

Making Better Use of Teachers: Strengthening Teacher Management to Improve the Efficiency and Equity of Public Spending

Policy Brief

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Indonesia has seen remarkable progress in education over the last 10 years. Access to primary education is near universal and participation in secondary education, particularly for the poorest students, has grown rapidly. Despite these achievements, significant challenges remain – access to ECED and post-basic education remains limited and international learning assessments show that the quality of education is low.

Improving education quality and expanding access to post-basic education will require a better use of the existing resources devoted to education. Since 2001, public investment in education has more than doubled in real terms as a result of a commitment to spend 20% of the national budget on education. Further increases in government education spending are likely to be limited and the necessary improvements in access and education quality will need to be largely financed from savings made from the existing budget.

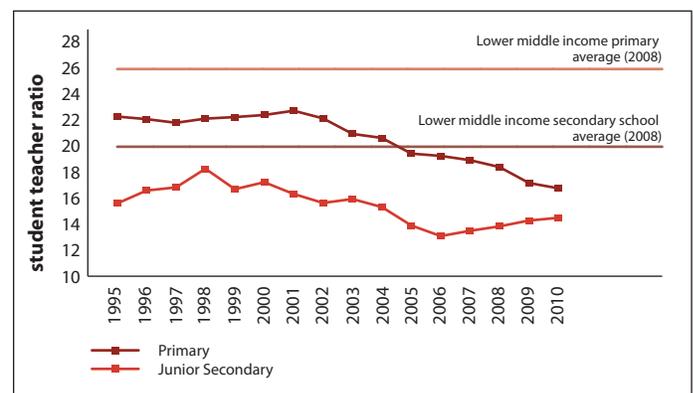
Teacher management is central to improving public spending efficiency

In the last decade, student-teacher ratios in Indonesia have fallen to levels that are low by international standards because the size of the teacher workforce has grown more rapidly than student enrolment (Figure 1). Existing ratios are below international benchmarks associated with good education quality and recent evidence in Indonesia shows that, at these levels, the relationship with learning outcomes is weak (Figure 2). Put another way, analysis suggests that increasing student-teacher ratios from these low levels would not adversely affect student learning outcomes.

The impact on the education budget of increased teacher hiring has been compounded by the ongoing teacher certification program. Recent increases in public education spending have largely been absorbed by increased teacher hiring as well as improved pay for existing teachers. The ongoing certification program, which aims to certify all teachers by 2015, guarantees certified teachers a professional allowance equivalent to their basic pay. While a recent impact evaluation found little effect of certification on raising student learning, the program is having a significant impact on the budget.

Figure 1: Student-teacher ratios have declined since 2001 and are low by international standards

Student-teacher ratios in primary and junior secondary schools in Indonesia, 1995-2010

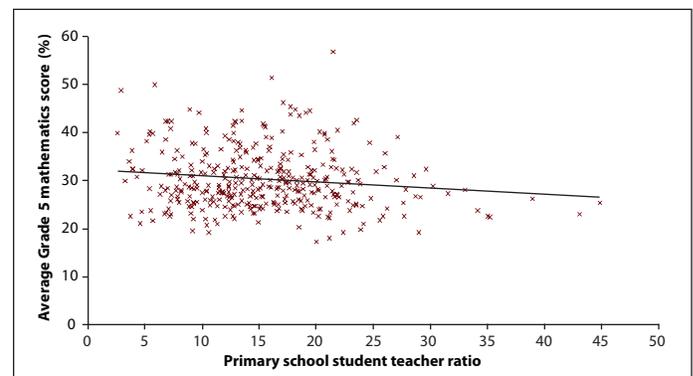


Note: Figures do not include madrasahs

Source: Ministry of Education and Culture teacher and enrolment data, UNESCO Global Monitoring Report 2011

Figure 2: The relationship between learning outcomes and student-teacher ratios is weak

Student-teacher ratios and average Grade 5 mathematics score for a sample of primary schools, 2010



Note: The weak relationship between student-teacher ratios and learning outcomes is confirmed by regression analysis controlling for school characteristics, principal and teacher education and experience and district fixed effects

Source: School based management survey (World Bank, 2010) and Education Public Expenditure Review (World Bank, 2012)



Photo: World Bank

In 2012, 35% of teachers were certified and the professional allowance accounted for 9% of total public education spending. Projections from the recent Education Public Expenditure Review suggest that as more teachers become certified, the burden on the education budget will be enormous and potentially crowd out other important education investments.

Reversing the downward trend in student-teacher ratios will be necessary if the resources needed to expand educational opportunity and raise education quality are to be realized. With limited scope for significant further increases in public education budgets, existing resources will need to be used more effectively if the government's ambitious goals for improving educational opportunities and raising quality are to be achieved. Raising student-teacher ratios to levels that would not endanger student learning outcomes has the potential to realize significant resources. Simple estimates suggest that raising the student-teacher ratio in primary and junior secondary schools by 5 students, a level Indonesia was at in 2001, would realize savings of approximately 22% in the salary bill. 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% equivalent to the total amount currently being spent by government on university education.

The unequal distribution of teachers gives rise to further inefficiency and reinforces other patterns of disadvantage. The distribution of teachers across schools can be very unequal. It is common for rural and remote schools to have teacher shortages while urban schools have more teachers than national staffing standards dictate. Moreover, more qualified and experienced teachers are frequently concentrated in wealthier urban areas. For example, over half of all primary and junior secondary school teachers in urban areas have a four year university degree compared to only 20% of teachers in rural remote locations. Making the distribution of teachers more equitable by ensuring that poor and remote schools have an equal share of qualified and experienced teachers is also likely to raise overall levels of learning and narrow learning disparities.

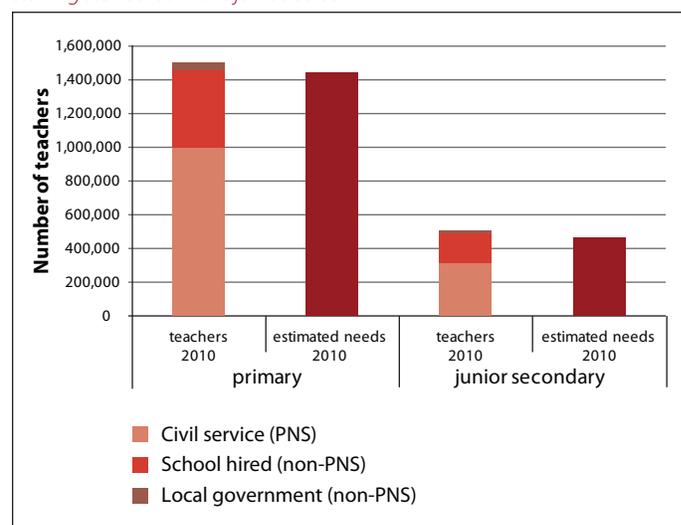
The impact of staffing standards on the size and distribution of the teaching force

In recognition of the importance of teacher management, the government has issued a number of different regulations to set standards for staffing levels at schools. The latest regulation was issued in late 2011 to provide guidelines to provinces and districts to manage government employed teachers, to exert some control over civil service teacher recruitment and to improve the current distribution of teachers. The regulation, the joint decree, was issued by the five ministries¹ collectively responsible for setting out guidelines on the management of government teachers.

However, existing staffing standards do not adequately address teacher overstaffing issues in primary and junior secondary schools. Based on the latest school level information on teachers and students, it is possible to assess the impact the standards contained in the latest joint decree would have if fully implemented. This analysis reveals that full implementation of existing standards would not change the overall need for significantly (See Box 1, Figure 3). For example, at the primary level, teacher requirements under current standards would reduce the number of teachers required from existing levels by approximately 65 thousand (4% of the current teaching force). Furthermore, student-teacher ratios would remain low; full compliance with national standards would raise national student-teacher ratios by one student at the primary level and two students at the junior secondary level.

Figure 3: The overall size of the teaching force is similar to the requirements of national staffing standards outlined in the joint decree

Actual numbers of teachers in 2010 compared with requirements under the staffing standards in the joint decree



Note: See box 1 for a description of how the estimates were calculated. Madrasahs are not included in these estimates. Source: NUPTK and MoEC school level data, 2010

¹Ministry of Education and Culture, Ministry for Government Apparatus Empowerment and Bureaucratic Reforms (MenPAN), Ministry of Finance, Ministry of Home Affairs and Ministry of Religious Affairs

Box 1: Estimating teacher requirements based on the joint decree

Estimated teacher needs are based on the standards outlined in the technical guidelines of the joint decree and the interpretation of these guidelines by MoEC. A summary of the key aspects of the technical guidelines:

Primary school teacher requirements

One teacher per taught group

In schools with more than 168 students: minimum of 28 (SSN - national standards) and maximum of 32 (MSS - minimum service standards) students per taught group

In small schools (<168 students): minimum of 6 class teachers per school

All schools have one sport and one religious teacher

Junior secondary school teacher requirements

In schools with more than 96 students: minimum of 32 (SSN) and maximum of 36 (MSS) students per taught group

In small schools (<96 students) minimum of 1 teacher per subject

Each teacher teaches a minimum of 24 hours per week

If a teacher's teaching load exceeds 40 hours per week, an additional teacher is required

All schools have a minimum of 1 teacher per subject

No data is available at the school level on the number of students in each taught group. Therefore, the estimates of teacher needs use the student-teacher ratio as a proxy for the number of students per taught group. This is not ideal as it assumes students are distributed evenly across classes and grades. This is likely to mean that in some schools the teacher requirements may lead to class sizes that fall outside of the MSS maximum and national standard minimum.

Teachers hired by schools make up a significant part of the existing teaching force particularly at the primary level. In 2010, school hired teachers represented 30% and 36% of the total number of primary and junior secondary school teachers respectively. These teachers have not gone through formal hiring procedures and are not always hired on the basis of school staffing standards. Furthermore, central and local government estimates of teacher need frequently exclude school hired teachers and result in many districts reporting overall civil service teacher deficits.

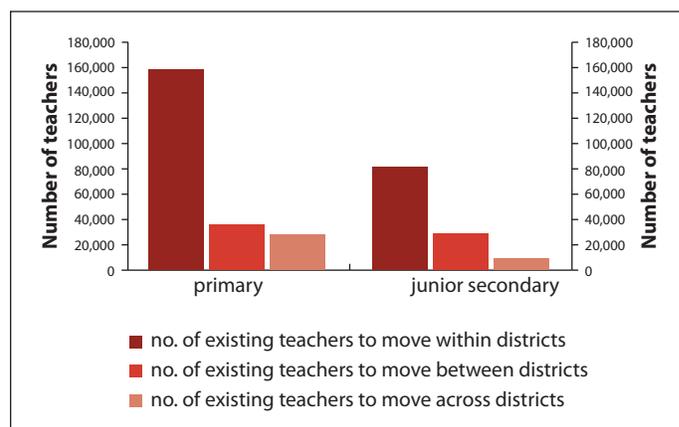
While estimates show that the overall teaching force is too large there are teacher deficits in some subjects. For example, at the primary level there is a surplus of class based teachers but a deficit of sports teachers. In junior secondary schools there are a large number of surplus Bahasa Indonesia and religion teachers and a deficit of computer and local content teachers. Teachers are also not evenly distributed with some schools facing teacher shortages while others have significant numbers of surplus teachers.

The scale of teacher redistribution necessary to allocate teachers more equally is considerable. If local governments redistributed existing teachers to fulfill the latest standards, approximately 340 thousand primary and junior secondary school teachers or 17% of the total workforce would need to be transferred. Most of this redistribution would involve moving teachers within the same districts. However, approximately 70 thousand teachers would need to be moved from districts with excess teachers to deficit districts in the same province (Figure 4). After transfers within and across districts,

approximately 37 thousand teachers could transfer from districts in one province to fill deficits in other provinces to further improve teacher redistribution.

Figure 4: A large number of teachers need to be transferred to achieve a more equitable distribution of teachers

Scale of redistribution necessary to comply with current staffing standards in primary and junior secondary schools, all teachers, 2010



Note: The estimates show the number of teachers currently in schools with excess teachers (according to the staffing standards outlined in the joint decree) that could be transferred to take up teaching in schools with deficits in their staffing levels. The estimates include both PNS and non-PNS teachers. Madrasahs are not included in these estimates.

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

The proportion of civil service teachers (PNS) that would need to be redistributed is similar to the overall teaching force. The central government only has influence over the redistribution of civil service teachers and it is therefore instructive to look at the levels of transfer required for these teachers alone. It turns out that a significant, if somewhat smaller proportion of civil-service teachers would need to be transferred to comply with national standards. Approximately, 11% of all civil-service primary school teachers and 27% of junior secondary school teachers would be required to move to improve teacher distribution in accordance with the recent joint decree.

Strengthening teacher management

The analysis of the staffing standards associated with the joint decree shows that current approaches to tackling overstaffing and distribution inequalities do not go far enough. It highlights the risk that student-teacher ratios will remain too low and geographical disparities in teaching quality too wide even if existing staffing standards are successfully implemented. So what can be done to strengthen current reform efforts?

Introducing a consistent set of national staffing norms that are easy to understand and implement is important. Currently, there are at least three sets of national regulations that outline different staffing norms. This creates confusion amongst local governments about which regulations they should adhere to making it more difficult to hold them accountable for teacher distribution. A single set of staffing standards set at the national level that are easy to understand, consistent with other regulations (e.g. 24-hour rule) and improve the efficiency of teacher distribution are required.

Addressing staffing inefficiencies in small schools

Staffing standards for small schools are a key contributor to the low student-teacher ratios in primary and junior secondary schools. At the primary level, approximately a third of schools have less than 120 students (Table 3). These schools commonly have one learning group, or class, for each grade and under current staffing norms would require a total of eight teachers: six class-based and a sports and religious teacher. Staffing levels of this kind results in low student-teacher ratios. For example, nearly a fifth of primary schools have student-teacher ratios of 10.

The large number of small schools is commonly explained by the low population density of many areas in Indonesia. Where areas are sparsely populated, the size of schools can be limited because the number of potential students in any school's catchment area can be small. For example, 64% of all primary schools have fewer than 120 students in East Kalimantan where population density is very low (64 people per square kilometer).

However, it is also the case that some of the most densely populated provinces have large numbers of small schools and relative-

ly low student-teacher ratios. For example, 39% of primary schools in East Java have fewer than 120 students despite being densely populated (i.e. population density of 828 people per square kilometer). Given that 14% of teachers and 21% of all primary school students are located in East Java, raising teacher efficiency by increasing school enrolments in this province could realize significant savings.

As Indonesia continues to urbanize, strategies to address small schools will become increasingly important. Estimates suggest that by 2025 approximately two-thirds of the Indonesian population will live in urban areas, up from 50% in 2005. The implications for schooling will be enormous as demand for schooling shifts from rural areas to urban areas. In rural areas, school enrolments are likely to shrink and strategies to adjust school provision will be necessary. Other countries (e.g. China and countries in Eastern Europe) have faced similar challenges and one approach has been to merge nearby schools. While geographical barriers, distance and community resistance can limit the potential for school mergers, some districts have already had some success (see Box 2).

Additional efforts to address staffing issues in small schools are needed. Multi-grade teaching has been used successfully in other countries to tackle staffing issues in small schools. In Indonesia, multi-grade teaching is already practiced in a small number of primary schools and training for teachers in the approach is available. However, these pilot programs have not been successfully expanded. At the junior secondary level, dual or subject-based teaching also has the potential to improve the efficiency of staffing in small schools. Informally, dual subject teaching takes place but reforms to pre-service training courses and permitting certification in more than one subject are needed to exploit the increased flexibility it brings.

Table 3: Primary and Junior Secondary School Size, 2010

	Primary	Junior Secondary
Average student enrolment per school	173	261
% of schools with less than 150 students	48	40
Average students per learning group	16	25
Student-teacher Ratio	9	9
% of schools with fewer than 120 students	34	33
Average students per learning group	13	23
Student-teacher Ratio	10	10
% of schools with fewer than 90 students	19	25
Average students per learning group	10	20
Student-teacher Ratio	12	11

Source: MoEC school data, 2010

Box 2: Successful merging of schools in Bantul

In 2000, the local district education office in Bantul, Yogyakarta realized that many of its schools had very few students. In some schools it was not uncommon to have only 5 students in each class. Faced with growing budget pressures and the high cost of maintaining a large number of small schools the district began to explore ways in which the number of schools could be reduced. It set a number of criteria for identifying primary schools that could potentially be merged:

1. Enrolment levels below 150 students
2. Distance between schools to be merged to be less than 1.5 kilometers
3. No geographical obstacles such as rivers, railway lines, highways, or mountains separating the schools

The success of the school merging program can be ascribed to the local government's responsiveness to the concerns of all stakeholders. For example, teachers and school principals of merged schools were concerned about being transferred to schools far away from their homes. The local government ensured that teachers were transferred to schools close to their homes and promoted well-performing principals to school supervisors. The local government also worked with affected communities to socialize the importance of the proposed merger. It also supported the conversion of old school buildings for other uses. For example, in many communities old school buildings were converted into training centers of pre-schools.

The program of merging schools has been successful. According to district records the number of primary schools has fallen from 578 in 2002/03 to 356 today. The primary student-teacher ratio in Bantul was 20 in 2010, well within levels of teacher provision necessary for quality education.² And despite the merging of schools, Bantul continues to perform well on the annual UN examination.

Improving the equity of teacher distribution

Improved teacher distribution requires the strengthening of existing mechanisms that govern redeployment. Transfers across districts and provinces tend to be done on an ad hoc basis and rely on individual teachers identifying openings and schools initially agreeing a transfer. When transfers are agreed the budget for the salaries of transferring teachers are moved to the receiving district or province. It seems unlikely that districts and provinces would be willing to lose a teacher and the associated resources to effect a transfer. These relatively informal mechanisms for redistribution therefore are unlikely to be sufficient to realize the large redistribution required to achieve a more equitable distribution of teachers.

While it may be difficult to move existing teachers it is possible that the distribution can be improved over time by allocating newly qualified teachers to schools with the greatest need. A successful program was introduced in Gorontalo district in 2006. The local government introduced a policy to only employ teachers who agreed to be posted to schools that required their particular skill set. Teachers also agreed to an 8 year contract with the local government to be redeployed inline with the changing staffing needs of schools within the district. This allowed new teachers to be deployed to schools with greatest need as well as gave the local education office the flexibility to move teachers according to changing need.

An underlying cause of unequal teacher distribution is teachers' concerns about teaching in poor and remote communities. This unwillingness is driven by a number of concerns teachers have around

the schooling of their own children, availability of suitable accommodation and challenges of living in unfamiliar areas. The result is that poor remote areas frequently have fewer teachers than they need and have teachers that are less well qualified than those in urban areas.

The government introduced a remote area allowance in 2007 to encourage teachers to teach in remote areas and improve their motivation. In 2012, approximately 53,000 teachers were in receipt of the allowance. This is a relatively small number compared to what is needed and teachers that are currently receiving the allowance were already working in remote areas. Despite the limited coverage of incentives of this kind they have the potential to improve teacher performance. In a study conducted in Papua in 2011³, absenteeism rates for teachers receiving incentives for teaching in remote areas were lower compared with other teachers. However, the study also noted that the coverage and targeting of the remote area allowance were weak and this resulted in many teachers not receiving the support they needed to teach in remote areas. These results suggest that incentives of this kind need to be strengthened to maximize their impact on the distribution of teachers.

Exploiting opportunities to reshape the teaching force

Government plans for further expansion of ECED services and secondary education present opportunities for redeployment. The natural expansion of the education system due to population growth as well as government plans for further expansion will mean that more teachers will be required in some areas. This provides an oppor-

²The student teacher ratio only includes class based teachers.

³UNCEN, UNIPA, SMERU, BPS and UNICEF. 2012. *We like to be taught: a study on teacher absenteeism in Papua and West Papua.*

tunity to improve the distribution of teachers by redeploying existing teachers rather than hiring new teachers.

Reductions in the teaching force resulting from retirement also present opportunities to improve efficiency. In the next five years, approximately 10% (150,000 primary and 30,000 junior secondary school teachers) of the teaching force will reach retirement age. This represents a large opportunity to adjust the size of the teaching force without having to resort to the reassignment of teachers across levels.

Breaking the link between central government transfers and teacher hiring

The current system for hiring civil-service teachers creates strong incentives for local governments to continue to increase the size of their teaching forces. For example, intergovernmental resource transfers are partly determined by the size of a local government's pay roll. Breaking the link between the size of intergovernmental transfers and the civil service would potentially limit the incentive for local governments to hire teachers beyond those required.

Conclusion

It is important to recognize that improvements to the current distribution of teachers will take time to implement. Many of the reforms require changes to the way teachers are trained and deployed. In order to do this, the necessary training opportunities and revised regulations on how teaching is organized need to be developed.

Education is central to Indonesia's ambitious plans to accelerate economic growth and reduce poverty. If these plans are to be achieved, the education system needs to provide broader access to education opportunities and improve the quality of existing provision. The government has signaled its commitment to achieving these goals by earmarking 20% of the national budget to education. However, significant inefficiencies exist which left unchecked will severely constrain future improvements in education quality and access. Teacher oversupply and the low student-teacher ratios that result are a key determinant of existing inefficiency. Tackling these inefficiencies through improved teacher management is vital if national goals for education and accelerated economic growth are to be realized.

Recommendations

1. Introduce a single set of staffing standards that are consistent with other regulations and raise student teacher ratios in small schools through the introduction of dual-subject and multi-grade teaching.
2. Explore opportunities to merge neighbouring schools with low levels of enrolment
3. Improve teacher hiring and deployment:
 - Expand incentives for better deployment of new teachers
 - Break the link between teacher hiring and the size of intergovernmental transfers

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