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From Access to Income: Regional and Ethnic Inequality in Indonesia

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ABSTRACT

This study investigates regional and ethnic inequality in Indonesia from five dimensions: access to education and health facilities, education outcome, health outcome, voice, as well as income and consumption. We believe this is the first comprehensive study that looks at ethnic inequality in Indonesia. We find systematic inequality between urban and rural areas, but not between ethnic groups. Our results indicate that the voiceless rural areas have been left behind by urban areas that have more voice in every indicator. Although we do not establish causation, this finding supports the long-held view inherent among Indonesians. The findings of this study imply that public policy aimed at accelerating rural development is the most effective route to reduce inequality in Indonesia.

Keywords: health, education, income, voice, inequality, ethnic, regional, urban, Indonesia.

I. INTRODUCTION

Aside from the well-researched relationship between inequality, growth, and poverty, another reason why inequality matters in development is because people incessantly compare themselves with their neighbors. One's welfare is not solely determined by how many goods one is able to buy but also how many goods one could buy *relative* to his or her neighbor. For this reason, high inequality has been blamed as one of the causes of social unrest in countries where economic growth is relatively strong and poverty is low and manageable, for example in Indonesia in 1998 (Booth, 2000). Although most studies are concerned with income inequality, inequality in other aspects — for example in health, education, and access — also have the potential to cause income inequality and thus have the same influence on growth and poverty.

In contrast to absolute poverty, it is irrational 'to make inequality history' because differences always exist between individuals. The difference between individuals, however, becomes a problem when an individual faces an unequal playing field or has to overcome more obstacles compared to others for reasons out of his or her control, for example because of gender or racial discrimination, or because he or she was born into a poor family (World Bank, 2005).

Indonesia is an archipelago and is home to hundreds of ethnic groups, each with its own language and traditions. Given this heterogeneity, it is possible that people from different islands of residence, areas, or even ethnicity face inequality in one form or another.

Surprisingly, there is not much research regarding inequality in Indonesia that goes beyond income and consumption. UNDP (2004) provides overall health and education indicators by provinces and, to a lesser extent, by gender. However, the discussion is only limited to the national figures and how far Indonesia is from its MDG commitments, while leaving out the issue of inequality, both within and between provinces and genders. Meanwhile, Lanjouw et al. (2001) looks at inequality between the poor and the non-poor in terms of benefiting from public spending and find that public spending on health and education in Indonesia benefits both the poor and the non-poor at the basic levels (primary school, public primary health facilities) but benefits only the non-poor at higher levels.

This study contributes to the literature on inequality in Indonesia by calculating regional and ethnic inequalities in five dimensions that may indicate the existence of inequality in opportunity: access to education and health facilities, education outcome, health outcome, voice, as well as income and consumption. We believe this is the first study in Indonesia that looks at inequality within and between ethnic groups.

The rest of the paper is organized as follows. Section II describes the datasets that we use in this study. Section III discusses the findings on the extent of inequality in Indonesia in the five dimensions analyzed. Section IV concludes.

II. DATA

We use three datasets in this paper. The first one is Susenas (National Socioeconomic Survey), which is a nationally representative dataset collected annually by BPS.[1] Susenas consists of two main components: Core and Module. Susenas Core collects detailed characteristics of around 200,000 households and 800,000 individuals, from household size to occupation of each household member. Meanwhile, Susenas Module collects additional information on a subset of the sample Core households, around 65,000. There are three types of modules — consumption; housing and health; and culture and education — meaning that each is conducted triennially. The Susenas that we use are those containing the Consumption Module. This module records detailed food and non-food consumption as well as income of the sample households. The latest Susenas that contains the Consumption Module is Susenas 2002.

In 2003, BPS selected around 10,000 households from the Susenas 2002 Module sample and revisited them. These households made up the new BPS Susenas Consumption Panel dataset. The plan was to annually enumerate these households' income and consumption pattern. Thus, rather than having triennial repeated cross-section consumption data, BPS now has annual longitudinal income and consumption data of the chosen 10,000 households. So far, there are panel datasets for 2003 and 2004, consisting of 9,989 and 10,027 households respectively. Merging between Susenas 2002, Panel 2003, and Panel 2004 yields a total of 8,995 households. These are the households that were enumerated in all three sequences.

In this paper we, therefore, use Susenas 2002 and 2004, both the Core—which contains observation of around 200,000 households each—and the Panel Consumption Module, which contains income and consumption data of 8,995 households.

The second dataset that we use is Podes (Village Potential), which is also published by BPS. Podes is a complete enumeration of every village in Indonesia. It records information on the characteristics of each village (i.e. land size, population, and water supply) and available infrastructure in that village (i.e. number of schools, hospitals, doctors, markets, transportation modes, and financial institutions). It is collected three times every decade, usually before the population census and major surveys. We use Podes 2003, which has data on 68,819 villages.

[1]BPS (Statistics Indonesia) is the government agency responsible for conducting surveys and censuses in Indonesia.

The third dataset that we use is the SMERU Research Institute's social capital dataset that was collected in 2004. It collects indicators of social capital — such as voice, political participation, trust, safety, group affiliation — of 1,535 randomly chosen households from 11 districts/municipalities in seven provinces in Indonesia: West Sumatra, Jakarta, West Java, Central Java, East Java, Bali, and South Sulawesi. The provinces were chosen purposively to reflect Indonesia's population and regions. Three municipalities were randomly selected from urban areas in those provinces on a probability-to-proportion basis. In addition, the two largest municipalities in Indonesia, Jakarta (which is a whole province) and Surabaya (the capital of East Java), were purposively included. Meanwhile, the six districts, which represent rural areas, were chosen randomly on a similar basis in each province, with the exception of Jakarta which has no rural region.

III. INEQUALITY IN INDONESIA

In general, there are two types of regional segregation in Indonesia, Java and Bali versus outside Java and Bali and Western Indonesia versus Eastern Indonesia. Western Indonesia consists of Java, Bali, Sumatra, and Kalimantan, while Eastern Indonesia is made up of Sulawesi, Nusa Tenggara Archipelago, Maluku Archipelago, and Papua. Western Indonesia, especially Java and Bali, is significantly more developed than Eastern Indonesia in terms of economic activity, infrastructure, and population. Finally, we also disaggregate the country into urban and rural areas.

Meanwhile, in terms of ethnicity, we look at ethnic groups that are widely scattered throughout the country, because selecting an ethnic group that is only living in one island, for example the Dayak or Sundanese, would confound the location effects and the ethnicity effects. For this reason, we selected four main ethnicities: Javanese, Malay, Bugis, and Chinese. In 2004, these five ethnic groups made up 54% of the Indonesian population and are found to be living in most major islands in Indonesia. We determine a person's ethnicity according to the household head's ethnic origin.

A. ACCESS TO BASIC SERVICES

Many factors, from lack of information to household resource allocation, could cause poor health and low education attainment. However, in a developing country like Indonesia, it is very likely that lack of access to health and education facilities plays a major role. Inequality in access to basic services occurs when people living in different regions or of different ethnic origin have different access to basic services. Lack of access could take form in many shapes, from unavailability of a health or education institution to prohibitively high fees charged by such institutions.

In a sense, access inequality may explain education and health inequalities. Mejia & St-Pierre (2005) develop a general equilibrium model that explores the relationship between inequality in education opportunity, inequality in education outcomes, and human capital formation. They find that higher inequality in opportunity leads to lower average human capital in society, higher inequality in distribution of human capital, and higher wage inequality.

Since inequality in opportunity could have lasting effects in a population, it is important to discover the extent of inequality in opportunity to education and also health. As we have already stated above, in developing countries inequality in opportunity — especially to basic education and health — is mainly caused by inequality in access rather than, for example, parents' low expected returns from educating their children. In this subsection, we compare the availability of healthcare and education facilities between urban and rural areas and also between regions in Indonesia. Then, in the next two subsections we look at indicators that show the magnitude of education and health inequality in Indonesia.

Table 1 shows the availability of basic health and education facilities in Indonesia in 2003. Since Podes contains information on the availability of facilities in every village in Indonesia, Table 1 provides the share of villages in respective areas that have the relevant facility. The facilities whose availability we examine are basic facilities and, given the size of Indonesian villages both in area and in population, should be available in every village.

Nationally, the discrepancies in school availability across levels are very apparent, where 89% of villages had a primary school, 31% had a junior secondary school, and only 14% had a senior secondary school. When disaggregated into urban and rural areas, 96% of villages in urban areas had at least a primary school, 59% had junior secondary school, and 44% had one or more senior secondary schools. In contrast, while 88% of villages in rural areas had a primary school, only 26% and 8% had junior and senior secondary schools respectively. Although it is possible that secondary level schools provide services to more than one village, the very low rates still show that the gap in school availability between urban and rural areas is very marked.

The gap at the secondary level, however, is less apparent when we disaggregate the regions into Java and Bali and outside Java and Bali, but the gap at the primary level is more pronounced, where almost 20% of villages outside Java and Bali had no primary school. Meanwhile, more than a quarter of villages outside Java and Bali had junior secondary schools, while almost 40% of villages in Java and Bali had them. Meanwhile, the gap was even smaller at the senior secondary level. The smallest inequality in terms of school availability, however, took place between Western and Eastern Indonesia.

Table 1. Availability of Health and Education Facilities by Regions in Indonesia, 2003 (%)

	Education Facilities			Health Facilities	
	Primary	Junior Secondary	Senior Secondary	*Puskesmas*	Private Practice
National	89.46	31.44	14.25	44.51	42.22
By Region:					
Urban	96.16	58.77	44.31	59.92	81.10
Rural	88.04	25.64	7.86	41.24	33.95
Java + Bali	99.23	39.89	18.62	45.95	69.25
Outside Java + Bali	83.66	26.43	11.66	43.66	26.16
Western Indonesia	89.97	33.07	15.39	43.95	50.09
Eastern Indonesia	87.79	26.11	10.51	46.36	16.31

Source: Podes 2003.

After assessing the difference in availability of education facilities, we now turn to health facilities. A *puskesmas* is a government-run public health facility that serves several villages, while a *pustu* is a *puskesmas* outpost that should be available in villages where there is no *puskesmas*. In Table 1, the availability of *puskesmas* includes the availability of *pustu*. The second indicator of healthcare availability is the existence of private practices by physicians and nurses. This usually takes place in the physician or nurse's residence. Although private practices are heavily regulated in urban areas, where a doctor must have a permit to open in private practice, there is less control in rural areas, which means even a nurse can open a private practice.

We first look at the difference in healthcare facilities between urban and rural areas. Sixty percent of urban villages had a *puskesmas* while only 41% of rural villages had one. Regarding private practice, 81% of urban villages had at least one private practice in 2003, while it was only available in 34% of rural villages. Meanwhile, between Java and Bali villages and those outside Java and Bali, the difference in *puskesmas* availability (46% vs. 44%) is much less apparent than in the availability of private practice (69% vs. 26%). Similarly, when we compare western and eastern regions, 46% of villages in Eastern Indonesia have a *puskesmas* and 44% of villages in Western Indonesia have one. However, only 16% of villages in Eastern Indonesia have a private practice, minuscule compared to Western Indonesia where half of all villages have one.

Table 1 shows that people living in rural areas, outside Java and Bali, and Eastern Indonesia have more restricted access to both education and health facilities. Lack of facilities entails higher costs, both pecuniary and opportunity costs in terms of lost time, which means that people living in areas with fewer facilities face unequal opportunity in accessing those facilities. To see whether access inequality actually translates into outcome inequality, the next two subsections discuss education and health inequality.

B. EDUCATION

After examining the availability of facilities in different regions, we now look at inequalities in the outcome indicators of education. Education inequality pertains to unequal education outcome in a society and is usually indicated by standard deviation of years of schooling or enrollment rate at school levels.[2] The first indicator of education inequality that we look at is directly related to the accessibility of education: net enrollment rate.

According to Jones (2003), there are three reasons why children face unequal opportunity for schooling in Indonesia. First, children from poor families have no means to pay for transportation costs. This is accompanied by the fact that children can be an extra income earner for their family. Hence, economic condition plays a crucial role. Second, there is still relatively low recognition among parents in some parts of the country, for example in Lombok Timur, of the importance of education. Third, cultural factors also play an important role. For example, Madurese in Pontianak traditionally arrange their daughters to be married as soon as they finish primary school. Table 2 shows the primary, junior secondary, and senior secondary school net enrollment rates in 2002 and 2004.

[2]There are studies that construct Gini ratio for education, for example Thomas, Wang, & Fan (2000).

Nationally, the primary school net enrollment rate has been quite stable between 2002 and 2004 at 92%. In contrast, there were quite noticeable increases in both secondary levels, from 61% to 65% at junior secondary level and from 40% to 45% at the senior secondary level.

Between urban and rural areas, there is no difference at the primary level. However, there was a 13 percentage point gap at the junior secondary level in 2004, although this was much smaller than the 18 percentage point gap in 2002. The gap was even more apparent at the senior secondary level, 26 percentage points. The between-level drop in enrollment rates was also larger in rural areas, from 93% at primary level to 60% at junior secondary level to only 34% at senior secondary level, around 60 percentage points in total. On the contrary, the difference between primary and senior secondary enrollment rates in urban areas was only 32 percentage points.

Table 2. Net Enrollment Rate in Indonesia, 2002 & 2004 (%)

	Primary		Junior Secondary		Senior Secondary	
	2002	2004	2002	2004	2002	2004
National	92.2	92.8	60.9	65.2	39.7	44.6
By Region:						
Urban	92.2	92.5	71.8	73.6	56.0	59.7
Rural	92.2	93.0	53.4	60.2	26.2	34.0
Java + Bali	93.4	93.4	65.3	68.0	41.5	45.5
Outside Java + Bali	91.5	92.6	58.4	63.9	38.5	44.2
Western Indonesia	93.1	93.7	63.3	68.0	41.2	46.9
Eastern Indonesia	89.3	90.5	53.0	57.5	34.4	37.8
By Ethnicity:						
Malay	92.7	93.1	56.5	64.2	35.0	43.2
Javanese	93.5	93.6	67.5	70.4	42.4	47.3
Bugis	89.8	91.3	55.1	60.6	35.9	40.3
Chinese	92.2	91.7	72.4	71.1	58.5	61.3

Source: Susenas Core 2002, 2004.

At the primary level, there is only a relatively small difference between Java and Bali compared to the other islands, with Java and Bali enjoying almost a two percentage point higher net enrollment rates in 2002, although by 2004 the gap was down to only 0.8 percentage points. However, there was a larger difference between Western and Eastern Indonesia in 2004, around three percentage points, although it was smaller compared to 2002. The gap was much larger at the junior secondary level, with the western-eastern segregation showing a larger discrepancy than Java and Bali versus outside Java and Bali. Comparing the year 2002 with 2004, however, the gap between Java and Bali and outside Java and Bali has narrowed while it has slightly widened between Eastern and Western Indonesia. Meanwhile, at the senior secondary level there was only a one percentage point difference between Java and Bali and outside Java and Bali, while Eastern Indonesia's rate was nine percentage points below Western Indonesia. Furthermore, the gap between the western and eastern regions has once again increased, while between Java and Bali and outside Java and Bali has decreased.

Across ethnic groups, the differences at the primary level are not large. The Javanese had the highest rate in 2004, and along with Malay had higher rates than the national rate. In contrast, Bugis and Chinese had similar but lower rates, as much as two percentage points lower than Javanese. In terms of trend between 2002 and 2004, the Chinese is the only ethnic group that registered a decline in net enrollment rates, while Bugis experienced the highest percentage point and proportional increase. At the junior secondary level, in 2004 Chinese and Javanese had the highest rates, around five to six percentage points higher than the national rate. Meanwhile, Malay's rate was only slightly less than the national average, although about seven percentage points lower than Chinese. Bugis had the lowest rate, with only 61% net enrollment rate in 2004.

Between 2002 and 2004, Malay experienced the highest percentage point increase, with eight percentage points, followed by Bugis and Javanese, while the Chinese rate actually decreased. Meanwhile, between primary and junior secondary levels Chinese registered the lowest drop, only 21 percentage points, while Bugis experienced the largest, as much as 30 percentage points. At the senior secondary level, Chinese had a much higher enrollment rate compared to the others, while Bugis again had the lowest, merely 40% of senior secondary school age Bugis children were in school in 2004. Between junior and senior secondary levels, the Chinese again had the smallest drop, while the Javanese had the highest.

In discussing the net school enrollment rate, it is crucial to ascertain whether ability to pay is a more important determinant of enrollment than school availability or *vice versa*. This would determine whether it is more effective to lower fees for junior secondary school students or to construct more junior secondary schools. Duflo (2001) estimates the impact of a colossal school construction program in Indonesia that took place between 1973 and 1980, when the government built around 60,000 primary schools in just seven years. She finds that, on average, the program increased a child's education attainment by 3.4%, with a higher impact in poor areas.[3]

In conclusion, we find that children living in rural areas have less access to junior secondary education. In addition, we find that there are differences between ethnic groups, with Bugis children apparently having lower enrollment rate, especially at secondary levels. However, taking into account the fact that there is no significant difference in enrollment between ethnic groups at the primary level, we argue that inequality in access to junior secondary level education is more related to school availability and ability to pay rather than systematic ethnic bias.

The second indicator of education inequality that we use is standard deviation of education attainment of working age population.[4] Education attainment is based on years of schooling, which is determined from one's last finished grade. Thus, somebody who had to repeat a grade during her or his schooling would not have an extra year of education. Since education attainment is the end product of the education system, by

[3]However, Filmer (2004), in his study of 21 developing countries, which does not include Indonesia, finds that building schools in areas where there had not been any, hence reducing travel time and cost to get to school, would only increase enrollment by a small magnitude. Moreover, he also finds that building more schools would not reduce education inequality between genders.

[4]Working age population includes everyone 15 years of age or older.

using it one can approximate education inequality that had taken place in previous decades and compare it with the current state of education inequality indicated by net enrollment rate. Moreover, the standard deviation of attainment is an indicator of inequality within each category rather than between categories, which is shown by the net enrollment rates in Table 2 and average attainment in Table 3.

Table 3 provides the national and disaggregated mean and standard deviation of education attainment. Nationally, in 2004 the mean education attainment was 7.7 years, already above primary level education (6 years), while the standard deviation was very large at four years. The mean and standard deviation, however, were showing a respectively increasing and decreasing trend, which means in the long run the country would achieve higher mean education attainment accompanied with lower distribution.

Table 3. Mean and Standard Deviation of Education Attainment in Indonesia, 2002-2004 (years)

	2002		2004	
	Mean	**Std Dev**	**Mean**	**Std Dev**
National	7.33	4.13	7.68	4.02
By Region:				
Urban	8.89	4.14	9.08	3.99
Rural	6.01	3.64	6.53	3.66
Java + Bali	7.21	4.21	7.56	4.06
Outside Java + Bali	7.54	3.99	7.86	3.94
Western Indonesia	7.37	4.11	7.74	3.98
Eastern Indonesia	7.02	4.29	7.29	4.24
By Ethnicity:				
Malay	7.57	3.88	7.97	3.83
Javanese	7.28	4.18	7.60	4.06
Bugis	7.15	4.45	7.52	4.34
Chinese	9.60	4.12	9.61	4.10

Source: Susenas Core 2002, 2004.

The difference in attainment between urban and rural areas is still very high. In 2004, mean years of education in urban areas was 2.5 years higher than in rural areas, almost the difference between only graduating from primary school and finishing junior secondary school. Furthermore, education distribution in urban areas was only slightly higher. Comparing between 2002 and 2004, while average education attainment and distribution had respectively increased and decreased in urban areas, both the mean and standard deviation of education in rural areas had increased slightly. This reinforces the finding from Table 2 that education inequality between urban and rural areas is serious although the gap in average education between them had slightly decreased by 0.4 years between 2002 and 2004. More importantly, the standard deviation shows that education inequality in rural areas is worse compared to urban areas.

Comparing Java and Bali with the outer islands, the results are rather surprising. In 2004, mean education attainment in islands outside Java and Bali was higher, albeit only slightly, with lower standard deviation. A similar pattern was found in 2002. Determining the causes of this phenomenon requires further investigation, because most people would argue that since Java and Bali are the two more developed islands in Indonesia, education attainment should be higher in these islands for two reasons: more jobs that require higher education, hence the educated are concentrated in Java, and the region has better education infrastructure compared to other islands.

However, when we disaggregate the regions into west and east, Western Indonesia still has higher average education attainment and lower standard deviation than Eastern Indonesia. This means that among islands in Western Indonesia, Sumatra and Kalimantan have higher education attainment than Java and Bali, while Eastern Indonesia is still lagging behind.

Among various ethnic groups, Malay, Javanese, and Bugis had relatively similar average of education attainment, while the Chinese had a much higher average education attainment, as much as 3.1 years higher than Bugis and 2.7 years over Malay, which had the second highest average. The gap in average education, however, has been diminishing over the years.

Meanwhile, Bugis had the lowest average education attainment and the highest standard deviation, which means education inequality among the Bugis was the worst. Added to the fact that this ethnic group had the lowest mean attainment and net enrollment rates (Table 2), it is important to find out why this ethnic group lags behind the others in terms of education achievement.

In conclusion, we find that the highest gaps in terms of education attainment exist between people living in urban and rural areas. Coupled with Table 2, one can conclude that inequality between regions, especially between urban and rural areas, was still very much prevalent even in 2004. Finally, it is also surprising to see that the Bugis ethnic group has systematically lower average education attainment and net enrollment rates, and higher distribution in education attainment, while the Chinese have the highest average education attainment and senior secondary net enrollment rates, but also the second highest standard deviation in attainment.

Noting the results from Table 2, we argue that systematic education inequality in Indonesia currently exists solely between regions at secondary level, thus policymakers must strive to make secondary education more accessible in rural areas and Eastern Indonesia. Based on results from Filmer (2004) and Duflo (2001), opening more schools would only have limited success in reducing education inequality. Therefore, the effort to increase enrollment, which would eventually increase average attainment, should also include programs to increase demand for schooling, such as providing cash incentives to parents who send their children to school. Although increasing average education attainment is a long process, ensuring that every child has equal access to education is the crucial first step that should be taken.

C. HEALTH

Starting from the premise that everybody deserves a healthy life, Gakidou, Murray, & Frenk (2000) state that the average health condition of a country is no longer a sufficient tool to measure the performance of a country's health system. Consequently, they measure health inequality by looking at the distribution of people's health expectancy. In contrast, Pradhan, Sahn, & Younger (2003) use the height of pre-school children across the world to decompose world health inequality into within-country and between-country components. They find that the within-country component thoroughly dominates total health inequality.

In addition to those two indicators above, other studies have used life expectancy, infant mortality, and morbidity as indicators of health inequality. Pradhan, Sahn, & Younger (2003) argue that all three indicators suffer from weaknesses. Life expectancy only measures how long one lives, but not the quality — whether one is healthy or often ill — and in itself suffers from selection bias. Meanwhile, infant mortality is a weak indicator because it rarely occurs, even in a developing country. Using it would then under-report the extent of health inequality in a country. Finally, morbidity's main pitfall exists in the fact that people have different perception of morbidity. The perception is strongly associated with education level, which means more educated people recognize illness much better, and consequently report it more than the uneducated. This entails a non-random bias when researchers use this health indicator.

In this paper, we employ two steps in determining the extent of health inequality. First, we evaluate people's health. Then, we relate it to healthcare facility usage to get an indication whether those with poorer health go to a healthcare facility more often or not. We do not aim to establish causality, rather only to look at the relationship.

The first indicator of health inequality is whether a respondent experienced disruptive morbidity in the last month prior to Susenas enumeration. Disruptive morbidity is sickness that interrupts one's ability to perform daily tasks, such as working or going to school. From a strict economic point of view, people who are sick more often are in a disadvantaged position because of the forgone potential earning and the costs that should be spent to get well.

Although we recognize the criticism stated by Pradhan, Sahn, & Younger (2003), we choose it for several reasons. First, the purpose of this paper is to compare health levels across different groups of people rather than across individuals. We would argue that the 'different perception bias' is equally distributed within each group. Second, this is the only recent indicator that is available. The dataset on Indonesia used by Pradhan, Sahn, & Younger (2003) was collected in 1994 and there has been no survey that records people's perception of their health in Indonesia. Meanwhile, life expectancy and infant mortality figures are not published at household level. Consequently, morbidity is the only available individual level health indicator.

The second indicator we use is healthcare facility usage (days in the past year). We include every healthcare facility, from *puskesmas* to major hospitals. Low usage may very well be caused by lack of facilities, thus if this is indeed the case then, assuming a similar prevalence of disruptive morbidity, we would observe higher usage in urban areas and Western Indonesia. Again, comparing healthcare facility usage must be accompanied by comparison of the prevalence of disruptive morbidity.

Table 4 provides the figures for both inequality indicators. Nationally, 15.6% of Indonesians were sick in 2004, which was higher than 2002. In contrast, healthcare facility usage was 1.55 days in 2004, slightly lower than 2002. This trend is also the case in most categories. People in rural areas experienced higher morbidity compared to those living in urban areas. Surprisingly, there is almost no difference in terms of usage, which may indicate the existence of a barrier faced by those living in rural areas in receiving treatment for their sickness.

Table 4. Prevalence of Disruptive Morbidity (DM) and Healthcare Facility Usage in Indonesia, 2002-2004

	2002		2004	
	DM (%)	Usage (days)	DM (%)	Usage (days)
National	14.94	1.60	15.62	1.55
By Region:				
Urban	14.35	1.59	14.95	1.54
Rural	15.43	1.61	16.13	1.55
Java + Bali	15.68	1.57	16.13	1.50
Outside Java + Bali	13.72	1.66	14.89	1.63
Western Indonesia	14.49	1.60	15.06	1.54
Eastern Indonesia	18.33	1.59	19.03	1.56
By Ethnicity:				
Malay	12.22	1.61	12.32	1.58
Javanese	15.59	1.58	16.04	1.52
Bugis	13.30	1.60	14.10	1.59
Chinese	9.69	1.59	12.91	1.56

Source: Susenas Core 2002, 2004.

However, we observe the opposite when we disaggregate by Java and Bali and the outer islands. People living in Java and Bali experience higher disruptive morbidity than those living outside the two islands, and the gap was quite large. However, perhaps unexpectedly, those living outside Java and Bali use healthcare facilities more often. When disaggregated into western and eastern regions, on the other hand, the gap was even wider but was the opposite, with those living in Eastern Indonesia experiencing a much higher rate of disruptive morbidity. In 2004, almost one-fifth of people living in Eastern Indonesia experienced disruptive sickness. Nevertheless, healthcare facility usage in Eastern Indonesia was relatively the same as that in Western Indonesia.

Comparing across ethnic groups, in 2002 the Chinese descendants had a much lower morbidity rate compared to the other ethnic groups, with the Javanese having the highest rate. In 2004, however, the other three ethnic groups' rates have stayed relatively constant while the Chinese rate has increased to almost 13% and was higher than the Malay. Meanwhile, in terms of usage there is little difference in either the 2002 or 2004 rate, although the Javanese, who have by far the highest rate of morbidity, also have the lowest healthcare usage.

In conclusion, we observe health inequality in most categories, both in prevalence of sickness and healthcare facility usage, between urban and rural areas; between western and eastern regions; and between Javanese and the other ethnic groups. People living in rural areas or the eastern region have a much higher prevalence of sickness but equal usage of healthcare facilities compared to those living in urban areas or the western region. Thus, in order to reduce health inequality, it is important for the government to focus on providing greater access to healthcare facilities for people living in remote areas.

D. VOICE

Voice relates to the extent of one's ability to express his or her opinion on public affairs. In the context of relationship between citizens of a country and their government, voice is measured by how much the citizens are allowed to express their opinions, through which channels, and finally whether the government accommodates those opinions in policy formulation and implementation.

Voicing one's opinion can happen through many channels, from simply talking to local government officials to taking part in a demonstration to participating in a general election. However, not everybody is being heard equally. Narayan et al. (2000) argue that the state, even in formulation of poverty reduction strategies, does not consider the opinions of the poor seriously enough. Moreover, the poor face more obstacles in making their views known to the public compared to the non-poor because they have limited access to the mass media and to the elected representatives in the parliament.

Since providing evidence that the government is taking people's views into account in planning policies is virtually impossible, this study focuses on the differences across groups in their ability to voice their views publicly. In this study, we measure voice using seven indicators: contact with local powerful figures; contact with one's elected representative, either at the national parliament or district parliament; participation in an association; taking part in a demonstration; taking part in a sit-in at a government office; contacting the mass media, newspaper, or television regarding a problem in one's neighborhood; and voting in the general election.

Table 5 shows the difference in voice between urban-rural and islands of residence. We have no representative data on ethnic background in our dataset to make the disaggregation. It shows that participation is higher on activities that have lower exposure. Voting in an election, whose results cannot be traced back to each individual, has the highest share with 97.3%. The opposite happens in taking part in demonstrations, where only 3.7% had participated in such an activity.

When we look at the differences between urban and rural areas, there are quite large disparities between them, with the urban residents airing their voices significantly more than their rural counterparts, except by way of demonstrations. In terms of contacting relevant elected government official, which could range from village heads to national parliament members, 9% of those in urban areas have done so compared to just 3.5% in rural areas. This could be caused by the relative unavailability of the officials in rural areas, although this could also indicate the relative unwillingness among those in rural areas to contact their representatives due to various reasons.

Table 5. Expressing Opinion in Indonesia (%)

	National	Urban-Rural		Island of Residence	
		Urban	Rural	Java + Bali	Outside Java + Bali
Contact with an influential local figure	34.1	40.0	26.3	37.1	25.9
Contact with elected government official	6.5	8.8	3.5	4.7	11.5
Contact mass media regarding a local problem	6.8	9.5	3.3	4.7	12.7
Take part in a demonstration	3.7	3.7	3.7	3.5	4.2
Take part in a sit-in at government office	4.6	5.7	3.2	2.9	9.3
Actively participate in an association	57.5	61.6	52.1	67.5	30.1
Vote in the last general election	97.3	97.6	97.0	98.4	94.4

Source: SMERU Social Capital Data 2003.

Similarly, people in urban areas also have a higher contact rate with the mass media. We believe this is caused by the fact that communicating with the mass media entails high costs, both direct and opportunity, for people living in rural areas. Furthermore, the relative ease for urban residents in voicing their opinions also shows in other activities, both militant — such as disrupting government offices — and in participating in groups or associations.

The differences in pattern of voicing opinions are more mixed when we disaggregate the population by islands of residence. Residents of Java and Bali have higher rates in contacting local figures, participating in associations, and voting in general elections. On the other hand, residents of outside Java and Bali islands have higher rates in contacting government officials, mass media, and also taking part in demonstration and disrupting government offices.

Hence, the results show that voice inequality happens mostly between the inhabitants of urban and rural areas rather than between islands. This is similar to results from previous subsections, where there are large urban-rural inequalities in both access and outcome indicators of health and education.

E. INCOME AND CONSUMPTION

In the case of Indonesia, income inequality is relatively well researched. Most of the studies use nominal consumption data as proxy for income. Using nominal data, however, means most studies ignore the large interregional price disparity that exists in Indonesia (Arndt & Sundrum, 1975; Asra, 1999). Only two studies use deflated consumption data: Skoufias, Suryahadi, & Sumarto (2000) and Suryadarma et al. (2005).

A consensus that has been reached regarding income or consumption expenditure inequality in Indonesia is that the overall inequality has increased during the high growth period of the 1990s and decreased during the economic crisis (Tjiptoherijanto & Remi, 2001; Akita & Alisjahbana, 2002; Said & Widyanti, 2002). When the sample is restricted solely to households below the poverty line, however, inequality during the

crisis actually increased (Said & Widyanti, 2002). This increase was especially driven by inequality increases in rural areas, while inequality in urban areas slightly decreased (Skoufias, Suryahadi, & Sumarto, 2000). Meanwhile, Akita, Lukman, & Yamada (1999) find that location, island of residence, age of household head, education, and household size significantly affect income inequality, while gender is an insignificant factor.

Finally, Alatas & Bourguignon (2005) use a general form of the Oaxaca-Blinder decomposition method to pinpoint the factors that caused changes in inequality of individual wage and household income in Indonesia between 1980 and 1996. They find that the relatively small increase in inequality during the period is the net effect of various forces working in opposite directions, for example inequality increases caused by the increase in male-female and urban-rural wage differential is offset by decreases caused by a reduction in Java and outside Java income differential.

In this subsection we discuss income and consumption inequality both within each classification, for example within urban areas, and between classifications in the same category, such as between urban and rural areas. We use the Gini ratio in calculating the former simply because it is the most common inequality measure and has a straightforward interpretation. For the latter, on the other hand, we calculate how total income and consumption is distributed between the groups in each category to see how much wealth is concentrated in a group. This method has two advantages. First, its interpretation is straightforward.[5] Second, it achieves our goal of measuring income and expenditure inequality between members in a category.

For the Gini ratio, we use per capita monthly household income and consumption data, while for the distribution of income and consumption we use total monthly household income and consumption data. The data on both income and consumption are obtained from Susenas Panel Consumption Module 2002 and 2004.

Rather than using nominal values, we deflate the values to ensure similar purchasing power across regions in Indonesia. We use provincial urban and rural poverty lines calculated in Pradhan et al. (2001) as the deflator. The poverty lines in their study are calculated from the same basket of goods; hence the difference between them only reflects the regional price differences. By deflating nominal income and consumption by the poverty lines, we have consistent data whose differences exclusively show wealth disparity rather than including both wealth and regional price discrepancies. Finally, since income and consumption data in the module is calculated at household level rather than individual, we cannot disaggregate the inequality between genders.

Determining what actually causes the movement in inequality between periods is beyond the scope of this paper for several reasons. When discussing inequality in income and consumption it is difficult to ascertain what causes an increase or decrease in income and consumption inequality. Since Gini ratio measures the distribution, an increase or decrease could be caused by movement in either the left tail or the right tail of the distribution of income or consumption. Furthermore, it is possible for average income to

[5]A Generalized Entropy inequality measure can decompose inequality into between-group and within-group components. Its interpretation is not intuitive, however, especially in groups that have more than two members.

stay constant while the Gini ratio changes. For example, a negative income shock on one tail that is offset by a positive income shock on the other tail of the distribution would result in the same level of average income but an altered state of inequality. This also happens the other way around, where a proportionally equal shock to every household would change average income but leave inequality constant.

Table 6. Gini Ratio of Income and Consumption in Indonesia, 2002-2004

	2002		2004	
	Income	**Consumption**	**Income**	**Consumption**
National	0.41	0.34	0.44	0.35
By Region:				
Urban	0.41	0.33	0.44	0.34
Rural	0.34	0.26	0.35	0.27
Java + Bali	0.42	0.35	0.46	0.36
Outside Java + Bali	0.39	0.31	0.39	0.32
Western Indonesia	0.41	0.33	0.44	0.35
Eastern Indonesia	0.41	0.32	0.39	0.31
By Ethnicity:				
Malay	0.41	0.32	0.36	0.30
Javanese	0.41	0.34	0.43	0.35
Bugis	0.41	0.36	0.41	0.34
Chinese	0.37	0.32	0.37	0.35

Source: Susenas Consumption Module 2002, 2004; Susenas Core 2002, 2004.

Table 6 provides the Gini ratio of income and consumption distribution nationally and for different groups. As already widely acknowledged, income inequality is always higher than consumption inequality. In 2004, the Gini ratio for consumption is 0.35, while the Gini ratio for income is nine points higher at 0.44. However, their trends between 2002 and 2004 have been the same. During the period, national inequality increased slightly, by three points and one point respectively for income and consumption. In fact, inequality has been increasing in the post-crisis period. Between 1999 and 2002, inequality had also increased after declining during the crisis (Suryadarma et al., 2005).

Comparing between urban and rural areas, inequality within urban areas is much higher than rural areas. In 2004, the difference was as much as nine points in the Gini ratio of income. Furthermore, inequality in both areas also increased between 2002 and 2004. In terms of income inequality, the increase was much larger in urban areas, while rural areas experienced only a slightly higher increase in consumption inequality.

In 2004, the income Gini Ratio in Java and Bali was 0.46, higher than the national measure. Meanwhile, between 2002 and 2004, income inequality increased in Java and Bali by four points but remained constant outside Java and Bali. Consumption inequality in both Java and Bali and the outer islands experienced a one point increase.

In the mean time, disaggregating the country into western and eastern regions reveal interesting facts. Both Eastern and Western Indonesia had equal income inequality levels in 2002, but in 2004 inequality in Eastern Indonesia had decreased while it had increased in Western Indonesia. Hence, by 2004 there was a five point difference between the Gini ratio in eastern and western regions. This pattern is also the same for consumption inequality.

When we look at income inequality by ethnicity, in 2004 Malay had the lowest inequality while Javanese had the highest. However, this pattern is different from consumption inequality, where Chinese were joint top with Javanese although the Chinese had the second lowest income inequality. Meanwhile, Malay also had the lowest consumption inequality. It is interesting to note that the difference between income and consumption inequality was very small among the Chinese, although consumption inequality is still lower.

Comparing 2002 with 2004, income inequality decreased among Malay, increased among Javanese, and was constant among Bugis and Chinese. The pattern is different in consumption among Bugis and Chinese, however, where inequality decreased and increased respectively. We leave investigation of the causes of this phenomenon to future research.

After looking at inequality within each category, we now turn to examining the share of income and consumption of members in a category. We have to control this by the share of population of each member in a category to get an objective measure of distribution of income and consumption. Table 7 provides the results for income distribution while Table 8 provides the results for consumption distribution.

Table 7. Income Distribution in Indonesia, 2002 & 2004

	Income Share		Population Share		Income to Population Ratio	
	2002	2004	2002	2004	2002	2004
By Region:						
Urban	0.57	0.59	0.46	0.43	1.25	1.36
Rural	0.43	0.41	0.54	0.57	0.79	0.73
Java + Bali	0.56	0.57	0.62	0.61	0.89	0.93
Outside Java + Bali	0.44	0.43	0.37	0.39	1.19	1.10
Western Indonesia	0.86	0.87	0.88	0.87	0.97	1.00
Eastern Indonesia	0.14	0.13	0.12	0.13	1.22	0.97
By Ethnicity:						
Malay	0.07	0.06	0.06	0.06	1.11	1.08
Javanese	0.41	0.42	0.44	0.43	0.95	0.97
Bugis	0.06	0.06	0.05	0.05	1.36	1.22
Chinese	0.03	0.03	0.02	0.01	1.57	2.72

Source: Susenas Consumption Module 2002, 2004; Susenas Core 2002, 2004.

When we separate income into urban and rural areas, 59% of it was concentrated in urban areas in 2004. However, 57% of the population lived in rural areas. This means rural areas experienced a deficit in their share of income. This is shown in the income to population ratio of 1.36 in urban areas and 0.73 in rural areas. The ratios were worse than in 2002, which were 1.25 and 0.79 respectively for urban and rural areas. Thus, between 2002 and 2004 income inequality between urban and rural areas had worsened.

The worsening inequality between rural and urban areas is not shared by inequality between Java and Bali and outside Java and Bali. Income to population ratios in 2004 were closer to one than it had been in 2002, showing equalizing income distribution. In addition, and surprisingly, the outside Java and Bali region had ratio of higher than one in both years. In 2004, 61% of Indonesians lived in Java and Bali while only 57% of income was generated there. Furthermore, there was no income inequality between Eastern and Western Indonesia in 2004. The condition was an improvement over a very small inequality that we observe in 2002. In conclusion, we do not observe large inequalities between regions. Instead, inequality lies between urban and rural areas.

When we look at income distribution by ethnicities, Chinese controlled 3% of income in 2004 although only made up 1% of the population. Looking at the other three ethnic groups, however, we see that Malay and Bugis also enjoyed a ratio of higher than 1, although this did not come close to the Chinese ratio of 2.72. Meanwhile, Javanese had a ratio of close to one. Since all four groups had a ratio of greater or equal to one, it means that greater inequality takes place between these four and the rest rather than among themselves.

Meanwhile, as shown in Table 8, consumption distribution exhibits the same pattern between 2002 and 2004 and the same observations as income distribution. The only exception is among sectors of occupation, where inequality between agriculture and the rest has worsened during the period.

Table 8. Consumption Distribution in Indonesia, 2002 & 2004

	Consumption Share		Population Share		Consumption to Population Ratio	
	2002	2004	2002	2004	2002	2004
By Region:						
Urban	0.56	0.57	0.46	0.43	1.22	1.31
Rural	0.44	0.43	0.54	0.57	0.82	0.76
Java + Bali	0.55	0.56	0.62	0.61	0.89	0.92
Outside Java + Bali	0.45	0.44	0.37	0.39	1.20	1.12
Western Indonesia	0.86	0.87	0.88	0.87	0.97	1.00
Eastern Indonesia	0.14	0.13	0.12	0.13	1.20	0.99
By Ethnicity:						
Malay	0.07	0.07	0.06	0.06	1.14	1.15
Javanese	0.41	0.41	0.44	0.43	0.94	0.96
Bugis	0.06	0.06	0.05	0.05	1.35	1.21
Chinese	0.03	0.03	0.02	0.01	1.68	3.03

Source: Susenas Consumption Module 2002, 2004; Susenas Core 2002, 2004.

In conclusion, we observe that the highest income inequality in 2004 was among those living in Java and Bali, while the lowest was in rural areas. Meanwhile, controlling the distribution of income by the distribution of population reveals that the highest inequality existed between urban and rural areas. Furthermore, we also prove that between 2002 and 2004 income inequality between urban and rural areas had worsened.

IV. CONCLUSION

This study provides an overview of inequality in five dimensions, using various measures of well-being, in Indonesia. We look at the difference in access to education and health facilities; education and health outcomes; voice and political participation; and income and consumption between people based on region of residence and ethnicity. We find that in every indicator the highest inequality persists between urban and rural areas.

Those living in rural areas have lower access to education and health facilities, the children have lower net enrollment rates, and the adults have lower average education attainment with similar distribution to adults in urban areas. Furthermore, although rural residents suffer from illness more often, their usage of healthcare facilities is less. In addition, they are also disadvantaged in terms of expressing their opinion. Finally, their share of income and consumption is much lower than the share of population living in rural areas, with the share of consumption higher than the share of income.

On the other hand, our examination on inequality between ethnicities does not reveal any systematic inequality. Therefore, we do not believe that Indonesians are discriminated against on the basis of their ethnic background, at least in the four indicators, excluding voice inequality, that we assess. Similarly, the inequality between the western and eastern regions and islands is not systematic, and, in any case, is as bad as the urban-rural disparities.

The findings of this study imply that developing rural areas is the most effective route to reduce inequality in Indonesia. In reducing access inequality, it may be important to build more schools and healthcare facilities. The relationship between better access and better outcomes, however, is ambiguous, which means that in addition to increasing the supply of such facilities, it is also important to enact policies that will increase the demand for education and health services.

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