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The education divide in Indonesia

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Discussion and Conclusion

6.1 Conclusion

Inequality in access to and quality of education in developing countries, such as Indonesia, is to some degree inevitable for the initial stages of development (Kuznets in Galbraith, 2007). Nevertheless, high educational inequality creates moral questions, and can result in social divisions that reduce the efficiency of both government and society (Budihardjo, 2011; Kozol, 2005; De Gregorio, 2002). It is therefore considered an important sector for government intervention, also in developing countries.

There are no secret formulas for governments to design policies to mitigate education inequality, and Indonesia is no exception. For instance, since the 1970s, in order to reduce inequality in access to education, the government started to expand access to primary education. The idea behind this was to make sure that all children from the age of seven to twelve years old would have access to school, particularly in rural, new settlement and disadvantaged urban areas. In July 2005, in order to push towards universal primary and junior secondary education, the government introduced a *Free Basic Education (FBE)* (Paqueo & Sparrow, 2005). However, despite these measures, education inequality is still pervasive in Indonesia, showing that it is not easy to address inequalities in this sector (CBS 2016 calculated by Bappenas; World Bank, 2014; OECD, 2012).

It is a common understanding that inequalities in Indonesia's education system are due to differences in resources related to family socio-economic status (SES), public and private school governance, and local government investments (Al-Samarrai, 2013; Suharti, 2013; Newhouse & Beegle, 2006). However, inequality in access to and quality of education seems to be a more complex problem related to many factors across various levels and different types of resources (Lynch & Baker, 2005). So far, little systematic empirical research disentangles this complexity of multilevel and multi-resource determinants. This dissertation is among the first attempts to bridge this gap.

Building on a multilevel multi-resource approach and utilizing a combination of empirical nation-wide datasets by means of multilevel statistical techniques, this dissertation explored the impact of and interplays between human, social, economic, political and infrastructural capital at the individual, household, school, community and government level. In this way, and through the identification of *within-level cross-resource effects* (e.g. the household social capital compensated for a lack of economic resources), *between-level single-resource effects* (cf. community social capital strengthened household social capital) and *between-level cross-resource effects* (e.g. urbanization reinforced the effect of community association), this study provides deeper insights into which kind of resources contribute to reduce educational inequality, at which levels, and by means of what mechanisms. This may help stakeholders and the government to identify efforts needed to narrow this inequality in Indonesia.

This concluding chapter summarizes the main findings of each chapter. This is followed by a discussion of the theoretical, methodological and practical contributions of this dissertation, followed by a discussion of limitations and avenues for future research.

6.2 Summary of the main findings

6.2.1 Municipality and household resources' effect on the likelihood of children to be in or out of school

Chapter 2 explored the effect of municipality and household resources on the likelihood of children to be in or out of school. After the implementation of a decentralized education system in Indonesia, local governments have become crucial actors in providing access to education. Differences in municipality resources in these autonomous local governments may therefore influence the accessibility and affordability of schools. Accessible and affordable schools enable parents to send their children to school. Municipalities with more resources, for example, can provide more scholarships to households, which might attract poor pupils to attend or return to school. Also, differences in household resources, such as income, education investments, parents' educational level, household structure, and distance to school, are very crucial in parent's decisions on children's education. Furthermore, parent's wealth links to education investments and associates with the degree of awareness of the importance of education as a vehicle of social mobility. This awareness increases the importance parents attach to education, and therefore the price they are willing to pay.

Our analysis of the effect of differences in municipal and household level resources on the likelihood of children to be out of school showed that municipality education expenditure can help prevent dropout but it could not attract children to attend school to begin with. Conversely, the availability of schools decreases the likelihood that children never attend school but it does not reduce dropout. High municipality poverty rates increase the likelihood of children never attending school and dropping out school (out of school). Family factors, such as wealth, education investment and educational background also reduce the likelihood that children are out of school. We conclude that municipalities that combine the resources of good school availability and high(er) education expenditure seem to be better able to prevent that children drop out of or never attend school.

All in all, our analyses show that *economic resources* at both the municipal and household level affect the likelihood of children to be out of school differently, for different groups (i.e. children dropping out or never attending). Also, *human capital* at the household level contributes to the likelihood of children out of school, with children from less educated parents being more likely to never attend or drop out of school.

6.2.2 The moderating role of social capital

Chapter 3 examined to what extent socio-economic status (SES) and social capital affect preschool participation and whether social capital can compensate and complement these SES effects. High SES links to a household's spending capacity, high educational

expectations, and to modernization and urbanization; elements that all are expected to affect preschool participation (Galab *et al.*, 2013; Davis-Kean, 2005; McNeal, 1999).

Next to SES, we argued that social capital could be an important determinant of educational outcomes. Social capital enables individuals and groups to achieve their objectives by sharing information and transferring values and norms. It also facilitates members of a group to cooperate. Social capital in this particular study resides in relations between individuals in families and communities who interact with others, both within the village and between villages. We identified three dimensions of social capital: association, trust and reciprocity and reasoned how these dimensions may influence children's preschool participation.

We found that parental income and education are strong determinants of preschool enrollment, whereas living in a poor rural area with lack of access to media is associated with declining preschool participation. Social capital represented by household association and community reciprocity increase preschool participation. Social capital based on perceived reciprocity compensates low-income parents that empower them to send their children to preschool.

In addition, we also found three interplay mechanisms: (1) one *within-level cross-resource effect* is that reciprocity, as a component of social capital at the household level, is able to compensate low-income families for sending their children to preschool; (2) a *between-level single-resource effect* is that the effect of association as a social resource at the household level on preschool participation becomes stronger if the household resides in an area with higher community trust, which is also a type of social resource; (3) a *between-level cross-resource effect* consists in urbanization reinforcing the effect of community associations, and weakening the effect of community reciprocity on the likelihood of children attending preschool. Overall, a combination of different types of resources, such as *economic, human, social and infrastructural capital*, in both *household and village levels*, contribute to preschool participation.

6.2.3 Political resources' effect on the length of schooling

Chapter 4 studied the effects of implementing a decentralized education system on the progress of and variations in the mean years of schooling between Indonesian municipalities and provinces. A decentralized education system is assumed to be good for education because it allows municipalities to raise more of their own resources, which is conducive to improve educational attainment.

Differences between municipalities, relating to voters' preferences but also decision-making and implementation capacity at the municipal level, may intensify regional variations in educational attainment. For example, decentralization may increase disparities in municipality education expenditures, which thus enlarges gaps in fiscal capacities for education across municipalities. Furthermore, differences in terms of

urbanization, level of development and newly created municipalities may widen disparities, such as in infrastructure, facilities, and travel distances to school, which in turn can influence variations in educational attainment. Thus, decentralization generates differential effects on the improvement and progress of educational attainment between municipalities and between provinces.

We found that the decentralized education system as a political resource slightly improved the length of schooling. However, the aggregate improvement after decentralization is smaller than before decentralization. It also slightly decreased variation between provinces, but the variation among municipalities increased. Development and urbanization significantly improve the length of schooling. However, fiscal capacity and newly created municipalities do not have a significant effect on improving the length of schooling. It could be concluded that while municipal economic resources did not improve educational attainment at municipal level, urbanization, type and level of municipal development as a social resource significantly improved educational attainment.

6.2.4 The effect of organizational and ideological resources on achievement and achievement gaps

Finally, chapter 5 investigated whether ideological and organizational differences between Islamic private schools, and the resulting differences in resources and investment decisions, have consequences for educational achievement and gender and SES gaps in achievement. Ideological differences relate to how private Islamic education providers interpret their religion in the Indonesian social and educational context that consists of Traditionalists, Modernists and Integrationists, organizational differences connect to the role of the government in managing private Islamic schools. Madrasah is managed by the Ministry of Religious Affairs (MoRA) and non-madrasah is coordinated under the Ministry of Education and Culture (MoEC).

Based on these distinctions, we reasoned that, compared to private madrasahs, private non-madrasahs have more resources: they devote more time to teaching, have more qualified teachers, and invest more in students, organization and coordination. This difference in investments is assumed to significantly enhance student performance in non-madrasahs compared to their madrasah peers. In terms of ideological differences, the Integrationist stream devotes more teaching time by better teachers and more resources when compared to Traditionalist and Modernist streams. The Integrationist stream also provides extra attention to national exam subjects, which is expected to lead to higher academic achievement compared to the Modernist and Traditionalist streams. We found that student achievement in madrasahs is higher than in the non-madrasahs, and the achievement of girls is higher in the Integrationist stream.

In terms of the gender achievement gap, compared to non-madrasahs, madrasahs tend to be stricter and they are mainly practicing a tradition of single sex education (SSE).

This is comparable with the Integrationist stream. Single sex education has been found to make girls freer and more competitive and to enable them to focus more on learning, leading to increased educational achievement. Single sex education is assumed to widen the gender gap to the benefit of girls. Our findings show that in the subject “Science”, girls in the Integrationist stream and girls in madrasahs indeed perform better than their peers in other streams.

In terms of the SES achievement gap, non-madrasah schools have more resources: they can provide more financial support to low SES students to improve their achievement and reduce the SES gap. Unlike the Integrationist stream, Traditionalist and Modernist streams financially support low SES students, which may improve the performance of low SES students and reduce the SES achievement gap. Our analyses showed that, for English, the SES gap in private madrasahs is smaller than in their non-madrasah counterparts.

We found two interplay mechanisms. First, even though girls in general perform better than boys, *between-level and cross-resource effects* reveal that attending in Traditionalist and Modernist streams significantly decrease the achievement of female students. Second, compared to non-madrasah schools, madrasahs have less economic resources. *Between-level single-resource effects* show being located in a municipality with a high poverty rate diminishes madrasah’s positive effect on student achievement. Overall, although student characteristics and *economic and human capital* at the household level strongly affect student achievement and achievement gaps, our findings suggest that differences in *resource investment decisions across school tracks and streams* also play an important role.

Table 6.1 summarizes the main theoretical mechanisms, outcomes and predictors, hypotheses and findings of each study.

Table 6.1 Summary of theoretical frameworks and findings of empirical chapters (2-5)

Mechanism	Description	Outcomes and predictors
Chapter 2 Opportunity and constraint	<ul style="list-style-type: none"> ☞ Resources at both municipality and household may provide educational opportunities and constraints. ☞ Public education expenditure, poverty rate and average household education expenditure will explain why some children are in school and others not. ☞ Household's income, education investments, education, structure, and distance to school influence children's opportunities to attend school. 	<ul style="list-style-type: none"> ⇒ <i>Outcome</i>: Out-of-school ⇒ <i>Predictors</i>: Municipality and household resources
Chapter 3 Social capital theory	<ul style="list-style-type: none"> ☞ Resources at household and community-level, such as SES and access to media explain preschool enrolment. ☞ Differences in social capital play important role in parents' decision on their children preschool. ☞ Social capital can be also an effective buffer against the negative effect of lack of SES or it may complement other forms of capital. 	<ul style="list-style-type: none"> ⇒ <i>Outcome</i>: <i>Preschool enrollment</i> ⇒ <i>Predictors</i>: <i>Household and community resources.</i> ⇒ <i>Moderator</i>: <i>Social capital (association, trust, reciprocity)</i>
Chapter 4 Decentralization	<ul style="list-style-type: none"> ☞ Decentralization generates differential effects on length of schooling in the various regional and local levels. ☞ It enables the local government to respond to local demands, improve accountability and effectiveness, which turn to increase length of schooling. ☞ It could also have negative effects if the educational service at the local level do not function well. 	<ul style="list-style-type: none"> ⇒ <i>Outcome</i>: <i>Length of schooling</i> ⇒ <i>Predictors</i>: <i>Decentralization, fiscal capacity, urbanization, level of development, proliferation</i>
Chapter 5 Education production function and governance approach	<ul style="list-style-type: none"> ☞ Ideological and organizational differences between Islamic private schools have consequences for investment and resource allocation decisions. ☞ These variations in investments might explain variations in student achievement and achievement gaps between the various types of private Islamic schools in Indonesia. 	<ul style="list-style-type: none"> ⇒ <i>Outcomes</i>: <i>Student achievement and achievement gap</i> ⇒ <i>Predictors</i>: <i>School tracks and streams</i> ⇒ <i>Moderators</i>: <i>Parent SES and gender</i>

Table 6.1 Continued

Hypotheses	Findings
H1: Municipality education expenditure => never attend and drop-out (-) H2: Municipality poverty rate => never attend and drop-out (+) H3: Mean household edu. expenditure => never attend and drop-out (-) H4: Household expenditure => never attend and drop-out (-) H5: Household education expenditure => never attend and drop-out (-) H6: Head of household education => never attend and drop-out (-) H7: Female-headed household => never school and drop-out (+) H8: School availability => never attend and drop-out (-)	❖ Drop-out (√) but never attend (X) ❖ Both never attend and drop-out (√) ❖ Never attend (√) but drop-out (X) ❖ Both never attend and drop-out (√) ❖ Never attend (√) but drop-out (X)
H1: Household SES => preschool enrollment (PE) (+) H2. Wealthier community => PE (+) H3. Household and community access to mass media => PE (+) H4: Living in urban communities => PE (+) H5. Household social capital (SC) => PE (+) H6. Community SC => PE (+) H7. Household SC compensates low income, education, media access on PE H8. Community SC compensates household & community factors on PE	<input type="checkbox"/> +√ <input type="checkbox"/> +√ <input type="checkbox"/> +√ <input type="checkbox"/> +√ <input type="checkbox"/> Association +√ <input type="checkbox"/> Reciprocity +√ <input type="checkbox"/> Social capital signified by reciprocity enables a low-income parent (+√). <input type="checkbox"/> Association and community trust (+√).
H1: Decentralization => progress in the mean length of schooling (+) H2: Decentralization => municipal and provincial-level variations (+) H3: Fiscal capacity, urbanization, municipality proliferation=> mean year of schooling (+)	❖ Length of schooling (+√). ❖ It decreased province variation (+√) but it increased municipality variation (-√). ❖ Development and urbanization (+√) but fiscal capacity and created new municipality (X)
H1: Attending in private madrasah => achievement (-) H2: Attending in Integrationist stream => achievement (+) H3a: Attending in private madrasah => gender achievement gaps (+) H3b: Attending in Integrationist stream => gender achievement gaps (+) H3a: Attending in private madrasah => SES achievement gaps (+) H3b: Attending in Integrationist stream => SES achievement gaps (+)	<input type="checkbox"/> X <input type="checkbox"/> √ <input type="checkbox"/> Mixed results (Science √ but English X) <input type="checkbox"/> √ <input type="checkbox"/> √ in Science <input type="checkbox"/> X <input type="checkbox"/> School tracks and streams play important roles after student and family factors.

6.3 Theoretical implications

A resource-based approach highlights the importance of the relation between various types of resources and educational outcomes and inequality (Al-Samarrai, 2013; Suryadarma, 2010; Hanushek, 2007; Newhouse & Beegle, 2006; Barro & Lee, 2001). Resources can originate in various levels, ranging from the individual to the government level. This study builds on and extends previous studies by using a multilevel multi-resources framework to systematically address the effects of differences in resources at various levels on educational attainment.

Our four studies suggest that various resources at the individual, household, community and government level explain inequality in education outcomes and show under which condition resource deficiency can be compensated by access to resources of another type or from another level. Table 6.2 summarizes the findings in this dissertation in terms of the inter-relationship between economic, human, social, physical, and municipality resources and inequality of educational outcomes across level of individual, household, school, community and municipality.

Table 6.2 Summary of the effects of different types of resources across different levels on educational outcomes in Indonesia in this dissertation

Capital↻ Level	Economic	Human	Social	Infrastructure	Political
National					Policy to decentralize education [Mixed]
Municipal	<ul style="list-style-type: none"> ▪ Wealth [+] ▪ Household educ. expenditure [Mixed] ▪ Public educ. expenditure [Mixed] ▪ Poverty rate [Mixed] ▪ Fiscal capacity [o] 	<ul style="list-style-type: none"> ▪ Well-educated parents [o] 	<ul style="list-style-type: none"> ▪ Type and level of development [+] ▪ Urbanization [+] 	<ul style="list-style-type: none"> ▪ Number of schools [Mixed] ▪ School availability [Mix] 	<ul style="list-style-type: none"> ▪ Newly created municipality [o]
Village	<ul style="list-style-type: none"> ▪ Mean of wealth 		<ul style="list-style-type: none"> ▪ Association [o] ▪ Trust [o] ▪ Reciprocity [+] ▪ Urbanization [+] 	<ul style="list-style-type: none"> ▪ School availability [+] ▪ Access to mass-media [+] 	
School	<ul style="list-style-type: none"> ▪ Teaching time [+] ▪ Teacher selection [Mixed] ▪ Financial support to students [Mixed] 	<ul style="list-style-type: none"> ▪ Well-educated parents [+] ▪ High-status parental job [+] ▪ Teacher training [Mix] 			
Household	<ul style="list-style-type: none"> ▪ Wealth [+] ▪ Educ. expenditure [+] ▪ Poverty [-] 	<ul style="list-style-type: none"> ▪ Head of household education [+] ▪ Parent education [+] 	<ul style="list-style-type: none"> ▪ Association [+] ▪ Trust [o] ▪ Reciprocity [+]. 	<ul style="list-style-type: none"> ▪ Access to mass-media [+] 	
Interactions:					
1. <i>within level cross resource</i>	<ul style="list-style-type: none"> ▪ Parent wealth * Reciprocity [- for highest income and + for lowest income] 				
2. <i>between level single resource</i>	<ul style="list-style-type: none"> ▪ Madrasah (mostly served poor children) * Municipality with high poverty rate [-] ▪ Urbanization * social capital (community association) [+] ▪ Urbanization * social capital (community reciprocity) [-] 				
3. <i>between level cross resource</i>	<ul style="list-style-type: none"> ▪ Household social capital (association) * community social capital (trust) [+] 				

Overall, our multilevel multi-resources framework and the related findings lead to the following conclusions. *First*, our findings are in line with the resource-based approach (Barney, 1991) that stipulates that diverse resources at different levels affect educational outcomes. As our multilevel analyses show, economic, physical (infrastructure), human, social and political capital at different levels affect unequal access to and quality of education.

Second, the presence of more resources available across levels helps improve educational outcomes. However, these resources affect inequality in educational outcomes differently and sometimes they even each other out. For instance, municipality education expenditure significantly reduces dropout rates, but it does not significantly decrease children's likelihood of never attending school. Living in an urbanized area significantly amplifies the effect of community associations on preschool participation, but it significantly reduces the effects of community reciprocity on preschool participation.

Third, next to well-known economic and human capital resources at the household level, such as parents' income and educational background, this dissertation shows that also political resources at the national level - through the implementation of a decentralized education system - contribute to education outcomes. Furthermore, at the organizational level, ideological and organizational differences in private Islamic schools (represented by the different streams and tracks) influence student achievement and achievement gaps.

Fourth, our study presented three types of interplay between levels and types of resources that can contribute to or help remedy inequality in access to and quality of education in Indonesia. For instance, *within-level cross-resource effects* showed that reciprocity at the household level can buffer deficiencies in economic resources in relation to preschool participation. *Between-level single-resource effects* showed that the effect of association on preschool participation becomes stronger if the household lives in a community with high trust. In addition, higher investments in teaching time and teacher quality in the Integrationist schools can narrow student achievement gaps, which reflect *between-levels and cross-resource effects*.

6.4 Methodological implications

Unlike in developed countries, data on inequality in access to and quality of education in Indonesia is still limited and scattered across institutions. Other data challenges relate to missing data as well as differences in labels and inconsistency in data coding. In our study, we handled these challenges by merging different data sources and linking the data in terms of different types of resources and levels. We also identified for what time period each data source is available and whether the variables and periods are comparable.

Furthermore, we conducted some interviews and did data confirmation checks with the leaders of education organizations to verify our own coding and categorizations.

Linking, merging and confirming these different sources enabled us to simultaneously investigate the effects of various types of resources across different levels on inequality of access to and quality of education. Multilevel analyses allowed us to study variations in each level and to identify interplays within and between levels.

A limitation of our study is that it had to rely on (repeated) cross-sectional data. As a result, we cannot draw conclusions about the causal relations linking resources and inequality in educational outcomes. Future research might benefit from conducting longitudinal studies with more fine-grained variables, such as comparing students' achievement before entering school, and after one and two years of learning at different types of schools. Such research designs would allow a more detailed reconstruction of the social mechanisms linking the availability or lack of resources to educational decision making at the level of the household, and its collective level outcomes.

Finally, with this study being limited to a single country, the findings cannot be generalized to other countries. Nevertheless, the framework and findings may be useful for comparative studies addressing *countries* with similar geographical and infrastructural challenges.

6.5 Practical implications

Education empowers people, and persistent inequality in educational systems and outcomes are a major concern in most countries. Our study provides *some insight* into potential points of departure for addressing inequality in access to and quality of education in the Indonesian context. This study corroborates results of previous studies, according to which difference in resources affects variations in educational outcomes (see e.g. Suharti, 2013; Suryadarma, 2010; Newhouse & Beegle, 2006). Our results provide at least two important new understandings of practical relevance.

Firstly, the strong positive effects of household wealth and parents' educational level suggest that deficiencies in financial and human capital keep children out of school. Therefore, one could consider the use of direct financial support as well as other direct interventions, to help children living in poor households, in particular female-headed households. Government interventions may need to shift gradually from providing institutional support at the national or regional level to lower level institutions, such as municipalities and schools, or even directly to households and children, or to apply solutions at both institutional and individual levels simultaneously.

Secondly, it has long been contended that allocating resources to public education expenditures, such as teachers, classrooms, materials and others, is an important instrument to reduce inequality in educational outcomes (see e.g. Zhang & Kanbur, 2003; Sylwester, 2002). In addition to public education investments, our findings suggest that

social capital can contribute to improve preschool participation and reduce unequal access to education. Therefore, common policy interventions to remedy inequality by removing school fees for compulsory education, increasing government investments, providing incentives for low-income and underprivileged groups, and supporting education quality and efficiency (UNESCO, 2009), can benefit from incorporating social capital as an additional resource in both household and community levels.

Thirdly, given that this dissertation mainly focused on the decentralized education system in Indonesia, its results tap into debates about how to define the role of the central, provincial, and municipal levels in handling educational service delivery with the aim of reducing regional discrepancies. Our study shows that government attention, from a national perspective, seems especially needed to improve schooling in rural areas and less developed municipalities.

Lastly, our results indicate that government attempts to improve Islamic private schools (since they perform less well than public schools) can best be focused on the Traditionalist and Modernist streams. Both streams predominantly serve children from low SES parents, and are thus associated with limited parental resources, leading in turn to inadequate school incomes. In addition, the presence of Modernist schools in all provinces and almost all municipalities indicates that they reach diverse groups of students across the country, including remote areas where public schools do not exist. Therefore, improving the quality of Modernist and Traditionalist schools could lead to improved quality of learning for underprivileged and underserved students.

Overall, we found that municipal-level variation in educational inequality increased after decentralization. This suggests that policy makers need to realize that a “one size fits all policy” is difficult to apply in such diverse contexts. Consequently, it is recommended that policy makers, before implementing new policies and measures, take their time to carefully consider the contextual conditions in which these policies might work well and less well.

