AN UNFAIR START
HOW UNEQUAL OPPORTUNITIES AFFECT INDONESIA’S CHILDREN
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<tr>
<td><strong>CONEVAL</strong></td>
<td>Consejo nacional de evaluacion de la politica de desarrollo social (national council for the evaluation of social development policy)</td>
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<tr>
<td>desa</td>
<td>Village</td>
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<td>DKI</td>
<td>Daerah Khusus Ibukota (special capital region)</td>
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<td>ECED</td>
<td>Early childhood education</td>
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<tr>
<td>FHH</td>
<td>Female-headed household</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GFC</td>
<td>Global Financial Crisis</td>
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<td>HDI</td>
<td>Human Development Index</td>
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<td>HOH</td>
<td>Head Of Household</td>
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<td>HOI</td>
<td>Human Opportunity Index</td>
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<td>IFLS</td>
<td>Indonesian Family Life Survey</td>
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<tr>
<td>Jamkesmas</td>
<td>Jaminan kesehatan masyarakat (social health insurance)</td>
</tr>
<tr>
<td>kabupaten</td>
<td>Regency</td>
</tr>
<tr>
<td>kelurahan</td>
<td>Urban ward</td>
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<tr>
<td>KIP</td>
<td>Kartu Indonesia Pintar (Indonesia Smart Card)</td>
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<tr>
<td>KM</td>
<td>Kilometer</td>
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<tr>
<td>Kotamadya</td>
<td>Township</td>
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<td><strong>TERM</strong></td>
<td><strong>DEFINITION</strong></td>
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<tr>
<td>MHH</td>
<td>Male-headed household</td>
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<tr>
<td>MPI</td>
<td>Multidimensional poverty index</td>
</tr>
<tr>
<td>PKH</td>
<td>Program Keluarga Harapan (Family Hope Program)</td>
</tr>
<tr>
<td>PLN</td>
<td>Perusahaan Listrik Negara (State Electricity Company)</td>
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<tr>
<td>Podes</td>
<td>Sensus potensi desa (village potential census)</td>
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<tr>
<td>Q1</td>
<td>Poorest 20% of the population</td>
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<td>Q2</td>
<td>Second-poorest 20% of the population</td>
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<tr>
<td>Q3</td>
<td>Middle 20% of the population</td>
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<td>Q4</td>
<td>Second-richest 20% of the population</td>
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<tr>
<td>Q5</td>
<td>Richest 20% of the population</td>
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<tr>
<td>SD</td>
<td>Sekolah Dasar (primary school)</td>
</tr>
<tr>
<td>SMA</td>
<td>Sekolah Menengah Atas (senior secondary school)</td>
</tr>
<tr>
<td>SMP</td>
<td>Sekolah Menengah Pertama (junior secondary school)</td>
</tr>
<tr>
<td>Susenas</td>
<td>Survey Sosial Ekonomi Nasional (National Socioeconomic Survey)</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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Despite rapid economic growth, inequality is increasing in Indonesia. After recovering from the Asian financial crisis in 1997/98, Indonesia’s real GDP per capita grew at an annual average of 5.4 percent between 2000 and 2014. This robust rate of growth helped to halve the poverty rate from 23.4 percent during the crisis down to 11.2 percent by 2015. However, between 2003 and 2010, consumption per person for the richest 10 percent of Indonesians grew at over 6 percent per year after adjusting for inflation, while for the poorest 40 percent it grew by less than 2 percent per year. This disparity in consumption between different income levels has, in turn, given rise to a sharp increase in the Gini coefficient over the past 15 years, increasing from 30 in 2000 to 41 in 2013.

Inequality of opportunity, when not everyone has access to the same opportunities in life, accounts for one-third of all consumption inequality. Access to opportunities—such as adequate health facilities and good quality schools—impact whether children are able to cognitively and physically develop, which in turn affects whether they can acquire the skills needed to find well-paying jobs. Thus, inequality experienced at birth perpetuates inequality in later life.
THE MOST APPARENT CONTRIBUTOR TO INEQUALITY OF OPPORTUNITY IS GEOGRAPHY: EASTERN INDONESIA LAGS BEHIND THE REST OF THE COUNTRY IN ALMOST ALL HEALTH AND EDUCATION INDICATORS. People living in eastern Indonesia, particularly in Maluku and Papua, have much more difficulty accessing primary health care, hospitals, and skilled delivery services, and even those who can access public health centers (Puskesmas) are unlikely to find ones with proper facilities. Schools in Maluku and Papua are further away from homes, less likely to have access to electricity or proper sanitation facilities, and less likely to have high quality teachers. Papua is the only region without universal access to primary school (SD), with 20 percent of households having to travel over 1km to the nearest village with a primary school. Thus, children who are born and grow up in eastern Indonesia start life with a huge disadvantage compared with those in the rest of the country.

HOWEVER, EVEN WITHIN REGIONS, DIFFERENCES IN ACCESS TO OPPORTUNITIES BETWEEN URBAN AND RURAL AREAS ARE APPARENT. While not as jarring as the differences between regions, urban-rural differences in access to opportunities also exist within regions, especially in terms of the quality of available facilities. For example, although both urban and rural households have close to universal access to primary schools, rural children are more likely to find their schools without electricity or running water. Another example is that rural households are mostly (95 percent) able to access primary health care facilities, such as polyclinics or Puskesmas, but only 70 percent are able to access hospitals.

THE EDUCATION LEVEL AND INCOME OF THE HOUSEHOLD HEAD MATTER SOMewhat IN DETERMINING A CHILD’S ACCESS TO OPPORTUNITIES, BUT THE GENDER OF THE HOUSEHOLD HEAD DOES NOT. As parents become richer and better educated, their children are more likely to have access to higher quality health and education services. There are also improvements in intermediary outcomes such as stunting and educational test scores. However, there are no significant differences in access or outcomes between male- and female-headed households.

A MULTI-PRONGED APPROACH IS NECESSARY TO TACKLE INEQUALITY OF OPPORTUNITY. These findings show that there is much to be gained from improving the quality of health and education facilities in eastern and rural Indonesia, as well as building roads to get to them. In addition, strengthening social protection programs such as conditional cash transfers and education subsidies would help to improve access to opportunities for the poor and vulnerable.
1. WHY DOES INEQUALITY OF OPPORTUNITY MATTER?

INEQUALITY IN INDONESIA IS RISING RAPIDLY.

By most measures, inequality in Indonesia has reached historically high levels. In 2002, the richest 10 percent of Indonesians consumed as much as the poorest 42 percent combined; by 2014, they consumed as much the poorest 54 percent. A popular measure of inequality is the Gini coefficient, where 0 equates to complete equality and 100 represents complete inequality. During the Asian financial crisis in 1997/98, poverty rose sharply while the Gini fell; everyone was affected, but the richest were hit the hardest. However, since then the Gini has increased from 30 points in 2000 to 41 points in 2014, its highest recorded level in Indonesia (Figure 1). Even this record level is likely to be underestimated, however, because household surveys tend to miss out the richest households. Once relatively moderate by international standards, Indonesia’s level of inequality is now becoming high and increasing at a faster pace than most of its East Asian neighbors (Figure 2).1

After a long period of stability, the Gini began rising, then fell with the Asian financial crisis, before rising sharply since the recovery.

Gini coefficient (points) and national poverty rate (percent) 1980–2014 (fig.1)

SOURCE BPS, Susenas and World Bank calculations
NOTE Nominal consumption Gini. The national poverty line was changed in 1998, and the 1996 rate calculated under both the new and old methodologies.

1 The report Indonesia’s Rising Divide: Why inequality is rising, why it matters and what can be done (World Bank 2015a) provides a detailed diagnosis on the trends and drivers of inequality in Indonesia.
The increase in the Gini in Indonesia over the past two decades is one of the highest in the region.

Gini coefficient in East Asia 1990s & 2000s (fig.2)


WHY DOES INEQUALITY OF OPPORTUNITY MATTER?

Income inequality is not always a bad thing; it can provide rewards for those who work hard and take risks. Hard work and innovation benefit society by creating new goods and services that everyone can enjoy, as well as contributing to a larger economy. This, in turn, can present the Government with a greater ability to provide public services to all. If this results in a gap between those who work hard, take risks and innovate, and those who work less hard, then some income inequality may be justified and even desirable. Indeed, many Indonesians share this view. When asked in a 2014 survey whether inequality is ever acceptable, 74 percent of respondents say that “inequality is sometimes acceptable” so long as wealth acquisition is fair and meritocratic.²

However, inequality is unfair when it is due to factors that are beyond the control of individuals. There are many forms of inequality: economic inequalities of income, wealth and consumption, and inequalities of opportunity, when not everyone has access to the same opportunities in life. Factors beyond the control of an individual—where you are born, how educated or wealthy your parents are, and what access to public services you had when you were growing up—can have a major influence on how your life turns out. Getting a healthy start in life and a quality education are fundamental prerequisites for getting a good job and earning a decent living in adulthood. When economic inequality arises because of inequality of opportunity, when not everyone has a fair start in life, it is unfair. Other factors outside an individual’s control that can affect incomes, standards of living and inequality include government policies, such as food import restrictions that increase the cost of living most for the poor, or patterns of government taxes and spending that fail to collect and channel sufficient resources to help the poor and vulnerable, or those without equal access to services.

Some consumption inequality is due to four circumstances of birth or factors that are beyond the control of the individual, of which the most important is parents’ education. Four circumstances are examined: (i) province of birth, (ii) whether the individual was born in urban/rural areas, (iii) the gender of the head of the household, and (iv) the parents’ level of education. Figure 3 shows how much of current consumption inequality is due to differences between groups for each of these circumstances. For example, the difference in average per capita consumption between those born in an urban district (kotamadya) and those in a mixed urban-rural district (kabupaten) account for 9 percent of differences in all households’ per capita consumption (between-group difference). The other 91 percent of inequality is due to differences within each group; that is, differences in consumption within households living in kotamadya and differences in consumption within households living in kabupaten (within-group difference).

² For more exploration of public perceptions of and attitudes to inequality, see A Perceived Divide: How Indonesians perceive inequality and what they want done about it (World Bank 2015b).
ONE-THIRD OF ALL CONSUMPTION INEQUALITY IS DUE TO JUST THESE FOUR CIRCUMSTANCES OF BIRTH CONSIDERED ALTOGETHER. That between-group differences of these four circumstances when taken together can explain at least one-third of consumption inequality. Two-thirds of consumption inequality is due to within-group differences, which may include other birth and early childhood circumstances, as well as aspects related to an individual’s characteristics, such as hard work, or random things such as luck.

Role of individual birth circumstances in explaining consumption inequality (fig.3)

Role of combined birth circumstances in explaining consumption inequality (fig.4)

THE ROLE OF CIRCUMSTANCES HAS RECENTLY BEEN INCREASING. When the four aforementioned circumstances are disaggregated by the year in which the household head was born, it is evident that those children with a household head born between 1968 and 1977, or in other words children whose household head is currently aged between 47 and 38 years old, faced lower levels of inequality of opportunity due to the four circumstances already mentioned.

CONTRIBUTION OF INEQUALITY OF OPPORTUNITY OVER TIME (FIG.5)

NOTE Decomposition of Theil I (GE(0)) Index into within and between group differences. Birth circumstances are: parents’ education, region of birth and urban birth.

2 So the first group is males born in urban Aceh to parents with no education; the second group is females born in urban Aceh to parents with no education; the third group is males born in rural Aceh to parents with no education; and so forth.
WITH AN INCREASING EMPHASIS ON SKILLS IN THE MODERN ECONOMY, THOSE WITHOUT THE NECESSARY SKILLS ARE LEFT BEHIND. The wages for high-skilled jobs are far higher than those for low-skilled jobs. At the same time, those without the necessary skills to get good jobs are finding themselves trapped in informal or low-productivity jobs. Both of these factors are contributing in turn toward increases in wage inequality.

INEQUALITIES IN FINANCIAL WEALTH ALSO DRIVE DIFFERENCES IN INCOME. Inequalities in financial wealth can drive inequality in income today through high returns. Meanwhile, inequalities in financial wealth can drive inequality in income tomorrow through the transmission of greater human and financial capital to the next generation.

SHOCKS CAN AFFECT INEQUALITY AT ANY STAGE OF THE FRAMEWORK BY ERODING A HOUSEHOLD’S ABILITY TO EARN AN INCOME, SAVE, AND INVEST IN HEALTH AND EDUCATION. Food price volatility plays a crucial role, especially when poor households spend a majority of their income on consumption for food. Shocks due to non-communicable diseases are also a cause of vulnerability as these affect an individual’s ability to work and at the same time may also place an additional cost burden on the household. Furthermore, since the poor tend to work in the agriculture sector, extreme weather changes caused by climate change can negatively affect crop production.
POVERTY IS A MULTIDIMENSIONAL PHENOMENON SUCH THAT THE ANALYSIS OF INEQUALITY OF OPPORTUNITY MUST CONSIDER DIMENSIONS OTHER THAN JUST INCOME AND/OR CONSUMPTION. There is a general consensus in the literature on poverty that perceives it as a multidimensional phenomenon. Consumption poverty is typically associated with deprivations in other dimensions, such as health, education, housing infrastructure, and so on. A multidimensional approach toward poverty analysis therefore examines each of these different dimensions of poverty.

THE DISCUSSION ON MULTIDIMENSIONAL POVERTY ANALYSIS HAS EXTENDED BEYOND ACADEMICS, AND DEVELOPED INTO A BROADER POLICY DEBATE TO THE EXTENT THAT SOME COUNTRIES HAVE CHOSEN TO ADOPT A MULTIDIMENSIONAL APPROACH IN ANALYZING POVERTY. Mexico’s National Council for the Evaluation of Social Policy (COEVAL) has taken pride in making Mexico the first country to adopt a multidimensional index as the country’s official poverty measure. This means that poverty in Mexico is no longer narrowly defined on economic grounds alone, but also takes full account of crucial social components of poverty, such as the quality of housing and access to health care, education and food, which are all too often neglected by established poverty measures.4

THE THEORETICAL LITERATURE ON EQUALITY OF OPPORTUNITY HAS GROWN OVER THE PAST TWO DECADES, BEGINNING WITH THE CONCEPT OF ‘CAPABILITIES’. The theoretical literature on equality of opportunity has evolved out of assessments of the political philosophy in the late 1980s such as the works of Rawls (1971) and Arneson (1989). Sen’s capability approach (Sen 1976) differs from previous utilitarian evaluations (more generally, the ‘welfarist’ evaluation) in that he makes room for a variety of human acts and states as important in themselves (not just because they may produce utility, nor just to the extent that they yield utility). It also makes room for valuing various freedoms—in the form of ‘capabilities’. The capability approach is based on a view of living as a combination of various ‘doings and beings’, with quality of life being assessed in terms of the capability to achieve valuable functionings. The key challenge in utilizing Sen’s approach is in selecting a class of functionings in the description and appraisal of capabilities. The focus has to be related to the underlying concerns and values, in terms of which some definable functionings may be important and others quite trivial and negligible.

EQUALITY OF OPPORTUNITY MEANS THAT ALL PEOPLE SHOULD HAVE THE CHANCE TO DEVELOP EACH CAPABILITY. Roemer (1998) writes that there are two guiding principles in the pursuit of equality of opportunity. The first principle is for societies to “level the playing field” so that individuals have an equal chance of obtaining success. An example would be to provide subsidized education for individuals from disadvantaged backgrounds. The second principle is that of nondiscrimination in the light of competition. This means that individuals who possess the attributes relevant for the performance of the duties of a position should be included in the pool of eligible candidates, and those who obtain the position are determined by who has

See the Oxford Poverty and Human Development Initiative link in the references.
the best attributes relevant to that position. An example of this would be that in selecting an individual’s eligibility for a position race or sex become irrelevant, as the most important issue is whether the individual is able to fulfill the duties that come with the position. In short, before the competition starts, opportunities must be equalized by social intervention if need be; but after it begins, individuals are judged based on their own performance.

Similarly, Arneson (2015) argues that equality of opportunity is a political ideal that is opposed to caste hierarchy, but not to hierarchy per se. Arneson explains that in a caste society the assignment of individuals to places in the social hierarchy is fixed by birth. In contrast, when equality of opportunity prevails, the assignment of individuals to a position in the social hierarchy is determined by some form of competitive process, and all members of society are eligible to compete on equal terms.

Recently, researchers have focused on the empirical estimations of measures of inequality of opportunity. A few prominent approaches include the Human Opportunity Index (HOI) and the Multidimensional Poverty Index (MPI), each of which are analyzed in detail below. Subsequently, this paper explores other ways in which inequality of opportunity can be examined.

1. THE HUMAN OPPORTUNITY INDEX (HOI)

The Human Opportunity Index (HOI) was first developed based on the social welfare function proposed by Sen, which allows difference weights to be placed on the outcomes of different individuals (Sen 1976). Barros et al. (2009) then applied Sen’s framework and proposed a Human Opportunity Index which provided estimations for Latin America. Their HOI aims to measure the absolute level of basic opportunities in a society and how equitably those opportunities are distributed within society. The index essentially incorporates these measures into one single composite indicator.

The HOI summarizes in a single composite indicator: (i) how many opportunities are available, that is, the coverage rate of a basic service; and (ii) how equitably those opportunities are distributed, that is, whether the distribution of that coverage is related to exogenous circumstances. The first component of the index—the average coverage rate for a given basic opportunity—can be readily determined using household survey data. The second component—the equity of opportunity distribution—requires a more involved calculation.

Progress in the HOI can occur by: (i) increases in average access (p”), and (ii) increases in the equality of opportunity (1–D) of the existing opportunities.

The World Bank report on inequality of opportunities in Latin America and the Caribbean (Barros, et al. 2009) asks how much influence personal circumstances have on children’s access to the basic services that are necessary for a productive life. For example, is a girl’s probability of having access to clean water (a nutritional must), or piped sewage (a health shield), or electricity (a necessity for reading), or completion of the sixth grade (a predictor of higher education) in any way affected by her race, her mother’s literacy, or her father’s salary? As the answers are aggregated across services, children, and circumstances, a picture arises of how equitable (or not) a society is.

Utilizing data from the 19 largest Latin American countries covering around 200 million children and spanning roughly the past decade, a Human Opportunity Index is constructed for each of these 19 countries. The report finds that about one-quarter (Colombia) and half (Guatemala) of the income inequality that is observed among adults in Latin America is due to the circumstances they faced when they started out in life—at the very outset, through no fault of their own. The report also finds that the most powerful circumstances are the mother’s education and father’s income.

The HOI focuses on the coverage and inequality of opportunities among children for three main reasons. First, from an empirical standpoint, using children as a unit of analysis makes it possible to analyze how the different circumstances they are born in to affect their later achievements, as children (unlike adults) cannot be expected to make the efforts needed to access these basic goods by themselves. Second, from a policy standpoint, evidence indicates that interventions to equalize opportunities early in the lifecycle of an individual are significantly more cost effective and successful than interventions later in life. Third, focusing on children helps to put inequality of opportunity at the very center of the policy debate. On the day of their birth, children cannot be held responsible for their family circumstances (Barros et al. 2009).

The HOI aims to provide an ex ante evaluation of how likely it is that children will do well. The HOI can be used to track a country’s progress toward the goal of providing all children with equal access to these basic opportunities, simultaneously tracking both the overall coverage and the equity of their distribution. The HOI can therefore serve as a tool to help guide public policies aimed at equalizing opportunity.
2. THE MULTIDIMENSIONAL POVERTY INDEX (MPI)

The Multidimensional Poverty Index (MPI) was published for the first time in the United Nations Human Development 2010 Report. The MPI complements monetary measures of poverty by considering overlapping deprivations suffered by people at the same time. The index identifies deprivations across the same three dimensions as the HDI and shows the number of people who are multidimensionally poor (suffering deprivations in 33 percent of weighted indicators) and the number of deprivations that poor households typically contend with. It can be deconstructed by region, ethnicity and other groupings, as well as by dimension, making it an apt tool for policymakers.

According to UNDP, more than 1.5 billion people, or one-third of the people in the 91 countries covered by the MPI, live in multidimensional poverty. That means, they live with at least 33 percent of the indicators reflecting acute deprivation in health, education and standards of living. This exceeds the estimated 1.2 billion people in those countries who live on common international poverty measure of $1.25 a day or less.5 In addition, close to 800 million people are vulnerable to falling into poverty if setbacks occur—financial, natural or otherwise.

Sumarto and De Silva (2014) follow Alkire and Foster (2007; 2011) and make use of the National Socioeconomic Survey (Susenas) data from Indonesia to explore whether these multidimensionally deprived households are necessarily income poor or not. Sumarto and De Silva (2014) conclude that the overlap between consumption poverty and multidimensional poverty is extremely weak. Consequently, their findings broaden the targeting space for poverty reduction, suggesting that poverty reduction programs should provide different kinds of assistance to the poor in different dimensions of poverty.

Alkire and Foster (2011) and Maasoumi and Lugo (2008) have proposed scalar indices that seek to combine, in a single number, information from those various dimensions. One advantage of using a single number is that it makes comparison across countries, regions or individuals, more feasible. However, one key limitation in the use of multidimensional indices is that it requires the use of relative weights for each dimension, which are chosen arbitrarily.

The key criticism of multidimensional poverty indices arises from the fact that the weights used to aggregate across dimensions lack the intrinsic meaning associated with prices, which are used to add the components of consumption expenditure (or, implicitly, its dual, the incomes used to finance consumption). Under the law of one price, and given relatively weak assumptions on preferences, relative prices are equal to the rate at which consumers themselves—regardless of their income levels and allowing for different utility functions—are willing to trade one such component (e.g., bread) for another (e.g., a bicycle).

Ravallion (2011) suggests a dashboard approach where the focus is on developing the best possible distinct measures of the various dimensions of poverty and a credible set of ‘multiple indices’ rather than a single ‘multidimensional index’. By utilizing a dashboard approach, it is possible to evaluate the importance of each dimension without making any arbitrary decisions. However, a key challenge in the use of the dashboard approach is that it does not look at the interactions across different dimensions. Children who are deprived on one dimension are not necessarily the same children as those who are deprived on another dimension (Hadiwidjaja, et al. 2013).

Ferreira and Lugo (2012) propose three methodological alternatives to the false dichotomy between scalar indices of multidimensional poverty on the one hand, and a “dashboard” approach that looks only at marginal distributions on the other. They argue that such a dichotomous view misses the point and suggest that the analysis should examine the interdependence between dimensions. These alternatives include simple Venn diagrams of the overlap of deprivations across dimensions; this can be termed the “associative” approach. The second alternative is the use of multivariate stochastic dominance analysis, which permits partial orderings across joint distributions that are robust not only to poverty lines and welfare weights (as in the unidimensional case) but also to dimension weights. The third alternative is the analysis of copula functions to capture the extent of interdependency across dimensions. Ferreira and Lugo (2012) highlight the importance of examining the joint distribution between different achievements (or deprivations) so that just how closely related different achievements (or deprivations) are can be easily identified for the purposes of policymaking.

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5 US$1.25, but adjusted for differences in purchasing power in different countries.
3. WHICH INEQUALITIES OF OPPORTUNITY MATTER MOST IN INDONESIA?

TO EXAMINE THE DIFFERENT COMPONENTS THAT AFFECT INEQUALITY, THIS PAPER ADOPTS THE DASHBOARD APPROACH AND THE ASSOCIATION METHOD TO EXAMINE HOW BIRTH CIRCUMSTANCES AFFECT CHILDREN’S OPPORTUNITIES. The circumstances at birth examined are: (i) which region in Indonesia the individual was born; (ii) whether the individual was born in a rural or urban area; (iii) the income level of the household; (iv) the education level of the individual’s parents; and (v) the gender of the head of the household. This section analyzes how these five circumstances affect a child’s access to education, health, and transportation services, and how that access in turn can affect the trend of inequality.

3.1 EDUCATION

PARENTS’ EDUCATIONAL CIRCUMSTANCES AND CONSUMPTION EXPENDITURE ARE BECOMING LESS RELEVANT TO THEIR CHILDREN’S EDUCATIONAL ATTAINMENT. Looking at enrollment of 13- to 15-year-olds by parents’ educational attainment, it is evident that over the years the enrollment gap between children with parents’ with higher levels of education and those with lower levels of education is narrowing. This is mainly because children whose parents have no education or only primary education are catching up with those children whose parents have higher levels of education. In 2013, more than 80 percent of 13- to 15-year-olds whose parents have no education were enrolled in school. Similarly, looking at 13- to 15-year-olds’ enrollment by parents’ quintile, this also suggests the same patterns of convergence. The enrollment of 13- to 15-year-olds from the lowest quintile in 2004 used to be less than 70 percent, while in 2013 the enrollment was more than 80 percent. This shows that enrollment has increased significantly even within a generation. This suggests that if the older child was unable to enroll in junior high school, the younger child has a higher chance of enrolling. Therefore, the trends reveal that mobility in educational attainment persists in a positive way in that more children are enrolling despite their parents’ educational background and welfare status.

* In this case, urban means an urban ward (kelurahan) and rural means a village (desa).
* We look at five birth circumstances here, adding the household per capita consumption decile, which is known for children (which we analyze in this section), but not for adults (which we analyzed previously).
With respect to enrollment in higher levels of education, parents’ educational circumstances still have an effect but this is becoming less relevant in determining the educational attainment of today’s adults. Adults are more likely to have higher levels of education than their parents. Adults between the ages of 44 and 53 whose parents have no education are 1 percent more likely to have a primary education, 12 percent more likely to have a junior secondary education, and 7 percent more likely to have a senior secondary education compared with the baseline (adults aged 54 to 63). Younger adults (between the ages of 34 and 43) whose parents have no education are 15 percent more likely to have a primary education, 13 percent more likely to have a junior secondary education, and 10 percent more likely to have a senior secondary education compared with the baseline (adults aged 54 to 63). Therefore, it is evident that even within one generation, people are more likely to have higher educational attainments than their parents and their older peers.

Children’s attainment probability relative to the baseline (fig.7)

WITH RESPECT TO ENROLLMENT IN HIGHER LEVELS OF EDUCATION, PARENTS’ EDUCATIONAL CIRCUMSTANCES STILL HAVE AN EFFECT BUT THIS IS BECOMING LESS RELEVANT IN DETERMINING THE EDUCATIONAL ATTAINMENT OF TODAY’S ADULTS. Adults are more likely to have higher levels of education than their parents. Adults between the ages of 44 and 53 whose parents have no education are 1 percent more likely to have a primary education, 12 percent more likely to have a junior secondary education, and 7 percent more likely to have a senior secondary education compared with the baseline (adults aged 54 to 63). Younger adults (between the ages of 34 and 43) whose parents have no education are 15 percent more likely to have a primary education, 13 percent more likely to have a junior secondary education, and 10 percent more likely to have a senior secondary education compared with the baseline (adults aged 54 to 63). Therefore, it is evident that even within one generation, people are more likely to have higher educational attainments than their parents and their older peers.

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DESPITE THIS TREND, HIGHER EDUCATIONAL ATTAINMENT HAS TRANSLATED ONLY MODERATELY INTO HIGHER INCOMES, ESPECIALLY FOR YOUNGER ADULT GROUPS WHOSE PARENTS HAVE NO EDUCATION. Adults in the bottom quintile between the ages of 44 and 53 whose parents have no education are only 1 percent more likely to have a higher income than the baseline (those aged between 54 and 63). Meanwhile, younger adults (between the ages of 34 and 43) from the bottom quintile are 2 percent less likely to have a higher income than the baseline. This means that even though parents’ education has only a small influence over their children’s educational attainment, these children (the adults of today) still face difficulties in obtaining a higher income status. Figure 8 also shows that, compared with adults from an older age group, adults from the younger age group with better-educated parents are more likely to have a higher income.

Adult income quintile probability relative to the baseline: (fig.8)

THE LINK BETWEEN INCREASES IN EDUCATIONAL ATTAINMENT AND INCREASES IN INCOME MAY BE WEAK AND COULD BE DUE TO INEQUALITY IN CIRCUMSTANCES AT BIRTH. Even though more children are enrolled in school and educational attainment is increasing, the quality of education may still be inadequate. Good quality education starts with good schools, but these may only be located in cities and urban areas. Therefore, a child’s circumstances at birth in terms of where he/she was born will affect where and what kind of school he/she attends. Lastly, even if children successfully enroll, this does not necessarily mean that they are able to do well in cognitive/national examinations and/or in their subsequent performance in the labor market.

SOME CHILDREN GET A HEAD START BY HAVING ACCESS TO EARLY CHILDHOOD EDUCATION (ECED) CENTERS THAT HELP THEM DEVELOP “SCHOOL READINESS”. However, those who live in rural areas are often left behind. More than 50 percent of children in Papua do not have access to ECED centers compared with just 2 percent of children living in Java/Bali. A World Bank evaluation of the ECED program finds that children who participated in an ECED program have higher levels of school readiness at the age of six than their peers who did not participate (World Bank, 2013). Thus, children who have access to an ECED center will have an advantage later on compared with those who do not have such access.

ACCESS TO SCHOOLS AT THE PRIMARY SCHOOL LEVEL IS ALMOST UNIVERSAL, WITH THE EXCEPTION OF PAPUA. In almost all parts of Indonesia there is a school within 1km of every village. However, the situation is very different in Papua, where 20 percent...
of households have no primary school within 1km of their village, and 13 percent of households have no primary school within even 6km of their village.

**Junior Secondary Level Schools Are Harder to Reach Than Primary Schools.** On average in Indonesia, 25 percent of households do not have access to a junior secondary school within 1km of their home. However, only 3.6 percent do not have access to a junior secondary school within 6km of their home. Once again, in Papua more than 25 percent of households do not even have access to junior secondary schools within 6km of their home.

**Access to different education institutions (fig.9)**

- a) Without access to ECED
- b) Without access to SD
- c) Without access to SMP

**SOURCE** Susenas 2011 and Podes 2011. **NOTE** MHH are male-headed households, FHH are female-headed households. Without access to ECED and within 1km of village. Results very similar when considering access within 6km of village.
ALTHOUGH GAPS IN ACCESS TO SCHOOLS MAY BE CLOSING OVER TIME, THERE IS A NEED TO IMPROVE THE QUALITY OF EDUCATION IN ORDER TO REDUCE INEQUALITY. Not all schools in Indonesia have full accreditation and some schools may not even meet the minimum service standards. As a consequence, not all children have access to good schools and are therefore at a disadvantage to those who do. What constitutes a good school is somewhat vague. However, it can be defined in terms of the educational attainment of the teachers, the availability of electricity and water in the bathroom, and the availability of a laboratory.

TEACHER COMPETENCY PLAYS A KEY ROLE IN ENSURING GOOD QUALITY EDUCATION, SO THOSE WHO DO HAVE ACCESS TO GOOD TEACHERS WILL BENEFIT MORE FROM THEIR EDUCATION THAN THOSE WHO DO NOT. A teacher’s educational attainment can be used as a rough proxy of their quality. About 16 percent of children attending primary school in rural areas do not have access to at least two teachers with an undergraduate degree (S1 degree) compared with just 1 percent of children in urban areas. Moreover, looking at the per capita consumption deciles, it is evident that children in the lower per capita consumption deciles are more likely to have less qualified teachers. This has policy implications as the Government will need to provide better qualified teachers with additional incentives to teach in rural areas. Alternatively, the Government may also need to create specific programs to provide teachers who teach in rural areas with an opportunity to upgrade their qualifications.

LACK OF ACCESS TO ELECTRICITY IN SCHOOLS IS STILL A PROBLEM IN RURAL PARTS OF INDONESIA. On average, more than 10 percent of schools in Indonesia do not have access to electricity and most are located in Papua. In fact, more than one in three schools in Papua does not have electricity. The lack of electricity in a school poses major problems, resulting in a lack of good lighting and the inability to use multimedia equipment such as the use of overhead projectors and computers. This means that lessons are delivered less effectively than in schools that are able to use technology and various multimedia equipment.
**Percentage of children without access to a primary and junior secondary school with electricity (fig.11)**

a) By urban/rural, female/male-headed households, and island

![Bar chart showing percentage of children without access to electricity by location and household type.]

**SOURCE** Susenas 2011 and Podes 2011.

**NOTE** MHH are male-headed households, FHH are female-headed households.

**ACCESS TO WATER IN SCHOOL BATHROOMS IS STILL A CHALLENGE IN INDONESIA WITH THE RESULT THAT STUDENTS ARE MORE SUSCEPTIBLE TO DISEASE.** On average, 18 percent of schools in Indonesia do not have running water in their bathrooms. Some regions, such as Maluku and Papua, have double the level of schools without water in their bathrooms compared with Java and Bali. UNICEF (2005) contends that the lack of clean water and sanitation in schools jeopardizes the quality education, as clean water and sanitation are both essential to protect children’s health and their ability to learn at school. In this sense, they are as vital as textbooks to a child’s education. No water in bathrooms means that students do not wash their hands after they have been to the toilet, or wash their hands before they eat. This is highly unsanitary and increases the potential for the spread of diseases such as diarrhea and typhoid.

**Percentage of children without access to a primary and junior secondary school without water in bathroom (fig.12)**

a) By urban/rural, female/male-headed households, and island

![Bar chart showing percentage of children without access to running water by location and household type.]

**SOURCE** Susenas 2011 and Podes 2011.

**NOTE** MHH are male-headed households, FHH are female-headed households.
Lack of access to laboratories in junior secondary school means that Indonesian students have less advantage in science-based subjects. Access to science laboratories in schools is important in ensuring that students are not only learning theories, but also exposed to practical work. On average, 70 percent of junior secondary schools in Indonesia do not have access to a laboratory. Urban and rural differences and differences across a region are only 10 percent at most. This is worrying as it means that most Indonesian students do not have the facilities to enable them to do well in science. In fact, Indonesia's OECD Pisa 2012 and 2015 results reveal that 15-year-old students in Indonesia (or those who are expected to be in the last grade of junior secondary school) score badly in science compared with other countries in the region.

Even if there is access to schools, this does not necessarily mean that every child is enrolled. While most households do have primary schools in their village, nonetheless on average 2.5 percent of children fail to enroll in primary school (Figure 9b and Figure 14a). Therefore, the challenges in enrollment may go beyond supply constraints. Furthermore, household per capita consumption also reveals that children from households with higher per capita consumption are more likely to be enrolled than those who come from households with lower per capita consumption. This further points toward demand-based constraints.

Percentage of children aged 7-12 years who are not enrolled (fig.14)

NOTE MHH are male-headed households, FHH are female-headed households. Data not available for Maluku and Papua in 2002.
EVEN IF THERE IS A GOOD SCHOOL NEARBY AND CHILDREN ARE ENROLLED, CIRCUMSTANCES AT BIRTH MAY STILL PREVENT STUDENTS FROM ACQUIRING THE NECESSARY SKILLS. One example of such adverse circumstances at birth is stunting. Children with parents who have lower levels of education are more likely to be stunted. Meanwhile, there is strong evidence of the links between stunting and cognitive ability (Mendez and Adair 1999; Levitsky and Strupp 1995). The likelihood of a child whose parents have less than a primary level of education experiencing stunting is 38 percent compared with 27 percent for those children who have at least one parent with a senior secondary level of education.

There is also evidence that circumstances at birth, such as parents’ education and consumption expenditure, have an effect on cognitive achievements. Children whose parents have lower levels of education are more likely to have the bottom score and less likely to score higher in cognitive tests than children whose parents have higher levels of education. However, differences are even more dramatic if scores are disaggregated by parents’ income. Looking at differences in scores in relation to parents’ income, it appears that 40 percent of children in the bottom quintile are more likely to have the bottom score and only 14 percent are likely to have the top score. In sharp contrast, 19 percent of children in the highest quintile are more likely to have the bottom score, while 26 percent are likely to have the top score. All in all, parents’ income and educational attainment seem to have an impact on children’s cognitive scores. This may be due to several factors, for instance, parents with higher incomes can afford additional lessons outside school that improve their children’s ability, or if the parents have higher levels of education they are able to tutor their children.

Cognitive score probability (fig.16)

a) by parents’ education

NOTE Extreme stunting as <-2 standard deviations z-score height-for-age using 2006 WHO standards.
Similarly, national examination scores also reveal that parents’ education and consumption expenditure are positively correlated with examination scores. Observing the examination scores of students aged 10-15 years of age, it is evident that students whose parents have lower levels of education have lower test scores than those who have parents with higher levels of education. Similarly, students who come from poorer households have lower test scores than those who come from households with higher levels of consumption. All this means that some children cannot gain the same advantages from schooling, even if they have access to schools.

National test scores of 10- to 15-year-olds (fig.17)

NOTE National test scores for 10- to 15-year-olds.
24

WHICH INEQUALITIES OF OPPORTUNITY MATTER MOST IN INDONESIA?

3.2 HEALTH

CIRCUMSTANCES AT BIRTH IN TERMS OF WHERE SOMEONE IS BORN HIGHLY AFFECTS ACCESS TO A MIDWIFE AND TO AN EXTENT UNSKILLED DELIVERY. People born in eastern Indonesia—namely Papua, Maluku, Nusa Tenggara, and Sulawesi—are more likely to have no midwife in their village than people born in the rest of Indonesia. Papua has the lowest access to a midwife, with 40 percent of Papuans having no access to a midwife. Correspondingly, unskilled birth deliveries are most common in rural areas. The percentage of unskilled deliveries in Maluku is the highest in the country, representing close to 60 percent of total births.

ALTHOUGH ACCESS TO A MIDWIFE IS A CHALLENGE, THIS FAILS TO EXPLAIN THE LARGE PERCENTAGE OF UNSKILLED DELIVERIES, ESPECIALLY FOR HOUSEHOLDS FROM THE POOREST DECILE. While only 10 percent of households in the poorest decile have no access to a midwife, the percentage of unskilled deliveries is significantly more than this, at over 40 percent. Similarly, for the richer deciles, having no access to a midwife only partially explains the level of unskilled birth deliveries, albeit less dramatically than in the poorest decile.

BEING POOR IS ASSOCIATED WITH UNSKILLED DELIVERIES, BUT THIS IS NOT THE ONLY EXPLANATION. More than 40 percent of households from the poorest decile have unskilled deliveries compared with around 5 percent of all households. As the household per capita consumption increases, there is a decrease in unskilled deliveries. However, of the 24 percent unskilled deliveries across Indonesia as a whole, only 5 percentage points are poor households. This points toward other reasons behind the high level of unskilled deliveries.

IN SHORT, EVEN WHEN ACCESS EXISTS AND PEOPLE ARE ECONOMICALLY SECURE, OTHER BARRIERS ALSO SEEM TO PREVENT THE USE OF HEALTH CARE SERVICES. Looking at the relationship between being poor, having no midwife in the village and unskilled delivery, only 1 percent of the population has all of these three circumstances. Interestingly, only 3 percent of the unskilled deliveries may be related to having no midwife in the village. Similarly, only 5 percent of unskilled deliveries are associated with being poor. This therefore suggests that the reasons behind the high levels of unskilled delivery may be rather more complex. For instance, unskilled deliveries may be due to the limited number of midwives compared with the number of pregnant women, which points toward a supply constraint. It could also be because people do not trust the competence of midwives, or it could be due to cultural beliefs that favor more traditional methods. Thus, the first challenge is to identify the constraints to equal opportunities where access does exist, and once these are known the second challenge is then to decide how to address these constraints.
CIRCUMSTANCES AT BIRTH IN TERMS OF PARENTS’ EDUCATIONAL ATTAINMENT PROVIDES A BETTER EXPLANATION FOR UNSKILLED DELIVERIES THAN ECONOMIC STATUS OR THE ABSENCE OF A MIDWIFE. More than one-third of unskilled deliveries are associated with parents not completing even primary education. This means that the type of intervention that is needed may require extensive socialization of the importance of skilled delivery, as well as the provision of qualified midwives. This also begs the question as to what other factors influence unskilled delivery.


diagram1: Relationship between poverty, midwives and birth (fig.19)
- 13% Poor
- 5% No midwife in village
- 24% Unskilled delivery

SOURCE Susenas and Podes, from Hadiwidjaja, Paladines and Wai-Poi (2013).
NOTE Poorest 40 means the child lives in a household that is in the poorest 40 percent of households nationally.

diagram2: Relationship between parents’ educational attainment, midwives and birth (fig.20)
- 21% Parents no SD
- 5% No midwife in village
- 24% Unskilled delivery

SOURCE Susenas and Podes, from Hadiwidjaja, Paladines and Wai-Poi (2013).
NOTE Poorest 40 means the child lives in a household that is in the poorest 40 percent of households nationally.

LOOKING AT ACCESS TO PRIMARY HEALTH CARE FOR THE WIDER POPULATION OF INDONESIA, MOST PEOPLE HAVE ACCESS TO PRIMARY HEALTH CARE, AND YET URBAN/RURAL, REGIONAL AND WEALTH GAPS STILL EXIST. People living in eastern Indonesia, especially those living in Papua, are more likely to experience difficulties in accessing primary health care. More than 25 percent of Papuans still face challenges in reaching primary health care services such as polyclinics, Puskesmas, Puskesmas Pembantu, or a physician’s practice. As expected, the poorest deciles are more likely to have difficulties in accessing primary health care than richer deciles, possibly due to the fact that rural areas mostly consist of poorer households.

Percentage of people who cannot access primary health care (fig.21)

a) By urban/rural, female/male-headed households, and island

b) By household per capita consumption decile

NOTE Share of the population that cannot easily reach facilities. Even when access exists, barriers can remain to uptake: policy needs to identify and address these barriers.
The challenges in accessing secondary health care are even greater than those in accessing primary health care, particularly in eastern Indonesia. At the national average, 3 percent of people have difficulty accessing primary health care compared with 16 percent for secondary health care. As before, eastern Indonesia has the most difficulty in accessing secondary health care. In Papua, a little over 60 percent of people have difficulty accessing hospitals, compared with 8 percent for those living in Java/Bali. This means that out of 10 people in Papua, only four have access to a hospital.

Percentage of people who cannot access hospital (fig.22)

a) By urban/rural, female/male-headed households, and island

FURTHERMORE, EVEN WHERE HEALTH CARE SERVICES DO EXIST, THEY OFTEN LACK THE FACILITIES NECESSARY TO PROVIDE PROPER SERVICES. Not all Puskesmas have a doctor, or even the most basic facilities such as running water and electricity. More than one in four Puskesmas in Maluku and one in 10 in Papua do not have a doctor, compared with the national average of one in three. One in 25 Puskesmas in Indonesia does not have access to running water. This means that water is either obtained from a well, or even possibly from an unprotected source. Meanwhile, on average in Indonesia, one in 50 Puskesmas does not have electricity, and Papua has the worst access with more than one in four Puskesmas having no access to electricity.

Percentage of people who cannot access hospital (fig.23)

a) Without a doctor

b) Without running water

c) Without electricity

NOTE MHH are male-headed households, FHH are female-headed households.
WHILE HEALTH CARE OUTCOMES ARE IMPROVING, THERE ARE OBVIOUS REGIONAL DISPARITIES WITHIN INDONESIA AND IN COMPARING INDONESIA WITH OTHER COUNTRIES IN THE REGION. On average, 4 percent of children in Indonesia have never been immunized, and the numbers are especially high for Papua with almost 18 percent of children never having been immunized. Lack of access to health care may also explain the high level of maternal mortality. In 2013, Indonesia’s maternal mortality ratio was almost four times that of Vietnam’s, a country with a lower GDP per capita than Indonesia. In Indonesia, 190 out of 100,000 mothers die in childbirth, compared with 49 in Vietnam (World Development Indicators).

WHILE CHILDREN FROM HOUSEHOLDS WITH A HIGHER PER CAPITA CONSUMPTION ARE LESS LIKELY NOT TO BE IMMUNIZED, THERE IS STILL ROOM FOR IMPROVEMENT AS SOME CHILDREN EVEN IN THE RICHEST DECILE HAVE NEVER BEEN IMMUNIZED. Almost 8 percent of children from the poorest decile compared with 1 percent of children from the richest decile have never received any form of immunization. Immunization plays a significant role in ensuring that children are protected from highly preventable diseases such as polio.

Achievements in immunization completion can be improved as the current average level is still low. Furthermore, with the exception of Papua, there are no significant differences between complete child immunization across regions, while differences in completion across welfare status are negligible. At the national average, less than 17 percent of children have complete immunization. Differences across regions are not too significant, although less than 6 percent of children under five in Papua have complete immunization. The percentage of children who have completed immunization are not dramatically different between different deciles.

Percentage of children under 5 who have never been immunized (fig. 24)

<table>
<thead>
<tr>
<th>Island/Region</th>
<th>Rural</th>
<th>Urban</th>
<th>MHH</th>
<th>FHH</th>
<th>Jawa/Bali</th>
<th>Sumatera</th>
<th>Kalimantan</th>
<th>Sulawesi</th>
<th>NT</th>
<th>Maluku</th>
<th>Papua</th>
</tr>
</thead>
<tbody>
<tr>
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<td>10</td>
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<td>20</td>
<td>15</td>
<td>10</td>
<td>5</td>
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<td>0</td>
</tr>
</tbody>
</table>

**Source**: Susenas 2011 and Podes 2011.

**Note**: MHH are male-headed households, FHH are female-headed households.

Percentage of children under five who have completed immunization (fig. 25)

<table>
<thead>
<tr>
<th>Island/Region</th>
<th>Rural</th>
<th>Urban</th>
<th>MHH</th>
<th>FHH</th>
<th>Jawa/Bali</th>
<th>Sumatera</th>
<th>Kalimantan</th>
<th>Sulawesi</th>
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<th>Papua</th>
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<tbody>
<tr>
<td>PERCENT</td>
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<td>15</td>
<td>10</td>
<td>5</td>
<td>0</td>
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</tr>
</tbody>
</table>

**Source**: Susenas 2011.

**Note**: MHH are male-headed households, FHH are female-headed households. All immunizations except fourth dose of HepB.
Looking specifically at education and health access and separating urban from rural areas, it is clear that lack of access to health care and education in rural areas is largely associated with lack of transportation infrastructure. In rural areas, 20 percent of children have poor education, and health access and poor transportation. By contrast, only 1 percent of children in urban areas have all three negative indicators. Therefore, the solution in rural areas may not necessarily lie in creating new schools or health care facilities, but rather in improving the transportation infrastructure so that people are able to get to these facilities more easily. Meanwhile, interventions for urban areas that focus on improving transportation services will be less effective in improving access to health and education, as only 5 percent of urban children who lack access to health and education also lack access to transportation.

Relationship between poor health access, poor education and poor transportation (fig. 26)

<table>
<thead>
<tr>
<th>Category</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor Health Access</td>
<td>8%</td>
<td>4%</td>
</tr>
<tr>
<td>Poor Education Access</td>
<td>7%</td>
<td>4%</td>
</tr>
<tr>
<td>Poor Transportation</td>
<td>26%</td>
<td>50%</td>
</tr>
</tbody>
</table>

SOURCE Susenas and Podes, from Hadiwidjaja, Paladines and Wai-Poi (2013).
NOTE Children are deemed to have poor physical access to health and education infrastructure if they live in a district whose index for each of these is in the lowest 40 percent.

Transportation Infrastructure

The percentage of main roads not graveled or asphalted is highest in rural areas, and in Papua in particular. In Papua, over 35 percent of main roads are not graveled or asphalted, while the figure is less than 1 percent in Java/Bali. Lack of good roads means that it takes longer for goods to be delivered, and makes the delivery of perishable goods more challenging. Moreover, lack of good roads means that travel will also take longer, whether this is to schools or to health care centers. Therefore, good road infrastructure plays a crucial role in development as it better connects people with services, food, and markets.

Access to graveled or asphalted main roads does not differ too significantly across household welfare status. At the national average, around 5 percent of roads are not graveled or asphalted. For the poorest decile, however, the level 50 percent higher than the national average.

Percentage of main roads not graveled or asphalted (fig. 27)

<table>
<thead>
<tr>
<th>Category</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>By urban/rural, female/male-headed households, and island</td>
<td></td>
<td></td>
</tr>
<tr>
<td>By household per capita consumption decile</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE MHH are male-headed households, FHH are female-headed households.
IN ADDITION TO ROADS, BRIDGES ARE ALSO IMPORTANT AND THE NEED FOR ADDITIONAL BRIDGES IS MOST PREVALENT IN RURAL AREAS. The need for additional bridges in Indonesia affects around 17 percent of people and is significantly higher in eastern Indonesia. Interestingly, Nusa Tenggara is in need of more bridges than Papua, with 35 percent and 28 percent, respectively. Bridges are particularly useful in connecting people and services. The existence of a bridge can significantly cut the time needed for distribution and allow people to access services more easily.

THE NEED FOR ADDITIONAL BRIDGES DIFFERS SLIGHTLY ACROSS HOUSEHOLD PER CAPITA CONSUMPTION. Around 22 percent of households in the poorest decile need more bridges compared with half this level for households in the highest decile. Differences across households may stem from the fact that poorer households are mostly located in rural areas, while richer households tend to be mostly located in urban areas.

Percentage need of additional bridges (fig.28)

<table>
<thead>
<tr>
<th></th>
<th>RURAL</th>
<th>URBAN</th>
<th>MHH</th>
<th>FHH</th>
<th>SUMATERA</th>
<th>JAWA/BALI</th>
<th>KALIMANTAN</th>
<th>SULAWESI</th>
<th>NT</th>
<th>MALUKU</th>
<th>PAPUA</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERCENT</td>
<td>20</td>
<td>15</td>
<td>10</td>
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<td>0</td>
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<td>0</td>
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<td>0</td>
</tr>
</tbody>
</table>

Source: Susenas 2011 and Podes 2011.
Note: MHH are male-headed households, FHH are female-headed households.

THE INADEQUACY OF PUBLIC TRANSPORTATION IN INDONESIA IS CLEAR, ALTHOUGH SERVICES ARE SLIGHTLY BETTER IN JAVA AND BALI. One way to identify the availability of public transportation is to estimate the percentage of households without access to regular transport to their local district government office. On average, 27 percent of households in Indonesia have no access to regular public transport to their local district office. On average, 27 percent of households in Indonesia have no access to regular public transport to their local district office. As previously, eastern Indonesia has the worst access to a public transportation system, with 55 percent of households in Papua and 49 percent of households in Kalimantan without regular transport to the district office. What is interesting is that, looking at the per capita consumption decile, there are no significant differences across deciles.

Percentage with no regular transport to local district office (fig.29)

<table>
<thead>
<tr>
<th></th>
<th>RURAL</th>
<th>URBAN</th>
<th>MHH</th>
<th>FHH</th>
<th>SUMATERA</th>
<th>JAWA/BALI</th>
<th>KALIMANTAN</th>
<th>SULAWESI</th>
<th>NT</th>
<th>MALUKU</th>
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<tbody>
<tr>
<td>PERCENT</td>
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<td>10</td>
</tr>
</tbody>
</table>

Source: Susenas 2011 and Podes 2011.
Note: MHH are male-headed households, FHH are female-headed households.
OTHER FORMS OF INFRASTRUCTURE SUCH AS HOUSING AND SANITATION ARE JUST AS IMPORTANT IN DETERMINING QUALITY OF LIFE AND ALSO INFLUENCE INEQUALITY OF OPPORTUNITY. Without good housing conditions, people are more susceptible to illnesses and more vulnerable to adverse weather conditions. Moreover, the absence of electricity also means that housework must be done manually, there is inadequate lighting for children to study, and it is more difficult to obtain water.

MOST INDONESIANS HAVE SUBSTANDARD HOUSING, ESPECIALLY THE POOR LIVING IN THE RURAL PARTS OF EASTERN INDONESIA. Substandard housing means that a house is either constructed from poor quality materials, is overcrowded, or lacks access to clean drinking water, electricity or proper sanitation. Around 83 percent of houses in rural areas are substandard, compared with 60 percent in urban areas. Java and Bali have relatively better housing than other parts of Indonesia, with 56 percent substandard housing, compared with 86 percent in Nusa Tenggara, 90 percent in Sumatra, 96 percent in Kalimantan, 98 percent in Sulawesi, and 99 percent in both Maluku and Papua.

WHILE THE PERCENTAGE OF PEOPLE WITH SUBSTANDARD HOUSING HAS DECLINED OVER THE YEARS, THE HOUSING CONDITIONS OF HOUSEHOLDS WITH LOW PER CAPITA CONSUMPTION ARE FAR BEHIND HOUSEHOLDS WITH HIGHER PER CAPITA CONSUMPTION. Poor quality materials represent the main reason for substandard housing across all deciles. In 2011, 70 percent of households from the poorest decile had poor quality housing materials, compared with almost half that for households coming from the richest decile. There are also large differences across deciles in terms of sanitation, with 67 percent being substandard in the poorest decile, but only 12 percent substandard for the richest decile. Around 30 percent of households from the poorest decile have unclean water, while this figure is only 5 percent in the richest decile. There has been a significant improvement in access to electricity for the poorest households in recent years. Between 2002 and 2011, the percentage of households in the lowest consumption decile with no electricity almost halved, from 29 percent to 16 percent.

HOUSEHOLD PER CAPITA CONSUMPTION IS HIGHLY CORRELATED WITH THE QUALITY OF HOUSING, AND THERE IS LITTLE CHANGE IN THE PERCENTAGE OF SUBSTANDARD HOUSING FROM THE POOREST TWO QUINTILES. Between 2002 and 2011, the percentage of substandard housing of the poorest decile decreased from 95 percent to 90 percent. What is interesting is that the percentage of substandard housing for the richest decile remained constant at 44 percent.

### Percentage of substandard housing (fig.30)

#### a) By urban/rural, female/male-headed households, and island

![Percentage of substandard housing by urban/rural, female/male-headed households, and island](chart)

#### b) By household per capita consumption decile

![Percentage of substandard housing by household per capita consumption decile](chart)

**SOURCE** Susenas.

**NOTE** All results in this section are for children aged under 15 years. MHH are male-headed households, FHH are female-headed households. Data were not available for Maluku and Papua in 2002. Substandard housing means housing is either constructed from poor quality materials, is overcrowded, or lacks access to clean drinking water, electricity or proper sanitation.
Housing conditions by household per capita consumption decile (fig.31)

**Source**: Susenas.

**Note**: MHH are male-headed households, FHH are female-headed households. Data were not available for Maluku and Papua in 2002. Poor quality housing means walls, floor or roof are constructed from poor quality materials.

There are noticeable differences in housing characteristics between households located in rural and urban areas in that children living in rural areas are more likely to lack access to clean water, sanitation, and good housing simultaneously than children living in urban areas. About 18 percent of children living in rural areas lack access to clean water, sanitation, and good housing, while only 2 percent of children in urban areas suffer from these three poor housing conditions combined. In view of this, the interventions required will need to be different between urban and rural areas.

Percentage of poor housing conditions (fig.32)

**Source**: Susenas and Podes, from Hadiwidjaja, Paladines and Wai-Poi (2013).

| a) By urban/rural, female/male-headed households, and island |
|---|---|---|
| **46%** | Poor Housing |
| **6%** | Unclean Drinking Water |
| **23%** | Poor Sanitation |

| b) By household per capita consumption decile |
|---|---|---|
| **65%** | Poor Housing |
| **27%** | Unclean Drinking Water |
| **58%** | Poor Sanitation |
BY COMPARING THE TWO EXTREMES—THE RICHEST DECILE WHO LIVE IN URBAN AREAS AND THE POOREST DECILE WHO LIVE IN RURAL AREAS—IT IS CLEAR THAT INDONESIA IS VERY UNEQUAL. Compared with the other indicators analyzed, inadequate sanitation represents the greatest challenge.

There are large disparities between eastern Indonesia and the rest of Indonesia. Comparing urban Jakarta and rural Maluku or Papua, there are clear differences in terms of inequality of opportunity across almost all indicators.

Around half of all children in Papua lack access to various good housing conditions. Around 60 percent of children are poor or vulnerable, 64 percent lack proper sanitation, 56 percent lack clean water, and 62 percent have no electricity from PLN, the state-owned power utility. With such high poverty rates on each dimension, this means that many Papuan children are poor on most dimensions. In fact, almost half of all children in Papua live in houses with no electricity from PLN, unclean drinking water, and have poor sanitation combined. Such conditions are far from optimal and mean that these children will lag behind other children who have better housing conditions.

Various indicators by urban and rural (fig.33)

Box 1
What specific policies are needed in eastern Indonesia?

There are large disparities between eastern Indonesia and the rest of Indonesia. Comparing urban Jakarta and rural Maluku or Papua, there are clear differences in terms of inequality of opportunity across almost all indicators.

Various different indicators by urban (DKI Jakarta) and rural (Maluku/Papua) (fig.34)
BOX.1 (CONT.)

Percentage of poor housing conditions in Papua (fig.35)

a) The relationship between poverty, unsafe drinking water, and poor sanitation

60% Poorest 40

56% Unclean Drinking Water

64% Poor Sanitation

b) The relationship between the availability of PLN, unsafe drinking water, and poor sanitation

62% No PLN

56% Unclean Drinking Water

64% Poor Sanitation

SOURCE Susenas and Podes, from Hadiwidjaja, Paladines and Wai-Poi (2013).

NOTE Poorest 40 means the child lives in a household that is in the poorest 40 percent of households nationally.
4. WHAT DOES INDONESIA NEED TO DO?

THE GOVERNMENT CAN REDUCE INEQUALITY OF OPPORTUNITY BY STRENGTHENING EXISTING SOCIAL ASSISTANCE PROGRAMS AIMED AT THE POOR AND VULNERABLE. Addressing inequality of opportunity begins with improving the access of poorer households to quality health and education services. This can start by expanding existing social assistance programs such as the “Family Hope Program” (Program Keluarga Harapan, or PKH) conditional cash transfer, the “Indonesia smart card” (Kartu Indonesia Pintar, or KIP) education subsidy for the poor, and the national health insurance program aimed at the poor (Jaminan Kesehatan Masyarakat, or Jamkesmas).

INTERVENTIONS IN THE DELIVERY OF HEALTH AND EDUCATION SERVICES NEED TO FOCUS NOT ONLY ON ACCESSIBILITY BUT ALSO ON THE QUALITY OF SERVICES AND FACILITIES. While increasing numbers of people are able to access health and education services, improvements in outcomes are constrained by the poor quality of these services. Interventions should begin with the most basic elements, such as the availability of water and electricity in health centers and schools. Then, once progress has been achieved here, the more complex challenges such as the availability of doctors in health centers and qualified teachers in schools can be addressed. If the quality of services remains unequal, expanded access will only have limited effects on inequality.

THE GOVERNMENT WILL ALSO NEED TO IMPROVE LOCAL SERVICE DELIVERY BY INVESTING IN TRANSPORTATION INFRASTRUCTURE AS THIS SUPPORTS POLICIES TO ADDRESS INEQUALITY IN ALL OTHER AREAS. Investing in transportation infrastructure in the form of good roads, bridges, and transportation will improve access to health clinics and schools. Increased connectivity for remote areas and reduced logistics costs in general will also help to reduce high and volatile rice prices and other food prices, which disproportionally affect the poor. It is estimated that Indonesia has lost more than 1 percentage point of additional GDP growth due to underinvestment in infrastructure, primarily in the transportation sector (World Bank, 2014). Therefore, investment in infrastructure will not only reduce inequality of opportunity, but also encourage economic growth as such investment increases both connectivity and productivity.
References


References


This paper examines inequality in Indonesia, more specifically inequality of opportunity. It utilizes three different analytical tools to examine inequality through different dimensions.

1. INEQUALITY OF OPPORTUNITY DECOMPOSITION
One way to analyze inequality of opportunity is to use decomposition analysis. Decomposition analysis essentially looks at how an individual's current per capita consumption is affected by various factors. The sample consists of households in which the head of the household was born after 1948. This person's household per capita consumption is used to predict their welfare. Then a range of their circumstances at birth are examined to see which aspects have led them to have the per capita consumption expenditure that they have today.

2. DASHBOARD APPROACH
The second analysis is done through a dashboard approach, which essentially provides different indices for each dimension. The dashboard approach allows for comparison of achievements (or deprivations) across different groups. For instance, it analyzes whether there are any significant differences between: access to schools for those living in urban/rural areas, differences between those who have male/female headed households, differences based on the education attainment of the parents, differences across different parts of Indonesia, and whether there are differences by decile measured based on consumption expenditure. The dashboard approach therefore considers the marginal distribution between achievements (or deprivations) across different groups.

3. ASSOCIATIONS (VENN)
Following Ferreira and Lugo (2012), this paper also examines the correlation between achievements (or deprivations) graphically through the use of Venn diagrams. It essentially aims to answer whether individuals who score negatively in one dimension also score negatively in other dimensions. For example, the associations between physical access to education, health, and transportation services, or education, the presence of a midwife, and unskilled delivery. These correlation/associations have important implications for program design and targeting.

This paper utilizes data from the Indonesia Family Life Survey (IFLS), which provides reliable information on relevant dimensions such as health status, anthropometrics, education and consumption. IFLS is a panel survey so it allows for the examination of individuals over time, which in turn allows for the analysis of individuals’ consumption expenditure or education outcome in relation their circumstances at birth. The National Socioeconomic Survey (Survei Sosial Ekonomi Nasional, or Susenas) and the village potential data (Potensi Desa, or Podes) are also used to examine the existence of public infrastructure, such as hospitals and schools.