

REVEALING

HOW INDONESIA'S SUBNATIONAL GOVERNMENTS SPEND THEIR MONEY ON EDUCATION

INDONESIA: SUBNATIONAL EDUCATION PUBLIC EXPENDITURE REVIEW 2020



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Australian Government

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Please cite the work as follows: Afkar, R; Luque, J; Nomura, S; Marshall, J. 2020.
Revealing How Indonesia's Subnational Governments Spend their Money on Education, World Bank. Jakarta. © World Bank.

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CONTENTS

List of Figures **ii**

List of Tables **iv**

List of Boxes **iv**

List of Tables (Annex) **iv**

Foreword **v**

Acknowledgment **vii**

Abbreviations and Acronyms **viii**

Executive Summary **x**

1. Introduction **1**

1.1 Why do we need a subnational education PER? **2**

1.2 Conceptual Framework **5**

2. Variation, Divergence and Inequality between Districts/Cities **8**

3. Education Mandates and Resources at the Subnational Level **14**

3.1 Legal framework in education service delivery **16**

3.2 Overview of the education budget **20**

3.2.1 General allocation funds (*Dana Alokasi Umum*, DAU) **24**

3.2.2 Special allocation funds (*Dana Alokasi Khusus*, DAK) **28**

4. How Do Subnational Governments Manage Their Education Budgets? **32**

4.1 How do subnational governments conduct their planning and budgeting? **34**

4.2 How much do subnational governments allocate resources to education? **38**

4.3 How do districts/cities report their education expenditures? **50**

4.4 How are resources actually spent on education at the subnational level? **54**

4.4.1 Education spending by education level **55**

4.4.2 Salary spending **62**

4.3.3 Non-salary spending **73**

5. How Do District/City Education Budgets Impact on School Conditions and Student Outcomes? **80**

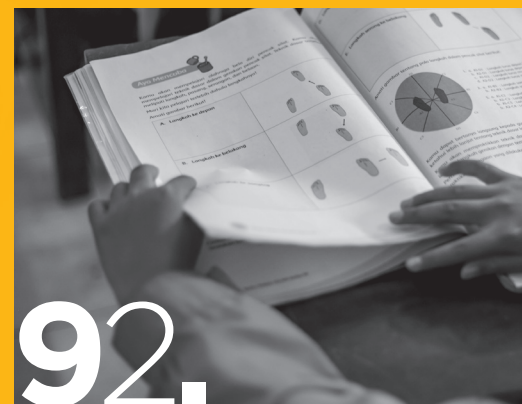
5.1 How does district/city spending impact the provision of school conditions? **83**

5.2 How are key student outcomes affected by education spending? **86**

6. Summary and Main Recommendations **92**

Annex **97**

References **105**



list of FIGURES

| | | |
|-----------|--------------------|--|
| 1. | FIGURE 1.1 | Theory of change framework: Education budget allocations, school inputs and student outcomes 7 |
| 2. | FIGURE 2.1 | More than 200 districts/cities have above 90 percent lower secondary GERs, but many still have below 80 percent 11 |
| | FIGURE 2.2 | High levels of heterogeneity for UN scores observed across districts/cities with varying NERs 12 |
| | FIGURE 2.3 | Performance over time across district/city quintiles on adjusted UN tests and overall NERs remain relatively consistent, 2016–18 13 |
| 3. | FIGURE 3.1 | Districts/cities and provinces receive the overwhelming majority of the education budget, 2020 22 |
| | FIGURE 3.2 | Resources to education, especially transfers, have increased significantly in the past decade 23 |
| | FIGURE 3.3 | Evolution of estimated DAU for education has decreased over the past decade 26 |
| | FIGURE 3.4 | DAU per capita and district/city level poverty rates 27 |
| 4. | FIGURE 4.1 | Education budget share at province and district/city level, 2018 40 |
| | FIGURE 4.2 | Frequency summary of realized total spending as percentage of total budget, by year 41 |
| | FIGURE 4.3 | District/cities' education budget allocation and realization rates 42 |
| | FIGURE 4.4 | District's education budget allocation and realization rates based on the local education governance index 43 |
| | FIGURE 4.5 | Budget elasticity of 0.4 reveals that the shares of district/city education budgets are decreasing, while overall resources to the districts/cities are increasing 44 |
| | FIGURE 4.6 | Higher district/city poverty rates are mildly correlated with lower shares of realized expenditure on education, 2018 (Panel A: poverty rate and realized education spending; Panel B district population and realized education spending %) 45 |
| | FIGURE 4.7 | As “education” spending increases, the “general” expenditure component decreases, 2018 45 |
| | FIGURE 4.8 | Education budgets per capita remained consistent between 2015 and 2018—the lowest spending districts/cities in 2015 also spent less in 2018 46 |
| | FIGURE 4.9 | A negative slope reveals that larger districts/cities spend less per student on education than smaller districts/cities, 2018 48 |
| | FIGURE 4.10 | Regardless of poverty rates, smaller districts/cities tend to spend more per student on education than larger districts/cities, 2018 49 |
| | FIGURE 4.11 | Districts/cities generally prioritize resources toward primary and lower secondary education 57 |

| | |
|--------------------|---|
| FIGURE 4.12 | Education expenditure per student by education levels 60 |
| FIGURE 4.13 | International comparison of the ratio of expenditure per secondary student to expenditure per primary student, circa 2019 61 |
| FIGURE 4.14 | Districts/cities and provinces allocate most of their education budgets to salary-related expenditure 62 |
| FIGURE 4.15 | Distribution of education budget allocated to personnel expenditures 64 |
| FIGURE 4.16 | District/city education expenditure by category 65 |
| FIGURE 4.17 | Share of education budget spent on teachers' salaries, selected countries 66 |
| FIGURE 4.18 | Average teacher salaries and allowances by education levels 68 |
| FIGURE 4.19 | Districts/cities with a higher share of civil servant teachers tend to have smaller class sizes 69 |
| FIGURE 4.20 | Share in BOS of payments to honorarium teachers and expenditure on salaries per student, 2018 70 |
| FIGURE 4.21 | Change in PNS and non-PNS teachers (primary) 71 |
| FIGURE 4.22 | Change in PNS and non-PNS teachers (lower secondary) 71 |
| FIGURE 4.23 | Change number of students and teachers (primary) 72 |
| FIGURE 4.24 | Change number of students and teachers (lower secondary) 72 |
| FIGURE 4.25 | Large variations across districts/cities in the use of non-salary expenditures 75 |
| FIGURE 4.26 | Non-salary spending by education level 76 |
| FIGURE 4.27 | Per-student non-salary spending by education level 77 |
| FIGURE 4.28 | Infrastructure spending 79 |
| <hr/> | |
| 5. | |
| FIGURE 5.1 | The relationships between Lower Secondary NER and education spending (education share of realizing spending %, education expenditure per child aged 7-15) 88 |
| FIGURE 5.2 | Positive relationship between district/city average integrity adjusted UN test scores and district/city budgeted spending share for education, 2018 89 |

list of TABLES

| | | |
|-----------|--|---|
| 2. | TABLE 2.1 | Main socioeconomic indicators by district/city 11 |
| 3. | TABLE 3.1 TABLE 3.2 TABLE 3.3 | Education service delivery mandates according to Law No. 23/2014 on Subnational Government and its predecessors 18 Main financial indicators by district/city 25 BOS transfers per student have increased in recent years, across all levels of education 28 |
| 4. | TABLE 4.1 TABLE 4.2 | Education outcomes indicators in development agenda of RPJMN 2015–2020 36 There is a wide variation in designated program category names for honorarium teachers' salaries/allowances 52 |
| 5. | TABLE 5.1 TABLE 5.2 | Covariates of district average school inputs, 2015–18 85 Correlates of student results in the national exam (UN) 90 |

list of BOXES

| | | |
|-----------|----------------|--|
| 1. | BOX 4.1 | Standardized data collection on district/city expenditures 56 |
| 2. | BOX 4.2 | International evidence on variation in subnational education expenditure 59 |
| 3. | BOX 4.3 | Teacher hiring at different levels 63 |

list of TABLES (ANNEX)

| | | |
|-----------|----------------------|---|
| 1. | ANNEX TABLE 1 | Detail breakdown of total education budget, 2010–20 97 |
| 2. | ANNEX TABLE 2 | Covariates of budgeted district/city spending share on education and per-capita education spending, 2015–18 98 |
| 3. | ANNEX TABLE 3 | List of platforms for planning, budgeting, financial administration and reporting used in selected districts/cities 99 |
| 4. | ANNEX TABLE 4 | List of selected districts for detailed data survey phase 101 |
| 5. | ANNEX TABLE 5 | Covariates of district average school inputs, 2015–18 102 |
| 6. | ANNEX TABLE 6 | Covariates of district student participation outcomes, 2015–18 102 |
| 7. | ANNEX TABLE 7 | Covariates of student participation outcomes, 2015–18 103 |
| 8. | ANNEX TABLE 8 | Covariates of district average UN scores, 2015–18 104 |



FOREWORD

BY **SATU KAHKONEN**,
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The Indonesian school system is the fourth largest in the world, with over 53 million students and 2.6 million teachers in more than 250,000 schools. Over the past 15 years, Indonesia has implemented major policy reforms to improve education, including a constitutional mandate to spend 20 percent of the national budget on education, decentralizing some functions of the education sector to the district and school levels, and enacting Law on Teachers and Lecturers No.14/2005 to improve teacher quality. By 2018, spending on education was greater than any other sector.

However, as the national budget is just 15 percent of Indonesia's GDP, this education expenditure is only 3 percent of GDP, the lowest in the region. Law on the National Education System No. 20/2003 emphasizes the right to education for all Indonesian citizens and strengthens Indonesia's commitment to finance basic education without cost. While Indonesia has made impressive progress over the past 15 years in expanding access to education, major implementation challenges remain: wide gaps persist in enrollment rates, spending per student, student achievement, teacher quality, and management capacity at schools across district/cities.

Although an increase in funding has contributed to increasing access in education, it has not led to significant increases in learning outcomes, as measured by low scores in the national exam (*Ujian Nasional*, UN) and international assessments (PISA), as well as our companion report on Service Delivery Indicators in schools of the Ministry of Religious Affairs. These data point to the conclusion that many Indonesian students are not achieving the expected minimum levels of knowledge and skills required to participate in society at their full potential. Their human capital—the knowledge, skills, and health that people accumulate throughout their lives—is key to Indonesia’s future success. However, the Human Capital Index estimates that a child born in Indonesia today will only be 54 percent as productive as she or he could have been under the benchmark of complete education and full health. This is a challenge that Indonesia needs to overcome to achieve President Joko Widodo’s vision of creating a workforce that is hardworking, dynamic, skilled, and with a mastery of science and technology.

The ongoing COVID-19 pandemic will have a profound impact on Indonesia’s education progress. While the Government of Indonesia has taken many timely steps to support distance learning, the pandemic is still likely to reduce learning and widen existing inequalities. Fiscal space is expected to tighten post-COVID-19, making it more important than ever for Indonesia to prioritize how it spends its resources on education, to ensure that all children still have access to quality education in order to attain their full potential.

Through the process of decentralization, the importance of subnational governments’ role in budget execution and education outcomes has increased, yet little information is available to understand how they conduct planning, allocation, and execution of education budgets. This study aims to fill this information gap by assessing the main activities implemented by districts/cities, looking at district/city funding, capacity, and characteristics in facing fundamental challenges related to effective education spending.

Recommendations focus on reassessing subnational education programs, standardizing budget classifications, improving coordination and establishing an integrated education data management system to improve accuracy of data, accountability and evidence-based policy-making.

We hope this report will provide insights into how Indonesia is spending its resources on education, and how to spend better to achieve Indonesia’s education goals, in order to reach its full potential and become more resilient in a rapidly changing world.



ACKNOWLEDGEMENTS

This report was prepared by **Rythia Afkar**, **Javier Luque**, **Shinsaku Nomura**, and **Jeffery Marshall**, under the overall guidance of **Satu Kristiina Kahkonen** (Country Director, Indonesia and Timor-Leste). Data collection on district education expenditure was managed by **Muhammad Farman Izhar**, **Teguh Murdijanto**, **Ahmad Riyadi**, and **Irianto**, while the mission on Chart of Accounts was conducted by **Blane Lewis** and **Muhammad Farman Izhar**. We would like to thank **Noah Yarrow** and **Toby Linden** for their helpful guidance and insightful advice, **Citra Kumala** and **Alexander Michael Tjahjadi** for excellent research assistance, **Deepali Gupta** for report finalization and communication, and **Eddy Quach Trang** for his helpful input and suggestions. We are grateful for the support from the Ministry of Finance, as well as the Ministry of Education and Culture, in undertaking this work. The report has benefited from useful comments by peer reviewers: **Dina Abu-Ghaida** (Lead Economist), **Dewi Susanti** (Senior Social Development Specialist), and **Pedro Cedran Infantes** (Senior Economist).

We also thank **Peter Kjaer Milne** for editing the report and Box Office for designing and laying out the report, guided by **Maureen Rustandi**. **Lestari Boediono**, **GB Surya**, **Jerry Kurniawan**, and **Mauliyati Nuraini** provided support on the website and launch event.

Funding for this report has been generously provided by the Australian Government (through the Department of Foreign Affairs and Trade).

ABBREVIATIONS and ACRONYMS

| | | |
|-----------|-----------------|--|
| A. | APBD | Regional Budget (<i>Anggaran Pendapatan dan Belanja Daerah</i>) |
| | APBN | National Budget (<i>Anggaran Pendapatan dan Belanja Negara</i>) |
| | ASN | Civil Service Apparatus (<i>Aparatur Sipil Negara</i>) |
| B. | Bappeda | Regional Development Planning Agency (<i>Badan Perencanaan Pembangunan Daerah</i>) |
| | Bappenas | National Development Planning Agency (<i>Badan Perencanaan Pembangunan Nasional</i>) |
| | BKN | National Civil Service Agency (<i>Badan Kepegawaian Negara</i>) |
| | BOS | School Operational Grant (<i>Bantuan Operasional Sekolah</i>) |
| | BOSDA | Regional School Operational Grant (<i>Bantuan Operasional Sekolah Daerah</i>) |
| | BOS-PAUD | School Operational Grant for Early Childhood Education and Development (<i>Bantuan Operasional Penyelenggaraan</i>) |
| | BPKAD | Office for Management of Regional Revenue, Finance and Assets (<i>Badan Pengelolaan Keuangan dan Aset Daerah</i>) |
| | BPKP | Financial and Development Supervisory Agency (<i>Badan Pengawasan Keuangan dan Pembangunan</i>) |
| | BPS | Central Bureau of Statistics |
| C. | CoA | Chart of Accounts |
| | DAK | Special Allocation Fund (<i>Dana Alokasi Khusus</i>) |
| | Dapodik | MoEC Database on School Infrastructure (<i>Data Pokok Pendidikan</i>) |
| | DAU | General Allocation Fund (<i>Dana Alokasi Umum</i>) |
| | DBH | Revenue-Sharing Fund (<i>Dana Bagi Hasil</i>) |
| | DEO | District Education Office (<i>Dinas Pendidikan</i>) |
| | DPD | Dynamic Panel Data Modeling |
| E. | ECED | Early Childhood Education and Development |
| | e-RKAS | Electronic Performance-based School Planning and Budgeting System (<i>e-Rencana Kegiatan dan Anggaran Sekolah</i>) |
| F. | FE | Fixed Effects |
| G. | GDP | Gross Domestic Product |
| | GRDP | Gross Regional Domestic Product |
| | GER | Gross Enrollment Rate |

| | | |
|-----------|---|---|
| H. | HCI | Human Capital Index |
| I. | IDR IINN | Indonesian Rupiah Integrity Index of the National Exam |
| K. | KemenPAN-RB KIAT Guru | Ministry of State Apparatus and Bureaucratic Reform (<i>Kementerian Pendayagunaan Aparatur Negara dan Reformasi Birokrasi</i>) Teacher Performance and Accountability Pilot Project (<i>Kinerja dan Akuntabilitas Guru</i>) |
| M. | MMS MoEC MoF MoHA MoRA MoRHE MoRTHE | Minimum Service Standards Ministry of Education and Culture Ministry of Finance Ministry of Home Affairs Ministry of Religious Affairs Ministry of Research and Higher Education Ministry of Research, Technology and Higher Education |
| N. | NER | Net Enrollment Rate |
| O. | OECD OTSUS | Organisation for Economic Co-operation and Development Special Autonomy Fund (<i>Dana Otonomi Khusus</i>) |
| P. | PAD PAUD PER PNS PPPK | Own-Source Revenue (<i>Pendapatan Asli Daerah</i>) Early Childhood Education and Development (<i>Pendidikan Anak Usia Dini</i>) Public Expenditure Review Civil Servant (<i>Pegawai Negri Sipil</i>) Civil Servant Employed under a Fixed-Term Contract (<i>Pegawai Pemerintah dengan Perjanjian Kerja</i>) |
| S. | SD SIMDA SIPKD SMA SMK SMP Susenas | Primary School (<i>Sekolah Dasar</i>) Regional Financial Management Information System (<i>Sistem Informasi Manajemen Keuangan Daerah</i>) Regional Financial Management Information System (<i>Sistem Informasi Pengelolaan Keuangan Daerah</i>) Upper Secondary School (<i>Sekolah Menengah Atas</i>) Vocational Secondary School (<i>Sekolah Menengah Kejuruan</i>) Lower Secondary School (<i>Sekolah Menengah Pertama</i>) National Socioeconomic Survey (<i>Survei Sosial Ekonomi Nasional</i>) |
| T. | TKG TPG | Teacher Remote Area Allowance (<i>Tunjangan Khusus Guru</i>) Teacher Professional Allowance (<i>Tunjangan Profesi Guru</i>) |
| U. | UN US\$ | National Exam (<i>Ujian Nasional</i>) United State Dollar |
| W. | WASH | Water Sanitation and Hygiene Program |

EXECUTIVE SUMMARY

In its most recent Medium-Term National Development Plan (*Rencana Pembangunan Jangka Menengah Nasional* 2020–2024, or RPJMN), Indonesia has set its highest priority in the coming five years on the development of human resources. This reflects the unfortunate reality that the development of Indonesia’s human capital has not progressed as well as had been expected, given that the next generation of Indonesian workers will only be 54 percent as productive as they could have been under the benchmark of 14 years of quality education and full health.¹

Strengthening Indonesia’s education sector is crucial to achieving the RPJMN goals. The Government of Indonesia (GoI) has already implemented a series of important policy reforms in education over the past two decades, including its 2002 Constitutional Amendment mandating the GoI to prioritize education spending by allocating 20 percent of the national budget to the sector. But despite this important step, the implementation of this policy has run into challenges to improve the efficiency and effectiveness of the allocated resources as much as hoped. Indonesia’s most recent amendment to its decentralization legislation, Law No. 23/2014 on Subnational Government, transferred a far greater

role in education management and service delivery to subnational governments.² However, little information has been made available on how subnational governments conduct the planning, allocation, and execution of their education budgets—a key driver of increased human capital development.

This study aims to fill this essential information gap by assessing the activities implemented by subnational governments as they fulfill their mandate in the education sector. Data collected from January to June 2019 in a survey of 27 districts and cities spread over eight provinces, as well as an analysis of national spending data, lead to five main conclusions:

Key Message 1:

Increased education budget allocations have contributed to increasing access to education, but they have contributed little to improving student learning outcomes.

¹ Human Capital Index: <https://www.worldbank.org/en/publication/human-capital>

² Law No. 22/1999 on Subnational Government, which guided the process of devolution and the local autonomy, was endorsed by Parliament in late 1999. The first revision of this law took place in 2004, and the latest version was passed by Parliament in 2014. The revised law, Law No. 23/2014, provides a clearer division of responsibilities between all government levels, giving greater legal certainty to district/city governments regarding their responsibilities.

Following the 2002 Constitutional Amendment, the GoI has now met its mandate of allocating 20 percent of the national budget to the education sector. This percentage is twice as large as some East Asian countries, such as Japan (9.3 percent) and the Republic of Korea (12.8 percent), and on a par with Malaysia (21 percent) and Singapore (17.7 percent), though these governments capture a much larger percentage of GDP for government expenditure (World Bank 2020a). Partly as a result of this major step, the financial resources currently available to the education sector in Indonesia have increased by over 200 percent in real terms between 2002 and 2018. For the fiscal year 2020, the education budget stood at IDR 508 trillion (US\$34.5 billion)³ for pre-primary to Grade 12 school education, higher (tertiary) education, and vocational training.

This increase in financial resources has contributed to an increase in access to education. Over the period 2003–19, lower- and upper-secondary enrollment grew from 12.9 million to 18.7 million students, increasing the net enrollment rates (NERs) from 63 to 79 percent, and from 40 to 61 percent, for lower- and upper-secondary, respectively.

Despite the impressive increases in enrollment and access to education, progress on student learning outcomes has failed to meet expectations. An international assessment, the Programme for International Student Assessment (PISA) test, conducted in 2018, showed that only about one-third of Indonesian students attained the minimum level of proficiency in reading, math, and science, namely level 2 or above (30 percent in reading, 28 percent in math, and 40 percent in science).⁴ Between 2003 and 2018, the performance of Indonesian students improved in math by 19 percentage points, while it decreased in reading by 11 percentage points. The results in science remained relatively stable, with

a 1-percentage-point increase. The results in the national examination, *Ujian Nasional* (UN), similarly showed low performance, where the average score across all subjects and school types for the national end-of-secondary exam was 49.5 points out of 100 in 2018, while the minimum passing score is 55 points. Education targets set in the National Medium-Term Development Plan 2015–19 (*Rencana Pembangunan Jangka Menengah Nasional*, RPJMN 2015–2019) and strategic plans (*Rencana Strategis*, Renstra), including early childhood education and development (ECED) enrollment, secondary enrollment, the percentage of schools with minimum B accreditation, and the decrease in dropout rates, were not achieved despite the secured budget allocation with the 20 percent mandate.

It is worth noting that, while Indonesia spends a high proportion of its national budget on education, this sum as a percentage of gross domestic product (GDP) is relatively low, at just 3 percent, because the overall national budget is also relatively low. As a share of GDP, this is about half the level of spending of Malaysia (6.1 percent) and Vietnam (6.3 percent) (World Bank 2020). Moreover, the evidence from the PISA assessment suggests that Indonesia will undoubtedly need to spend more per student going forward if it wishes to match the performance of its neighbors in student learning outcomes.

KeyMessage2:

Non-compliance of subnational governments with 20 percent budget allocation and insufficient allocation to non-salary activities may impede their financial capacity to improve learning outcomes.

³ Based on an exchange rate of US\$1.00 = IDR 14,721.

⁴ https://www.oecd.org/pisa/publications/PISA2018_CN_IDN.pdf



Subnational governments are responsible for spending the largest share of the education budget. Out of a total IDR 508 trillion for the education sector, IDR 319 trillion (US\$21.7 billion) is allocated to “general education,”⁵ of which IDR 306 trillion (US\$20.8 billion) is allocated to fund subnational governments. Thus, subnational governments are responsible for spending 60 percent of the total education budget. However, this study shows that in 2018, 112 out of 508 districts/cities (just over 22 percent) did not fulfill the 20 percent mandate. Low planning and execution capacity, and a lack of systematic monitoring have contributed to this situation.

Education spending at the subnational level is dominated by salary-related expenditures and leaves limited resources for non-salary spending. On average, subnational governments spent 75 percent of their total education budget on salaries and, in examples of extreme cases, 32 districts/cities spent more than 90 percent of their budget on salaries. Furthermore, an analysis from select districts/cities shows that the non-salary expenditure category also incorporates salaries for non-civil servant teachers, further reducing actual resources available for non-salary expenditures. The case study from selected

districts/cities shows that actual or de facto non-salary spending comprised of only about 14 percent of the total education budget. Non-salary budgets are intended to cover costs of various programs and activities, such as scholarships, additional grants for schools, teacher training, and other operational costs, which seem important for improving student learning outcomes. However, many districts/cities do not have the flexibility to implement such programs due to large fixed costs for salaries. The analysis shows that in per-student terms, the average district/city’s education budget allocation to non-salary categories was only IDR 2 million (US\$133) per student per year.

KeyMessage3:

Subnational governments use input-based budgeting rather than allocating resources based on improving student learning. They face capacity constraints in budgeting and planning, as well as budget execution.

⁵ Funding for “general education” covers pre-tertiary education under MoEC’s system (Early Childhood Education and Development or PAUD/Pendidikan Anak Usia Dini, primary level or SD/Sekolah Dasar, lower secondary level or SMP/Sekolah Menengah Pertama, upper secondary level or SMA/Sekolah Menengah Atas, and vocational secondary level or SMK/Sekolah Menengah Kejuruan).

Education spending at the subnational level is **dominated by salary-related expenditures** and leaves limited resources for non-salary spending.

The current practice of planning and budgeting is largely based on an input-based structure of the education system (the number of teachers, school condition/infrastructure, etc.), rather than focusing on the outputs of school performance or student learning outcomes. The outcome indicators that are currently considered mostly relate to access to education (e.g., enrollments, dropout rates) rather than education quality indicators (e.g., school performance, student learning outcomes). As subnational governments reallocate resources without strategic planning, the spending patterns reinforce the status-quo of low levels of student learning.

There is a major gap between the GoI's priorities and subnational governments' expenditures. For example, districts/cities spend very little on early childhood education and development (ECED), on average just 2.6 percent of their education budgets. This is despite Government Regulation No. 2/2018 on Minimum Service Standards, which includes ECED as one of the basic public services governed by districts/cities that has to be fulfilled to meet the minimum needs of Indonesian citizens.⁶ In some cases, the analysis identified an issue of overburdening by which districts/cities played a role in madrasahs and higher

education, which is beyond their stipulated mandates. Instead of working on many different programs and activities at the subnational level, prioritization should be conducted with the aim of consolidating spending on a smaller number of programs and activities that are the most effective in raising student learning outcomes.

Given capacity constraints, nearly 30 percent of districts/cities do not manage to spend all their budgeted allocations for education in a given year. This is more common in districts/cities in eastern Indonesia, such as East Nusa Tenggara (NTT), Maluku, and Papua. This issue calls for additional focused capacity building and technical assistance on education planning and implementation for low-performing districts/cities. Peer-to-peer learning by pairing high- and low-performing districts/cities could be one option.

⁶ Government Regulation No. 2/2018.



KeyMessage4:

The lack of systematic reporting and monitoring of subnational government education expenditures weakens the enforcement of national priorities and undermines evidence-based policy-making implementation.

The current budgeting system is unable to produce basic budget and spending information for subnational governments on education, which is critical for evidence-based policy-making. The major impediments are: (i) non-standardized expenditure categories; and (ii) the use of multiple, incompatible IT platforms. Although there are some common expenditure categories/definition lines across subnational governments, districts and cities nonetheless have a large number of different expenditure categories in their records. This means that they cannot be compared, or even understood, by someone who is not already familiar with that particular subnational budgeting system. Meanwhile, across districts and cities there are different applications or platforms for planning, budgeting, financial administration, reporting, and asset and inventory management.

To this end, the already recently upgraded and standardized budget classifications (Chart of Accounts, CoA) should be revisited to ensure that the classification addresses the needs of, and supports decision-making by, both subnational governments and the central government. Big data technology could also be introduced to collect, store, integrate and analyze large amounts of information on both education financial data, and education administrative and outcomes data, if these were coded using a standardized CoA. Expenditure data could then be compiled more effectively and used by both central and subnational governments for strategic planning and future budget allocations.

KeyMessage5:

At the district/city government level, there is little correlation between spending on particular programs and expected outcomes. Using information on student learning outcomes and performance could help mobilize public support to strengthen accountability.



Involving communities, parents, and school actors in ways that **promote local oversight and accountability** for service delivery can improve outcomes.

The main education transfers schemes, such as *Bantuan Operasional Sekolah* (BOS), the teacher professional allowance (TPG), and special allocation funds for rehabilitation (DAK *fisik*), are weakly linked with outputs and outcomes. For instance, the teacher certification program under the TPG is seen to have no significant impact on student learning outcomes (de Ree et al. 2017). The resources allocated through DAK *fisik* are only weakly correlated with the number of damaged classrooms, especially in the case of primary and lower secondary schools. The use of BOS is not strongly linked to any tangible improvements in education outcomes. These findings show that, while a certain size or amount of educational investment may be a necessary condition for improving learning outcomes, it is not a sufficient condition if implemented without strategic allocation or proper accountability mechanisms. At the same time, involving communities, parents, and school actors in ways that promote local oversight and accountability for service delivery has been shown to improve outcomes.

An impact evaluation of the KIAT Guru program—a performance-based teachers’ pay pilot program that empowers communities to hold teachers accountable—showed significant improvements in student outcomes. In this program, a proportion of teachers’ pay is tied to student performance, and the results show that student language scores improved from 37.5 to 50 percent, and math scores from 37.4 to 48.8 percent (Gaduh et al. 2020). This evidence suggests that, if implemented correctly at scale, combining community participation and performance-based financing could be effective in strengthening accountability and incentivizing evidence-based and outcome-oriented performance at all levels of the education administration and its agents, including districts/cities, schools, and teachers.



1.

INTRODUCTION



1.1

Why do We Need a Subnational Education PER?



The role of subnational governments in **education management increased**, as they replaced central government in managing education service delivery in their respective jurisdictions.

The Government of Indonesia has recently shifted its main focus from infrastructure development to human resources development. Indonesian President Joko Widodo, in the 2019 inauguration speech of his second term, highlighted that the country's first priority in the coming five years would be the development of human resources, and building a workforce that is hard working, dynamic, and skilled, and one with a mastery of science and technology. With this ambition, improving Indonesia's human capital is essential to achieving the country's development targets and goals.

Refocusing Indonesia's national development on human resources is an important and necessary shift, given that the country's human capital has failed to develop as well as had been expected. According to the Human Capital Index (HCI), Indonesian workers of the next generation will only be 53 percent as productive as they could have been under the benchmark of 14 years of quality education and full health.⁷ This means that Indonesia ranks 87 out of 157 countries on the HCI, which assesses countries based on their education and health outcomes, and the impact of these on productivity.

To improve Indonesia's human capital, strengthening education is crucial. Education has been widely observed to have positive influence in increasing

productivity and individual earnings/income, reducing poverty, and sustaining economic growth. Without improvement in quality of education, Indonesia will not be able to prepare the quality of human capital that is needed to build a productive society and competitive economy.

The Government of Indonesia has implemented a series of important policy reforms to strengthen the right to education for all Indonesians. To strengthen the right of every Indonesian to access basic education, between 1999 and 2002, the Constitution of Indonesia was amended. The amendment created a mandate for the Government of Indonesia (GOI) to prioritize spending on education by allocating 20% of the budget to the sector. After the Constitutional Amendment, the following year a new Education Law was enacted (Law 20/2003), extending the years of compulsory education to nine years and creating a new governance structure in the sector, aligned with on-going decentralization process.

Indonesia's decentralization legislation had important consequences in terms of education management. Under this law, the role of subnational governments in education management increased, as they replaced central government in managing education service delivery in their respective jurisdictions. "Basic education", consisting of

⁷ Human Capital Index: <https://www.worldbank.org/en/publication/human-capital>

primary and lower secondary level education, became the responsibility of districts/cities, while the management of the upper secondary level is responsibility of provinces. The main tasks and functions of the central government shifted to the areas of curriculum, accreditation, and deployment of teachers and non-teaching staff from one province to another.

The decentralization law also had significant implications for the allocation of the education budget. The budget for basic and upper secondary education is managed by the Ministry of Education and Culture (MoEC), the Ministry of Religious Affairs (MoRA), and more than 500 district/city and 34 provincial governments. The total education budget in 2020 was about IDR 508.4 trillion, with IDR 36.3 trillion allocated for MoEC, IDR 54.9 trillion allocated for MoRA, and IDR 306.8 trillion allocated for transfers to subnational governments (about 60 percent of total education budget). The Ministry of Research, Technology and Higher Education (MoRTHE), which had previously managed higher (tertiary) education, had a budget allocation of IDR 41.4 trillion and 21 different ministries/government institutions received IDR 23.1 trillion for their own training (more details in Section 3.2)³. As of the beginning of President Joko Widodo's second term in 2019, higher education was moved back under MoEC's management which resulted shift in budget for higher education from MoRTHE to MoEC.

Despite the importance of subnational governments' budget execution on education outcomes, little information is available to understand how they conduct the planning, allocation, and execution of their education budgets. The central government transfers resources to the provincial and district/city levels of government in the form of general allocation funds (DAU) and special allocation funds (DAK), which account for around 60 percent of the total education budget nationally. However, there is limited knowledge about their budget implementation and effectiveness. The MoF has requested support from the World Bank to conduct an assessment in the form

of a Public Expenditure Review (PER), including a PER of the education sector. One of the main findings in compiling the PER was insufficient data, especially at the subnational level, which limited a more comprehensive analysis to inform decision-making. For example, the amount of the education budget spent by subnational governments on the category of "teacher salaries & allowances" cannot be easily estimated because the spending data on education personnel only record expenditure on civil servant teachers' salaries and allowances. This is despite the fact that in the education sector, nearly half of the teacher workforce is non-civil servant. Furthermore, lack of standardization of education financing data across districts/cities and provinces renders the analysis of education expenditure at the subnational level almost impossible and has resulted in very little knowledge being developed in this area. Given the large size of the total education budget spent by subnational governments and the limited information on spending efficiency, it is important to analyze how subnational governments plan and execute their education budgets.

This study aims to fill this information gap by assessing the main activities implemented by districts as they implement their mandate in education sector. The study focuses on district/city level as the provincial level mandate in education is relatively new and provinces are in the process of adaptation to their new responsibilities (2015). This study relies on information from the MoF on district and provinces finances and education data from MoEC from 2015 to 2018, though the data availability is not the same for all years. This study also relies in a detailed data collection of budget data from the 27 districts in Indonesia. The data collection gathering took place during 2019 and focused on detailed budget and execution information.

³ Presidential Regulation 78/2019 on the State Budget 2020

1.2 Conceptual Framework



The spending outcomes are influenced by multiple factors: district/city funding, district/city capacity, and district/city characteristics. District/city funding

relates to the financial resources that districts/cities have to deliver education services, which include central-to-subnational transfers and local own-source revenue, such as tax collection and retribution (*Pendapatan Asli Daerah*, PAD). District/city capacity reflects staff capacity to undertake good quality planning and budgeting, and to execute the budget, district/city leadership in policy-making to prioritize the sector and overcome education challenges, and the degree to which districts/cities are held accountable for their results. District/city characteristics include pre-existing socioeconomic conditions, political processes, and local culture that all affect the capacity to deliver education services and shape districts'/cities' education results.

Districts/cities face two fundamental challenges related to education spending. The first challenge is

to obtain sufficient funding to meet their education needs, which begins with the very important central-to-subnational transfers that affect the overall budget through earmarked (i.e., pre-determined spending categories), as well as unearmarked, transfers. Districts/cities also impact the size of the education budget through decisions that affect education's share of the total budget, as well as execution efficiency (i.e., actually spending what has been budgeted).

Districts/cities also face the challenge of spending effectively. One of the central tenets of education

finance is that more is not automatically better (World Bank 2013). For example, there is a large literature arguing that some of the largest components of education budgets—such as rewarding teacher experience and education levels, or reducing class sizes—are not strongly associated with student outcomes, such as test scores (Hanushek 2003). This is not to say that spending and outcomes are not correlated; in general, countries, provinces and districts/cities that spend more on education achieve better outcomes. The second fundamental challenge here is that the strength of this association—while

almost certainly positive—is not fixed, and districts/cities can help determine the “bang for the buck” through allocative decisions and effective oversight of actual spending.

The spending outcomes are expected to contribute to school input and student-related outcomes. The

term “school inputs” is used very generally here, and refers to the number of teachers, teacher training and remuneration, infrastructure (including school supply) and materials. District/city spending on education also helps determine qualitative features of provision related to teacher support and oversight, monitoring and other sector management activities. And finally, there is a set of outcomes related to students, which includes enrolment rates and achievement levels (test scores). The outcomes side of **Figure 1.1** can be extended further to reference labor market outcomes where education quantity (i.e., years of study) and quality (skills) indicators in turn impact the labor market and ultimately the overall economy.

Maximizing the returns of district/city education expenditure requires accurate information and high levels of operational capacity. For example,

if many teachers lack adequate skills to work in heterogeneous classrooms and support learning for all students, district education officials need to be: (i) aware of this fact based on the most recent data; (ii) be able to design training and support interventions that address these needs of teachers; (iii) monitor whether or not teachers have indeed improved and applied their new skills in the classrooms; and finally (iv) evaluate the outcomes of their interventions, namely through changes in student performance. Ideally, these interventions would be targeted to the teachers who need the most help, which requires very detailed monitoring information. This is a daunting task across hundreds (or even thousands) of schools, so it is easy to see why planners may choose instead to focus on more visible signals related to infrastructure, class size or teacher training levels.

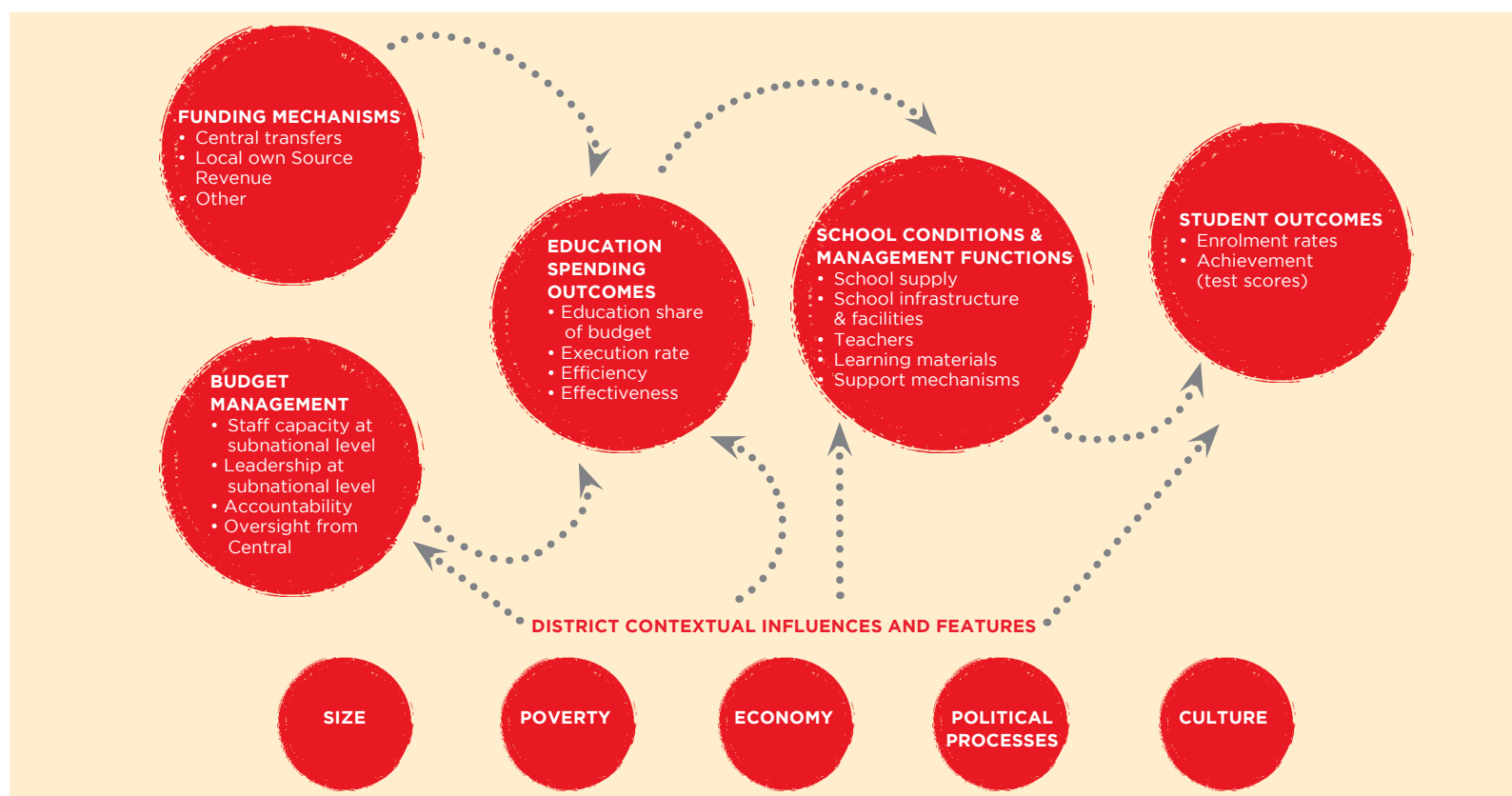
The structure of this PER report is based on the analysis in the framework depicted in Figure 1.1.

Following this introduction in Chapter 1, the analysis looks at the levels of variation, divergence and inequality between districts/cities in Chapter 2. The analysis then continues with a summary of the determination of the overall education budget, with a focus on central-to-subnational transfer mechanisms, in Chapter 3. Chapter 4 then focuses in on how districts/cities spend their education resources,

building on both quantitative and qualitative data sources. Chapter 5 brings the different pieces together by examining the links between education spending, school conditions such as class size and infrastructure, and education outcomes (enrolment rates, test scores, etc.). Chapter 6 concludes with a summary and broad recommendations.

FIGURE 1.1

Theory of change framework: Education budget allocations, school inputs and student outcomes





2.

VARIATION, DIVERGENCE,

AND
INEQUALITY
BETWEEN
DISTRICTS/CITIES



More than 200 districts/cities have above
90 percent lower secondary GERs, but many still
have below 80 percent.

With a population over 250 million and comprising nearly 2 million km², Indonesia has a high degree of variation in several key socioeconomic indicators across its districts/cities (*kabupaten/kota*). For example, the smallest district in Indonesia of *Kabupaten* (Kab.) Tambora has a population of fewer than 15,000, while the largest district in Indonesia, Kab. Bogor, has a population of 5.6 million. Furthermore, while the poverty rate of Kota Tangerang Selatan is an impressively low 2 percent, Papua's Kab. Deiyai has an alarming poverty rate of 44 percent. As further detailed in **Table 2.1**, results across these indicators show the highly uneven degree of development and progress experienced by districts and cities across Indonesia.

The differences in the socioeconomic conditions of districts/cities may affect their capacity to deliver education service. Socioeconomic conditions are one of the major determinants of education results (Hanushek 2020). Population and school-age population reflect the size of the education system that districts/cities should support. Education attainment of the adult population is widely known to have a positive relationship with education outcomes.

Parents with a higher education background are more likely to invest in their children's education. The dependency ratio (the ratio of the non-working-age population to working-age population) reflects the capacity of a community to support the dependent population and its education. Likewise, the poverty level shows households' capacity to invest in education.

Differences in socioeconomic conditions of districts/cities may then also affect their education outcomes, such as access to education and student learning. In terms of access to education, high variations across districts/cities are observed, especially in net enrollment rates (NERs) at lower and upper secondary levels. Three-hundred and seventy-seven out of 514 districts/cities have high gross enrollment rates (GERs) of between 80 and 100 percent. However, there are significant numbers of districts/cities in the high and (very) low categories as well. Districts/cities with low GERs at lower secondary levels are mostly located in Sulawesi, Maluku, West and East Nusa Tenggara (NTB and NTT), and Papua.

TABLE 2.1

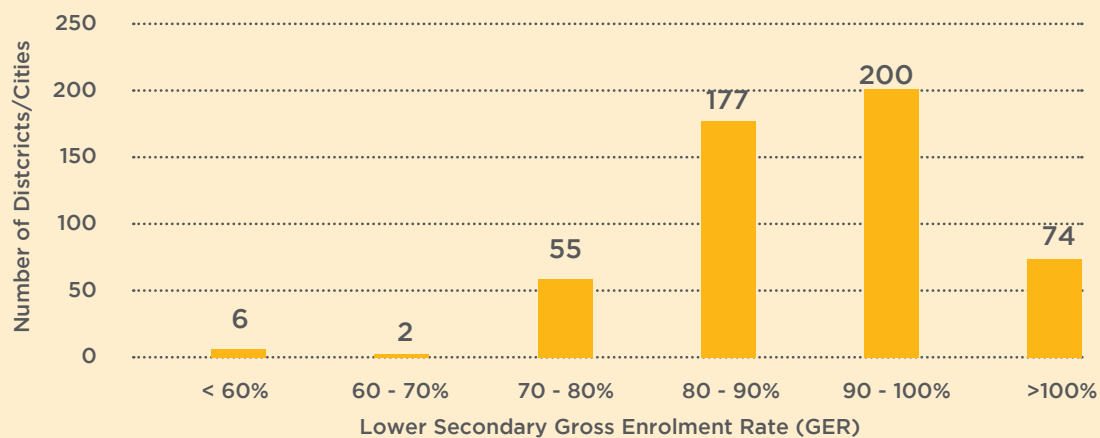
Main Socioeconomic Indicators by District/City

| MEAN | | MIN | | MAX | |
|------------------------------------|---------|--------|------------------------|-----------|-----------------------|
| | | VALUE | DISTRICT | VALUE | DISTRICT |
| Total Pupulation | 514,754 | 13,750 | Kab. Tambrauw | 5,682,871 | Kab. Bogor |
| School age Population | 128,565 | 4,488 | Kab. Tambrauw | 1,542,025 | Kab. Bogor |
| Dependency Ratio (%) | 39% | 30% | Kota Yogyakarta | 53% | Kab. Sumba Barat Daya |
| Years Education – Adult Population | 8.68 | 5.58 | Kab. Asmat | 12.03 | Kota Banda Aceh |
| Poverty (%) | 12% | 2% | Kota Tangerang Selatan | 44% | Kab. Deiyai |

Source: Authors' calculations based on Susenas (2017), BPS (2020).

FIGURE 2.1

More than 200 districts/cities have above 90 percent lower secondary GERs, but many still have below 80 percent



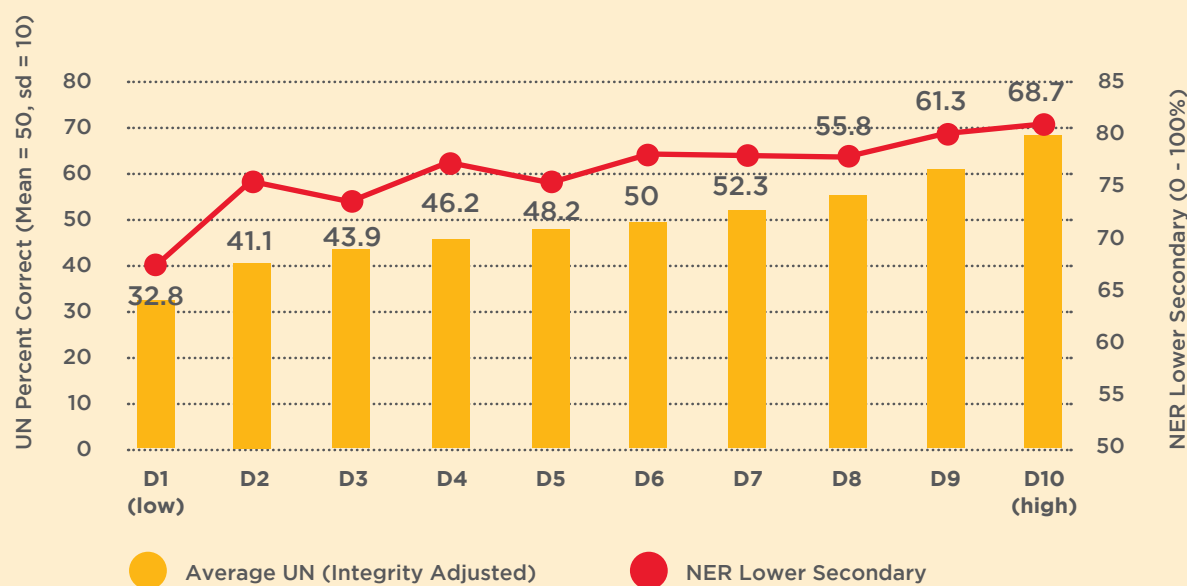
Source: WB staff calculations using Susenas, 2018

High levels of heterogeneity in student learning based on the national standard examination are also observed across schools and districts/cities in Indonesia.⁹ In the 2018 national exam (ujian nasional, UN) results, the average score was 49.5. However, by dividing districts/cities into deciles from the lowest to the highest average UN scores, the resulting differences across districts/cities are very large: the highest performing districts/cities had averages of 69, while the lowest performing districts/cities had averages of just 33 (Figure 2.2). These differences between the highest and lowest scoring districts/cities account for nearly 3.5 standard deviations (or 35 percent).¹⁰ Districts/cities with higher rates of participation also tend to have better adjusted achievement levels.

A low learning level is consistently found in low-performing districts/cities for subsequent years, in terms of both student outcomes and access. Around 68 percent of the lowest UN scoring districts/cities from 2015 were still in the lowest UN score quintile in 2016, and this proportion only declines marginally to 53.5 percent by 2018. For NERs, the results are nearly identical, as districts/cities with low NERs in 2015 generally remain low throughout the entire four-year period. In other words, there is little evidence of districts/cities climbing out of the lowest two quintiles (yellow and orange shading on Figure 2.3), especially into the higher quintiles.¹¹

FIGURE 2.2

High levels of heterogeneity for UN scores observed across districts/cities with varying NERs



Source: World Bank staff calculations using Susenas and UN test score data 2018.

⁹ The national exam (*Ujian Nasional*, UN) is conducted for Grade 9 and Grade 12. The exam questions and key answers are kept centrally at MoEC, which is responsible for grading the exams. The District Education Offices at the provincial and district/city levels support in managing the exam implementation in all schools in their respective areas.

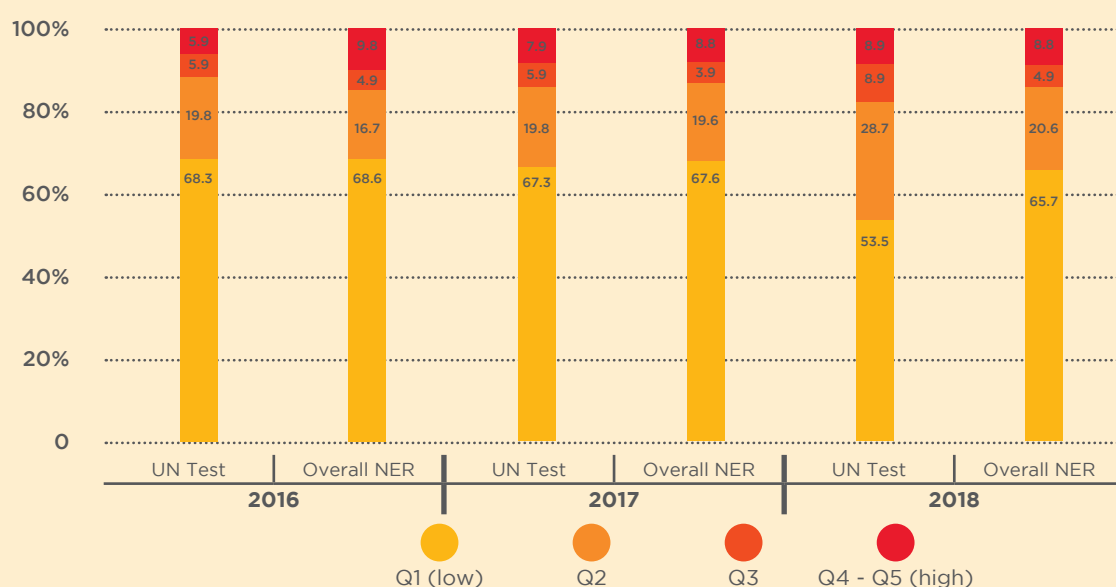
¹⁰ For these comparisons, the overall average UN score has been standardized to a mean of 50/standard deviation of 10 in each year. The UN average scores have also been adjusted to incorporate the Integrity Index of the National Exam (IINE) that is available for UN scores for the 2015–18 period covered in this analysis. The Integrity Index has a range of 0 to 100 and provides an estimate of cheating for each school participating in the UN test application. Low values suggest low reliability of UN scores, or higher evidence of cheating/manipulation. High scores suggest the UN scores are more valid. The UN averages presented in Figure 5—and used throughout this analysis—take the raw UN scores and multiply these by the (IINE/100). So, districts/cities with high IINE averages will have adjusted UN average scores that are not much different than the raw averages, while districts/cities where there are more concerns about cheating will have adjusted UN average scores that are much lower than the raw scores.

¹¹ The first step was to identify the lowest quintile of districts (about 100) based on the 2015 UN score average. Figure 2.3 then shows how these 100 districts/cities from 2015 performed in 2016, 2017 and 2018.

Around 68 percent of the lowest UN scoring districts/cities from 2015 were still in the lowest UN score quintile in 2016, and this proportion only declines marginally to 53.5 percent by 2018.

FIGURE 2.3

Performance overtime across district/city quintiles on adjusted UN tests and overall NERs remain relatively consistent, 2016-2018



Source: WB staff calculations using Susenas and UN test score data 2018

Given the significant variation in socioeconomic characteristics and education-related indicators at subnational levels, this subnational education PER aims to examine how resources are allocated, spent, and monitored at the subnational level, in addition to exploring linkages to education outcomes. We hope that, armed with this knowledge and understanding,

policymakers will be better able to both tackle the current inequities across districts and cities in the education system, and improve education outcomes for the country as a whole.



3.

EDUCATION MANDATES

AND
RESOURCES
AT SUBNATIONAL
LEVELS



3.1

Legal Framework in Education Service Delivery



As a result of Indonesia's decentralization legislation, subnational governments experienced a significant increase in education management responsibilities.

Since the beginning of Indonesia's decentralization reforms in 2000, subnational governments have been assigned management responsibilities in various sectors, including the education sector. Today, the central government remains in charge of the curriculum, accreditation, teacher deployment, the transfer of teaching and non-teaching staff from one province to another, and career development, while subnational governments are responsible for education management and education licensing. Districts/cities are responsible for the management of basic education (early childhood, primary, lower secondary, and non-formal education), while provinces are responsible for upper secondary level education.

Given this arrangement, subnational governments are responsible for delivering education services.

According to Government Regulation No. 2/2018, subnational governments are responsible for the achievement of minimum service standards (MSS) or *Standard Pelayanan Minimum* (SPM).¹² MoEC Ministerial Regulation No. 32/2018, stipulates in detail the MSS criteria in the education sector. The MSS cover: (i) standards of quantity and the quality of

goods and services; (ii) standards of quantity and the quality of teachers and teaching personnel; and (iii) standard compliance procedures.

Despite the decentralization process, key responsibilities in managing teachers have remained under the authority of the central government. These responsibilities include managing the deployment of teachers, the redistribution of teachers from one province to another and career development. Furthermore, the process of hiring a civil servant teacher is still managed by the central government. Subnational responsibilities with regards to teachers are limited to the management of the distribution of education personnel across districts/cities (provincial mandate) and schools (district/city mandate). It is important to note that non-civil servant teachers, i.e., contract teachers, are also hired by subnational governments and honorarium teachers are hired by schools.

Furthermore, besides their interactions with the central level, districts/cities and provinces also share their mandate to manage the education system with school committees. Law No. 20/2003 on the National Education System (*Sistem Pendidikan Nasional*), among others, established a school-based management system to be implemented by school

¹² This Government Regulation, for the first time, has included one year (ages 5 to 6) of early childhood education and development (ECED) or Pendidikan Anak Usia Dini (PAUD) into one of the Government's mandatory services each citizen is entitled to.

TABLE 3.1

Education service delivery mandates according to Law No. 23/2014 on Subnational Government and its predecessors

| NO | SUB AFFAIRS | CENTRAL GOVERNMENT | PROVINCE GOVERNMENT | DISTRICT/CITY GOVERNMENT |
|----|---|--|--|--|
| 1 | Education Management | <ul style="list-style-type: none"> a. Set the National Education Standard b. Manage the higher education | <ul style="list-style-type: none"> a. Manage the upper secondary education. b. Manage the special education. | <ul style="list-style-type: none"> a. Manage the basic education. b. Manage the early childhood and nonformal education. |
| 2 | Curriculum | Set the national curriculum for upper secondary, basic education, early childhood and nonformal education. | Set local content curriculum for upper secondary and special education. | Set local content for basic education, early childhood and nonformal education. |
| 3 | Accreditation | Accreditation for higher education, upper secondary, basic education, early childhood and nonformal education. | - | - |
| 4 | Teachers and Education Personnel | <ul style="list-style-type: none"> a. Control of teacher formation, transfer, and career development. b. The transfer of teachers and education personnel across provincial regions. | The transfer of teachers and education personnel across district/city in province. | The transfer of teachers and education personnel in district/city. |
| 5 | Education Permit | <ul style="list-style-type: none"> a. Issuance permit of private university that organized by the community. b. Issuance permits of foreign education unit. | <ul style="list-style-type: none"> a. Issuance permit of upper secondary education that organized by the community. b. Issuance permit of special education that organized by the community. | <ul style="list-style-type: none"> a. Issuance permit of basic education that organized by the community. b. Issuance permit of early childhood and nonformal education that organized by the community. |
| 6 | Language and Literature. | Development of Indonesian Language and Literature | Development of language and literature accross districts/cities within the province | Development of language and literature in individual districts/cities. |

Source: Law No. 23/2014 on Subnational Government.

committees. As a result, schools are now in charge of their regular, operational duties. The activities of the school committee are mainly financed from the national budget through school operational grant (*Bantuan Operasional Sekolah*, BOS) transfers. School committees enjoy some flexibility in the use of BOS resources, although they have to follow guidelines established by the central government, through the Ministry of Education and Culture (MoEC).¹³ The participation of districts/cities on BOS allocation decisions by school committees has been limited. However, in some cases, districts/cities oversee the use of BOS resources and, furthermore, some districts/cities provide financing in addition to the BOS transfers, by creating their local BOS-*Daerah* (BOSDA) programs.

¹³ BOS technical guidelines establish a minimum allocation for school materials and a maximum allocation for compensating honorarium teachers (15 percent in public schools, 50 percent in private schools). With the onset of the COVID-19 pandemic, this limit was removed in MoEC's Ministerial Regulation No. 19/2020.

3.2

Overview of The Education Budget





Indonesia is one of **the biggest education spenders in the world** if spending is measured as a share of total public expenditure but not if spending is measured as a share of GDP.

Partly as result of the Constitutional Amendment requiring a minimum 20 percent of total government spending to be allocated for education, financial resources for the education sector have by over 200 percent in real terms between 2002 and 2018.

In 2009, funding for education reached the 20 percent minimum level of the national budget, and has remained at that level since. While expenditure in real terms for education will likely decrease in the near future as a result of the COVID-19 pandemic, the Government is still expected to allocate 20 percent of its national budget to education.

Indonesia is one of the biggest education spenders in the world if spending is measured as a share of total public expenditure but not if spending is measured as a share of GDP. With the 20 percent share of total government spending, Indonesia's education expenditure is about double that of East Asian countries such as Japan (9.3 percent) and the Republic of Korea (12.8 percent), and on a par with Malaysia (21 percent) and Singapore (17.7 percent). However, as a share of GDP, Indonesia is only about half that of Malaysia (6.1 percent) and Vietnam (6.3

percent), with total education expenditure accounting for only about 3 percent of GDP (World Bank 2020a).

Several stakeholders receive funding from the education budget, with the largest share going to subnational governments. For the current fiscal year of 2020, the education budget is IDR 508 trillion. This amount will finance K-12 education, higher (tertiary) education, and vocational training. Most of the funding for K-12 education is allocated to “general education”¹⁴ (IDR 319 trillion, or 69 percent of the total education budget), which includes funding for MoEC (IDR 36 trillion, or 7 percent of total), and funding for the 548 subnational governments (IDR 306 trillion, or about 62 percent of total). Portions of the education budget are also allocated to the Ministry of Religious Affairs (MoRA) and the Ministry of Research, Technology, and Higher Education (MoRTHE), before the latter relinquished its management of higher (tertiary) education and reverted to being the Ministry of Research and Technology. In 2020, this amounted to IDR 55 trillion and IDR 41 trillion, respectively.¹⁵ In addition, in 2020, 20 line ministries¹⁶ received IDR 23 trillion to finance their own training and education-related activities **(Figure 3.1).**

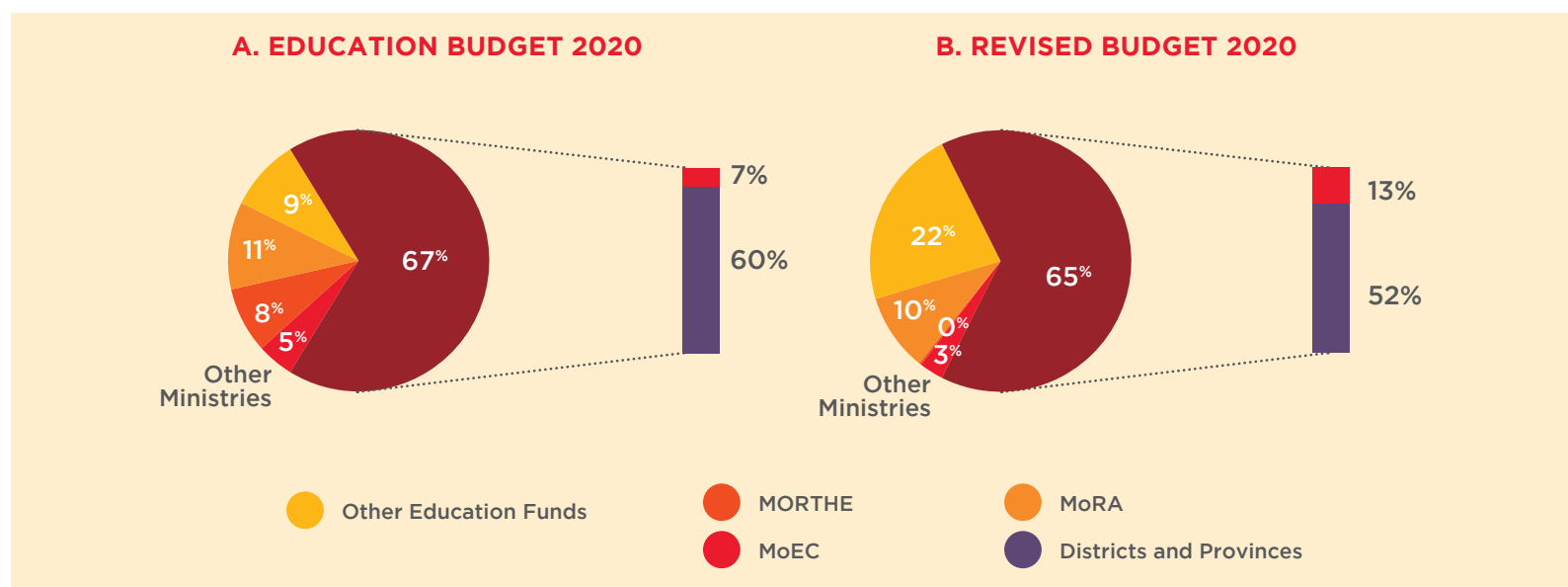
¹⁴ Funding for “general education” covers pre-tertiary education under MoEC’s system (Early Childhood Education and Development or PAUD/Pendidikan Anak Usia Dini, Primary level or SD/Sekolah Dasar, Lower Secondary level or SMP/Sekolah Menengah Pertama, Upper Secondary level or SMA/Sekolah Menengah Atas, and Vocational Secondary level or SMK/Sekolah Menengah Kejuruan).

¹⁵ Starting 2019.

¹⁶ Other line ministries include the Ministry of Finance, Ministry of Agriculture, Ministry of Industry, Ministry of Energy and Mineral Resources, Ministry of Transportation, Ministry of Health, Ministry of Environment and Forestry, Ministry of Maritime Affairs and Fisheries, Ministry of Tourism and Creative Economy, the National Nuclear Agency, the Ministry of Sports and Youth, Ministry of Defense, Ministry of Manpower, the National Library of Indonesia, Ministry of Cooperatives and Small and Medium Enterprises, Ministry of Communications and Informatics, Ministry of Villages, Development of Disadvantaged Regions and Transmigration, Ministry of Public Works and Public Housing, Ministry of Trade, and the Indonesian National Police.

FIGURE 3.1

Districts/cities and provinces receive the overwhelming majority of the education budget, 2020



Source: Presidential Regulation No. 78/2019 on the State Budget for 2020 for chart a. Education Budget 2020, and Presidential Regulation No. 72/2020 on the Revised State Budget for 2020 for chart b. Revised Budget 2020. Chart b. Revised Budget 2020 has followed new nomenclature with the budget for higher education moved to MoEC. In the revised budget for 2020, MoEC receives an allocation of IDR 70 trillion to manage general education from early childhood to higher education (tertiary), while the Ministry of Research and Technology receives a reduced allocation of IDR 1.8 trillion.

The total transfers to subnational governments (districts/cities and provinces combined) represent the largest portion of the total education budget.

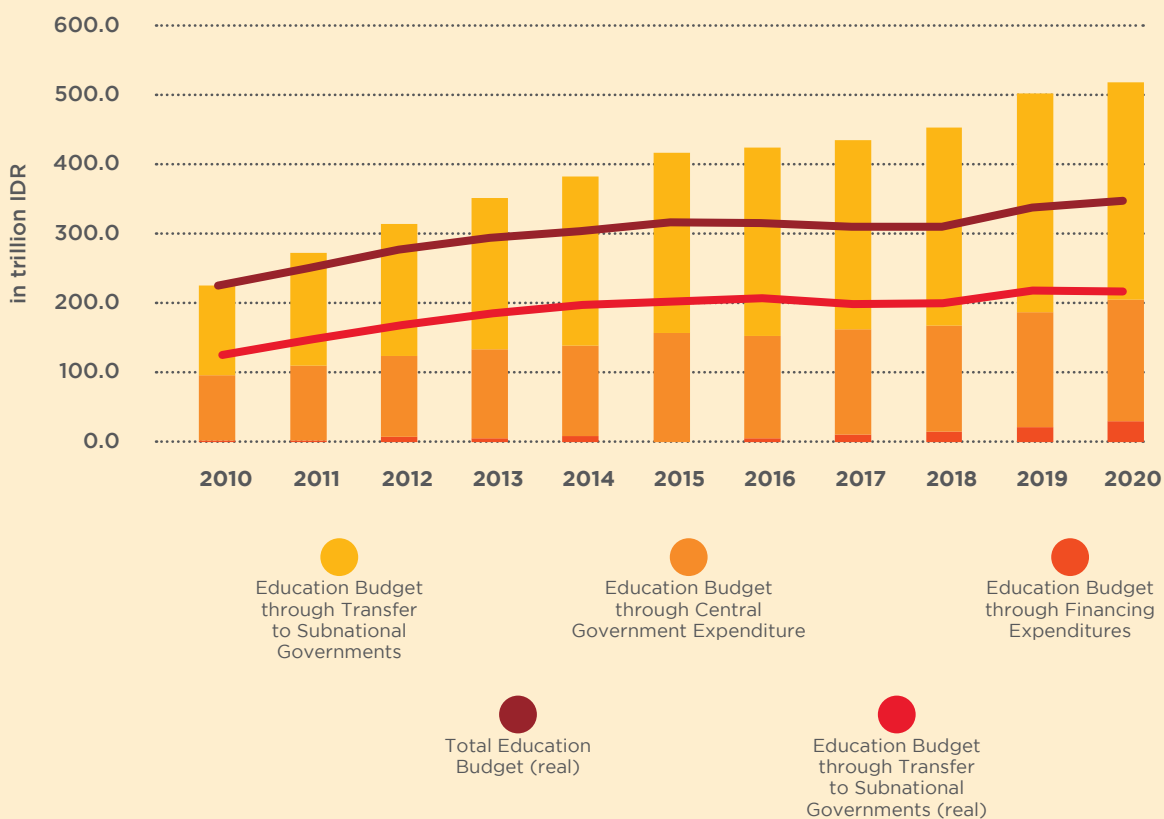
The amount of transfers has significantly increased from IDR 126.5 trillion in 2010 to IDR 306.8 trillion in 2020 (Figure 3.2). The increase in total transfers in real terms to subnational governments tends to be significantly higher than the increase in the total transfers for education. For example, between 2010 and 2020, the amount of total transfers to subnational governments increased by 70 percent in real terms, while the national education budget increased by only 60 percent during the same period.

There are two types of transfer to subnational governments: general allocation funds (DAU) and special allocation funds (DAK).¹⁷ DAU is a block grant (unearmarked) which, in the case of the education sector, is mostly used to pay the salaries of district civil servants, including civil service teachers (*Pegawai Negeri Sipil*, PNS). DAK funds are earmarked and consist of DAK *fisik* which, in the case of the education sector, includes grants for school infrastructure, and DAK non-*fisik*, which includes school operational grants (*Bantuan Operasional Sekolah*, BOS), teacher professional allowance (*Tunjangan Profesi Guru*, TPG), and school operational grants for early childhood education and development (*Bantuan Operasional Penyelenggaraan*, BOS-PAUD).

¹⁷ Other types of transfers with much smaller amounts are revenue-sharing funds from natural resources and taxes (*Dana Bagi Hasil*, DBH) and special autonomy funds (*Dana Otonomi Khusus*, OTSUS).

FIGURE 3.2

Resources to education, especially transfers, have increased significantly in the past decade



Source: The Presidential Regulation related to education budget details for 2010–20. A more detailed breakdown of the total education budget can be found in Annex Figure 3.

3.2.1

General Allocation Funds (*Dana Alokasi Umum*)

The composition between DAU (unearmarked) and DAK (earmarked) in the total transfers has changed significantly over the past decade, reflecting an increase in the Gol's ability to provide funding for national priority programs. The share of DAU in total transfers has decreased from 76 percent of the total transfers in 2010 to only 54.4 percent in 2020. This indicates that there is a larger participation by the central government in the education sector at the district/city level through its earmarked transfers and policies such as funding for school operational grants and teacher professional allowances.

DAU transfers are allocated for all provinces and districts/cities using a formula that consists of a basic allocation and a “fiscal gap” portion. The basic allocation is intended to cover personnel costs for subnational civil servants, including teachers and medical personnel, while the fiscal gap is allocated based on the difference between the estimated fiscal needs and fiscal capacity. Fiscal needs are based on regional variables such as population, area, GDP per capita, and the Human Development Index, while fiscal capacity is measured by a region's own-source revenue and a fraction of total revenue-sharing.

The DAU allocation formula can potentially create perverse incentive for subnational governments. The basic allocation formula implies that the more a district/city spends on personnel relative to other districts/cities, the larger its basic allocation (and thus its total allocation) will be. This suggests that districts/cities may face strong incentives to increase their spending on staff (e.g., teachers). This has significant and negative consequences for education

where student-teacher ratios are already very low. The fiscal gap allocation formula implies that as district/city own-source revenues increase, DAU allocations decline. This would seem to offer a strong disincentive for districts/cities to increase their own-source revenues (*Pendapatan Asli Daerah*, PAD). Lewis and Smoke (2017) provide some empirical evidence to show that in practice the DAU allocation formula does stimulate increases in personnel spending, while it does not seem to serve to reduce the generation of own-source revenues.

The distribution of DAU transfers shows important differences across districts/cities both in absolute and per-capita terms. On average, in 2017, districts/cities received DAU transfers of IDR 679 trillion (Table 3.2). The district/city that received the largest DAU in 2017 was Kota Bandung (IDR 2.1 trillion), while the district/city that received the lowest DAU was Kota Bontang (IDR 220 billion). On average, the DAU transfers are equivalent to 47 percent of districts' budgets. In some districts/cities, the contribution of DAU in district/city budgets is negligible, while in others it represents almost the entire district/city budget. In per-capita terms, there are also important differences in DAU transfers. For example, Kab. Tambrauw receives the largest DAU per capita (IDR 34 million), while Kab. Tangerang receives the lowest DAU per capita (IDR 300,000). The distribution of DAU transfers could be made more equitable by making the estimation of fiscal needs in per-capita terms and removing the basic allocation (World Bank 2020a).

The distribution of DAU transfers shows important differences across districts/cities both in absolute and per-capita terms.

TABLE 3.2
Main Financial Indicators by district/city

| Main Financial Indicators by District | | | | | |
|---------------------------------------|---------------|--------------|-----------------------|---------------|---------------|
| MEAN | | MIN | | MAX | |
| | | VALUE | DISTRICT | VALUE | DISTRICT |
| Total Budget | 1,580 billion | 519 billion | Kab. Konawe Kepulauan | 8,100 billion | Kota Surabaya |
| Budget per capita (IDR) | 6.1 million | 685 thousand | Kota Serang | 94.5 million | Kab. Tambrauw |
| DAU (IDR) | 679 billion | 215 billion | Kota Bontang | 2,060 billion | Kab. Bandung |
| DAU per Capita | 2.9 million | 331 thousand | Kab. Tangerang | 34 million | Kab. Tambrauw |
| DAU/Budget | 49% | 5% | Kab. Badung | 71% | Kota Pariaman |

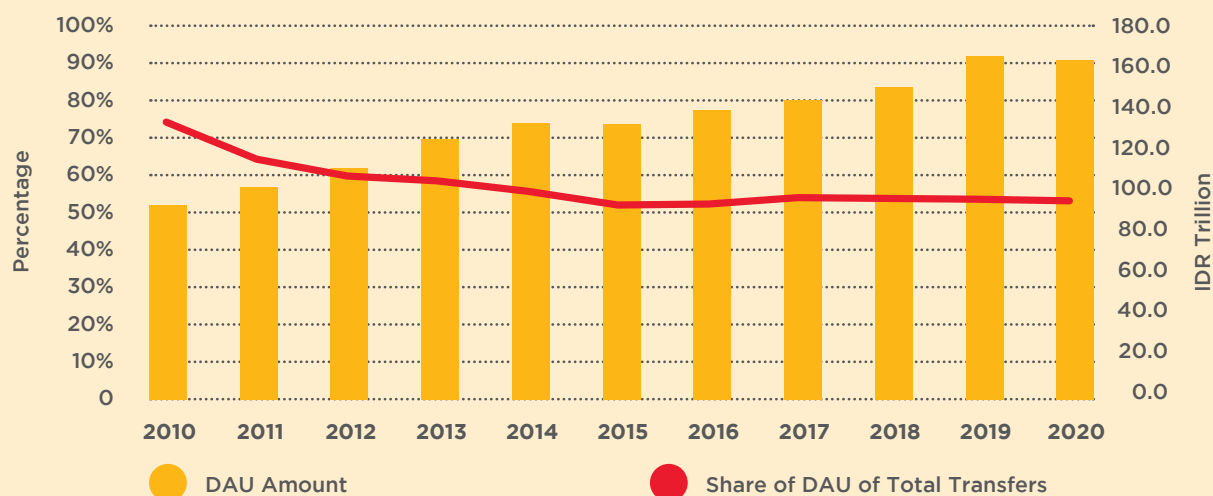
Source: Authors calculations, based on MoF (2018)

Spending on teachers' salaries (for both civil servant and non-civil servant teachers) is normally funded using DAU. Based on the data collected from the field, the total spending on teachers' salaries was 40 percent of the total DAU in 2017. This proportion is larger than the estimated share of DAU allocated for education. According to the 2017 Presidential Regulation on the National Budget (*Anggaran Pendapatan dan Belanja Negara*, APBN), it is estimated that 37 percent of total DAU transfers to subnational governments were allocated for education. This shows that district/city government would need extra resources to pay all of their teacher salary and not all local governments have sufficient resources to do so.

The amount of the DAU transfer that is allocated for education as it develops its local government budget (APBD) is determined by each local government and not always in accordance with the estimation stated in the APBN Law. However, in most cases, this percentage cannot be verified, as subnational governments maintain a single account in most cases. Interviews with local officials in District Education Offices (*Dinas Pendidikan*), Agencies for Regional Development (*Badan Pembangunan Daerah*, Bappeda), and Offices for Management of Regional Revenue, Finance and Assets (*Badan Pengelolaan Keuangan dan Aset Daerah*, BPKAD) during field visits confirmed that all other major (general, untied) revenue sources—PAD, DAU, and revenue-sharing funds (*Dana Bagi Hasil*, DBH)—are fungible in local budgets, and explicit linkages between those revenues and spending cannot be made.

FIGURE 3.3

Evolution of Estimated DAU for Education has decreased over the past decade



Source: Presidential Regulation related to education budget details, various years.

Regarding civil servant teachers, Indonesia's teacher workforce has been characterized as being too numerous, too costly, too poor in quality, too badly distributed, and too frequently absent from work (Rosser and Fahmi 2016). There are two main categories of teacher in Indonesia by contract type: civil servant teachers and contract/honorarium teachers. The most recent major phase of hiring civil servant teachers occurred between 2006 and 2010 (Chang et al. 2007). Subsequently, there was a civil servant hiring freeze earlier this decade.¹⁸ Districts/cities are responsible of the salaries of these civil servant teachers, as this function has been decentralized from the national budget (APBN). Given the different distributions of education personnel across districts/cities, the share of the DAU used to pay teachers' salaries across districts/cities differs significantly.

With regards to civil servant teachers' age, on average, civil servant teachers in Indonesia are 46 years old. Given that in Indonesia the retirement age for civil servants is 60 years, it is estimated that 50 percent of the current civil service teacher workforce will retire within the next decade (World Bank 2018). However, there are wide variations on this average age across districts and cities in Indonesia. Some districts/cities have an average civil servant teacher age as low as 36 years old, while other districts/cities have an average civil servant teacher age as high as 53 years old. Different civil servant teacher age profiles generate different scenarios across districts/cities in terms of replacing retiring teachers.

¹⁸ Circular MenPAN - RB B/2163/M.

With regards to teacher deployment, civil servant teachers represent about 50 percent of the total teacher workforce. The average district/city has 2,158 teachers. Across districts/cities, the number of civil servant teachers ranges from only 37 civil servant teachers in Kab. Pegunungan Arfak to 9,433 civil servant teachers in Kab. Bandung. The allocation of civil servant teachers per student is also highly heterogenous. For example, in Kab. Pegunungan Arfak there are on average 222 students per civil servant teacher, while in Kab. Tana Tidung there are on average only 10.7 students per civil servant teacher. Similarly, there are important differences in civil servant teachers per classroom. In Kab. Pegunungan Arfak there is only one civil servant teacher per 10

classrooms, while in Kota Sabang there are about 1.8 civil servant teachers per single classroom.

While some compensatory programs have been put in place by the central government, the main APBN transfers are not made on a compensatory basis. In the case of DAU transfers, as observed in Figure 3.4, though there is a positive relationship between DAU per capita and the poverty rate, the relationship is relatively weak, as the poverty rate only explains 28 percent of the variance in DAU per capita, i.e., on average, poorer districts/cities receive a higher DAU transfer in per-capita terms, but some districts/cities with similar levels of poverty receive different levels of DAU per capita.

FIGURE 3.4
DAU per capita and district/city level poverty rates



Source: Authors calculations based on MoF (2018), Susenas (2017) and BPS (2020)

3.2.2

Special Allocation Funds (*Dana Alokasi Khusus*, DAK)

Special allocation fund (DAK) transfers aim to finance specific education mandates, including DAK *fisik* for school and classroom reconstruction/rehabilitation and DAK *non-fisik* for school/PAUD operational grants and the teacher professional allowance. The amount of DAK transfers has increased dramatically over the past decade, from IDR 9 trillion in 2010 to IDR 135 trillion in 2020. This DAK transfer increase is mostly explained by a tenfold increase in DAK *non-fisik*, as several national programs that are required to be implemented by subnational governments have been created and expanded. These include school operational grants (*Bantuan Operasional Sekolah*, BOS) and the teacher professional allowance (*Tunjangan Profesi Guru*, TPG).


BOS provides school operational grants on a per-student basis. The BOS budget amounted to IDR 54 trillion in 2020, increasing from IDR 16 trillion in 2011.¹⁹ The positive evolution of BOS transfers responded to the increase in the transfer per student and the number of students. For example, the transfer per student increased, between 2014 and 2020, by 55 percent for primary and lower secondary students, by 50 percent for upper secondary students, and by 60 percent for vocational secondary students (Table 3.3). Besides the increase in transfers per student, the overall transfer amount also increased according to the rise in the total number of students.

TABLE 3.3
BOS transfers per student have increased over recent years, across all levels of education

| YEAR | PRIMARY | LOWER SECONDARY | UPPER SECONDARY | VOCATIONAL SECONDARY |
|------|---------|-----------------|-----------------|----------------------|
| 2014 | 580 | 710 | 1,000 | 1,000 |
| 2015 | 800 | 1,000 | 1,200 | 1,200 |
| 2016 | 800 | 1,000 | 1,400 | 1,400 |
| 2017 | 800 | 1,000 | 1,400 | 1,400 |
| 2018 | 800 | 1,000 | 1,400 | 1,400 |
| 2020 | 900 | 1,100 | 1,500 | 1,600 |

Source: MoF and BOS guidelines, various years.

¹⁹ The BOS program was created in 2005.



The impact of BOS on education quality has been limited. Although the introduction of the BOS program led to an initial reduction in private spending on education, and also contributed to an increase in lower secondary enrollment among poor households, the implementation of BOS has not been strongly linked to improved education outcomes (Al-Samarrai 2014). This is partly because schools use BOS funds to hire honorarium teachers, who do not always satisfy minimum teacher competency standards. Initially, the maximum amount of BOS that can be used to pay the salaries of honorarium teachers was 15 percent for public schools and 30 percent for private schools. However, in early 2020, MoEC issued a new regulation on the technical guidelines of BOS, giving greater flexibility for schools to utilize BOS funds (MoEC Ministerial Regulation No. 8/2020). The maximum cap on BOS usage for paying honorarium teachers' salaries increased to a maximum 50 percent for both public and private schools.

During the COVID-19 emergency period, the maximum cap of 50 percent was removed altogether, such that BOS can now also be used to procure goods for the purpose of preventing the spread of the COVID-19 virus, for example for the procurement of cleaning equipment, hand sanitizers, disinfectants, and masks, as well as to support distance learning (MoEC Ministerial Regulation No. 19/2020). This greater flexibility in BOS utilization has brought greater autonomy for schools, which can support them in addressing their main challenges and prioritize the use of the available resources for school improvement plans. However, this will only prove effective if schools are capable of identifying the needs for school improvement. Interviews with schools reveal a high degree of variation in their knowledge of standards and their capacity to carry out self-assessments, to set targets in the school improvement plan, to strategically plan and execute performance-based budgeting to achieve these targets, and to prioritize activities to meet the national education standards (World Bank 2018c).

School autonomy also goes hand-in-hand with school accountability. Accountability is important because good education relies not only on physical inputs but also on having in place the right incentives that lead to better student learning outcomes (Bruns, Filmer and Patrinos 2011). In Indonesia, the effectiveness of school autonomy or school-based management has been limited. School committees have had little influence over the use of BOS funds, while subnational government support to ensure that BOS funds are used in effective and efficient ways vary significantly. A recent study found that school committees were unaware of the standards that schools should achieve and, therefore, failed to plan the necessary actions to achieve them (World Bank 2018c). The GoI has recently attempted to improve BOS efficiency and transparency. An electronic performance-based school planning and budgeting system, known as e-RKAS (*e-Rencana Kegiatan dan Anggaran Sekolah*), piloted in 2018–19, is planned to be implemented nationally in 2020. However, an evaluation of e-RKAS shows that there is no clear evidence that its adoption improves student achievement (World Bank forthcoming_a)²⁰. In 2019, the GoI launched performance-based BOS *Kinerja* and BOS *Afirmasi* programs to enable schools to procure ICT equipment for teaching and learning.²¹ BOS *Kinerja* incentivizes well-performing schools, while BOS *Afirmasi* is targeted to the most remote schools and schools in border areas. The impact of both BOS *Kinerja* and BOS *Afirmasi* in improving education outcomes has to still be evaluated.

²⁰ The Electronic Performance-based School Planning and Budgeting System (known as "e-RKAS") aims to help schools better plan and allocate school resources (mostly BOS and other school resources) according to their needs to achieve the Minimum Service Standards and National Education Standards. This was piloted in select schools in Central Java and Bali provinces and Gorontalo, Sidenreng Rappang, and Mojokerto districts.

²¹ MoEC Regulation No. 31/2019 on BOS *Kinerja* and BOS *Afirmasi*.

The BOP-PAUD program's coverage is planned to reach about 7.4 million children in 2020, which is still only 22 percent of all the country's children aged 6 and under.

To support the expansion and operation of pre-schools, in 2015 the GoI launched new DAK non-fisik early childhood education operational grants (*Bantuan Operasional Penyelenggaraan Pendidikan Anak Usia Dini*, BOP-PAUD). BOP-PAUD is allocated on a per-student basis at IDR 600,000 per student (US\$41). The BOP-PAUD grant allocation has been increased from IDR 2.4 trillion (US\$163 million) in 2015 to IDR 4.45 trillion (US\$302 million) in 2020. The program's coverage is planned to reach about 7.4 million children in 2020, which is still only 22 percent of all the country's children aged 6 and under.²² At present, little is known about the impact of the program.

DAK fisik for education—an earmarked grant to districts/cities—aims to support school rehabilitation (partially and badly damaged classrooms, libraries, teachers' rooms, and toilets) and additional construction (classrooms, centers for inclusive education, toilets), among others. DAK fisik for education started in 2003 with allocation of IDR 625 billion. The budget has been increased to IDR 18 trillion in 2020, with plans to build and rehabilitate 55,700 classrooms, among others. The amount of DAK fisik for education is allocated based on proposals from districts/cities. Districts/cities are responsible for identifying and submitting proposals for addressing their needs, including school rehabilitation and additional construction. The proposals are first verified by MoEC against its database on school infrastructure conditions (*Data Pokok Pendidikan*, Dapodik),²³ after which they are evaluated by MoEC, Bappenas and MoF. The resources allocated through DAK fisik have

been found to have a weak relationship with the number of damaged schools, especially in the case of primary and lower secondary schools (World Bank 2020). A recent study on Dapodik data reliability found data discrepancies in all data categories, including in school infrastructure conditions (World Bank forthcoming_b). These data inaccuracies could potentially lead to the mistargeting of DAK fisik allocations.

The teacher professional allowance (TPG) provides monetary incentives for certified teachers who meet certain requirements in terms of school hours and classroom size.²⁴ The TPG has increased from IDR 4 trillion (US\$ 271 million) in 2010 to IDR 54 trillion (US\$ 3.7 billion) in 2020. The TPG is allocated based on the number teachers receiving certification in each district/city. Teacher certification was intended to improve teacher qualifications (and ultimately their performance and student achievement), with the parallel objective of improving teachers' salaries. However, an evaluation of the certification program in 2012 found that the program had failed to have any significant impact on student outcomes, but teachers' welfare had improved, with teachers leaving their second jobs (de Ree et al. 2017). Both in 2012 and later in 2018, the certification procedure was revised, but the impact of this new mechanism on student outcomes has yet to be assessed.

²² According to Susenas 2019, there are 33 million children age 6 and under (18.9 million children aged between 3 and 6).

²³ Dapodik is MoEC's school administrative dataset consists of information about school conditions, number of students, teachers, and other education personnel.

²⁴ To be a certified teacher, the teacher has to have a university degree and have passed teacher certification before he/she becomes eligible for a TPG. To maintain the TPG, teachers have to teach 24 teaching hours (which translates into 18 actual hours in the classroom, or about 3 hours per day) with a total workload of 40 hours a week.

Combining community participation and incentive pay for teachers are found to have positive impacts on both teacher and student performance.

The KIAT Guru program is a performance-based teachers' pay pilot program that aims to improve teacher performance through social accountability.²⁵ The program empowers communities, including parents, to hold teachers accountable and ties the payment of teachers' remote area allowance (*Tunjangan Khusus Guru*, TKG) to teacher presence. An impact evaluation on the initial pilot project showed significant improvements in student outcomes. Language learning outcomes improved from 37.5 to 50 percent, and math outcomes from 37.4 to 48.8 percent. Teacher presence in school improved from 78 to 83 percent, and classrooms with teachers present increased from 81 to 87 percent. KIAT Guru results were statistically and significantly better than control schools (at 0.19 and 0.17 standard deviations in math and language, respectively) (Gaduh et al. 2020). MoEC and MoF should include positive lessons learned from this pilot project into the payment of the TPG for all teachers nationwide.

International experiences show that involving communities, parents, and school actors in ways that promote local oversight and accountability for service delivery can improve outcomes.

Providing information on learning outcomes of the performance of education system can mobilize public support to strengthen accountability. Parents and communities need to be able to harness increased information to hold teachers, schools, and governments more accountable. Brazil combined assessment results and with student promotion rates to create an education quality index that is used by system administrators at every level, as well as by parents, to hold schools and local administrations accountable for learning. Ceara's experience - one of the poorest states in Brazil - has shown how results-based intergovernmental transfer mechanism using this index can lead to reductions in dropout rates and improvements in learning gains (Petterini, et.al, 2013; World Bank, 2020). Complementing the result-based

financing (RBF) with technical assistance to the needy municipalities in Brazil can produce an impact 2-3 times higher than when only RBF in place (Lauharte, et.al, 2020). Enabling conditions for this success include sustained political leadership to put learning at the center of education policy and implement substantial education reforms and solid and reliable monitoring and evaluation system that continuously measures key education outcomes, including student learning. This evidence suggest that if implemented right, introduction of performance-based financing could be effective to recognize and incentivize evidence-based and outcome oriented performances at all levels of administration and agents, including districts/cities, schools, and teachers.

²⁵ The KIAT Guru (Kinerja dan Akuntabilitas Guru/Teacher Performance and Accountability) pilot was a collaboration of MoEC, the National Team for Acceleration of Poverty Reduction (TNP2K), five disadvantaged districts, and the World Bank.



4.

HOW DO SUBNATIONAL

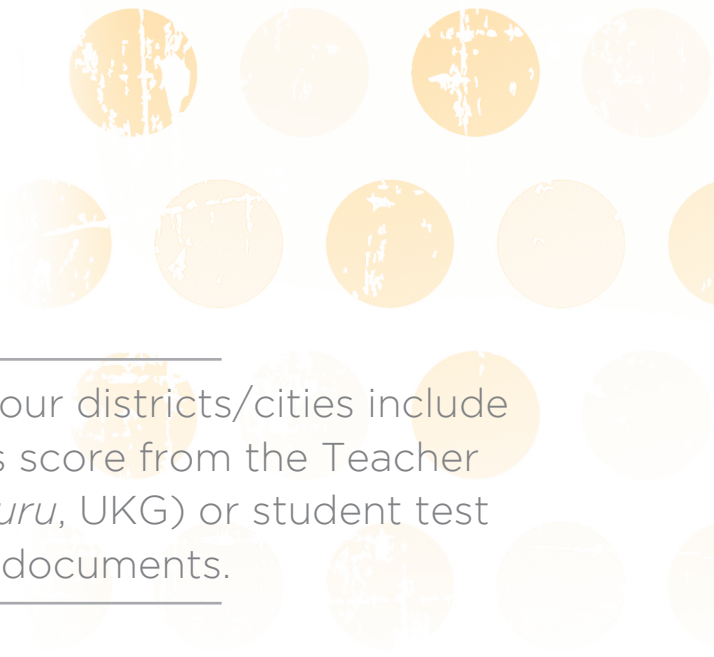
GOVERNMENTS MANAGE
THEIR EDUCATION
BUDGETS?



4.1

How Do Subnational Governments Conduct Their Planning and Budgeting?





From the **27 surveyed districts**, only four districts/cities include quality indicators such as a teacher's score from the Teacher Competence Test (*Uji Kompetensi Guru*, UKG) or student test scores in their planning documents.

The first input into a subnational governments' planning and budgeting process is the National Medium-Term Development Plan (RPJMN). The Regional Development Planning Agency (*Badan Perencanaan Pembangunan Daerah*, Bappeda) then develops a Local Medium-Term Development Plan (*Rencana Pembangunan Jangka Menengah Daerah*, RPJMD), which consists of the district leader's vision, mission, goals, objectives, strategy, policy direction, regional development and regional finance, and indicative funding framework for a period of five years, by referring to the Local Long-Term Development Plan (*Rencana Pembangunan Jangka Panjang Daerah*, RPJPD), the Spatial Planning (*Rencana Tata Ruang Wilayah*, RTRW) and the National Medium-Term Development Plan (*Rencana Pembangunan Jangka Menengah Nasional*, RPJMN). Based on the RPJMD and MoEC's Medium-term Strategic Plan (Renstra), each agency of the local bureaucracy (*Organisasi Perangkat Daerah*, OPD), including the District Education Office, then develops a Strategic Plan (*Rencana Strategis*, Renstra).

Planning and budgeting are largely based on the input structure (number of teachers, school conditions/infrastructure) rather than focusing on school performance or learning outcomes. Teacher-related indicators are mostly focused on the availability of teachers and teacher qualifications,

such as the number of teachers with bachelor's degrees and/or the number of certified teachers. From the 27 surveyed districts/cities, only four districts/cities include a minimum score from the Teacher Competence Test (*Uji Kompetensi Guru*, UKG), namely Kab. Bireun, Kab. Kotawaringin Timur, Kab. Kulonprogo, and Kota Malang.

District/city education outcome indicators are mostly related to education access rather than education quality. The field research shows that all districts/cities use the education access-related indicators (i.e., enrollment rates) as district/city education performance indicators. The second-most-frequent indicators used are dropout and school continuation rates. Other education access indicators that are commonly used by districts/cities include: student-to-teacher ratio, average years of schooling, class size, and the ratio of the number of schools to school-age population. Education quality indicators are limited to literacy rates and school graduation rates. Only four districts/cities that are located in Java consider the national exam score as a key performance indicator, namely Kab. Bangkalan, Kab. Sragen, Kab. Demak, and Kab. Rembang.

This input-focused and access-centric approach originated from central planning. During the data collection period, all districts/cities had their RPJMDs refer to the RPJMN 2015-2019. In the RPJMN 2015-2019, education indicators still focused on access

more than quality, as listed in Table 4.1. This is also part of the reason why RPJMDs or planning and budgeting at the subnational level are largely based on input structure and focus primarily on access.

TABLE 4.1
Education outcomes indicators in development agenda of RPJMN 2015-2019

| | |
|-----|---|
| 1. | Increased enrollment rates for primary and secondary education |
| 2. | Increase in the number of those continuing education, which is marked by a decrease in dropout rate and an increase in the number of those continuing education |
| 3. | Reduced the gap in educational participation between rich and poor, male and female, and urban and rural community groups |
| 4. | Increased readiness of secondary education students to enter the job market or continue to pursue higher education |
| 5. | Increase assurance of the quality of education services, the availability of reliable curriculum and comprehensive education |
| 6. | Increase proportion of vocational schools' students who follow internship programs in industries |
| 7. | Improving the quality of teacher management by improving distribution and meeting the teaching load |
| 8. | Increase life assurance and knowledge and career development facilities for teachers assigned in special areas |
| 9. | Increased and evenly distributed the availability and quality of educational facilities and infrastructure in accordance with minimum service standards |
| 10. | Arrangement of laws and regulations related to 12-years of compulsory education |

The current RPJMN 2020–2024 has new education development directions that will help subnational governments shift their priorities to improve the quality of education.

The new RJPMN 2020–2024 has more streamlined education priority activities and includes several education quality indicators. The priority activities of education in the new RPJMN consist of only five: (i) improvement of teaching quality and learning; (ii) equal access and 12-year compulsory education; (iii) management improvement and placement of teachers and education officers; (iv) education quality assurance; and (v) the improvement of education governance.²⁶ The GoI has now included several education quality indicators to be achieved, such as the mean score of PISA, and the proportion of children above the minimum standard in PISA and the minimum competency assessment (literacy and numeracy). An indicator on early childhood education is also included, such as the percentage of Grade 1 elementary school students who have attended early childhood education.

Districts/cities have included a wide variety of programs to support education in their planning and program.

District/city budget and spending reports that are collected by MoF identified about 2,000 budget lines linked to education expenditure categories/definitions.²⁷ The expenditure category and the number of categories varied across districts/cities within the sample. The district with the highest number of expenditure categories was Kab. Blora (189 categories), while the district with the lowest number of expenditure categories was Kab. Bojonegoro (21 categories). Salary and allowance-related expenditures have 96 different categories,

infrastructure-related expenditures have 1,753 categories, and there are many other categories related to spending for travel, scholarships, and trainings, among others. Nonetheless, despite the fact that the data do not allow direct comparison of districts'/cities' budget allocations across districts/cities, this analysis shows that a large number of programs and initiatives have been implemented by districts/cities to manage their respective education sectors.

In some cases, districts/cities go beyond their direct mandates, such as supporting programs for madrasahs and higher education.

Analysis from the data collection in the surveyed 27 districts/cities shows that four districts allocated budget for higher education and one district provided the local school operational grant not only for public schools but also for public madrasahs. Despite government regulations mandating that higher education is the responsibility of central government and the madrasahs are to be managed centrally under MoRA, the district/city officials interviewed during the field research revealed that their district/city governments felt responsible for delivering education services for all students, not limited to only the basic education level or madrasah students.

²⁶ Comparison of priority education activities in RPJMN 2015–2019 and RPJMN 2020–2024 can be found in the annex X.

²⁷ Based on the data of 50 selected districts.

4.2

How much do Subnational Governments Allocate Resources to Education?



**Quote from Article 31, paragraph 4,
1945 Constitution of the Republic of Indonesia**

Negara memprioritaskan anggaran pendidikan sekurang-kurangnya 20 persen dari anggaran pendapatan dan belanja negara serta dari anggaran pendapatan dan belanja daerah untuk memenuhi kebutuhan penyelenggaraan pendidikan nasional.

(The state shall prioritize the education budget by at least 20 percent of the state income and expenditure budget as well as from the regional income and expenditure budget to fulfill the needs of the administration of national education.)

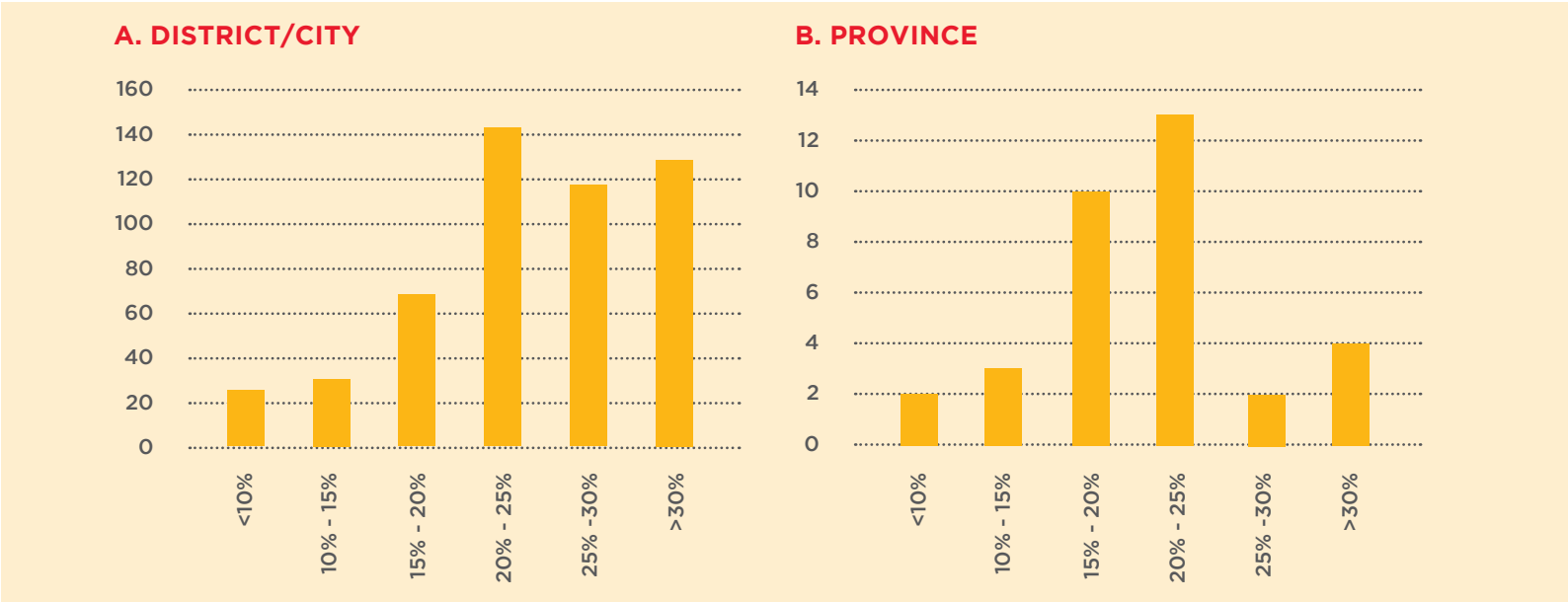
While the constitutional mandate of 20 percent national budget allocation to education is compiled at the aggregated level, provinces and districts/cities at the individual level may not always comply.

In 2019, based on district/city budget and realization data collected by MoF, at the district/city level the combined budget was IDR 863 trillion, of which 27 percent was allocated to education (IDR 229 trillion). At the provincial level, the combined budget of 34

provinces was IDR 384 trillion, 33 percent of which was allocated to education (IDR 128 trillion). However, at the level of districts/cities, 22 percent of them (112 out of 508) did not meet this mandate. Likewise, at the provincial level, 35 percent did not comply (12 out of 34). The local education balance sheet (*Neraca Pendidikan Daerah*, NPD) of MoEC confirmed that many subnational governments did not allocate 20 percent of their budgets for education.²⁸

²⁸ <https://npd.kemdikbud.go.id/> According to the NPD data, 138 out of 514 districts/cities did not allocate 20 percent of their budgets for education.

FIGURE 4.1
Education budget share at province and district/city level, 2018



Source: MoF, 2018

Source: MoF, 2018

Sanctions for subnational governments that do not fulfill their mandatory spending levels have been regulated, but enforcement of these sanctions is rare. The GoI, through MoF, can impose sanctions on subnational governments that do not fulfill their mandatory spending levels, which includes the 20 percent allocation of the APBD for education. These sanctions include budget cuts and delays in the disbursement of transfers.²⁹ The sanctions can also be applied to subnational governments that do not fulfill budget reporting responsibility and requirements. While several areas are reported to have received such sanctions,³⁰ enforcement seems rare. To ensure that all districts/cities fulfill their mandates, the regulation on mandatory spending and the sanctions for failing to comply should be enforced.

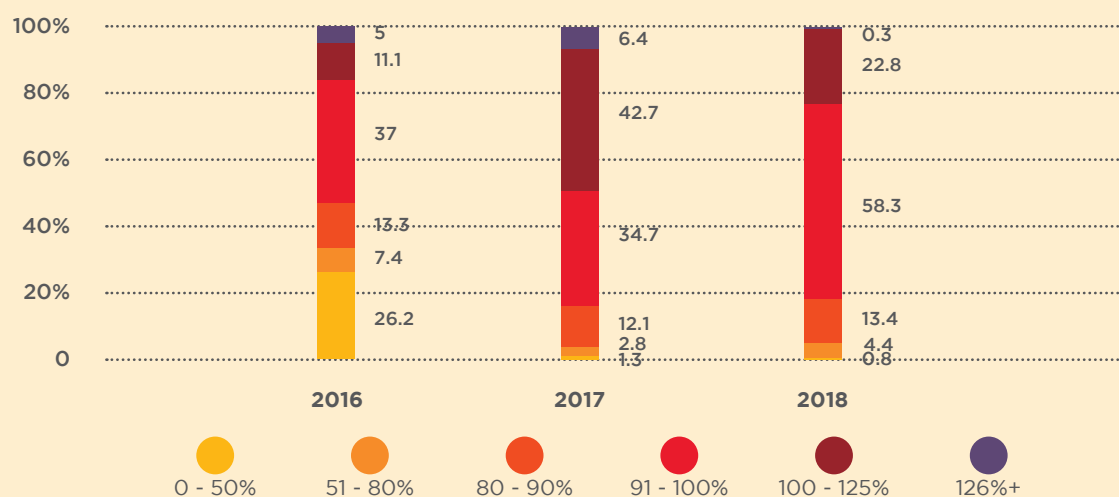
Some districts/cities were found to have been consistently executing a very low proportion of their budgets. From 2016 to 2018, these districts/cities were mostly those with low capacity and located in eastern Indonesia. Districts/cities receive the largest share of the education budget. It is therefore vital to understand whether districts/cities are able to execute their budgets effectively. **Figure 4.2** shows that in 2017 and 2018, about 95 percent of districts/cities executed more than 80 percent of their budgets. In 2017, nearly half of the districts/cities realized spending was greater than the budgeted amounts. This proportion decreased to 23 percent in 2018. Districts/cities that consistently executed very low proportions of their budgets from 2016 to 2018 are mostly located in eastern Indonesia, such as in East Nusa Tenggara (NTT), Maluku and Papua, while districts/cities with the highest realization rates are mostly located in Java, particularly in West Java.

²⁹ PMK 139/2019

³⁰ <https://money.kompas.com/read/2020/07/07/174710726/6-daerah-kena-sanksi-dari-sri-mulyani-karena-apbd-tak-seusai-ketentuan>

FIGURE 4.2

Frequency summary of realized total spending as percentage of total budget, by year



Source: Authors' calculation using MoF's data on districts'/cities' budget and realization.

Districts/cities that have fulfilled the 20 percent mandate are not always able to fully execute all of their budgets.

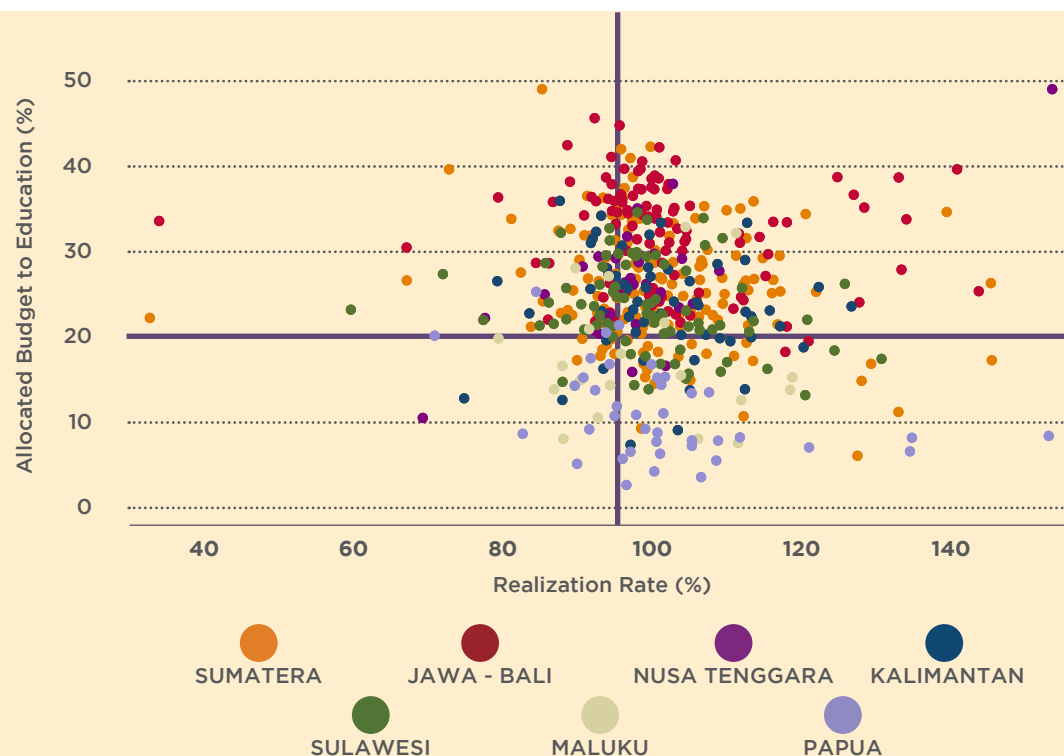
Of the 388 districts/cities that allocated 20 percent from their budgets to education, only 270 (70 percent) achieved more than 95 percent realization rates. The remainder of these districts/cities had low realization rates and tended to have low capacity. Most were located in Sulawesi and Sumatra, while a few were located in the Java/Bali region (Figure 4.3). Districts/cities that fulfill the 20 percent

mandate but have low realization rates need more focused capacity building and technical assistance in planning their education programs/activities and in implementing them (to achieve better budget execution). On the other hand, districts/cities that fail to allocate the minimum 20 percent of their budget to education (mostly located in Papua – light purple dots) require tighter monitoring and enforcement (to fulfill the 20 percent budget mandate). As such, different districts/cities need differing “interventions” based on their own particular challenges.

Of the 388 districts/cities that allocated 20 percent from their budgets to education, only 270 (70 percent) achieved more than 95 percent realization rates. The remainder of these districts/cities had low realization rates and tended to have low capacity.

FIGURE 4.3

District/cities' education budget allocation and realization rates



Source: Authors' calculation using MoF's data on district's budget and realization.

Districts/cities with high standards of local governance tended to allocate the minimum 20 percent of their budgets to education and demonstrated a high level of executing capacity.

The World Bank surveyed 50 districts/cities across Indonesia to investigate differences in their capacity to manage the education system in 2009 and 2012. The study constructed an Indonesian Local Education Governance Index (ILEG), which included several important areas of education governance (World Bank 2013). This study showed important differences across ILEG participating districts/cities, with some achieving very low scores in all the dimensions of the ILEG. Using the ILEG index in 50 districts/cities, the analysis showed important differences in budget

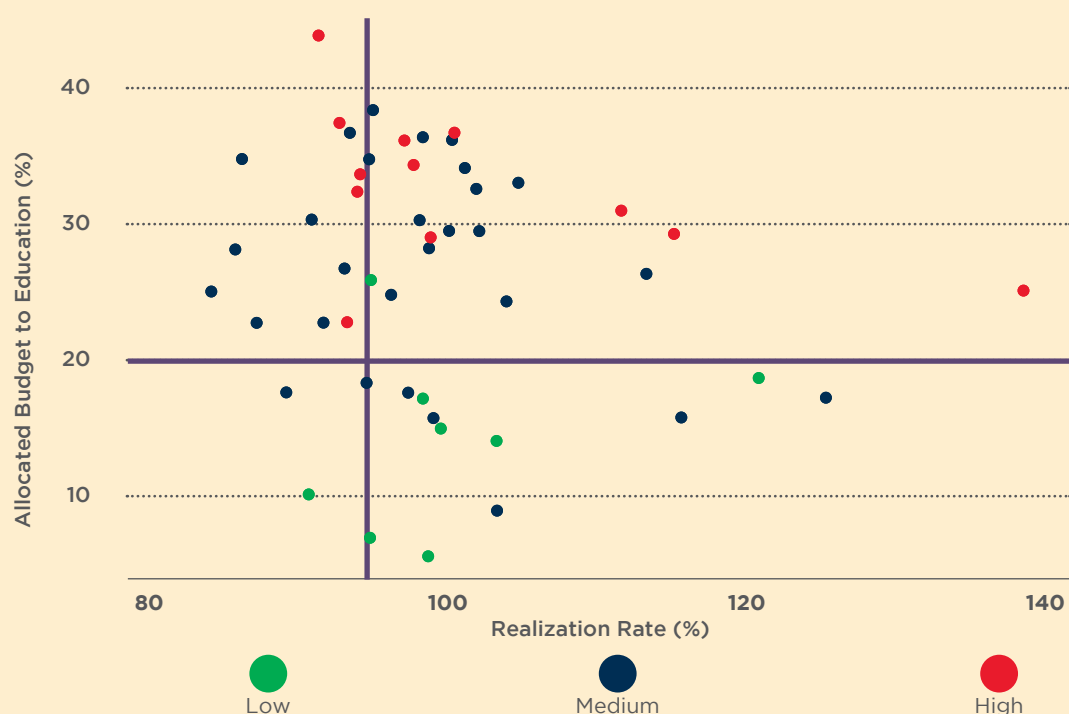
allocation and execution capacity between districts/cities with high and low quality of local governance. Districts/cities with better assessed governance were also those districts/cities that prioritized education more in their budgets. The same group of districts/cities with a high ILEG index tended to have higher capacity in executing their budgets. Meanwhile, districts/cities with lower index scores tended to have a lower share of education budgets and/or low realization rates.

³¹ The areas analyzed were: transparency and accountability, education service provision standards, management of control systems, management of information systems, and efficient use of resources.

Districts/cities with better assessed governance were districts/cities that prioritized education more in their budgets and tended to have higher capacity in executing their budgets.

FIGURE 4.4

District/cities' education budget allocation and realization rates based on the local education governance index



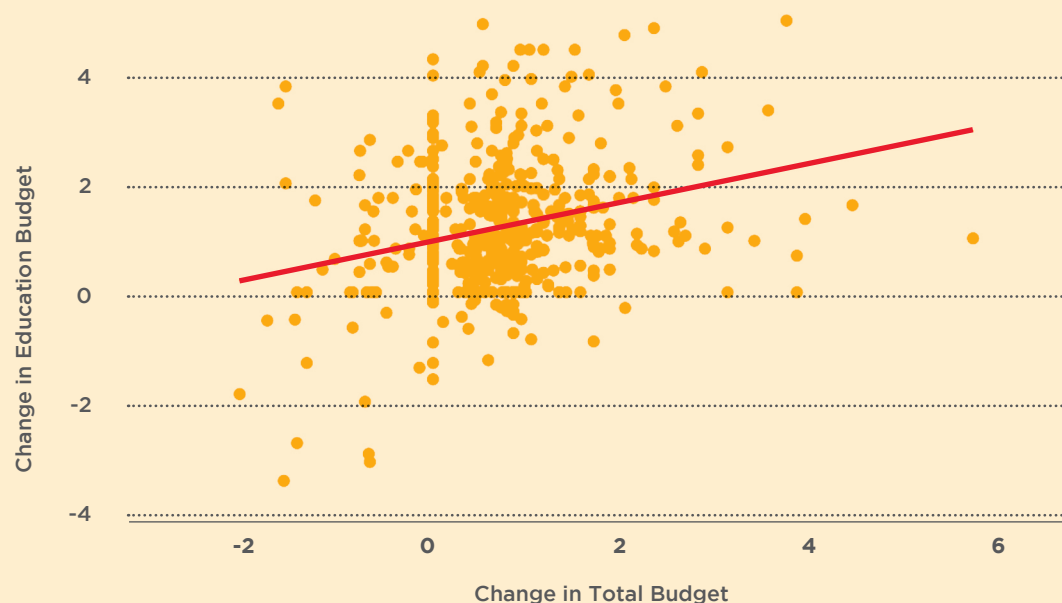
Source: Authors' calculation using MoF's data on district's budget and realization.

The 20 percent rule is often used by districts/cities as one of the main factors in deciding budget allocations to education. When the budget allocated to education reaches 20 percent, districts/cities are considered to have fulfilled their financial mandates. In the context of increasing resources flowing to districts/cities, the share of the education budget is decreasing (**Figure 4.5**). The elasticity between

education budgets and district/city budgets is only 0.4 (an elasticity of 1.0 is needed for a constant share). This shows that districts/cities that have increased in their total budgets do not always increase their budgets for education.

FIGURE 4.5

Budget elasticity of 0.4 reveals that the shares of district/city education budgets are decreasing, while overall resources to the districts/cities are increasing



The education share of district/city budgets (*Anggaran Pendapatan dan Belanja Daerah*, APBD) is an important indicator because it gives an idea of the emphasis that a district/city places on education relative to other functions. Several district/city characteristics are found to have a strong correlation with the share of budget that districts/cities allocate to education. For example, the share of the education budget is negatively correlated with the district/city poverty indicator.³² This means that poorer districts/cities devote a smaller share of their budgets to education.³³ While the results do show that poorer districts/cities devote less to education, the relationship is not strictly linear, as districts/cities with low poverty rates also have lower shares of budgeted spending devoted to education (Figure 4.6, Panel A). Another observed correlation is the size of a district/city (Figure 4.6, Panel B). This shows that larger districts/cities devote a larger share of their budgets to education. Geographically, districts/cities that are categorized as having a lower

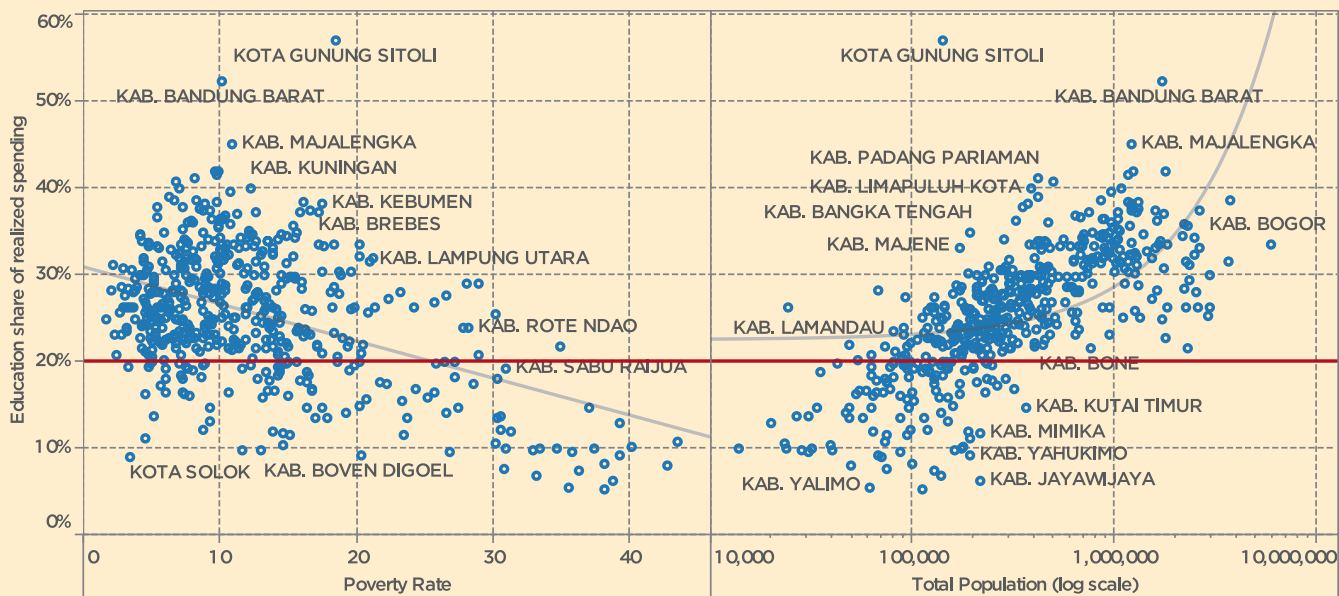
share of education expenditure, higher poverty rates, and smaller populations are found in Papua and West Papua provinces. Comparison of spending shares by district/city size quintile in 2018 also shows a tendency for larger districts/cities to devote a larger share of their budgets to education, as quintile 5 districts/cities (the largest) devote *nearly twice as much* of their total budget to education when compared to quintile 1 (the smallest) districts/cities. The trade-off (in 2018) is largely with the “general” spending category; as education spending increases, the general budget component decreases (Figure 4.7).

³² Measured by the poverty rates of districts/cities. The poverty rate is defined as the ratio of the number of people (in a given age group) whose income falls below the poverty line as defined by the Central Bureau of Statistics (BPS).

³³ The negative correlation is substantial: between -0.35 and -0.45.

FIGURE 4.6

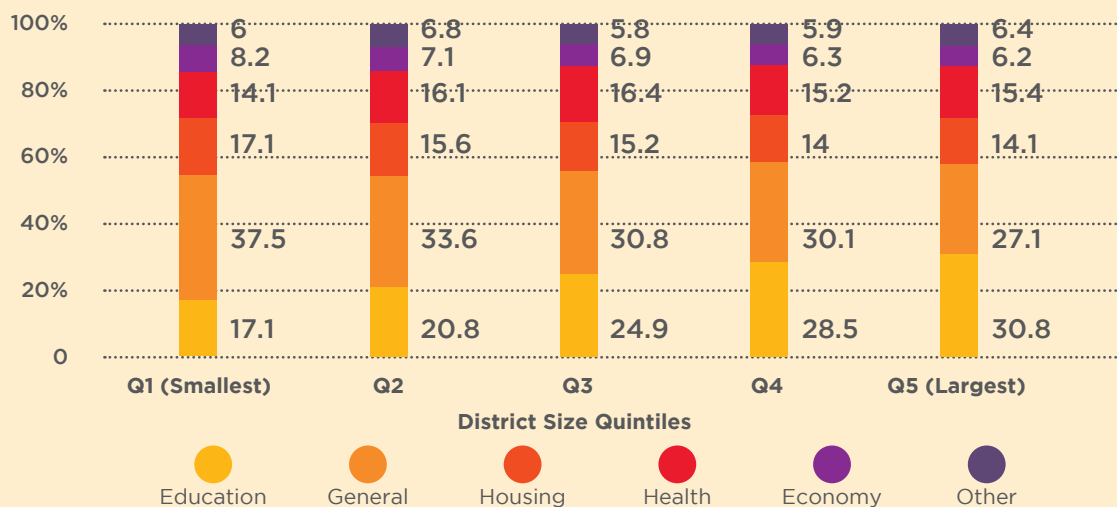
Higher district/city poverty rates are mildly correlated with lower shares of realized expenditure on education, 2018 (Panel A: poverty rate and realized education spending %; Panel B district population and realized education spending %)



Source: Authors' calculation using MoF's data & Susenas

FIGURE 4.7

As "education" spending increases, the "general" expenditure component decreases, 2018

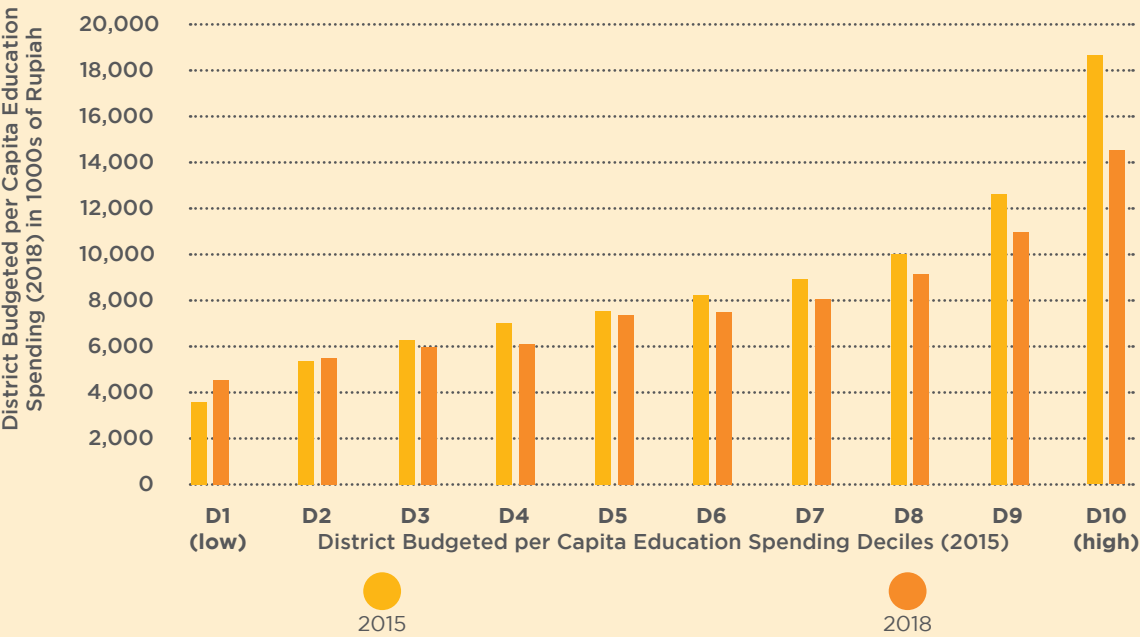


Source: Authors' calculation using MoF's data on district/city budgets and realization.

Two important indicators to understand are district/city spending per student and district/city spending per school-aged (7 to 15-year-old) child (i.e., per capita). These two measures are potentially very different in terms of measuring the overall district/city education spending “effort”, but both provide important information. For example, in districts/cities with low school enrollment rates, the per-student spending measure may be relatively high,

but when measured on a per-capita basis the same is unlikely to be true. Hence, the per-capita measure is a better measure of the overall emphasis on education spending in a district/city, although the per-student spending is still relevant as a measure of the resources that are available to the average student and school.

FIGURE 4.8
Education budget per capita remained consistent between 2015 and 2018— the lowest spending districts/cities in 2015 also spent less in 2018



Source: Authors' calculation using MoF's data & Susenas.

Very large differences are observed in per-capita spending across districts/cities.³⁴ The highest spending districts/cities (in 2015) budgeted about IDR 18 million (US\$1,223) per person, compared with less than IDR 4.0 million (US\$272) per person in the lowest spending deciles.³⁵ The results in **Figure 4.8** also show that these allocated per-capita spending figures are fairly stable: the lowest spending districts/cities in 2015 also tended to spend less in 2018. For example, the lowest spending districts/cities in 2015 (decile 1) allocated just under IDR 4,000,000 per student aged 7 to 15 in the district/city, and in 2018 this same group of districts/cities still had the lowest level of per-capita spending. The remaining decile comparisons show relative equality between the 2015 (yellow) and 2018 (orange) bars, which again suggests that district/city spending levels are not changing much in terms of how they compare against other districts/cities.

District/city size is one of the strongest predictors of spending per student. The steep negative slopes in **Figure 4.9** clearly show that large districts/cities spend less per capita.³⁶ The analysis is based on the number of 7 to 15-year-olds in a district/city, and the per-capita spending on this same population. However, the results do not change much when using total district/city population and per-student spending. These results need to be interpreted together with earlier results, which showed a very strong positive correlation between the share of budgeted spending on education and the district/city population. The results in **Figure 4.9** suggest that larger districts/cities are unable to counteract the unequal transfer distribution mechanisms (Lewis forthcoming) by devoting larger shares of their budgets to education; on a per-student basis, their spending is still much lower than smaller districts/cities. In other words, the size of the pie that is available (i.e., the total budget) is more important than how large a slice is devoted to education.

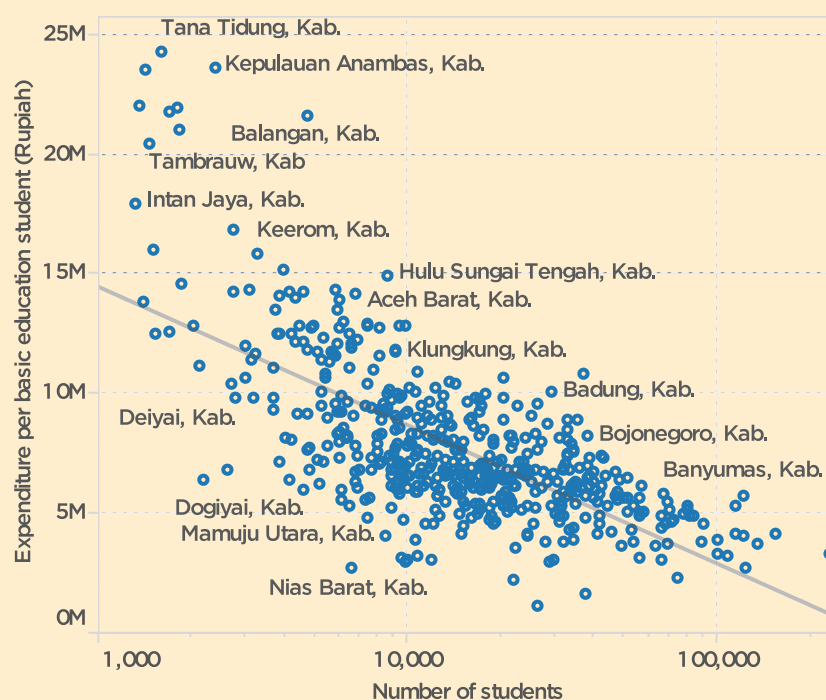
³⁴ Similar trend of variation also observed in per student spending across districts. In 2018, the highest spending districts spent on average IDR 15.2 million per student while the lowest spending districts spent on average IDR 3.6 million per student.

³⁵ Figure 4.7 shows how per-student spending varies across the districts/cities, as well as how durable the spending outcome is across districts/cities. The districts/cities are first ordered by decile based on the budgeted 2015 per capita spending average for basic education (primary and lower secondary). The per-capita measure is obtained by dividing total basic education budgeted spending by the number of 7 to 15-year-olds in the district/city. The averages on the y axis refer to the same districts/cities within each decile from 2015 and are not regrouped into new deciles with different districts/cities.

³⁶ Between 0.4 and 0.6 magnitude.

FIGURE 4.9

A negative slope reveals that larger districts/cities spend less per student on education than smaller districts/cities, 2018



Source: Authors' calculation using MoF's data & Susenas

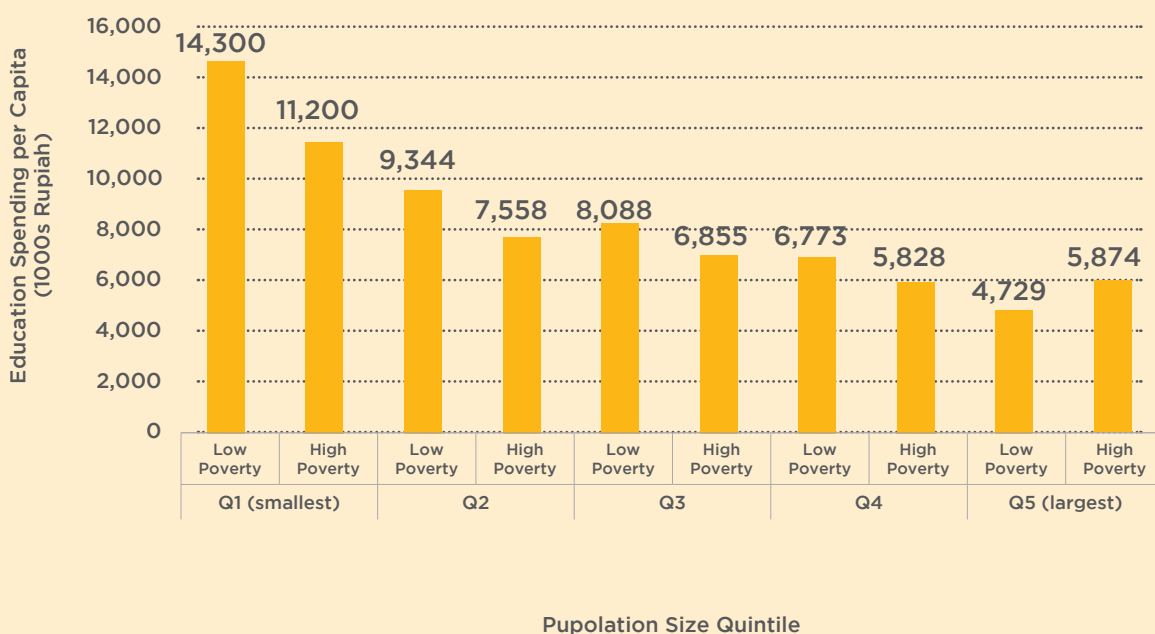
Another complication is that district/city size and poverty rates are negatively correlated, meaning that the larger districts/cities by population in Indonesia have lower poverty rates. Additional comparisons were undertaken using the education level of persons aged 20 to 25-years-old, and GRDP per capita. These results confirm that larger districts/cities have better socioeconomic indicators, although the magnitude is strongest when using the poverty rate.

An additional comparison of education spending with district size and poverty rates showing that the larger source of variation in per-capita spending is district/city size, and not poverty rate. The districts/cities are first ranked from smallest to largest in five

size quintiles (see bottom legend). Then, within each of these groups of districts/cities the per-capita budgeted education spending is compared between the poorest and wealthiest districts/cities. Budgeted spending is based on all children aged 7 to 15-years-old ("per capita"), not on enrolled students. The poorest small districts/cities have much higher spending than the wealthiest large districts/cities. The poverty rate still matters, as there is a clear advantage for low poverty districts/cities in the smaller size ranges. But within the larger districts/cities the poverty rate matters very little, and within the largest districts/cities (quintile 5) the poorer districts/cities actually spend more than the relatively wealthy districts/cities.

FIGURE 4.10

Regardless of poverty rates, smaller districts/cities tend to spend more per student on education than larger districts/cities, 2018



Source: Authors' calculation using MoF's data & Susenas

When controlling for other variables, there is no evidence that poverty is related to the share of education spending. The main finding for spending share is the very strong positive relationship between district/city total population and share of education spending (**Annex Table 2**). These results simply confirm the earlier bivariate (scatter plot) comparisons. Large districts/cities appear to be compensating for lower (per-capita) transfer levels by focusing more of their budgets on education. This in turn highlights an interesting question that is beyond the scope of this study: why do large districts/cities focus these “compensation” efforts on education, and not on other areas?

4.3

How Do Districts/Cities Report Their Education Expenditures?



The lack of standardization of **education financing data across districts/cities and provinces** renders the analysis of education expenditure at the subnational level almost impossible.

While some expenditure category/definition lines are common across all districts/cities, most expenditure categories are not standardized.

The lack of standardization of education financing data across districts/cities and provinces was also confirmed during field visits. Individual districts/cities and provinces record and classify their spending based on different labelling systems. For example, teacher training programs in Kab. Probolinggo are reported as *Pengembangan Keprofesian Berkelanjutan* or PKB (“continuous development program”), while in Kab. Bireun they are reported as *Pelatihan bagi pendidik yang memenuhi standar* (“training for eligible teachers”). Expenses for teacher training for teachers in primary vs. teachers in lower secondary schools, or training for PNS vs. non-PNS teachers, are all combined, making it difficult to systematically identify gaps in training provision. Another example is the program salaries/allowances for honorarium teachers (**Table 4.2**). The lack of standardization of education financing data across districts/cities and provinces renders the analysis of education expenditure at the subnational level almost impossible, and has resulted in very little knowledge being developed in this area.

The new program nomenclature for subnational governments is comprehensive but not able to produce basic budget/spending information that would be useful for policy-making. The Ministry

of Home Affairs (MoHA) has launched Ministerial Regulation No. 90/2019, which has a number of revenue and spending classification “segments”: economic/account (group, type, object, and sub-object, along with assets, liabilities, and equity); program (*urusan* category, *urusan*, program, activity, sub-activity); function (and sub-function); source of funds; location (*wilayah administrasi pemerintahan*/subnational government’s administrative area); and organization (*dinas*, regional technical implementation unit [UPTD], and *cabang dinas/dinas* branch). Despite the overwhelming comprehensiveness of this new program nomenclature, the system will not be able to easily produce basic budget/spending information that would be useful for policy-making, such as: (i) the distribution of total education spending across levels of schooling (SD and SMP, SMA and SMK, PAUD and Dikmas/community education); and (ii) district/city spending on salaries, by job position (administrator, civil service teacher, and contract/honorarium teacher). There has been an effort to produce better spending information by level of schooling. For example, in the previous nomenclature, the spending of SD and SMP were aggregated into the “basic education” category. With this new regulation, the issue has been partially resolved, although spending on basic categories such as curriculum, textbooks, construction, licensing, and the mapping and distribution of teachers and education personnel, are still combined into one category.

TABLE 4.2

There is a wide variation in designated program category names for honorarium teachers' salaries/allowances

| DISTRICT | RANGE SALARY FOR NON PNS TEACHER PAID BY APBD | LOCAL MINIMUM WAGE | % | CoA PROGRAM CATEGORY | CoA ACTIVITY CATEGORY |
|------------------|---|--------------------|-----------|--|---|
| Wonogiri | 500,000 | 1,400,000 | 36% | Program Peningkatan Mutu Pendidik dan Tenaga Kependidikan | Penghargaan GTT dan PTT |
| Demak | 300,000 - 1,200,000 | 2,065,000 | 58% | Program Peningkatan Mutu Pendidik dan Tenaga Kependidikan | Fasilitasi Bantuan Kesejahteraan bagi PTT dan GTT |
| Purworejo | 450,000 - 800,000 | 1,300,000 | 35%-62% | Program Peningkatan Mutu Pendidik dan Tenaga Kependidikan | Kesejahteraan Pendidik Wiyata Bhakti Pendidikan Formal |
| Kab. Probolinggo | 1,000,000 | 2,042,900 | 49% | Program Peningkatan Mutu Pendidik dan Tenaga Kependidikan | Penunjang Biaya Operasional Sekolah Daerah (BOSDA) |
| Kab. Bojonegoro | 250,000 - 1,000,000 | 1,858,000 | 13%-54% | Program Peningkatan Mutu Pendidik dan Tenaga Kependidikan | Honorarium/Tunjangan Kinerja GTT/PTT |
| Kab. Kotim | 1,190,000 | 2,776,460 | 43% | Program Peningkatan Mutu Pendidik dan Tenaga Kependidikan | Pengembangan Guru Kontrak |
| Kota Semarang | 2,125,000 - 2,400,000 | 2,125,000 | 100%-113% | Program Pelayanan Operasi Perkantoran/ Program Wajib Belajar | Operasional UPTD Pendidikan Kecamatan/ Pendampingan BOS |
| Kota Surabaya | 3,580,000 | 3,580,000 | 100% | Program Wajib Belajar Pendidikan Dasar 9 Tahun | BOSDA |

Source: Authors' calculation based on field data collection

As a result, there is a need to further revise the Chart of Accounts (CoA) to make it simpler. MoHA Ministerial Regulation No. 90/2019 includes a total of 165 programs, 304 activities, and 1,679 sub-activities for provinces. This is still far too complex compared with, for example, only 64 programs and 245 sub-programs (equivalent to the same activities in Indonesia) in South Africa's CoA for provinces (World Bank forthcoming_c).³⁷ MoF is currently leading

the development of a regulation that will determine the classifications that subnational governments will require to use (as stated in the Government Regulation No. 12/2019). It will be important for MoF and MoHA to work together to build a harmonized classification that address the needs of and support decision-making by subnational governments. Overly detailed classifications risk increasing reporting errors and undermining comparability across subnational

³⁷ There are 123 sub-activities for the education sector alone.

Twenty-two out of the selected 27 districts/cities used three or more platforms, with each platform serving a different purpose.

governments. During the field research, most district/city education staff interviewed concluded that the reporting requirements associated with the new CoA would be very burdensome. Indeed, in the past, some districts/cities developed their own parallel information systems to generate the kinds of data that they required to deliver services for which they are responsible. These systems are typically “input” focused and not fully integrated. District/city education staff who were interviewed indicated that the information they had been asked to generate in the context of previous CoA demands was not for their own benefit but for the purposes of the central government.

Districts/cities may not be fully aware of the kinds of data that might be useful to them to improve local service delivery. When *Dinas Pendidikan* officials were asked what kind of information and data they required in order to improve student outcomes (among all or disadvantaged students, for example), they found it difficult to respond. This suggests a general lack of capacity at lower levels of government to discern information requirements to meet local education service improvement objectives. This, in turn, implies a more modest approach to the development of a CoA framework. In particular, detailed information requests related to district/city spending on sub-activities and/or location of spending, and/or organization level spending are unlikely to be of much practical value in the short term.

All districts/cities visited during the field research ran various applications or platforms for planning, budgeting, financial administration, reporting, asset and inventory management. The platforms were developed by various vendors, some of which were hired by subnational governments and others by central government. For example, regional

financial management information systems have been developed by both MoHA (*Sistem Informasi Pengelolaan Keuangan Daerah*, SIPKD) and the Financial and Development Supervisory Agency (*Badan Pengawasan Keuangan dan Pembangunan*, BPKP) (*Sistem Informasi Manajemen Keuangan Daerah*, SIMDA). Twenty-two out of the selected 27 districts/cities used three or more platforms, with each platform serving a different purpose. For example, Kab. Sampang uses an *e-planning* platform for planning, the SIPKD platform for budgeting, financial administration and reporting, and an *e-asset* platform for asset inventory and management (detailed list of platforms used by district/city governments can be found in the **Annex Table 3.**). These three platforms are not integrated and therefore require manual processes (i.e., the importing and exporting of data) to link the complete process of planning, budgeting and reporting. Manual data entry and processing are likely to decrease the accuracy and quality of the output data. This example of a fragmented system, with numerous applications and a lack of communication between applications, is found in many districts/cities. From all the visited districts/cities, only Kab. Purworejo already had an integrated system (it was piloting an integrated version of SIMDA) for all processes, including planning, budgeting, financial administration, reporting and asset inventory.

The effectiveness of these platforms in supporting planning, budgeting, and reporting at the subnational levels remains to be assessed. Running various platforms increases inefficiencies from the duplication of effort across data-entry and processing, and decreases accuracy and the quality of data going into each platform. Furthermore, having districts/cities run their own platforms simply makes budget monitoring at the central level all the more challenging.

4.4

How are Resources Actually Spent on Education at The Subnational Level?



4.4.1

Education Spending **by Education Level**

Given the district/city mandates to deliver education services—in particular, early childhood, primary, and lower secondary levels—it is important to understand how districts/cities allocate their resources across the three levels. During the field research, the team collected data in 27 districts/cities with regards to the allocation of their education budget to the three

different education levels.³⁸ The information on the proportion of education expenditure distributed across the three levels is not available in district/city financial reports. Instead, the field research staff tried to obtain this information, among others, through in-depth interviews with local officials (see **Box 4.1**).

BOX 4.1

Standardized data collection on district/city expenditures

The different characterization of education expenditures by districts/cities makes it difficult to consistently analyze the different education expenditure patterns across districts/cities. In order to implement a detailed analysis of education expenditure consistent across districts/cities, this study collected data on education finances in 27 districts/cities across Indonesia. In each district/city, the education and planning departments provided information on the education budget and its realization for 2017. The data collected included information on the different functional classifications of education expenditures, as well as the source of funding.

The selection strategy of the participating districts/cities was twofold. On one hand, four districts representing large cities in Indonesia were selected, namely Kota Surabaya, Kota Malang, Kota Medan and Kota Semarang. On the other hand, a total of 23 districts were selected. These 23 districts were grouped into three different categories according to their institutional development: districts with high, medium and low institutional capacity as measured by ILEG (Indonesian Local Education Governance) survey (Al Samarai et al. 2013). District institutional capacity is measured by five key dimensions: transparency and accountability, management control system, management information system, efficient

³⁸ One district from the group of districts with low capacity (Kab. Manokwari) was excluded from this analysis as its salary data were incomplete. In addition, one district from the group of districts with intermediate capacity (Kab. Kulon Progo) was excluded from the analysis as it failed to report its salary data by education level.

BOX 4.1**Continued**

resource use, and education service provision standards. The list of selected districts and cities can be found in Annex **Table 4**.

The data collected included the level of education expenditure, i.e., pre-school, primary, lower secondary, upper secondary, higher education, non-formal education and non-level-specific. This data also included classification of salaries and allowances, teacher training, infrastructure, education delivery support (district/city programs to support schools, either monetary or in kind; programs to support the implementation of the national exam; and scholarship programs, among others), and operational costs. Information on the source of funds was also collected. Most districts/cities reported that sources were from either DAU or DAK transfers, but in some districts/cities the resources were also linked to special autonomy funds (*Otonomi Khusus*, OTSUS), among other sources. It is important to mention that:

- The data collection focused on the APBD. Therefore, it includes DAU and DAK, to the extent that they are incorporated in the district/city budget. BOS is an important DAK, but it runs in parallel with the district's/city's APBD. Therefore, even though some districts/cities provided the BOS data as they described in their APBDs, this data has not been included in the analysis below for consistency.
- Given the budgeting practices of districts/cities, they pull together all the resources in an integrated account. Therefore, many districts/cities did not have the information to establish a one-to-one relationship between the source of funds (DAU, DAK, OTSUS) and the use of funds (for example, salaries and allowances).

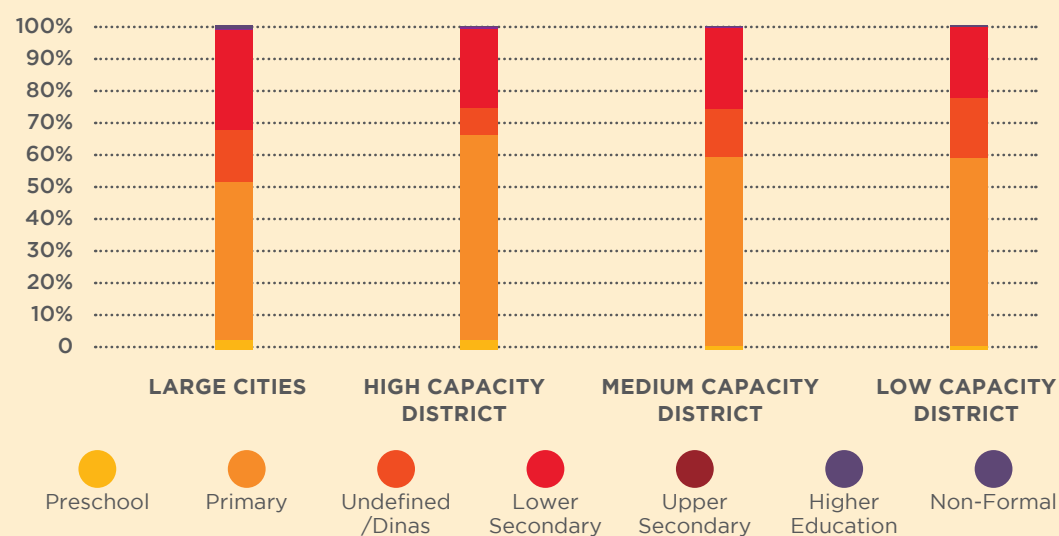
Districts/cities are autonomous in their decisions on how to use the resources. Therefore, besides the mandate of Law No. 23/2014 on Subnational Government, which establishes that basic and lower secondary education are to be managed by the districts/cities, districts and cities do have the option of allocating their education resources across other education levels. As the data below show, districts/cities also invest in other education levels, but in general those levels of investment are small.

The data show that, in general, districts/cities prioritize resources toward primary and lower secondary education, as aligned with the mandates of the decentralization legislation. As shown in Figure 4.11, on average, the budget for primary education was 58.1 percent, 25.9 percent for lower secondary education, 13.6 percent for unclassified and/or District Education Office-related expenditures, 2.6 percent for pre-primary education (ECED), 0.4 percent for

non-formal education, and 0.2 percent for higher (tertiary) education. Among the sampled districts/cities, none reported on expenditure for upper secondary education, likely related to the recent reassignment of this education level from districts/cities to provinces. Five districts/cities had allocations for higher (tertiary) education, even though higher education is not under the responsibility of districts/cities³⁹.

FIGURE 4.11

Districts/cities generally prioritize resources toward primary and lower secondary education



Source: Authors' calculations based on field data collection.

Note: More detailed information for each district/city can be found in Annex Table A.3.

³⁹ As regulated in Law No. 23/2014 on Local Government, higher (tertiary) education falls under the responsibility of the central government.

In most districts/cities, the share of the budget allocated to primary education was higher than the share allocated to lower secondary education, reflecting the larger number of students in primary compared with secondary education. Meanwhile, expenditure on the pre-primary (ECED) level was much lower than both the primary and lower secondary levels across all districts/cities. However, interestingly, the budget shares allocated to ECED are much higher in large cities and high-performing districts (3.5 percent) compared with the allocations in medium and low-performing districts (1.0 percent). This shows that large cities and high-performing districts have a stronger commitment toward providing early childhood education, although it is also important to note that medium- and low-performing districts/cities may have only limited resources. Kab. Sleman had the highest budget allocation for the pre-primary level (ECED) among the 27 visited districts/cities, at 13.6 percent.

In order to obtain data on the education budget per student for 2017, the data gathered during the fieldwork was combined with the administrative data on student enrollment from Dapodik. Figure 4.12 shows that in primary education the average education budget per student among the 27 surveyed districts/cities was IDR 5.0 million (about US\$333). The district/city with the highest budget per student was Kab. Aceh Besar (IDR 7.7 million, or about US\$513), while the district/city with the

lowest budget per student was a city, Kota Medan (IDR 2.0 million, or about US\$133). Across district/city types, districts/cities with medium/low capacity registered on average IDR 5.5 million per student in primary education, 23 percent higher than the budget per student in primary education in large cities/high capacity districts/cities (IDR 4.5 million).⁴⁰

In lower secondary education, the average expenditure per student among the 27 surveyed districts/cities was IDR 5.3 million. The district with the highest budget per student in lower secondary was Kab. Aceh Besar (IDR 11.0 million, or about US\$733), while the district with the lowest budget per student was Kab. Kebumen (IDR 1.9 million, or about US\$126). Kab. Aceh Besar spends 579 percent more per student per year than Kab. Kebumen to deliver what is, in theory, the same service. There are likely differences in costs for service provision in remote areas, but this degree of variability in spending allocation can increase inequality in a decentralized system. This also shows that the variation in education spending per student in lower secondary is much larger than in primary. International evidence shows that gaps in education resources at the subnational level also exist in other countries, with varying degrees of difference (see Box 4.2).

⁴⁰ One of the two selected low-capacity districts, Kab. Manokwari was excluded from this analysis as its salary data were incomplete. In addition, one district from the group of districts with intermediate capacity (Kab. Kulon Progo) was excluded of the analysis as it failed to report its salary data by education level. Due to this data limitation, a comparison is made between: (i) large cities/high-capacity districts and (ii) medium/low-capacity districts.

BOX 4.2

International evidence on variation in subnational education expenditure

Large gaps in financial resources across subnational governments are not unique to Indonesia.

According to OECD data, the Russian Federation has a subnational range—in terms of annual expenditure per student on educational institutions at the primary and secondary levels combined—with a ratio of 9 between the region with the highest and the region with the lowest value, ranging from around US\$2,700 to US\$25,000. Meanwhile, Canada has a ratio of almost 3 between the top and bottom regions in terms of expenditure per student at primary and secondary levels (OECD 2018).

Variation in subnational education expenditure is also observed in Sudan. The variation leads to varying gaps between financing responsibilities and resources, and the potential for substantial horizontal imbalances between subnational governments. Regions with the lowest education and health spending per capita in Sudan spent between SD 13 and SD 18 (US\$0.23 and US\$0.32), while regions with highest education and health spending per capita spent between SD 50 and SD 80 (US\$0.90 and US\$1.44) (World Bank 2014).

Smaller gaps in financial resources across subnational governments, with ratios of between 2 and 4, are also observed in Mauritania, Tajikistan and Albania. In Mauritania, the resources allocated to the regional offices are regressive. Poor and rural regions such as Guidimagha, Brakna, Gorgol and Assaba show a per-student expenditure considerably below the national average (UM 810, or US\$3.00). The lowest spending region is Guidimagha, with budget per student is UM 499, while the highest spending region is Tiris Zemmour, with a budget of UM 2,005 per student (World Bank 2016). In Tajikistan, the oblast/rayon with the highest per-student spending is in Gorno-Badakhshan Autonomous Oblast, at SM 1,000 (US\$97), while the lowest spending oblast/rayon is Dushanbe, at SM 350 (US\$34) (World Bank 2013). In Albania, some counties seem to be more efficient than others in using their resources to produce good student outcomes. For instance, Qarku Tirane, Vlorë, Elbasan and Fier spend close to the country average and obtain relatively good results, while other counties spend just as much but do not achieve such good student outcomes. There is a significant gap in expenditure per student between the lowest-resource county (Durrës), at LEK 40,000 (US\$400), and the highest-resource county (Gjirokastër), at LEK 80,000 (US\$800) (World Bank 2014).

⁴¹ The number of children aged 5 and 6-years-old is calculated using Susenas 2017. The estimation of the per-capita expenditure in pre-primary level is conservative given that pre-primary education normally caters for children up to the age of 6.

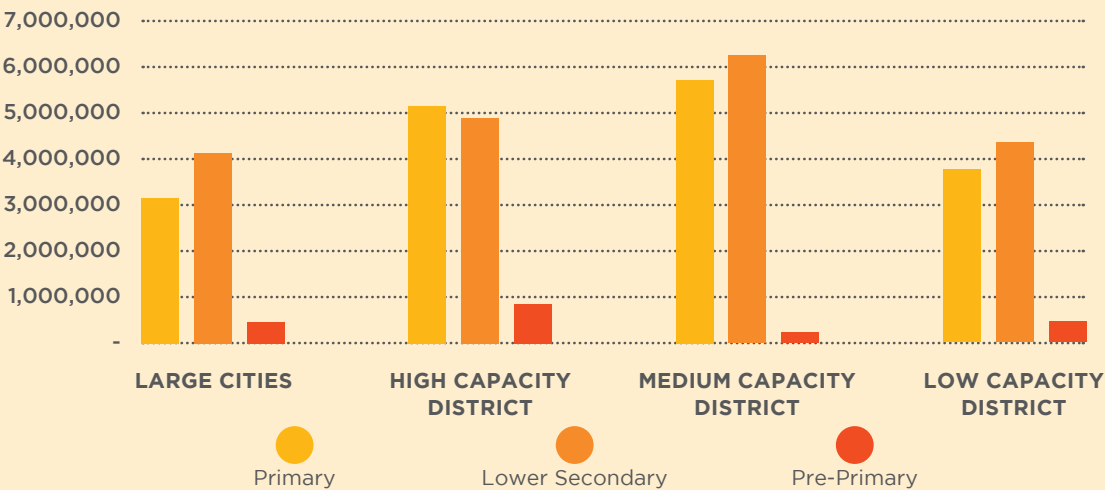
⁴² Compulsory education consists of six years at elementary level and three years each at middle and high school levels.

⁴³ This regulation specifies that children aged 5 to 6-years-old should participate in early childhood education.

Districts/cities spend very little on ECED despite the recent government regulation on the inclusion of ECED as one of the basic public services that districts/cities have to fulfill to meet the minimum needs of Indonesian citizens. Per-capita expenditure in pre-primary level is estimated by dividing the total education expenditure allocated for pre-primary and the estimated number of children aged 5 to 6-years-old.⁴¹ In all districts/cities, per-capita expenditure for pre-primary is lower than both primary and lower secondary. However, in some districts/cities the difference is very significant. For example, 12 out of 27 districts/cities have per-capita expenditures for pre-primary that are lower than IDR 150,000 (about US\$10). On average, the per-student allocation for

pre-primary is only IDR 500,000, or about 10 percent of the per-student budget for primary and lower secondary education. With such meager resources, it is very challenging to provide universal access to quality pre-primary education. Unlike primary and lower secondary, the pre-primary education level is not part of compulsory education.⁴² There has been an effort to expand access to pre-primary education. For example, the most recent Government Regulation No. 2/2018 on the Minimum Service Standards includes ECED as a basic public service governed by districts/cities to fulfill the minimum needs of Indonesian citizens.⁴³ However, the implementation of this regulation is highly dependent on the commitment and capacity of district/city governments, as also confirmed by the results from the field research.

FIGURE 4.12
Education expenditure per student by education levels



Source: Authors' calculations based on field data collection.

12 out of 27 districts/cities have per-capita expenditures for pre-primary that are lower than IDR 150,000 (about US\$10). On average, the per-student allocation for pre-primary is only IDR 500,000, or about 10 percent of the per-student budget for primary and lower secondary education.

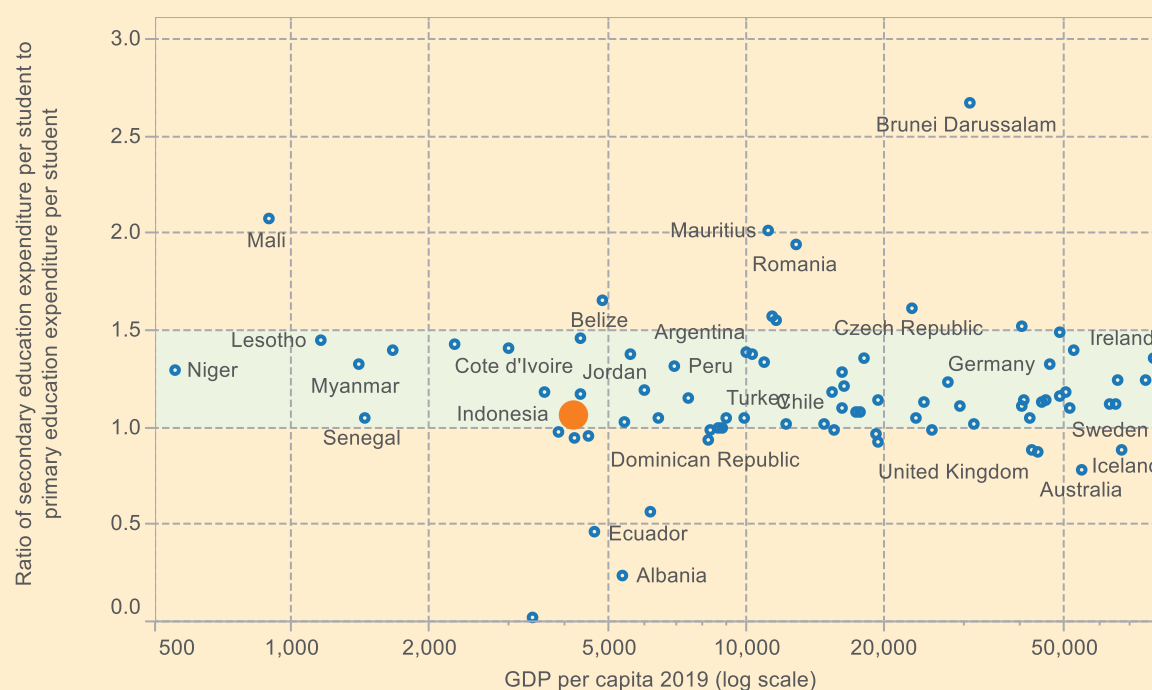
From the 27 surveyed districts/cities, the analysis shows that the average expenditure per student in primary was IDR 5.0 million, while in lower secondary it was IDR 5.3 million. This shows that the ratio of expenditure per secondary student to per primary student is 1.06, the ratio for a selected sample of districts/cities in Indonesia is consistent overall with the international trend, albeit slightly toward the lower side.

Early childhood education and lower secondary education may benefit from larger allocations when compared with primary education on the basis of expenditure per student.

From the 27 surveyed districts/cities, the analysis shows that the average expenditure per student in primary was IDR 5.0 million, while in lower secondary it was IDR 5.3 million. This shows that the ratio of expenditure per secondary student to per primary student is 1.06. As **Figure 4.13** shows, the ratio of secondary education expenditure to primary education expenditure typically ranges between 1.0 and 1.5, irrespective of a country's economic development as measured by GDP per

capita. Therefore, the ratio for a selected sample of districts/cities in Indonesia is consistent overall with the international trend, albeit slightly toward the lower side. On the other hand, the ratio of pre-primary expenditure per student to expenditure per primary student is 0.03, indicating significantly low allocation per pre-primary student in the 27 surveyed districts/cities. While an international comparison of the latter indicator is not available, it is important for Indonesia to consider an appropriate allocation to pre-primary education, as it is critical for building the foundations of human capital. On this basis, especially among these 27 sampled districts/cities, Indonesia could consider strategic resources reallocation across sub-sectors based on the strategic priority.

FIGURE 4.13
International comparison of the ratio of expenditure per secondary student to expenditure per primary student, circa 2019



Source: Authors' analysis using World Development Indicator database. Countries' education expenditure is most recent data available between 2017 – 2019, and only countries with available data are included.

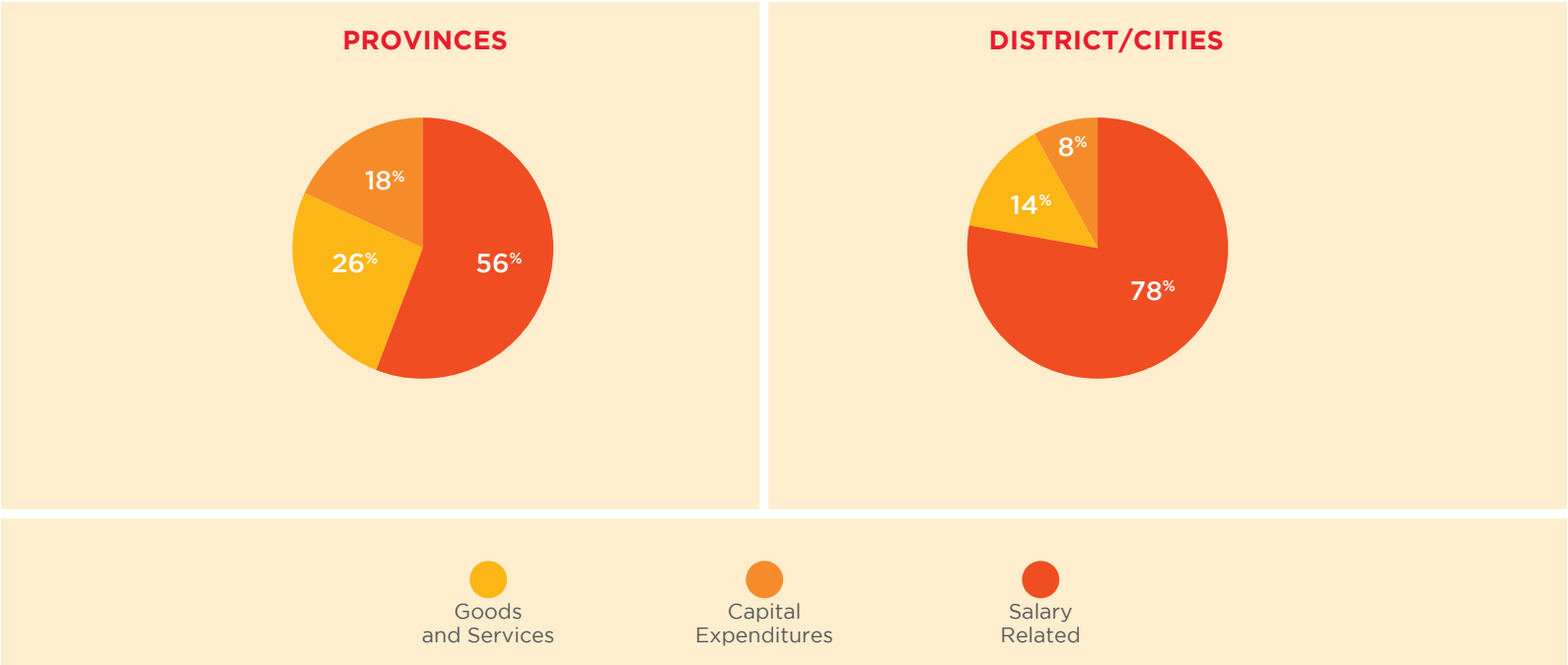
4.4.2

Salary Spending

The biggest proportion of the education budgets of provinces and districts/cities in 2018 were allocated to the payment of salary-related expenditures. Of the aggregate APBDs across provinces, 56 percent was allocated to salary-related expenditures, 26 percent was allocated to goods and services, and 18 percent was allocated to capital expenditures. With regards

to the average district/city budget across all districts and cities in the sample, 78 percent went to salaries, 14 percent was allocated to goods and services, and 8 percent was allocated to capital expenditures.

FIGURE 4.14
Districts/cities and provinces allocate most of their education budgets to salary-related expenditure



Source: MoF 2018

77 percent of districts allocate more than 70 percent of their budget for the payment of salary-related expenditures. In extreme cases, 32 districts spent more than 90 percent of their budget on salaries.

There are differences across districts/cities and provinces in the share of resources allocated to the payment of salaries. Among the provinces, 4 out of 34 provinces allocated between 70 and 80 percent of their budgets to salary-related expenditures. For districts and cities, 77 percent of districts/cities allocate more than 70 percent of their budget for the payment of salary-related expenditures. In extreme

cases, 32 districts/cities spent more than 90 percent of their budget on salaries. This personnel expenditure may not include the amount spent by subnational governments to pay the salaries of non-civil servant teachers, as this spending is categorized as spending on goods and services (see Box 4.3). Therefore, the share of personnel spending in Figure 4.14 may be significantly underestimated.

BOX 4.3

Teacher hiring at different levels

The recruitment, appointment and management of civil servant teachers are all regulated by Law No. 5/2014 on the State Civil Apparatus (*Aparatur Sipil Negara*, ASN). Law No. 5/2014 defines two types of status for civil servants, including teachers: (i) a permanently employed civil servant (*Pegawai Negeri Sipil*, PNS) who receives an associated package of employment benefits, and who is entitled to access continuous professional development opportunities; and (ii) a civil servant employed under a fixed-term contract (*Pegawai Pemerintah dengan Perjanjian Kerja*, PPPK), who receives an associated package of employment benefits. This type of “contract” civil servant is also entitled to access continuous professional development opportunities.

In civil servant teacher recruitment, the Ministry of Administrative and Bureaucratic Reform (MoABR or KemenPAN-RB) is responsible for identifying the need for teachers, and for deciding on the appointment of any new civil servant teachers using data from Education Offices at the district/city and provincial levels. These Education Offices in turn are responsible for processing the employment and deployment of teachers. Based on the allocation and standards defined by KemenPAN-RB, the Education Offices manage the selection process by applying the minimum set of requirements, including an undergraduate degree, and by implementing the online standardized civil service exam on basic competencies by KemenPAN-RB, as well as the grade and subject-specific exams by MoEC. The implementation of these exams is coordinated by the National Civil Service Agency (*Badan Kepegawaian Negara*, BKN). Based on the test results given by these two ministries, the Education Offices can either conduct additional exams or conduct interviews as part of the final exam, and announce those candidates that have been selected. Meanwhile, MoEC is responsible for the annual monitoring of the existing number of teachers in each school and for updating the data on schools’ needs for teachers. Civil servant teachers are paid according to the national civil service pay scale, which is based on level and years of experience. The second type of recruitment is PPPK, a performance-based contract scheme for civil servants, including teachers,

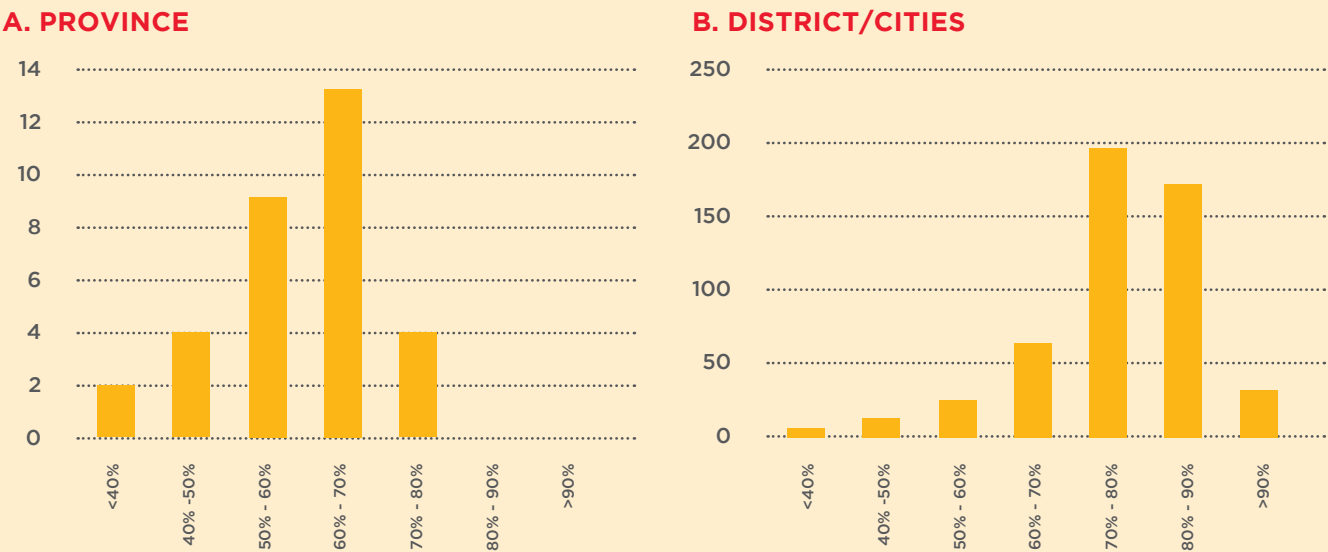
BOX 4.3
Continued

where the contract will be extended if the performance of the civil servant is satisfactory. Hiring procedures of PPPK are regulated by Government Regulation (PP) No. 49/2018 and BKN Regulation no. 1/2019. Similar to civil servant hiring procedures, the quota allocation for each province/district is decided at the central level (based on the proposal from the local level).

Since the moratorium on teacher hiring was issued in 2011, subnational governments have struggled to meet the need for teachers in schools. Subnational governments responded by recruiting contract teachers to procure additional teaching services using various selection processes and criteria, despite official regulations prohibiting the recruitment of contract teachers.⁴⁵ Some districts/cities, such as Semarang, East Jakarta and Gorontalo, hired contract teachers using their own resources by issuing a decision letter from the head of the District Education Office. In this way, contract teachers are treated as consultants and not as contract teachers. Salaries for contract teachers are paid from local budgets (APBD) and vary depending on the financial capacity of each district/city.

The recruitment of teachers and other education personnel can also take place at the school level using BOS or other school-generated funds such as parents' contributions. There are no uniform standards for hiring in this way, as the decisions are made by individual schools. Therefore, the quality of honorarium teaches varies considerably. Honorarium teachers' salaries are far lower than the minimum wage, at less than one-fifth of a certified civil service teacher's salary (World Bank forthcoming), and depend largely on a school's financial capacity.

FIGURE 4.15
Distribution of education budget allocated to personnel expenditures



Source: World Bank calculations based on MoF data 2018.

⁴⁵ Government Regulation No. 48/2005, MoHA Circular No. 814.1/169/SJ 2013.

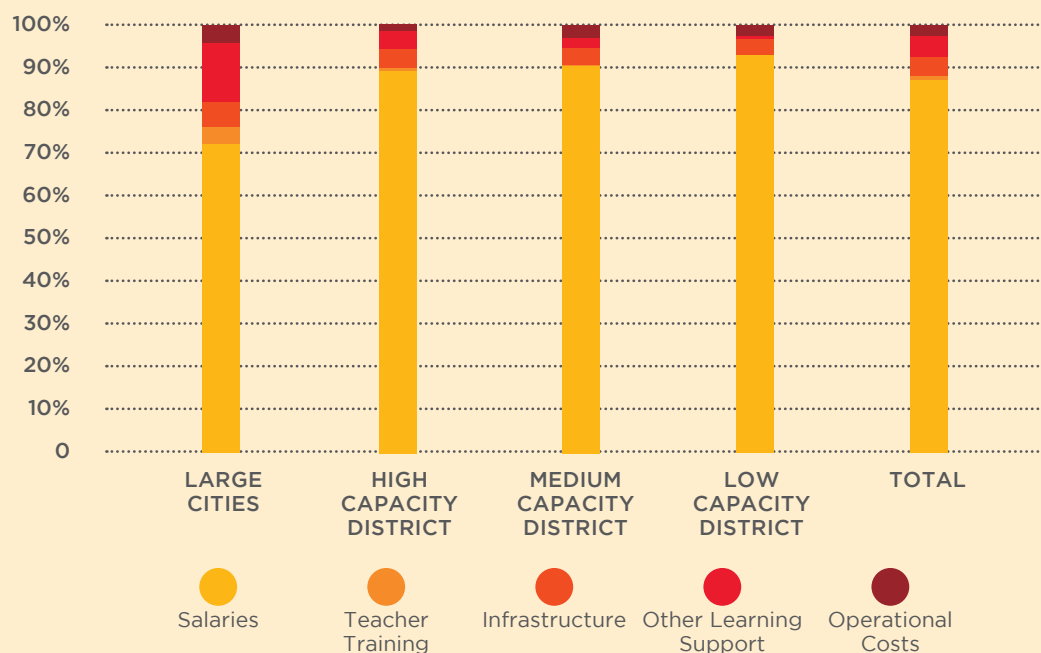
Budget realization analyses confirm the high importance of salaries within district/city budgets.

Data analysis from the field research shows that the highest budget allocation by program is the payment of “teacher salaries and allowances” at 86 percent,⁴⁶ followed by “other support for learning” (5 percent), infrastructure (5 percent), operational costs (3 percent), and teacher training (1 percent).⁴⁷ The district with the highest share of the budget allocated to teacher salaries and allowances was Kab. Sragen (96 percent), while the district with the lowest share was a large city, Kota Surabaya (45 percent).

Among the different groups of districts/cities, large cities have on average a lower share of their expenditures allocated to salaries than in lower-capacity districts/cities. Salary-related expenditure

in large cities accounts for 72 percent of total education expenditure. This proportion is much lower than the share of salary-related expenditure in other districts/cities: high-capacity districts/cities spent about 89 percent, medium-capacity districts/cities spent about 90 percent, and low-capacity districts/cities spent about 93 percent. The large cities implemented more education programs that are non-salary related, such as teacher training and other learning support programs (i.e., local school operational grants, scholarship programs). Despite these differences, the share of the budget allocated to teacher salaries and allowances captures most of the education resources in all districts/cities. This suggests that most districts/cities have very limited remaining resources to implement non-salary education programs that can be focused to improve quality.

FIGURE 4.16
District/city education expenditure by category



Source: Authors calculations based on field data collection.

⁴⁶ The share of salary spending data collected from districts/cities included the district/city budget for contract teachers' salaries.

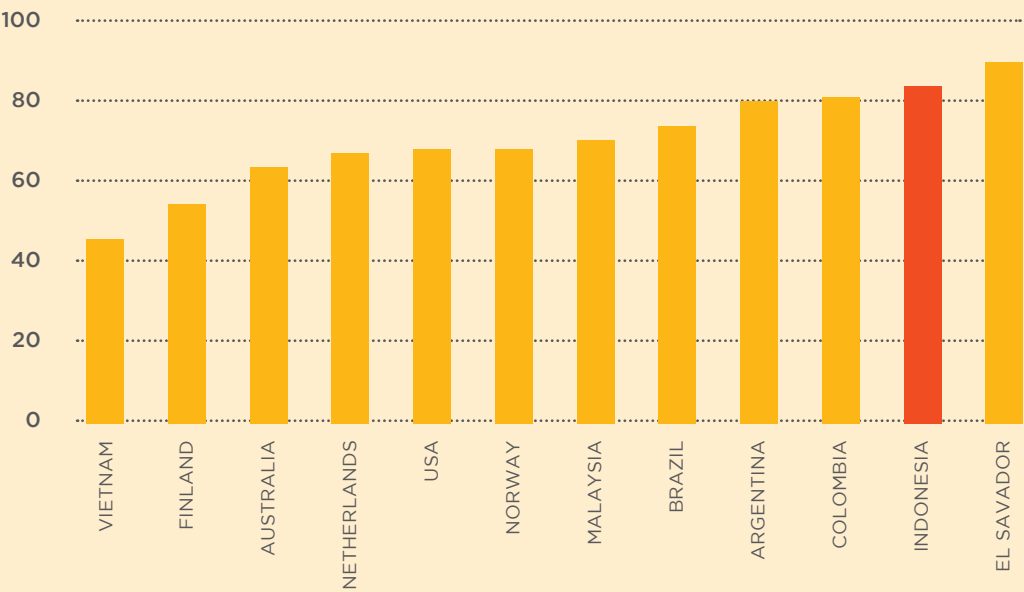
⁴⁷ Other support for learning" includes mostly local school grants and scholarships, "infrastructure" includes school infrastructure rehabilitation and construction, and "operational costs" cover District Education Office spending.

High-performing education systems tend to spend much higher proportion of their education budget to non-salary spending.

Both estimates of the share of salary spending—using the district/city expenditure data by economic classification and the field data collection—show that Indonesia’s spending on teachers’ salaries is high relative to other countries. Using data from 2010, the average share of salary spending by districts/cities at that time was estimated at around 67 percent (World Bank 2013). This proportion increases to 78 percent if the calculation is made using district/

city education expenditure reports. The increase is even higher if using estimations based on data collected from the field (86 percent). Nevertheless, **Figure 4.17** shows that Indonesia spends a higher proportion of its budget on teachers’ salaries than many high-performing education systems, including Finland, Norway, the Netherlands, and the United States. Indonesia also spends more than neighboring countries such as Vietnam and Malaysia, and is on a par with Argentina and Colombia.

FIGURE 4.17
Share of education budget spent on teachers’ salaries, selected countries



Source: UNESCO Institute for Statistics, 2017 or latest year, except for Indonesia, where the data are from the authors’ own calculations based on data collected from the field research in 27 districts/cities.

Given the large share of the budget spent on teachers' salaries and allowances, ensuring teacher competency to improve student learning is crucial for improving the quality of spending.

A World Bank study based on the Service Delivery Indicator (SDI) survey (Yarrow, Masood and Afkar 2020)⁴⁸ shows that none of the teachers⁴⁹ met minimum knowledge criteria of scoring at least 80 in Indonesian language, mathematics, and pedagogy. When looking at only Indonesian language and math, 13 percent of the teachers met the minimum knowledge criteria of 80 percent in the two sections. On average, teachers stood at a 63 percent minimum knowledge in language and math, and at a 40 percent minimum knowledge in language, math *and* pedagogy.

From the total education expenditure that districts/cities spent on civil servant teachers' salaries, 60 percent of the resources were allocated to the base salary, 34 percent was allocated to pay the TPG and the TKG (central government programs), and 6 percent was allocated to pay other incentives (district/city programs). The base salary and the TPG are mandates from the central government to subnational governments, and therefore mostly reflect the central government's policies. The amount of teachers' salaries depends on teachers' pay levels. The payments of the TPG depend on the salary scale of teachers and whether the teachers have met the certification requirements, and are teaching an adequate number of school hours to properly established teaching groups.

Salary-related expenses consist of payments that districts/cities make to both civil servants, and non-civil servant teachers and education personnel.

Half of the surveyed districts/cities allocated a share of their own-source revenues (PAD) toward non-civil servant teachers, but this share was relatively small. Note that this does not reflect the importance of non-civil servant teachers in these districts/cities. This likely reflects that those teachers are not hired by the districts/cities, but instead are honorarium teachers hired and paid for directly by schools, and thus not captured in this data.

This data also allows us to compare the average salaries that districts/cities pay to primary and lower secondary teachers. Figure 4.18.

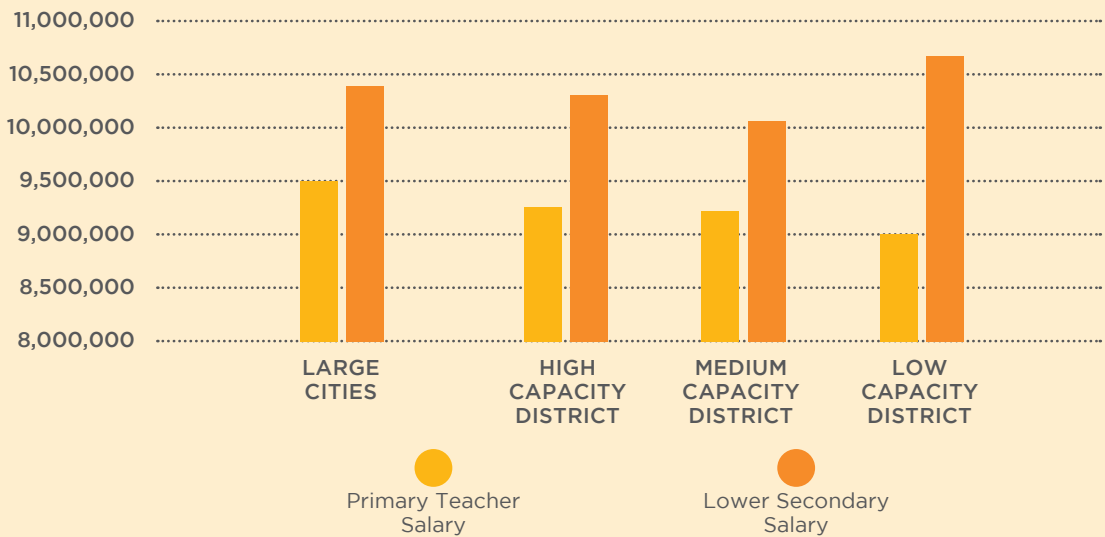
shows that the average district/city salary for lower secondary education teachers is IDR 10.2 million (about US\$680) per month, while the average salary for primary education teachers is IDR 9.2 million (about US\$613) per month.⁵⁰ The district with the highest average payment for teachers in lower secondary education was a city, Kota Probolinggo (IDR 14 million, or about US\$933), while the district with the lowest payment was Kab. Purworejo. For primary education, the district with the highest payment was Kab. Aceh Besar, while the district with the lowest payment was Kab. Ngawi (IDR 7.1 million, or about US\$473). Among district types and across all cities, the average salary payment for lower secondary school teachers was higher than the average payment for primary school teachers.

⁴⁸ The Service Delivery Indicator (SDI) survey is a global tool developed by the World Bank in 2012 to measure the quality of service delivery in the key areas of education and health. Service delivery is a result of key inputs that include service provider ability and service provider effort. The service delivery outcomes are established by the relationship among service providers, i.e., teachers, educators, policy-makers, and the citizens they serve

⁴⁹ Teachers here refers to grade 4 teachers who teach in MoEC primary school (public and private).

⁵⁰ Assuming 12 payments during the year.

FIGURE 4.18
Average teacher salary and allowance by education levels



Source: Authors' calculations based on field data collection.

Districts and cities register important differences in salary costs per student. The average education budget in salary per student was IDR 5.7 million in 2018, although there are important differences across districts/cities. The district with the highest education budget allocation in salary per student was a city, Kota Sabang (IDR 19 million), while the district with the lowest allocation in salary per student was Kab. Jepara (IDR 0.15 million). Differences in the allocated budget in salary per students can be linked to the salary levels and benefits of teachers, class sizes, and the civil servant and contract teacher mix per district/city.

The differences in salary costs per student are linked to differences in the number of students per civil servant teacher. On average, there are 30 students per civil servant teacher in Indonesia. Kab. Pegunungan Arfak registered the largest number of students per civil servant teacher (222 students), while Kab. Tana Tidung was the district with the lowest number of students per civil servant teacher (10 students). This means that the district teacher cost per student in Kab. Tana Tidung is about 20 times higher than the cost in Kab. Pegunungan Arfak. Even though the DAU allocation formula is designed to compensate

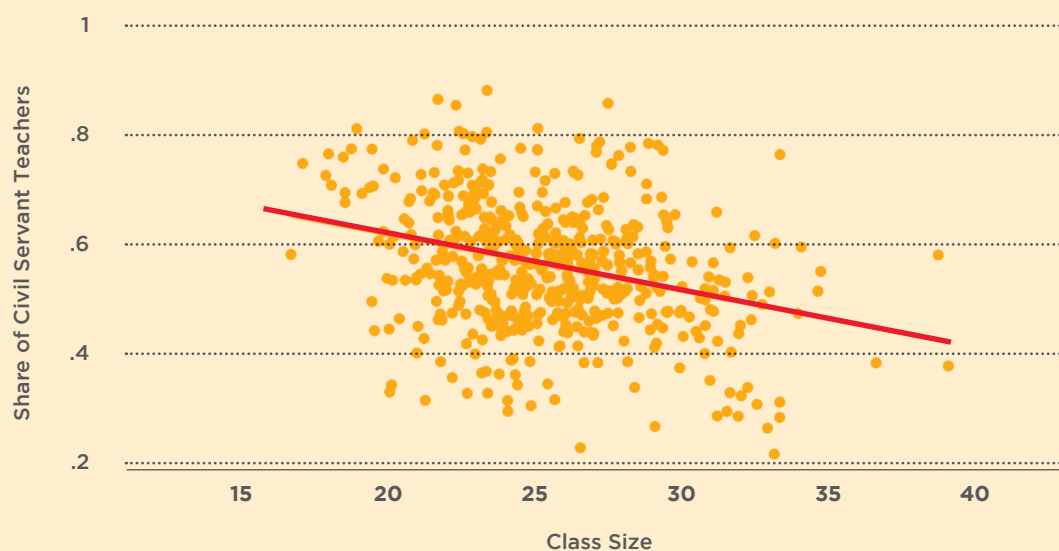
Districts and cities register important differences in salary costs per student. District with the highest salary budget per student has an allocation of IDR 19 million per student, while the district with the lowest salary budget per student has an allocation of IDR 150 thousand per student.

for the different numbers of civil servants across districts/cities, the different numbers of students per civil servant teacher create major inequities in the distribution of education resources from the APBN, given that districts/cities have such starkly differing student-to-civil servant teacher ratios.

Districts/cities with a higher share of civil servant teachers tend to have smaller class sizes, generating additional pressure on the salary costs per student in these districts/cities. District/cities have different teacher profiles in terms of the contract status of their teachers. As presented in **Figure 4.19**, in 33 districts/cities, civil servant teachers represent more than 75 percent of the teacher workforce, while in two

districts/cities civil servants represent less than 25 percent of the teacher workforce. Conversely, there are important differences in class size among districts/cities. There are 31 districts/cities with class sizes of fewer than 20 students, and 58 districts/cities with class sizes of more than 30 students. The data show that districts/cities with higher shares of civil servant teachers are more likely to have lower student-to-teacher ratios, i.e., civil servant teachers are more likely to be deployed to smaller classes than non-civil servant teachers. More civil servant teachers and lower class sizes generate two additional pressures on salary expenditures. Civil servant teachers are complemented by non-civil servant teachers hired mostly by school committees.

FIGURE 4.19
Districts/cities with a higher share of civil servant teachers tend to have smaller class sizes



Source: Dapodik

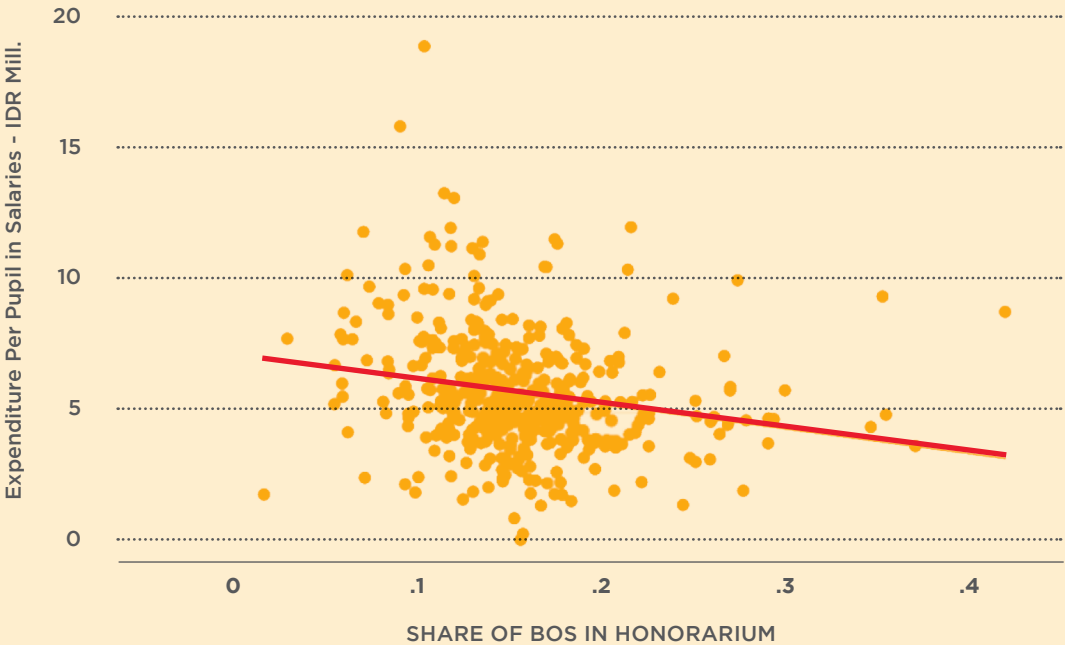
School committees support districts/cities by allocating resources to pay the salaries of honorarium teachers to ensure an adequate teacher workforce.

In the past, school committees in public schools could only allocate up to 15 percent of their BOS resources to honorarium teachers, while private schools could allocate up to 30 percent of their BOS resources to honorarium teachers. In early 2020, MoEC revised the criteria for honorarium teachers, raising the maximum amount of BOS that could be used to pay honorarium teachers to 50 percent (MoEC Ministerial Regulation No. 8/2020).⁵¹ Then, shortly after, in response to the COVID-19 crisis, schools were given full authority to decide on BOS utilization (MoEC Ministerial Regulation No. 19/2020), including using the funds to support distance learning (i.e., the costs of internet connections) and buying face masks, cleaning equipment, disinfectant, and other related

health and cleaning costs. At the same time, the 50 percent ceiling on payments to honorarium teachers was also removed.

School committees can be expected to hire honorarium teachers to meet the need for teachers created by an increase in student enrollment or a lack of civil servant teachers. The evidence shows that in those districts/cities with lower education budgets allocated to salaries per student, the average allocation of BOS sources toward the payment of honorarium teachers is higher. This negative correlation signals substitution of the allocation for teachers provided by districts/cities—limited by the moratorium regulation on civil servant teacher hiring, or insufficient resources—by honorarium teachers provided by school committees and paid for from BOS funds (Figure 4.20).

FIGURE 4.20
Share in BOS of payments to honorarium teachers and expenditure on salaries per student, 2018



Source: MoF, Dapodik and BOS Portal

⁵¹ Prior to the COVID-19 crisis, all schools could use up to 50 percent of BOS funds to pay honorarium teachers and education personnel (MoEC's Ministerial Regulation No. 8/2020). With the onset of the COVID-19 pandemic, this limit was removed in MoEC's Ministerial Regulation No. 19/2020.

In those districts/cities with lower education budgets allocated to salaries per student, the average allocation of BOS sources toward the payment of honorarium teachers is higher.

School committees are hiring large numbers of non-civil servant teachers to compensate for the large number of retiring civil servant teachers and, in some cases, an increase in student numbers. **Figure 4.21** presents the evolution of the number of civil servant teachers and non-civil servant teachers in primary education. In 72 percent of districts/cities, the number of civil servant teachers decreased and the number of non-civil servant teachers increased.

Figure 4.22 presents the evolution of the number of civil servant teachers in lower secondary education. In 80 percent of districts/cities, the number of civil servant teachers decreased and the number of non-civil servant teachers increased. The decrease in the number of civil servant teachers and the increase in the number in non-civil servant teachers are related to the high levels of civil service teacher retirement.

FIGURE 4.21

Change in PNS and non-PNS teachers (primary)

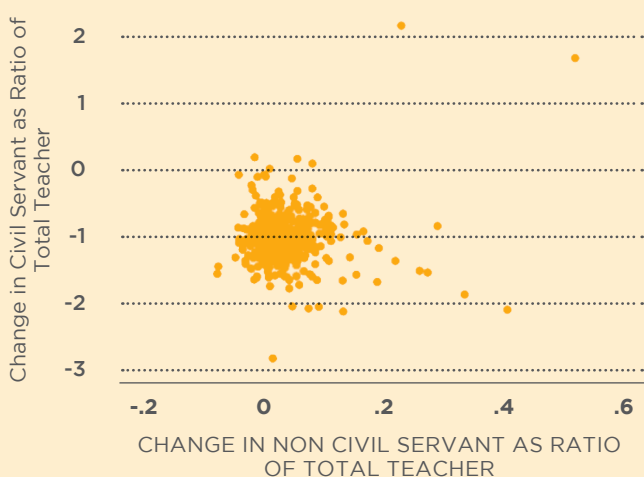
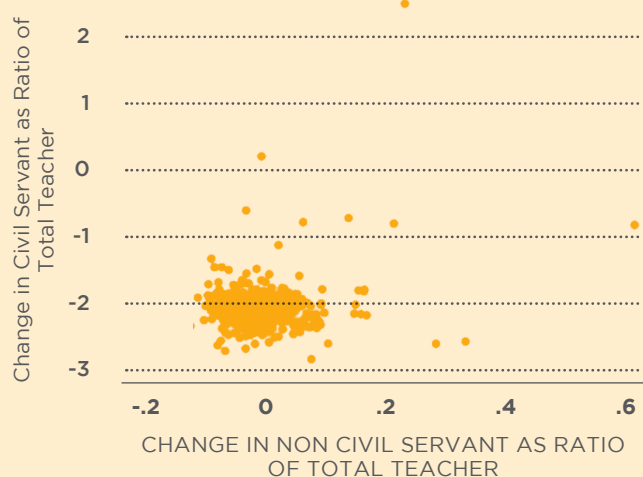


FIGURE 4.22

Change in PNS and non-PNS teachers (lower secondary)



Source: Dapodik 2016 & 2017

Despite a declining trend in the number of students in most districts/cities, many districts/cities have an increased number of teachers. In 440 districts/cities, the number of primary students declined, and in 312 districts/cities the number of primary school teachers declined. Meanwhile, in terms of lower secondary education, 418 districts/cities saw a decreasing number of students, while only 167 districts/cities witnessed a decreasing number of teachers. It is also observed that many districts/cities increased the number of teachers in the context of decreasing numbers of students. It is important to note, however, that in the case of lower secondary schools, teachers are classified based on the subject they primarily teach (e.g., math, science, language,

etc.). Therefore, it is possible that an over-supply of teachers can occur only in particular subjects. A World Bank study that looked at the issue of teacher deployment also confirmed that there was an over-supply of teachers and over half of the excess teachers were non-civil servant teachers (Kesuma et al. 2018). The study also highlighted a lack of consistent data for effective teacher management, with each stakeholder institution—MoEC, MoABR, and BKN—having its own teacher management information system (MIS) and teacher database. It is therefore important to integrate the monitoring mechanism on the demographic development and teacher database of districts/cities in order to ensure that teachers are recruited based on real needs.

FIGURE 4.23
Change in number of students and teachers
(primary)

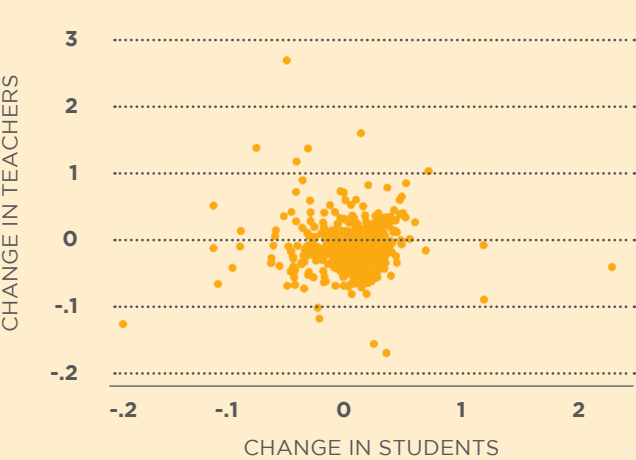
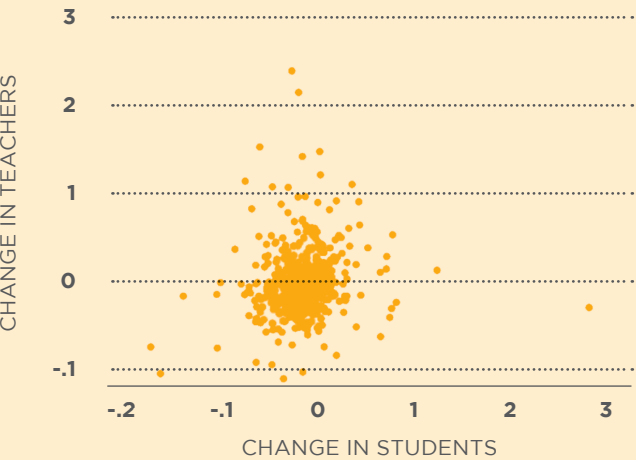


FIGURE 4.24
Change in number of students and teachers
(lower secondary)



Source: Dapodik

4.4.3

Non - Salary **Spending**

High proportion of district/city salary budget leaves limited resources for non-salary spending.

Non-salary allocations allow districts/cities to provide key inputs to the education process, such as the provision of education materials, support for teacher training, and the implementation of quality improvement actions. The average district's/city's education budget in non-salary expenditures is IDR 92 billion, or about US\$6.1 million (22 percent of total district/city education budget). As with the case of district/city salary budgets per student, there are also important differences in non-salary budgets per student across

districts/cities. The city with the largest budget for non-salary expenditures in 2018 was Kota Surabaya (IDR 966 billion, or about US\$64.4 million), while the city with the lowest was Kota Gunung Sitoli (IDR 12 billion, or about US\$800,000). In per-student terms, the average district's/city's education budget allocation to non-salary categories was IDR 2 million (US\$133) per student. The district with the largest allocation was Kab. Tana Tidung (IDR 21.8 million, or US\$1,453 per student), while the district with the lowest allocation was Kab. Tasikmalaya (IDR 0.2 million, or US\$13 per student).

In per-student terms, the average district's/city's education budget allocation to non-salary categories was only IDR 2 million (US\$133) per student in a given year. The district with the largest allocation registered about IDR 21.8 million, or US\$1,453 per student, while the district with the lowest allocation registered about IDR 0.2 million, or US\$13 per student.

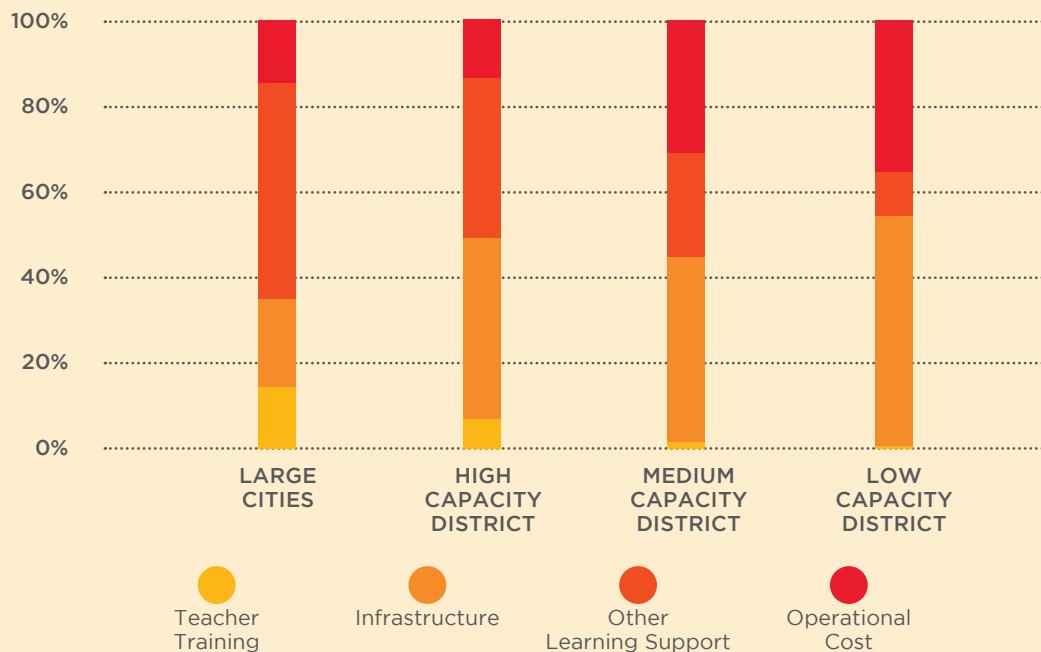
There is a large variation across districts/cities in the use of non-salary expenditures. Data analysis from the field research shows that with regards to the use of those non-salary resources, on average, in 2017 districts/cities spent 34 percent of their non-salary expenditures on infrastructure, i.e., school rehabilitation and construction (IDR 28 billion, or US\$1.86 million), 30 percent on other learning supporting activities such as local school grants and scholarship programs (IDR 35.7 billion, or US\$2.38 million), 22 percent on operational costs (IDR 17.3 billion, or US\$1.15 million), including District Education Offices' spending, and 8 percent on teacher training (IDR 10.4 billion, or US\$693,000). However, the analysis found important differences across districts/cities in the use of these resources. For example, Kota Surabaya and Kab. Sleman spent more than 40 percent of their non-salary budgets on teacher training, while Kota Malang and Kab. Kebumen spent more than 50 percent on infrastructure (**Figure 4.25**)⁵². Interviews during the field research confirmed that education programs at the district/city level are usually developed based on the vision and mission of the district head/mayor, and referred to a district's or city's strategic issues and education baseline data.

Large cities and high-capacity districts allocate a higher share of their non-salary education budgets to teacher training and learning support than districts/cities with lower capacity. From the data collected in the 27 surveyed districts/cities, the analysis shows that large cities and high-capacity districts/cities allocate on average 50 and 37 percent, respectively, of their non-salary expenditure for learning support such as school grants or scholarship programs. These proportions are much higher than the allocations made by medium- (24 percent) and low-capacity districts/cities (11 percent). Similarly, the proportion of non-salary expenditure for teacher training is observed to be the highest in large cities (14 percent). Expenditure on teacher training in high-capacity districts/cities accounts for only 7 percent of total non-salary spending, while in medium- and low-capacity districts/cities the spending on teacher training is almost negligible. The highest proportion of non-salary expenditure in lower-capacity districts/cities is allocated for infrastructure. These results may indicate differences in district/city priorities. Low-capacity districts/cities tend to prioritize infrastructure-related activities, such as rehabilitation or construction, while large cities and higher-capacity districts/cities are seen to focus their activities on learning support, such as direct support for needy students and operational activities of schools, as well as quality improvement programs such as teacher training.

⁵² The analysis found that infrastructure investments were made with DAU/local resources and DAK. In most districts/cities, it was not possible to separate them.

FIGURE 4.25

Large variations across districts/cities in the use of non-salary expenditures



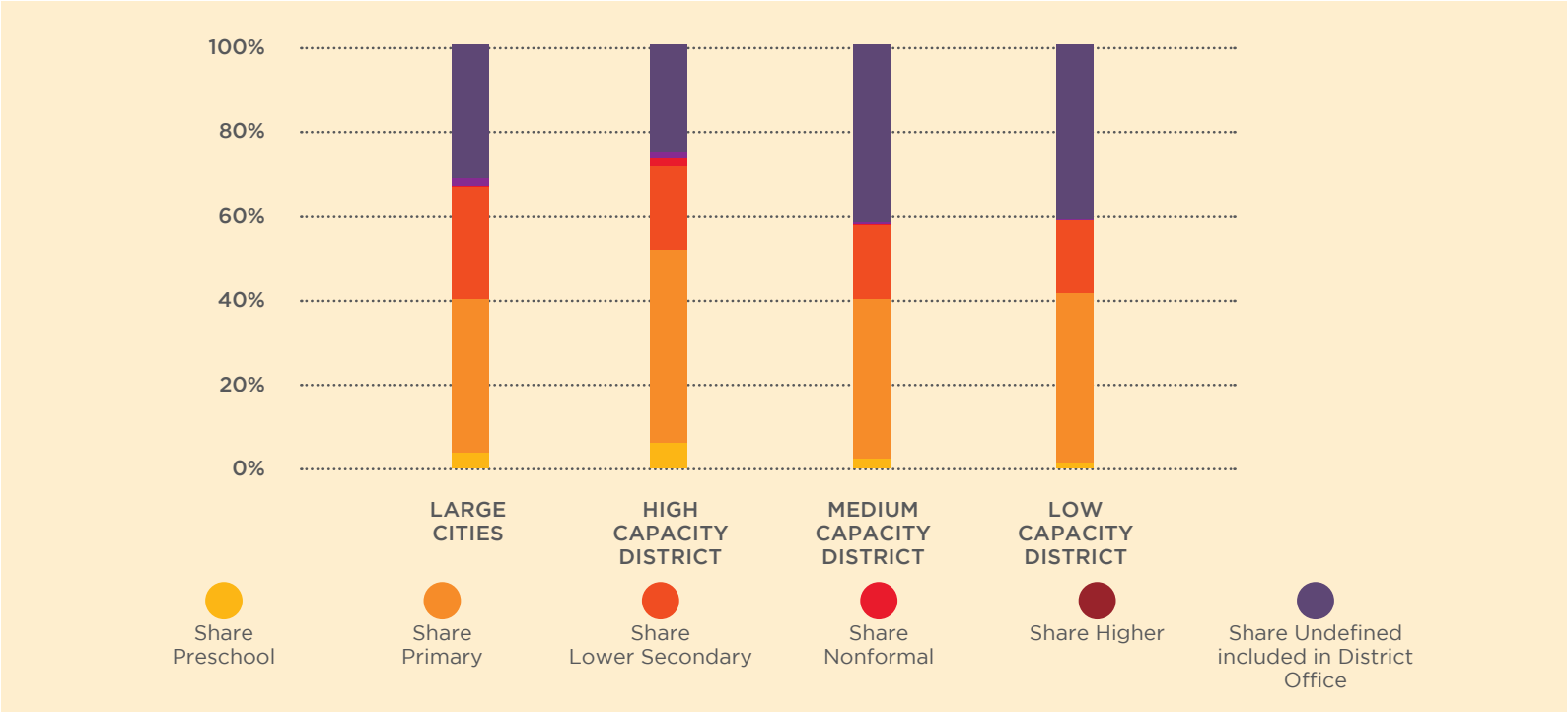
Source: Authors' calculations based on field data collection.

Most non-salary expenditures are focused on basic education aligned to district/city mandates, but some districts/cities spent resources on other education levels outside their mandates. The 27 districts/cities surveyed allocate 40 percent of their non-salary expenditures to primary education and 21 percent to lower secondary, 4 percent to ECED, and 1 percent to higher and non-formal education. However, there were important differences across districts/cities. For example, Kota Surabaya allocated 50 percent

to lower secondary, almost double its allocation to primary education. In addition, Kab. Bondowoso allocated more than 10 percent to higher education, while Kab. Purworejo allocated more than 10 percent to ECED (Figure 4.26). Furthermore, during in-depth interviews with local education officials, it was found that some districts/cities also covered madrasah schools in their programs (normally the responsibility of MoRA). For example, in Kota Probolinggo, the local operational school grant (BOSDA) was given not only to public schools but also to public madrasahs.

Districts/cities spent 34 percent of their non-salary expenditures on infrastructure, 30 percent on other learning supporting activities, 22 percent on operational costs, and 8 percent on teacher training.

FIGURE 4.26
Non-salary spending by education level

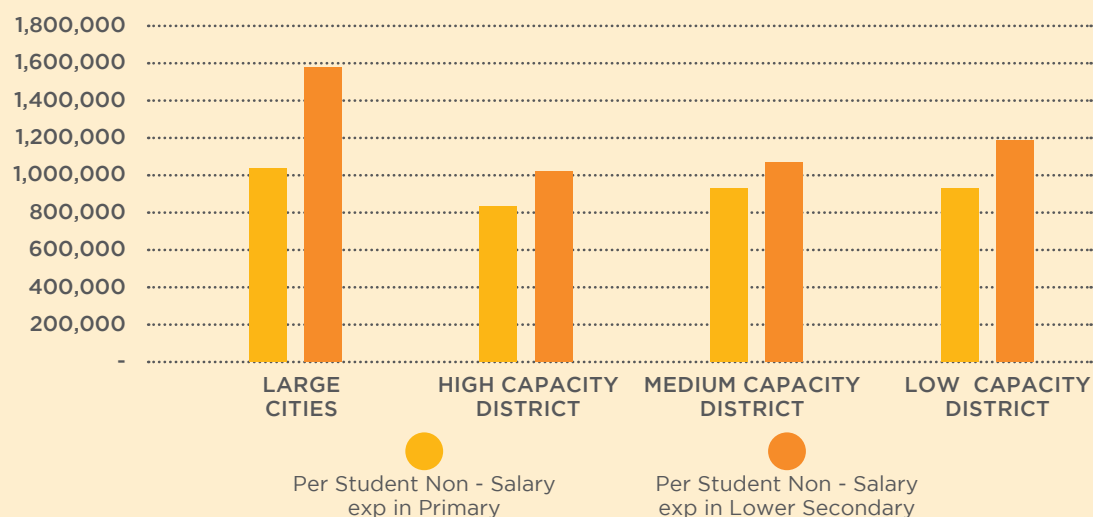


Source: Authors' calculations based on field data collection.

Per-student non-salary spending in large cities are higher than in other districts/cities for both primary and lower secondary levels. Analysis using data collected from 27 districts/cities shows that in large cities, per student non-salary spending for primary is IDR 1 million or 15 percent higher than the average amount allocated in other selected districts/cities. In the lower secondary level, per student non-salary

spending in large cities was 45 percent higher than in other selected districts/cities. These results suggest that in large cities, the governments have financial resources to be allocated for non-salary spending.

FIGURE 4.27
Per student non-salary spending by education level



Source: Authors' calculations based on field data collection.

Most districts/cities allocate resources to teacher training, but in most cases the resources are limited. The available data show that the amount of resources allocated to teacher training in primary and secondary education per district is limited and highly heterogenous. The district with the highest expenditure in training per teacher in primary and

lower secondary was a city, Kota Semarang (IDR 10 million), followed by another city, Kota Surabaya (IDR 5 million), and then Kota Sleman (IDR 4 million). In all the other districts/cities, expenditure on training per teacher was only less than IDR 1 million per teacher. Four districts/cities did not have any allocations for teacher training programs.

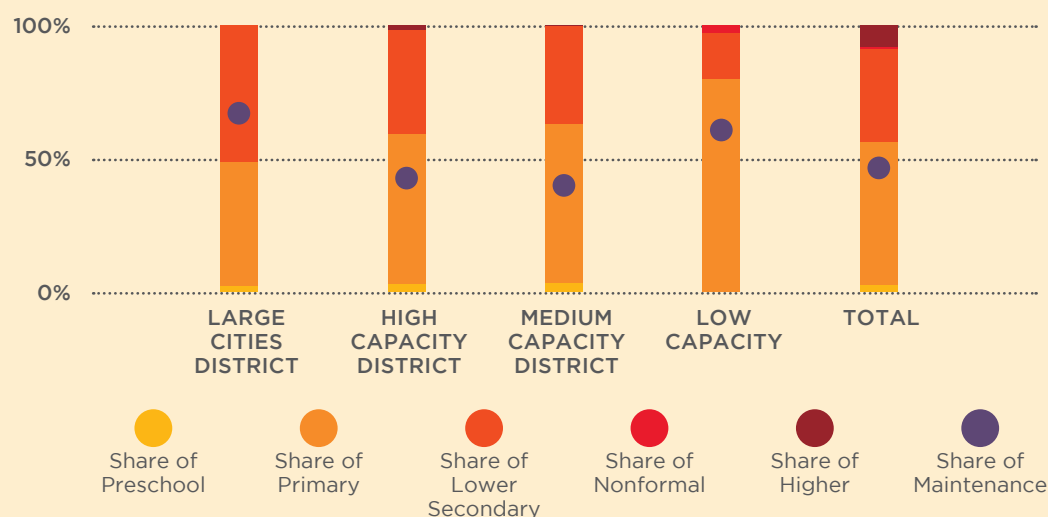
In most of the selected districts/cities, expenditure on training per teacher only less than IDR 1 million per teacher. Four out of the selected 27 districts/cities did not have any allocations for teacher training programs.

Available data show that districts/cities prioritize the training of primary school teachers and that the use of teacher working group programs is heterogeneous. On one hand, the data show that districts/cities are investing in pre-school teacher training. On average, at the district/city level, training in pre-school represented 14 percent of the total budget for training. The districts/cities that identified strong budgets for pre-school teacher training were Kab. Sampang (80 percent) and Kab. Nganjuk (50 percent). On the other hand, the data allow us to identify the importance of teacher working groups as a local training strategy. On average, 44 percent of the resources allocated for training was delivered to teacher working group programs (*KKG/Kelompok Kerja Guru*, or *MGMP/Musyawarah Guru Mata Pelajaran*). *KKG/MGMP* are forums that aim to improve teacher competencies where teachers residing within a single school cluster gather to discuss and share knowledge about concepts, teaching practices, difficulties that are faced in classrooms, and help each other to build improvements in teaching strategies. The implementation of *KKG/MGMP* varies across clusters/districts. One of the constraints of the *KKG/MGMP* is a lack of financial support and intervention from district/city governments (INOVASI 2017). The analysis confirmed the lack of support from subnational governments, not only in teacher working group programs, but in teacher training in general. Nonetheless, there are important differences across districts/cities. In four districts/cities, all the resources that were allocated to teacher training were dispersed

through teacher working group programs. In some districts/cities, the data breakdown of teacher training expenditure by education level is unavailable. In most cases, the budget for teacher training is under the District Education Office's budget.

Infrastructure expenditure at the district/city level is mostly focused on primary education, while about half of the infrastructure budget goes toward school maintenance. By school level, on average 53 percent of the infrastructure resources are allocated to primary education, 35 percent are allocated to lower secondary education, 8 percent are unidentified or support the District Education Office, and 3 percent are allocated to pre-school education. In addition, on average, expenditure on maintenance was 46 percent of total district/city expenditure, while expenditure on new facilities was 54 percent of the total expenditure. Different trends are observed particularly in large cities, where the proportion of infrastructure expenditure for lower secondary was nearly the same as the proportion in primary. The share of infrastructure budget that was allocated for maintenance was also higher in large cities (67 percent) compared with other selected districts/cities. This may reflect the type of infrastructure needs in more developed cities that focus on school maintenance than new school construction. It is important to mention that school committees are also responsible for some of the total spending on school infrastructure maintenance expenses.

FIGURE 4.28
Infrastructure Spending



Besides teacher training and infrastructure, districts/cities also have several different programs aimed at supporting education, such as local operational school grants (BOSDA), both monetary and in kind; transfers to support scholarship programs; transfers to support the implementation of the national exam; and transfers to support Olympiad participation, among others. Most of the resources were allocated to primary and lower secondary education, in accordance with districts'/cities' mandates under decentralization, but resources were also allocated to

early childhood education. The local monetary BOSDA is the most important program, receiving about 30 percent of these resources. In some cities, such as Kota Semarang, Kota Ternate and Kota Malang, the monetary BOSDA transfers represented about 75 percent or more of the spending from these other resources. This reflects district/city commitments to support and complement the national BOS program. However, there is no systematic information on those districts/cities that have the resources to implement BOSDA and how much districts/cities can provide in terms of per-student allocations.

5.

HOW DO DISTRICT/CITY

BUDGETS
IMPACT ON
SCHOOL CONDITIONS AND
STUDENT OUTCOMES?



chapter 5. How Do District/City Education Budgets Impact on School Conditions and Student Outcomes?

Given the significant increase in resources over the past decade, both in total education spending and total transfers to subnational governments, together with the high variation in how districts/cities spend their education budgets, it is important to be able to measure the impact of this spending on district/city education outcomes. This chapter seeks to address this issue by providing a correlation and multivariate analysis between education spending and outcomes.⁵³ The most immediate impacts of education spending are related to school conditions. There are also “second-order” impacts of spending in the form of student outcomes related to participation and achievement. However, filling in this causal chain is far from easy, especially given the data limitations. But with information on spending, infrastructure and other school conditions, and outcomes such as NERs and UN scores, it is nonetheless possible to analyze this sequence using district/city-level data.

It is important to clarify up front that data availability was a significant constraint in this analysis of district/city-level processes. First, even for standard indicators related to budgets and spending, there are potential issues with data availability and data validity at the district/city level. Second, there is also a limited amount of information available on the quantity and quality of school conditions and management processes, which in turn limits our ability to unpack how spending is associated with the provision of education, and how student outcomes are in turn impacted by these processes.

⁵³ Bivariate correlation and scatterplots are useful for providing general guidance about relationships between key variables of interest, such as education spending and net enrolment rates (or student learning as measured by test scores). Nevertheless, these results are not likely to be as valid as the results generated by statistical modeling (multivariate analysis). First, the modeling approach makes it easier to provide results that are corrected for size differences across districts/cities (weighting), and also adjust for clustering effects that come when districts/cities within provinces share common features. There is also the issue of omitted variable bias, which is especially problematic when analyzing student outcomes on the basis of only one variable. For example, the bivariate correlation between district-level infrastructure and test scores could be strongly positive. But if wealthier districts/cities are able to afford better infrastructure, then this result may not reflect a truly causal impact, but instead both outcomes (infrastructure and test scores) may be largely determined by the district/city wealth level.

5.1

How does Districts/Cities Spending Impact The Provision of School Conditions?



Districts/cities with a higher share of budget
allocated to education are observed
to have **better school infrastructure**

In analyzing the relationship between education spending and outcomes, one first has to identify key inputs and quality features in education, meaning things that are likely to contribute to student outcomes, and second one has to obtain data at the district/city level for these key indicators. There is a large amount of literature on education finance that suggests that some of the things that education ministries spend money on are not (strongly) associated with student outcomes. These include teacher experience, teacher education levels, and class size (Hanushek 2003). Also, as argued above, some of the features that districts/cities do spend money on that potentially do impact school quality processes and student outcomes are very hard to measure, such as in-service training and support functions.

Despite these challenges, the potential importance of intermediate mechanisms in the spending-student outcomes causal chain requires investigation to better understand what determines the distribution of factors such as infrastructure and teacher credentials. The analysis in this section aims to unpack this issue by exploring how education inputs and resources vary across districts/cities, since this is likely to help explain the very large variation in student outcomes, given that key inputs can act as a bridge linking spending/resources with student outcomes.

Districts/cities with a higher share of budget allocated to education are observed to have better school infrastructure.⁵⁴ This is true for the share of spending devoted to education and the per-capita spending measure (Table 5.1). The infrastructure index is more strongly related to the size (population) of the district/city and the poverty rate: both have significant, negative associations with infrastructure. The population measure may be capturing some impact of the federal transfer mechanism that fails to take into account size, meaning that larger districts/cities receive less money (per capita) but need to invest more in infrastructure.

The percentage of civil servant teachers in a district/city is positively associated with spending measures, while the results for student-to-teacher ratio show that none of the predictors is statistically significant. Districts/cities with a higher share of education spending are observed to have a higher percentage of civil servant teachers. This reflects the amount of the civil servant teacher wage bill that districts/cities have to pay. This is similar to the positive and significant coefficient found on the district's/city's per-student education spending, which shows that districts/cities with higher spending per student tend to have a higher percentage of civil servant teachers. The results for student-to-teacher ratio are inconclusive. Districts/cities with higher spending

⁵⁴ The Dapodik data include a number of measures of school infrastructure for electricity, internet and laboratories, as well as student-teacher ratio, class size and some measures of human resources (teacher education, etc.). These variables are not available across all years, so a year-specific infrastructure index was computed separately for each year.

measures do not necessarily have lower student-to-teacher ratios. Annex Table 5 presents additional results for school inputs, with an additional outcome also considered (the percentage of school principals with a bachelor's degree). The results are fairly similar to those in **Table 5.1** below.

TABLE 5.1
Covariates of district average school inputs, 2015–18

| INDEPENDENT VARIABLES: | INFRASTRUCTURE INDEX: | | | STUDENT-TEACHER RATIO | | | PERCENT PNS | | |
|--|-----------------------|------------------|--------------------|-----------------------|------------------|------------------|-------------------|------------------|-----------------|
| | 1 (FE) | 2 (DPD) | 3 (FE) | 4 (DPD) | 5 (FE) | 6 (DPD) | 7 (FE) | 8 (FE) | 9 (FE) |
| Education spending share (%) | 0.06* (2.36) | ---- | ---- | -0.002 (-0.27) | ---- | ---- | 0.004** (4.36) | ---- | ---- |
| Log of per - Student Education Spending | ---- | 0.04+ (1.92) | ---- | ---- | -0.01 (-1.13) | ---- | ---- | 0.03** (3.07) | ---- |
| Log of 7-15 year old district population | ---- | ---- | -0.66+ | ---- | ---- | -0.16 | ---- | ---- | -0.11 |
| District poverty rate | ---- | ---- | -1.25** (-3.59) | ---- | ---- | -0.08 (-0.65) | ---- | ---- | 0.43* (2.39) |
| Lagged Value of Dependent Variable | 0.21** (2.63) | 0.22** (2.82) | 0.26** (3.24) | -0.07 (-0.45) | -0.07 (-0.44) | -0.08 (-0.46) | ---- | ---- | ---- |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of Observations (n) | 986 | 972 | 1,025 | 972 | 962 | 1,007 | 1,467 | 1,446 | 1,535 |

Data Source: Indonesia district/city data

Notes: Budgeted education spending share dependent variable (in percent of total) is transformed to z-score (standardized); budgeted per-capita education spending is the log of total education spending divided by total number of 7-15 year olds in district. FE refers to fixed effects, DPD is for dynamic panel data modeling (see Lewis, forthcoming). T-statistics (in parentheses) based on robust standard errors. Fixed effects estimations include sampling weights based on size of 7-15 year old population.

** Point estimate significant at p<0.01 level

* Point estimate significant at p<0.05 level

+ Point estimate significant at p<0.10 level

These multivariate analysis results help to complete the story, albeit with some limitations. For example, there is some evidence that districts/cities that spend more on education are better equipped with quality inputs such as infrastructure. This is an important linkage in the analytical framework that is trying to show the different mechanisms by which education spending can (eventually) impact student outcomes. In addition to this important linkage between infrastructure and spending, the results in this section also show how district/city features, such as size and poverty rate, can impact features such as infrastructure.

5.2

How are Key Students Outcomes Such as NER and Test Scores Affected by Education Spending?





The budgeted share of spending on education
is **moderately correlated with the district/city NER**,
as measured across primary and lower secondary education levels.

To measure the contribution of education spending to student outcomes related to participation and achievement, this section analyzes correlations between spending per student with outcomes such as NERs and UN scores. The analyses do not intend to discuss the causality because the study is not based on a rigorous impact evaluation of education expenditures.

The budgeted share of spending on education is moderately correlated with the district/city NER, as measured across primary and lower secondary education levels (or “basic education”).⁵⁵ However, the association between education spending and the NERs for primary and lower secondary education is not as strong, and is not significant in the basic modeling. This makes sense, since it appears that almost all districts/cities spend enough money on primary education to ensure almost 100 percent enrollment.

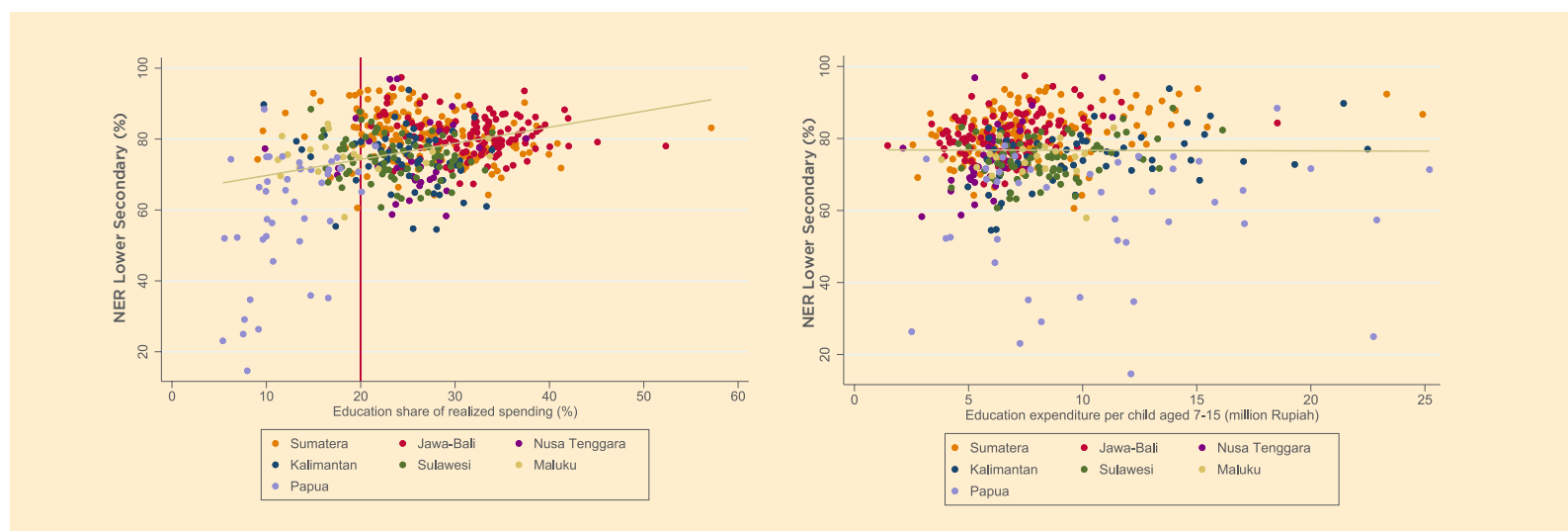
Given small variations in primary enrollment levels, spending above a certain minimum level does not seem to cause any variations in enrollment rates, as the upper bound has already been reached. The moderate correlation is also observed between education spending and NER for lower secondary (**Figure 5.1**). It should be highlighted that there are some specific districts, mostly in Papua province, that still show an NER of less than 80 percent for basic education. Their budget allocations for education are less than 20 percent although per-capita expenditure is overall in the same range as the rest of the districts/cities in the country.

⁵⁵ The correlation is 0.30-0.40 by year, and the result holds up in a basic regression model. This provides a basic, regression-based test of the bivariate relationship between the outcome and independent variable. This is not as rigorous as the multivariate modeling but for the purposes of establishing general guidance it provides a more demanding test than the simple bivariate scatter plot. While the basic modeling regresses the outcome (NER) onto the education share measure using all four years of data, with sampling weights and controls for year. The multivariate modeling results can be found in the Annex Table 7.

chapter 5. How Do District/City Education Budgets Impact on School Conditions and Student Outcomes?

FIGURE 5.1

The relationships between Lower Secondary NER and education spending (education share of realized spending %, education expenditure per child aged 7-15)



Source: Authors' analysis based on MoF data & Susenas

Note: On the Panel B, there are 15 districts/cities that spend more than IDR 30 million per child but this graph is truncated.

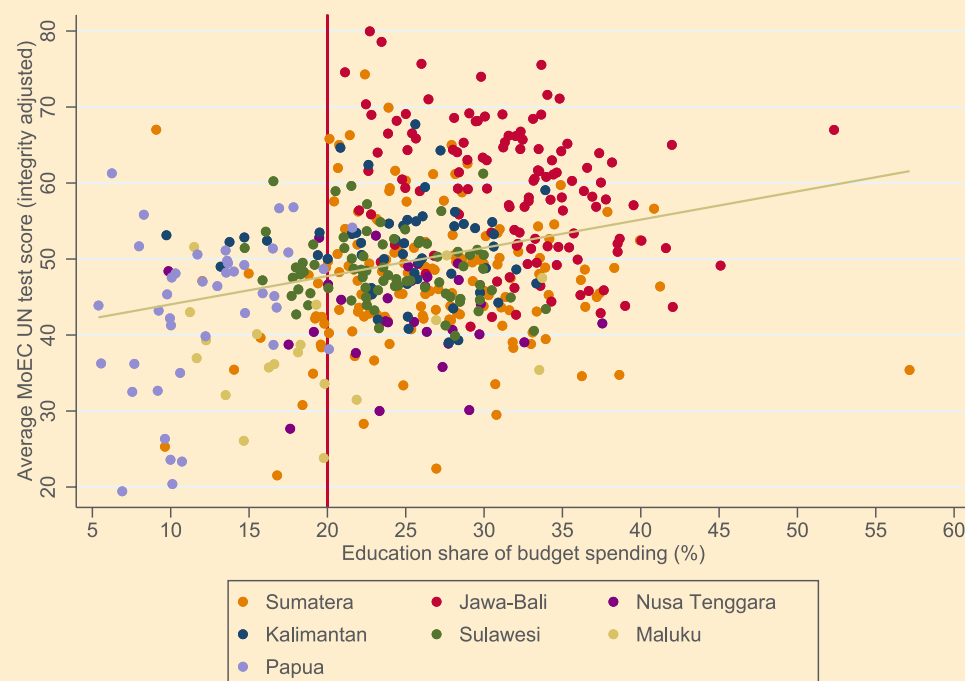
The results measuring the relationship between UN scores and the two main education spending indicators are mixed.⁵⁶ Figure 5.2 clearly shows that districts/cities with higher shares of spending devoted to education have higher adjusted UN scores. Overall, there is a positive correlation between the share of education expenditure and the average UN

score. On the other hand, the relationship between per-capita spending on education and UN scores is not consistent; this is also true when per-student spending is used instead of per-capita spending (among 7 to 15-year-olds).

⁵⁶ All comparisons are based on the integrity-index adjusted UN test score data. The results in this section are generally quite different when based on the UN raw score average; for example, education share of spending is negatively associated with raw test score average, and positively associated with UN integrity-adjusted average.

FIGURE 5.2

Positive relationship between district/city average integrity adjusted UN test scores and district/city budgeted spending share for education, 2018



Source: Authors' analysis based on MoF data & Susenas

The total amount of resources allocated to education does not explain the variations in student outcomes across districts/cities, but the way these resources are spent does help to better explain these variations.

In the multivariate analysis, we attempt to employ both cross-sectional and panel data. The cross-section analysis uses 2018 data, which has the advantage of a breakdown of salary and non-salary education spending.⁵⁷ Different studies have highlighted the lack of any direct relationship between education resources and education outcomes, and Indonesian data are aligned with the existing evidence. These results are aligned with Sari et al. (forthcoming), which finds that after correcting UN scores using predictive modeling, education spending is found to

have no significant relationship with UN scores.⁵⁸ An earlier World Bank study that utilized data from more than a decade ago also found no correlation between spending and education outcomes such as NERs and UN scores. Total spending and non-salary spending were found to have no significant correlation, and the slope is slightly downward in some cases (World Bank 2013). However, in the case of math, the data for Indonesia also show a positive correlation between resources budgeted to non-salary expenditures and math scores, with 6 percent elasticity. In the case of Indonesian language, data show a positive correlation in some model specifications.

⁵⁷ Information on salary and non-salary spending in education is not available before 2018, therefore the panel data analysis cannot be done using these variables.

⁵⁸ The predictive modeling brings down the scores in areas where CBT (computer-based test) takers are low and vice versa. CBT lowers the probability of cheating.

chapter 5. **How Do District/City Education Budgets Impact on School Conditions and Student Outcomes?**

TABLE 5.2
Correlates of student results in the national exam (UN)

| CORRELATES OF STUDENT RESULTS IN NATIONAL EXAM 1/ | | | | | | | | | | | | | | | | |
|---|---------------------|-----|-------|-----|--------|-----|--------|------|-------|-----|--------|-----|--------|-----|--------|-----|
| | INDONESIAN LANGUAGE | | | | | | | MATH | | | | | | | | |
| | 1 | | 2 | | 3 | | 4 | | 1 | | 2 | | 3 | | 4 | |
| Edu. Exp./Pupil | 0.015 | | | | | | | | 0.052 | | | | | | | |
| Salary Edu. Exp./Pupil | | | 0.015 | | 0.053 | * | 0.001 | | | | -0.009 | | -0.028 | | -0.034 | |
| Non Salary Edu. Exp./Pupil | | | 0.002 | | 0.004 | | 0.011 | | | | 0.058 | *** | -0.052 | *** | 0.059 | *** |
| Students (in thousands) | | | | | 0.332 | ** | 0.000 | *** | | | | | -0.068 | | 0.055 | |
| Dependency Ratio | | | | | -0.894 | *** | -0.993 | *** | | | | | -1.215 | *** | -1.137 | *** |
| Years Edu Adult Pop. | | | | | -0.013 | ** | -0.013 | * | | | | | 0.019 | ** | 0.013 | * |
| Urban | | | | | -0.001 | | -0.017 | | | | | | -0.010 | | -0.027 | |
| Children not Stunted (%) | | | | | 0.167 | ** | 0.124 | | | | | | 0.124 | | 0.108 | |
| Poverty | | | | | -0.004 | *** | -0.003 | *** | | | | | -0.001 | | -0.001 | |
| Average School Built Year | | | | | | | 0.000 | | | | | | | | -0.001 | |
| Private (Share Enrollment) | | | | | | | -0.028 | | | | | | | | 0.016 | |
| PNS Teachers (Share) | | | | | | | 0.222 | *** | | | | | | | 0.083 | |
| Honorarium from BOS (%) | | | | | | | 0.128 | | | | | | | | 0.317 | |
| | | | | | | | | | | | | | | | | |
| Constant | 3.890 | *** | 3.940 | *** | 3.590 | *** | 4.603 | *** | 2.870 | *** | 3.020 | *** | 3.650 | *** | 5.520 | *** |
| | | | | | | | | | | | | | | | | |
| Observations | 364 | | 364 | | 360 | | 339 | | 364 | | 364 | | 360 | | 339 | |
| R - Squared | 0.00 | | 0.00 | | 0.32 | | 0.33 | | 0.01 | | 0.02 | | 0.14 | | 0.15 | |
| 1/At the district level. Outlier districts in expenditure per pupil (salary and non-salary) are not included. Only includes districts with an integrity index in the national exam higher than 60%. | | | | | | | | | | | | | | | | |
| 2/ *** p<0.01, ** p<0.05, * p<0.1 | | | | | | | | | | | | | | | | |

The panel data analysis that uses data from the period 2015–18 shows consistent results on the lack of any relationship between education spending and outcomes. The analysis looks at student outcomes related to participation (NERs, GERs) and achievement (UN scores). The number of control variables used in the panel data analysis is fewer than the cross-section specification due to data limitations. Education-related variables, such as teachers' qualifications and working experience, and principals' qualifications and working experience, are not available across years. The number and types of predictors used in the model are limited, and therefore the results on the link of the impact between spending and outcomes should be

interpreted cautiously. The final set of results shows that education spending is not a significant predictor both for enrollment and test scores. Population size and poverty rate are negatively associated with GER, while the infrastructure index is positively associated. These results are not surprising. The poorer districts/cities tend to have lower GERs, while districts/cities with better school infrastructure have higher GERs. The complete results are presented in the Annex Table 6 and Annex Table 7 for the enrollment outcomes and Annex table 8 for the UN scores outcome.

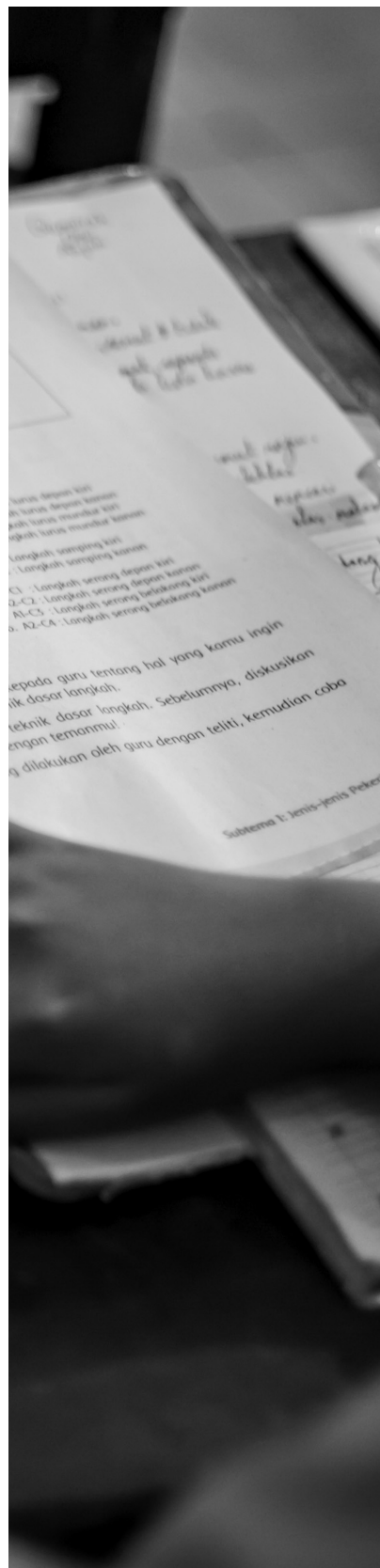
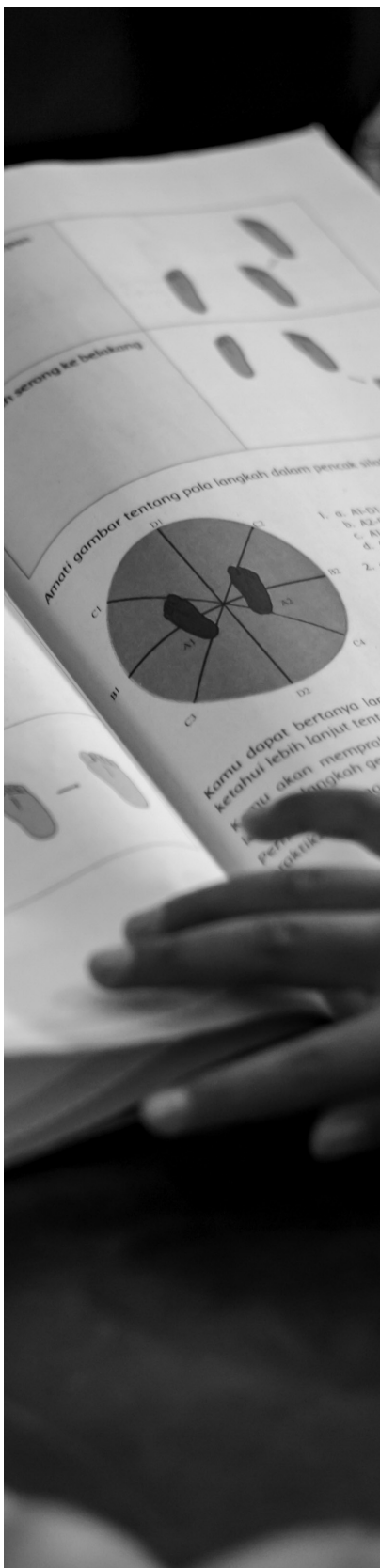
It should be restated that there are a number of challenges in measuring the relationship between spending and student outcomes, especially given the potential for measurement (or reporting) errors in the spending and UN score measures. Nevertheless, the finding that more spending per student is not strongly associated with better student outcomes is a reminder that devoting more resources to education does not automatically lead to better outcomes. For example, hiring more teachers to bring down the student-to-teacher ratio does not necessarily lead to more learning if teachers are unable to take advantage of the additional time they have to interact with students. The same is potentially true with pre- and in-service training programs, which can be expensive but, in many cases, have been shown to have little or no significant impact on student learning outcomes.

The challenge for districts/cities (and schools) is to allocate resources to those interventions that improve student achievement. The results in this study once again highlight that this is not as easy as it may seem. For example, there is no evidence that intermediate school input mechanisms affect student achievement. The infrastructure index, which is positively associated with spending, is not associated with test scores, although it was a significant (and positive) predictor of the district/city GERs across primary and lower secondary education. This again suggests that the interventions that policymakers and school leaders tend to rely on for improving quality—training for teachers, infrastructure for schools, among others—do not automatically lead to better student outcomes. Unfortunately, the guidance that districts/cities and school leaders need to help them better allocate resources is not always available, especially considering the necessity of addressing schools' needs individually

6.

SUMMARY

AND MAIN
RECOMMENDATIONS



Spending better through understanding
how spending improves student outcomes is
of paramount importance.

Human capital is a driver of economic growth through capable, healthy, fully employed citizens, both in the long term and the near term to support recovery from the COVID-19 pandemic. According to the Human Capital Index (HCI), future Indonesian workers will only be 54 percent as productive as they could have been under the benchmark of 14 years of good quality education and full health. This will make it challenging for Indonesia to achieve its stated goal of creating a workforce that is hardworking, dynamic, and skilled, and one with a mastery of science and technology.

This Subnational Education Public Expenditure Review and its sister, Measuring the Quality of MoRA's Education Services (Yarrow et. al, 2020), are the latest studies in a long line of research into the education sector in Indonesia, supported by the World Bank and its partners to help measure progress and identify the challenges facing the Indonesian education system. The aim is to make the analysis from both these sources available to policymakers to better understand what Indonesia is paying for in education (the Subnational Education PER), and what it is getting in return in the form of student outcomes (the SDI survey). Armed with this knowledge, policymakers can benchmark improvements in the education system and implement change toward the long-term goal of improving Indonesia's human capital.

While Indonesia has made impressive progress over the past 15 years in expanding access to education, major challenges remain. Inequalities still persist in net and gross enrollment rates, especially in upper secondary education and early childhood education. The national averages for many metrics, but especially these two, mask large gaps observed at both the provincial and district/city levels. There are also wide gaps in spending per student, teacher quality, student achievement, and management capacity at schools and across districts/cities, as revealed by both the Subnational Education PER and the SDI survey.

Progress on student learning has been disappointing, as measured by low scores in the national exam (UN) and international assessments (PISA), which suggest that many Indonesian students are not achieving minimum levels of knowledge and skills to participate fully in society. There are also high levels of inequality between districts/cities in terms of student achievement. The inequality between districts/cities is both consistent and profound: the districts/cities with the lowest NERs and UN test score results in 2015 were also among the lowest performers in 2018, although the consistency is more pronounced in participation measures than test scores. This suggests that poorly performing schools and districts/cities remain trapped in a vicious cycle of poor performance.

More funding does not necessarily lead to better education outcomes. Despite the major increases in funding for education in recent years as highlighted in this PER, poor teacher subject and pedagogical knowledge, weak management of schools and the ineffective use of funds, suggest that Indonesia, despite spending more, is not getting the “best bang for its buck” in terms of spending (World Bank 2020a).

Spending better through understanding how spending improves student outcomes (or not, as the case may be) is of paramount importance. The resources available to districts/cities are based on transfers, own-source revenues at the subnational level, and budget choices (i.e., how districts/cities allocate spending across different functions). Smaller districts/cities in terms of population receive higher levels of transfers on a per-student basis and there is evidence that larger districts/cities compensate for lower levels of central government transfers by increasing the share of the budget they devote to education. As a result of differences in transfers and budget choices, there are very large differences between districts/cities in terms of per-student spending levels.

To ensure that all districts/cities have the necessary resources to deliver education services, the financial and technical capacity of districts/cities should be reassessed. Some districts/cities are found to have very limited resources to implement (non-salary related) education programs. However, they exhibit great ingenuity in the use of the resources they have, and tend to go beyond their mandates required by decentralization legislation. With these limited resources, districts/cities are implementing too many education programs/policy initiatives. MoEC should provide better guidance to subnational governments on what works to improve learning outcomes. As financial expenditure become more transparent, the impact of what districts/cities do should be evaluated and monitored. MoF and MoEC should provide tailored capacity building and technical assistance activities for these districts/cities in planning & executing

education programs. Spending on early childhood education is lagging and needs to be prioritized more by districts/cities. Evidence on the highest return in investing in early years should be emphasized and districts/cities could be incentivized to allocate more budget to early childhood education. Districts/cities also face capacity constraints in budgeting, planning, and execution when implementing their education budgets. MoF and MoEC should identify districts/cities with low capacity in planning and budgeting as well as budget execution. MoF and MoEC should provide tailored capacity building and technical assistance activities for these districts/cities in planning & executing education programs.

The prioritization of education programs at the subnational level should be conducted with the aim of consolidating spending on a smaller number of programs that are effective in raising student learning outcomes. MoEC and subnational governments should coordinate in aligning national education policy initiatives. For example, they should focus on improving coordination and alignment between national BOS and local BOS (BOSDA) to maximize synergies among funding sources and accelerate the achievement of minimum service standards (MSS) and national education standards (NES). Several districts/cities are implementing local BOS-type programs. If central and subnational governments coordinate, the efficiency of the BOS program could be improved through joint planning of local and national BOS programs.

To reduce the budget burden of payments for salaries and to create more fiscal space, districts/cities need to better manage student-to-teacher ratios and class sizes. District/city resources going toward education are closely linked to the number of civil servant teachers and their salary payments, and the payment of the TPG and TKG allowances. The large differences in the numbers of civil servant teachers per student across districts/cities create inequities in the resources allocated per student. The majority of these civil servant teachers were hired over a decade ago and are now approaching

retirement. MoEC should take this opportunity to improve efficiency, as well as improving quality of teachers, by hiring only the best qualified teachers.

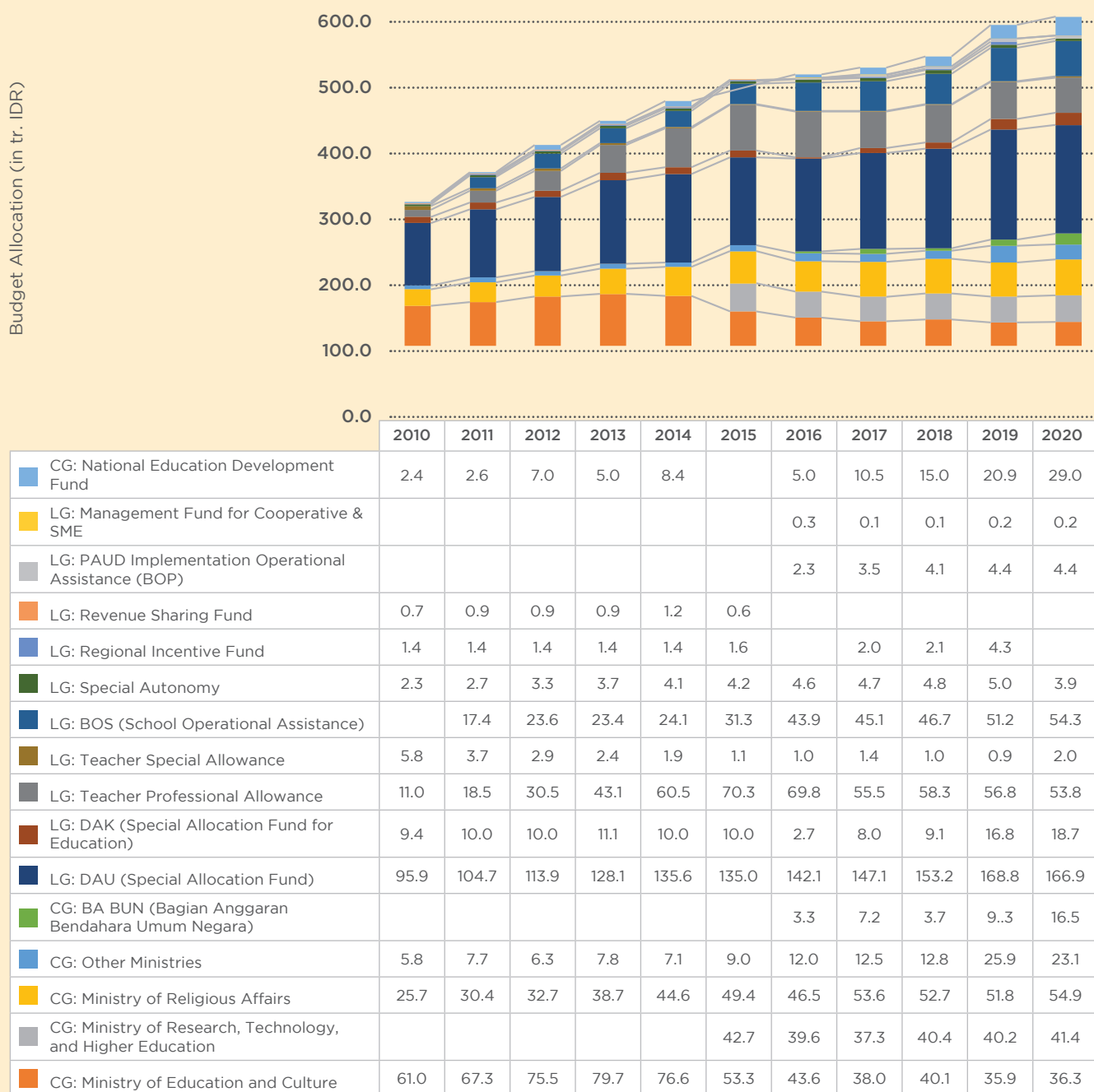
Upgraded and standardized budget classifications (Chart of Accounts, CoA) should be revisited to ensure the availability and quality of necessary information on budget expenditures for districts/cities and provinces. Better data collection and analysis of district/city-level information is essential to assess efficiency in the use of education resources. Processing data of districts'/cities' detailed education expenditure is challenging. District/city financial reports are often hundreds of pages long or consist of hundreds of rows of different activities. High variation in how districts/cities report or classify their education expenditure complicates this issue further. MoF and MoHA need to work closely with MoEC and subnational governments to develop a simpler classification of education programs and activities that will produce better data and statistics, maintain comparability and consistency in the allocation of costs across subnational governments over time, and help both central and subnational governments track progress and ensure that their decisions are evidence-based. MoHA and MoEC should deliver CoA training and provide a helpdesk to ensure that subnational governments are able to do their reporting based on the new upgraded and standardized CoA.

Big data technology could be introduced to collect, store, integrate and analyze large amounts of information on both education financial data, and education administrative and outcomes data. Currently, education financial data (SIKD and district financial reports) are managed by MoF and subnational governments, while the education administrative and outcomes data (Dapodik) are managed by MoEC. These two main data systems should be integrated to help the Government assess the effectiveness and efficiency of education spending. For example, the pattern of district/city and school spending can be automatically analyzed to inform policymakers to make better decisions in terms of budget allocations, the harmonization of national and subnational education programs (BOS, BOSDA, non-civil teacher pay, etc.), incentivizing high-performing districts/cities, schools (i.e., through performance-based school grants), and teachers (i.e., through a performance-based teacher allowance), and provide guidance and capacity building to low-performing districts/cities, schools, and teachers. Likewise, the development of an integrated education data management system would help to establish an education quality index across Indonesia. Publishing an education quality index for each district/city can help to promote local oversight and accountability for education service delivery. A results-based intergovernmental transfer mechanism can be introduced using the education quality index. With big data initiatives, the Government could make better decisions in its education policy-making with the aim of improving education outcomes, and strengthening accountability mechanisms, and thereby also speeding up post-COVID-19 recovery and building resilience going forward.

ANNEX

ANNEX TABLE 1

Detail breakdown of total education budget, 2010-2020



Source: APBN, various years.

Note: CG: Central government, LG: Subnational governments

ANNEX

ANNEX TABLE 2

Covariates of budgeted district/city spending share on education and per-capita education spending, 2015–18

| Independent Variables: | Education Spending Share of Total (%): | | Per-capita Education Spending: | | | |
|--|--|------------------|--------------------------------|------------------|--------------------|-------------------|
| | 1 (FE) | 2 (DPD) | 3 (FE) | 4 (DPD) | 5 (FE) | 6 (DPD) |
| Education Spending Share (%) | ---- | ---- | 0.64** (4.10) | 0.71** (5.30) | ---- | ---- |
| Log of Total District Population | 8.86** (2.76) | 2.43** (2.57) | ---- | ---- | ---- | ---- |
| Log of 7-15 Year old District Population | ---- | ---- | ---- | ---- | -0.82** (-6.75) | -0.68* (-1.97) |
| District Poverty Rate | 0.16 (0.53) | 0.11 (0.53) | ---- | ---- | -0.02 (-0.06) | 0.09 (0.80) |
| Lagged Value of Dependent Variable | ---- | 0.20** (4.14) | ---- | 0.09* (2.16) | ---- | 0.12** (2.66) |
| Year Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of Observations (n) | 1,890 | 889 | 1,890 | 878 | 1,890 | 878 |

Data Source: Education spending data are from MoF, other variables are from Susenas.

Notes: Budgeted education spending share dependent variable (in percent of total) is transformed to z-score (standardized); budgeted per-capita education spending is the log of total education spending divided by total number of 7-15 year olds in district. FE refers to fixed effects, DPD is for dynamic panel data modeling (see Lewis, forthcoming). T-statistics (in parentheses) based on robust standard errors. Fixed effects estimations include sampling weights based on size of 7-15 year old population.

** Point estimate significant at p<0.01 level

* Point estimate significant at p<0.05 level

+ Point estimate significant at p<0.10 level

ANNEX TABLE 3

List of platforms for planning, budgeting, financial administration and reporting used in selected districts/cities

| NO | DISTRICT | PLANNING | BUDGETING, FINANCIAL ADMINISTRATION, REPORTING | ASSET AND INVENTORY |
|----|------------------------------|--|---|---|
| 1 | Kabupaten Bondowoso | e-planning (under development) | SIMDA Keuangan (Sistem Informasi Manajemen Daerah) | SIMDA BMD (SIMDA Barang Milik Daerah) |
| 2 | Kabupaten Bangkalan | SIRENDA (Sistem Perencanaan Daerah) | SIPKD (Sistem Informasi Pengelolaan Keuangan Daerah) | e-aset (http://aset.bangkalankab.go.id/#) |
| 3 | Kabupaten Sragen | e-planning (http://eplanning.sragenkab.go.id) | SIMDA Keuangan | SIMDA BMD |
| 4 | Kabupaten Purworejo | Integrated SIMDA (Planning, Budgeting, financial management, aset and revenue. | | |
| 5 | Kabupaten Sleman | SIMRENA (Sistem Informasi Manajemen Perencanaan) | SIMDA Keuangan | SIMDA BMD |
| 6 | Kabupaten Bireuen | e-planning - development by consultant | SIPKD - development by consultant | SIMDA BMD |
| 7 | Kota Probolinggo | SIMRAL (Sistem Informasi Manajemen Perencanaan) | SIMDA Keuangan | SIMDA BMD |
| 8 | Kabupaten Probolinggo | n.a (under development) | SIMDA Keuangan | SIMDA BMD |
| 9 | Kabupaten Demak | e-planning (http://grms.demakkab.go.id:8080/eplanning/) | SIMDA Keuangan | SIMDA BMD |
| 10 | Kabupaten Kotawaringin Timur | SIMRAL | SIMDA Keuangan | SIMBADA (Sistem Informasi Manajemen Barang Daerah) |
| 11 | Kota Semarang | SIMPERDA (Sistem Informasi Manajemen Perencanaan Daerah) | SIMDA Keuangan | SIMDA BMD |
| 12 | Kota Medan | e-planning (http://eplanning.pemkomedan.go.id/) | e-budgeting (http://ebudgeting.pemkomedan.go.id/) | e-sarpras (http://e-sarpras.pemkomedan.go.id/) |
| 13 | Kabupaten Bojonegoro | n.a (under development) | SIMDA Keuangan | SIMDA BMD |
| 14 | Kabupaten Ngawi | e-planning | SIMDA Keuangan | SIMDA BMD |
| 15 | Kota Ternate | n.a | SIMDA Keuangan | SIMDA BMD |
| 16 | Kabupaten Sampang | e-planning (https://e-planning.sampangkab.go.id/) | SIPKD (http://sipkd.sampangkab.go.id/) | e-aset (http://aset.sampangkab.go.id/) |
| 17 | Kabupaten Wonogiri | SIPPD (Sistem Informasi Perencanaan Pembangunan Daerah): http://sippd.wonogirikab.go.id/ | SIMDA Keuangan | SIMDA BMD |

ANNEX

| | | | | |
|----|----------------------|---|---|---|
| 18 | Kabupaten Kebumen | SIMPER (Sistem Informasi Perencanaan) - http://simper.kebumenkab.go.id/index.php/web/front | SIMDA Keuangan | SIMDA BMD |
| 19 | Kabupaten Kulonprogo | Rencanaku | SIMDA Keuangan | SIMDA BMD |
| 20 | Kabupaten Aceh Besar | e-musrenbang (http://e-musrenbang.acehbesarkab.go.id/) | SIMDA Keuangan | SIMDA BMD |
| 21 | Kabupaten Jombang | Berkadang Jombang (http://berkadang.jombangkab.go.id/login) | SIMDA Keuangan | SIMDA BMD |
| 22 | Kabupaten Nganjuk | e-planning (http://eplanning.nganjukkab.go.id/landingpage) | SIMDA Keuangan | SIMDA BMD |
| 23 | Kabupaten Rembang | SIPANDU (http://sipandu.rembangkab.go.id:8081/eplanning/) | SIMDA Keuangan | SIMDA BMD |
| 24 | Kabupaten Blora | SIPPD (Sistem Informasi Perencanaan dan Pembangunan Daerah) | SIPKD (http://bppkad.blorakab.go.id) | SIMBADA and SIM Persediaan |
| 25 | Kabupaten Manokwari | e-planning (under development) | SIMDA Keuangan | SIMDA BMD |
| 26 | Koa Surabaya | e-planning Kota Surabaya (https://bappeko.surabaya.go.id/eplanning/) | e-budgeting (https://ebudgeting.surabaya.go.id/new_portal/) | SIMBADA (https://simbada.surabaya.go.d/) |
| 27 | Kota Malang | Perencanaan Kota Malang (http://perencanaan.malangkota.go.id) | SIMDA (https://malangkota.go.id) | SIMBADA (http://simbada.malangkota.go.id) |

ANNEX TABLE 4

List of selected districts for detailed data survey phase

| NO. | PROVINCE | DISTRICT | URBAN/ RURAL | POVERTY RATE | LOCAL GOVERNANCE CAPACITY INDEX | LGCI CATEGORY |
|-----|--------------------|------------------|-----------------|-----------------|--|------------------|
| 1. | Aceh | Kab. Aceh Besar | Rural | 15.41 | 56.0 | Medium |
| 2. | Aceh | Kab. Bireuen | Rural | 15.87 | 49.1 | Medium |
| 3. | North Sumatra | Kota Medan | Urban | 9.11 | n/a | n/a |
| 4. | Central Java | Kab. Kebumen | Rural | 19.6 | 68.6 | High |
| 5. | Central Java | Kab. Purworejo | Rural | 13.81 | 61.1 | High |
| 6. | Central Java | Kab. Wonogiri | Rural | 12.9 | 61.2 | High |
| 7. | Central Java | Kab. Sragen | Rural | 14.02 | 60.9 | High |
| 8. | Central Java | Kab. Blora | Rural | 13.04 | 57.8 | Medium |
| 9. | Central Java | Kab. Rembang | Rural | 18.35 | 54.8 | Medium |
| 10. | Central Java | Kab. Demak | Rural | 13.41 | 59.0 | Medium |
| 11. | Central Java | Kota Semarang | Urban | 4.62 | n/a | n/a |
| 12. | Yogyakarta | Kab. Kulon Progo | Rural | 20.03 | 50.4 | Medium |
| 13. | Yogyakarta | Kab. Sleman | Urban | 8.13 | 66.2 | High |
| 14. | East Java | Kab. Bondowoso | Rural | 14.54 | 72.3 | High |
| 15. | East Java | Kab. Probolinggo | Rural | 20.52 | 56.7 | Medium |
| 16. | East Java | Kab. Jombang | Urban | 10.48 | 52.0 | Medium |
| 17. | East Java | Kab. Nganjuk | Urban | 11.98 | 55.8 | Medium |
| 18. | East Java | Kab. Ngawi | Rural | 14.91 | 53.5 | Medium |
| 19. | East Java | Kab. Bojonegoro | Rural | 14.34 | 63.6 | High |
| 20. | East Java | Kab. Bangkalan | Rural | 21.32 | 59.3 | Medium |
| 21. | East Java | Kab. Sampang | Rural | 23.56 | 64.2 | High |
| 22. | East Java | Kota Malang | Urban | 4.17 | n/a | n/a |
| 23. | East Java | Kota Probolinggo | Urban | 7.84 | 62.1 | High |
| 24. | East Java | Kota Surabaya | Urban | 5.39 | n/a | n/a |
| 25. | Central Kalimantan | Kab. Kotim | Rural | 6.24 | 44.9 | Low |
| 26. | North Maluku | Kota Ternate | Urban | 2.73 | 55.7 | Medium |
| 27. | West Papua | Kab. Manokwari | Rural | 24.31 | 35.5 | Low |

ANNEX

ANNEX TABLE 5

Covariates of district average school inputs, 2015–18

| Independent Variables: | Infrastructure Index: | | | Student - Teacher Ratio: | | | Percent Principal with Bachelor: | | |
|---|-----------------------|-----------------|--------------------|--------------------------|-------------------|--------------------|----------------------------------|------------------|------------------|
| | 1 (FE) | 2 (DPD) | 3 (FE) | 4 (DPD) | 5 (FE) | 6 (DPD) | 7 (FE) | 8 (FE) | 9 (FE) |
| Education Spending Share (%) | 0.008 (0.58) | ---- | ---- | -0.003 (-0.63) | ---- | ---- | 0.02 (0.40) | ---- | ---- |
| Log of per - Student Education Spending | ---- | 0.02+ (1.83) | ---- | ---- | -0.004 (-0.80) | ---- | ---- | -0.03 (-0.83) | ---- |
| Log of Total District Population | ---- | ---- | -0.27 (-1.38) | ---- | ---- | -0.30 (-1.45) | ---- | ---- | -3.12 (-0.63) |
| District Poverty Rate | ---- | ---- | -0.95** (-7.22) | ---- | ---- | -0.30** (-4.23) | ---- | ---- | -1.14* (2.17) |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of Observations (n) | 1,879 | 1,879 | 2,029 | 1,857 | 1,857 | 1,999 | 892 | 892 | 1,013 |

Data Source: MoF data, Susenas, and Dapodik (2015-2018)

Notes: : Infrastructure index is a z-score (standardized) based on the percentage of schools that have electricity, internet, laboratories in good condition, etc. FE refers to fixed effects.

T-statistics (in parentheses) based on robust standard errors. Fixed effects estimations include sampling weights based on size of the 7 to 15-year-old population

** Point estimate significant at p<0.01 level

* Point estimate significant at p<0.05 level

+ Point estimate significant at p<0.10 level

ANNEX TABLE 6

Covariates of district student participation outcomes, 2015–18

| Independent Variables: | Net Enrollment Rate (NER): | | | Gross Enrollment Rate (GER): | | |
|--|----------------------------|----------------|---------------------|------------------------------|----------------|---------------------|
| | (1) FE | (2) FE | (3) FE | (4) FE | (5) FE | (6) FE |
| Education Spending Share (%) | -0.05 (-0.81) | ---- | ---- | -0.09 (-1.12) | ---- | ---- |
| Log of per-Capita Education Spending | ---- | 0.17 (1.14) | ---- | ---- | 0.15 (0.91) | ---- |
| Log of 7-15 year Old District Population | ---- | ---- | -4.84** (-20.96) | ---- | ---- | -5.95** (-26.67) |
| District poverty Rate | ---- | ---- | -0.13 (-1.06) | ---- | ---- | 0.28* (2.43) |
| Infrastructure Index | ---- | ---- | 0.01 (0.36) | ---- | ---- | 0.01 (0.40) |
| Percent Private School (MoEC) | ---- | ---- | -0.30 (-1.56) | ---- | ---- | 0.08 (0.44) |
| Year Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of Observations (n) | 1,879 | 1,879 | 1,879 | 1,879 | 1,879 | 1,880 |

ANNEX TABLE 7

Covariates of student participation outcomes, 2015-18

| Independent Variables: | Net Enrollment Rate (NER): | | | Gross Enrollment Rate (GER): | | |
|--|----------------------------|-----------------|------------------|------------------------------|-----------------|--------------------|
| | (1) DPD | (2) DPD | (3) DPD | (4) DPD | (5) DPD | (6) DPD |
| Education spending share (%) | 0.008 (0.64) | ---- | ---- | 0.002 (0.08) | ---- | ---- |
| Log of per - Capita Education Spending | ---- | 0.006 (0.65) | ---- | ---- | 0.03 (0.85) | ---- |
| Log of 7-15 year old district population | ---- | ---- | -0.04 (-0.07) | ---- | ---- | -6.80** (-3.14) |
| District poverty rate | ---- | ---- | -0.11 (-0.83) | ---- | ---- | -0.34+ (-1.63) |
| Infrastructure Index | ---- | ---- | 0.03 (1.31) | ---- | ---- | 0.11* (2.38) |
| Percent Private Schools (MoEC) | ---- | ---- | -0.11 (-0.64) | ---- | ---- | -0.62 (-1.54) |
| Lagged Value of Dependent Variable | 0.22 (1.46) | 0.23 (1.46) | 0.23 (1.38) | 0.31+ (1.91) | 0.31+ (1.91) | 0.33 (1.54) |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of Observations (n) | 971 | 971 | 936 | 971 | 971 | 936 |

Data Source: MoF data, Susenas, and Dapodik (2015-2018)

Notes: DPD is for dynamic panel data modeling (see Lewis, forthcoming). T-statistics (in parentheses) based on robust standard errors.

** Point estimate significant at p<0.01 level

* Point estimate significant at p<0.05 level

+ Point estimate significant at p<0.10 level

ANNEX TABLE 8

Covariates of district average UN scores, 2015–18

| Independent Variables: | (1) FE | (2) DPD | (3) FE | (4) DPD | (5) FE | (6) DPD |
|---|-------------------|--------------------|------------------|--------------------|------------------|------------------|
| Education Spending Share (%) | -0.74* (-2.37) | -0.98** (-2.77) | ---- | ---- | ---- | ---- |
| Log of per - Student Education Spending | ---- | ---- | -0.05 (-0.14) | -0.17 (0.49) | ---- | ---- |
| Log of Total District population | -0.31 (-0.53) | -1.02** (-2.61) | -0.70 (-1.14) | -1.06** (-2.77) | ---- | ---- |
| District poverty rate | ---- | ---- | ---- | ---- | -2.27 (-0.70) | 6.55** (2.55) |
| Infrastructure Index | ---- | ---- | ---- | ---- | -0.02 (-0.03) | -0.06 (-0.14) |
| Percent Private Schools (MoEC) | ---- | ---- | ---- | ---- | -2.23 (-0.76) | -0.08 (-0.03) |
| Lagged Value of Dependent Variable | ---- | 0.47** (3.50) | ---- | 0.45** (3.55) | ---- | 0.35** (2.93) |
| Year fixed effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Number of Observations (n) | 1,857 | 962 | 1,857 | 962 | 1,853 | 93 |

Data Source: MoF data, Susenas, and Dapodik (2015-2018)

Notes: FE refers to fixed effects, DPD is for dynamic panel data modeling (see Lewis, forthcoming).

T-statistics (in parentheses) based on robust standard errors.

Fixed effects estimations include sampling weights based on size of 7-15 year old population.

** Point estimate significant at p<0.01 level

* Point estimate significant at p<0.05 level

+ Point estimate significant at p<0.10 level

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