Health inequity in Indonesia: is it declining?

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Background paper
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Abstract

Indonesia significant progress in health outcomes is followed by significant issues, among them are the issues of inequities and inequalities. These two issues are known to be an important part in achieving plausible health outcome. This study attempts to observe disparity reduction and its acceleration rate in selected health indicators (i.e. access to improved water source and sanitation facility, first-child birth attended by health care worker) over a period of the last 15 years. We analyze the health indicators by clusters of expenditure quintile and regions (urban - rural, Java - non Java, KTI - non KTI).

Our analyses have shown some key observations. First, the national figures show improvement for all indicators except for the percentage of population suffering from diarrhea (seemed worsening). However, the rate of improvement remained stagnant and there was no acceleration. Second, the gap reduction between the rich and the poor in terms of health access and status seemed to slow down or even widened during the post reformation era. Third, the health indicators movement trend by region did not seem to have a pattern and the gap between richer and poorer areas exist in some indicators and nonexistent in others (the widest gap is found between urban and rural areas.). Where it existed, however, the condition persisted along the period of observation.

Keywords: inequality, inequity, health, Indonesia
JEL code: I14, I15
1. Introduction

Indonesia's significant progress in health outcomes is followed by significant issues. Ongoing demographic and epidemiological transition, emerging and continuing diseases and epidemic, high maternal mortality, health outcomes inequities, low and inequitable health delivery system and spending are the urgent issues in need of efficient and effective solutions. These issues are further complicated with the matters of decentralization and the coming implementation of universal health insurance coverage (World Bank 2010a; World Bank 2009; Gottret and Schieber 2006). At the same time, like other middle income countries, Indonesia is now focusing on universal coverage, financial protection and health system efficiency (Gottret and Schieber 2006).

The significant improvement of the life expectancy in Indonesia from 45 years in 1960 to 69 years in 2011 (World Bank 2012) has lead to another health problem in which the need for care related to aging may double and the number of non communicable disease cases may raise (World Bank 2009; Ministry of Health (MoH) of Indonesia: Health Research and Development Unit 2008). Indeed, Indonesia is currently experiencing epidemiological transition, marked by the move of mortality causes from communicable diseases to non-communicable diseases. Ministry of Health (MoH) of Indonesia is facing double burden, the slow decrease of communicable diseases and the fast increase of non-communicable diseases. The prevalence of people diagnosed with stroke and hypertension are at the highest on unemployed group (17% and 11%) (World Bank 2010a; Ministry of Health (MoH) of Indonesia: Health Research and Development Unit 2008). In addition, communicable disease such as HIV/AIDS in Indonesia is still among the fastest growing in Asia (UNAIDS 2007), and the epidemic is moving from among injecting drug users (IDUs) and their sexual partners, to heterosexual transmission (National AIDS Commission (NAC) 2012). The services against HIV/AIDS (e.g. antiretroviral treatment, voluntary counseling and testing) are currently less effective due to, among others, financial burden accessing the services (Posse et al. 2008; Portelli et al. 2012; Brinkhof, Pujades-Rodriguez, and Egger 2009; Haroen et al. 2011; Riyarto et al. 2010; Suherman et al. 2009).

The infant mortality rate has significantly decreased from 128 per 1000 live births in 1960 to 25 per 1000 live births in 2011, and is considered having middle level infant mortality rate and ranked 10 among Association of Southeast Asian Nations (ASEAN) and South East Asia Region Organization (SEARO) countries. Maternal mortality ratio (per 100,000 live births) has also decreased from 307 deaths in 2002 to 230 deaths in 2007, respectively (World Bank 2012; Ministry of Health (MoH) of Indonesia 2011). However, despite this progress, maternal mortality rate of Indonesia still remain as
one of the highest in Asia (World Bank 2010b). Two possible factors for this are the still underutilized antenatal care (mainly caused by low financial and maternal education level, as well as distance to health facilities) and under average requirement nutrient intake of pregnant women (Titaley, Dibley, and Roberts 2010; Hartriyanti et al. 2012).

Moreover, compared to neighboring countries, Indonesian progress is also still lagging on major health outcome indicators such as infant and under-five mortality (Figure 1). Three possible causes are the poor quality of basic health care, low utilization rate of secondary (hospital) health care by the lowest poverty quintiles, and low levels of preventive care. The relatively low investment in health and currently limited insurance coverage affect the demand for health services, further limiting the funding sources for the development of health care provision (World Bank 2007; Mceuen, Mize, and Barraclough 2009; World Bank 2012).

**Figure 1. Infant mortality rate (per 1,000 live birth) in ASEAN countries**

![Infant mortality rate graph](Adapted from WDI-on line(World Bank 2012))

In terms of health budget, although total health expenditure of Indonesia has increased (reaching US$11 billion in 2010), the public spending on health only reached less than three percent of GDP, and the public spending on health (as a proportion of GDP) has stagnated in recent years. Total health expenditure in Indonesia consists of public spending, private spending (including out of pocket spending and private insurance) and external resources, with private spending on health dominated the total health expenditure until 2006. Additionally, despite this increase, Indonesia still spends comparatively little on health in comparison to Vietnam, the Philippines, Malaysia and most of Indonesia’s other neighbors. In 2007, Indonesia spends less than 3 percent of GDP on the health sector (split between private and public spending in a ratio of 2 to 1)(World Bank 2010a; World Bank 2009; Ministry of Health (MoH) of Indonesia 2011; World Bank 2008; World Bank 2012).
Moreover, the public spending on health is inequitably distributed across provinces and income groups, and indeed Indonesia's public health subsidies are the least pro poor among East Asian countries (World Bank 2010a; World Bank 2009). Health financing is largely private, with individuals share 65 percent of total health expenditure, dominated by out-of-pocket payment (75 percent). Consequently, the poor utilize and receive less publicly funded services and public subsidies than the rich. The poorest 20 percent of the population receive less than 10 percent of total public health subsidies, compared to the richest quintile who captures almost 40 percent. In addition, there are important regional and socioeconomic inequities in the health system, i.e. people in rural areas, and the poor have less access to the health system (World Bank 2008; World Bank 2007; World Bank 2010a; World Bank 2003; World Bank 2009).

In addition, decentralization has caused changes in the health care financing system. Local governments share in total public health spending has increased from 10 percent prior to decentralization, to 40 percent in 2009. Although this could make public spending more responsive to local conditions and disease patterns, it may also cause the loss of economies of scale, increasing regional disparities and a lack of critical health information (World Bank 2009; World Bank 2007; World Bank 2003; The President of Republic of Indonesia 2012).

Health care facilities and workers (e.g. hospital, primary care centers, physicians, nurses, and midwife) in Indonesia, although widely available and increasing in number, are distributed unequally across region (World Bank 2010a). For instance, current hospital utilization in West Java is dominated by the highest income group (own calculation, based on National Social and Economic Survey 2008 and 2009). On the other note, a lot of Indonesian people consume a large proportion of their health services and products from the private sector, which gives a lot of potential in further engaging the private sector in delivering health services (Mceuen, Mize, and Barraclough 2009).

From the previous description, it can be observed that health issues are closely related to inequity and financial burden. Therefore, the improvement of Indonesia's health outputs and outcomes must be observed closely, especially in terms of equity. Although health outcomes may seem to improve, the persistent distributional issues in the health sector may cause the poor to be left behind (World Bank 2009; Gwatkin and Guillot 2000). A more precise indicators are required to develop a more appropriate and effective policies and monitor health outcome as well as health programs. The success of a health intervention on those who relatively has no economic issues cannot be granted as a success of the intervention on whole population as those who are economically struggling may have problems accessing the treatment in the first place (World Bank 2009).
Thus, developing a specific policy/intervention and public subsidy for those who are having economic obstacles may improve the overall health outcome and achieve health systems objective (World Bank 2009). As equity is an important part in achieving plausible health outcome, this study attempts to observe whether there is a disparity reduction in selected health indicators over a period of the last 25 years. In addition, we also observe whether there is any slowing down in the rate of disparity reduction of selected health indicators prior and post reformation era (before and after 1997-2000 period). We present and analyze the health output and outcome data clustered by expenditure and region (urban - rural, Java - non Java, KTI - non KTI).

Although this exercise on the prior health indicators, to some extent, has previously been done (World Bank 2010a; Ministry of Health (MoH) of Indonesia: Health Research and Development Unit 2008; Ensor et al. 2012), it has not been done continuously and were done separately. Given the importance of health information system (Ministry of Health (MoH) of Indonesia 2011), it is imperative such database and its analysis to be developed and provided openly for both government and public.

**Research method**

We analyzed data from SUSENAS within the period of 20 years (1992-2012). We focused our study on access to improved water source and sanitation facility, and number of first-birth assisted by health care worker (HCW). We used STATA 10 and Microsoft Office Excel 2007 to conduct all data analysis.

We based our grouping of water source and sanitation facility on the category used by World Bank in World Development Index (World Bank 2012), namely improved and unimproved water source/sanitation facility. The analysis of water source and sanitation facility was done at household level. Household is said to have improved water source if the water comes from one of the following: piped water, borehole, bottled water, protected well/spring, or rainfall. The other sources such as unprotected well/spring and river are considered as unimproved. Access to improved sanitary is determined by type of sanitary used by households. Improved sanitary access is represented by modern closet.

The analysis on birthing assistance was done at individual level. We divided the type of birth assistance into health care worker and non health care worker. Doctor, midwife and paramedic are categorized as health care worker, while traditional midwife, traditional healer and other practitioner are categorized as traditional practitioner.

All variables were differentiated into several groups (whenever relevant), namely expenditure quintile (as proxy for income) and region (urban - rural, Java - non Java and KTI/east Indonesia - non KTI).
/west Indonesia). We still include Timor Timur in the analysis until its separation from Indonesia. Banten and Papua are included once the province exist. West Indonesia (non KTI) comprises provinces such as: Sumatera, Java, Bali, and Kalimantan, while the rest of the provinces are categorized as east Indonesia (KTI).

We classify expenditure into five quintile groups: quintile one represent the 20% poorest of the population and quintile 5 represent the 20% richest of the population. In the analysis, we tried to analyze the improvement in terms of access and health status in each household/individual level, especially the poor. For example, to see whether the poorest household access to improved water source is getting better overtime, we divided the number of household in quintile one who has access to improved water source by the number of all household in quintile one and we observed the trend for available years. We summarize our choice of indicators and calculation method in table 1 and 2.

<table>
<thead>
<tr>
<th>Table 1. Indicator description and criteria</th>
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<tbody>
<tr>
<td>Name of indicator</td>
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<tr>
<td>Access to improved water source</td>
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<tr>
<td>Access to improved sanitation facility</td>
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<td>First-child birth assisted by health care worker</td>
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Source: author's construct

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<th>Table 2. Method of calculation</th>
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<tr>
<td>Type of analysis</td>
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<tr>
<td>National</td>
</tr>
<tr>
<td>Expenditure quintile</td>
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<tr>
<td>Urban - rural</td>
</tr>
<tr>
<td>Java - non Java</td>
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<tr>
<td>KTI - non KTI</td>
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</tbody>
</table>

Source: author's construct

2. Expected affecting factors

During the period of 1992 until 2012, Indonesia has experienced tremendous significant incidences and system changes which influence the health sector such as economic crisis, decentralization, and
social security initiatives. This section will explore these factors and suggest how they may influence our results.

**Economic crisis**

The onset of 1997 economic crisis has impacted the health sector severely. Generally, both public and private health services quality were deteriorating. The availability of Vitamin A was significantly reduced at both public and private health facilities in 1998, while antibiotics and bandages outages increased considerably at the primary health centres (Frakenberg, Thomas, and Beegle 1999) (RAND, 1999). These quality deterioration has created distrust among the public and many people turned to self-medication, partly responsible for lowering health services utilisation rates: modern medical facilities utilisation dropped by 12.8 and 10.5 per cent in 1997 and 1998, respectively. Most of this reduction was mainly caused by the fall on the public services use (Lanjouw et al. 2002). Indeed the use of the *posyandu* (community health posts) by children under five fell from around 50 per cent in 1997 to approximately 25 per cent in 1998 (Frakenberg, Thomas, and Beegle 1999).

During the crisis, the number of infectious disease cases (e.g. malaria)increased and health budget lowered (Gani 2005). Figure 2 shows the malaria annual parasite incidence (API) per 1000 population in Java-Bali. The incidence increased dramatically after 1997, reportedly impacted by the economic crisis (Gani 2005). The peak number of incidence was at the year 2000 (0.81 ‰), approximately amounting to 172,850 people infected (using total population of 2000 (World Bank 2012)) in the region where malaria is supposedly at a low endemic level, now almost reaching moderate endemic level(Ministry of Health (MoH) of Indonesia 2011). Indonesian Human Development Index (HDI) has also dropped from 67.7 in 1996 to 64.3 in 1999 (figure 3), placing Indonesia below Malaysia and Thailand (Departemen Kesehatan Republik Indonesia 2002; Badan Pusat Statistik Indonesia 2013).

**Figure 2. Annual Parasite Incidence (per 1,000 population)**

![Annual Parasite Incidence Graph](source)

*Source: Ministry of Health of Indonesia (Kementrian Kesehatan Republik Indonesia 2010; Departemen Kesehatan Republik Indonesia 2006; Departemen Kesehatan Republik Indonesia 2002)*
Decentralization

Decentralization in year 2001 (developed in 1999) brings significant changes to the health system. The health policy and financing design and implementation does not all come directly from the ministry anymore and every region has their own authority to develop and manage their own. The perception and commitment of local government became key factors. Unfortunately, this condition was used by some regions to consider health service as a source of income, possibly resulted in a view that investing in health was unfavorable policy (Gani 2005).

Indeed the period of the start of decentralization is viewed as uncoordinated change and does not cause significant impact. In fact, during 2006-2007, Indonesian health sector experienced a more centralized financing system despite the decentralization (Trisnantoro 2009). In addition, the direction of health financing transfer from central to districts is still unclear. Although districts has a powerful role in developing its region, their decision making capacity in health sector is limited as most of the policies and financial decisions are made at the central level (Herawati 2011). This top down nature of health sector is causing problems in the district/city health office reorganization following the decentralization (Sunjaya 2010).

Planning and budgeting tools

This period also see the rise of many planning and budgeting tools which should give significant impact to the process of health financing and planning, such as the Integrated Health Planning and Budgeting (P2KT) developed in 1996 and has undergone several revisions following the changes of the Indonesian governance system (Gani, Nadjib, et al. 2008); national (NHA) and district health account (DHA): NHA was originally initiated at the 1980 with the help of USAID, but then the activity was fairly reduced after 1990 and revitalized in the 2004 with help of WHO, MoH and BAPPENAS, while DHA was developed by University of Indonesia and AusAID in 2009 to support NHA especially given the case of decentralization (Gani et al. 2009); and National AIDS Spending
Assessment (NASA), developed by UNAIDS especially to track health spending related to HIV/AIDS (National AIDS Commission (NAC) 2008). These analytical tools should be able to make health planning and financing more efficient and effective.

**Social Security System**

Social insurance is aimed to increase coverage of health service. It enables the poor and near poor people to gain access to health service and reduce mortality, morbidity and inequality. The social security system itself was established in 2000 known as National Social Security System (SJSN), stating that health financing system in Indonesia will move to social health insurance scheme. A government regulation in 2007 described that districts has the authority to manage health financing scheme in line with their local condition and to assist the implementation of national health insurance scheme (Gani, Thabrany, et al. 2008).

District health financing has evolved since then and was at the cross roads between providing insurance scheme or free (subsidized) health care (most districts/cities started in 2006-2007, but some started earlier). Although both approaches bring positive impact in terms of health care utilization, giving free health care has proven to be more popular as it has more political attractiveness. However, providing free health care has its weaknesses, including miss targeted subsidy such as subsidizing the non poor instead the poor, as the poor has been covered by other health social insurance scheme called *ASKESKIN* (2005-2007), later called *JAMKESMAS* (2008 - onwards) (Gani, Thabrany, et al. 2008; JAMSOS.com Indonesia 2013). Indeed, negative political will may hamper the equity and equality in health (Herawati 2011). One other health social insurance developed by the government is called *JAMPERSAL* (2011 - onwards, previously a part of JAMKESMAS program in 2010), developed specifically to target women giving birth. This insurance allows the women to have free delivery care and give, allowing them to give birth with the assistance of health care worker at no cost. The program also covers pre and post natal consultations. All services can be freely accessed at primary health centres (*puskesmas*) and its network or third class hospitals (Ministry of Health of the Republic of Indonesia 2011; International Labor Organization - Social Security Department 2013).

3. Results

*Access to improved water source*

Nationally, the percentage of population with access to improved water source was increasing overtime, although the marginal rate of change relatively stagnated. This trend persisted except for 2000 where there was a fluctuation (figure 2).
Breaking down the figure into expenditure quintile, however, gives a new insight. Figure 3 shows that the percentage of population in quintile 1 (the 20% poorest) who have access to improved water source was always below the percentage of population in quintile 5 (the 20% richest) who have access to improved water source (more than 20% difference each year). The gap seemed to be closing during the pre reformation era, but since 2000 onwards the gap was increasing (figure 4). As such, although there was improvement in the percentage of population in quintile 1 having access to improved water source, the gap between the rich and poor in this case increased in the post reformation era.
The comparison between regions (urban - rural, Java - non Java, and KTI - non KTI) gives similar trend. All regions experienced improvement in access to improved water source, but the gap between the richer and poorer regions remain relatively similar (figure 5). The marginal rate of change of each region was relatively flat.
Access to improved sanitation facility

At the national level, the percentage of population able to access improved sanitation facility was increasing overtime (figure 6). The rate of improvement, however, seems flat.

Figure 7 presents the access of population to sanitation facility by expenditure quintile. The richest quintile (quintile 5) access to improved sanitation facility was always above the access of the poorest quintile (quintile 1). The gap, however, seemed stagnated during the post reformation era. This is confirmed by the gap trend in figure 7, where prior to reformation the gap was increasing, and went relatively stagnant during the post reformation period. Additionally, we found that during the pre reformation era, the rate of gap increasing between quintile 1 and 5 was, on average, 0.5% per year. This rate decreased significantly during the post reformation era to 0.01% per year where the gap between quintile 1 and 5 persisted until 2012. We present possible reasoning for this under the discussion section.
Turning our analysis into regions, all type of grouping (urban-rural, Java - non Java, KTI - non KTI) have similar trend in which the access to sanitation facility in all regions were increasing. The gap, however, differed. By far, the gap of percentage of access to improved sanitation facility between rural and urban was the largest (around 20%) and only improved slightly in due course. The access gap between Java and Non Java, as well as the KTI and non KTI regions seemed to increase after the year 2000 onwards and persisted until 2012.
First-child birth assisted by health care worker (HCW)

The percentage of first-child birth assisted by HCW was generally increasing, except between the year of 1996 - 1998 where the rate was fluctuating. The marginal rate of change, however, was flat.
Figure 10 presents the indicator differentiated by expenditure quintile. The percentage of first-child birth assisted by HCW increased in both quintile groups. The increase rate of those in the richest quintile (quintile 5) was much slower than that of those in the poorest quintile (quintile 1) and the gap between the two quintile groups was closing over the period of analysis (figure 11). We provided possible explanations for this under the discussion section.

Figure 13. Percentage of first-child birth assisted by HCW by expenditure quintile (national level)

Source: author's calculation based on SUSENAS

Figure 14. Gap of the percentage of first-child birth assisted by HCW between quintile 1 and quintile 5 (national level)

Source: author's calculation based on SUSENAS
In terms of regional analysis, as with our findings on sanitation facility, the largest gap was found between the rural and urban areas. Overall, the percentage first-child birth assisted by HCW in the rural areas rose faster than the rate at the urban areas. The gap of the indicator between Java and non Java region exist primarily after 2005, whereas the gap between KTI and non KTI seemed relatively increased overtime.

Figure 15. Percentage of first-child birth assisted by HCW by regions at national level (urban-rural, Java - non Java, KTI - non KTI)

Source: author's calculation based on SUSENAS
4. Discussion
This paper have explored the changes of selected indicators overtime in several groups. Through our observations, we have come to several key findings.

First, the national figures show improvement for all indicators except for the percentage of population suffering from diarrhea. However, the rate of improvement appeared to be relatively stagnant overtime aside of a few movements. It seems that there was no acceleration in the progress found on all three indicators.

Second, the inequity in all our selected health indicators between the poorest and the richest persisted overtime. This is consistent with the findings by World Bank (World Bank 2010a). Moreover, the trend in some indicators in terms of equity seemed to be worsening during the post reformation period. In the case of access to improved water source, the gap between the 20% richest and the 20% poorest of the population increased during this period. On the other hand, the gap on the number of first birth assisted by HCW consistently closing, although the rate seemed to slowing down after reformation, although it is a bit difficult to see in our figure. The consistent gap closing may partly be explained by the progressive effort by the Indonesian government in providing antenatal and delivery care - the amount of deliveries in health facilities and antenatal care provision has been increased from year to year (BAPPENAS 2010). The national strategy called Making Pregnancy Safer (MPS) has been a part of the Healthy Indonesia 2010 vision which is introduced in 1998 (World Health Organization 2009; BAPPENAS 2004), emphasizing on integrated and systematic planning, clinical intervention and partnership (Untoro et al. 2009). The programs targeting maternal, neonatal and child health (MNCH) are also strengthened by community and family support program (which includes conditional cash transfer and women empowerment), government and community element partnership, and the application of continuum of care principle (Untoro et al. 2009). In 2010, JAMPERSAL (health insurance targeted specifically to improve safe pregnancy as well as pre and post natal care) was introduced as a part of JAMKESMAS, before in 2011 it became a standalone program (International Labor Organization - Social Security Department 2013). JAMPERSAL is expected to help Indonesia in achieving the fourth and fifth MDGs (Ministry of Health of the Republic of Indonesia 2011). However, the gap between the richest and the poorest in terms of first birth assisted by HCW persisted until 2012 and the poor remained having lower assistance from the HCW in giving birth. This is consistent with the findings reported in the Indonesia Millennium Development Goals (MDG) reports (BAPPENAS 2004; BAPPENAS 2005; BAPPENAS 2007; BAPPENAS 2010).
Turning our discussion into the access to improved sanitation facility seemed to give another view, whereas the gap was increasing during pre reformation era and relatively stagnated during the post reformation period. Among possible explanations behind the narrowing gap in the access to sanitation is the implementation of Sanitation Improvement by the Community Program (Sanitasi Berbasis Masyarakat or SANIMAS) that was introduced as a pilot during 1998-2003 (BORDA 2010). The program incorporated selection of systems and technical options, as well as addressing health and environmental impact, community participation, and social and institutional issues, which proven to be critical in ensuring the longevity of the program (Sinarko Wibowo 2011). Since 2005, the government has supported using a technical approach namely decentralized wastewater management treatment solution (DEWATS) as a part of SANIMAS (BORDA 2010). Following, more funding resources was allocated for SANIMAS, as in 2010 the government committed to set up a specific funds for sanitation sourced from Specific Allocation Funds (DAK), separated from DAK for drinking water budget. One of SANIMAS’s success stories is marked by its significant increase in the number of users. During its initial implementation in 2003, there were only 1,239 users and the number increased to 3,059 in the following year. In 2006, SANIMAS was able to capture 23,886 users, doubled to 51,208 users in 2007. During the year 2011, SANIMAS program has covered around 476 locations in Indonesia.

Our third key finding is regarding the gap between regions (urban - rural, Java - non Java, and KTI - non KTI), which seemed to vary over the years and did not have a clear pattern, although the trend of health access and status for every region was similar. In some cases, the gap between the poorer and richer regions exist and persisted throughout the observation, only to narrow slightly in the later years. In the other cases, the gap was really small and equitable health access and status between regions seemed to be attained. The richer regions, however, seemed generally to have better health indicators compared to the poorer regions. Throughout indicators, the gap between region exist primarily within the comparison of urban and rural area. Our findings are also consistent with those reported in all of the Indonesia MDG report (BAPPENAS 2004; BAPPENAS 2005; BAPPENAS 2007; BAPPENAS 2010). One possible explanation is the unbalanced distribution of HCW and facilities between urban and rural areas (BAPPENAS 2010). To this extent, however, our findings require further (more specific) study for each region to derive a firm conclusion.

Lastly, it seems that not all of the factors that we expect to influence our indicators are indeed having impact (i.e. economic crisis, decentralization, planning and budgeting tools, and evolution of social security system). Three points are relevant. First, it seems that the 1997 economic crisis might be the most obvious impacting factor, although this require further confirmation. Generally, it has been observed that economic crisis has caused worsening health status in the short term in Indonesia (Friedman and Thomas 2008; Waters 2003; Hopkins 2006; Stuckler et al. 2009) and some other
countries (Cutler et al. 2002; Khang, Lynch, and Kaplan 2005; Stuckler et al. 2009). Furthermore, the health relative disparity in Japan did increase after its economic crisis (Kondo et al. 2008). Therefore, the 1997 economic crisis may cause a decline in health status and increase the disparity of health status between the rich and the poor in Indonesia. We suggest that conducting further research focusing into factors affecting these changes in equity may provide more explanation.

Second, the use of various planning and budgeting tools did not seem to have a clear impact in increasing the rate of improvement or inequity reduction, but this cannot be concluded at this point. Third, we also observe that after 2007 the percentage of women giving birth (from the poorest quintile) assisted by HCW increased relatively fast. Although it is currently difficult to pinpoint given the current objective of the research, this might (partly) be the result of the implementation of social insurance system and supporting MNCH programs. We also realize, however, that the percentage of women in the richest quintile who gave 1st birth assisted by HCW was already high, making it difficult to have a rapid progress rate. Regardless, we believe it is important to conduct a study on the impact of social security system to the overall health status as the government is currently developing a policy concerning national health insurance.

Finally, it looks like that decentralization might have increased the gap between region. Most of the disparities between regions seemed to occur after the onset of decentralization. Although we cannot conclude at this point that the disparity was solely caused by decentralization, we suggest further study should be conducted in pursuing further evidence related to this observation.

Our study comes with two weaknesses. The variables in SUSENAS can vary from one year to another, therefore posing the issues of data inconsistency and unavailability. We have tried to overcome this issue, but in the case where data inconsistency and unavailability were severe, we opt to excluded the year of observation or provide a note in our analysis. Furthermore, we have not yet done a more detailed analysis on factors affecting/causing the trend in each of the indicators. We believe this should be done in separate studies for each of the indicator in its respective groups of analysis (expenditure quintile and region).

5. Concluding remark
Our analyses have shown some key observations. First, the national figures show improvement for all indicators except for the percentage of population suffering from diarrhea (seemed worsening). However, the rate of improvement remained stagnant and there was no acceleration. Second the gap reduction between the rich and the poor in terms of health access seemed to be slower during the post reformation era. Third, the health indicators movement trend by region did not seem to have a pattern and the gap between richer and poorer areas exist in some indicators and nonexistent in others (but the
trend of the indicators for each region is similar). Where it existed, however, the condition persisted along the period of observation. For all region group, the disparity exist primarily between urban and rural areas. Fourth, further study should be conducted in confirming the impact of our expected influencing factors, but thus far it seems that the economic crisis is the most potential factors in influencing our indicators.

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