest of the education system.

The report is divided into two parts. The first three chapters show that the vast increase in education resources has not been accompanied by a similar increase in learning outcomes, and thus highlight the urgent need to improve the quality of spending. Chapter 1 starts by describing the complex financing and governance systems. With this policy framework in mind, Chapter 2 focuses on the 20 percent rule, analyzing its consequences for budget planning and management and examining where resources went after this vast increase in spending. The chapter also provides some estimates of the cost of meeting future government objectives, in the context of discussions on expanding compulsory education, and broadening teacher certification. Chapter 3 looks at education outcomes, reviewing the significant improvements in access and equity, as well as the worrisome trends in learning outcomes. It points to improving the quality of education and expanding access to secondary and above (especially for the poor) as the main challenges in the sector. Given the cost of achieving these goals, and the fact that current expenditure patterns are unlikely to lead to improvements in learning outcomes, the chapter concludes that improving the quality of spending in education is now critical.

The second part of the report focuses on how to improve the quality of spending in order to continue expansion and improve learning outcomes. In chapter 4, the quality of spending issue is divided into two areas: i) reassigning or improving programs at the central level, and ii) improving management at the district and school levels. At the central level, this chapter analyzes the Scholarships for the Poor program (BSM) and recommends that it be expanded and improved. At the sub-national level, the report explores how a combination of more efficient teacher management and stronger support for schools can improve efficiency and learning outcomes, and what the central government's role should be in ensuring that these changes occur. Finally, chapter 5 summarizes these recommendations, providing a framework for improving the quality of spending and, ultimately, ensuring that this spending leads to an improvement in the quality of the Indonesian education system.

5 A comprehensive report on teacher policies is currently under preparation.

Chapter 1:

How is the Indonesian Education System Financed and Managed?

The education system in Indonesia is a very large, highly decentralized system, with over 500 district governments playing a strong role in its management. This role includes the managing the system's most important assets: 59 million students, 330,000 schools and close to 3 million teachers.⁶ While many ministries register spending on education in their budgets,⁷ the Ministry of Education and Culture (MoEC) and the Ministry of Religious Affairs (MoRA) are responsible for setting policies and managing the system. Under both ministries, public and private provision co-exist and receive public support in the form of civil service teachers (at all levels) and direct school grants (in basic education). While the nine years of basic education (primary and junior secondary) are compulsory and heavily subsidized, household contributions are high in senior secondary education and very high in higher education. This is partly related to the greater reliance on private provision and limited public support for these levels. While public MoEC schools cover a majority of enrollment in basic education, private provision is more prevalent in senior secondary and higher education (Figure 1).

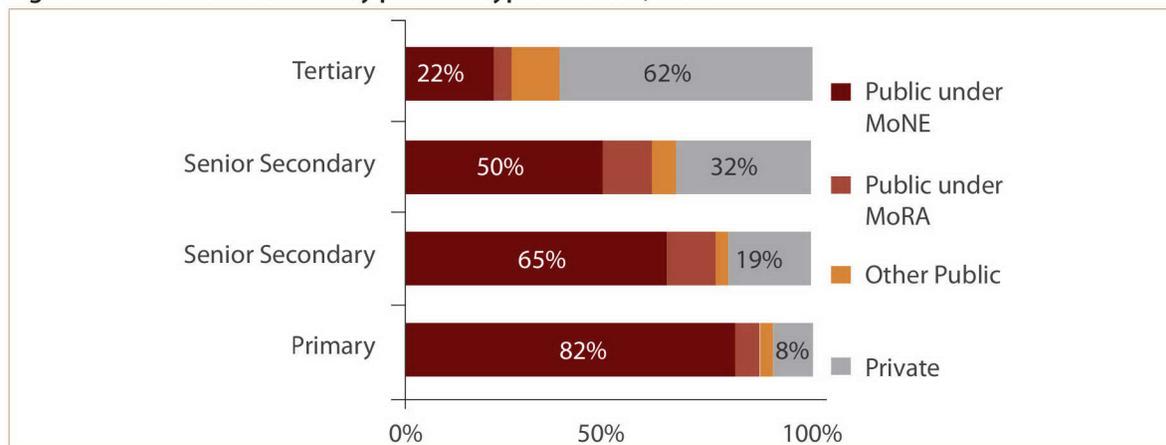
The system's institutional complexity is matched by complexity in financing mechanisms. Despite efforts to simplify school budgets by providing per student block grants to all schools in Indonesia (BOS), schools still receive funds from seven different budget sources: some come directly from the central government, some from local governments (mainly districts). This complicates school planning. District and provincial governments also receive funds from different transfer mechanisms, each with specific associated incentives. Meanwhile, the higher education system is centralized and support is limited to public universities, except in the case of civil service lecturers placed in private universities.

To further complicate financing and management, a constitutional amendment passed in 2002 establishes that at least 20 percent of the total state budget has to be spent on education. Both central and local government budgets are subject to the rule, which includes budget revisions. This rigidity creates significant distortions in decision-making.

6 The number of students and schools mentioned includes all levels of education (from early childhood/ECD to higher education), public and private. The number of teachers is from ECD up to senior secondary, including inclusive education civil servant and non-civil servant, permanent and contract teachers (MoEC, 2010 and NUPTK, 2011).

7 The Ministries of Finance, Agriculture, Industry, Energy and Mineral Resources, Transportation, Health, Forestry, Marine Affairs and Fisheries, Tourism and Creative Economy, Youth and Sport, Defense, and Manpower and Transmigration, the National Land Agency, the Meteorological-Climatological and Geophysical Agency, the National Nuclear Energy Agency, the Ministry of Youth and Sport, Ministry of Defense, Ministry of Manpower and Transmigration, National Library, and Ministry of Cooperatives and Small & Medium Enterprises.

Figure 1: Share of enrollment by provider type and level, 2010



Source: SUSENAS 2010.

This chapter provides an overview of the financing and governance of the highly decentralized education system. It provides a picture of the system and its different tracks, explains the roles that central and regional governments play, and provides an overview of the transfer mechanisms that support the system.

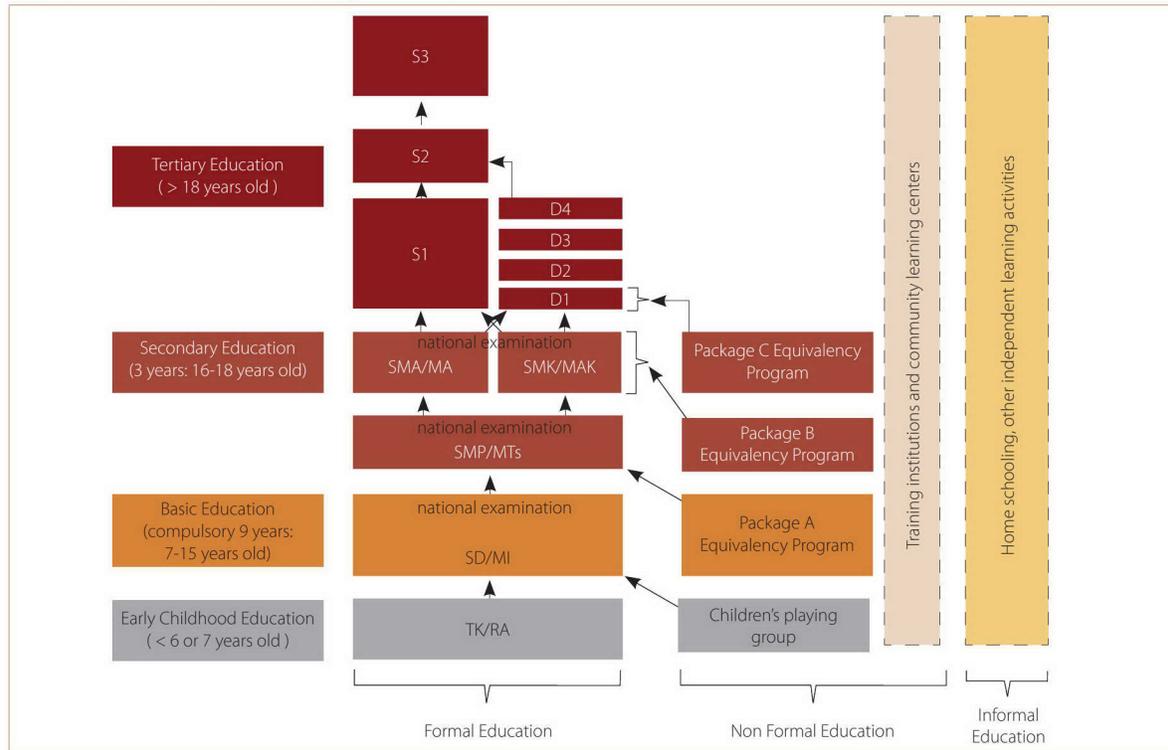
A description of the National Education System in Indonesia

The national education system in Indonesia⁸ accommodates three tracks: formal, non-formal and informal education (Figure 2). Formal education is structured consecutively, starting with pre-school or early childhood education, running through basic education (primary and junior secondary education) and senior secondary education, and concluding with higher education.⁹ Primary and junior secondary are compulsory (nine years). Senior secondary education has two tracks: general and vocational. Both last three years but the curricula vary. The higher education system also provides both general and technical options, offering diplomas from polytechnics and professional schools, and undergraduate degrees (S1) from four-year universities, as well as Masters (S2) and PhD (S3) degrees. A national examination is held to assess student competency in the last year of primary, junior secondary, and senior secondary, and to determine whether a student is eligible to continue. Non-formal education enables lifelong learning by allowing people to pursue an educational path at any point of one's life, substituting for and/or complementing formal education; such learning takes place in training institutes or community learning centers. Informal education may take the form of home schooling or other independent learning activities.

8 Law 20/2003 serves as the legal basis for Indonesia's National Education System. This Law is the latest revision of Law 2/1989 on National Education System decentralization. This revision underlines the shift in the education system's management in the context of reformation and decentralization, eliminating discrimination between government-run (public) and community-run (private) institutions, and between religious and general education. The system introduced in this law takes into account the implementation of regional autonomy according to Law 22/1999 on Regional Government and Law 25/1999 on Fiscal Balance between Central and Local Government.

9 More discussion on the goal of each level of formal education; see for example World Bank's "Preparing Indonesian Youth for Transition," World Bank 2012.

Figure 2: National Education System in Indonesia



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

Two ministries administer the national education system in Indonesia—the Ministry of Education and Culture (MoEC) and the Ministry of Religious Affairs (MoRA). The education levels of MoRA-administered schools mirror those of MoEC schools (from pre-school to higher education), enabling movement from one to the other. Both deliver the same compulsory curriculum, with a distinct emphasis on religion in MoRA schools. But while MoRA’s governance is centralized, with provincial and district offices reporting directly to MoRA instead of to the head of the local government MoEC’s governance is decentralized, with the bulk of decision-making and service delivery devolved to local governments.

The private sector plays a substantial role in the delivery of education in Indonesia, but quality varies enormously. Private schools are run by non-governmental institutions, such as foundations, religious or other grassroots organizations. These schools have largely filled the gap left by public schools in poor and rural areas, while some cater to students from wealthier families.¹⁰ Up to 91 percent of MoRA’s Islamic schools are run by foundations linked to mass Islamic organizations.¹¹ When it comes to MoEC schools, private providers represent a larger share of the total as the education level increases. The government supports private schools through regulations and by deploying civil service teachers (a relatively small number compared to the number of school-hired teachers). The BOS program disburses block grants to both public and private schools at the basic education level. Thus, in addition to complying with government regulations, private primary and secondary schools are now required to report BOS fund allocations on a quarterly basis to their respective district governments.

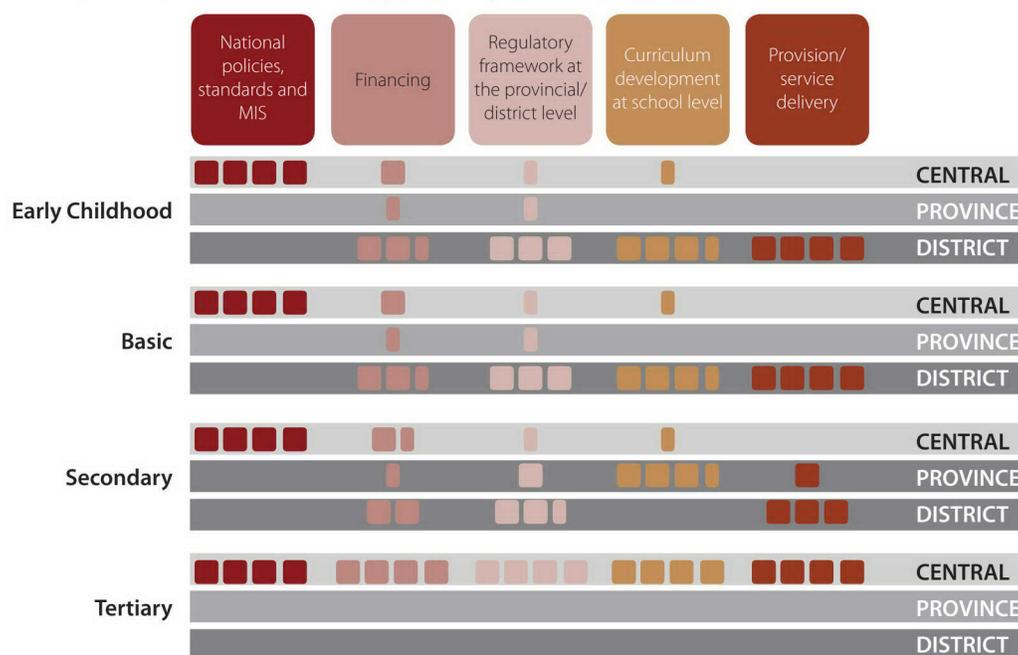
10 World Bank (2010b), Transforming Indonesia’s Teaching Force.

11 MoRA (2008) in Ali et al.(2011), Quality of Education in Madrasah.

Who manages what in Indonesia’s decentralized education system?

Since the local government autonomy law in 2001, district governments are responsible for managing the two main assets at the primary and secondary education levels: schools and teachers. Legally, primary and secondary schools are owned by district governments. In fact, when it comes to budgets, the school’s legal status is similar to that of a district government department. Similarly, civil service teachers are legally district government employees, although the hiring process, like that of other civil servants, depends on a number of central government ministries, including the Ministry of Finance (MoF) and the Ministry of State Personnel and Bureaucracy Reform (MenPAN). Even contract teachers are largely district employees, although some are hired directly by schools. MoRA’s management structure is different, since it maintains a centralized system for its public schools and civil service teachers, and relies more heavily on private funds. Provincial governments have very limited authority when it comes to schools, mostly coordinating districts at the basic and secondary levels of education, including with regard to staff development and the provision for education facilities.

Table 1: Decentralized education management by level of education



Source: elaboration based on Law 20/2003, King et al. (2004) and PP 38/2007.

Notes: Financing responsibilities in the table reflect the main responsibilities under education program assigned to specific level of government. However, partial financing in some programs is shared between different levels of governments: besides higher education, central government provides financing to other education programs, including through school rehabilitation financing, scholarship funding, and until 2011 it also administered School Operation Funds (BOS). Provincial governments also provide partial financial assistance in senior secondary education and to special needs schools.

The central government formulates policy, issues regulations/guidelines and standards at the national level, and still directly controls higher education. MoEC, together with the National Education Standards Agency (BSNP), develops national education standards in eight areas: content/curriculum, processes, graduate competencies, education staff, facilities and infrastructure, management, financing and educational assessment.¹² MoEC also issued Minimum Service Standards (MSS) for all education levels and the recent Joint Decree (2011)

12 According to PP 19/2005.

on redistribution of civil service teachers.¹³ When it comes to higher education, the Directorate General of Higher Education within MoEC has a key role, with authority to issue and revoke permits for institutions of higher learning and tight control over the public higher education system. Salaries for civil servant lecturers in both public and private universities are disbursed by the central government. However, few higher education institutions have some autonomy, as long as they are in compliance with the norms and quality assurance standards developed by MoEC.

Both central and district governments are responsible for developing and managing the teaching force.

The current teacher certification program, for instance, is led by MoEC in coordination with district governments. The ongoing scheme to redistribute civil service teachers provides another example: regulations and technical guidelines are introduced by MoEC, while the analysis of teacher needs and redistribution are led by districts (for redistribution within districts) and by provincial governments (for redistribution across districts). The central government also sets quotas for professional certification.

Other central government agencies remain in charge of setting pay rates for civil servants and transferring district government budgets.

MenPAN, MoF and the National Civil Service Board (BKN) play key roles in the hiring of civil service teachers and determining civil service quotas, while the selection, deployment and management of civil service teachers are handled by district governments.

Schools have considerable autonomy over operational, budgetary and programmatic decisions.

Since 2003, School Based Management (SBM) has applied to all stages of formal education. A degree of decision-making power and management have thereby devolved to the school level, taking account of local norms and encouraging community involvement. Evidence of SBM is seen in the joint role principals, teachers and school committees¹⁴ play in the allocation of BOS funds, and in the development of school budgets and school work plans.

Who pays for what in Indonesia's education system?

The funding system for the education sector is complex, involving multiple sources and transfers across various levels of government.

Expenditures for education come from central government funds, transfers to sub-national governments, sub-national governments' own-source revenues, and central government spending at the sub-national level that is not recorded in sub-national budgets. Currently, schools receive funds from eight different sources and four different budgets, including the national, provincial, district and school budgets (Figure 3).

Central government transfers are the main source of revenue for district government budgets (APBD).

Central government transfers to sub-national governments have more than doubled in real terms since decentralization, accounting for 88 percent of district budgets and 44 percent of provincial budgets in 2009. While the majority of transfers are not earmarked – making it impossible to determine exactly what they are spent on – transfers are estimated to finance about 90 percent of sub-national spending on education, and 60 percent of the total national education budget.¹⁵ Sub-national governments receive many types of transfers for education spending, including the General Allocation Fund (Dana Alokasi Umum, DAU), the Specific Allocation Fund (Dana Alokasi Khusus, DAK), Special Adjustment Funds (Dana Penyesuaian), Co-administered Tasks (Tugas Pembantuan), De-concentration (Dekonsentrasi/Dekon) Funds, as well as BOS for elementary and junior secondary schools.¹⁶

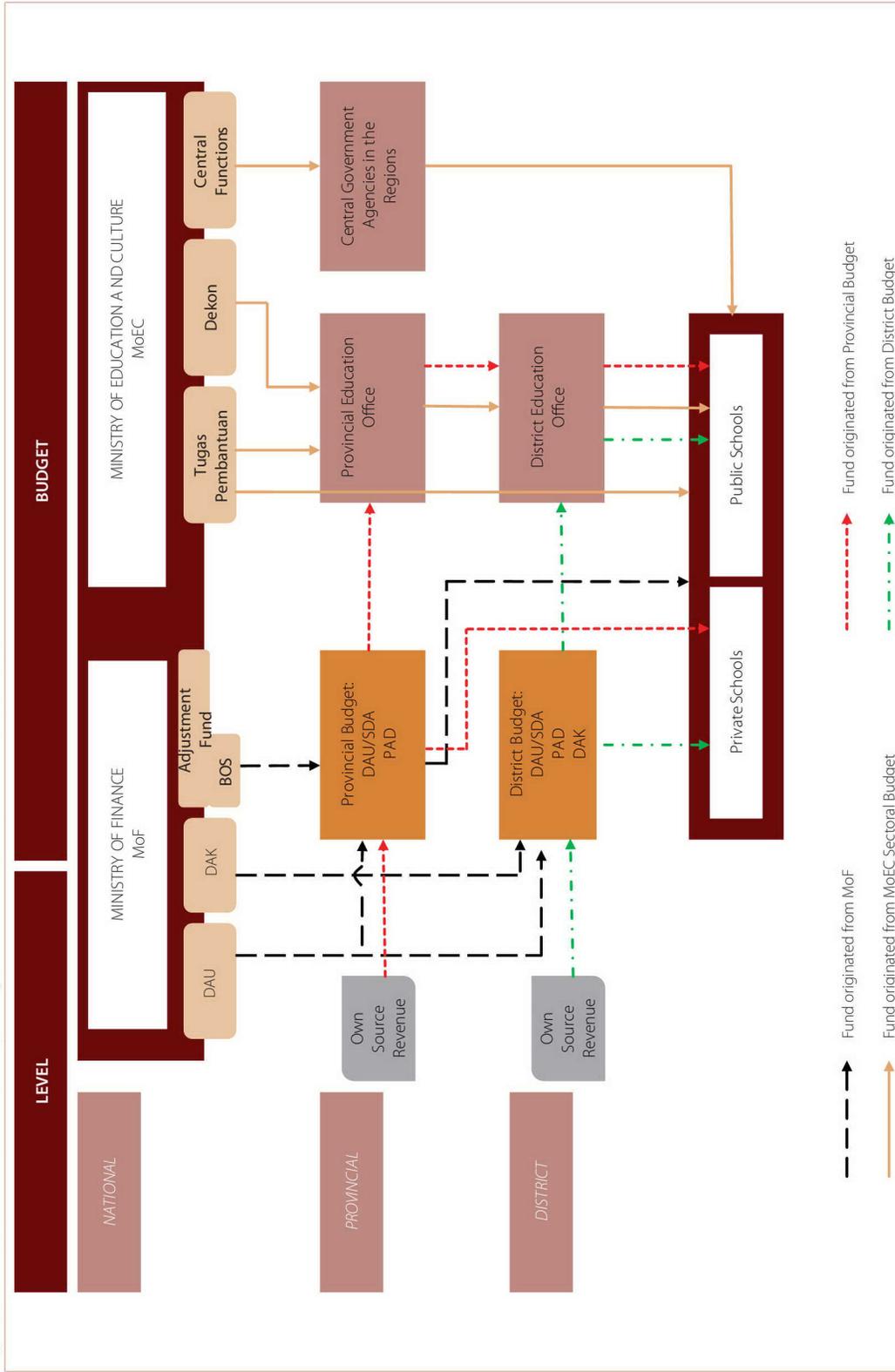
13 MoEC put together technical guidelines as a reference for district and provincial governments during the mapping of teacher needs and eventually the redistribution process.

14 School committee representatives include parents, members of the community and education experts and/or practitioners, and should be chosen via a democratic and transparent election process (as regulated in the PP 17/2010 on Management and Implementation of Education).

15 2009 Revised Planned Budget (APBN-P) includes planned total education budget and estimates of regional transfers allocated for education, 2009 realized regional budget data (SIKD), MoF.

16 BOS program was initially designed as a direct transfer from central budgets to schools, but was rerouted through districts in 2011 and provinces in 2012.

Figure 3: An overview of the complexity of transfers and fund flows, 2012



Source: Elaboration based on Permendagri 13/2006 on Guidelines of Sub-National Financial Management, World Bank (2009) and Law 22/2011 on APBN 2012
 Note: Adjustment Fund also includes the local incentive grant (Dana Insentif Daerah, or DID).

The main transfer to sub-national governments is the DAU block grant, which provides funding for the salaries of district civil servants, including civil service (PNS) teachers. DAU transfers represented about 60 percent of district and 20 percent of provincial budgets in 2009.¹⁷ The DAU is allocated through a two-part formula consisting of the “Basic Allocation” and the “Fiscal Gap” (See Box 1 for details on each transfer type). The Basic Allocation, which is calculated largely based on the salary bill for civil servants in the district or province, implicitly incentivizes civil service hiring. Covering about 72 percent of the salary bill, it accounts for about 45 percent of the total DAU.¹⁸

An earmarked transfer, the Specific Allocation Fund (DAK) is also allocated yearly through no specific formula, and covers a significant portion of school and classroom reconstruction and school improvement.

Although relatively small – about 8 percent of district and 1 percent of provincial revenues in 2009 – the DAK is an important financing mechanism for school improvement projects. De-concentrated funds (Dekon) play a similar role, but may also cover other functions, such as social assistance and capacity-building programs. De-concentrated funds and co-administered tasks contribute about 9 percent of total sub-national revenues but are not typical transfers – although disbursed at the sub-national level and administered by provincial and district education offices (Dinas), they are not recorded in sub-national budgets (APBD). At the school level, the BOS and BOMM (Operational Assistance for Quality Management or Bantuan Operasional Manajemen Mutu) programs constitute the majority of funds at the school level and are fundamental for operational assistance and quality management.

Managing such a large and complex system is clearly a challenge. The decentralized system means the central government has limited influence over district decisions. In this context, regulations may prove difficult to enforce. Incentives, on the other hand, can have great influence over district decisions, as evidenced in this report by the issue of teacher hiring. Thus with the right incentives, transfer mechanisms can be powerful tools to guide district spending. However, this may not be sufficient. Additional support from the central government may be needed for low-capacity districts or schools. As we will see in this report, neither the right incentives nor the additional support are currently in place, so given the vast increase in resources following implementation of the “20 percent rule,” defining roles and providing the right incentives for each actor is crucial to ensure that resources are spent effectively. This will be a key subject of this report.

17 Total sub-national revenues include Dekon/TP transfers spent at the sub-national level but recorded in the central government budget.

18 Until 2008, Basic Allocation covered 100 percent of civil servant salaries (at both the provincial and district levels). It was reduced to 89 and 87 percent coverage for provinces and districts respectively, and further reduced in 2009 to 80 and 72 percent.

Box 1: An overview of current transfer mechanisms in the Indonesian education system from the central to sub-national governments

This box provides a brief description of the objectives and means by which the various transfer mechanisms from the central government to sub-national governments within Indonesia are determined. These transfers represent the major source of financing for sub-national governments and thus, to a large extent, explain the level and composition of their spending.

General Allocation Fund (Dana Alokasi Umum, DAU)

The DAU, according to Law No. 33/2004 Article 1 (21), is a discretionary block grant sourced from the Central Budget (APBN) and aims to equalize the fiscal capacities of sub-national governments. It is transferred monthly and directly from central to sub-national governments. The DAU is allocated based on a national formula and is the sum of a basic allocation (a portion of the sub-national budget for public servant salaries) and the “fiscal gap” (the difference between the estimated fiscal needs and fiscal capacity) of the sub-national government. The basic allocation accounted for about 45.5 percent of the DAU in 2010. Fiscal needs are based on regional variables such as population, area, GDP per capita, and the human development index. Fiscal capacity is measured by a region’s own-source revenue and a fraction of total revenue-sharing. Based on Government Regulation No.55/2005, provinces only receive 10 percent of the total DAU, while districts receive 90 percent.

Specific Allocation Fund (Dana Alokasi Khusus, DAK)

DAK is an earmarked grant allocated to finance specific investment expenditures that are aligned with national priorities and carried out under the jurisdiction of sub-national governments. The DAK cannot be used for research, training, administration, or official travel. In 2011, 19 economic sectors received DAK allocations including education, health, agriculture, forestry, trade and various infrastructure sectors (road, irrigation, water, sanitation, rural electricity, housing and local government and remote areas infrastructure). Education is a key priority for DAK spending, with about 40 percent of DAK transfers allocated for education and used primarily for school rehabilitation and quality improvement. The DAK allocation has a formula component that takes into account the fiscal gap and has a 10 percent matching requirement. DAK is transferred in three tranches: the first is allocated after the budget is submitted to the central government; the next two depend on the depletion of the previous tranche. Although DAK is earmarked to fund capital spending, the government allowed some routine maintenance expenditures.

Revenue Sharing Fund (Dana Bagi Hasil, DBH)

Unlike DAU, which is a horizontal equalization grant, DBH is a vertical equalization grant which consists of revenue sharing from natural resources and taxes. Local governments are obliged to use 0.5 percent of their receipts from the natural resources part of DBH on basic education.¹⁹ DBH represented approximately 20 percent of total sub-national government revenues in 2009.

Special Autonomy and Adjustment Funds

Special Autonomy Funds include specific grants for Papua, Papua Barat and Aceh (Dana Otsus) and Special Adjustment Funds (Dana Penyesuaian) which include additional allowances for teachers, such as professional benefits for certified teachers and for uncertified civil service teachers, a School Operational Assistance program (Bantuan Operasional Sekolah, or BOS), and local incentive grants (Dana Insentif Daerah, or DID) for education.

Central government spending at the sub-national level not recorded in sub-national budgets (APBD)

De-concentration (Dekon) and Co-Administered Tasks (Tugas Pembantuan, TP)

Dekon and TP funds originate from the central government’s budget (APBN), and are administered by the provincial Dinas. The funds cover a variety of projects and activities, including school and classroom reconstruction and school quality improvements, social assistance programs (which included BOS until 2011) and capacity building programs for civil servants.

Sources: MoF and various laws

19 MoF on DBH at <http://www.djpk.depkeu.go.id/information/22/>.

Chapter 2:

The “20 percent rule”: Where did resources go?

The evolution of public spending on education over the last decade has been impressive. From 2001 to 2009 the GoI's education budget increased by over 120 percent in real terms, with most of the increase taking place in 2009, when the budget increased by 20 percent in real terms over the previous year. What drove this rapid increase in resources was, to a large extent, the constitutional amendment passed in 2002 that mandated the government to spend 20 percent of its total budget on education. The 20 percent rule was first met in 2009, after the rule was clarified, bringing education spending to over 20 percent of the total state budget. The rule, however, has had some negative implications, complicating budget management and potentially creating distortions when it comes to spending decisions.

This chapter looks at the consequences of the 20 percent rule and at where the additional resources went in 2009, examining the total education budget as well as changes in the central budget in 2010-2011. In addition to breaking down expenditure by level of education, level of government and economic classification, the chapter identifies the programs and policies that absorbed the majority of the increase in resources. Due to the fact that sub-national data are available only until 2009, we look at budget trends by program only until that year, revealing the impact of 20 percent rule on the total education budget the first year after it was met. However, we also examine changes in the composition of the central budget for which more recent data are available (until 2011) to understand whether any significant changes occurred in the central education budget after 2009, both as a result of the 20 percent rule and of periodic windfalls – as we will see in the next section, the majority of the windfalls have been allocated to the central budget through the MoEC or MoRA budgets.

It is important to keep in mind the limitations of the data, especially when it comes to sub-national government budgets, when looking at the results in this chapter. A simple look at the budget does not allow some of the basic breakdowns shown in this chapter. The biggest problem is with detailed sub-national budget data, which is notoriously difficult to obtain. In fact, until the end of 2011, it was not possible to obtain sub-national budget data broken down by program (equivalent to level of education). Even now, these data are only available for 2008 and 2009, and only for 413 out of 500 districts. Although the central budget data is more up-to-date and detailed by program and activity of expenditure (2010 realized expenditures and 2011 partial breakdown realized expenditures are available), it has no consistent methodology for recording salary spending across years. In both central budget and regional data, it is impossible to distinguish between teacher and non-teacher (administrative) salaries. In regional data, civil service teacher and staff salaries are reported at the aggregate level as part of “indirect spending” (or non-program), while non-civil service teacher and staff salaries are reported as part of “direct spending” (or specific program expenditure). In addition, a change in the classification of central government teachers in 2008 makes comparisons across years difficult when looking at central budget data, since non-teacher salaries (reported as “others” before 2008) are broken down by education program sub-function starting only that year.

We are therefore forced to use the share of teachers by level of education to estimate sub-national salary spending. This has two caveats. First, it assumes that teacher salaries are uniform by level of education, which may not be accurate if teacher characteristics between basic and secondary education differ significantly. In effect, since primary school teachers tend to possess fewer qualifications than secondary school teachers, we may be overestimating primary teacher salaries and hence the share of sub-national spending that goes to primary education. A second assumption we are forced to make is that the breakdown of administrative staff by level follows that of teachers. Since we cannot distinguish teachers from administrative staff in the data, we use the share of teachers by level to break down all salaries. While we lack information to check the accuracy of this assumption, its effect on the overall picture is likely very small. Even if the supervision structure of different levels is significantly different, the number of teachers relative to other district office staff is so large that this assumption is unlikely to affect the overall picture.

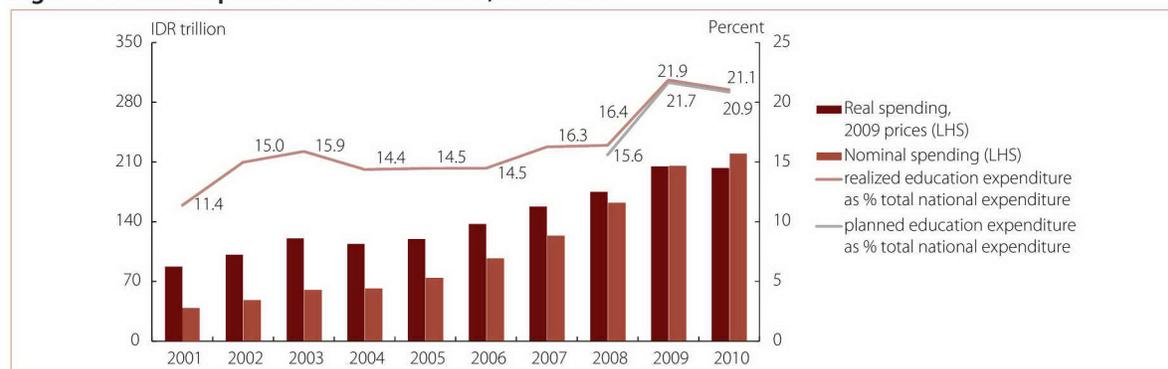
We first look at the importance of the 20 percent rule for the education budget and budget management.

Implications of the 20 percent rule

The “20 percent rule” was originally introduced in a 2002 amendment to the Constitution, establishing that a minimum of 20 percent of the total state budget must be spent on the education sector. Since education stood at 15 percent of government spending at the time, the rule was not implemented immediately, and was met only in 2009, after the Constitutional Court defined and clarified it. While there was considerable debate for many years over how to interpret it, since 2009 the 20 percent rule has been interpreted such that it: (1) applies to both the planned and revised budgets (APBN and APBNP, respectively); (2) includes salaries and estimates of subnational spending on education funded from central transfers; and (3) is calculated as a ratio of total state expenditures including subsidies, interest payments and transfers to the regions. The rule applies to both central and sub-national governments.²⁰ At the central government level this requirement has been met, and while in the majority of districts, spending on education exceeds the mandated 20 percent, there is a wide range of district spending on education as a share of total budgets (from 11 percent to 48 percent).

However well-intentioned the rule was, its effects have been mixed. On the one hand, the 20 percent rule has resulted in a massive increase in resources – adding 6 percent to the state budget for education between 2008 and 2009. The rule clearly ensures political commitment to investing in education and prevents opportunism by policy makers, thus insulating priority education expenditures. On the other hand, it has complicated budget management and introduced perverse incentives.

Figure 4: Public Expenditure on Education, 2001-2010



Source: World Bank staff estimates based on MoF, APBD and BPS data.

Notes: Realized expenditure data are unavailable after 2009 as sub-national realized data after that year are unavailable. Planned education expenditures reflect calculations of the budget including central government and regional transfers in the planned revised budget laws (APBN-P). Unlike planned data, realized data also includes sub-national own-source revenues allocated for education, which explains the slightly higher realized expenditure amount compared to planned expenditure in the graph.

20 Law No.20/2003 on National Education System

Earmarking 20 percent of the budget for education undermines the ability of the government to allocate resources efficiently across sectors. In general, earmarking is problematic as: (1) rigidities in the budget prevent government from moving resources to meet changing needs; (2) earmarked allocations undermine managerial incentives and planning capacity; and (3) there is a tendency for earmarks to proliferate, which increases overall budget rigidity. Indonesia’s Health Law (September 2009) requiring the Central Government to allocate 5 percent of its budget to health (exclusive of salaries) is a sign that of the tendency towards more earmarking.²¹

Earmarking makes the education budget unpredictable, especially since it also applies to the revised budget. Volatility in the state budget (especially due to highly volatile energy prices, the GOI’s largest budget item) automatically leads to volatility in the education budget, which complicates and discourages long-term planning. The fact that the rule also applies to the revised budget further complicates matters, introducing windfalls in the middle of the fiscal year that need to be spent on short notice. This has been especially problematic in recent years, when oil prices climbed higher than had been anticipated in the budget. The windfalls can be large, sometimes even surpassing the size of some flagship government programs, such as BOS. And since these windfalls often arise late in the budget process, they risk being poorly spent, since short planning times result in hastily implemented programs. It is also unclear what the consequences would be of a downward revision of the budget due to oil prices.

To mitigate problems in education budget planning due to “windfalls,” the Indonesian Government established the “National Education Development Fund” in 2010. It consists of an Endowment Fund to ensure the sustainability of educational programs for the next generations (intergenerational equity) and an Education Reserve Fund to secure funds for projects related to rehabilitation of educational facilities damaged by natural disasters.²² The Endowment Fund and the Reserve Fund are not part of the MoEC budget and are currently managed by the Government Investment Center (PIP), though a General Services Agency (BLU)- a working unit at the Ministry of Finance with relatively high budgetary autonomy.

The Government’s establishment of the National Education Development Fund is a positive step towards contingency planning, but the share of the windfalls the Fund has absorbed has been relatively small and varied across the years. Most of the budget windfalls still go through normal budget revision procedures and are mostly assigned to the central government budget through allocations to MoEC and MoRA. State budget revisions in the years 2010-2012 increased the education budget by about 7 percent over the initial planned budget each year (equivalent to USD 1.8 billion). The central government received the majority of these windfalls, with MoEC receiving 60 percent and MoRA 14 percent on average, while the regional governments received only about 5 percent, and the Education Fund’s share varied from 6 percent in 2010 to 9 percent in 2011 and 29 percent in 2012 (Table 2). This is partly due to the lack of clear regulatory guidelines as to the percentage of “windfalls” to be transferred to the Fund.

Because revisions to the state budget take place in the middle of the fiscal year windfalls have not been fully absorbed by the central government and assigned ministries. Budget revisions in Indonesia usually take place in July-August and need to be spent by December, which leaves little time for planning and executing the additional budget. Table 3 shows that MoEC and MoRA have been unable to fully absorb the windfalls in recent years. The unrealized amount as a share of the received windfalls in 2010 and 2011 represented about 42 and 46 percent respectively, contributing to low realization rates of the total revised central government education budget in those years.

21 Law No. 36/2009 on Health

22 The Minister of Finance Regulation 238/PMK.05/2010 on Procedures for Procurement, Disbursement, Management, and Accountability of the Endowment Fund and the Education Reserve Fund.

Table 2: Size and distribution of budget windfalls from the 20 percent rule

in IDR trillions	APBN 2010 (budget)	APBN-P 2010 (revised budget)	Realized budget	APBN 2011 (budget)	APBN-P 2011 (revised budget)	Realized budget	APBN 2012 (budget)	APBN-P 2012 (revised budget)
	Nov-Dec 2009	July-Aug 2010	Dec 2010	Nov-Dec 2010	July-Aug 2011	Dec 2011	Nov-Dec 2011	March 2012
Total expenditure	1047.7	1126.1		1229.6	1320.8		1435.4	1548.3
Oil & Gas subsidy	69	89		96	129.7		123.6	137.4
Total Education Exp.	209.5	225.2		249.0	266.9		290.0	310.8
Ministries	83.2	96.5	91	89.7	105.4	98.1	102.5	117.2
MoEC	54.7	63.0	59.2	55.6	67.3	61.2	64.4	77.2
MoRA	23.7	26.5	24.6	27.3	30.4	28.4	32.0	33.5
other ministries	4.8	7.0	7.1	6.9	7.6	8.5	6.2	6.6
Transfers	126.4	127.7	n.a	158.2	159.0	n.a	186.4	186.6
BOS				16.8	16.8		23.6	23.6
DBH (Part of shared revenue to edu.)	0.6	0.7		0.8	0.9		0.8	1.0
DAK	9.3	9.3		10.0	10.0		10.0	10.0
DAU	95.9	95.9		104.3	104.3		113.9	113.9
Teacher Professional Allowance	11.0	11.0		18.5	18.5		30.6	30.6
Additional Allowance for PNS Teachers	5.8	5.8		3.7	3.7		2.9	2.9
DID	1.4	1.4		1.4	1.4		1.4	1.4
Special Autonomy Region Fund for Edu.	2.3	2.3		2.7	2.7		3.3	3.3
Other transfers		1.3			0.6			
National Education Development Fund		1.0		1.0	2.6		1.0	7.0

Source: 2010-2012 revised plan budget laws (APBN-P), MoF.

Table 3. Budget realization, 2010-2011

Ministries	2007	2008	2009		2010			2011		
	% of Revised Plan	% of Revised Plan	% of Initial Plan	% of Revised Plan	% of Initial Plan	% of Revised Plan	Unrealized Amount as % of Windfalls	% of Initial Plan	% of Revised Plan	Unrealized Amount as % of Windfalls
MoEC		96.1	96.0	95.1	108.3	94.1	45.1	110.5	91.2	50.4
MoRA			92.9	91.2	103.9	92.7	67.6	104.0	93.4	64.4
Others			86.0	84.6	147.8	101.4	-4.4	122.9	110.8	-110.3
Total Central	97.0	95.4	93.5	94.6	109.3	94.2	41.7	109.5	93.3	45.5

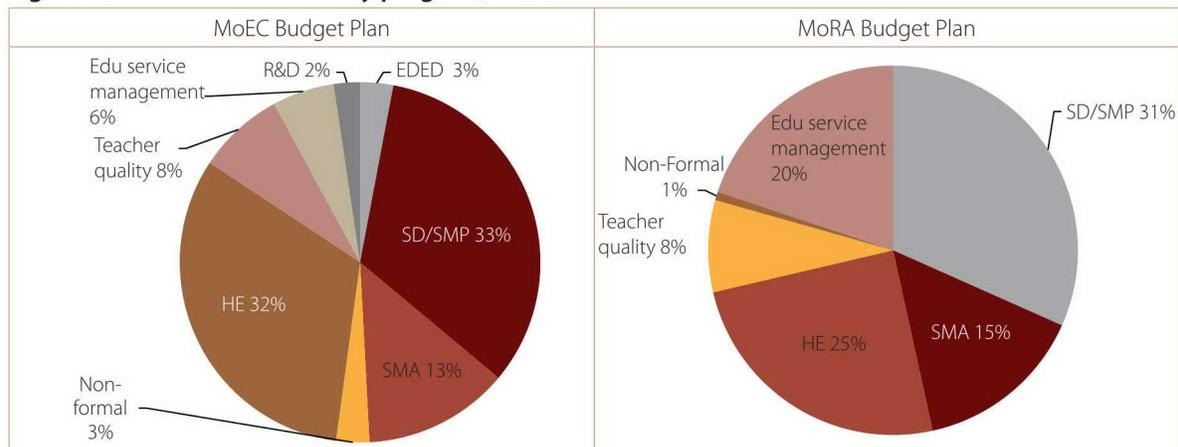
Source: MoF

Notes: The first significant windfall was received in 2010. The windfall of 2009, when the 20 percent rule was met for the first time, contributed to just about IDR 1 trillion., thus the difference between the initial and revised budget in 2009 was insignificant compared to later years.

The allocation of these windfalls was clearly detailed in 2010. In 2010, which was the first year the education sector received a significant windfall, MoEC and MoRA provided a detailed budget plan describing the windfall’s allocation to specific programs and activities (Financial Note of the 2010 Draft Revised Budget). Both ministries indicated the specific amounts allocated to each level of education, to teacher quality improvement and to service management programs (Figure 5), and provided a description of activities supported by each program, including expansion of services in ECD, increasing scholarships for the poor in basic, secondary and higher education programs, improving the BOS management system, developing and rehabilitating school buildings, training of school principals and supervisors, accelerating the teacher qualifications improvement program, and providing functional and professional allowances for teachers. MoEC and MoRA made a great effort in 2010 to ensure transparency and accountability in education and windfall budget planning.

However since 2011, information on the revised budgets and windfalls has been very limited. The Financial Notes of the 2011 and 2012 Draft Revised Budget documents no longer provide allocation information by program, but instead broadly indicate that additional resources from the budget revisions were directed to: (1) support the national priority program RPJMN 2010-2014; (2) strengthen educational achievement of development priorities in the RKP in 2011 and 2012, (3) support the implementation of Presidential Instruction No. 1 of 2010 Concerning Acceleration of the National Development Priorities, and (4) expand scholarship programs for poor students.²³

Figure 5: Windfalls Allocation by program, 2010



Source: MoF

Perhaps the biggest drawback of the rule and its earmarking is that it introduces perverse incentives when it comes to managing the government budget, distorting the link between resource planning and planning for programs or policies. This is true at the overall government budget level and within the education budget. First, rigid earmarking rules may decrease what is known as *allocative efficiency*, preventing government from allocating resources optimally across sectors. Since any increase in government spending in any sector raises the overall government budget, it also causes an increase in spending on education; thus the marginal cost of allocating resources to non-educational activities increases, while the marginal benefit decreases (i.e. part of the increased spending goes to education, not to the intended activity). This earmarking may thus bias government allocation of resources across sectors. Second, earmarked allocations reduce *technical efficiency* by undermining managerial incentives and planning capacity. When resources increase dramatically and in a manner exogenous to the demands of the sector, education planners, pressured to spend the increased

23 The technical criteria for allocating additional funds in 2011 and 2012 are also quite broad indicating that funds can cover 1) arrears on teachers’ professional allowance payments; 2) programs due to completion at the end of the fiscal year; 3) programs demonstrating outcome improvement; and 4) existing programs.

resources, may not face the right incentives. For example, they may choose activities that easily absorb additional budget (i.e. adding staff), or short-term programs over long-term programs that may require more planning. This may have lasting consequences on the budget and on educational outcomes; if a large share of the additional budget is committed to wages, for instance, it can be difficult to make adjustments in the future.

Going forward, the 20 percent rule will also limit the growth of the education budget. The rule will be interpreted as both a “floor” and a “ceiling” for education expenditure. As a consequence, expenditure on education is unlikely to grow higher than 20 percent of the government budget in the foreseeable future, regardless of need. Education is considered to be well-funded by both the government and parliament. Given pressing demands to allocate more resources to currently underfunded sectors, including infrastructure and social assistance programs, it is unlikely the education budget will continue to increase at the rate it has in recent years over the next decade.

Nonetheless, it is important to recognize the contribution the rule has made to increasing the education budget. It is equally important to assess the quality and efficiency of spending to ensure that the increase in resources improves access to and the quality of education. The big jump in resources allocated to education between 2008 and 2009 offers an opportunity to evaluate the results of such a drastic increase in spending, and to examine the incentives built into the current system and how they affected that spending.

We will therefore analyze what happened to the education budget during this period of rapid growth. But first we should ask: is 20 percent of the budget an appropriate amount to spend on education? The next section provides some international comparisons.

Is Indonesia spending too much on education after the 20 percent rule?

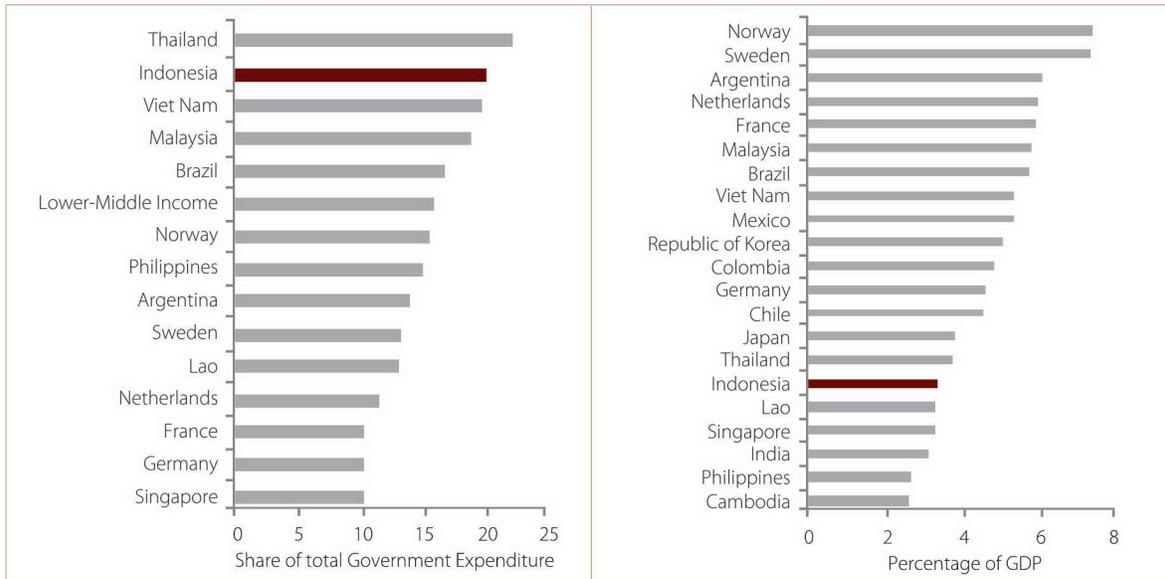
By all international measures, Indonesia does not spend too much on education. Indonesia is one of the top spenders on education if we consider the educational budget as a share of total government spending. Of its regional peers, only Thailand allocates a higher share of the government budget to this sector. That said, budget allocation is a central element in education financing, and an allocation of 20 percent of the national budget is widely considered to be an indicative threshold for a strong commitment to education. Indonesia is now among the low- or middle-income countries that have met that threshold – only about one third of low-income countries have either achieved or surpassed the 20 percent threshold.²⁴

As a share of GDP Indonesia still spends less than other middle-income countries, both in East Asia and in other regions. At 3.7 percent of GDP, Indonesia spends less than Thailand, Vietnam or Malaysia in the region, and spends half as much as high-income, high-performing countries such as Norway. Yet Indonesia fares well when compared to other countries in the region, spending a higher share of GDP on education than Lao, Cambodia, the Philippines or even Singapore.

Relative to its wealth, therefore, Indonesia’s per student spending is still low, especially when it comes to secondary education. As a share of per capita GDP, Indonesia spends less per student than most developed countries and its regional comparators. In both primary and secondary education, Indonesia is at the lower end of the distribution. That said, when it comes to primary education, it is positioned above the Philippines or Chile, and only slightly below Mexico or Malaysia, yet it lags behind not only high-income countries but also some other middle-income countries such as Vietnam or Thailand. In secondary education, the differences are greater. Only the Philippines and Thailand fall below Indonesia on the graph.

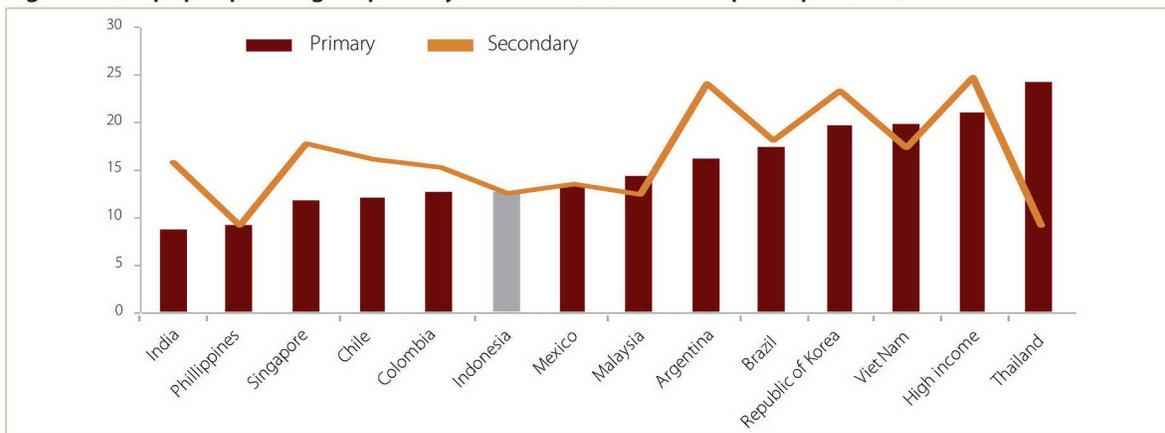
24 UNESCO (2011)

Figure 6: Public expenditure on education as a share of total government expenditure and as a share of GDP, selected countries in 2009



Source: Unesco Institute for Statistics, 2009 or latest year; for Indonesia, own calculations using Ministry of Finance central budget and regional (SIKD) data. Sample countries for both indicators are different because of lack of data for certain variables.

Figure 7: Per pupil spending on primary education as a share of per capita GDP, selected countries



Source: Unesco Institute for Statistics, 2008 or latest year (not earlier than 2006); except Indonesia, own calculations using Ministry of Finance central budget and SIKD data.

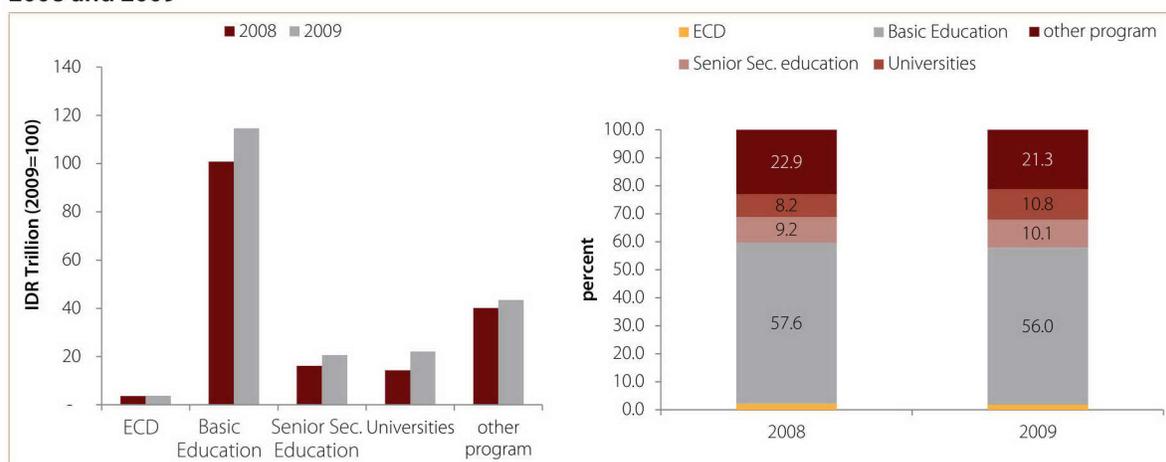
Judging by international comparisons, after the 20 percent rule, Indonesia’s spending on education is largely adequate – certainly not too high. Relative to its level of income, Indonesia spends slightly less than other middle-income countries, especially on secondary education. Relative to its overall government spending, however, Indonesia is at the higher end of the distribution. Few countries spend more than 20 percent of their budgets on education, so Indonesia’s effort to ensure adequate resources for education is laudable.

Making sure that resources are spent well is key. The next section looks at the evolution of the budget composition during this period of growth in resources, breaking it down by level of education, economic classification and level of government, and highlighting some potential issues with the allocation of resources, especially at the sub-national level.

Where did the 20 percent go?

Between 2008 and 2009, spending on education increased by 17 percent in real terms as a result of the 20 percent rule – the equivalent to USD 3 billion. Where did the funding go? Although basic education received most of the additional budget, we see that the composition of spending by level of education changed, with senior secondary and higher education receiving a moderately larger share. Basic education received about 2 percent less of the budget in 2009 than in 2008, but still received over half of overall additional resources. Senior secondary and higher education received about 1 and 3 percent more respectively, but were starting from a smaller base. The uncategorized component of the budget (“other” in the figure) continued to be a very large component of the budget, but declined 2 percentage points over this period.

Figure 8: Total education spending by level of education and as a share of the total education budget, 2008 and 2009

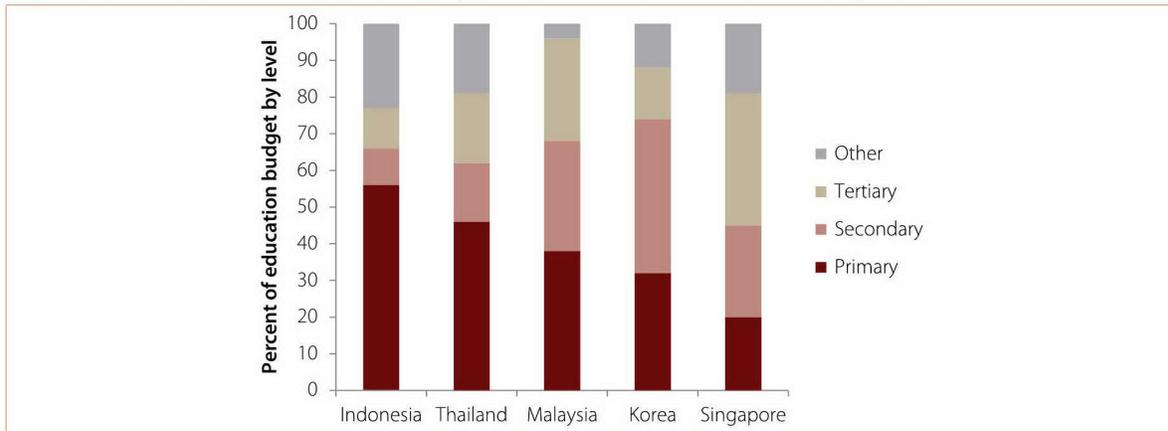


Source: World Bank staff estimates based on state budget data and Regional Financial information system data (Sistem Informasi Keuangan Daerah, SIKD), Ministry of Finance

Compared to other countries, the share of the education budget spent on secondary education is low despite the increase in 2009. Given the Gol’s goal of expanding enrollment at these levels, financing is insufficient. The more economically advanced countries in the region allocate a smaller share of their overall education budget to primary education, making secondary and higher education a priority. As Indonesia advances, it will have to increase the availability of its higher-skill labor force, which will require improving access to secondary and higher education and allocating more resources to these programs.

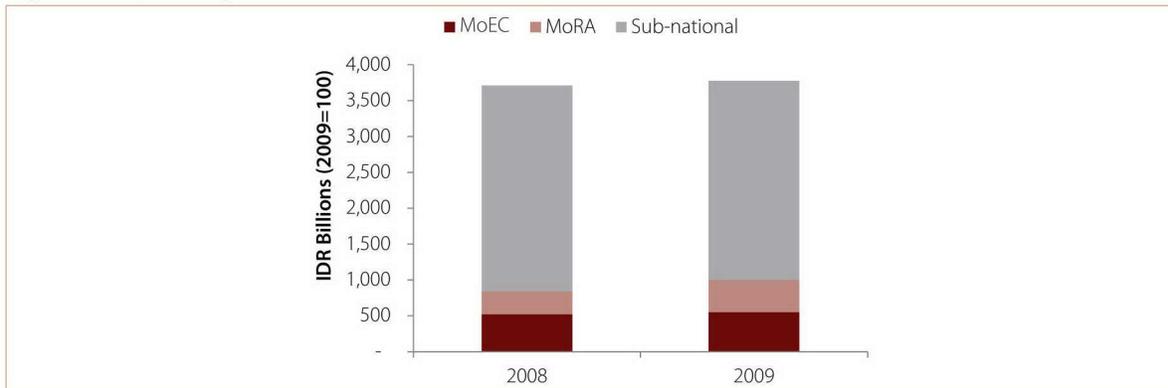
On higher education, Indonesia’s share of spending comes closer to that of its neighbors. The increase in spending on higher education in 2009 brought Indonesia’s level of public spending on higher education as a percentage of the total education budget to equal that of South Korea. As a percentage of GDP, it is still very low. If we take into account public and private funding, Indonesia spends slightly above 1 percent of GDP on tertiary education. This is far below what most developed countries spend, and even countries in the region such as Thailand and Malaysia outspend Indonesia. Moreover, only about 25 percent of Indonesia’s spending on tertiary education is financed by public sources, while in Malaysia the funding is 100 percent public, in Thailand it’s about 70 percent public, and in OECD countries it is close to 80 percent public.

Figure 9: Share of education spending by level, selected East Asia countries, 2009



Source: UNESCO Institute for Statistics; Indonesia data own elaboration using MoF, SIKD

Figure 10: Spending on ECD, Central and Local Governments, 2008-2009



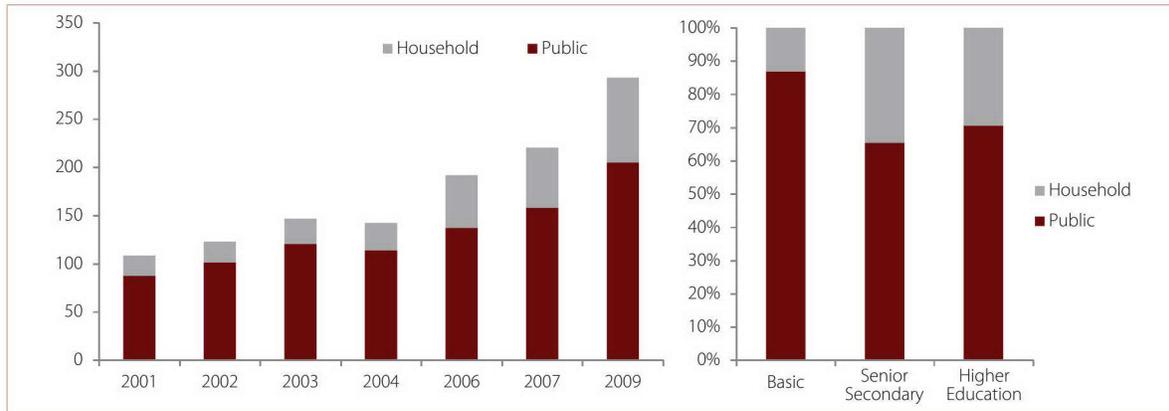
Source: MoF, SIKD

On early childhood development (ECD), the trend is mixed. Local governments reduced their spending on ECD between 2008 and 2009 by about 20 percent in real terms, while the central government increased spending by about the same amount, resulting in a flat budget between 2008 and 2009. When compared to other levels of education, spending on ECD is too small to be appreciated (Figure 8). **However, the growing commitment of Indonesia towards ECD is clear.** The central government’s budget for ECD has tripled since 2009, but it still represents less than 1 percent of the budget.

Spending on senior secondary and higher education has increased between 2008 and 2009 by 26 and 53 percent respectively, but households seem to have absorbed a large portion of the cost of expansion, and total household spending on education in general has increased significantly over the decade. Senior secondary education and higher education are far more reliant on fees than basic education. This makes public spending on education is more progressive since most of the spending happens at the basic education level, which has almost universal coverage, the benefits flow more to the poor. This will likely have to change if equitable expansion of senior secondary education is a priority. As noted in a recent World Bank report,²⁵ there are strong indications that senior secondary education is supply constrained at the moment. In addition, the high reliance on fees will be a barrier to expansion to the poor. The cost implications of this expansion will be explored at the end of this chapter.

25 “Preparing Indonesian Youth for Transition,” 2012.

Figure 11: Total public and household spending and share of public and private spending by level of education

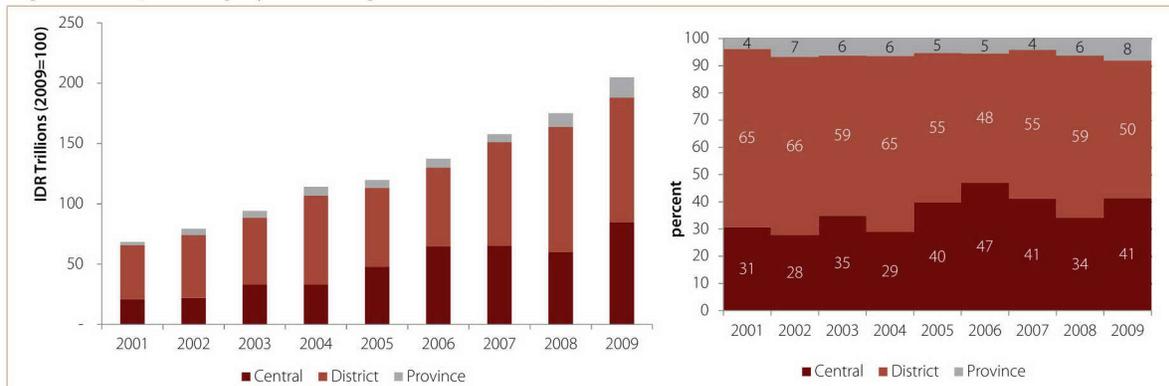


Source: Budget data from MoF, Household Spending from Susenas, core and education modules

The composition of spending by level of government has not changed significantly between 2001 and 2009 -- districts have doubled their expenditures on education, but their share of the spending has remained relatively constant. An increase in the share of central government spending in 2006 and 2007 was due to the introduction of the school operational assistance program (BOS) and the professional allowance for certified teachers. Both programs were initially part of the central government budget, but have been decentralized (certification in 2010 and BOS in 2011), which is likely to have shifted more spending back to districts, however sub-national data are not available after 2009 to confirm this shift. In 2009, districts accounted for 50 percent of total national education expenditures, while provincial governments accounted for only 8 percent.

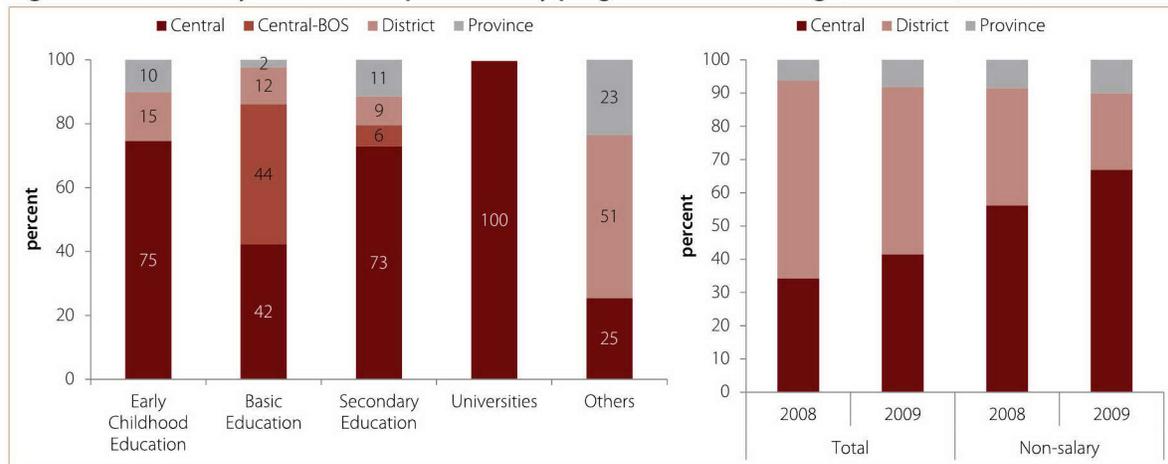
Salaries are a major component of district spending; when excluding salaries, education spending is still largely centralized. In 2009, the central government spent about 67 percent of the non-salary budget, 10 percentage points more than in 2008. The central government controls the majority of the non-salary budget at all levels of education, from the 70 percent in ECD to 99 percent at the university level. Even in basic education, almost 90 percent of non-salary spending still occurs at the central level. What brings down the overall average to 67 percent is unclassified spending at the district and provincial levels. However, it is important to note the contribution of BOS and teacher certification to this central spending (BOS accounts for 44 percent of non-salary spending in basic education), programs which, as mentioned above, have been decentralized since 2009.

Figure 12: Spending by level of government, 2001-2009



Source: World Bank staff estimates based on state budget data and Regional Financial information system data (Sistem Informasi Keuangan Daerah, SIKD), Ministry of Finance

Figure 13: Non-salary education expenditure by programs and level of government, 2009

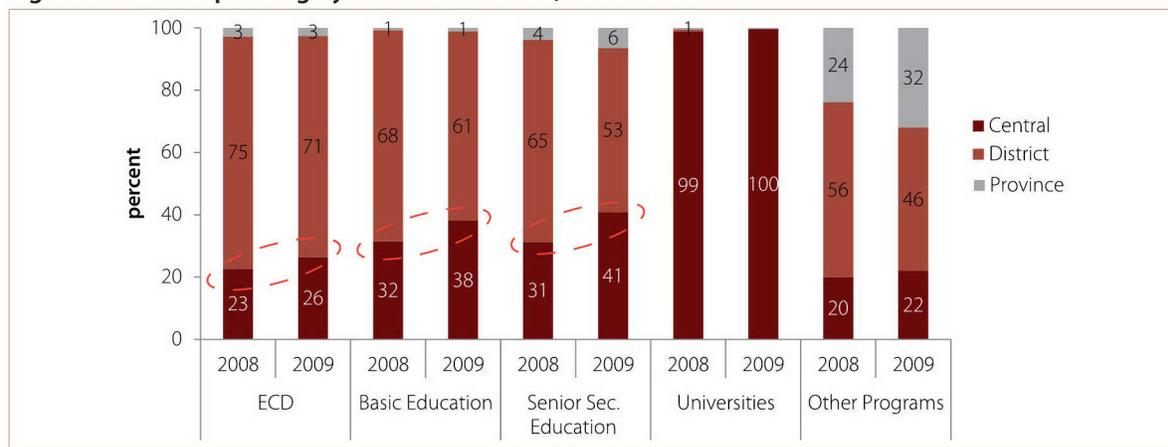


Source: MoF

Between 2008 and 2009, the share of the central government’s budget increased dramatically in ECD, basic and senior secondary education. Central government spending increased by 7 percentage points, from 34 to 41 percent of the total education budget. This central government spending push was partially due to the need to meet the 20 percent rule, but the fact that growth occurred in central government spending even at the basic education level requires some explanation, as basic education is normally the responsibility of districts while the central government is responsible for financing and managing higher education. Nonetheless, the districts’ share of the total basic education budget decreased between those two years by 8 percentage points from 68 to 60 percent.

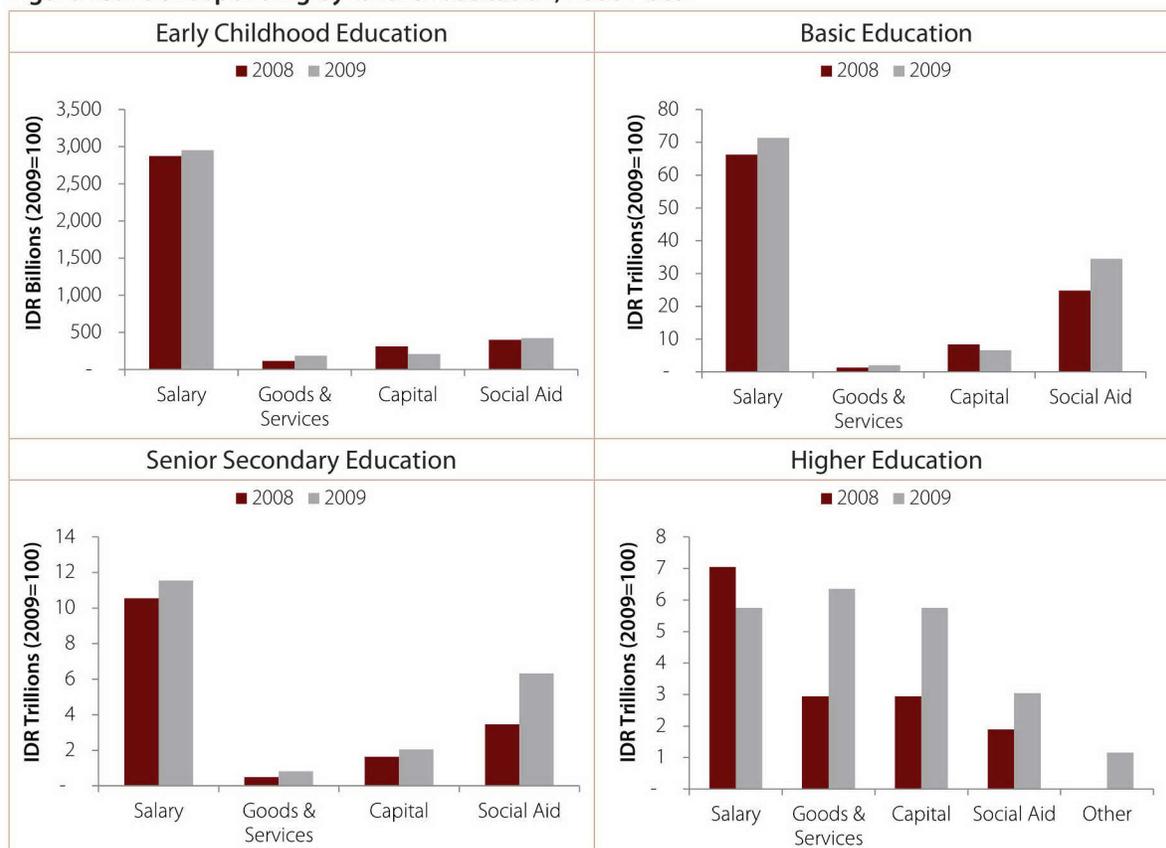
The big increase in central government spending in basic education and senior secondary was driven mainly by central government “social assistance” programs. Salaries, goods and services and capital follow traditional economic classifications, while social assistance is reserved for programs such as scholarships, teacher programs (such as certification) or BOS transfers (among others). Virtually all social assistance spending occurs at the central level, but some of these programs benefit schools directly (BOS). The fact that social assistance represented a large share of the increase in spending is desirable in principle, but it also depends on which programs drove the spending. We will analyze the spending breakdown later in this section.

Figure 14: Public spending by level of education, 2008-2009



Source: MoF

Figure 15: Public spending by level of education, 2008-2009

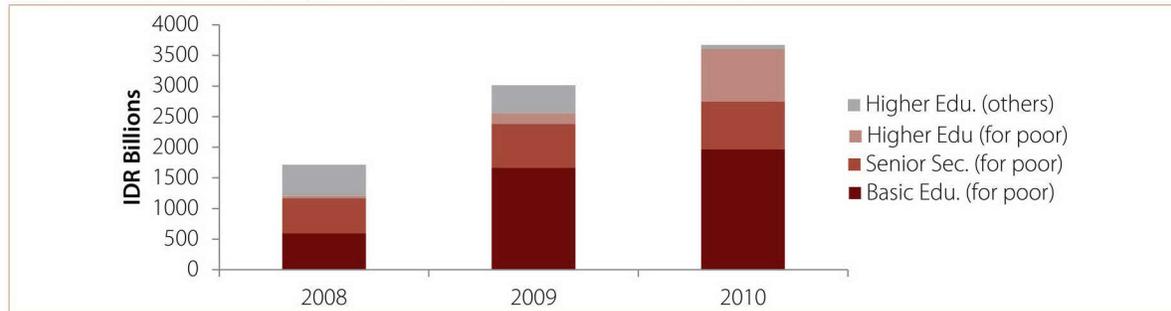


Source: MoF

A large share of the increase in social assistance spending went to scholarship programs, including the Scholarships for the Poor (BSM) program, which almost doubled between 2008 and 2010. Yet scholarships represent a very small percentage of the education budget. The budget for scholarship programs increased by 62 percent in real terms between 2008 and 2009, while the Scholarships for the Poor program increased by 95 percent. 2010 data show a continuous albeit smaller increase in spending on total scholarship programs. However the increase in scholarships for higher education in 2010 was quite dramatic and unprecedented (over 300 percent increase in real terms), and clearly indicates an effort by the government to improve access to higher education for poor students. Yet despite this increase in scholarships and some benefits to poor students resulting from the 20 percent rule, scholarships still represent only a fraction of the total central government education budget: 4 percent in 2010, compared to 3.6 percent in 2009 and 3.1 percent in 2008.

In higher education, there were widespread increases in all categories, except salaries. From 2008 to 2009, higher education saw an increase in spending of 49 percent in real terms. Spending on both capital and goods and services more than doubled in real terms. Social assistance increased slightly less, but still grew by 80 percent. The salary bill was reduced, though a new category emerged in “Other,” which includes research grants for universities. As a result, in 2009, about 74 percent of the total university program budget was spent on non-salary items, particularly on new capital investment projects, such as new research laboratories and a new polytechnic university, as well as on training and capacity building, R&D and scholarship programs to university lecturers and students. These trends reflect a major push to expand higher education and an attempt to improve the quality of education by improving the quality of inputs.

Figure 16: Scholarship programs by level of education, 2008-2010

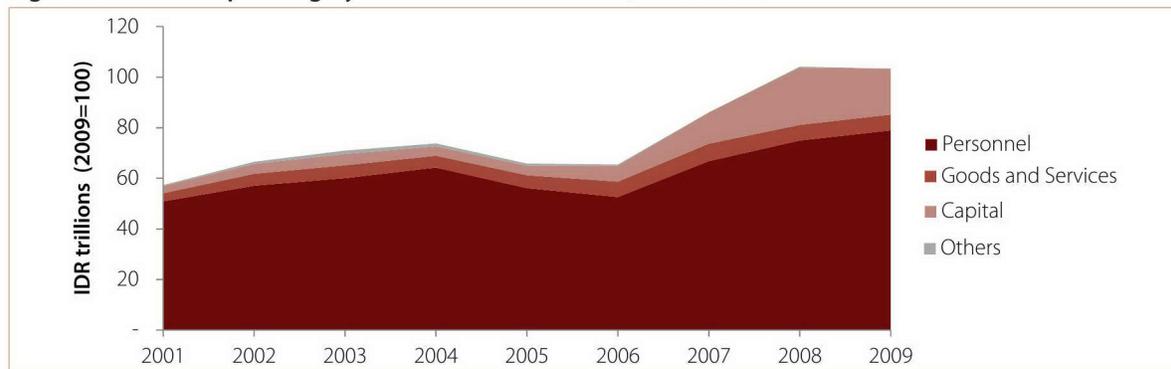


Source: MoF

Salary spending increased in ECD, basic education and senior secondary education. The increases were significant: between 2008 and 2009, salary spending in basic and senior secondary education increased by 16 and 18 percent in real terms, respectively. In basic education alone, this meant an increase of IDR 10 trillion (about USD 1 billion) to the salary bill, while in senior secondary education, salaries increased by IDR 1 trillion (about USD 100 million). Given the nature of salary spending, composed mainly of civil servant teacher salaries, this represents a permanent burden on the budget, not a one shot increase.

This increase in salary spending is evident at the district level: between 2008 and 2009, district salary spending increased but capital spending remained constant. Over a longer period, however, district capital spending has been growing rapidly. Spending on basic education accounts for 67 percent of district spending²⁶. Although between 2008 and 2009, the share of the district education budget allocated to capital spending remained constant, between 2001 and 2009 it went from 5 to 18 percent, reflecting efforts to rehabilitate school infrastructure. Although spending on salaries has also been increasing rapidly, the share of salaries in district education budgets actually decreased between 2005 and 2009, from 85 to 76 percent. Meanwhile, districts spent a greater proportion of their education budgets on capital spending than the central government.

Figure 17: District spending by economic classification, 2001-2009

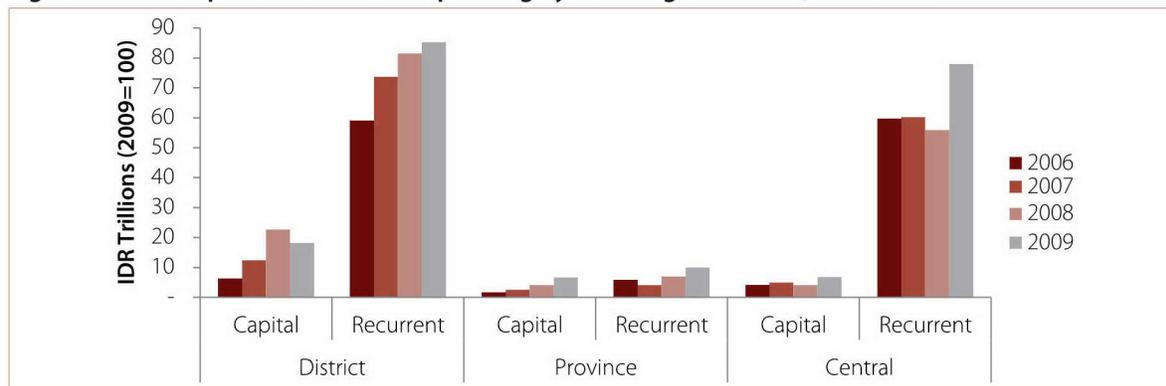


Source: SIKD

26 If we use the share of teachers by level of education to approximate non-program salary spending. As explained in the beginning of the chapter, teacher salaries at the district level are not classified by level of education.

Nonetheless, districts still allocate the vast majority of their budgets to recurrent expenditures, mostly personnel. In 2009 about 82 percent of district education spending was allocated for recurrent spending, but 84 percent of that recurrent spending went to salaries for civil service teachers and administrative staff in primary and junior secondary.

Figure 18: Real capital and recurrent spending by level of government, 2006-2009



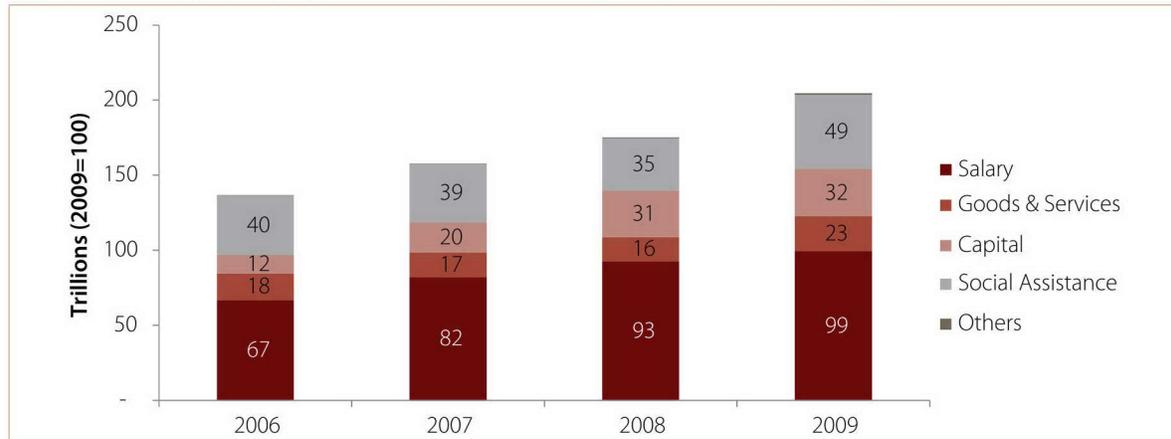
Source: SIKD, Ministry of Finance

Aggregating across levels of education, salaries absorbed almost 50 percent of additional resources between 2006 and 2009, followed by capital spending (28 percent) and social assistance (15 percent). Given its low base, capital spending grew at the fastest rate (159 percent), reflecting district efforts to rehabilitate school infrastructure, as well as the central government’s effort to make capital improvements in the area of higher education. Social assistance, which absorbed the majority of the increase between 2008 and 2009 and which includes large programs such as BOS and teacher certification, grew by 25 percent over this period.

When looking at major expenditure items, teacher salaries and teacher certification absorbed almost two-thirds of the additional resources coming from the 20 percent rule. Figure 20 breaks down the education budget by items or programs that absorb significant shares of the budget (teacher salaries and certification, BOS, higher education and other programs). Comparing the breakdown before and after the 20 percent rule was implemented, we can see which of these expenditures absorbed a majority of the additional resources. Overall, in 2009, the education sector in Indonesia gained an additional 5.5 percentage points of the total state budget, relative to the 2006-2008 average of 16 percent. Of this 5.5 percent increase, more than 3 percent was allocated to teachers’ salaries and certification subsidies, leaving only a 1 percent increase for higher education programs and slightly less than a 1 percent increase in resources for all other programs.

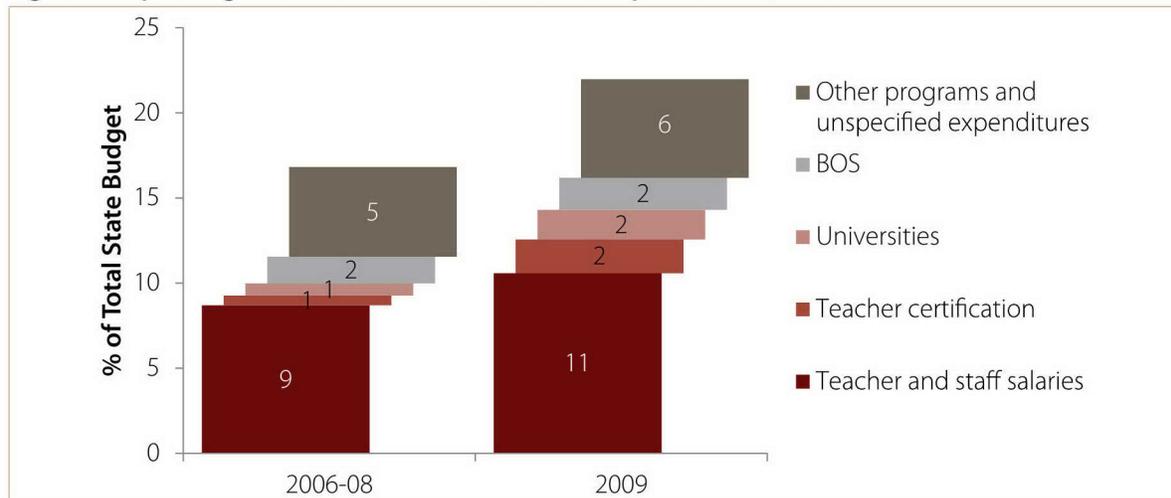
Who were the direct recipients of increased education funding in 2009, after the 20 percent rule was met for the first time? Figure 21 describes the allocation of education spending among teachers, students, schools and civil servants. Expenditure on teachers and staff covers salaries and all subsidies (including professional, functional subsidies and special subsidies for teachers in remote areas). The amount assigned to students reflects spending on student scholarship (BSM government assistance program for poor students). All expenditures associated with school operational costs (BOS program), capacity building, management and administration, as well as school infrastructure and rehabilitation expenditures, are attributed to direct spending on schools. Expenditures defined as “training programs” for non-teachers and staff, as well as “unspecified” or “other” expenditures, have been assigned to separate categories. As Figure 21 shows, unspecified expenditures, most of which are sub-national expenditures, make up a significant share of total education spending.

Figure 19: Real spending by economic classification (total education budget), 2006-2009



Source: MoF

Figure 20: Spending increase distribution after the “20 percent rule,” 2009

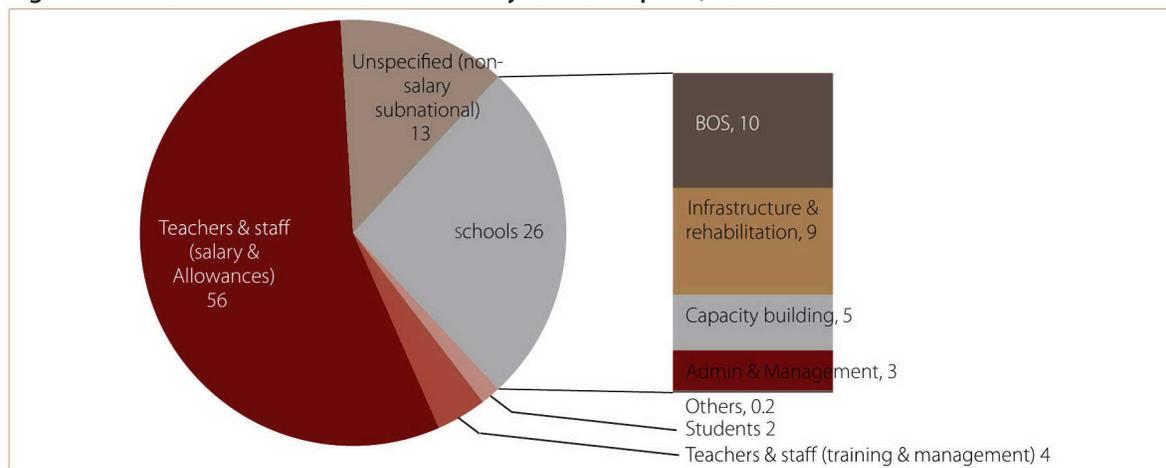


Source: World Bank calculations using MoF data

The total salary bill was about 60 percent of the total education budget. About half of the education budget in 2009 (99 trillion rupiah) was spent on teacher salaries. If teacher allowances, including functional, professional allowances and allowances for teachers in remote regions, are taken into account, the share of the budget spent on teachers adds up to 56 percent. If the share of BOS going to contract teachers is included (an average of 20 percent) the total spending on salaries and allowances would constitute about 60 percent of the total education budget. This share, however, differs significantly by level of education. In basic education, for example, the share is closer to 70 percent.

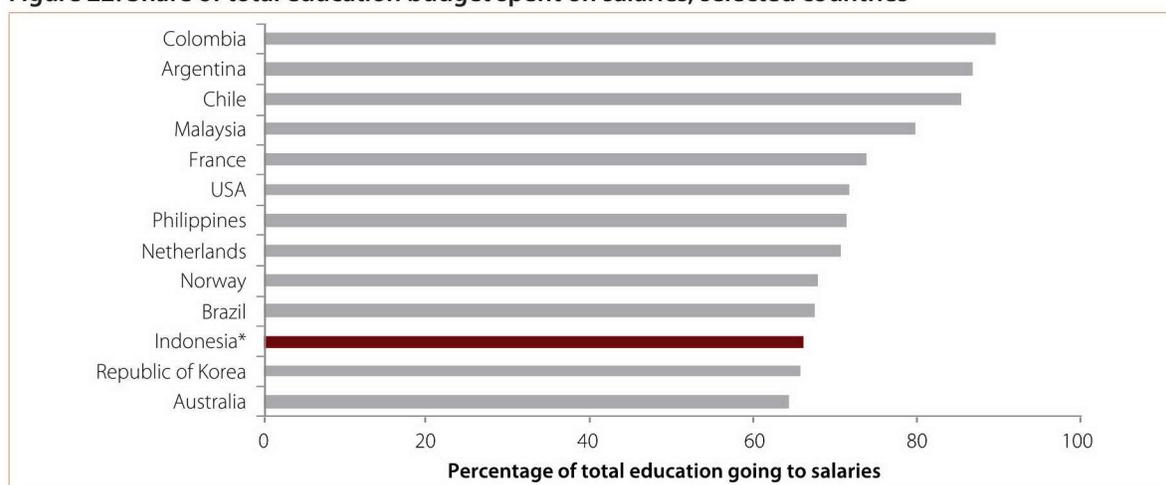
Indonesia’s spending on salaries as a share of the total education budget is in line with other countries in the world. Indonesia spends about the same share as the Republic of Korea on salaries, and a significantly smaller proportion of its budget on teachers than many high performing systems (Norway, Netherlands or the USA). It also spends much less than other worse performing systems like Argentina and slightly less than the Philippines.

Figure 21: Distribution of education funds by direct recipient, 2009



Source: MoF

Figure 22: Share of total education budget spent on salaries, selected countries



Source: UNESCO Institute for Statistics, 2010 or latest year – except Indonesia, own calculations based on MoF data.

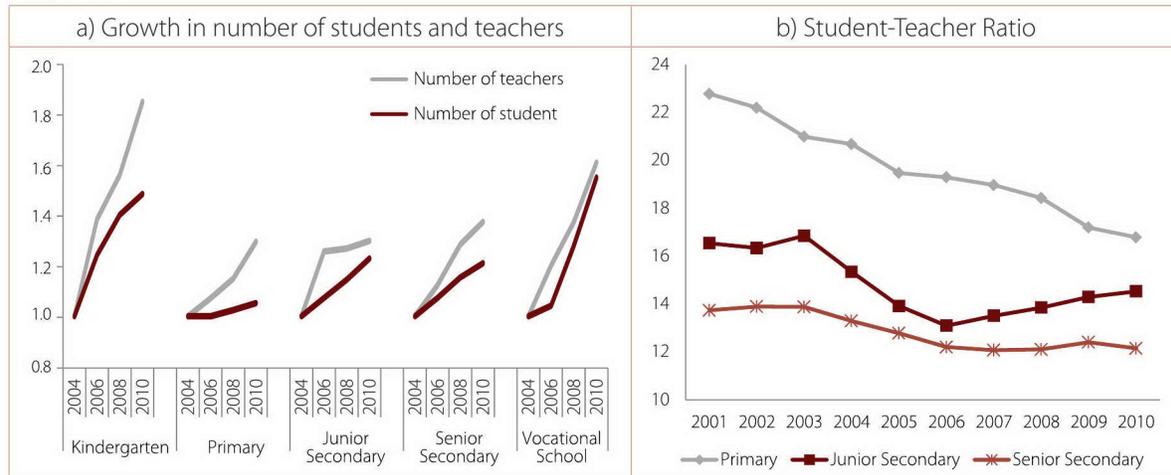
Note: Indonesia's salary expenditure includes salary subsidies from certification, and contract teachers under BOS, in addition to civil servant salaries.

What drove the increases in salary spending?

Most of the additional resources went to teacher salaries largely because of the continued increase in teacher hiring at all levels. The number of teachers is growing at a faster pace than that of students at all levels of education, but especially in primary education. Since 2004, the number of teachers in primary education grew by 30 percent, while the number of students remained largely constant. In secondary education, both junior and senior, the disparity in the growth in the number of teachers and students is smaller. In junior secondary, the growth rates have been very similar after teacher growth stalled in 2006. Still, in senior secondary education the growth in the number of teachers was twice that of students.

As a result, the student-teacher ratio (STR) continued to decline in primary and senior secondary. By 2010 Indonesia had one of the lowest STR in the world; while the global average STR at the primary school level is 31:1, in Indonesia it is 20:1. At the secondary school level²⁷, comparisons are even more striking, with the average Indonesian STR currently at 12:1 – the lowest ratio in the East Asia region. In part, the low STR in Indonesia can be explained by the large number of small schools due to the low population density of many of its islands. However, school size is not the only explanation, as low STR is not only a small school phenomenon.²⁸

Figure 23: Growth in number of students and number of teachers by level and student-teacher ratio, 2004-2010



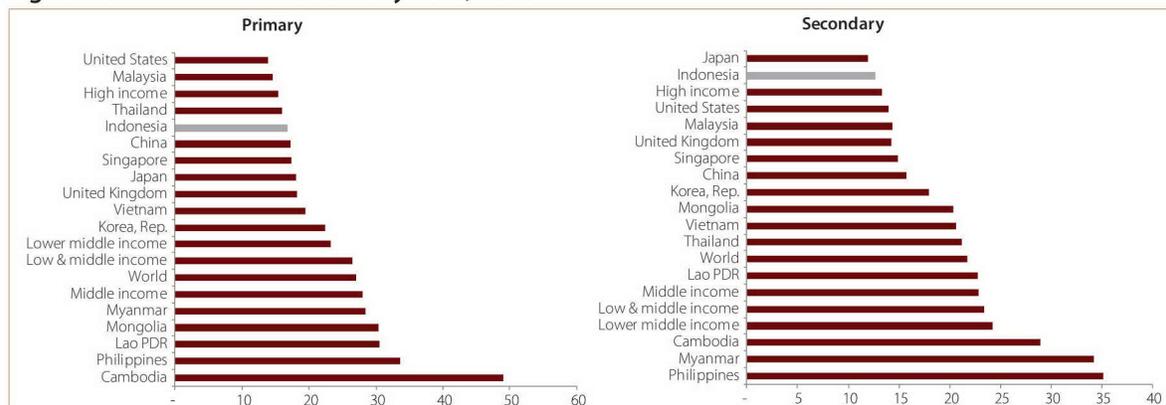
Source: Own calculations using MoEC, various years

In addition to the overall increase in teacher numbers, the conversion of contract teachers to civil servants contributed to the increase in the salary bill between 2006 and 2010, especially at the non-primary levels. From 2006 to 2010, the teaching body increased by about 377,000 teachers, a majority of which (60 percent) were hired as contract teachers (non-PNS). However, conversion of contract teachers to civil service teachers contributed to the increase in salaries, especially in some levels. The conversion of contract teachers to civil service positions was significant in ECD and secondary education, but not at the primary level. The number of PNS teachers in junior and senior secondary, for instance, increased by 13 and 25 percent respectively, while the number of contract teachers in junior secondary increased only slightly, and decreased in senior secondary. Meanwhile at the primary level, the increase in teachers was due mainly to contract teachers.

27 The breakdown of secondary education by junior and senior secondary levels is not available for all countries in edstats, so we use primary and secondary for international comparisons.

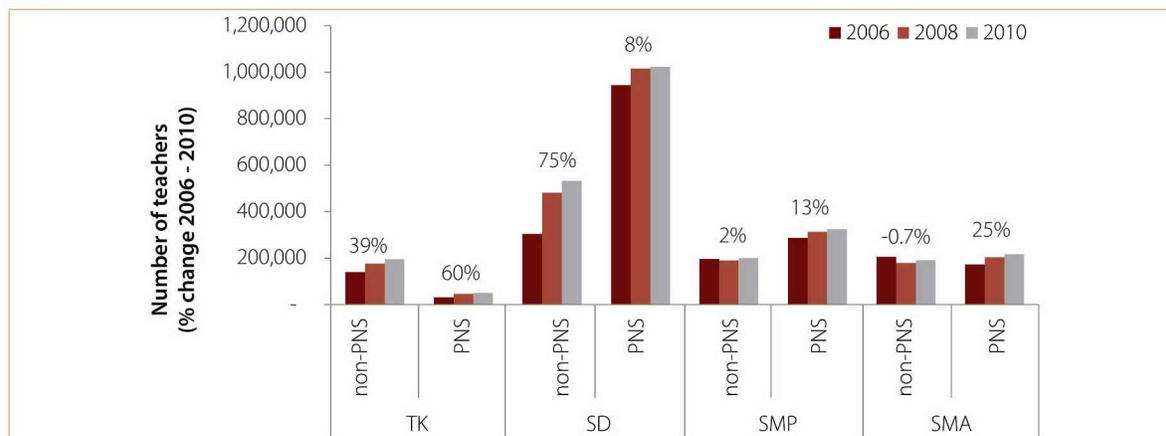
28 Chapter 4 covers in detail the issue of teacher distribution and teacher management.

Figure 24: Student-teacher ratio by level, 2010



Source: Edstats

Figure 25: Evolution of the number of civil servant (PNS) and non-civil servant teachers by level, 2006-2010

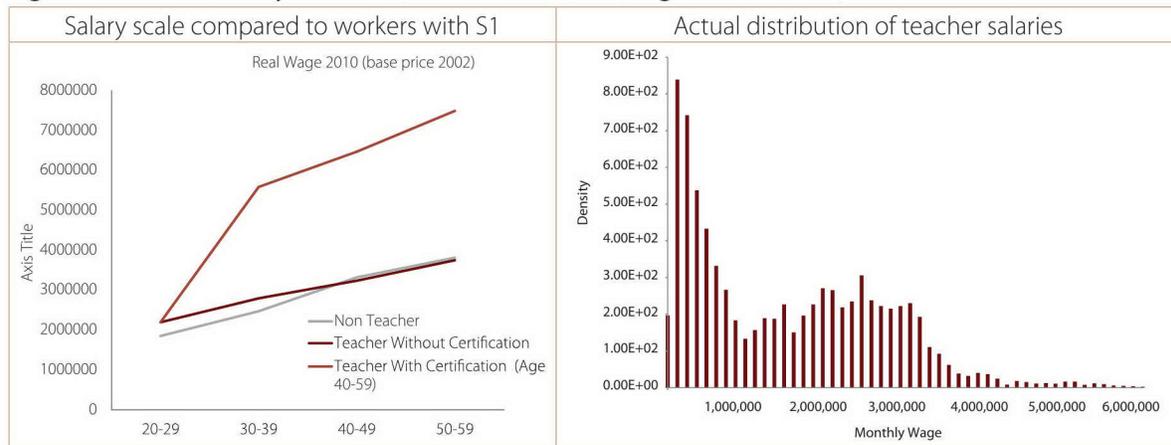


Source: NUPTK Data

Why is salary spending reasonable with such a low student teacher ratio?

The large share of low pay non-civil servant teachers in the system keeps the salary bill relatively low. Thus the conversion of contract teachers to civil service status in primary education does not seem fiscally feasible. Figure 26 shows the average salaries of the working population with at least an S1, compared to the official civil service teacher salary scale, assuming a normal progression along the scale. Even the salaries of non-certified civil service (PNS) teachers compare favorably to the average wage of the working population with at least an S1, making the teaching profession attractive, especially in the early years. But certification doubles teacher salaries; certified teachers, therefore, are substantially higher paid, in general, than the average population with an S1. Thus a civil service teaching position with the eventual possibility of certification is an attractive career choice – as was intended by the teacher law, which sought and still seeks to attract the best and the brightest to the profession. Yet when we look at the distribution of real wages for workers classified as teachers in SAKERNAS, the distribution is not concentrated around the salary scale for civil servant teachers (much less certified teachers); instead, a high percentage of teachers are earning well below the entry level civil service teacher salary, and these are contract teachers.

Figure 26: Teacher salary scale and distribution of real wages for teachers, 2010

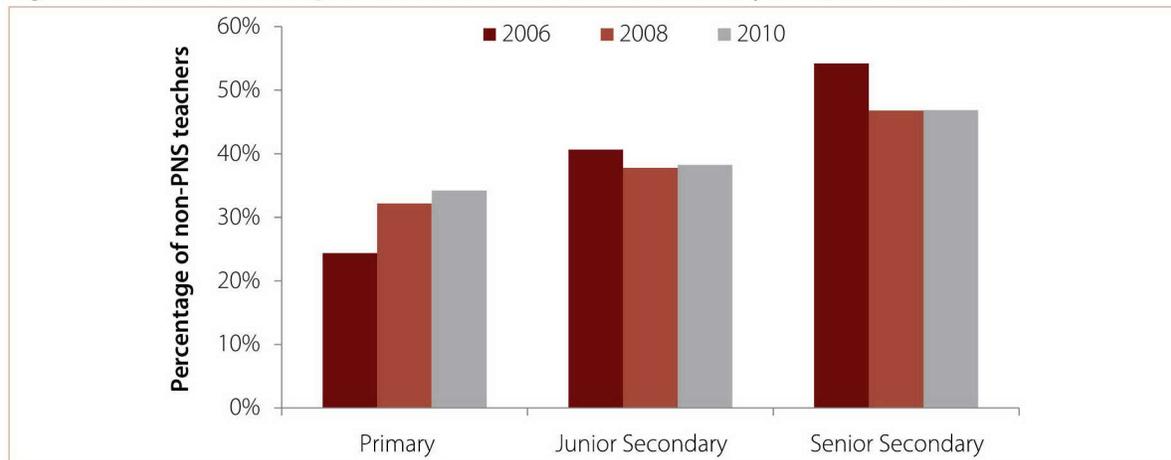


Source: SAKERNAS 2010, and MoEC salary scales

Source: SAKERNAS 2010

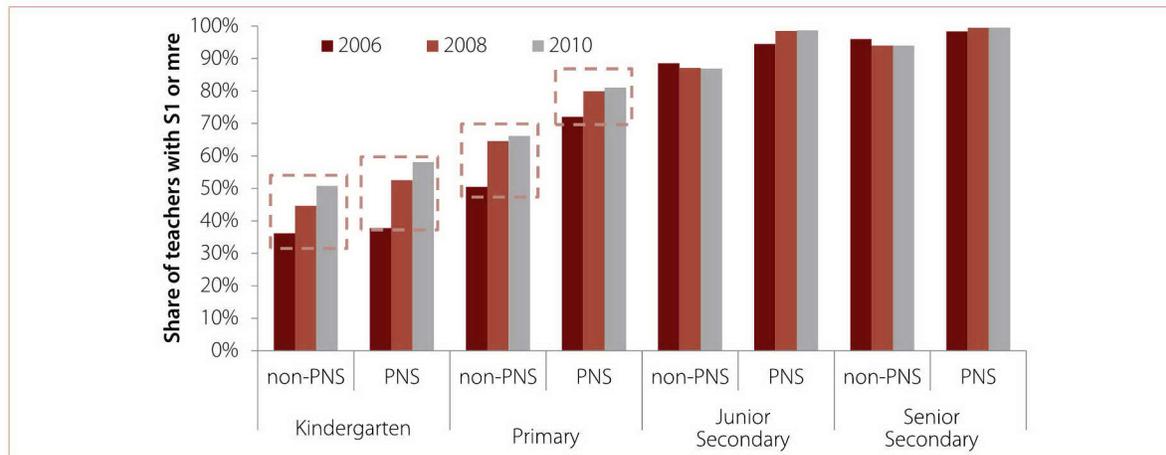
Since 2006, the reliance on contract teachers has increased in primary school (SD), but contract teacher qualifications have improved dramatically. In 2006, about 25 percent of SD teachers were contract teachers. By 2010, that share had increased to 35 percent. In junior and senior secondary, the reliance on contract teachers was significantly higher in 2006, but had declined slightly by 2010. Meanwhile, the qualifications of these contract teachers have improved. The share of teachers with at least a four-year degree increased 15 percentage points in SD. This upgrading was faster for contract than for PNS teachers, despite PNS teachers being eligible for upgrade programs under MoEC.

Figure 27: Evolution of the percent of non-civil servant teachers by level, 2006-2010



Source: NUPTK Data

Figure 28: Share of teachers with a university degree, by type of contract and level of education, 2006-2010



Source: NUPTK data

Existing evidence on the effects of contract teachers is mixed. Hiring contract teachers is generally a cost-effective way to expand access, especially in remote areas.²⁹ When placed strategically to cover hard-to-staff schools, or communities with different languages and/or cultures, contract teachers have been effective in supporting expanded access and improving equity in countries as varied as Cambodia, Nicaragua and India. In controlled experiments in different countries (India, Kenya, Niger³⁰), the use of contract teachers has also had positive effects on learning. However, the way in which contract teachers are hired, managed and the purpose of their hiring are key factors in their impact. Contract teachers have been effective in remedial learning (i.e. teaching basic skills),³¹ but in the absence of monitoring and accountability, their hiring has led to corruption and rent-seeking (i.e. hiring teachers and deducting “fees” from their salaries). In addition, the sustainability of the model is questionable unless contract teachers are used strategically (for substitutions, for example) and offered training, career development opportunities, and reasonable salaries. In the absence of these conditions, contract teachers may be subject higher turnover and even higher absenteeism rates, leading to lower quality education.

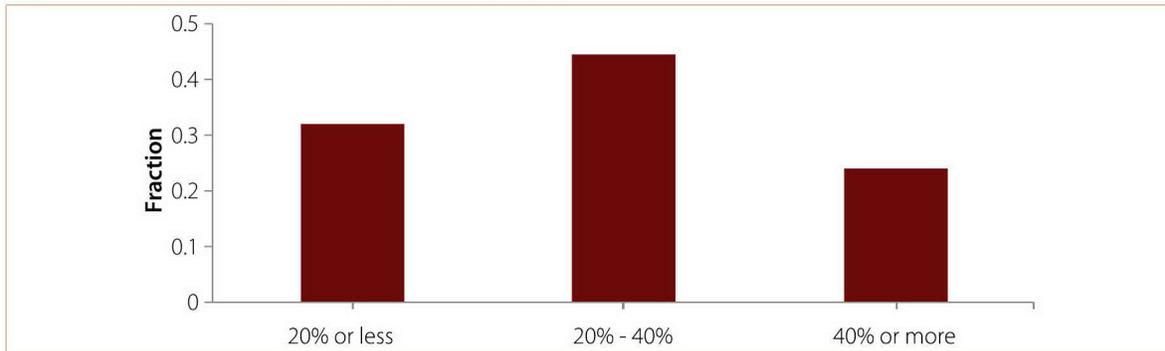
In the case of Indonesia, the conditions are not optimal to make contract teachers effective. First, the use of contract teachers is not concentrated in remote or small schools – in fact, most schools have some share of contract teachers. In about a third of schools, less than 20 percent of the teaching force consists of contract teachers, while at the other end of the distribution, about one-fourth of schools have 40 percent or more non-PNS teachers on staff. The majority of schools fall in the middle, with between 20 and 40 percent contract teachers (Figure 29). The percent of contract teachers varies widely, but is not strongly correlated with poverty or remoteness. So while one would expect hard-to-staff districts to rely more on contract teachers, at the two extremes we find exactly the opposite (Figure 30): DKI Jakarta has a higher share of contract teachers than any other province, while Papua Barat has the smallest share. In the middle, both remote and densely populated areas have similar percentages of non-PNS teachers.

29 Duthilleul (2005), *Lessons Learnt in the Use of Contract Teachers*

30 See Duflo, Dupas and Kremer (2012), Bettinger and Long (forthcoming, 2006), among others.

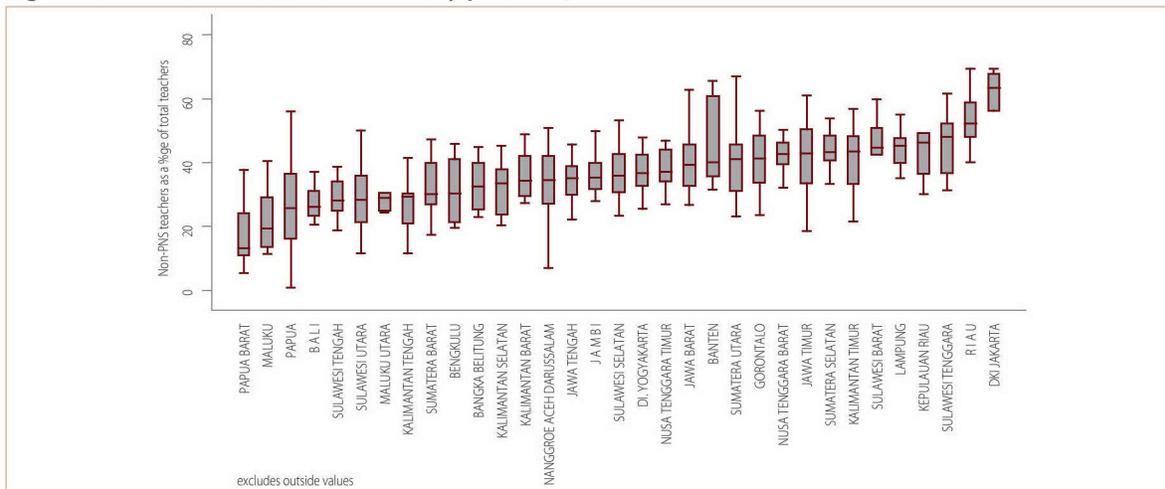
31 Banerjee et al (2007), *Remedying Education: Evidence from Two Randomized Experiments in India*

Figure 29: Percentage of non-PNS Teachers, 2010



Source: World Bank - RAND School Based management Survey, 2010.

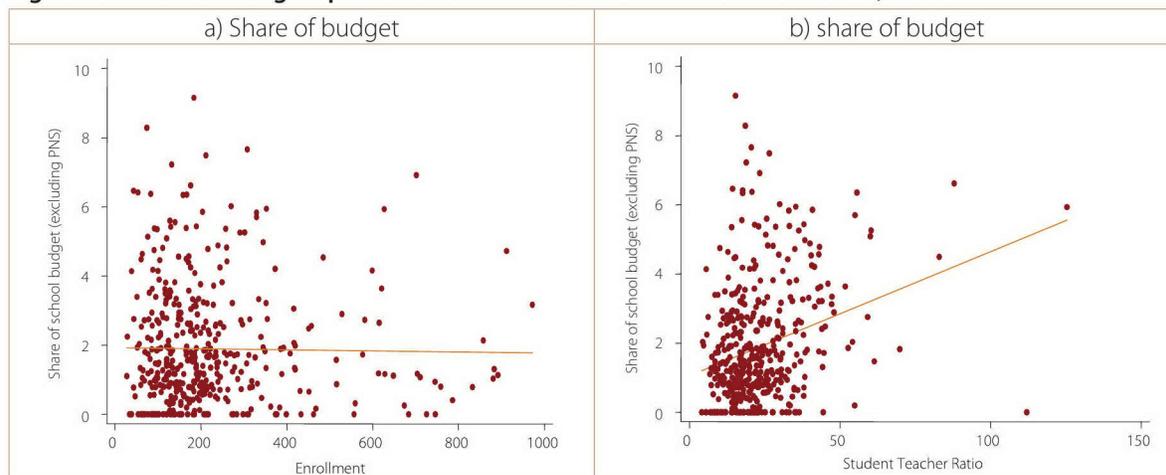
Figure 30: Share of non-PNS teachers by province, 2010



Source: NUPTK Data (2010)

Schools use contract teachers partly to compensate for the lack of civil service teachers, but this is not the main driver for hiring contract teachers – nor is the size of the school. Since schools only have authority over contract teachers (i.e. they cannot hire PNS teachers out of their budget), one would expect that a negative correlation exists between the availability of PNS teachers and the share of contract teachers. That is not the case: spending on contract teachers is not correlated with the size of the school, (Figure 31), but it is partly correlated with the availability of civil service teachers. When plotting the student-teacher ratio using only civil service teachers to the share of the budget spent on non-civil service teachers, it is apparent that schools with a shortage of civil service teachers tend to spend a higher percentage of their disposable budgets on contract teachers (Figure 31). However, the relationship is far from perfect. The share of the budget spent on contract teachers varies enormously across schools, even across schools with the same student-teacher ratios. This indicates that while a shortage of teachers might be an important reason to hire contract teachers, schools must be hiring contract teachers for other reasons.

Figure 31: Share of budget spent on contract teachers vs school size and STR, 2010



Source: World Bank-Rand, School-Based Management Survey (2010)

The effect of contract teachers on learning outcomes in Indonesia is unclear. There is some evidence that the share of non-PNS teachers in a school is positively correlated with student learning,³² but the analysis is based on cross-sectional data that does not allow for a rigorous identification of causal effects. More importantly, the channel through which contract teachers would improve learning outcomes is not clear. Some possibilities suggested in the literature include a greater level of commitment (due to the short-term contracts and the concern with getting renewed), greater effort and/or greater accountability (or affinity) to the local community. Unfortunately, no conclusive evidence is available for these channels in Indonesia. Teacher absenteeism has been shown to be high in Indonesia the last rigorous study on teacher absenteeism carried out in 2004 put the probability of a civil service teacher being absent at 19 percent in 2004. It has also been shown to vary across districts and to correlate to remoteness and school size.³³ These patterns would be consistent with the widespread use of contract teachers to substitute absent teachers, at least in part. Indeed, the highest absenteeism rates were actually reported in cities (Bandung or Pekanbaru), though, in general, remoteness (measured by distance from the district central education office) was positively correlated with absenteeism. However, the same study notes that absenteeism rates for contract teachers are higher than for civil servant teachers. Perhaps contract teachers (who are hired by the school) contribute to better learning outcomes because they are more accountable to the local community and the school principal. Unfortunately, there is no evidence to test this empirically, yet.

Regardless of the effects on learning, there are serious doubts about the sustainability of the current model. Having a high share of contract teachers introduces important political economy dysfunctions. Civil service teachers working side by side with contract teachers in the same school can be earning 30 to 40 times their salary. These large inequalities are only sustainable due to the implicit promise to contract teachers that they will eventually attain civil service status and have access to certification. MoEC maintains an unofficial policy of converting contract teachers to civil servants. As we have seen, civil service status is a pre-condition for professional certification. While the Gol has introduced special allowances for contract teachers who are not eligible for certification, from a political economy perspective, continuing with the current model is likely to create tensions in the near future if these promises are not realized.

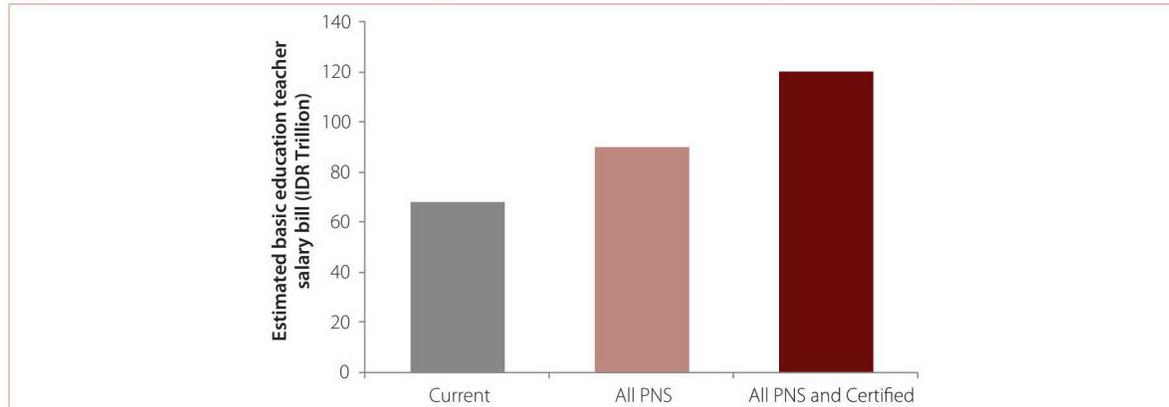
The cost of converting all contract teachers to civil service status is prohibitive, as is the cost of certifying all teachers. The salary bill for basic education teachers in 2009 was IDR 68 trillion (about USD 7 billion). Based

32 Chen (2011), School-Based Management, School-Decision Making and Education Outcomes in Indonesian Primary Schools

33 Akhmedi and Suryadarma (2004), When teachers are absent: Where do they go and what is the impact on students?

on the average salaries of PNS, we can estimate the cost of converting all non-PNS teachers to PNS status. Such a conversion would increase the salary bill for basic education to approximate IDR 90 trillion (USD 9 billion), an increase of 35 percent. Certifying all teachers (both PNS and non-PNS) would increase the budget to IDR 120 trillion, a 90 percent increase over the 2009 salary bill.

Figure 32: Estimated cost of converting all contract teachers to PNS, and of certifying all teachers



Source: Own calculations using NUPTK data and average teacher salaries

The rapid increase in spending in the run-up to meeting the 20 percent rule probably contributed to the excessive teacher hiring and the rapid regularization of primary school contract teachers. As seen at the beginning of this chapter, the pressure to spend large windfalls produced a rapid increase in hiring. Salaries and hiring are guaranteed to absorb a substantial amount of resources more quickly and sustainably than programs which require more planning. Thus the pressure to spending quickly at both the central and district levels may have provided incentives to increase the number of teachers, as well as teacher salaries and allowances. At the central level, teacher allowances disburse quickly, and can absorb a substantial share of additional resources. At the district level, the need meet the 20 percent rule, combined with the incentives included in the transfer formulas, provide an inducement to allocate extra resources to salaries. Thus it is likely that the 20 percent rule, combined with the policy of converting contract teachers to civil servant status, contributed to the large increase in salary spending.

In addition to the incentives introduced by the 20 percent rule, the rapid growth in the teaching force has resulted from two factors: incentives in central government transfers to sub-national government and the formulas used to determine the how many teachers a school is entitled to.³⁴ The teacher entitlement formula – the minimum number of teachers required at a given school as a function of its characteristics – is a large part of the problem, and one that this report returns to in chapter 5. A high degree of reliance on central government transfers means that the composition of sub-national spending is driven largely by the incentives built into the transfer formulas. It is thus worth going into more detail on sub-national spending in the next section.

In order to provide an idea of the sustainability of current and potential spending, especially on teachers, the next section provides some estimates of the budget implications of meeting one of the main government objectives on education: drastically expanding access to senior secondary education.

34 World Bank (2010) Transforming Indonesia's Teaching Force; World Bank (2012) Sub-National Public Expenditure Review, forthcoming.

A simple costing of government objectives using current spending patterns

The government’s objectives for expansion, as outlined in their mid-term strategy are ambitious. Even though the enrollment rates published by MoEC and those calculated using Susenas differ,³⁵ increasing senior secondary gross enrollment rate by 10 percentage points over a 5 year period (from 76 to 85 percent) means adding about 1.5 million students to senior secondary education in a very short period of time. If we use Susenas as the baseline (which currently puts enrollment at 67 percent), the challenge becomes even larger. In fact, according to household data, there is still a need to increase access to junior secondary education as well (currently at 88 percent).

Table 4: Target Gross Enrollment Rate by level of education 2010-2014

Education Level	2011	2012	2013	2014
ECD	60.1	63.6	67.4	72.9
Primary	117.6	118.2	118.6	119.1
Junior Secondary	101.5	103.9	106.8	110.0
Senior Secondary	76.0	79.0	82.0	85.0
Higher Education	26.1	27.4	28.7	30.0

Source: RENSTRA 2010-2014

How much would it cost to achieve these goals with regard to enrollment at the current expenditure levels? Calculating the cost of this expansion is not straightforward. Many factors come into play, among them where the expansion will take place (for example, remote areas vs cities, existing schools vs new schools), how it will take place (public vs. private, general vs. vocational, technical diplomas vs. university degrees), and how the problems of early drop-outs will be addressed. Expanding access in remote areas where the distance from a school may be a constraint, for instance, may require building schools, providing transportation subsidies or other forms of student support. Private schools tend to be more efficient than public schools, albeit of lesser quality, so the choice as to whether to expand through public provision or by supporting private schools will of course affect the budget.³⁶ Finally, if students are dropping out due to poverty, expanding scholarships will be a necessity; if they are not interested in further schooling for other reasons (for example, because of the opportunity cost) additional incentives such as conditional cash transfers might be needed to keep them in school. All of these choices will have important consequences for the budget. Although it would be desirable for planning purposes to estimate the costs under various assumptions, the exercise is well beyond the scope of this study.

This section does not aim to provide an exact number, but a rough estimate of the budget required to absorb extra students if per student spending remains the same. We have tried to be as conservative as possible for the basic estimation and focused on putting numbers to some of the questions above: where the GOI would be expanding, how and to whom. Troublingly, the answer to those questions suggests that current per student spending might not be sufficient. As an example, in the next section we look at the cost of expanding scholarships to all poor students.

In order to estimate the cost of achieving these goals, we use MoEC’s current enrollment rates and current per student spending and assume that the 5-year Strategic Plan (RENSTRA) objectives will be

³⁵ These differences are mainly due to different population projections, not enrollment numbers.

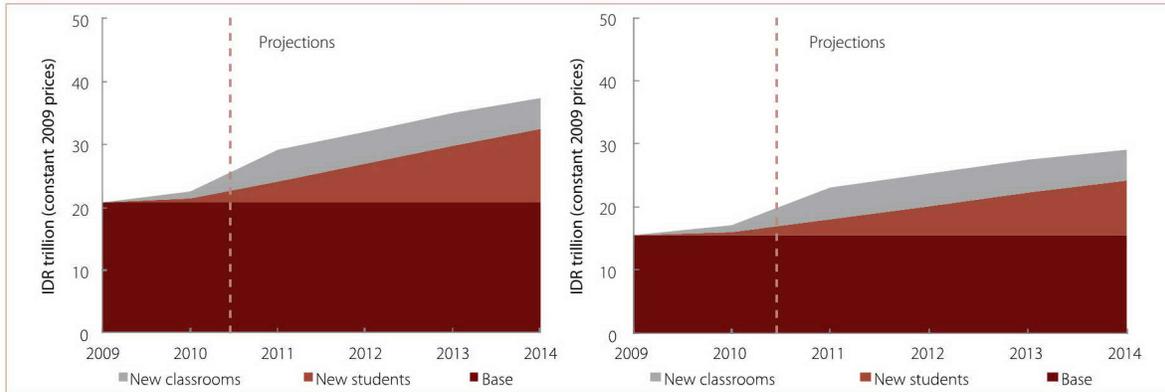
³⁶ See “Preparing Indonesian Youth for Transition” World Bank (2012), for a full discussion of the public/private differences in secondary education.

met by 2014. We take the objectives at face value, without questioning the feasibility of assumptions on the rate of progress. Based on past performance, we believe the rate of growth to meet these objectives to be overly optimistic, leading to an overestimation in the rate of growth in resources. As a result, we do not focus on the rate of growth, but on the final effect of meeting the goal at the end of the period.

There are two key assumptions in these estimates: constant student-teacher ratios and classroom construction at a rate of one classroom per every additional 32 students. By using per student spending, we are effectively assuming that student-teacher ratios remain the same as enrollments expand. This means continuing to hire teachers at the same rate as the growth in students (as we saw in Figure 22, the number of teachers has been growing at a faster rate than that of students at all levels). Since per student spending also includes capital spending, we are also assuming capital spending grows in a manner proportionate to the growth in students.

As a lower bound estimate, expanding senior secondary education to an 85 percent net enrollment rate (NER) would add an additional IDR 15 trillion (USD 1.5 billion) per year to the education budget, exclusive of capital spending, representing an increase of 55 percent over current spending on senior secondary education. The cost of building additional classrooms would be IDR 20 trillion during the period of expansion. This estimate is highly sensitive to changes in per student spending. As we will see in Chapter 4, increasing the STR by 5 students per teacher would reduce per student spending by one-third. If we take a more conservative estimate – reducing per student spending by one-fourth – the additional spending required to achieve an 85 percent NER would be IDR 9 trillion (slightly less than USD 1 billion). Such a reduction would allow complementary policies to be implemented (such as additional student support or a reduction in fees). Increasing efficiency in teacher management would be key.

Figure 33: Estimated cost of achieving government goals



Source: Own calculations using budget data, SUSENAS.

While the rate of growth of spending is likely overestimated in the figures, the estimated final cost is a conservative estimate. It is likely that additional expenditures will be required to achieve the goal of expanded enrollment: areas in need of expansion are largely more remote; quality improvements are needed, especially in the case of private providers; poorer students will require scholarships. These factors will likely result in an increase in per student spending in secondary and higher education.

If there is one clear message from the analysis in this chapter, it is that despite the increase in the budget allocation for education, improving the quality of spending, with better efficiency and planning, is crucial to afford meeting government objectives. Although the government mentions senior secondary and higher education as national priority programs and the main recipients of additional “windfall” resources,

currently there is limited information available to understand or evaluate the government's budget planning or actual spending processes after 2010. What the available realized expenditure data show is that the 2009 increase in education resources was mainly allocated to teacher salaries and certification subsidies, and although government spending on senior and higher education grew at twice the rate of basic education, spending on these programs remains low compared to other countries in the region. All of which reinforces the notion that the quality of spending needs to improve.

What is Indonesia getting out of the increase in spending? The next chapter looks at how outcomes have evolved over this period, and examines the link between increased resources and educational results.

Chapter 3:

How Have Outcomes Changed? The Unfinished Agenda for Equity and Quality of Education

Following such a large increase in resources over the decade, one would expect outcomes to have improved significantly. As the previous chapter shows, growth in spending across levels of education has been fairly similar over the decade, but senior secondary and higher education started to grow faster than other levels between 2008 and 2009. It also showed that most of the increase in basic education spending went for teachers' salaries. Capital spending has also grown very quickly in recent years, both at the central level (for higher education) and at the district level.

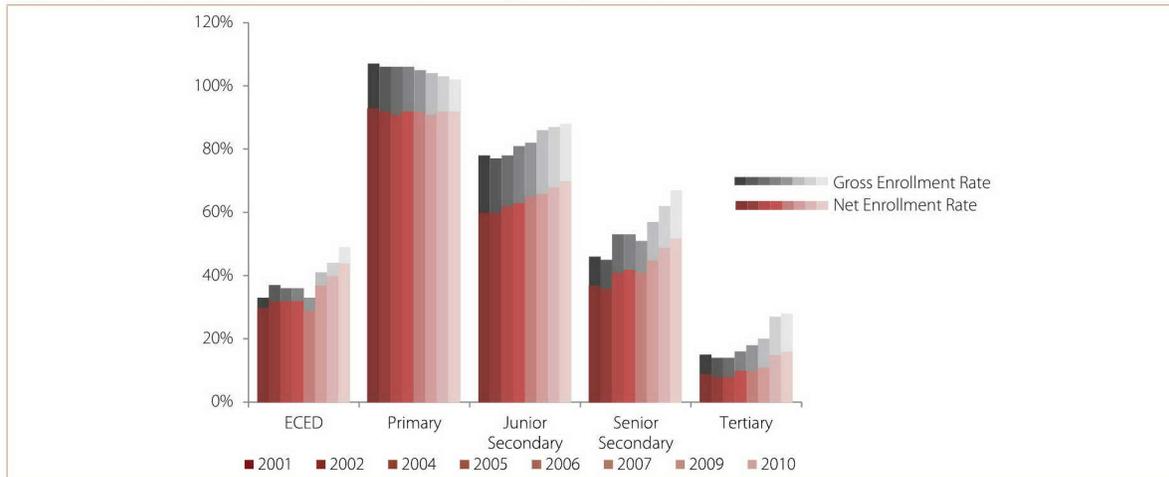
Has this increase in spending led to significant improvements in access, equity and learning outcomes? This chapter seeks to answer these questions by presenting an overview of education indicators and pinpointing where challenges remain. Using mostly household survey data, the chapter first looks at trends in net and gross enrollment rates, as well as out-of-age enrollment. Noting the significant improvements in enrollment rates, the equity section shows that the improvements in access are largely driven by improvements in equity. However, despite improvements in access and equity, this chapter notes that two key issues remain. First, equity is still low in senior secondary and higher education, so expansion of access to these levels for the poor remains a challenge. Second, the quality of education (measured by learning outcomes) has not improved, and in some cases has declined. Addressing the quality issue should be a priority, as it establishes the base for future learning. Expansion without quality may not yield the expected results for the poorer segments of the population.

The last section of this chapter links resources to learning outcomes more explicitly. International experience shows clearly that it is easier to translate resources into access than into quality of education. So have additional resources improved learning outcomes in Indonesia? Taking advantage of differences in spending across districts and schools, the section analyzes the correlation between resources and learning outcomes, and considers whether it may be a matter of time until resources produce better outcomes, especially quality of education. Given current spending patterns, unfortunately, this chapter concludes that the short answer is no. **Spending better will thus be crucial.**

Access

The progress in enrollment rates in the last decade has been impressive. Indonesia has achieved universal primary education and has made great advances in secondary and higher education, with an increase of 10 and 7 percentage points in the gross enrollment rates (GER) respectively. Perhaps the most impressive achievement has been in early childhood education and development (ECED), which now reaches half of 4 to 6 year olds (up from 25 percent a decade earlier).

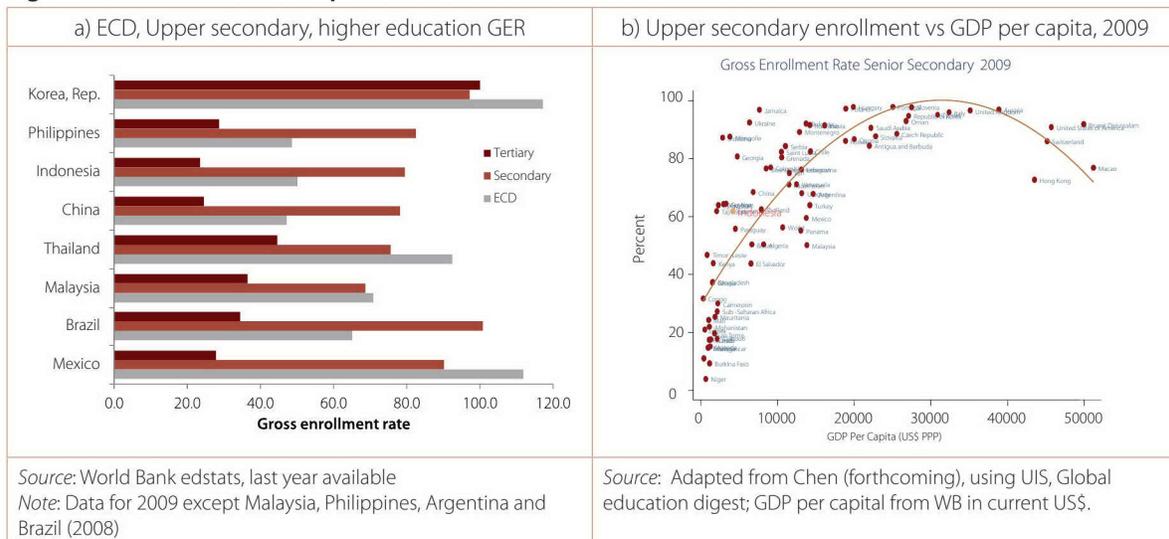
Figure 34: Gross and Net Enrollment Rates by Level, 2001-2009



Source: Susenas various years

The improvements in GER have brought Indonesia closer to its neighbors, resulting in a higher than expected senior secondary enrollment rate for its level of GDP per capita. By 2009, Indonesia’s enrollment rates profile mirrored that of China, with higher than expected secondary education enrollment rates for its level of income (Figure 36b) but still lagging in higher education and ECD. Indonesia was higher than Malaysia or Thailand in secondary education, even if it still lagged significantly in higher education (Figure 36a).

Figure 35: International comparison of Gross Enrollment Rates, 2009



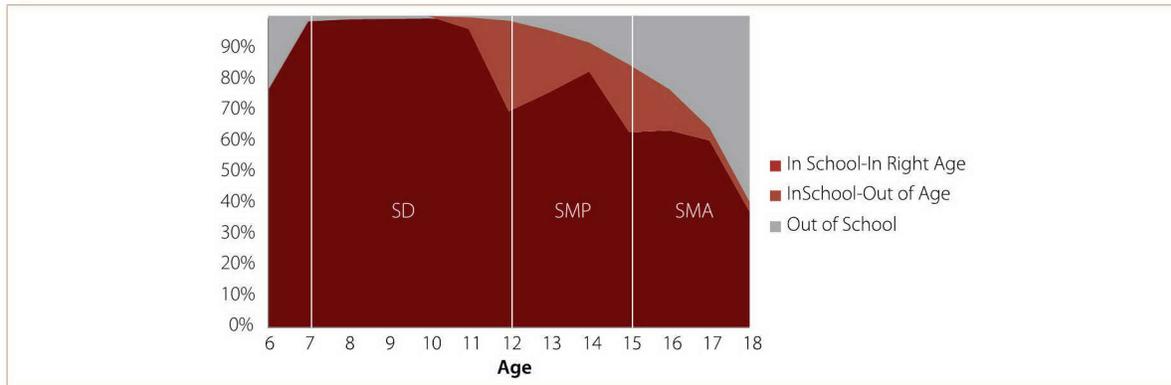
Source: World Bank edstats, last year available
 Note: Data for 2009 except Malaysia, Philippines, Argentina and Brazil (2008)

Source: Adapted from Chen (forthcoming), using UIS, Global education digest; GDP per capital from WB in current US\$.

The comparison between GER and NER shows a high degree of out-of-age enrollment at all levels of education, which is mainly driven by early enrollment. A significant percentage of students are enrolled in a level that does not correspond to their age (15 percent in primary, 19 percent in senior secondary). This share has increased in primary education and senior secondary education, but has declined in junior secondary education. Out-of-age enrollment starts with early enrollment, with 80 percent of students enrolling by age 6 instead of the official age of 7. The effects of this early enrollment are unclear. On the one hand, delayed primary school is generally due to disadvantaged socioeconomic conditions, so the fact that children are enrolling early is a good sign. On the other, early primary school enrollment has been shown to have negative effects on repetition and

learning when isolated from other factors.³⁷ Although it may be better to expand access to ECD to ensure that children are ready for school, this early enrollment shows a clear improvement in the commitment and access to education. However the 14 percent repetition rate reported by MoEC³⁸ in grade 1 may be a sign that school readiness is a challenge in Indonesia.³⁹

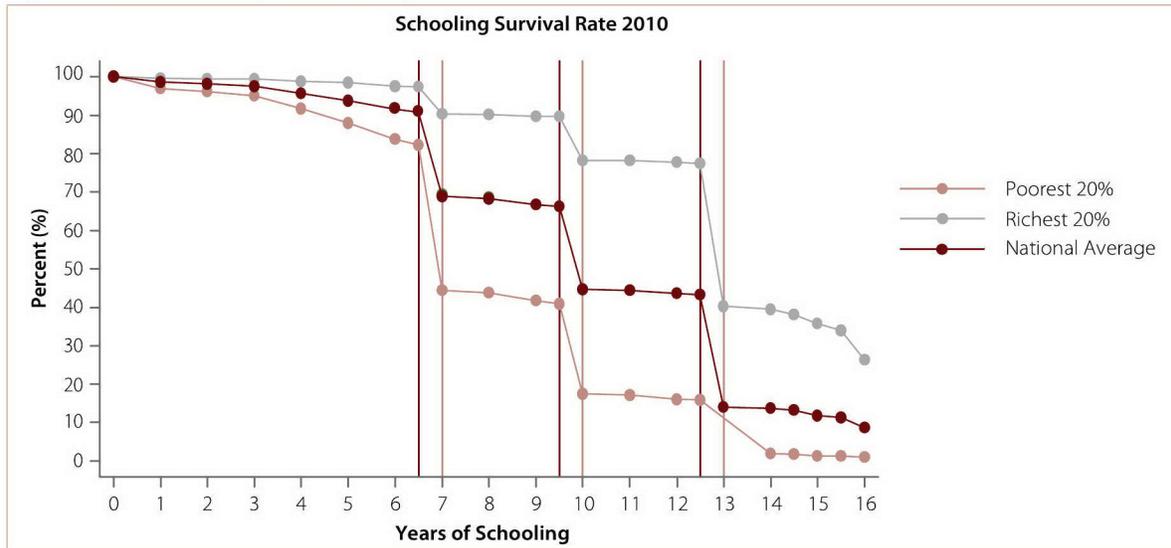
Figure 36: Share of children enrolled in appropriate level, out of age enrollment and out of school by age, 2010



Source: Susenas various years

The out-of-age enrollment masks sharp drops in enrollment when transitioning between levels. When looking at the education attainment of youths ages 27-28 who recently exited higher education age, the profile clearly shows that the transition between levels is a problem in Indonesia. Most of the dropping out occurs between levels, and this is especially pronounced for poor youth. As access indicators continue to increase, attainment is expected to improve.

Figure 37: Attainment profile of 27 year olds, 2010



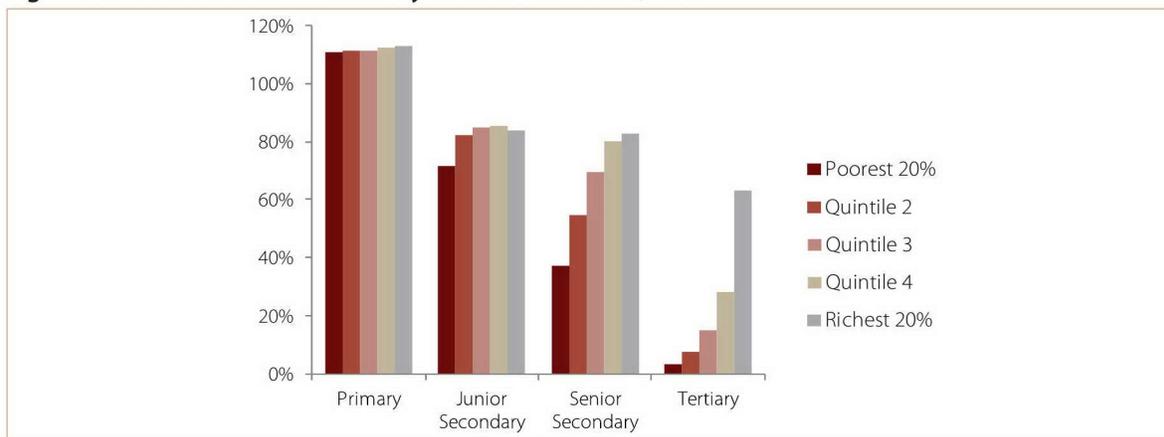
Source: Susenas various years

37 McEwan and Shapiro (2008), The Benefits of Delayed Primary School Enrollment Discontinuity Estimates Using Exact Birth Dates.
 38 Source: MoEC (2009). Note we do not report a variety of MoEC statistics because of inconsistencies between household surveys and official enrollment data. For repetition rates, we have to rely on MoEC data, but the high variability from year to year suggests these indicators ought to be taken with some caution.
 39 See School Readiness in Indonesia (UNICEF, 2009)

Equity

Access to senior secondary and especially higher education are still very low for the poor. Gross enrollment rates for primary education are over 100 percent for all income quintiles, but differences begin appearing in junior secondary. By senior secondary, the differences are substantial: the richest quintile has a GER of over 80 percent, while the poorest is barely above 30 percent. In higher education, the differences are even greater. The first two income quintiles have extremely low GER -- 2 and 5 percent, respectively.

Figure 38: Gross Enrollment Rates by Level of Education, 2010



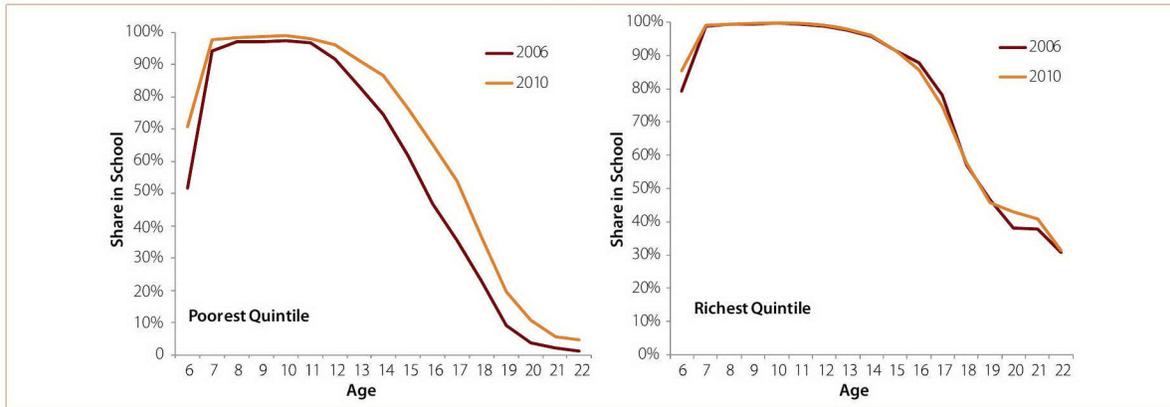
Source: Susenas, 2010

The good news is that equity in access is improving very quickly. The share of children enrolled has increased mainly for children from poorer backgrounds (Figure 40). Progress has been rapid between 2006 and 2010, with children from poor families enrolling earlier, and staying in school longer. The share of 15 year olds from the poorest consumption quintile still enrolled in school increased from 60 to 80 percent during the same period. Unfortunately, by age 18, and despite a significant improvement, the percentage enrolled still drops dramatically to 36 percent. Beyond 18 the share falls even faster, with only 5 percent of 21 year olds from the poorest quintile enrolled in some sort of higher education. The picture for the richest quintile is significantly different. At age 18, 60 percent of students are still enrolled in school, and 40 percent are still enrolled at age 21.

The stagnation in enrollment rates for the richest quintile is bad news. The share of children from the richest quintile enrolled in school did not change between 2006 and 2010. While it is good news that poorer children have better access to secondary and higher education, the lack of improvement at the top should be cause for concern. High up front-costs may limit higher education enrollment even for the richest 20 percent if financial aid is not available. In addition, poor quality of tertiary education, or high opportunity cost with uncertain returns, may be factors in choosing not to continue studying. For Indonesia to consolidate as a middle income country, the educational outcomes of this top quintile will need to continue improving.

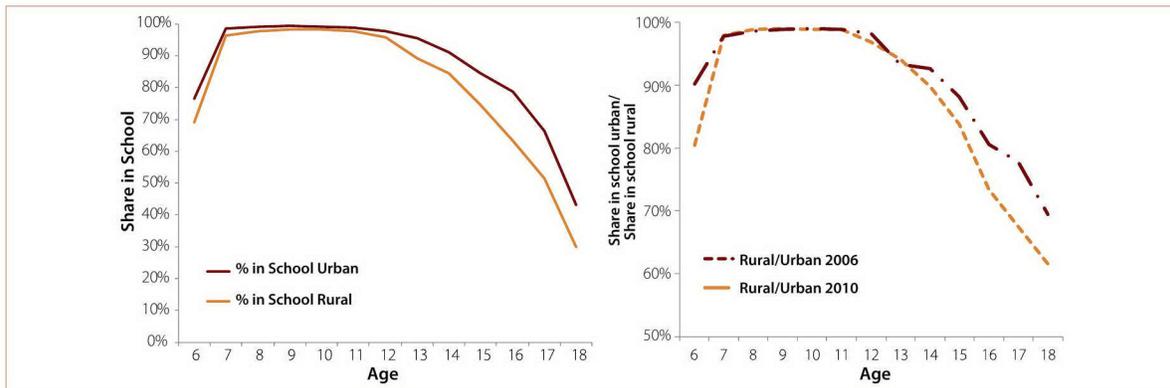
Access is still low in rural areas in post-basic education, despite improvement in recent years. Access to primary school is virtually universal both in urban and rural areas. The difficulties start after age 10, where the share of children enrolled in school drops faster in rural than in urban areas. In 2010, 70 percent of rural children were enrolled in school at age 15, versus 85 percent of urban children. By age 18, the gap persists, with 30 percent in rural versus 45 percent in urban areas (Figure 41a). The good news is that these differences have narrowed in recent years (Figure 41b). While in 2006 the share of 15-year-old students enrolled in rural areas was 83 percent of that in urban areas, in 2010 that share increased to 88 percent, a significant increase for such a short period of time.

Figure 39: Share of children enrolled in school by age and quintile, 2006 and 2010



Source: Own calculations using Susenas, 2006 and 2010

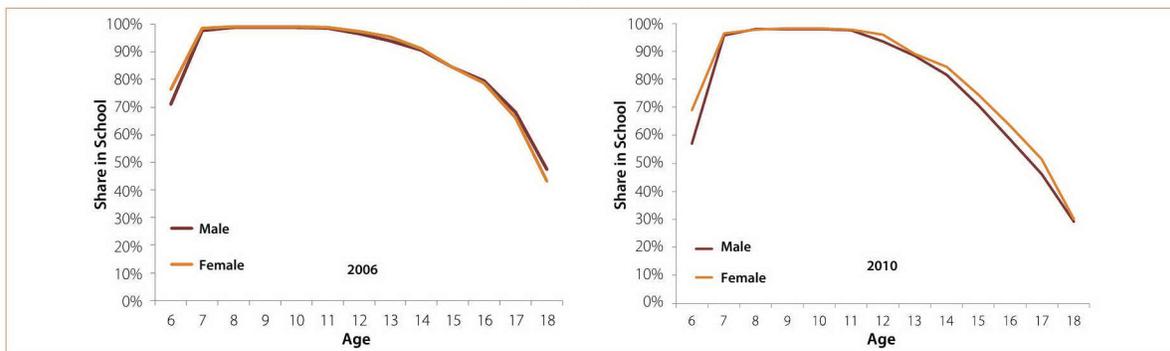
Figure 40: Share of children enrolled by age in urban and rural areas in 2010



Source: Own calculations using Susenas, various years

By gender, the differences in enrollment were not significant in 2006, and continue to be insignificant in 2010. In fact, in 2010 there was a small advantage for female enrollment, which increases somewhat in higher education.

Figure 41: NER of females relative to males by level, 2006-2010

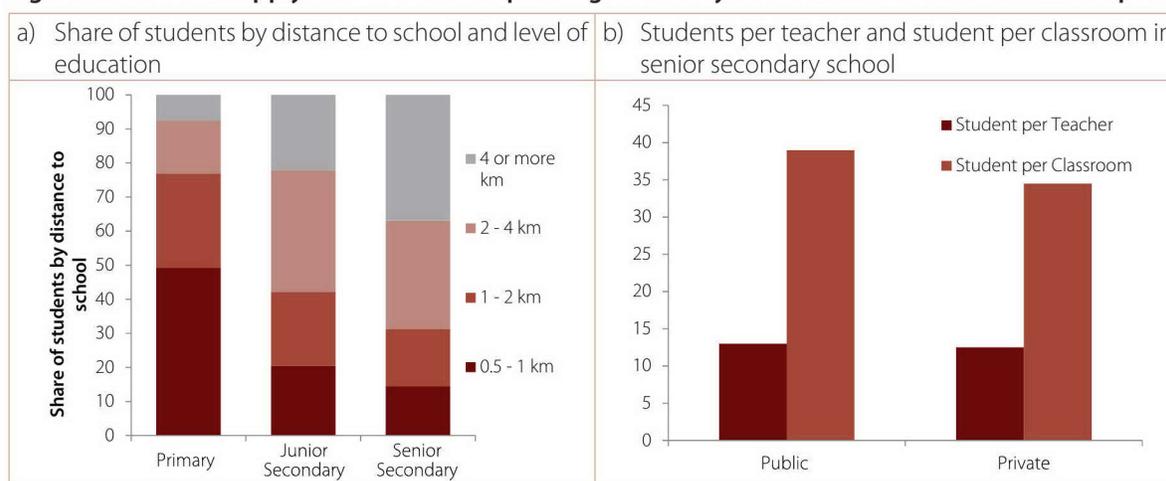


Source: Susenas, 2006 and 2010

Who are out-of-school children?

There are already signs of supply constraints in senior secondary education: The ratio of students to classrooms is close to the maximum class size allowed in the regulations.⁴⁰ With no excess capacity in existing schools, it is likely that increasing enrollment will require additional classroom construction or rehabilitation. While there are different ways of expanding, with different associated costs (public vs. private; classrooms in existing schools vs. new schools), these numbers indicate that the current supply of classrooms cannot meet a drastic increase in demand. In fact, the ratio of applicants to entrants in senior secondary is greater than one for all types of schools (public, private, general and vocational).⁴¹ This means that on average, schools get more applicants than they can accept, which is a sign that current supply is not sufficient to meet current demand, let alone the expected increase in enrollment.

Figure 42: Possible supply constraints for expanding secondary education: distance and students per 9



Source: Susenas

Chen (2012)

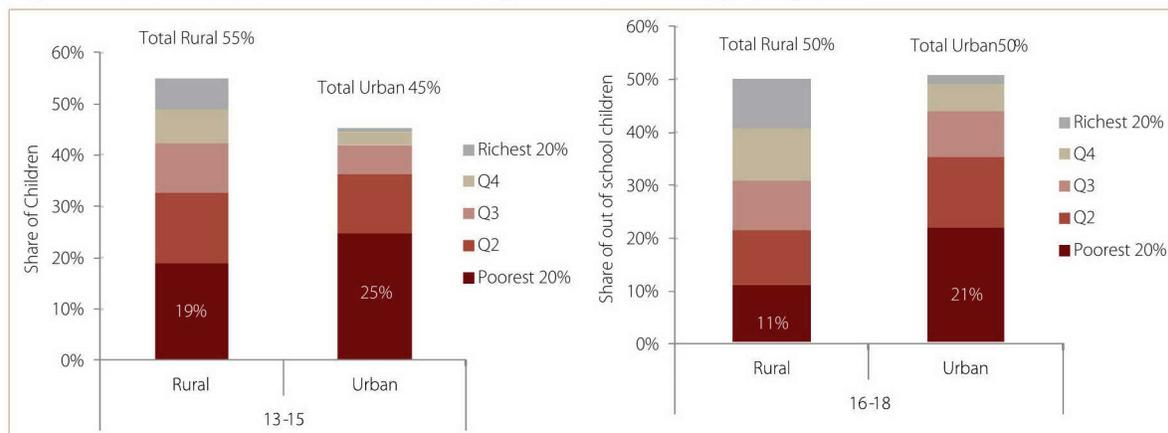
Perhaps the biggest constraint to increasing access is that almost one-half of junior secondary and one-third of senior secondary drop outs are from the poorest quintile. Indeed, 44 percent of out-of-school children of junior secondary age (13-15 year olds) are from the poorest income quintile. Junior secondary dropouts also tend to be poorer. The pattern looks different among 16-18 year olds, where the distribution across quintiles is mostly equal. Though as we shall see, drop-outs tend to be from remote areas, those from urban areas tend to be mostly from the poorest quintiles.

Drop-outs are from more remote areas, so distance to a school seems to be a barrier to enrollment. No information on the distance to the nearest school exists for out-of-school children, but according to Susenas, the distance to school for enrolled students grows significantly when they reach senior secondary and higher education (Figure 43a). While in SD almost all students live within four km of a school, almost 20 percent of students in SMP have to travel four or more kilometers to school. And this is for still enrolled students. Since distance and the cost of transportation are commonly cited in household surveys as reasons for dropping out, it is safe to assume that these drop outs would have to travel farther to the closest senior secondary school. Keeping these drop outs in schools is likely to require building schools or subsidizing transportation, both of which imply extra costs per student.

40 "Preparing Indonesia's Youth for Transition includes a detailed discussion of these issues.

41 "Preparing Indonesia's Youth for Transition," Chen (2012).

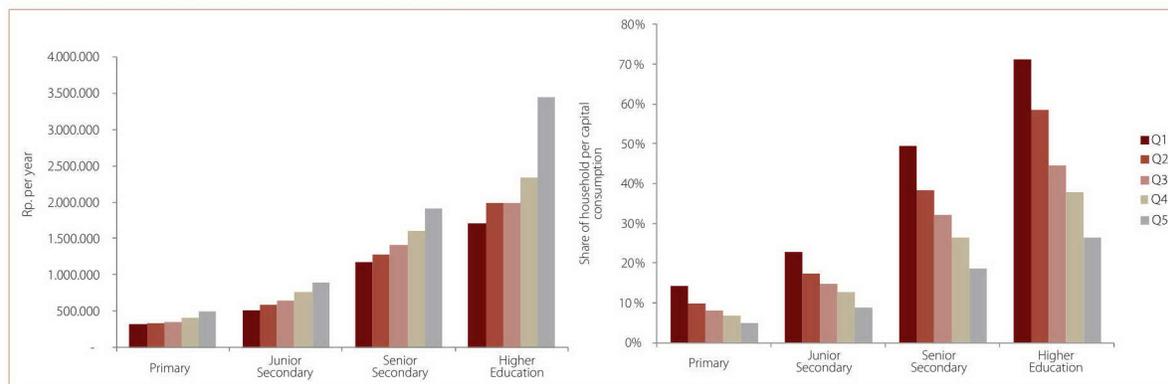
Figure 43: Share of out-of-school children by urban-rural and quintile, 2010



Source: Susenas 2010

Households are unlikely to be able to absorb the cost of expansion: the budget of poor households for education is already overstretched. Education expenditures increase exponentially with each level of education. While the average primary student from the poorest quintile spends about IDR 205,000 (about USD 26) on education, the average poor student in senior secondary education spends IDR 1.2 million (about USD 150) a cost that represents a prohibitive 50 percent of per capita household consumption (total household consumption divided by the number of people in the household). Meanwhile the cost of higher education, at IDR 2 million or 70 percent of per capita consumption for poor households, is certainly a major constraint to educational expansion and goes a long way to explaining the extremely low enrollment rates of this segment of the population.

Figure 44: Total household expenditure on education and as a share of household per capita consumption, by level and income quintile



Source: Susenas, 2009

There are also large variations in access across regions in Indonesia. Differences across regions tend to be greatest at the top and bottom of the education system. At the pre-primary level, children between the ages of 4 and 6 living in Yogyakarta are three times more likely to be enrolled in an ECD centre than children in Papua. While disparities in enrollment rates narrow at the primary level they begin widening again as children enter junior secondary school. In Papua province, approximately 43 percent of junior secondary school-aged children were attending school compared to 75 percent in Sumatera Barat (Figure 47).

Figure 45: District ECD enrollment rates, 2009

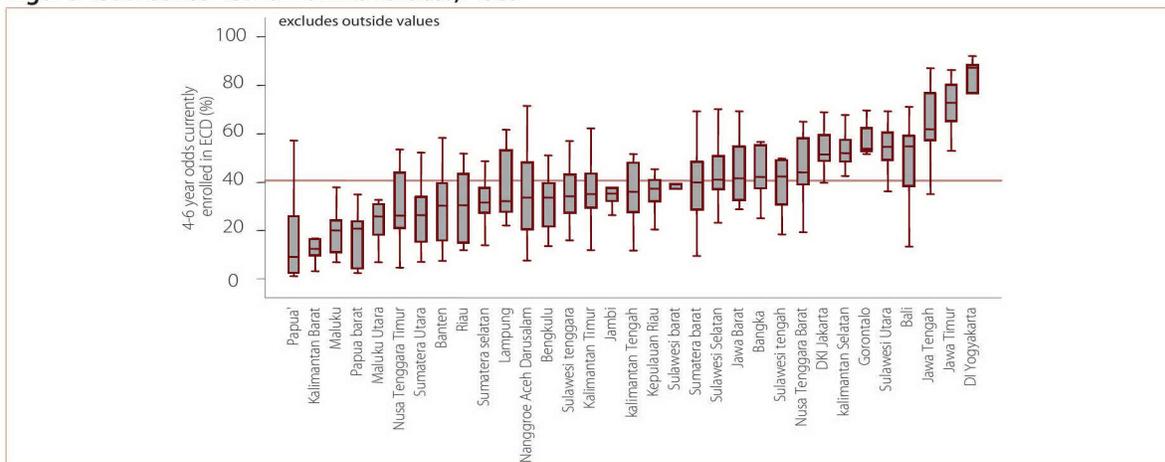
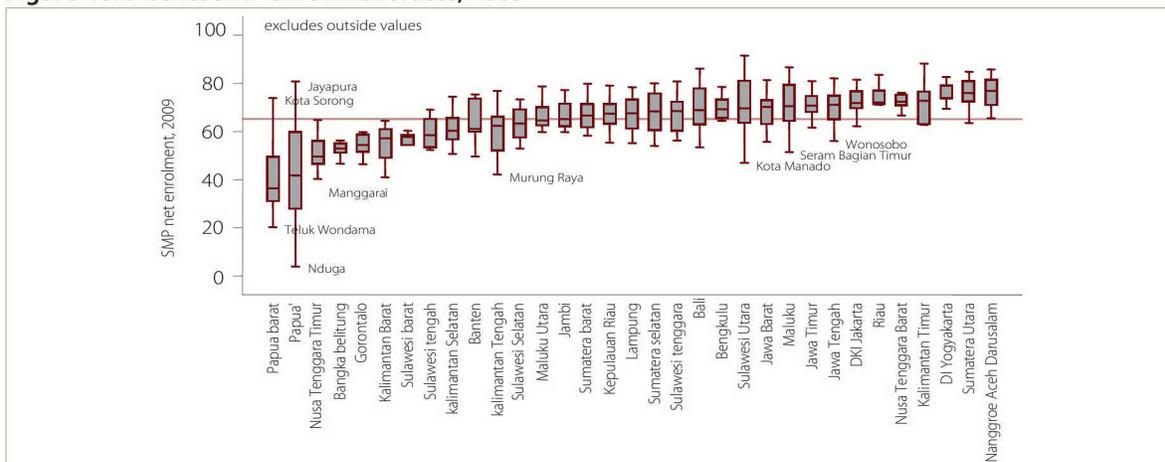


Figure 46: District SMP enrollment rates, 2009



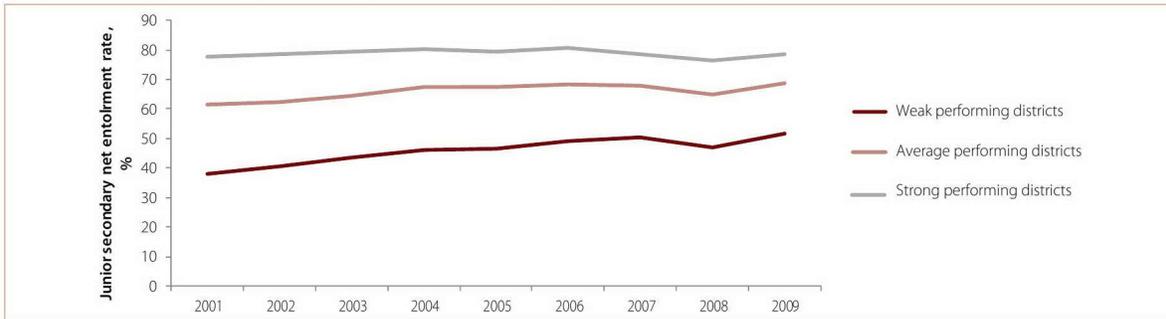
Enrollment rate gaps among districts seem to be narrower than in 2001. It is difficult to establish the extent to which district enrollment rates have converged in the last 10 years, as over this period many new districts have been broken up into two or more districts – between 2001 and 2009 an additional seven provinces and 199 districts were established, increasing the overall number of provinces to 33 and districts to 491.⁴² In order to explore trends during this period, enrollment rates were calculated based on the 2001 district map. Enrollment rates for the trend analysis were calculated by aggregating rates for the newly established districts with those of the original districts from which they had broken away.⁴³ In general, primary and secondary enrollment rates in this sub-set of districts have tended to converge (see Figure 48).

This narrowing of disparities in enrollment rates have resulted in part from stagnating or declining enrollment rates among better performing districts. Enrollment rates for the best performing districts have remained relatively unchanged since 2001 (Figure 48), although in some of these districts, enrollment rates at the junior secondary level have declined, falling 19 percentage points in Kota Blitar, for example, between 2001 and 2009.

42 Sub-National PER, World Bank (2012b)

43 A number of different approaches to looking at how district inequality has changed over time were undertaken with broadly similar results.

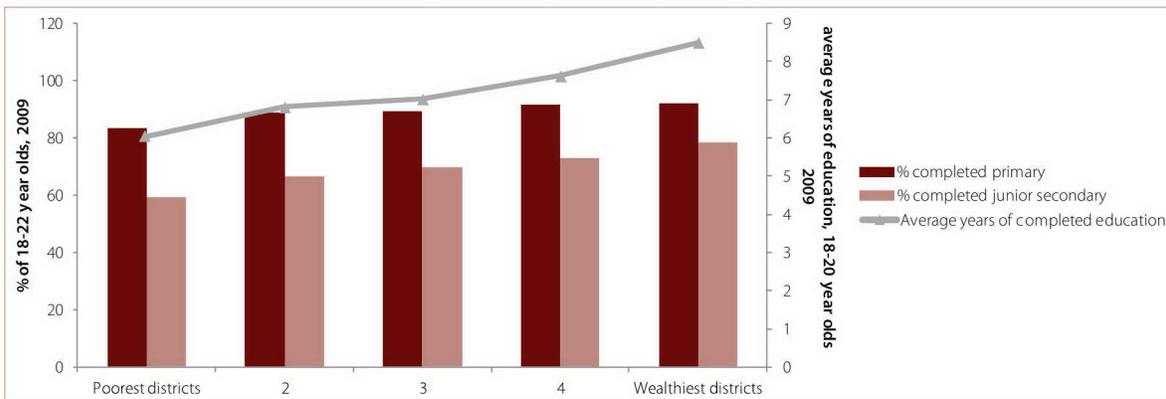
Figure 47: District disparities in junior secondary enrollment rates, 2001-2009



Notes: Districts existing in 2001 are used to calculate enrollment rates between 2001 and 2009. In cases where the original district split into two or more districts, enrollment and population data in the new districts were aggregated to compute an enrollment rate for the original/parent district. Districts were ranked by their junior secondary enrollment rate in each year and then split into five equal groups. The districts forming the bottom and top quintiles change each year.

District education outcomes are related to socio-economic differences. As one would expect, poorer districts (defined by the average per capita household consumption) tend to have poorer educational outcomes than wealthier districts. For example, in the poorest districts, 18-20 year olds have completed an average of 6 years of education compared to over 8 years in the wealthiest districts. Gaps in enrollment rates between poor and wealthy districts tend to widen as students move up the educational system. Net primary enrollment rates tend to be similar at the primary level but the average senior secondary enrollment rate for the poorest districts is 29 percent compared to 36 percent for the wealthiest districts (see Figure 49).

Figure 48: Enrollment rates for 18-20 year olds by district poverty quintile



Source: SUSENAS 2009.

Notes: Quintiles are based on district averages of monthly household expenditure per capita recorded in the survey.

These differences are important for school planning and policy responses: in urban areas, the drop-out rate is largely driven by children in the poorest quintile (in both SMP and SMA), whereas in rural areas, drop outs come from all quintiles. In urban areas, where school proximity is less of a problem and poverty is likely driving the decision to drop out, scholarships or conditional cash transfers may prove more effective than increasing supply. In rural areas, the answer is not straightforward. If the school is too far and transportation options inadequate, it may prevent students from all economic quintiles to enroll. For these students, expanding access would require bringing schools closer to their homes. If students from richer quintiles are dropping out by choice, however, the provision of information about the returns to education⁴⁴ may prove effective for keeping them in school. In all cases, additional spending will be needed to achieve a significant increase in enrollment for these students.

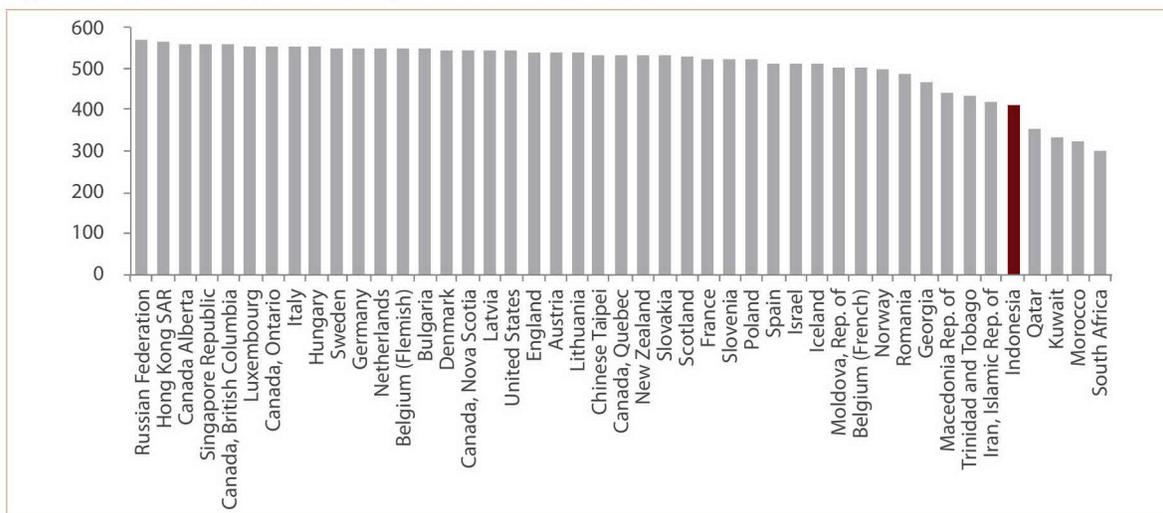
44 Jensen (2010), The Perceived Returns to Education and the Demand for Schooling

Learning Outcomes⁴⁵

Indonesia has national examinations upon completion of each level of education, but results are not comparable across years. Analyzing trends in learning outcomes across years relies on international tests. Indonesia participates in several international student assessments, including the International Association for the Evaluation of Education Achievement (IEA)'s Progress in International Reading Literacy Study (PIRLS), which was administered in 2006 and 2011, and the Trends in International Mathematics and Science Study (TIMSS), carried out since 1995 every four years, with the latest in 2011.⁴⁶ Indonesia also participates in the Organization for Economic Co-operation and Development (OECD)'s Program for International Student Assessment (PISA), which has been carried out every three years since 2000, and assesses 15-year-old students on reading, mathematics, and scientific literacy.

On both PIRLS and TIMSS, which measure the competencies of 4th and 8th graders, Indonesian students have performed significantly worse than the international average of 500 (Figure 50). In 2006, nearly no Indonesian students reached the “advanced” level of reading and comprehension in PIRLS. Less than 20 percent reached the intermediate level, while nearly half did not reach the “low” level. **On TIMSS**, Indonesian 8th graders’ math proficiency was also low, and Indonesia ranked 37th of 50 countries, behind Malaysia (21) and Thailand (30). Nearly no Indonesian students reached the “advanced” level, and less than 20 percent reached the intermediate level. What is particularly alarming is that 52 percent of Indonesian students did not reach the “low” level of proficiency, at which students have a rudimentary understanding of whole numbers, decimals, and basic computations. In comparison, fewer than 10 percent of students from high performing countries such as Korea, Japan or Singapore, failed to reach this level.

Figure 49: Indonesian 4th-Grader performance in 2006 PIRLS



PISA results confirm this low performance in international tests. Indonesia is below its East Asia Pacific neighbors in PISA, both in Math and Reading. A majority of students did not achieve beyond a rudimentary level of proficiency in reading, math, and science. In 2009, 94 percent of Indonesian students reached only level 2 or below (out of 6 levels), and 44 percent fell below level 1. In science, around 93 percent of Indonesian students fell below level 2, with about a quarter falling below level 1. In reading, 88 percent of students reached only level 2 or below.

45 This section is based partly on Chapter 2 of the forthcoming report “Broadening Life-Long-Learning Opportunities in Indonesia,” by the World Bank, which presents a broader picture of education quality.

46 TIMSS assesses both grade 4 and grade 8 students. Indonesia only participated in grade 8 assessments. 1995 Indonesian data is incomplete for reporting. 2011 PIRLS and TIMSS data have not been publicly released yet.

Figure 50: Indonesian 8th-Grader math performance in 2007 TIMSS

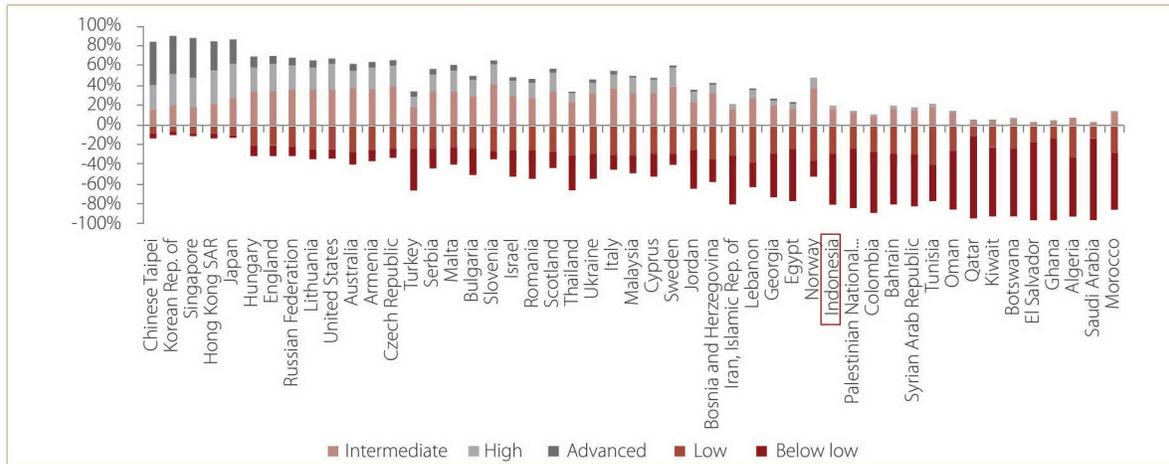
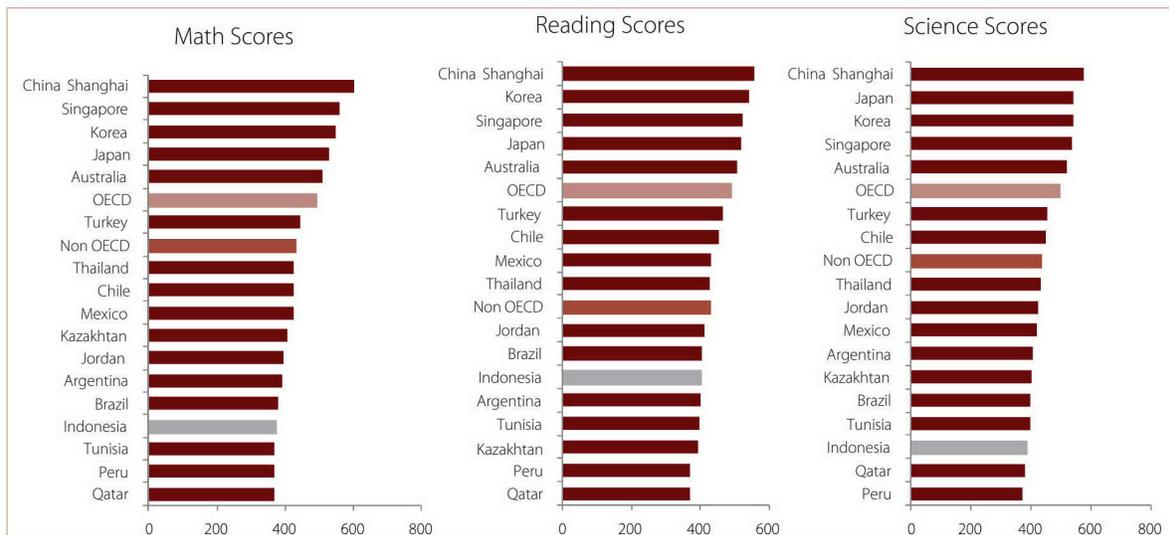


Figure 51: 2009 PISA results in reading and mathematics



Source: PISA, OECD

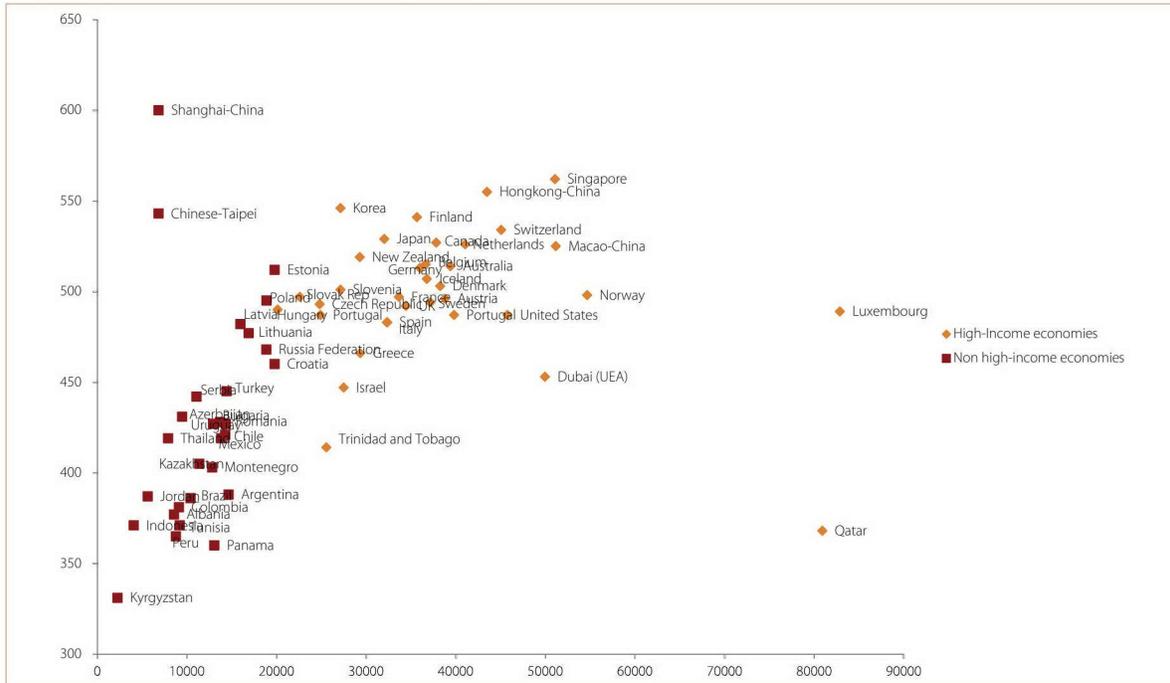
Indonesian students' performance on PISA is consistent with its level of income. When mapping PISA results to GDP per capita, the correlation between the two is clear: non-high-income countries tend to have lower scores, and for those countries the score is highly correlated with per capita GDP (there is no correlation for high income countries). Indonesia is right over the trend line for non-high income economies. As mentioned earlier, Hanushek and Wößmann (2007) have provided convincing evidence that the quality of education has a causal effect on economic growth, so while the relative position of Indonesia given its GDP per capita is not alarming, the need to improve learning outcomes is nonetheless pressing.

In addition to the low average score, the distribution of Indonesia's scores is particularly narrow. This means that the bulk of students score below basic levels of competency and that the share of top performers is extremely low. While inequality is clearly not a desirable goal in itself, recent evidence shows that the distribution of scores matters at least as much as the average score for economic growth.⁴⁷ The share of students scoring above 600 has a separate effect from the share above the minimum achievement level, and

47 Hanushek and Wößmann (2007), Pritchett (2009), Pritchett and Viarengo (2009).

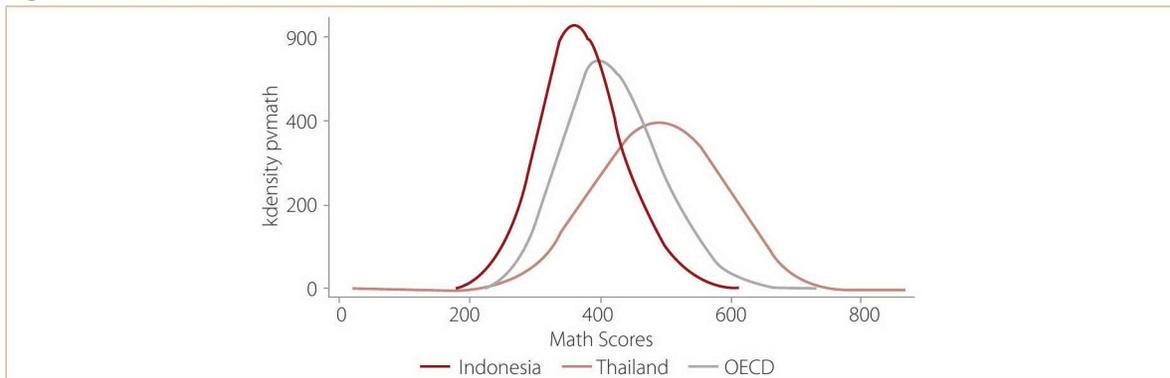
the effects are large, especially in poorer countries.⁴⁸ The share of Indonesian students at that level in math and science is zero.

Figure 52: PISA math score vs. GDP per capita



Source: PISA (2009) and World Development Indicators; Note: China's GDP per capita is used for Shanghai.

Figure 53: Distribution of math test scores Indonesia, Thailand and OECD, 2009



Looking at trends, the improvement in reading is good, but the trend in math and science is disquieting.

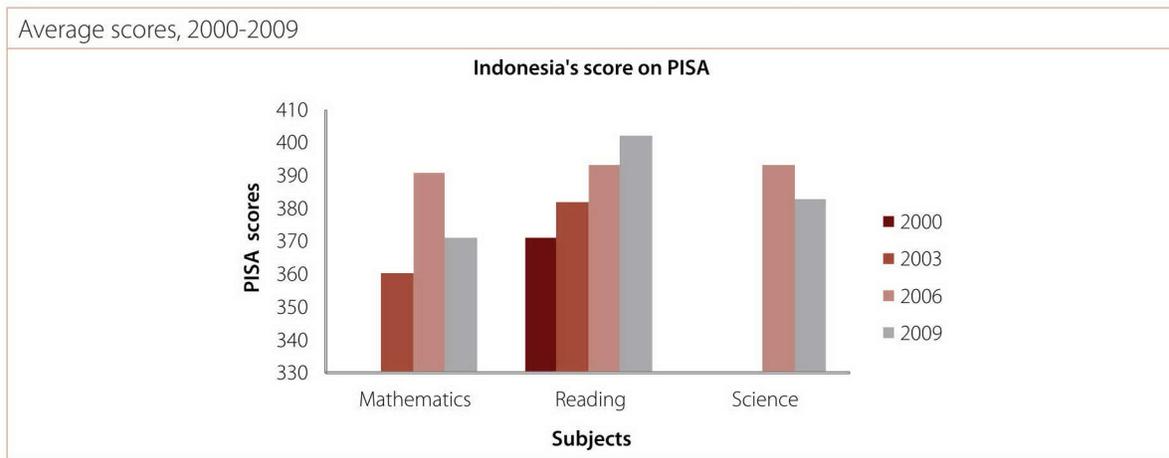
Science scores have not increased since 2000 and seem to have decreased in 2009. Math results also decreased in 2009, after improving significantly in 2006. Half of students fall at level 1 and below defined as being “able to identify information and to carry out routine procedures according to direct instructions in explicit situations.” What these students have not achieved (defined as level 2) is the capacity to “employ basic algorithms, formulae,

⁴⁸ The authors use features of the education system as an instrument for cognitive achievement, so the results can be interpreted as causal: i.e the share of high performers causes economic growth (subject to the usual discussions on the validity of the instrument).

procedures, or conventions” or to “interpret and recognize situations in contexts that require no more than direct inference,” let alone more sophisticated reasoning methods. Since 15 is still an age at which many students leave school in Indonesia, the fact that so few students can go beyond carrying out routine procedures is worrisome.⁴⁹

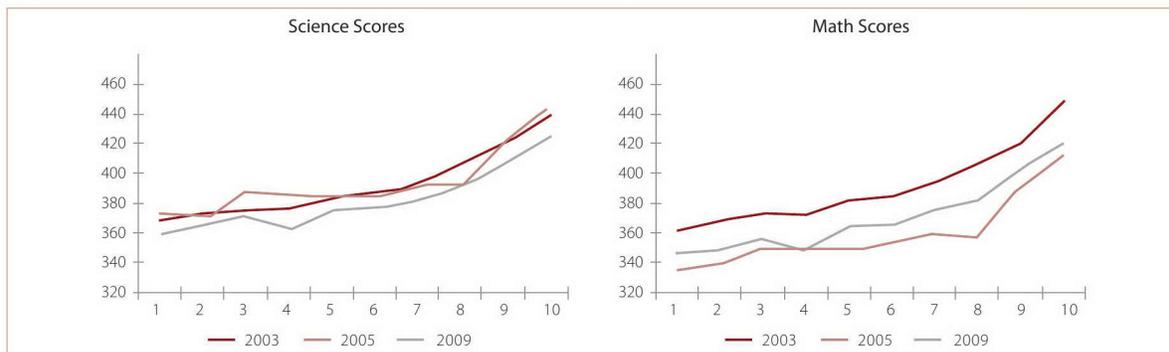
The differences in trends are similar across socioeconomic groups: math scores decreased for all socioeconomic deciles between 2006 and 2009. The differences across socioeconomic deciles are very sharp, with those in the lowest decile scoring 350 and the richest decile 420. However, even the richest students are significantly below the OCED average (500). These differences have not changed since 2003. A comparison between 2006 and 2009 shows declining scores for all socioeconomic deciles.

Figure 54: Indonesia PISA scores in mathematics, reading and science, 2000-2009



Source: OECD, PISA

Figure 55: Indonesia PISA scores in science and math by socioeconomic deciles, 2000-2009



Source: PISA 2009 (weighted averages by decile)

In summary, this chapter has shown that while access and equity have improved significantly in the last decade, quality has remained low by international standards. High inequalities remain in access by income level, especially in higher education (Figure 57). In addition to the challenge of increasing access for poor or remote students to senior secondary and higher education, improving the quality of education is a priority. And the growth needed is two-fold: raising the performance of the bottom of the distribution and increasing the number of high-achievers, which is extremely small in Indonesia.

49 See Chen (forthcoming), SSS ESW for a deeper discussion of PISA results. See “Indonesia Skills Report” and Cerdan-Infantes et al (2010) in which results from employers’ surveys highlight concerns with the level of basic skills of recent graduates.

This disparity in the observed trends in resources, access and quality leads to the obvious question: did the increase in resources yield the expected outcomes? The next section argues that, despite improvements in access, the answer is largely *not yet*. The expected outcomes have not yet been achieved and will not be achieved giving current spending patterns. Getting better results from current spending is possible, however, through increased efficiency and improving the quality of spending – which is the subject of the next chapter.

Figure 56: Summary of progress, challenges and highlighted Gol objectives in education, 2010

Progress	Challenges	Highlighted RESNTRA Objectives
<p>Access:</p> <ul style="list-style-type: none"> • Big increase in enrollment rates in ECD and secondary • Smaller increase in access to higher education <p>Equity:</p> <ul style="list-style-type: none"> • Most of the increase in access came from poorer backgrounds and rural areas <p>Learning:</p> <ul style="list-style-type: none"> • Reading scores have improved 	<p>Access:</p> <ul style="list-style-type: none"> • Slow growth in higher education <p>Equity:</p> <ul style="list-style-type: none"> • Still high drop-out in senior secondary for the poor • Only 5 percent of the poorest quintile make it to higher education • Large regional differences in ECD, secondary and higher education <p>Learning:</p> <ul style="list-style-type: none"> • Low performance in math and science, worse in 2009 than in 2006 • Failure of the top performers to reach high levels by international standards 	<p>Access:</p> <ul style="list-style-type: none"> • ECD: GER of 73% by 2014 • Primary: 119% by 2014 • Junior secondary: 110% by 2014 • Senior secondary: 85% by 2014 • Higher education: 30% by 2014 <p>Equity:</p> <ul style="list-style-type: none"> • Transition rate from primary to junior secondary is 97% and maximum drop-out rate of 1% by 2014 • Maximum drop-out rate in secondary: 1.69% by 2014 <p>Quality:</p> <ul style="list-style-type: none"> • Minimum share of certified teachers in junior and senior secondary: 90% by 2014 • Minimum share of accredited study program in higher education: 90% by 2014

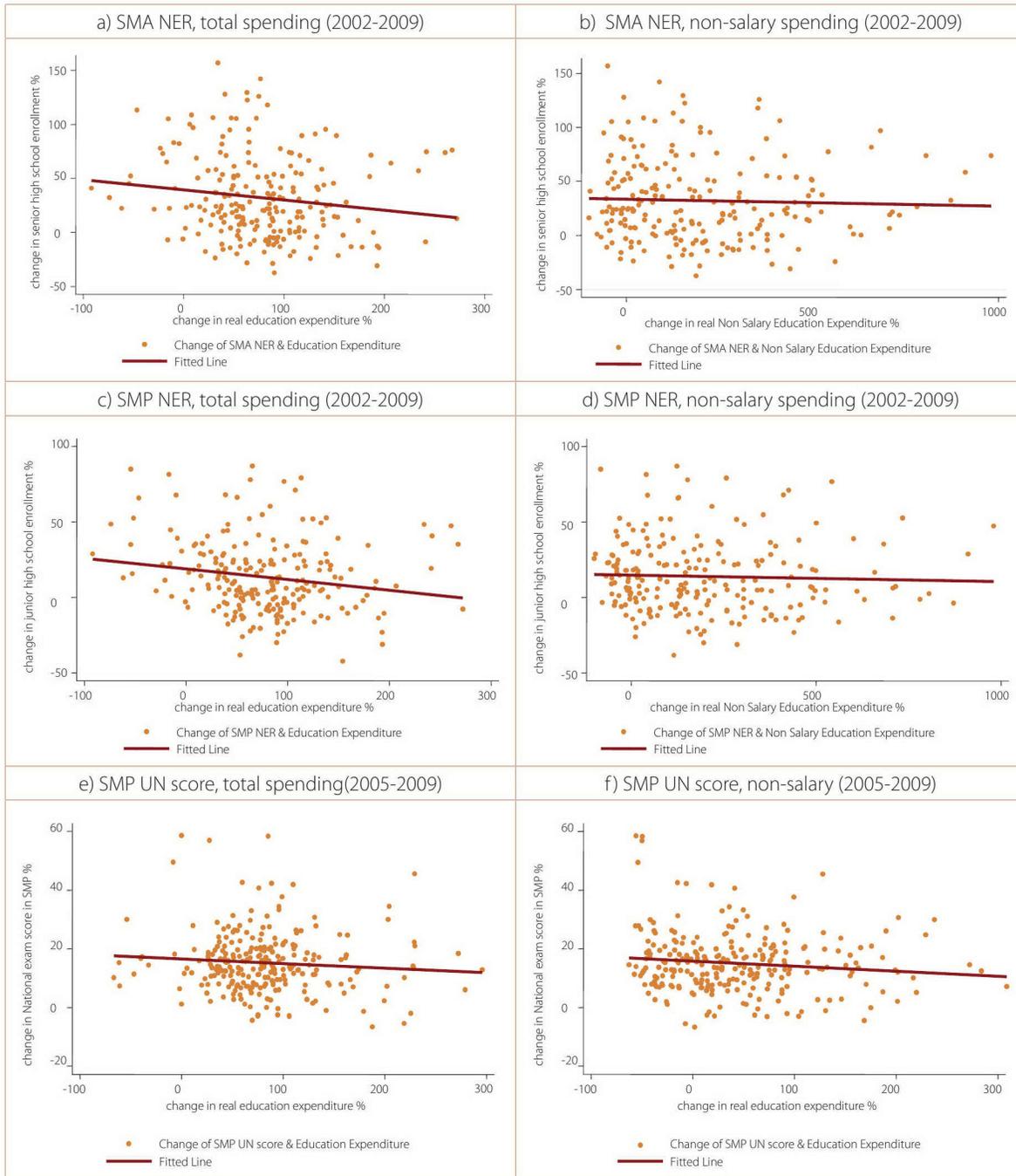
Source: Own elaboration and MoEC RENSTRA

Linking resources to outcomes: Is it only a matter of time before resources improve quality of education?

After such a rapid increase in education spending, one might expect a delay before educational quality improvements become apparent. As we saw in chapter 2, the biggest jump in spending occurred in 2009, the same year for which we have the latest data on learning outcomes from PISA. So it is fair to assume that this large increase had not yet affected instruction meaningfully by the time the PISA test was administered. Education spending had been increasing in the years prior to 2009, but not at the same rate. Declining math and science results are a source for concern even without considering the effect of the 20 percent rule. But is it possible to test if these increased resources will lead to improvements in outcomes?

As we saw in chapter 2, most of the additional resources from the 20 percent rule went to teacher hiring and certification, coupled with an increase in district spending as a share of total educational spending. Whether the resources will translate into outcomes in the future is largely dependent on whether these expenditure patterns are correlated with learning outcomes. If district spending is correlated with better outcomes, one might expect that the trend towards more decentralization of spending towards districts will eventually lead to improvements. Similarly, if the two inputs absorbing the largest share of spending (teacher salaries and certification) are related to improved learning outcomes, one would expect the same. This section looks at these correlations separately.

Figure 57: Change in public education spending and change in education outcomes at the district level



Source: MoF SIKD (budget), Susenas (NER) and MoEC (UN exams)

District Spending and Outcomes

One way to test whether resources will translate into outcomes is to analyze the correlation between increases in district spending and improvements in outcomes. However correlating spending per student with outcomes may miss an important point: districts with different characteristics may need to spend different amounts to reach the same outcomes. So a lack of correlation in one year may not mean that district spending does not matter for outcomes. A cleaner comparison is obtained by regressing changes in resources with changes in outcomes. If district spending on education matters for education outcomes, districts that increase their spending faster than other districts should experience a faster improvement in outcomes. By looking at the rate of these changes, this comparison controls for district characteristics that are constant over time.

If we look at changes in resources versus changes in outcomes, there is no correlation between changes in total spending on education and enrollments or learning outcomes. Figure 58 plots the change in spending and the change in SMA and SMP net enrollment rates between 2002 and 2009, as well as the change in spending and the change in UN scores in SMP between 2005 and 2009.⁵⁰ The graphs show no correlation between spending and any outcomes. Total spending and non-salary spending also show no significant correlation, and the slope is actually slightly downwards in some cases. The fact that increasing spending is not correlated with improvements in outcomes means that further increases in spending will be unlikely to be associated with improved outcomes, and that outcomes may vary across districts regardless of changes in spending. This lack of correlation is worrisome, since district spending has been increasing rapidly in recent years.

Since the main determinant of differences in spending across districts is the student-teacher ratio, this lack of correlation between changes in district spending and outcomes is an indication that additional teachers do not have the intended effect on education outcomes. As we saw in chapter 2, the differences in per student spending across districts are largely driven by student-teacher ratios. Districts with lower STRs spend significantly more on education, and districts that experienced a faster increase in resources also saw their STRs decline faster. In fact, the picture of STR and outcomes at the district level looks similar to the graphs in Figure 58, suggesting there is no correlation between STR and education outcomes.

Student-teacher ratios and Learning Outcomes

We can also test the correlation at the school level by looking at school-level budgets and test score data – these results confirm those at the district level. To test whether the massive increase in resources is likely to improve quality in the future, we look at the correlation between STRs and learning at the school level. Using a representative sample of public primary schools, collected in 2010 for a study on school-based management practices,⁵¹ it is possible to correlate the student teacher-ratios with learning outcomes in mathematics and Bahasa Indonesia for 6th graders. The data set also includes school budgets with salary bills for civil servant teachers.⁵²

There is no correlation between the student-teacher ratio and learning at the school level for math or Bahasa Indonesia. Figure 57 shows the correlation between the student-teacher ratio and scores in mathematics and Bahasa Indonesia, differentiating between schools below the regulatory maximum of 32 students per teacher, and schools above. For both mathematics and Bahasa Indonesia, the correlation is close to 0 if schools are below the maximum of 32. Including schools with very large classes (above 32), turns the

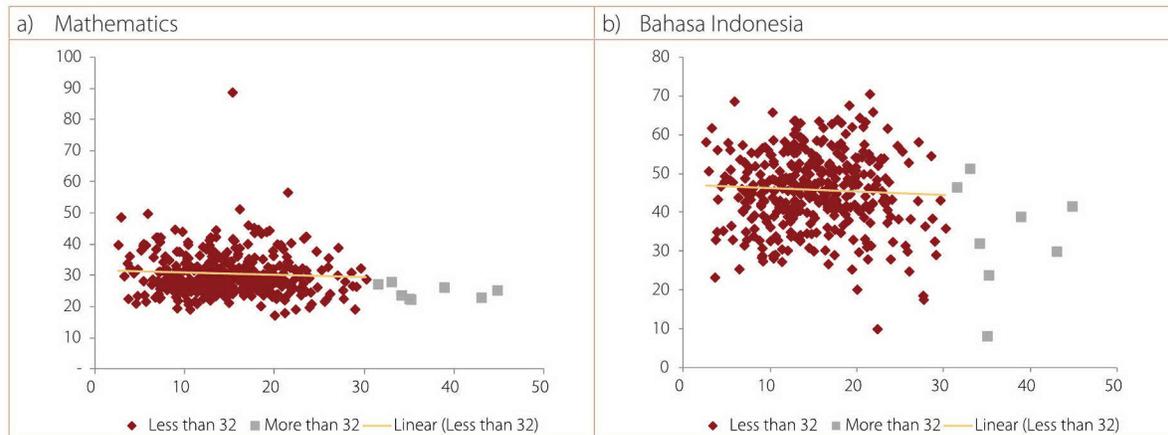
50 Since the number of districts increased dramatically, we only use the sample of districts that did not split. Consolidating splitting districts does not change the correlations (not shown).

51 World Bank –RAND 2010 SBM Survey. See “School Based Management in Indonesia,” Chen (2011).

52 Civil servant teachers are not paid out of the school budget, but they are recorded in it. The questionnaire included a section for salaries, but only half of schools filled it out. For the other half, we use the total number of teachers to estimate the salary bill, a method that proves adequate to predict salary bills for schools for which we have teacher salaries.

correlation negative only for Bahasa Indonesia and only due to outliers.⁵³ This is consistent with existing literature on the effects of class size on learning, which shows little or no effect unless classes are too large.⁵⁴ It seems clear that increasing the number of teachers given the distribution of teachers in Indonesia is unlikely to lead to improvements in quality, unless they are targeted to severely understaffed schools with more than 32 students per teachers.

Figure 58: Student-teacher ratio, per student spending and Bahasa Indonesia test scores in public primary schools



Source: School Based Management Survey, World Bank-RAND (2010)

These analyses suggest that the drastic increase in resources in 2009 spent on the growing number of teachers will not necessarily lead to better learning outcomes and that it is not “only a matter of time.” Indonesia needs to spend differently to improve education quality. If the large increase in spending was channeled mainly to hiring additional teachers or converting contract teachers to civil servants, and more teachers does not lead to improved outcomes, it is unlikely that time will improve outcomes. Furthermore, we have seen that something in the system biases spending toward increasing the number of teachers, so simply increasing spending may lead to yet more teachers hired with no effect on learning.

Teacher Certification and Learning Outcomes⁵⁵

Given the large share of the budget spent on teacher certification, ensuring that this program ultimately increases student learning is a vital way to improve the quality of spending. The national teacher law passed in 2005 mandated that all teachers should be certified by 2015. As of 2012, about 35 percent of all teachers have been certified, and the program is currently absorbing about 9 percent of the education budget. As originally planned, all teachers would have been required to have a university bachelor’s degree and have gone through process to certify their competencies. Upon graduation, teachers would be eligible for the “professional certification”, which would ensure the proper competencies and afford a significant pay raise equivalent to the base salary. During the implementation, however, the Gol opened another route to certification, based on teachers’ “portfolio”: teachers with enough experience and a portfolio of training, workshops and other learning activities could access certification without the coursework. So far, this has been the most common route to certification.

53 OLS regressions controlling for observables (school characteristics, principal and teacher education and experience, and district fixed effects) confirm these findings.

54 See Hyunkuk, Glewwe and Whitle (2010), Hoxby (2000), Jepsen and Rivkin (2009)

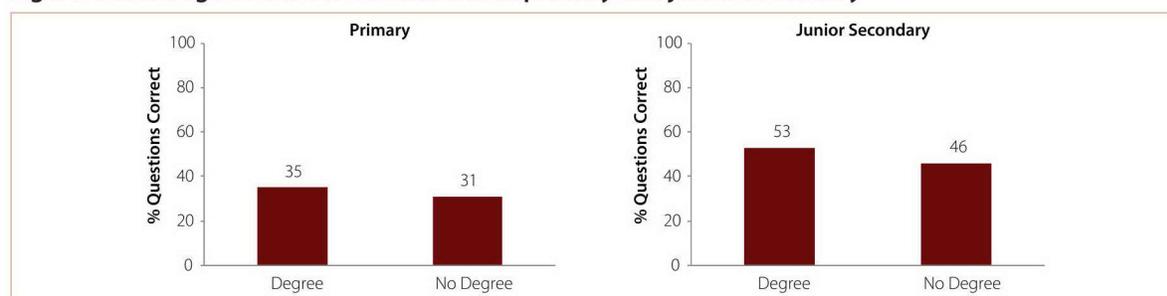
55 This section is based on De Ree (forthcoming) “Teacher certification in Indonesia: A doubling of salary, or a way to improve learning?” World Bank, Jakarta.

The certification program was meant to improve student learning by upgrading teacher qualifications, increasing teacher motivation, and attracting better qualified people into the profession. First, requiring a bachelor's or S1 degree and the certification training program were intended to upgrade qualifications. Second, it was noted that teachers usually held second jobs, which may have partly explained high rates of absenteeism; the increased salaries associated with certification were meant to improve teacher livelihoods so they could be dedicated to teaching exclusively in one school. In order to support this, a minimum teaching load of 24 hours was required to be eligible for certification. Finally, by increasing the salary potential, the program intended to attract better students into teaching, which will in the long run improve the quality of education.

To evaluate the progress and impact of teacher certification, a rigorous impact evaluation study has been taking place since 2009. The study includes extensive data collection with the overall objective of evaluating the effects of certification on student learning: all together, the study will rely on three rounds of data collected from 240 public primary and 120 junior secondary schools, including the testing of students and teachers in mathematics and Bahasa Indonesia. The first round of data was collected in November 2009, the second round in March 2011, and a final round in April 2012. This report discusses some of the findings from baseline and midline data, since the final round was not yet available for analysis at the time of this writing. Results from the baseline and midline survey are available, but must be interpreted with caution – the final report, including additional data collection, will only be available in 2013.

The first message from the evaluation is that on average teachers perform badly on subject matter tests, and that teachers who hold an S1 degree perform only marginally better than teachers with less education. On a test to measure the basic competencies of teachers (deemed necessary as a basis for effective teaching) and designed by the government institution responsible for educational assessment in MoEC (Puspendik), primary school teacher test scores averaged about 33 percent. Teachers with an S1 performed slightly better, at 35 percent. Scores improve at the SMP level, with teachers getting about half of the questions right. S1 holders scored only marginally better than those without an S1 degree (53 percent to 46 percent). Two lessons can be drawn from these results: that the competencies of teachers are low, and that teachers holding an S1 degree might not yield the expected results for quality of education. Indeed, the results suggest that an S1 is by no means a guarantee of teacher competency or knowledge of subject matter. And given that most certified teachers were certified on portfolio, it is unlikely that certification alone has led to improvements in their abilities.

Figure 59: Average test scores for teachers in primary and junior secondary



Source: De Ree, 2012

In terms of impact, the study finds evidence that certification improved the livelihoods of teachers, drastically reducing the number of teachers that hold second jobs. Taking advantage of the randomized design of the evaluation, table 4 charts the local average treatment effects of certification, showing the control group average (non-certified teachers) and the change in the average associated with certification on a number of variables.⁵⁶ Generally, the coefficients of the effect of certification are small, except in two areas: receiving a professional allowance and holding a second job. Indeed, the probability of getting a professional allowance

⁵⁶ For a full methodological explanation, see De Ree (forthcoming)

increases and the probability of reporting financial struggles is greatly reduced with certification. Meanwhile, teacher certification drastically reduces the probability of holding a second job, from an average of 33 percent among non-certified teachers to a mere 7 percent for certified teachers. Thus it seems clear that professional certification has a significant impact on teacher's livelihoods.

Table 5: Local average treatment effect of teacher certification - selected variables

	Control group average	Causal effect of certification	t-stat	N
Teacher SD test score	0,33	0.04	0.81	1663
Teacher SMP total score	0.53	-0.02	-0.34	1392
Being KKG/MGMP member	0.93	-0.04	-0.57	3117
Total pay, excluding professional allowance (in million Rp.)	2.48	-0.38	-1.13	3109
Having a second job	0.33	-0.26 ***	-2.70	3117
Teaching hours this school	22.76	2.48	1.13	3116
Teaching hours in other school	1.44	0.16	0.13	3117
Absent at least once last week (self-reported)	0.13	-0.03	-0.32	3116
Professional allowance (in million Rp.)	0.57	2.38 ***	15.23	3114
Self-rated problems with supporting household financially	0.49	-0.40 ***	-4.39	3116

Control group averages, causal effect of certification (local average treatment effect). All regressions are uncontrolled. Standard errors are clustered at the school level. *** means significant at the 1 percent level.

On the other hand, certification shows no significant impact on learning outcomes. This failure of certification to improve learning outcomes may be partly due to the insignificant effect of certification on teacher test scores, as observed in table 4. When looking at scores in math and Bahasa Indonesia at both SD and SMP, the difference in scores between students of non-certified teachers and students of certified teachers is not significant on any test at any level. The effects of certification on learning, at least in the timeframe of this evaluation, do not seem commensurate with the high cost of the program. However, given the short-term span of the evaluation we cannot yet assess the longer-term effects of the program, which should attract better people into teaching.

Table 6: Causal effects of certification on student learning outcomes

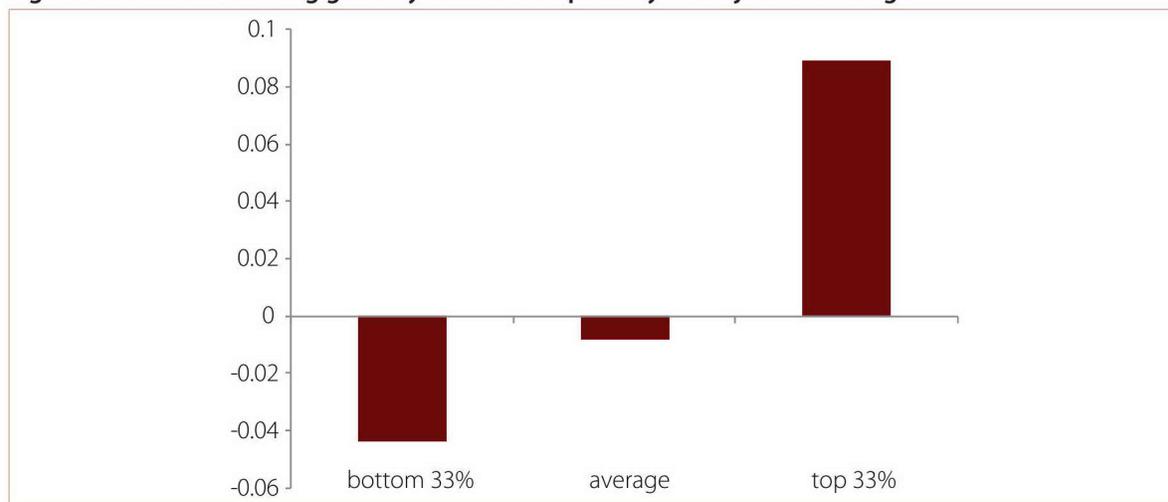
	Causal effects of certification	Standard error	N
Math SD	0.08	0.16	35,536
IPA SD	-0.02	0.16	35,470
Indo SD	0.03	0.18	35,525
total SD	0.05	0.18	35,162
math SMP	0.02	0.34	39,134
IPA SMP	-0.07	0.43	39,531
Indo SMP	-0.05	0.17	39,451
Engl SMP	0.19	0.46	37,869

TABLE 1. Causal effects on standardized student test scores. Local average treatment effects (controlled for baseline scores and district dummies. For classes without baseline scores, baseline scores are set at zero, and controlled for with a dummy).

Teacher subject knowledge matters for learning: teacher certification should target subject knowledge.

When teachers know the subject they teach, the gains in test scores for their students is larger.⁵⁷ Teachers who scored in the top third in the teacher subject knowledge test in the baseline saw their students’ scores increase by 0.08 standard deviations, while teachers who scored in the bottom third, decrease scores by 0.04 standard deviations. This result is consistent with previous studies in Indonesia, which have shown that both subject knowledge and pedagogical knowledge are correlated with student learning. Unfortunately, teacher certification as it was implemented, with a majority of teachers being certified through portfolio certification did not address subject or pedagogical knowledge and thus did not result in improved learning outcomes.

Figure 60: Student learning gains by teacher competency in subject knowledge



Source: De Ree (forthcoming)

While the teacher certification program was well-intentioned and well-developed at its inception, the implementation gave space for ineffective paths for certification.

The introduction of “portfolio certification” allowed teachers with a certain number of years of work experience and prior training or workshops completed to receive a waiver on other certification training requirements. The evidence presented in this section suggests that this was not an effective method of certification. The pass rate for these teachers is nearly 100 percent. A process of assessment and targeted training, as well as periodic re-certification or review, might provide options to improve the program.

The two biggest spending categories (adding teachers and teacher certification) do not show effects on learning. But if adding more teachers does not lead to better outcomes, what does? Next chapter looks at this issue in detail.

57 As De Ree (forthcoming) points out, these value added regressions suffer from mean-reversion bias, which can be sizeable. The magnitude of the effects is unlikely to be driven completely by this bias. See De Ree (forthcoming) for results when attempting to control for this bias.

Chapter 4:

Improving the Quality of Spending on Basic Education

Improving the quality of spending means turning resources into outcomes more efficiently. For a certain level of spending, this means increasing access to schooling and improving the quality of education. International experience shows that this is easier to do for access than for quality. Indeed, this has been the case in Indonesia. As resources have increased, equity and access have improved but quality of education has not. In effect, in Indonesia, improving the quality of spending means improving learning outcomes without necessarily increasing resources.

Countries have proven to be successful at keeping children in school through a variety of policies (school building, scholarships, conditional cash transfers). As we have seen, Indonesia has successfully implemented many of these policies. Access to basic education has been made virtually universal through a massive expansion in school building and the provision of block grants to schools to lower the cost of education. At the same time, the country also provides scholarships to the poor and a small conditional cash transfer (PKH). However, access to senior secondary and higher education remain a challenge. The low level of resources allocated to senior secondary education seems to indicate that access could be improved at that level. Similarly, the scholarships for the poor program (BSM), as we will see, suffers from problems that limit its effectiveness. Thus there is still room for improvement when it comes to increasing access by improving existing policies in a relatively straightforward manner.

Learning outcomes, on the other hand, are more elusive. This is true not only in Indonesia, but around the world. A recent World Bank-UNESCO joint publication on “Strengthening Education Quality in East Asia” notes that “Low- and middle-income countries in East Asia have made considerable progress toward achieving universal primary education, but quality remains a challenge.” As has been the case in Indonesia, the study shows that increasing spending has not systematically resulted in improvements in learning outcomes, but that “in many countries, it has coincided with a decrease in quality.” Indonesia is not alone in its elusive quest for quality.

Recent evidence shows that *system* reforms have the strongest impact on educational quality. There is no straightforward answer on how to improve the quality of education. Countries that have made rapid advances in learning outcomes do so through systemic educational reforms. The financing of the system, the management of teachers and the promotion of school-base management, among other dimensions, all have impacts on learning outcomes.

This chapter focuses on three critical systemic issues that can improve how spending translates into access and educational quality: strategic expansion of the centrally-administered Scholarships for the Poor program (BSM), improving district-level teacher management and improving district spending. Chapter 2 highlighted the need to increase spending on ECD and senior secondary education: one way to

achieve this goal is through strategic expansion of the BSM program (Scholarships for the Poor), the first focus of this chapter. Next, as seen in chapters 1 and 2, despite being formally in charge of managing both teachers and schools, district governments spend most of their resources on salaries. Improving teacher management is therefore crucial to liberating the necessary resources for districts to support schools more intensely. Thus the second and third sections focus on improving teacher management.

On teacher management, this chapter provides evidence of the magnitude of the inefficiency and inequality introduced by the current distribution of the teaching force, as well as its consequences for equity and quality of schooling. Teacher management is the direct responsibility of district governments but is to a large extent influenced by central government regulations and the incentives associated with transfers. Our focus, therefore, is on the overall financing system. While recommendations on general teacher management (from pre-service to career management) are beyond the scope of this report, this chapter provides some considerations for how to improve teacher management in terms of efficiency and distribution.

With regard to district management and support of schools,⁵⁸ this chapter looks at one of the most innovative government programs in education: the provision of funding from district governments to schools in block grants. The “BOSDA” (Bantuan Operasional Sekolah Daerah, local school grants) program is one of the main tools districts have to support schools; it is similar to BOS, but experiments with different formulas and provides more intensive support and supervision. Taking advantage of a rich dataset for a nationally representative cross section of schools, this section draws some conclusions about the effectiveness of the program and the implications for improving school-based management. The last section seeks to tie together various lessons to offer possibilities for improving district management.

Improving and expanding existing programs: Scholarships for the poor⁵⁹

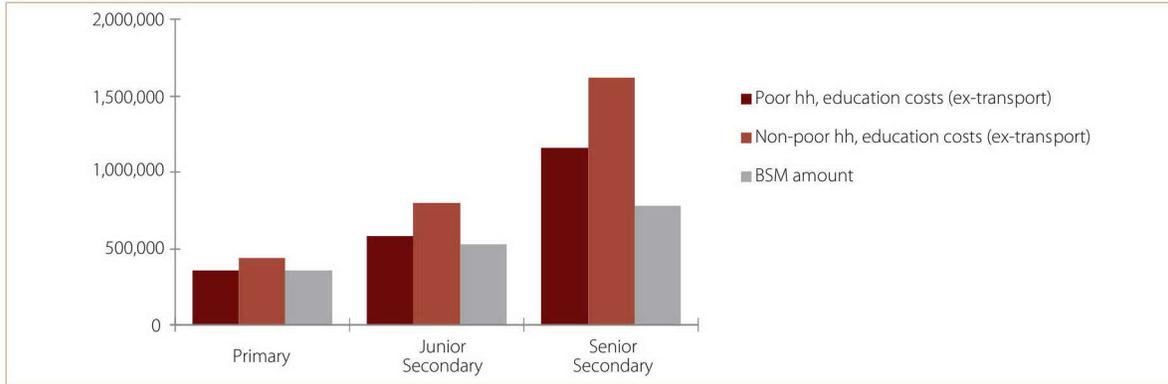
Scholarships for the poor are critical to increasing enrollment. Poor household education expenditures are larger than expected and are particularly expensive for junior and senior secondary students, resulting in alarmingly high drop-out rates, mostly during transition years. Currently, the *Bantuan Siswa Miskin* (BSM) program is limited in its ability to provide real protection or incentives for continuous education to poor and vulnerable households.

Problems with BSM are related to the amount of the scholarship, the timing of disbursement and its poor targeting. BSM amounts are not commensurate with the true costs of education, especially in senior secondary education (Figure 62). BSM cash benefits are typically received one year or more after a child has enrolled in and attended a grade; BSM is unavailable to most eligible students who are making the transition from primary to junior secondary or from junior to senior secondary; and BSM is one of the least-progressively targeted social assistance programs in Indonesia, meaning that non-poor and non-vulnerable households have received nearly an equal share of total BSM benefits as poor and vulnerable households. Furthermore, only a very small portion of total BSM expenditures are used for safeguarding and support operations, such as targeting, socialization, facilitation, monitoring and evaluation, and complaints and grievances, leading to under-provision of most of the activities and services that could help more households and educators use the BSM system more effectively.

58 Bruns, Filmer and Patrinos (2011), *Making Schools Work: New Evidence on Accountability Reforms*

59 This section is based on the executive summary of Alatas and Jellema (2012), “Cash Transfers for Poor Students,” background paper for the report on *Protecting Poor and Vulnerable Households in Indonesia* (World Bank 2011). The cost calculations, not included in the cited paper, were carried out in conjunction with the authors of the background paper.

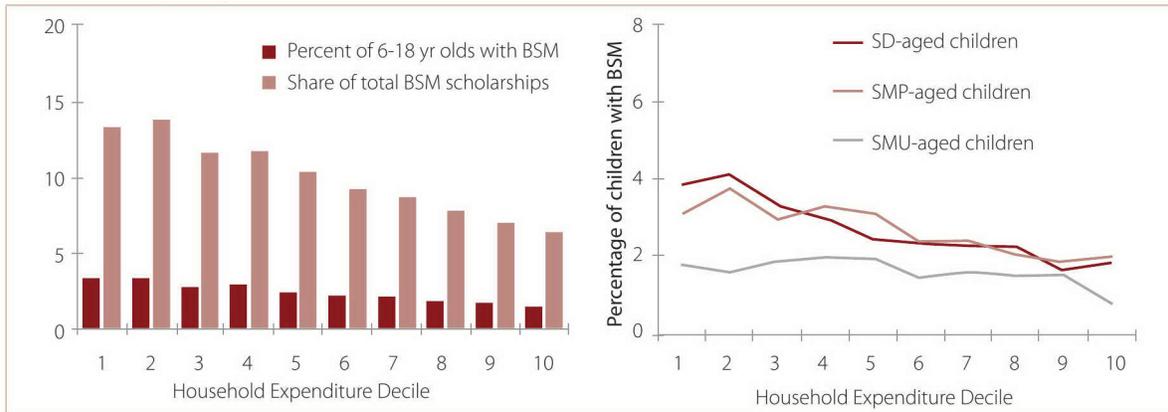
Figure 61: Education costs vs BSM amount, 2009



Source: Alatas and Jellema (2012) using Susenas and MoEC

The BSM program is national in scope but reaches few students overall and does a poor job of identifying poor students. In 2009, program coverage (through the senior secondary level) was still small at 2.3 percent of all 6 to 18 year olds in Indonesia. From basic to higher education, the program covers about 3 percent of students. However, students from the poorest 40 percent of households account for only about half of all BSM scholarships (and half of all rupiah distributed through the BSM program) while middle-class and richer households in the top 60 percent capture an equal 50 percent of all BSM scholarships.

Figure 62: Targeting of BSM



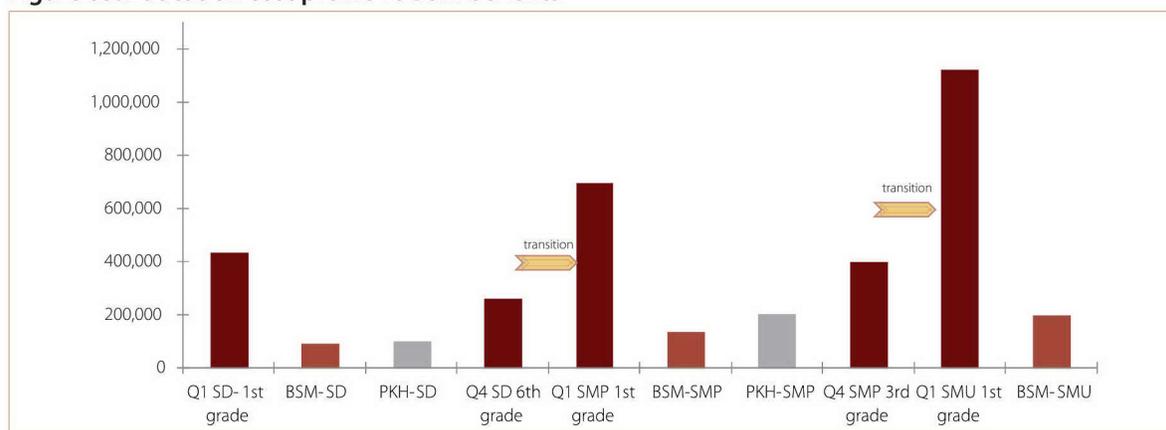
Source: Alatas and Jellema (2012) using Susenas and MoEC

BSM does not target those who are unfamiliar with the school system and its administrators. BSM initiatives typically identify potential scholarship recipients by soliciting nominations from schools and school committees. Students nominated must have already achieved consistent attendance and demonstrated “good behavior,” as confirmed by the principal. Recently enrolled students or prospective new entrants have little chance of being selected; likewise, those who have not made themselves known to the principal are unlikely to be selected. Households cannot nominate their own children and there is currently no formal appeals process.

BSM does not effectively address difficult and costly transition periods – between elementary and junior secondary, and again between junior and senior secondary – when the overwhelming majority of drop-outs occur. Complex verification procedures plus slow rates of disbursement together mean that recipients typically receive a BSM transfer for their first schooling year only after their second schooling year has already

started. The BSM program does not distribute scholarships for the final grades of any schooling level (the sixth year for elementary and the last semester of the third year for junior and senior secondary) since BSM is not integrated across primary, junior secondary, and senior secondary education providers or across the sub-directorates in MoEC and MoRA in charge of those levels of schooling. The result is that BSM transfers are not available for poor students as they transition to junior and senior secondary school and that scholarships for the first year in the post-transition, higher-level school are delayed until the following year. As education expenditures rise steeply between education levels and are always greater at the beginning of the registration period (at any school level), that BSM cannot facilitate expenditures during these periods is doubly unfortunate.

Figure 63: Education cost profile vs BSM benefits

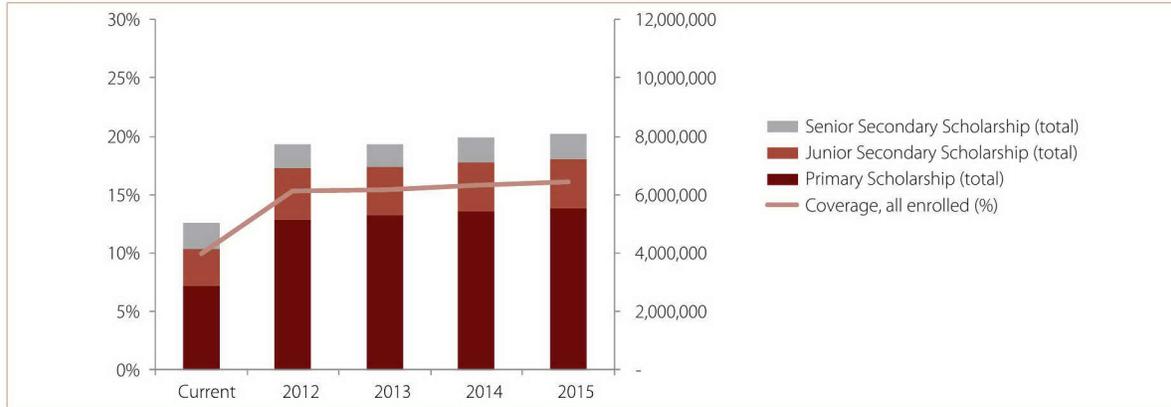


Source: Alatas and Jellema (2012) using Susenas and MoEC

Reforming BSM means increasing the total budget for the program: increasing the amount, increasing coverage, improving the targeting, aligning the disbursement of the benefit with the timing of the expenditures and possibly providing a transition bonus. The ideal scenario would cover 100 percent of the cost for all poor students from SD to SMU, providing a transition bonus for those moving from SD to SMP and from SMP to SMU. This would ensure that cost is not a reason for dropping out, and provide incentives for students when they are deciding whether to continue.

The estimated cost of this ideal reform scenario would triple the budget for BSM from 3 to 9 percent of the central government education budget. Figure 65 shows the estimated cost of covering all poor and 50 percent of near poor students, and of providing a 50 percent transition bonus between SD and SMP, and SMP and SMU. The coverage would increase from 4 percent of students to 22 percent, up to a total of 11 million scholarships. The impact on the budget would be substantial, adding an extra IDR 5 billion to the budget by 2015.

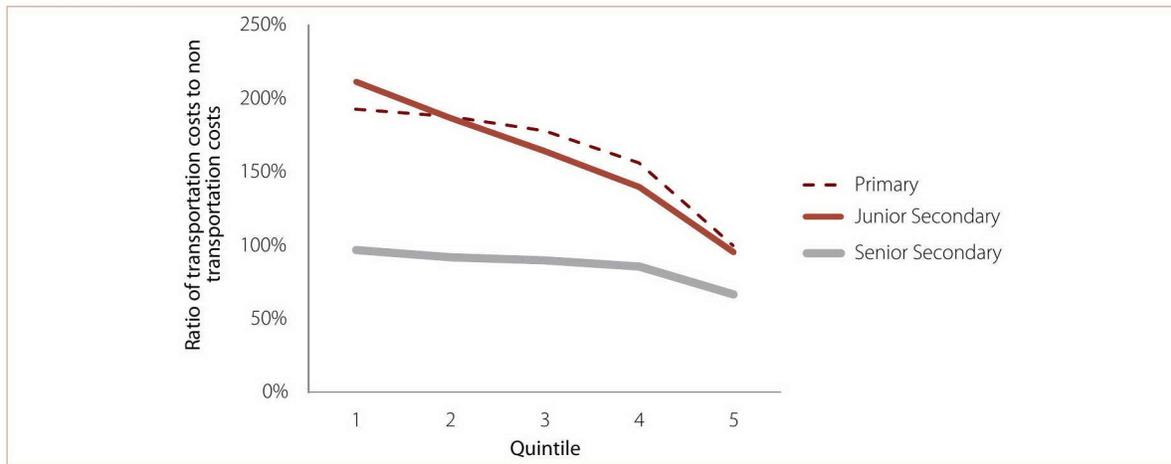
Figure 64: Estimated cost of expanding coverage of BSM to all poor, for 100 percent of education costs, 2012-2015



Source: Own calculations using Susenas and MoEC

Including subsidies for transportation would increase the amount significantly. Transportation costs represent a high share of education costs, especially for the poor. For quintile 1, in SD and SMP, transportation costs represent 200 percent of the cost of education: including transportation in the scholarship would triple the scholarship amount. For SMU, the scholarship amount would double the education cost (or triple the current amount). It is unclear, however, if this increased amount would have a significant impact on enrollment. A recent impact evaluation of a scholarship program in Cambodia showed that changes in the amount of the transfer had no significant effects on enrollment.⁶⁰

Figure 65: Estimated cost of expanding coverage of BSM to all poor, for 100 percent of education costs, 2012-2015



Source: Own calculations using Susenas, 2009

60 Filmer and Schady (2009), Are There Diminishing Returns to Conditional Cash Transfers?

Improving Teacher Management

It is clear from previous chapters that improving teacher management is crucial for increasing efficiency of spending. This section will show it is also crucial for equity and quality. The previous chapters have highlighted the fact that teacher salaries have absorbed most of the additional resources from the 20 percent rule, and that lower STRs are not correlated with better outcomes, suggesting that increasing STRs may improve efficiency without lowering quality. This section will further show that improving the distribution of teachers can have important effects on equity and quality of education. By crowding out other spending at the district level, excessive teacher hiring may be having a negative effect on learning. But how much room is there for these gains in terms of efficiency and equity, and how can they be realized in the complex governance system of teacher management in Indonesia? This section provides some estimates for the size of the efficiency gains and the magnitude of misallocation of teachers, and provides some policy options to address these issues.

Despite the low average STR at the national level, there are vast differences in the availability and qualification of teachers across schools. Student-teacher ratios are very unequal, as are the levels of teacher qualifications. For example, in 2010, student-teacher ratios in primary schools ranged from fewer than 10 to greater than 60 students per teacher. As shown in chapter 3, schools with STRs beyond 32 suffer from diminished results in Bahasa Indonesia tests. Shifting teachers from schools with low student-teacher ratios to those with high student-teacher ratios has the potential to raise overall levels of learning. Equally important are the differences in qualification. Wealthier urban areas have a higher concentration of more qualified and experienced teachers (Table 6).

Table 7: Teacher characteristics by location

	Location				Total
	Remote	Rural	Urban	Borders	
Total number of teachers with at least an S1 degree					
Primary	10,407	214,667	119,869	2,233	347,176
Junior secondary	8,789	193,255	134,468	4,288	340,800
Total	19,196	407,922	254,337	6,521	687,976
Percentage of teachers with at least an S1 degree					
Primary	14	24	38	26	27
Junior secondary	69	76	78	76	77
Total	22	36	52	46	40
Total number of teachers					
Primary	74,757	890,290	317,623	8,476	1,291,146
Junior secondary	12,757	254,721	172,044	5,642	445,164
Total	87,514	1,145,011	489,667	14,118	1,736,310
Percentage of total teachers					
Primary	6	69	25	1	100
Junior secondary	3	57	39	1	100
Total	5	66	28	1	100

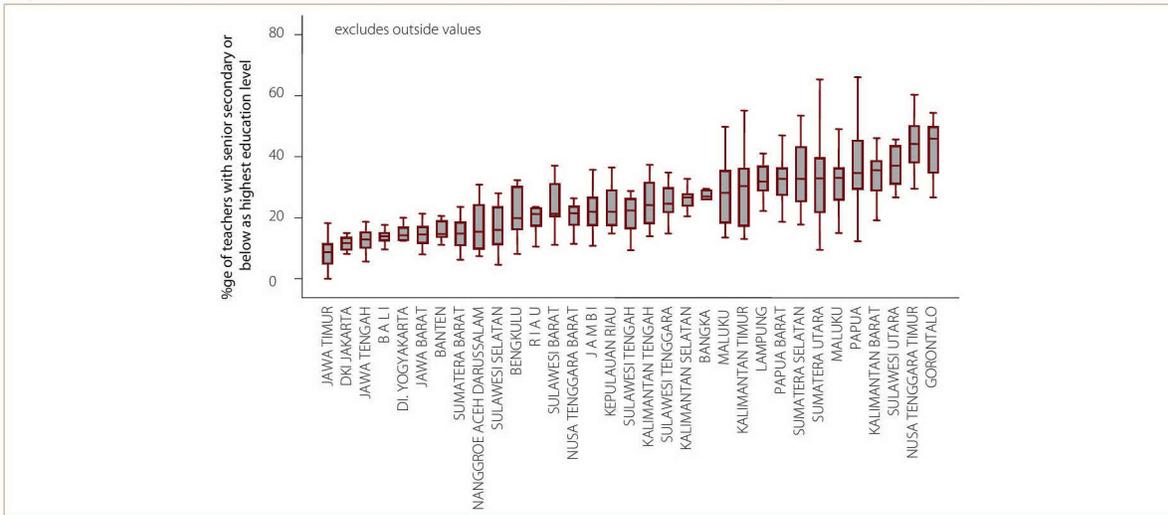
Source: NUPTK Data (2010)

Notes: Border area – on the border with another district. Remote area – BPS classification based on six criteria (economy, human resources, infrastructure, fiscal capacity, accessibility, poverty)

The regional differences in the distribution of teachers by education level are very sharp: richer districts, especially those in Java and Bali, have access to more educated teachers. The share of teachers with a senior secondary or below education is under 20 percent in all districts in Java, whereas in some districts in

Papua or Sulawesi, it reaches 60 percent. Making the distribution of teachers more equitable by ensuring that poor and remote schools have an equal share of qualified and experienced teachers might raise overall levels of learning and narrow learning disparities.

Figure 66: Share of teachers with senior secondary or less as their highest education by province, 2010

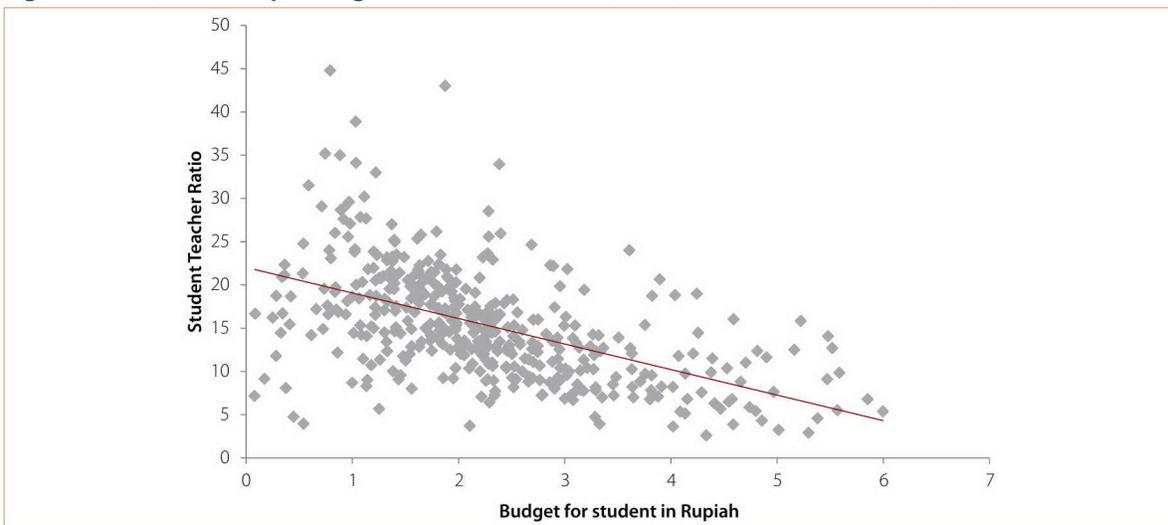


Source: Own calculations using NUPTK Data, 2010

In short, improving the distribution of teachers is a matter of efficiency, equity and quality of education.

The equity and quality issues are evident from the previous graphs. On efficiency, as we saw in chapter 2, the student-teacher ratio is the main factor when it comes to district spending on education. Districts with low STRs spend significantly more per student than districts with higher STRs. At the school level the relationship is even stronger. As implied by the trend in Figure 68, an increase in the student-teacher ratio of 5 students per teacher reduces spending per student by about one-third.

Figure 67: Per student spending and student-teacher ratios at the school level, 2010



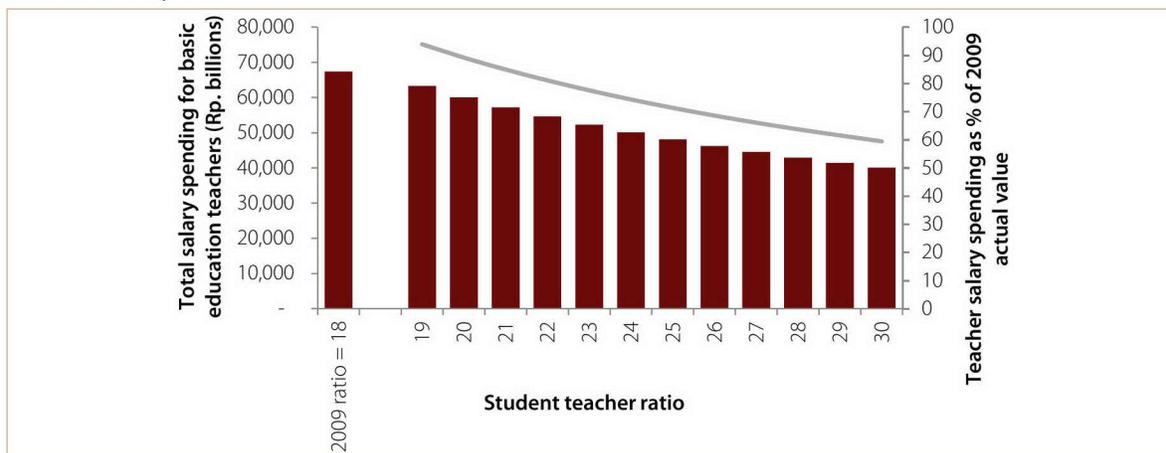
Source: Own calculations using School Based Management.

The potential for efficiency savings is large. The exact amount of potential efficiency savings from raising student-teacher ratios is hard to calculate. However, using information on the current levels of students and teachers and average teacher salaries, it is possible to estimate the teacher salary bill for different levels of the student-teacher ratio. In 2009, the teacher salary bill for basic education was IDR 67 trillion (USD 7.4 billion) and accounted for approximately a third of all government education spending. At this level of spending, approximately 2 million teachers were employed, resulting in a ratio of one teacher for every 18 students. Raising the student-teacher ratio reduces the number of teachers required for the same number of students. Holding the number of students and the average teacher salary constant, Figure 69 shows the effect on the total salary bill of raising the student-teacher ratio. Raising the student-teacher ratio to 23, for instance, a level that existed in the early 2000s, would reduce the overall teacher salary bill by IDR 15 trillion or 22 percent. Raising the student-teacher ratio to 28 students, a level similar to other lower-middle-income countries, would reduce the overall salary bill by 31 percent, equivalent to the total amount currently being spent by MoEC on university education (IDR 22 trillion).

Estimates of this kind are only illustrative: achieving savings of this magnitude in the short- or medium-term is not feasible. Strategies to raise student-teacher ratios rapidly frequently rely on hiring freezes, redundancies and redeployment. However, these are unlikely to be feasible and policies designed to raise student-teacher ratios over the medium- to longer-term need to be developed. The uneven distribution of teachers makes a hiring freeze undesirable without redistribution. For example, taking advantage of teacher retirement and making teachers more flexible through changes to pre-service training are potentially more effective strategies but take time to design and implement.

The GoI has made significant efforts to improve efficiency and equity in the allocation of teachers. The GoI has issued various regulations over the last five years that have set standards for school staffing levels (Table 7). However the staffing norms associated with each regulation are different and provide different guidance on standards. This has caused some confusion and difficulty in interpreting the regulations and has complicated the monitoring of compliance at the school, district and provincial levels. As the hiring institution, districts also issue their own regulations on staffing norms and these can go beyond the minimum staffing levels implied by national standards.

Figure 68: Estimates of government spending on basic education teachers for different student-teacher ratios, 2009



Source: own calculations based on APBDN (2009)

Table 8: Recent teacher staffing regulations

	Standards for basic education (Permendiknas No. 41/2007)	Minimum service standards (15/2010)	Technical guidelines to the joint decree (2011)
Year	2007	2010	2011
Primary education	Maximum of 28 students per learning group (rombel). Teachers must teach a minimum of 24 hours.	Maximum of 32 students per learning group (rombel). Minimum of one teacher for 32 students. Minimum of 6 teachers per school in all regions except special regions where minimum is 4.	20 - 32 students per learning group (rombel). One teacher rombel. Minimum of one sport and local content teacher per school.
Estimated primary student-teacher ratio if standards fully implemented. NB: Student-teacher ratio in 2010 was 17.5	-	19	19
Junior secondary education	Maximum of 32 students per learning group. Teachers must teach a minimum of 24 hours.	Maximum of 36 students per learning group. Minimum of one teacher for each subject except in special regions where minimum is one teacher for each cluster of subjects.	Maximum of 32 students per learning group. Minimum of one teacher per subject. Teachers must teach a minimum of 24 hours.
Estimated junior secondary student-teacher ratio if standards fully implemented NB: Student-teacher ratio in 2010 was 18	-	21	19

We can use the latest guidelines (those under the joint decree) to identify understaffed and overstaffed schools and estimate the extent of the reallocation needed for all schools to meet the guidelines. The magnitude of this reallocation can be interpreted as a measure of the inequality in teacher distribution. The joint decree (Box 2) provides guidelines for teacher allocation and makes districts accountable for meeting redistribution requirements. The guidelines clearly define the minimum number of teachers required in a school according to its characteristics. Using the latest school-level information on teachers and student numbers, it is then possible to identify which schools have insufficient teachers and which have too many. Given that reallocation within districts is easier, we first assume that excess teachers can be reallocated to understaffed schools within the same district. If there are extra teachers after this reallocation, it is assumed they will be moved across districts within provinces, and if need be across provinces. It is important to note that we are not taking into consideration the logistics or cost of such a move. This exercise is meant to show the magnitude of the reallocation needed to make teacher distribution more equal according to government regulations. The results should be interpreted with caution: the estimates are based on 2010 levels of enrollment and do not take account of a future rise in enrollment due to population growth and the government commitment to expand education access. But while they are not projections of future teacher needs, they do provide important information on the impact of changes in staffing norms on national student-teacher ratios, the scale of redeployment required to create greater equity and ultimately the effect on public spending.

Box 2: The joint decree for teacher management

In late 2011, a joint regulation was issued that provided guidelines to provinces and districts on restructuring and redistributing government-employed teachers. The decree was designed to exert some control over civil service teacher recruitment and improve the current distribution of teachers. The regulation was issued by five ministries collectively responsible for setting guidelines for the management of government teachers.

The decree and accompanying guidelines provide a set of staffing standards to apply to the allocation of government teachers across schools. The decree instructs districts and provinces to collect the data necessary to identify the degree of redistribution and hiring required to achieve the standards, develop a detailed plan on how to redistribute teachers and finally to implement this plan. Where redistribution requires teacher transfer across districts or provinces, the Ministry of Education and Culture is responsible for coordination among local governments. The Ministries of Education and of Religious Affairs evaluate district and provincial plans for teacher redistribution. These evaluations are then passed on to key central ministries (e.g. Ministry of Finance, MenPAN) to help determine hiring levels for government teachers and consequently the size of intergovernmental budgetary transfers.

Local governments failing to adhere to their obligations under the joint decree face a number of sanctions. The Ministry of Education and Culture can withhold education assistance (e.g. BOS) as well as make recommendations to other joint decree ministries to:

- Refuse to issue 'formasi' to allow the recruitment of new government teachers (Ministry for Government Apparatus Empowerment and Bureaucratic Reforms or MenPAN)
- Delay intergovernmental budget transfers (Ministry of Finance)
- Issue a poor local government performance assessment (Ministry of Home Affairs)

Challenges in redeploying teachers under the joint decree

Local governments need to make plans to ensure that all schools meet the staffing standards outlined in the joint decree. There are two main strategies:

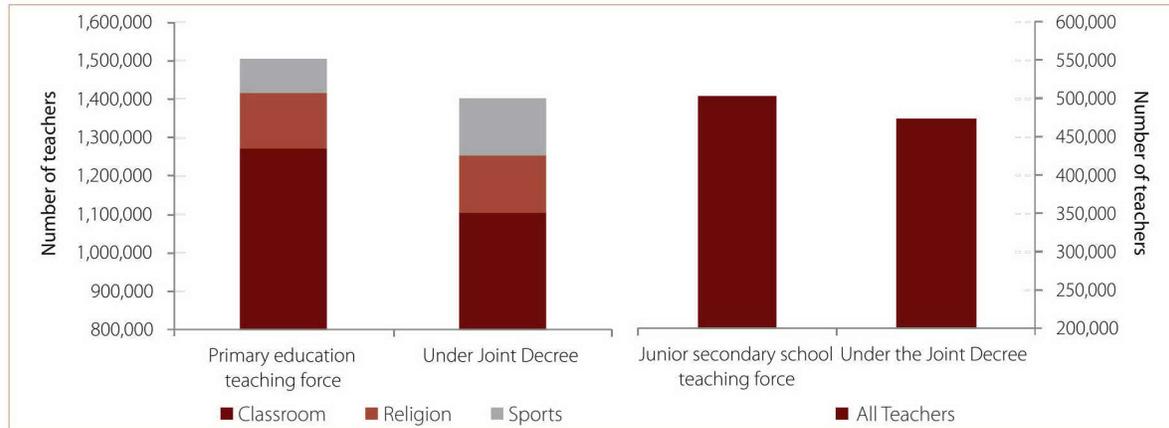
- employ more teachers to fill posts in schools with teacher deficits.
- transfer teachers to teacher deficit schools from schools that have an excess according to the standards.

Clearly employing more teachers will further increase the size of the teaching force and lead to greater inefficiencies in education spending. The joint decree is able to influence local government hiring decisions for civil servant (PNS) teachers through the annual quota set by MenPAN and MoF.⁶¹ Where districts already have sufficient teachers to cover the standards outlined, the decree could be used to restrict further hiring of PNS teachers and encourage local governments to address inequalities in teacher distribution from their current teaching force. What would the implication be for teacher redistribution if local governments transfer teachers in order to comply with national standards rather than resorting to increased hiring?

Under the technical guidelines of the joint decree, the number of teachers necessary for current levels of provision is smaller than the existing teaching force. There are large mismatches in the existing stock of teachers in primary and junior secondary schools. At the primary level, the number of teachers required is approximately 100,000 less than existing levels. Breaking down primary school teacher requirements by subject highlights large surpluses in class-based teachers and shortages in physical education and religion teachers. For example, fulfilling the joint decree would require only 1.1 million class-based teachers compared to the 1.3 million currently teaching in the system. On the other hand, the estimates point to a deficit of approximately 60,000 sports teachers. A similar picture emerges at the junior secondary level: based on the joint decree, there is a large surplus of Bahasa Indonesia and religion teachers and a deficit of computer, local content and civics teachers.

61 Kluyskens and Firdaus (2009), Teacher management: Recruitment, Selection and Data, Probation and Transfer.

Figure 69: The estimated teacher requirements to fulfill the standards outlined in the joint decree, 2010



Note: The estimates include both PNS and non-PNS teachers

Source: MoEC school data (2010) and NUPTK Data (2010)

The magnitude of the reallocation needed to make the distribution of teachers more equitable is massive – 340,000 teachers or about 17 percent of the total teaching force would have to be transferred. Most of this redistribution would involve moving teachers within districts. However, approximately 74,000 teachers would need to be moved from districts with excess teachers to deficit districts in the same province (Figure 71). Given that the joint decree standards imply a surplus of teachers nationally, transfers across provinces could also improve the distribution of teachers. After transfers within and across districts, an estimated 34,000 teachers could transfer from one province to another to fill deficits.

These national regulations provide a basis for ensuring that all schools have a minimum number of teachers but they do not tackle existing inequalities in the distribution of qualified (at least S1) or experienced teachers. So while the national standards may ensure that remote rural schools have the required number of teachers, they are less clear on the distribution of teachers according to qualifications and experience. A closer look at the redistribution implied by the recent joint decree highlights the challenges involved in improving the efficiency and equity of teacher distribution.

In addition there are some hard constraints to implementing these reforms, given the absence of clear guidelines for dealing with the geographic distribution of schools and the characteristics of current teachers in Indonesia. All else equal, districts will try to avoid reallocating teachers because of the high cost, not only in monetary but in political terms. Moving teachers across districts is difficult, since due to the basic allocation formula of the DAU, transferring a teacher means losing funds associated with that teacher's salary. As a consequence, there is a serious risk that the joint decree will not be fully implemented. So what can be done to strengthen current reform efforts?

Improving the allocation of teachers: Policy Options

In addition to the ongoing efforts to improve teacher distribution, what can be done to speed up the process? As mentioned previously in this report, the system of transfers and regulations are a big reason for this misallocation.

Breaking the link between central government transfers and teacher hiring

The current system for hiring PNS teachers creates strong incentives for local governments to continue to increase the size of their teaching force and accelerate the conversion of contract teachers to PNS status. At present, intergovernmental resource transfers are partly determined by the size of a local government's payroll. Districts with larger numbers of civil servants receive more from the transfer system. Professional and functional allowances for teachers are also paid from the center and not out of local government budgets. It has been estimated that central government transfers cover approximately 75 percent of the salary of an additional civil servant or PNS teacher. This in effect subsidizes the cost of additional teachers and creates incentives for increased hiring. These incentives combine with strong political motivations at the local level to increase the size of the civil service.

Controlling the demand for increased civil service employment are MenPAN and the Ministry of Finance, which set quotas for civil service hiring. Quotas are set annually by considering local government requests for additional staff and the current budget situation. MenPAN's actual process for determining quotas remains unclear.⁶² However, the process usually results in provincial and district governments receiving fewer posts than they requested. This creates incentives for local governments to exaggerate their actual needs, knowing that they will receive only a fraction of their initial request.

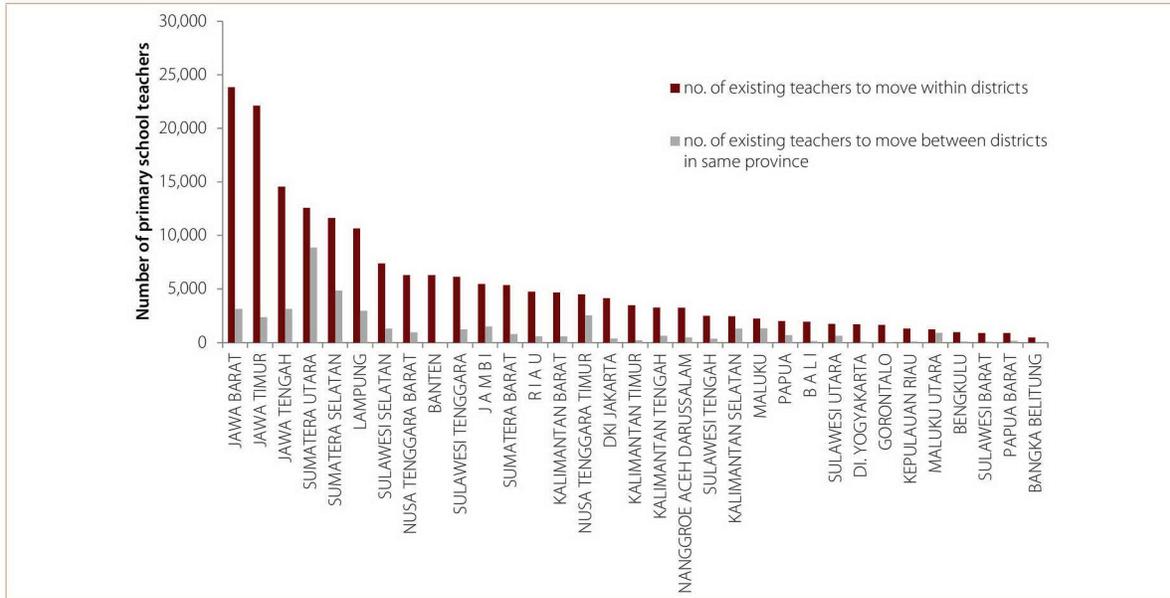
In order to contain the growth of the teaching force, local governments must face the true cost of hiring teachers. The joint decree provides a reporting mechanism to contain teacher hiring excesses. Combining this reporting mechanism with a transparent and improved system of setting quotas for civil service hiring could go some way to improving teacher hiring decisions.⁶³ However, improving transparency and evaluating local government staffing plans effectively at the central level is likely to be difficult. MoEC will need to evaluate staffing plans from 33 provinces covering over 500 districts, more than 300,000 schools and over 2 million teachers. Attempting to contain hiring in this way is also a second-best solution, in that it attempts to allocate new teaching posts more effectively from the center rather relying on district governments to address the complications of determining the size of the national teaching force.

A more direct approach to eliminating incentives for over-hiring would be to break the link between intergovernmental transfers and teacher hiring. Key to this would be the elimination of the link between the size of the civil service and the size of a local government's DAU allocation. However, removing the Basic Allocation element from the DAU formula may not guarantee an automatic change in district behavior when it comes to teacher hiring decisions. During the last decade, districts have opted mainly to use additional resources to hire more teachers, motivated not only by financial considerations (the majority of salary expenses being covered by the DAU transfer) but also by political reasons. DAU reform should not be viewed as a panacea for improving teacher hiring practices at the district level, however addressing the existing DAU issue is an important step toward holding districts accountable for their decisions and improving overall education spending efficiency. Transferring responsibility for paying professional and functional allowances from the central to local governments would be an additional step toward improving efficiency, allowing local governments to bear the real cost of teacher employment.

62 Kluyskens and Firdaus (2009), Teacher management: Recruitment, Selection and Data, Probation and Transfer.

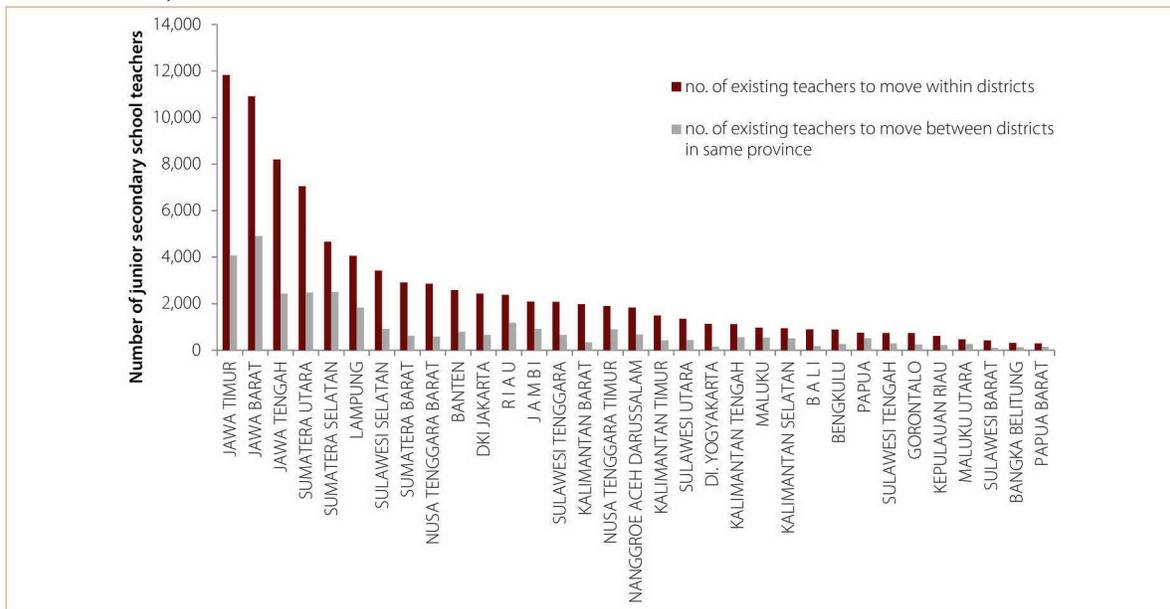
63 For example, quotas for teachers could be based on national staffing standards and district school age populations rather than local government assessments of teacher need.

Figure 70: Percentage of primary school teachers that would need to be transferred to comply with joint decree



Note: The estimates show the number of teachers currently in schools with excess teachers (according to the joint decree) that could be transferred to take up teaching in schools with deficits in their staffing levels. Class-based, sport and local content teachers are included in the estimates. The estimates include both PNS and non-PNS teachers.
Source: MoEC school data (2010) and NUPTK Data (2010)

Junior Secondary



Note: The estimates show the number of teachers currently in schools with excess teachers (according to the joint decree) that could be transferred to take up teaching in schools with deficits in their staffing levels. All subject-based teachers are included in the estimates. The estimates include both PNS and non-PNS teachers.
Source: MoEC school data (2010) and NUPTK Data (2010)

Improving Teacher Regulations

First, it is important to introduce a single set of national staffing norms that are easy to understand and implement. Currently, there are at least three sets of national regulations, each outlining different staffing norms. This creates confusion among local governments and makes it more difficult to hold these governments accountable. A single set of staffing standards that is set at the national level, easy to understand, consistent with other regulations (e.g. the 24-hour rule) and that would improve the efficiency of teacher distribution is required.

Second, entitlement formulas should be based on student-teacher ratios, not learning groups. A key weakness of the current joint decree is its use of learning groups as the criterion to allocate teachers in primary schools. A school is free to decide how many learning groups it has in each grade, as long as they are smaller than 32 students. A school is then supposed to receive a teacher for each learning group regardless of the size of the group. The size of learning groups is generally determined by school size. Small schools have low learning group sizes because of low overall enrollment, and large schools have more students in each learning group. However, allocating teachers by the number of learning groups alone provides incentives for schools to reduce class sizes to obtain more teachers. A better approach, and one taken by the minimum service standards, is to combine a minimum student-teacher ratio with a maximum class size.

Third, regulations should focus explicitly on three areas for improvement that are likely to produce the greatest benefits:

- Using innovative methods to address staffing inefficiencies in small schools
- Introducing and expanding dual subject teaching in junior secondary schools
- Improving the equity of teacher distribution by expanding incentives and better allocating new teachers

The small size of schools is a key factor in explaining the relatively limited impact the joint decree and other existing regulations have had on national student-teacher ratios and efficiency. At the primary level, approximately one-third of schools have fewer than 120 students (Table 8). These schools commonly have one learning group for each grade and under joint decree staffing norms would require a total of eight teachers: six class-based teachers and a physical education and religion teacher. Staffing levels of this kind result in low student-teacher ratios. Schools with fewer than 120 students have a maximum student-teacher ratio of 15-1 and for schools with fewer than 90 students the ratio falls to 11-1. Similar issues exist in junior secondary schools because all schools are required to have a subject teacher for each of the eleven subjects in the curriculum. This results in low student-teacher ratios in small junior secondary schools.

Table 9: Primary and Junior Secondary School Size, 2010

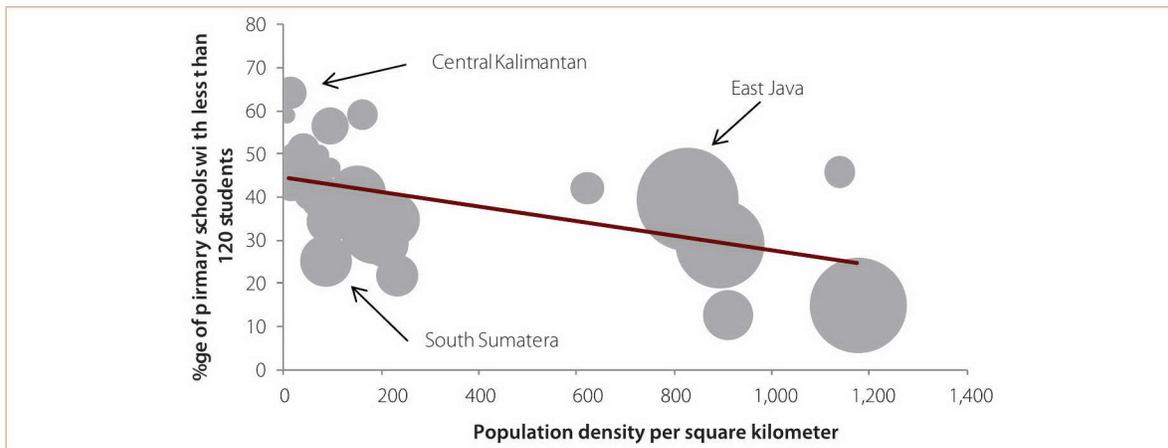
	Primary	Junior Secondary
Average student enrollment per school	173	261
% of schools with fewer than 150 students	48	40
Average students per learning group	16	25
% of schools with fewer than 120 students	34	33
Average students per learning group	13	23
% of schools with fewer than 90 students	19	25
Average students per learning group	10	20

Source: MoEC school data, 2010

The large number of small schools is explained partly by the low population density of many areas in Indonesia. In sparsely populated areas, the size of a school may be limited by the number of potential students in a school's catchment area. One way of examining this is to compare the proportion of small schools in a province to its population density (Figure 72). The results show that schools tend to be smaller in provinces with

sparser populations, but the relationship is weak.⁶⁴ For example, 64 percent of all primary schools have fewer than 120 students in East Kalimantan, where population density is very low (64 people per square kilometer), but the proportion of small schools is even lower in South Sumatera, where the population density is slightly higher (86 people per square kilometer).

Figure 71: Population density, proportion of small schools and number of teachers in each province, 2010



Note: The size of the bubbles represents the number of primary school teachers

Source: MoEC school and teacher data (2010), population density data from Ministry of Home Affairs

But some of the most densely populated provinces also have large numbers of small schools and relatively low student-teacher ratios (see Figure 72). For example, 39 percent of primary schools in East Java have fewer than 120 students, despite high population density (i.e. 828 people per square kilometer). Given that 14 percent of teachers and 21 percent of all primary school students are located in East Java, raising teacher efficiency through increasing the size of schools in this province could have significant national payoffs. In areas of particularly high population density, such as East Java, small schools located close to one another could be combined into a single larger school, with the potential to raise student-teacher ratios and improve efficiency. However, looking at population densities at the district or provincial level does not give a true picture of the school supply and demand picture. Recently, MoEC collected the geographical coordinates of all schools in Java and Bali. Combining this information with census data on the size of populations surrounding schools would enable an assessment of the potential for merging schools.

Introducing and expanding multigrade teaching is one way to manage staffing issues in small schools.

With multigrade teaching, different age-groups or school grades are taught together, reducing the need for a class-based teacher for each grade. Multigrade teaching has been used successfully in small schools in other countries; evidence suggests it can be an effective way to tackle staffing issues without compromising quality.⁶⁵

Simple estimates suggest that the introduction of multigrade teaching at the primary level could significantly improve student-teacher ratios in small schools.

If schools with fewer than 120 students were provided with four teachers trained in multigrade teaching techniques, estimates show that student-teacher ratios in these schools would rise from 9 to 19 students per teacher. In Indonesia, multigrade teaching is already practiced in a small number of primary schools and training for teachers in the approach is available⁶⁶; studies have shown that, when done properly, multi-grade teaching is just as effective in terms of learning.⁶⁷

64 A similar weak relationship holds when density and the proportion of small schools is analysed at the district level.

65 Little (2006)

66 World Bank (2010a), *Expanding Multi-grade Teaching in Indonesia*.

67 Little (2006).

In junior secondary schools, the introduction of dual or cluster subject teachers could improve the efficiency of staffing. Current staffing norms require junior secondary schools to have one teacher for each subject, and teachers can only be accredited in one subject. In small schools, these standards result in low student-teacher ratios, and also make it difficult for teachers to fulfill their commitment to teach 24 hours per week. Allowing teachers to be accredited in more than one subject would be a significant step toward improving staffing, particularly in small schools. To ensure that the quality of education is not adversely affected, appropriate training opportunities and accreditation procedures would be required to facilitate the conversion of teachers into dual subject teachers.

In addition, any measures to improve teacher distribution must address existing inequities by expanding efforts on behalf of hard-to-staff schools. Inequalities in teacher distribution reinforce existing patterns of disadvantage and must be addressed if disparities in education outcomes are to narrow. The underlying cause of this unequal distribution is that many teachers do not want to teach in poor and remote communities. This reluctance is driven by concerns regarding the schooling of their own children, accommodations and living in unfamiliar areas. The result is that poor remote areas frequently have fewer teachers than required and teachers who are less well qualified than those in urban areas. Salary allowances and other incentives do exist to attract teachers to more remote areas, however despite the size of these allowances (which effectively double the base salary), take up is low and inequality in the distribution of teachers persists.⁶⁸ Complementary policies may be needed to deal with these shortages.

International experience with incentives for remote areas is mixed, and there is no strong evidence that supports their effectiveness.⁶⁹ This may be due to lack of clarity regarding the length of the assignment or the rules for returning to one's former region. Clarifying these rules may help. In addition, MoEC is introducing new programs to attract high-performing senior secondary students from areas with a low availability of teachers into the teaching profession. One program heavily subsidizes the cost of their teaching degrees if they agree to return to their place of origin to teach. Another provides the opportunity for young high-performing higher education graduates to teach in remote areas for two years. Many of these initiatives are promising, but they are still small and uncoordinated. In addition, as central government programs, they run into the usual coordination problems between central and regional governments. However, if shown to be successful, they may well be worth expanding.

There are also positive experiences with teacher management and redistribution at the district level. Gorontalo district, for instance, introduced a successful policy in 2006, employing only teachers who agreed to be posted to schools that required their particular skill set. Teachers were also offered an eight-year contract that stipulated they could be redeployed within the district based on staffing needs.⁷⁰ This allowed new teachers to be assigned to schools with the greatest need and gave the local education office the flexibility to move teachers where required. Local governments need to assess whether teacher distribution across schools is equitable; while it may be difficult to move existing teachers, it is possible to improve distribution over time by assigning new qualified teachers to schools with the greatest need.

It is important to recognize that improvements to the current distribution of teachers will take time to implement – but the joint decree, plans for expansion and the expected wave of teacher retirements offer good opportunities to accelerate these improvements. Many of the reforms require changes to the way teachers are trained and assigned. To this end, training opportunities and revised regulations on how teaching is organized need to be developed. Determining the feasibility of merging schools will also require additional planning and discussion with the local communities that would be affected.

68 SMERU (2010), *Remote Area Allowance and Absentee Levels for Teachers in Remote Areas*.

69 Rogers and Vegas (2009), Zafeirakou (2007)

70 Kluyskens and Rawlinson (2008), *Improving Efficiency and Equity in Teacher Employment and Deployment*.

Government plans for further expansion of secondary education present opportunities for reassignment across levels. The natural expansion of the education system due to population growth as well as government plans to expand access to secondary education will mean that more teachers will be required in some areas. This provides an opportunity to improve teacher distribution by reassigning existing teachers rather than hiring new ones. Teachers could be offered training and support to upgrade their skills in order to teach at a higher school level.

Attrition also presents opportunities to improve efficiency. Over the next five years, approximately 10 percent (150,000 primary and 30,000 junior secondary school teachers) of the civil service teaching force will reach retirement age. This represents a terrific opportunity to adjust the size of the teaching force without the need to reassign teachers across levels. However, it will require constraining new hiring and redeploying teachers to replace retiring teachers where necessary.

The reallocation of teachers is not a substitute for improving the overall qualifications of the teaching force, a task teacher certification was intended to do. Absorbing now more than 2 percent of the total state budget (about 9 percent of the education budget), teacher certification is an expensive program that promised to deliver significant improvements in teacher quality. Drawing on an on-going impact evaluation, the next section explores whether the program is having the intended effects on the quality of education.

Improving the Teacher Certification Program⁷¹

MoEC is introducing changes to the certification program. While still in an experimental phase, starting in 2012, teachers who want to access the certification process must first pass a competency test. In addition, there are plans to design specific training programs for teachers who fail the test, and who after the training would be able to reapply. While not yet in effect, the experimental introduction of this assessment encountered a great deal of resistance, yet our analysis indicates that competency testing is likely to improve the quality of teachers into the certification program. Competency tests including subject knowledge and pedagogical competencies prior to certification provide incentives to upgrade competencies, rather than only academic qualifications. If this mechanism can be adequately enforced, certification is likely to produce better teachers in the medium term.

An additional measure to ensure teacher competence would be the reassessment and recertification of teachers after a certain period of time. In the absence of recertification, skills may become outdated, since teachers who receive certification have no incentives to continue upgrading their skills. The government should also consider reevaluating and potentially recertifying teachers who passed through the certification process before competency tests were introduced.

Improving the teacher certification program and addressing inefficiencies in the allocation of teachers would go a long way toward improving the quality of basic education. As we have seen, the teacher certification program as currently enforced is not delivering on expectations – instead it serves to double teacher salaries without ensuring quality teaching. But if, as originally intended, certification ensured that teacher competencies would be assessed and upgraded, and if the objective of having all teachers certified were met, one would expect the quality of the teaching force to improve in the medium run. And by attracting better students into the teaching profession, this relatively expensive program could deliver fully on its promises in the long run. But making this program affordable will require improved efficiency and equity in teacher management.

71 This section is based on the forthcoming policy note and World Bank working paper, “Teacher certification in Indonesia: a doubling of salary, or a way to improve learning?” De Ree (forthcoming).

Improving district management and school discretion: effects from BOSDA pilots

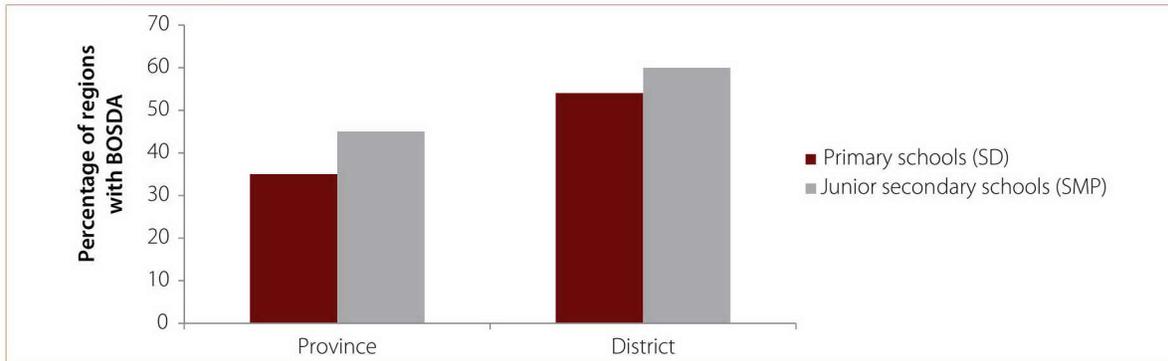
If efficiency gains are realized through improved teacher management, districts could play a stronger role in supporting schools. By liberating resources from salary spending, districts could support schools through different channels. In the context of Indonesia's system of significant school-based management, this could mean providing additional, more equitable funding to schools, as well as stronger management and technical support.

Many regional governments already use their own resources to supplement school grants provided by the national BOS program – mostly in the form of additional funds per student. In 2009, a survey found that 60 percent of districts provided additional support in the form of BOS Daerah (BOSDA). Like the national BOS program, the majority of districts allocate BOSDA to schools based on the number of students enrolled (Figure 73). While the amount provided for each student differs across districts, it tends to be lower than amounts provided under the BOS program (i.e. between IDR 575,000 and IDR 710,000 per student in 2012). Survey data show that schools in districts or provinces with BOSDA get an average of IDR 150,000 more per student than non-BOSDA schools, mainly from district governments. Some regional governments consider the number of classes and teachers in determining the size of the allocation. In a small number of cases, BOSDA is not provided to schools but to teachers and principals as allowances and to teacher clusters (KKG, MGMP) for professional development activities. In most cases, regional governments follow the BOS national guidelines in allocating BOSDA. For example, many BOSDA guidelines include the same 14 eligible expenditure categories as the BOS program.

Allocating BOSDA using a per-student formula does not take account of differences in operating costs schools face due to the particular populations they serve and their locations. Schools in remote areas serving poor households are likely to require additional resources (e.g. more teaching time, remedial coaching, etc.) to provide a level of education similar to a school in a wealthier area. The cost of school supplies can also vary significantly between accessible and more remote areas because of the associated transportation costs: with the same amount of BOSDA, a school in a remote part of Papua will be able to purchase fewer textbooks and other supplies than a school in Jayapura.

Some school operating expenses do not vary with levels of enrollment and this can further disadvantage small schools. For example, electricity usage does not vary according to student numbers but with the physical size of the school and the number of classrooms. A per-student formula allocates more to a large school with higher levels of enrollment than to a smaller school, even if both have the same number of classrooms and similar electricity usage. Ensuring that smaller schools have sufficient resources to cover fixed costs is a significant issue; as we have seen, nearly half of all primary schools in Indonesia have fewer than 150 students.

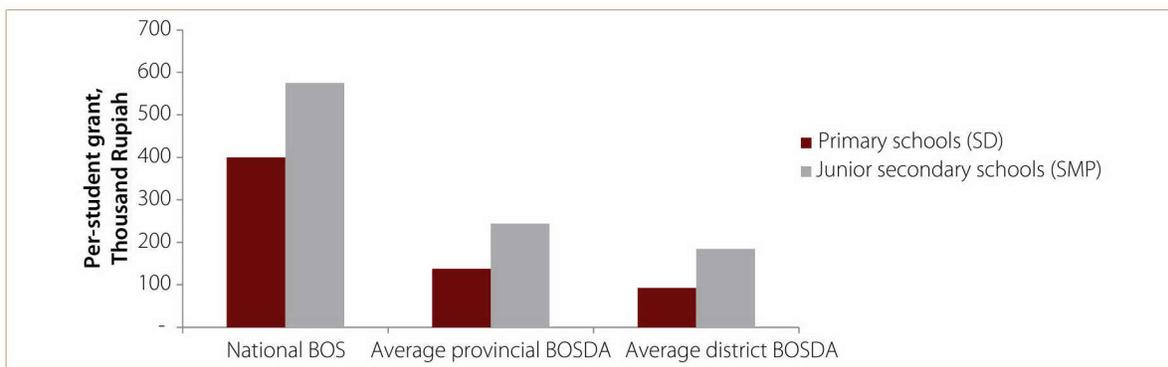
Figure 72: Percentage of districts and provinces that report having BOSDA in primary and junior secondary schools, 2009



Note: In 2009, Indonesia had 33 provinces and 497 districts.
 Source: Ministry of Education and Culture province and district BOSDA survey, 2009.

The average BOSDA allocation tends to be much lower than the BOS national per-student grant. Similar to BOS, the amount for junior secondary education tends to be higher than for basic education. A recent survey sampled 13 provinces and 86 districts that had some form of BOSDA. According to this survey, the BOSDA amount varied significantly across districts and the level of schooling. In six of the 86 districts, grants were higher than under the national BOS program. For example, Manokwari district in West Papua provided primary schools with IDR 476,000 per enrolled student and junior secondary schools with IDR 684,000. On average, regional government grants allocated to junior secondary schools were over 75 percent higher than grants given to primary schools, whereas in the national BOS program, junior secondary grants were only 44 percent higher than primary school grants in 2010-11.

Figure 73: BOS per-student grant and median regional per-student grants in primary and junior secondary schools, 2010/11

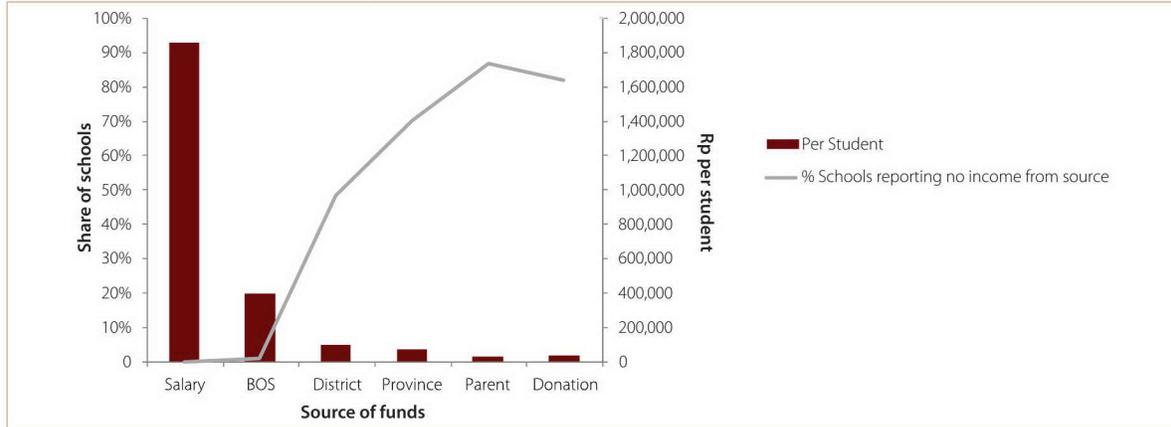


Note: Regional grants are not always provided on a per-student basis but have been converted to this unit to aid comparison with the national BOS program. Per-student allocations under the BOS program increased significantly in 2012 (primary – IDR 575,000 and junior secondary – IDR 710,000)
 Source: World Bank Survey of Regional School Grants, 2011

Funding from districts is still a very small share of school budgets -- the vast majority of resources reaching schools come from the central government for civil service teacher salaries, with BOS being a distant second. While schools do not pay teachers directly (the district does), their salary bills are included in the school budget in our data. On average, primary and junior secondary schools spend short of IDR 1.9 million

per student on teacher salaries per year (about USD 200, Figure 75). The BOS amount, which is supposed to cover operational expenses at the school, is IDR 400,000 on average. The rest of income sources, from district, province and private funding (parents or donations), total about 7 percent of total school resources – although private funding represents an insignificant portion of public school budgets, with close to 90 percent of schools reporting no income from parents and 80 percent of schools receiving no donations. So if we exclude funds for teacher salaries, virtually all resources at the school level come from BOS, with about 15 per cent from district and provincial governments.

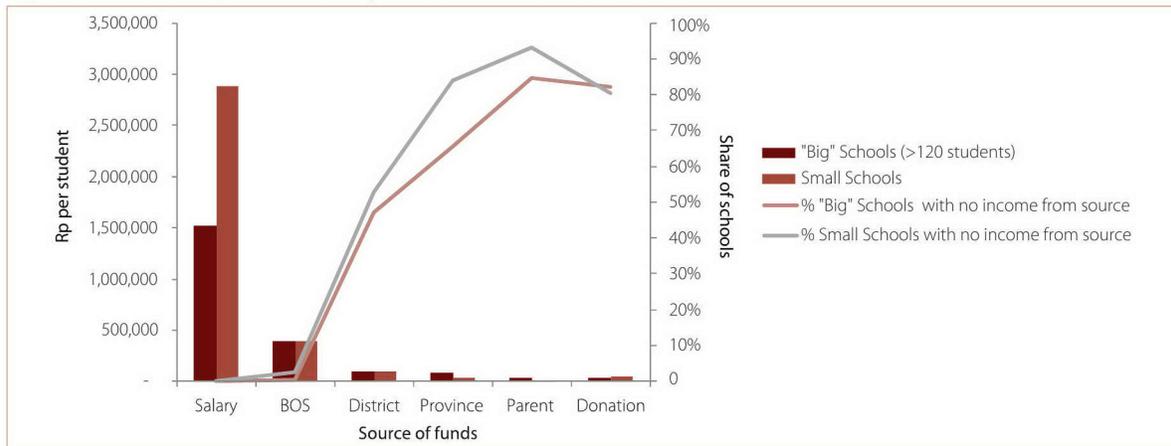
Figure 74: Per student amount by sources of income at the school level, 2010



Source: World Bank-Rand, School Based Management Survey (2010)

An important determinant for school budgets is school size: small schools receive less from provinces and parents (and spend more on teachers). Small schools (defined as less than 120 students) spend twice as much as larger schools on civil service teachers per student. They are much less likely to receive funds from provinces, and receive virtually no parental contributions. To the extent that the STR is not correlated with learning outcomes, this is problematic: although STRs may be lower, disposable budgets per student are smaller, which may be affecting performance in these schools. More support for these small schools, or a reallocation of spending and better teacher management may be required.

Figure 75: Income per student by source and school size, 2010

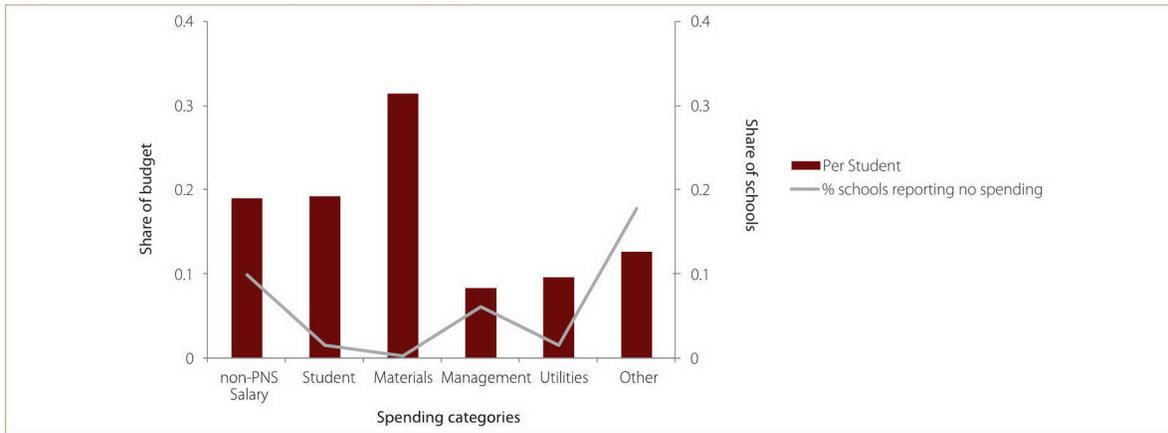


Source: World Bank-Rand, School Based Management Survey (2010)

Where do school resources go? Mostly to materials, contract teacher salaries and support for students.

Spending on “management” (including test administration and training for school officials and teachers) and “utilities” each represent about 10 percent of the school budget. The amount spent on students (which includes waiving student fees, transportation, and direct assistance to students) is similar to that spent on contract teachers (about 20 percent of the budget). Unclassified spending (“other”) accounts for 15 percent of the budget, perhaps too high an amount.

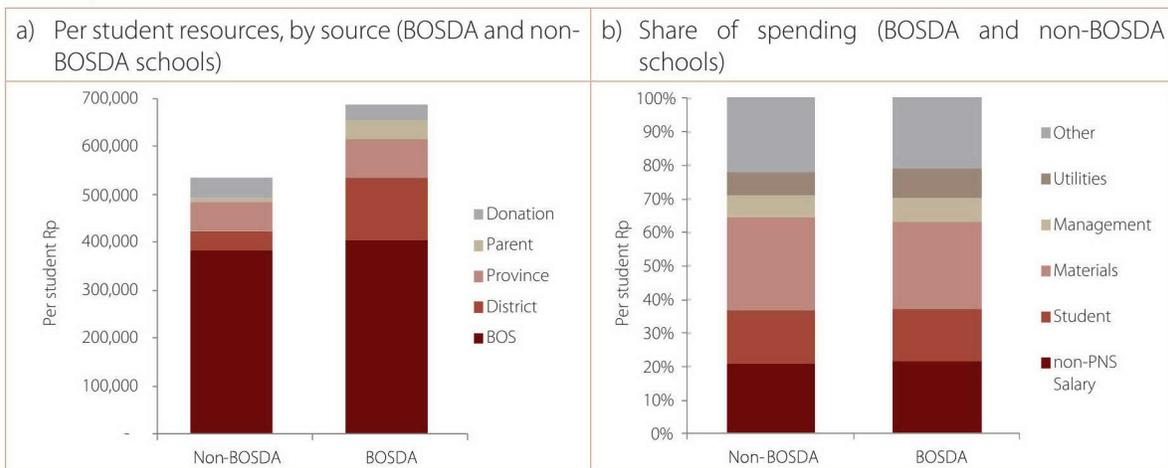
Figure 76: Per student expenditure by type at the school level, 2010



Source: World Bank-Rand, School Based Management Survey (2010)

How about BOSDA schools? Schools spend BOSDA funds in a manner similar to BOS, so the spending profile of BOSDA and non-BOSDA schools is the same. The share of the budget going to materials, students or contract teachers, and the proportion of the budget going to each category, does not change with BOSDA funds. Given that most districts disburse BOSDA funds on a per student basis (similar to BOS), this is not surprising. It seems that when it comes to BOSDA funds, schools are making spending decisions based on the same choices they use for BOS.

Figure 77: Per student school income and share of expenditure by category for BOSDA and non-BOSDA schools, 2010



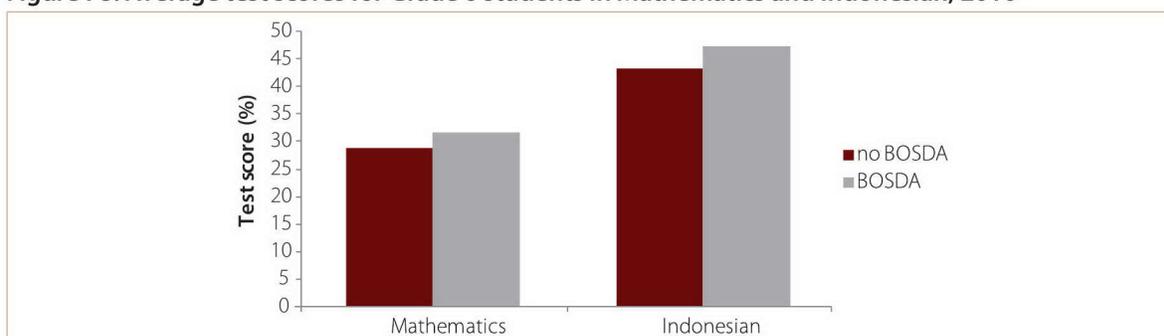
Source: World Bank-Rand, School Based Management Survey (2010)

Do the additional BOSDA funds improve learning outcomes? While our data does not allow us to answer

this question unequivocally, there is evidence that additional resources do improve outcomes. Our cross-sectional data (only one year) does not allow us to analyze trends in schools before and after the introduction of BOSDA, so a rigorous impact evaluation is not possible. Schools in BOSDA districts may be systematically different from schools in non-BOSDA districts, so that any observed differences in outcome may be due to those systematic differences and not due to the program. For example, if BOSDA schools are in richer districts, better performance may result from the higher socioeconomic background of the parents, not from the additional BOSDA funds. Additional econometric techniques must be used to control for these factors, in an attempt to isolate the effect of the program.

A simple comparison of performance in BOSDA and non-BOSDA schools shows that BOSDA schools perform better, both in math and Bahasa Indonesia. Students in primary schools receiving BOSDA had higher levels of learning than students in schools that did not receive the grant. On average, students in schools receiving BOSDA scored 9 and 6 percent higher on tests of mathematics and Indonesian respectively. This relationship seems to have been driven by decisions made at the school level to use the resources to provide extra student support and teaching and learning materials.

Figure 78: Average test scores for Grade 6 students in Mathematics and Indonesian, 2010



Note: Differences in performance between BOSDA and non-BOSDA schools are significantly different at one percent level. The graph shows simple differences in test scores between students in schools that receive BOSDA and those that do not. However, the positive relationship between BOSDA and learning achievement holds even when other factors are controlled for (e.g., school and teacher characteristics and parental background).

Source: World Bank-Rand School Based Management Survey, 2010

Source: Ministry of Education and Culture province and district BOSDA survey, 2009.

BOSDA has the potential to play a strong role in improving district management by allocating resources in a more equitable fashion than the national BOS program and by increasing district involvement in managing schools. The BOSDA improvement pilot program (Box 3) underscores the potential BOSDA has to improve district management by working with districts to improve allocation formulas and supervision of schools. While the pilot is only in the initial stages, and therefore there are no results on the impact of the program on student outcomes, the initial results are promising.

Adjusting allocation formulas can greatly increase equity. An analysis of allocations before and after the new formulas were introduced indicates that the new formulas resulted in a more equitable allocation of resources. In 2011, two pilot districts allocated BOSDA using new formulas for the first time; in both cases the new formula included components that gave additional resources to remote and small schools. For example, in District Kaimana the revised formula provided an additional IDR 25 million for the most remote junior secondary schools. (As we have seen, remote and small schools have higher per-student operating costs because of the higher price of educational inputs in remote locations; they also require higher per-student allocations to cover fixed operating costs such as electricity). In Kaimana, the new formula has resulted in a shift of resources from larger town schools to smaller, more remote schools (see Figure 80).

Box 3: The BOSDA improvement pilot program**The BOSDA improvement pilot program**

Recognising the important role BOSDA currently plays and its potential to develop into a performance- and equity-based grant, the Ministry of Education and Culture with the help of the World Bank, developed a pilot program to support efforts by regional governments to improve the allocation of BOSDA.

A. Objectives

The BOSDA Improvement Program was initially piloted in two provinces and 12 districts. The main objective was to support regional governments in their efforts to narrow financing inequalities and improve both the efficiency and effectiveness of education spending. The pilot focused on BOSDA allocations and aimed to:

- Improve current BOSDA allocation criteria to address financing inequalities among schools.
- Create incentives for better school performance and encourage more effective, transparent, and participatory school-based management involving all education stakeholders

Through the experience of working with regional governments the pilot also aimed to develop a set of national BOSDA guidelines that:

- Promote the freedom of regional governments to design their own allocation formulas that are feasible to implement, allow diversity in detail, and promote greater equity.
- Encourage regional governments to give each school the discretion to propose, finance, and manage activities responding to their particular needs and the outcomes desired for their students.

It was expected that through these activities, the pilot would encourage regional governments that did not already provide local school grants to introduce similar programs. Where programs already existed it was expected that the pilot would encourage governments to raise existing BOSDA allocations.

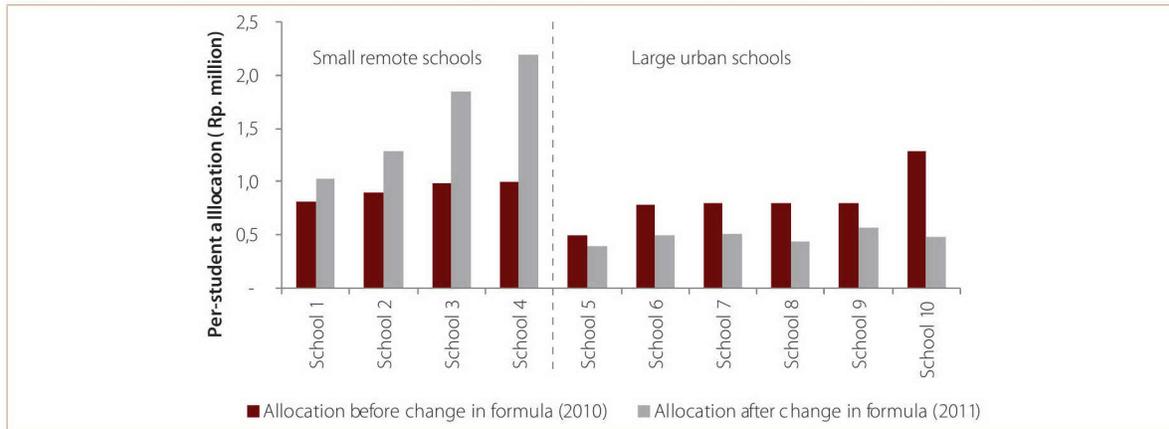
Mechanics

Provinces and districts in the pilot developed a formula-based BOSDA with three main components: a basic allocation, an allocation to address school inequalities and a component to provide additional resources to schools that demonstrated outstanding performance over the previous school year (see Figure 4). The specific criteria and the weighting given to each of these components depended on the specific characteristics of education in the region and the focus education stakeholders wanted BOSDA to have. In some cases, more focus and weight was given to equity considerations, while in others a greater emphasis was placed on performance-based criteria.

In pilot regions, the process involved in developing a formula-based BOSDA included several steps:

- Introduction of the formula concept to district education stakeholders; identification of potential variables to include; and data collection to model proposed changes.
- Agreement on a new BOSDA formula by analysing the impact of different formula options on allocations to schools.
- Preparing for implementation by determining the appropriate financial procedures and preparing the necessary guidelines, including policies on how funds can be spent at the school level.
- Agreeing on an implementation timetable and allocating funds to schools on the basis of the new formula.
- Monitoring and evaluating the implementation of the new formula and revising implementation where necessary.

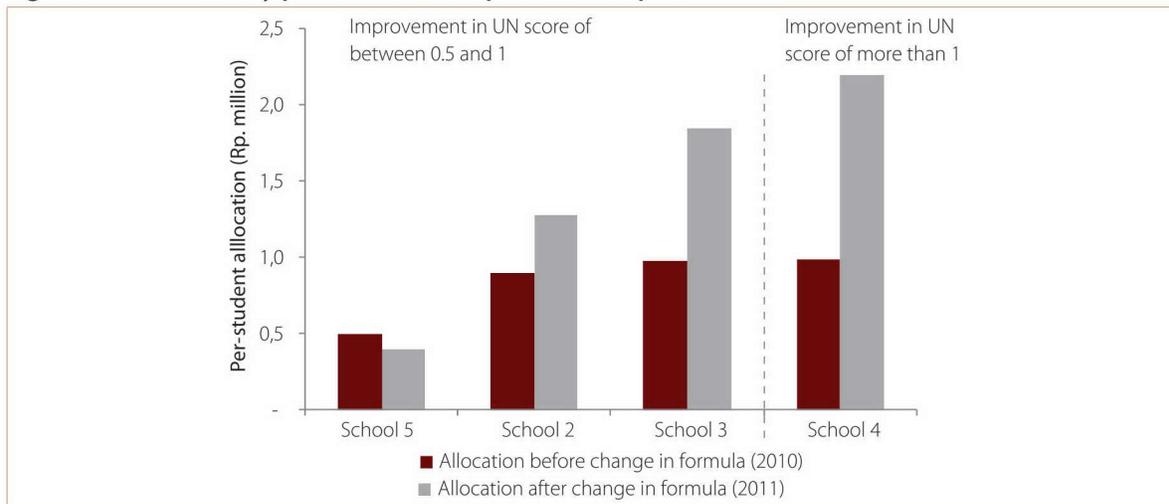
Figure 79: Change due to BOSDA funding formula allocations to small and remote schools



Note: The total budget for BOSDA fell between 2010 and 2011. To calculate the allocations shown in Figure 80, the budget for 2011 was inflated to its 2010 level. The graph shows what would have happened to allocations if the 2011 budget was maintained at its 2010 levels.

In addition, pilot districts have introduced performance-based incentives into their redesigned BOSDA allocation formula. District Kaimana has used annual changes in a school's national examinations as a key indicator of performance, with additional resources provided depending on annual improvement on the examination. A focus on change rather than absolute levels of performance ensures that improvements in schools with low overall examination results are treated in a manner similar to those with better results. In Kaimana, schools that achieved an improvement equivalent to an increase of one (out of 10) in their average score received an additional IDR 30 million. For schools showing more modest improvements, the additional resources were fewer but still a significant boost to school budgets.

Figure 80: Incentives by pilot district to improve school performance



Note: The total budget for BOSDA fell between 2010 and 2011. To calculate the allocations shown in Figure 81, the budget for 2011 was inflated to its 2010 level. The graph shows what would have happened to allocations if the 2011 budget was maintained at its 2010 levels.

In summary, BOSDA is a promising program for the future: by improving both school funding and district management, it is associated with better outcomes. However the reasons for its success make expansion a challenge. Since BOSDA has expanded voluntarily, it is likely that only districts that were ready to supervise and

support schools effectively adopted the program. Making it compulsory may have the effect of diminishing its impact; indeed, forcing districts that are not ready or capable of administering such a program to implement it may not yield the same results. It may be better to aim for a slower expansion, incentivizing districts to adopt the program via various mechanisms: these can include monetary incentives, such as performance-based transfers, or extra support from the central government to implement the program. If implemented correctly, BOSDA could play a crucial role in improving district management.

Improving district performance using performance-based transfers to support BOSDA

Transfer mechanisms can be effective for incentivizing districts to spend less on teacher hiring and more on alternative, more productive programs, such as BOSDA. In fact, transfers may be *the only tool* available to the central government to ensure these changes occur in a sustainable way. Regulations that attempt to change district behavior are hard to enforce. As we saw from the analysis on the joint decree for teacher management, the central government has few tools available when districts do not meet existing regulations. That said, when the right incentives are included in transfers, districts will be more likely to modify their behavior in response.

One option for improving spending efficiency will be adjusting the DAU formula and addressing the incentive for overstaffing by removing Basic Allocation from the formula. Having districts cover the costs of teacher allowances and assume part of the financial burden of hiring additional teachers would increase the incentive for districts to improve spending efficiency by controlling teacher hiring.

In addition to the perverse incentives included in DAU, the lack of accountability and transparency (Dekon/TP) account for some of the inefficiency of transfer financing. In the case of De-concentration and Co-Administered Tasks funds (Dekon/TP), line ministry spending on sub-national functions is not part of the local government's budget; since local governments are not involved in planning this central spending, these transfers can disrupt local development plans. There is evidence that TP transfers are negatively associated with local capital spending, suggesting that central capital spending on local infrastructure and other local capital assets crowds out capital spending by local governments.⁷²

DAK and DID, transfers linked to specific projects, are too small to make a significant impact when it comes to improving outcomes. DAK is allocated to finance specific investment expenditures aligned with national priorities and is an important financing mechanism for education, earmarking funds for school or classroom reconstruction and quality improvement projects. Unlike Dekon, DAK has relatively clear guidelines on whom and what should be monitored. Education is a key priority for DAK spending: about 40 percent of DAK transfers are allocated for education, primarily for school rehabilitation and quality improvement. However, DAK represents a small percentage of the funds received by sub-national governments (about 7 percent of total sub-national revenues in 2009), and thus represents a small share of total sub-national education expenditures (about 8 percent in 2009). Meanwhile, a local incentive grant, Dana Insentif Daerah, or DID, introduced in 2010 and further developed in 2011, is designed to reward districts demonstrating improved educational performance (even if the funds are not earmarked for education), including in primary and secondary gross enrollment rates above the national average, and improvements in their Human Development Index; the grant, however, is very small and represents less than 1 percent of total sub-national spending on education.

72 See Local Government Capital Spending in Indonesia: Impact of Intergovernmental Fiscal and In-Kind Transfers (Lewis, 2012).

Figure 81: Consequences of the different transfer mechanisms on education

	Discretionary DAU	Earmarked DAK	Performance DID	Central Govt Executed DEKON-TP
Consequence for education	<ul style="list-style-type: none"> Basic Allocation encourages overstaffing 	<ul style="list-style-type: none"> Earmarked for capital, inflexible (might drive over construction of schools) Excessive fragmentation Poorly targeted 	<ul style="list-style-type: none"> Small Money targeted for education, but the formula is not Complicates financing by adding yet another transfer 	<ul style="list-style-type: none"> Local spending executed by the central government Lack of transparency and accountability Uncertainty in planning at local level

Source: Own elaboration

Transfers can be used to incentivize districts to adopt successful programs such as BOSDA; performance-based transfers such as DID can be a good channel for this incentive. If efficiency gains from improvements in teacher management are realized, districts will have more resources available to spend on other programs. The programs they choose to support will depend, partly, on the incentives they face, as well as on their technical capacity. Left on their own, high-capacity districts will likely spend their resources efficiently, while low-capacity districts may encounter difficulties. In both cases, however, the central government can guide district spending by providing incentives. Providing matching grants for BOSDA is one potential policy to guide districts; when linked to performance-based transfers, these funds can provide districts with incentives to expand good programs.

Figure 82: Options for reform and main result for the education sector

	Discretionary DAU	Earmarked DAK	Performance DID	Central Govt Executed DEKON-TP
Preferred Options for Reform	<ul style="list-style-type: none"> Removal of Basic Allocation 	<ul style="list-style-type: none"> Open to non-capital expenditures Reduce number of sectors Pilot Performance based transfers for some sectors 	<ul style="list-style-type: none"> Expand size Link to specific programs (BOSDA) 	<ul style="list-style-type: none"> Channel APBD (see Sub-National Public Expenditure Review, World Bank, forthcoming)
Main Result	<ul style="list-style-type: none"> Elimination of incentives for overstaffing Increased education non salary spending at the district level in the medium run Emphasis on performance incentives A better targeted DAK 			

Based on sub-national PER

Chapter 5:

A Framework for Action: Policy options for improving the quality of spending

This report has explored the consequences of the 20 percent rule, has looked at where the massive increase in spending has gone and how it has translated into outcomes. By constitutional mandate, Indonesia has ensured an adequate level of resources for education relative to its government budget, and the commitment of Indonesia to its education system is evident and laudable. The 20 percent rule has led to a rapid increase in resources over the last decade; compared to other middle-income countries, Indonesia is now above-average in terms of share of the budget devoted to education.

The increase in spending has led to a sizeable improvement in equitable access to education, especially in basic education, but quality is a concern. The GoI has focused on expanding access to 9 years of basic education, but has also begun putting more emphasis on expanding access and quality when it comes to senior secondary and beyond. Higher education has also received a significant increase in resources, as did scholarship programs after 2009 and capital spending over the last decade. That said, results are mixed: while basic education is now near universal, access to senior secondary and higher education remains a challenge for the poor (especially in higher education). And the results of all this investment in terms of quality of education are not encouraging. Indonesia performs at the bottom end of the distribution in international tests, and learning outcomes declined in math and science in PISA between 2006 and 2009.

Part of these trends can be explained by patterns in spending: two-thirds of the additional resources went to teacher salaries and certification. Given the preponderance of spending in these areas, it is unlikely that with time, the added resources will result in better learning outcomes. Studies have shown that at the current level of STR, there is no correlation between adding teachers and improving outcomes; thus, these expenditures are unlikely to produce the desired results. Spending better is crucial for the future.

Given the complex governance and financing system, few decisions can be made at the central level to directly improve the quality of spending. Improvements are needed in the governance and financing of the system (from intergovernmental transfers, to school and district management, to the critical role of teacher management). Indonesia has a highly decentralized system, which is largely dependent on intergovernmental transfers and district management, and in which school-based management plays a strong role. Change. Since direct influence from MoEC is limited to regulations and direct program spending (like scholarships); the central government's most effective tool is providing the right incentives, not enforcing regulations. These incentives will determine the quality of spending in the future, and hence the GoI's realization of its goals of expanded access and improved quality and outcomes.

This chapter brings together the challenges and recommendations for policy options to improve the quality of spending into one coherent framework for action. The framework attempts to make sense of the complexity of the objectives and policy areas, defining the main decision makers and providing specific actions for each area. At the risk of being repetitive, actions are included in all the policy areas that they affect, thereby enabling the reader to take account of the existing complex interrelationships. To ensure the relevance of these policy options, the level of specificity provided is based on the existing evidence to support the recommendations. As is evident from this chapter, the main challenges cannot be addressed by MoEC alone, and will require prioritization and coordination among key stakeholders.

This section first discusses the overall objectives of the education system (access and quality) and the three main paths to achieve these goals through improved efficiency, equity and performance in education spending. It then discusses the four policy areas identified as priorities, outlines the main actions needed and identifies the stakeholders in each area.

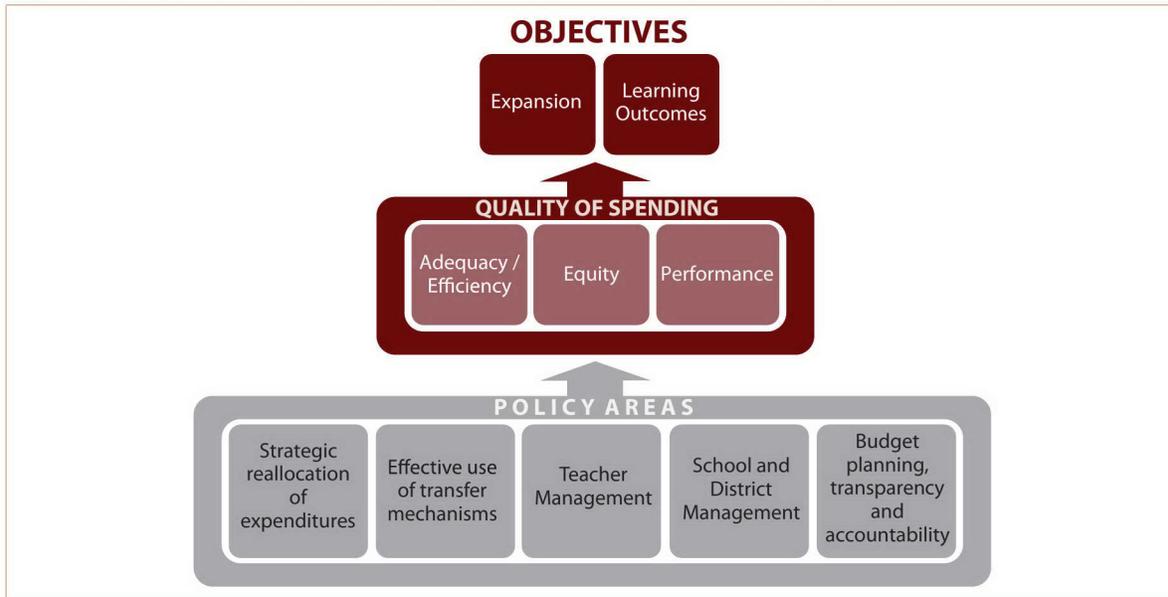
Objectives and main policy areas

Improving the quality of spending means increasing efficiency, improving equity and bolstering the capacity of the system to turn resources into performance. The three areas are mapped to objectives in Figure 84. The 20 percent rule has ensured that resources are largely adequate as a share of the total government budget. The problem lies in how resources are spent. To ensure expansion, it is important that resources are allocated equitably: this does not mean uniformly, as certain students, teachers, schools or districts need more resources per student to achieve the same objectives. It is also important that resources are allocated in a manner that delegates decisionmaking to those actors with the greatest information and capacity, while providing them with the right incentives. This is perhaps the biggest challenge in education in Indonesia.

In order to increase efficiency, improve equity and bolster the capacity of the system to turn resources into performance, this report has identified five main policy areas for improvement: i) strategic reallocation of expenditures; ii) effective use of transfer mechanisms, iii) improvements in teacher management, iv) improvements in the district management of schools and v) improvements in budget planning and transparency. All these areas will affect the three objectives of efficiency, equity and performance to varying degrees (Figure 84). In targeting the strategic reallocation of expenditures, for instance, we refer to decisions that can be made by the Ministry of Education to improve spending, such as expanding and reforming scholarships, which will affect equity directly and quality indirectly. The effective use of transfer mechanisms should focus not only on transfers to district and provincial governments, but also to schools (BOSDA). Teacher management will also be crucial to increase the efficiency and equity of the system, by reducing spending and improving learning outcomes. The key role of districts and schools in the education system needs to be reinforced with guidance from the central government. Finally, accountability and transparency in the process of budget planning and reporting is crucial.

Given the complexity of the system's governance, each policy area has a number of stakeholders. Some decisions can be made by MoEC alone, but for others, different ministries or district governments may play a bigger role. Improving the transfer system, teacher management, budget planning and transparency, or school and district management require actors beyond MoEC to succeed. The next section outlines these key stakeholders and the recommendations for each area.

Figure 83: Objectives and critical policy areas for Indonesia's education system



Strategic Reallocation of Resources

Indonesia can reallocate resources strategically towards programs that are underfunded. However, increasing resources is not sufficient. It is important to keep in mind that additional resources do not always result in improved outcomes, so drastically expanding access to ECD or senior secondary requires careful planning to ensure sustainability and efficiency. While this report did not go into these sub-sector issues because they are beyond its scope, estimates of the cost of expanding access to senior secondary education show that the model for expansion chosen can have dramatic effects on the cost. Small changes in per student spending have big effects on the budget, while different financing mechanisms have different effects on equity and access.

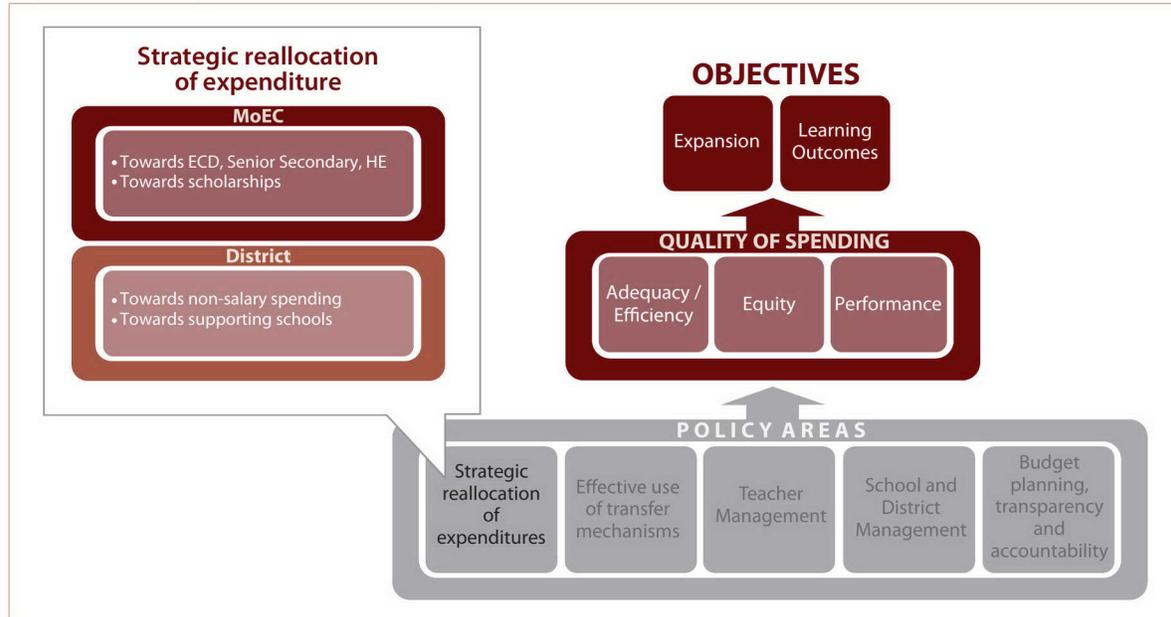
ECD is a clear candidate for more resources. The evidence supporting ECD internationally is overwhelming. The long-term effects on learning and employability have been widely documented. In Indonesia, an evaluation of the ECD program supported by the World Bank is still ongoing and should shed light on the effectiveness of existing programs. But regardless of the impacts shown by this evaluation, given the current exceedingly low spending on ECD, increasing resources for ECD seems desirable.

Indonesia also underspends on senior secondary education and higher education, still relying largely on student fees. Despite some increases in these areas, the composition of spending across levels has remained largely constant in recent years. Expanding access to these levels will require additional resources: the cost of meeting the government's objectives in secondary education alone would result in an estimated 55 percent increase over current spending. However, since secondary education depends on district governments, expansion can occur in different ways. A "BOS approach" (per student block grants) is one possibility. Similarly, MoEC should expand access and quality in higher education, which will require further resources.

Expanding and improving the Scholarships for the Poor program (BSM) is critical for supporting expansion and equity: this includes increasing the amount, increasing coverage, improving targeting, aligning the disbursement of the benefit with the timing of expenditures and possibly providing a transition bonus. The ideal scenario would cover 100 percent of the cost for all poor students from SD to SMU,

providing a transition bonus for those moving from SD to SMP and from SMP to SMU. This would ensure that cost is not a reason for dropping out, and provide incentives for students to continue their education.

Figure 84: Strategic reallocation of expenditures: who and what?



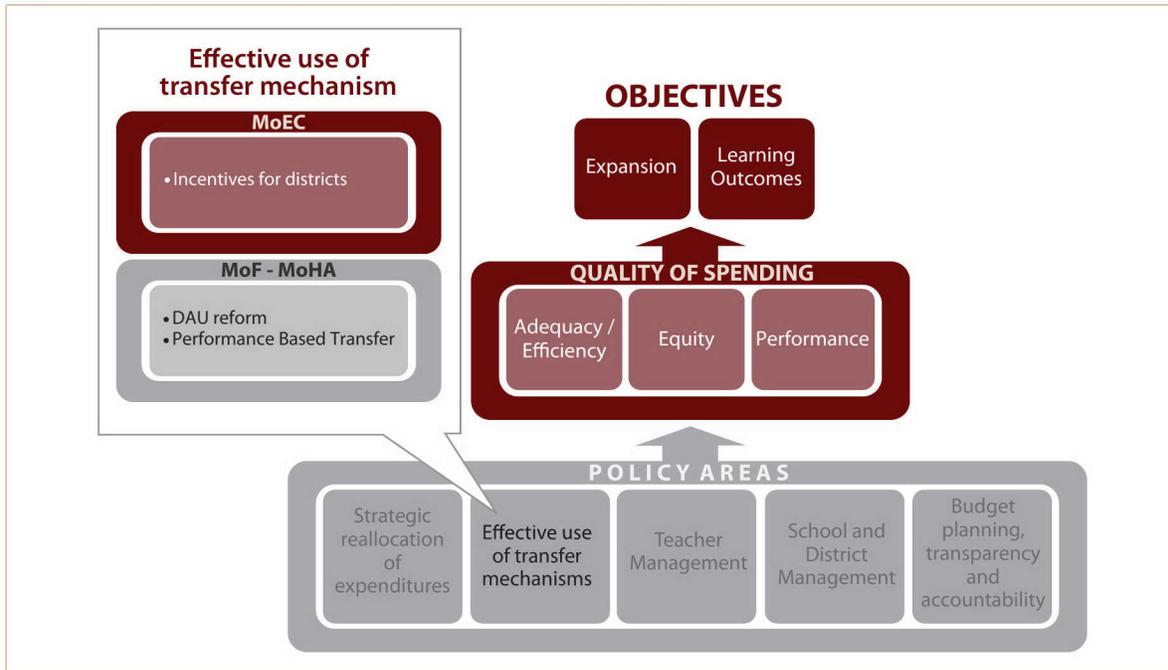
Effective use of transfer mechanisms

Districts must play a stronger role in school management, reallocating resources from salaries to supporting schools in different ways. BOSDA provides an effective alternative. Despite the strong incentive for hiring new personnel included in the DAU transfer, districts still have discretion over their budgets. During the last decade, they have largely chosen to hire additional teachers, but some have started providing funds to schools via BOSDA instead, experimenting with different formulas and providing stronger supervision. Results have been positive. However these programs are still a small part of overall district budgets. Districts should expand BOSDA programs rather than increasing salary spending.

Transfer mechanisms can provide the right incentives for district management. MoEC can incentivize the expansion of BOSDA through DID or matching funds, performance-based transfers or with technical support for districts that wish to implement BOSDA. Making BOSDA compulsory may be risky, leading districts unwilling or incapable of managing a program like BOSDA to waste resources or suffer in the implementation. The BOS experience with decentralization to the district budget provides an indication of the difficulties some districts face in disbursing in a timely fashion.

It is important to break the link between transfers and hiring and to increase performance-based transfers. The revisions to Laws 32 and 33 governing decentralization should eliminate incentives for continued hiring. This will go a long way towards making future teacher hiring more efficient. Meanwhile, an increase in performance-based transfers, which can be linked to either specific policies (for example, the provision of BOSDA by the district) or to enrollments and/or other outcome indicators, can support educational performance. However, these changes are largely out of the control of MoEC.

Figure 85: Effective use of transfer mechanisms: who and what?



Improving Teacher Management

Improving teacher management is critical to improving efficiency and equity and is perhaps the most crucial aspect of this framework. The current low STR would be fiscally unaffordable if it were not for the high prevalence of contract teachers. Continuing the trend of regularizing contract teachers in secondary education will continue to drive up the salary bill if the allocation of teachers is not improved. In addition, finding a sustainable way to deal with contract teachers will prove fundamental in the future. On equity, despite the low STR, there are massive differences in the availability and qualifications of teachers across schools and regions, with a clear disadvantage for rural and remote areas, but large variability even within districts.

Teacher management is one of the most difficult reforms to implement. Because teachers are district employees, central government rules and regulations are hard to enforce. A recently issued joint decree involving five ministries (MoEC, MoRA, MoF, MoHA and MenPAN) tries to define clear guidelines on teacher management for districts, introducing penalties for non-compliance. However, the guidelines are still vague on a number of issues. For example, they are based on learning groups (rombels) and not on student-teacher ratios. If schools break down students into smaller learning groups, this may lead to an overestimation of the number of teachers needed.

However the estimated efficiency gains from reallocating teachers are substantial. Increasing STRs by 5 students can result in a one-third reduction in per student spending. Small improvements in efficiency can have very large budget implications, and increasing STRs can be the key to liberating the funds necessary to improve results. However, existing efforts to increase STRs have had limited success.

Ultimately the responsibility for improving teacher management lies with districts, but the central government still plays a strong role and should provide the right incentives and support. All the reforms outlined above are costly for districts. Given the DAU's subsidies for hiring, districts will prefer to hire teachers than to implement these reforms: it is important to break the link between transfers and hiring. However, districts also need to be incentivized to implement the additional reforms: redistributing teachers, introducing multigrade and cluster-based teaching. Support for districts could lower the cost of implementing these reforms and speed them up.

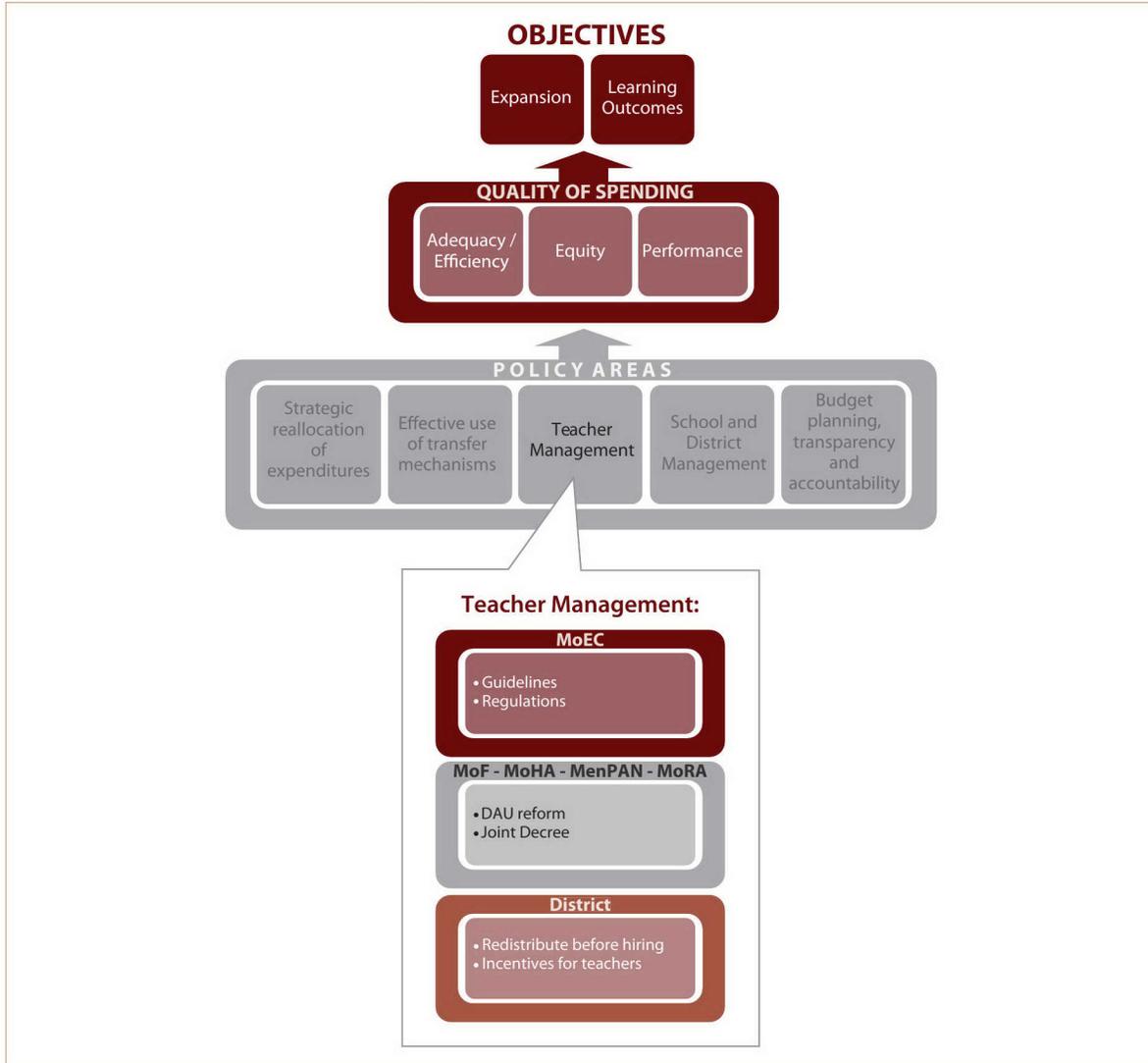
The magnitude of the teacher reallocation required to improve efficiency and equity is massive. Using the latest government guidelines, about 340,000 teachers, or 17 percent of the teaching force, would need to be reallocated to ensure all schools have at least the minimum number of teachers. While most of this reallocation can occur within districts, there is still a need to reallocate some teachers across districts and even across provinces. The sheer size of the reallocation, and the lack of clear mechanisms for these transfers, make realizing these efficiency and equity gains difficult to achieve during the short validity of the decree.

A big constraint on Indonesia's education system is the large number of small schools; improving teacher management includes dealing effectively with small schools. The high prevalence of small schools in Indonesia increases the need for teachers. Revisiting school planning should be considered as a medium-term strategy, however more immediate measures (some already underway) could be expanded. **Multigrade** teaching can be very effective for small schools, but provisions are needed to support districts in its implementation. In senior secondary, **cluster teaching** (whereby teachers specialize in more than one subject) can go a long way toward improving efficiency. Lastly, incentives for **teaching in remote areas** should be clarified and expanded.

In order to adapt more quickly, contract teachers could be used strategically, but their conditions and career prospects need to be improved. Ideally, teachers would be fungible and flexible, available for assignment where they are most needed. However in the absence of this mobility across subjects, levels of education and schools, contract teachers can be used to deal with shortages. In many countries contract teachers have been effective at supporting expansion, and are significantly easier to move across schools. However, without effective regulations on career prospects and working conditions, there is a risk that high turnover and the use of unqualified teachers may diminish the quality of education.

The teacher certification program needs to be reassessed, since it is not delivering the expected results. While certified teachers are less likely to hold second jobs, students of certified teachers do not perform significantly better on tests. To a large extent, the option of a simplified procedure for certification (based on submitting a "portfolio" of teaching experience, training courses or workshops) seems to have weakened the effects of the program. The introduction of competency tests and recertification may improve the impact of the program. A promising step is the inclusion in 2012 of a competency test to determine eligibility for the certification process.

Figure 86: Improving Teacher Management



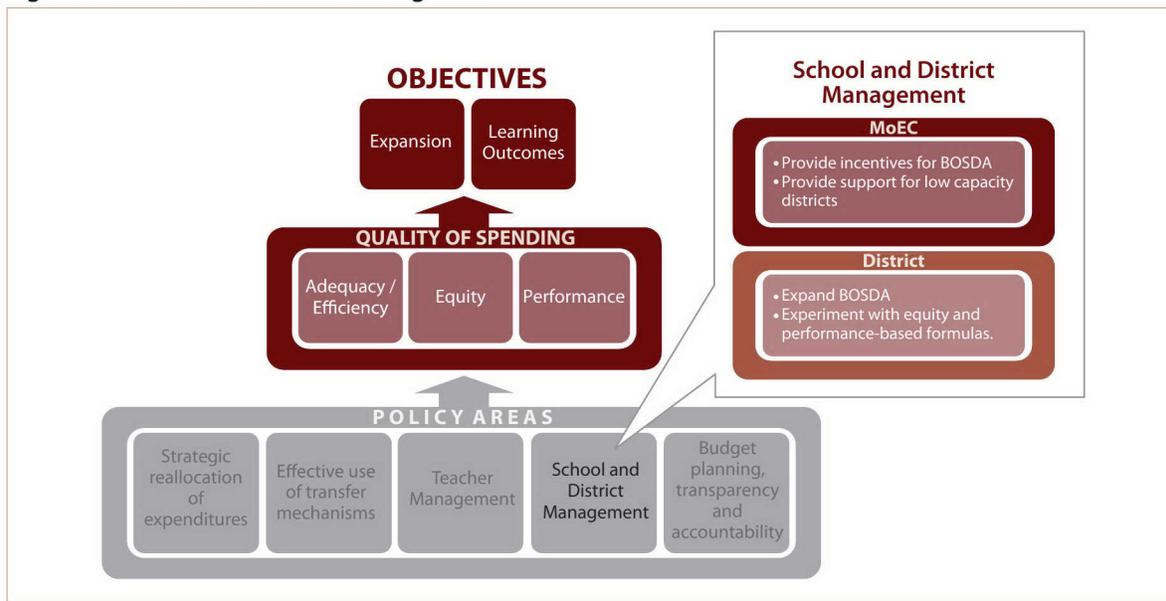
Improving School and District Management

District management does not stop at teachers: districts need to play a stronger role in managing and supporting schools, and BOSDA is a promising mechanism. In parallel with improvements in teacher management, districts need to diversify spending and provide stronger support for and supervision of schools. The BOSDA model, which has shown promising results in its first stages, is a good model to replicate and expand.

MoEC should ensure that schools are adequately funded by ensuring BOS keeps up with inflation, providing incentives for expansion of the BOSDA program, and ensuring transparency and accountability at the district and school levels. BOS levels should be revised yearly. As noted previously, not all districts are in a position to implement BOSDA, so support for expansion of the program should focus on matching grants and assistance for low-capacity districts to start experimenting, perhaps with small amounts initially.

The central government should also continue to increase accountability and transparency through improved communications and such national initiatives as providing instructions on the most effective ways to disseminate information at the school level or to ensure parental participation in decision making. Recent initiatives, such as “checkmyschool.org” in the Philippines, can provide models for increasing transparency in the system.

Figure 87: School and District Management

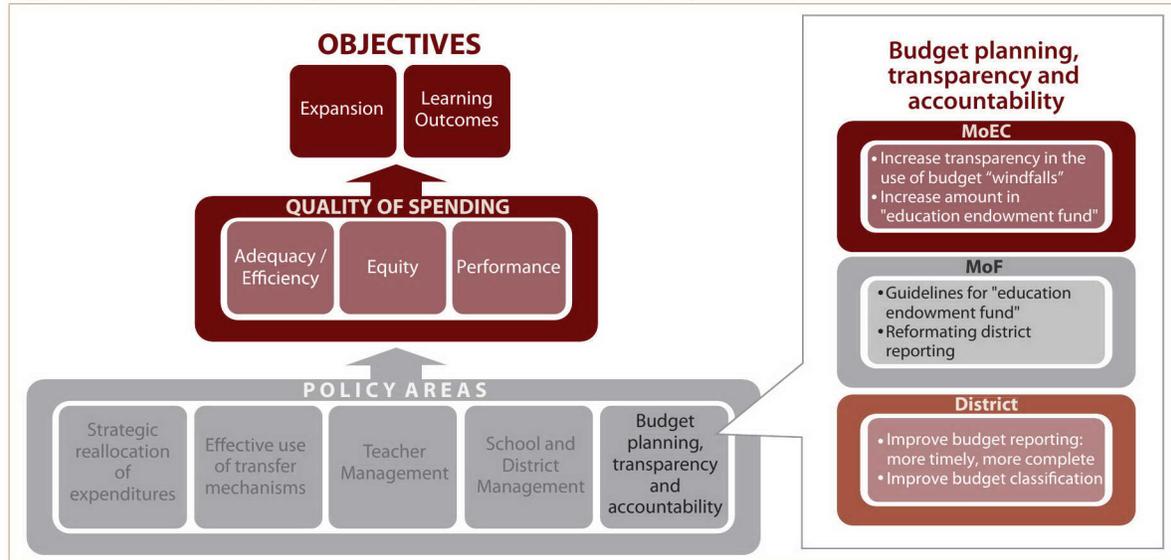


Improving Budget Planning, Transparency and Accountability.

In addition to the specific measures above, ensuring accountability and transparency in the planning and allocation of resources is crucial to improving the quality of spending. The 20 percent rule makes the process of holding spending agencies accountable more challenging because the pressure to show results in support of education budget requests is now absent. The 20 percent rule should not be taken for granted but should be viewed as an opportunity. Additional resources must be spent in a transparent manner, based on long-term development objectives and linked to specific program needs.

It is important to improve education budget reporting at the sub-national level and planning for mid-year windfalls at the national level. This report mentioned several problematic areas in current education data reporting, particularly for sub-national data, which lags two years behind, covers only 70 percent of districts and does not provide basic data breakdowns. Encouraging more up-to-date, detailed sub-national data reporting and providing guidelines on methodology and calculations to districts and provinces to ensure consistency is important for improving education budget transparency. Given the significant recent windfalls amounting to 7 percent annual increases in total education resources relative to the 2010-2012 planned budgets, it is important that the education line ministries renew and expand the 2010 practice of providing detailed budget plans describing windfall allocations to specific programs and activities.

Figure 88: Budget planning, transparency and accountability



Ensuring links between program planning, budgeting and performance is likely to result in better quality spending. MOEC has led the way in measuring outcomes, evaluating its performance and using this information to inform budgeting. Since 2010, MoEC has been actively collaborating with the Vice President's Office on a program monitoring and evaluation initiative (INPRES I/2010 Presidential Decree), managed by UKP4, reporting on improvements in the government's priority programs and ensures consistency between program planning and implementation. MoEC developed its own unit (UKMP3) to respond more effectively to UKP4, but as in other countries, linking this information to the budget has been a longer process. MoEC is one of the pilot ministries involved in the performance-based budgeting initiative run by the Ministry of Finance and BAPPENAS, and supported by the World Bank and other development partners. Expanding and improving the current M&E effort and moving toward performance-informed budgeting should allow MoEC to further improve the quality of spending and outcomes.

Given constraints and challenges associated with the 20 percent rule, it will be important to develop a contingency planning strategy for education budget management. As previously discussed, the 20 percent rule makes the education budget unpredictable, especially since it also applies to the revised budget. Increases in the state budget automatically lead to increases in the education budget, which complicates budget planning, especially given that volatile energy subsidies are the GoI's largest budget item. High volatility in the education budget should be mitigated by better use of the National Education Development Fund, which requires clear guidelines on its use and a mid-term expenditure framework outlining the proportion of windfalls to be allocated to the Fund and how and under what scenarios its resources can be used.

Implementing all these reforms will be a big challenge: the political economy of these reforms is very complex. Reforms that involve one stakeholder can be relatively easy to implement when resources and willingness exist. Some of these reforms, such as expanding BSM or funding for higher education, are relatively straightforward. However reforms that involve multiple stakeholders can prove impossible to implement if interests are not aligned. Reforming the transfer system is outside the control of MoEC, and has consequences for many sectors, not all of them positive. So balancing these incentives will be complex.

Even in the absence of big reforms to transfer mechanisms, MoEC can still improve the system significantly. In addition to supporting some strategic programs such as BSM, incentivizing and supporting districts would be a big step in the right direction. As noted earlier, this includes supporting districts in teacher management through clear guidelines, and supporting implementation of multigrade teaching and other reforms. All of this would improve efficiency and equity in the system, even if the DAU retains its current formula. Exploiting the BOSDA model to expand district support and accountability, and expanding national programs for accountability and transparency, can also have a big effect on the quality of education.

It is time to translate the strong commitment to education into higher quality education. Indonesia is ready for that qualitative leap. Although it will require the collaboration and coordination of many actors, the potential gains are plentiful. As Indonesia consolidates as a middle-income country, ensuring the presence of a highly-skilled labor force will be crucial. Improving the quality of education by improving the quality of spending would be a big step toward making sure the labor force is ready.

References

- Akhmadi, S.U. and D. Suryadarma. 2004. "When teachers are absent: Where do they go and what is the impact on students?" SMERU Field Report. SMERU Research Institute, Jakarta, Indonesia.
- Alatas, V. and J. R. Jellema. 2012. "Cash Transfers for Poor Students." Background paper for the report on *Protecting Poor and Vulnerable Households in Indonesia*. World Bank, Jakarta, Indonesia.
- Ali, M., J. Kos, P. Lietz, D. Nugroho, Furqon, A. Zainul and E. Emiliea. 2011. "Quality of Education in Madrasah: Main Study." Final Report: Indonesia's Ministry of Religious Affairs, CSAS AusAID, the Australian Council for Educational Research (ACER), Universitas Pendidikan Indonesia (UPI) and the World Bank Jakarta, Indonesia.
- Banerjee, A., Cole, S., Duflo, E. and Linden, L. 2007. "Remedying Education: Evidence from Two Randomized Experiments in India." *Quarterly Journal of Economics*. Volume 122: 3, pp: 1235-1264
- Bettinger and Long. Forthcoming.
- Bettinger, E. and B. Long. 2006. "Does Cheaper Mean Better? The Impact of Adjunct Instructors on Student Outcomes." Mimeo, Harvard University.
- Bruns, B., D. Filmer and H. A. Patrinos. 2011. "Making Schools Work: New Evidence on Accountability Reforms." World Bank, Washington, DC.
- Cerdan-Infantes, P. et al. 2010. "Education, Training and Labor Market Outcomes for Youth in Indonesia." World Bank, Jakarta, Indonesia.
- Chen, D. 2012, forthcoming. "Broadening Life-Long-Learning Opportunities in Indonesia." World Bank, Jakarta, Indonesia.
- Chen, D. 2012, forthcoming. "Preparing Indonesian Youth for Transition." World Bank, Jakarta, Indonesia.
- Chen, D. 2011. "School-Based Management, School-Decision Making and Education Outcomes in Indonesian Primary Schools." Policy Research Working Paper 5809. World Bank, Washington, DC.
- De Ree, J. 2012, forthcoming. "Teacher certification in Indonesia: A doubling of salary, or a way to improve learning?" World Bank, Jakarta, Indonesia.
- Duflo, E. 2004. "The medium run effects of educational expansion: evidence from a large school construction program in Indonesia." *Journal of Development Economics*, Vol. 74(1): 163-197.
- Duflo, E., P. Dupas and M. Kremer. 2012. "School Governance, Teacher Incentives, and Pupil-Teacher Ratios: Experimental Evidence from Kenyan Primary Schools." NBER Working Paper 17939. Available at: <http://www.nber.org/papers/w17939.pdf>
- Duthilleul, Y. 2005. "Lessons Learnt in the Use of Contract Teachers." Synthesis Report. UNESCO, International Institute for Educational Planning, Paris, France.
- Filmer, D. and N. Schady. 2009. "Are There Diminishing Returns to Transfer Size in Conditional Cash Transfers?" Policy Research Working Paper 4999, Impact Evaluation Series No. 35. World Bank, Washington, DC.
- Government of Indonesia. Badan Pengembangan Sumber Daya Manusia Pendidikan dan Kebudayaan dan Penjaminan Mutu Pendidikan. 2010-2011. "Teacher Data and Statistics (NUPTK)." Jakarta.

- Government of Indonesia. Indonesia Central Bureau of Statistics (BPS). 2010. "National Labor Force Survey (SAKERNAS)." Jakarta.
- Government of Indonesia. Indonesia Central Bureau of Statistics (BPS). 2001-2010. "National Socioeconomic Household Survey (SUSENAS)." Jakarta.
- Government of Indonesia. Ministry of Education and Culture (MoEC). 2010. "Ikhtisar Data Pendidikan Nasional Tahun 2009/2010." Jakarta.
- Government of Indonesia. Ministry of Finance (MoF). 2001-2011. "Sistem Informasi Keuangan Daerah (SIKD)."
- Hanushek, E. A., and L. Wößmann. 2007. "Education Quality and Economic Growth." Policy Research Working Paper 4122. World Bank, Washington, DC.
- Hoxby, C. M. 2000. "The Effects of Class Size on Student Achievement: New Evidence from Population Variation." *The Quarterly Journal of Economics*, 115(4): 1239-1285.
- Hyunkuk, C., P. Glewwe, and M. Whitley. 2010. "Do Reductions in Class Size Raise Students' Test Scores? Evidence from Population Variation in Minnesota's Elementary Schools." Department of Applied Economics, University of Minnesota.
- Jensen, R. 2010. "The (Perceived) Returns to Education and the Demand for Schooling." *The Quarterly Journal of Economics*, Vol. 125(2): 515-548.
- Jepsen, C. and S. Rivkin. 2009. "Class Size Reduction and Student Achievement: The Potential Tradeoff Between Teacher Quality and Class Size." *Journal of Human Resources*, Vol. 44(1): 223-250.
- King, E., A. Aarons, L. Crouch, S. Iskandar, J. Larrison, H. Moegiadi, F. Munger, J. Strudwick, and S. Muljoatmodjo. 2004. "Education in Indonesia: Managing the Transition to Decentralization." Report 29506, Vol. 1 of 3. EAP Region, Human Development Sector Department, World Bank, Washington, DC.
- Kluyskens, J. and M. Firdaus. 2009. "Teacher management: Recruitment, Selection and Data, Probation and Transfer." Background paper for the ESW study - Formulation of the medium term strategy (RENSTRA) for the education sector (2009-2014). World Bank, Jakarta, Indonesia.
- Kluyskens, J. and R. Rawlinson. 2008. "Improving Efficiency and Equity in Teacher Employment and Deployment." World Bank, Jakarta, Indonesia.
- Lewis, B. D. 2012. "Local Government Capital Spending in Indonesia: Impact of Intergovernmental Fiscal and In-Kind Transfers." Research Report. World Bank, Jakarta, Indonesia.
- Little, A. 2006. "Education for All and Multi-grade Teaching: Challenges and Opportunities." Springer, London.
- McEwan, P. J. and J. S. Shapiro. 2008. "The Benefits of Delayed Primary School Enrollment Discontinuity Estimates Using Exact Birth Dates." *Journal of Human Resources*, Vol. 43(1):1-29.
- Mulyran-Kyne, C. 2007. "The Preparation of Teachers for Multigrade Teaching." *Teaching and Teacher Education*, Vol. 23(2007): 501-514.
- Patrinos, H. A. (Ed). 2012. "Strengthening Education Quality in East Asia." UNESCO – World Bank.
- Pritchett, L. 2009. "Long-Term Global Challenges in education: Are There Feasible Steps Today?" Chapter Three in "Shaping Tomorrow Today: Near-Term Steps towards Long-Term Goals." Lempert, R.J. et. al. (eds). The RAND Corporation, Santa Monica, Arlington, Pittsburgh.
- Pritchett, L. and M. Viarengo. 2009. "Producing Superstars for the Economic Mundial: The Mexican Predicament with Quality of Education." Cambridge, Mass: John F. Kennedy School of Government, Harvard University, Program on Education Policy and Governance working paper 09-01, January 2009. As of June 18, 2009: http://www.hks.harvard.edu/pepg/PDF/Papers/Pritchett_Viarengo_PEPG09-01.pdf

- Rogers, F. H. and E. Vegas. 2009. "No More Cutting Class? Reducing Teacher Absence and Providing Incentives for Performance." Policy Research Working Paper 4847. Retrieved from <http://library1.nida.ac.th/worldbank/fulltext/wps04847.pdf> in April 2012.
- SEAMEO.(2006). "Indonesia: National Education System." South East Asian Ministers of Education Organization. Retrieved from www.seameo.org/index.php?option=com_content&task=view&id=62&Itemid=85 in March 2012.
- Shaeffer, S. 2011. "Multi-grade Teaching in Indonesia: Situational Analysis and Implementation Framework." Background paper prepared for Ministry of Education and Culture and World Bank Office, Jakarta, Indonesia. Unpublished.
- SMERU. 2010. "Remote Area Allowance and Absentee Levels for Teachers in Remote Areas." SMERU Research Institute, Jakarta.
- UNESCO Institute for Statistics. 2006 – 2009 data. UNICEF. 2009. "School Readiness in Indonesia." UNICEF, Jakarta, Indonesia.
- World Bank. 2012a. "Indonesia Economic Quarterly: Redirecting Spending." World Bank, Jakarta, Indonesia.
- World Bank. 2012b, forthcoming. "Sub-national Public Expenditure Review (SNPER)." World Bank, Jakarta, Indonesia.
- World Bank. 2010a. "Investing in Multi-grade Teaching in Indonesia." Policy Note. World Bank, Jakarta, Indonesia.
- World Bank. 2010b. "Transforming Indonesia's Teaching Force." World Bank, Jakarta, Indonesia.
- World Bank. 2009. "Investing in Indonesia's Education at the District Level: An Analysis of Regional Public Expenditure and Financial Management." World Bank, Jakarta, Indonesia.
- World Bank – RAND. 2010. "School Based Management Survey." World Bank – RAND, Jakarta, Indonesia.
- World Bank. Edstats Online Education Database. 2001 - 2010 Online Query:
- Zafeirakou, A. 2007. "Education for All by 2015: Will We Make It?" Paper commissioned for the EFA Global Monitoring Report 2008.

