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Analyzing Regional Performance and Disparities in Health Outcomes in Ethiopia

Abstract

This paper analyzes regional performance and outcomes on three Millennium Development Goals (MDGs) on child health, maternal health, and HIV/AIDS and TB using regionally disaggregated data on Ethiopia. MDG targets on each of the three health goals were used to compute annual targets that each regional state needed to meet in order to remain on track. These annualized targets were then used as benchmarks for assessing performance of regional states on these health goals and further to analyze disparities in health outcomes across regional states between 2006 and 2010. Results reveal significant disparities both in terms of progress and health outcomes across regional states over this period. The analysis further shows that regional states which had poor health indicators and outcomes during the 2006 baseline period managed to improve the health conditions of their respective populations more rapidly than those regional states which had comparatively better health outcomes in the initial period. Despite the substantial progress the country has made so far, there are still significant disparities in health indicators that needed be addressed in order to accelerate progress and promote regional equity in health outcomes.

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Analyzing Performance and Regional Disparities in Health Outcomes in Ethiopia

I. Introduction

Accelerating economic growth, reducing poverty, and enhancing overall human development outcomes have been top priorities of the Ethiopian Government since 1990. Evidently, the Ethiopian economy has been growing rapidly, recording real economic growth rates of 11.4 percent over the last eight years, placing the country among the fastest growing economies in Africa (African Development Bank (AFDB), 2011). This impressive economic performance has enabled the country to quadruple its per-capita income over this period and to significantly improve social conditions for the majority of its citizens. Further, the 2010 Human Development Report (HDR) ranked Ethiopia as the 11th fastest mover of human development globally since 2000, having recorded a significant increase in the Human Development Index (HDI) from 0.250 in 2000 to 0.328 in 2010 (UNDP, HDR 2010). The percentage of the population living below the poverty line also declined from 44 percent in 2000 to 29 percent in 2010.

The five-year development plan referred to as the Growth and Transformation Plan (GTP), which incorporates all the MDGs, aims to further consolidate these gains to accelerate human progress and attain the country's MDGs by 2015. Ethiopia is currently on track on five of the eight MDGs and has exhibited great potential to bring the other three lagging MDGs on gender equality (goal 3), maternal mortality (goal 5) and environmental sustainability (goal 7) back on track by the end of the MDG period in 2015. And while MDGs relating to child health (under-five and infant mortality) are on track, more sustained effort is required to ensure that this progress is sustained and not side-tracked in the remaining five years. Such efforts might involve making further progress in reducing poverty, increasing educational attainment levels, promoting environmental sustainability and, building and strengthening international cooperation around the country's overall development agenda.

This paper examines Ethiopia's progress towards meeting health related MDGs as part of its quest to enhance and promote inclusive and equitable human development and stir the economy on a path to middle income status by 2025. Cognizant of the fact that the country is on track on child health related goals but off-track on maternal mortality, the paper seeks to unmask this perfromsance by looking deeper into regional disparities in health outcomes. It also examines how regional disparities can be addressed to promote broad-based and equitable health delivery across the nine regional states and two administrative cities, Addis Ababa and Dire Dawa. Understanding trends in health outcomes at regional level can help to tailor regional specific interventions to address identified constraints to service delivery or factors that inhibit access and utilization of health services at facility level. It is envisaged that regional specific analysis of disparities in health conditions and outcomes will provide invariable information to policymakers and development practitioners seeking innovative ways of accelerating progress on health related MDGs and addressing inequalities in access and utilization of health services across regions and socio-economic groups.

The rest of the paper is organized as follows: section two briefly discusses data and methods of analysis employed in the paper while section three provides a detailed review and analysis of performance and disparities in health outcomes using information on three health MDG goals and their respective subsidiary targets obtained from the 2005/06 Demographic and Health Survey (DHS). The penultimate section summarizes the evidence and discusses policy implications for addressing these disparities and accelerating progress in health related MDGs and promoting equity in health outcomes across regions. The final section concludes the paper.

II. Data and Methods

The objective of this paper is to review the country's performance on three health related MDGs on child health, maternal health, and HIV/AIDS, malaria and tuberculosis using both national and regional data and to examine the variations in performance across nine regional states and two administrative cities of Addis Ababa and Dire Dawa. For the purpose of this paper, both regional states and administrative cities are hereafter referred to as regional states. Data on MDG goals and targets and performance against these goals were assembled from government published reports and databases and supplemented by data compiled from international publications and databases to enrich the analysis. Both national and regional data on these MDGs were compiled and analyzed using statistical and trend analysis techniques.

To assess regional performance against annualized health targets between 2006 and 2010 for which data is mostly available, we constructed a linear trend for each MDG goal and targets from the baseline period to the MDG target in 2015. It is important to note the regional data for 2010 are projections based on the average growth rates observed over the period between 2004 and 2009. The annual rate of progress towards the target is then computed and used to calculate annual targets for each MDG goal and subsidiary targets for each of the five years from 2006 to 2010. These annualized targets are compared with actual performance data at national and regional level to determine the regions that are currently below, on, and above the annual MDG targets and to examine the progress each region has made towards meeting these targets by 2015.

III. Regional Disparities in Health Outcomes

3.1: Child Health (MDG 4)

Reduce Under-Five and Infant Mortality by Two Thirds by 2015

The Ethiopian government has prioritized child health and promulgated a child survival policy which has helped to substantially reduce child mortality in the country. The MDGs on child health seeks to reduce under-five mortality (UMR) by two-thirds or to reach 63 deaths per 1000 live births by 2015 from 190 deaths per 1000 live births in 1990. To reach this target Ethiopia needs to reduce UMR by 4.5 annually over the 25 year period. The Ethiopian government has made important strides in reducing UMR, but these are not enough. The government needs to scale up and sustain progress in the remaining years in order to reach the target by 2015. For example, between 1990 and 2000, the UMR declined to 167 deaths per 1000 live birth from the baseline, a reduction of 1.3 per annum against the projected average annual decline of 4.5 percent over this period. This means that if the country was on course on this target, it would have saved 70 additional lives per 1000 live births between 1990 and 2000.

However, between 2000 and 2005, government scaled up efforts to accelerate progress in later years and managed to reduce UMR to 123 deaths per 1000 live births by 2005. This represents an annual average decline of 6.3 percent against 4.5 percent annual average decline over the 25 year period thereby more than compensating for the slow progress made in earlier years. With this progress, the country needs to sustain its efforts and reduce UMR by 6.9 percent annually between 2006 and 2015 in order to reach the MDG target of 63 deaths per 1000 live births in 2015. Preliminary data from the DHS for 2010 indicates that this target is achievable having already reduced UMR to 88 per 1000 live births in 2010.

In terms of infant mortality rate (IMR)[1], the MDG target is to reduce mortality by two thirds to 41 deaths per 1000 live births by 2015. To achieve this target, the country needs to reduce IMR by 4.9 percent annually between 1990 and 2015. By 2005,the infant mortality rate had declined from 123 deaths in 1990 to 77 deaths per 1000 live births in 2005—a decline of 37.4 percent over the 15 year period or 3.2 percent annually. If the country had remained on track, IMR would have reduced to 66 deaths per 1000 live births in 2005, posting a deficit of 11/1000 lives births. Recent DHS data collected in 2010 indicates that Ethiopia's IMR has declined from 77 deaths per 1000 live births in 2005 to 59 deaths per 1000 live births in 2010 (Central Statistical Agency, 2006; 2010). This represents an annual average decline of 5.5 percent annually since 2005. In the remaining five years to 2015, the government should reduce infant mortality by 7.6 percent annually in order to meet the millennium target.

In view of the progress made so far, the health investments undertaken in the last five years and government commitment to implement its health programs, there is optimism that the country will more than achieve the millennium goal on child health. Government's commitment to improving child health outcomes is succinctly reflected in its more ambitious target of reducing IMR to 31 deaths per 1000 live births by 2015 (Government of Ethiopia, 2010).

1- Infant mortality measures the probability of dying before the first birthday, whereas under-five mortality measures the probability of dying between birth and fifth birthday.

While this commitment is realistic and a step in the right direction there will be need to scale-up resource commitments to child health programs in order to achieve the GTP target of 31 deaths per 1000 live births. This is especially important because the marginal cost of saving the last few children will tend to increase as the country approaches its MDG target. In this regard, the government will need to sharpen its health delivery systems and implement interventions that are targeted at saving lives of the most vulnerable and disadvantaged children across the country.

To improve targeting of health-related interventions and promote broad-based and inclusive social development, improvements in health outcomes should be distributed more equitably across all regions and socio-economic groups. Figure 3.1 shows disparities in infant and under-five child mortality rates across regional states in 2006[2].
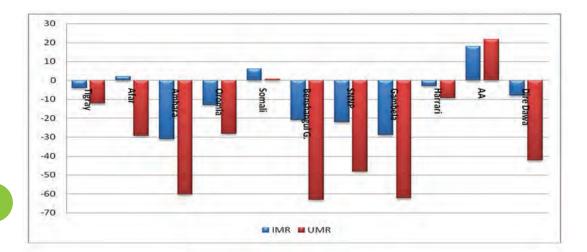
Figure 3.1: Regional Disparities in IMR and UMR--Deviation from 2006 Target

Source: Ministry of Health (MoH), Ethiopia

To facilitate regional comparison, mortality rates are normalized to zero by subtracting observed mortality rates (IMR and UMR) from their respective annualized targets for 2006. In this case, a number less than zero means that mortality rates are much higher than the target and indicates poor child health outcomes in that regional state and vice versa. Clearly, the analysis shows that significant disparities in infant and under-five mortality rates exist across regional states. Disparities in UMR rates across regional states are almost twice higher than in IMR and should be addressed in order to promote equitable distribution of health benefits across regional states. Benshangul Gumuz, Gambella, and Amhara regional states have the worst child health indicators and government efforts to improve children's health in the regions should be scaled up. Only Addis Ababa and Somali met both IMR and UMR annual target by 2006, Afar met only the target on IMR, while the rest of the regions reported deficits in both indicators on child health for 2006.

2- Recent data on IMR and UMR from 2010 DHS survey are yet to be published.

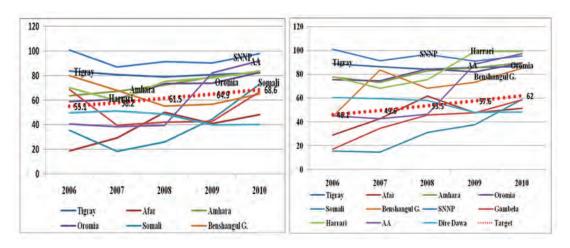## Increase Measles and DPT3 Immunization Coverage to 90 Percent by 2015

Children immunization improves child health outcomes and is an important component of Ethiopia's health sector program. Immunization is one of the sub-goals under child health goals of reducing under-five and infant mortality rates to 63 and 41 per 1000 births by 2015, respectively. It measures the coverage and quality of health care system in the country and the policy attention government gives to child health (MDG Report, 2010). Increasing child immunization coverage can help to reduce child mortality and improve the country's long-term health outcomes. Immunization against measles and DPT 3 were prioritized as areas of immediate health intervention in Ethiopia. The goal is to increase both child immunization against measles from 42 percent in 2002 and child DTP3 immunization coverage from 14 percent in 1990 to 90 percent, respectively by 2015. By 2010, the country's immunization coverage rates for measles and DPT3 increased to 76.6 percent and 81.9 percent, respectively. This level of immunization coverage is impressive and exceeded the 2010 annualized targets of 71.5 percent for measles and 61 percent for DPT3. In this regard, the country is on track to achieve these two sub-goals on child health by 2015.

To examine differences in progress towards universal child immunization coverage at regional level, performance against annualized MDG targets were analyzed using regional data on child immunization for the period between 2006 and 2010. Annualized targets were normalized at zero by subtracting targets from actual immunization coverage recorded in each of the eleven regional states. Figure 3.2 and 3.3 summarizes disparities in measles and DPT3 child immunization coverage across regional states. The data shows significant disparities in immunization coverage across the eleven regional states especially in 2006. Some regional states have recorded significant progress while some regions have posted dismal progress over the last five years.

Figure 3.2: Trends in Measles and DPT3 Immunization (2006-2010)

Source: MoH, Ethiopia

A number of key observations can be made regarding immunization coverage rates attained by regional stated over the period between 2006 and 2010. Results show that Afar, Somali, Addis Ababa and Dire Dawa have the lowest measles immunization rates

(of below 50 percent) in 2006. However, the first three regional states, which had the lowest coverage rates in 2006, managed to raise child immunization coverage rates by more than 100 percent by 2010. Dire Dawa witnessed a reversal in immunization coverage rate which marginally declined by 0.1 percent in 2010.

Regional states which had immunization coverage rates against measles of between 50 and 70 percent in 2006 recorded significant improvements in immunization coverage rates of between 20-40 percent. The other five regional states, namely Tigray, Benshangul Gumuz, SNNP and Gambella, which had measles immunization coverage greater than 70 percent in 2006 reported modest declines in immunization coverage over the five year period. However, with the exception of Benshangul Gumuz and Gambella, all the regional states whose immunization coverage rates exceeded the target in 2006 remained above target in 2010 and were joined by Somali, Addis Ababa, and Oromia which were below target in 2006. Measles immunization coverage rates in Addis Ababa and SNNP reached the target of 90 percent way ahead of the target timeline. But those in Afar, Benshangul Gumuz, Dire Dawa, and Gambella are currently below their 2010 target and interventions to increase immunization in these regions is needed in order bridge the glaring disparities and improve child health in the country.

With respect to DPT3 immunization, the analysis shows that with the exception of Afar, Somali, Gambella, and Dire Dawa, all the other regional states met their annualized DPT3 immunization coverage target for 2010; however, although Afar, Somali, and Gambella did not meet the annualized DPT3 immunization coverage rates, they recorded the most rapid expansion in immunization coverage by 82, 286, and 241 percent, respectively. If the current progress is sustained, these states will meet their targets by 2015. Remarkable progress in DPT3 immunization was achieved in Addis Ababa and Benshangul Gumuz which exceeded the 2010 annualized target by 56.7 percent and 37.3 percent, respectively from a below target position in 2006.

Our final commentaries on this analysis is that although national child immunization coverage rates rose rapidly over the last five years, coverage rates are particularly low and need to be increased in Afar and Dire Dawa regional state while taking measures to sustain progress and prevent progress reversals in the rest of the regional states. It is commendable to see regional states that initially had low immunization rates rapidly increase immunization coverage during the last five years. Consequently, the disparities in measles and DPT3 immunization rates across regions have declined by 44 percent and 55 percent, respectively between 2006 and 2010. This outcome reflects better targeting and prioritization of fiscal resources towards boosting immunization rates in those regional states which were lagging behind. The slow progress in regional states that had reached 70-90 percent coverage may be a reflection of the fact that the cost of immunizing the last few child increases with the coverage rates. This notwithstanding the country should strive to attain immunization rates of above 90 percent in order to generate measurable health benefits from this intervention.

Similarly, the cost of increasing immunization coverage in emerging regional states that are currently lagging behind should be cheaper than in regional state that have achieved 90 percent coverage. This means that government can increase immunization rates by allocating more resources for immunization in regions that are lagging behind than towards achieving universal coverage in regions with over 90 percent coverage. In this context, government's strategy should be to accelerate progress in immunization by picking the low hanging fruits first and more difficult ones later. This will not only boost national immunization coverage but promote regional equity in the allocation of health benefits. In doing so, government should take into account the initial conditions

and regional specific circumstances in order to design and implement cost-effective child health interventions to promote universal immunization and consequently ensure equity in health outcomes across regions.

3.2: Maternal Health: MDG 5

Reduce Maternal Mortality by Three-Quarters by 2015

Ethiopia has one of the highest rates of maternal mortality (MMR) in Africa, standing at 871 per 100,000 deliveries in 1990. The MDG goal on maternal health aims to reduce MMR by two-thirds to 290 per 100,000 deliveries by 2015. This means that over the 25 years period Ethiopia needs to reduce MMR by 5 percent annually in order to meet this target by 2015. By 2006, MMR had fallen by 22.7 percent to 673 deaths per 100,000 deliveries against a projected target of 448 per 100,000 deliveries (UNECA, MDG report, 2010). This means that by 2006 the country was behind its MMR target by 50 percent as MMR only declined by 1.7 percent annually against the projected decline of 5 percent required to meet the target by 2015.
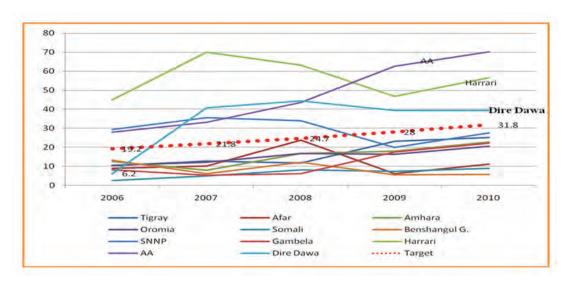
Given these large deficits, the country ought to have accelerated progress on maternal health in the last five years, at least reducing maternal death by 9.8 percent annually in order to get back on track and reach 463 deaths per 100,000 deliveries in 2010. There is little optimism that Ethiopia will get back on track on this target. In fact, preliminary analysis of recent 2010 DHS data suggests that no significant reductions in maternal mortality rates have been made since 2006. There is no doubt that the country will need to make phenomenal reductions in maternal mortality rates by as much as 18.3 percent annually in the remaining five years in order to meet the target of 290 deaths per 100,000 deliveries by 2015. By all practical measure, this will be an unprecedented reduction that will require great commitment from government and its partners.

Conducting regional analysis on maternal health outcomes can produce informative and useful conclusions that can be used in developing and implementing well-targeted strategies to reduce MMR in the country. Unfortunately, there is no data on maternal mortality disaggregated by region to enable detailed analysis of disparities in maternal mortality rates across regions. Instead, inference is made using data on the proportion of births attended by skilled personnel and family planning.

Proportion of Births Attended by Skilled Health Personal

Increasing access and utilization of antenatal services, emergency obstetric care, universal access to family planning services, and increasing the proportion of births attended by skilled health personal can help to substantially reduce maternal and child mortality (UNDP, 2010). The number of births attended by skilled personal in Ethiopia is very low and should be increased in order to ensure safe deliveries, early detection and management of complications, and expedite the referral of complicated cases to specialized health facilities. As part of the strategies for reducing maternal mortality, Ethiopia plans to raise the number of deliveries attended by skilled health personnel from 16 percent in 2006 to 60 percent by 2015.

Figure 3.4: Trends in No. of Deliveries Attendant by Trained Health Personnel by Region (2006-2010)

Figure 3.4 depicts trends in the number of births attended by skilled personnel between 2006 and 2010. During this period, the proportion of births attended by skilled personnel almost doubled to 31.5 percent in 2010 from 16 percent in 2006, although this performance was still below the annualized target of 43 percent in 2010. Dire Dawa made the most significant progress having raised the proportion of births attended by trained personnel from 6.2 percent in 2006 to 76 percent in 2010 and is among the three regions that achieved the annualized 2010 target of 32. The other two regions are Addis Ababa and Harari. Amongst those that failed to meet the 2010 target include regions that started with very low baseline attendance rate but made substantial improvements over the period.

Tigray, Somali, and Gambella regions managed to increase the proportion of births attended by skilled personnel by 141.6 percent , 260.4 percent, and 167 percent respectively, followed by Oromia (94 percent) and Amhara (80 percent) between 2006 and 2010. However, because they started with very low baseline figures, these improvements were too low to enable these regions to meet the annualized target in 2010. For example, although Somali region managed to increase deliveries attended by skilled personnel threefold from 2.5 percent in 2006 to 9 percent in 2010, this was far below the annual 2010 target of 32 percent and the national average of 31.5 percent. Two regions, Benshangul Gumuz and SNNP recorded a decline in the proportion of deliveries attended by trained health workers of 56.2 percent and 6.4 percent, respectively over the 5 year period. SNNP which was originally above target in 2006 was now below target in 2010. This trend is not encouraging and efforts should be made to ensure that past progress in human development is sustained and not reversed. In order to reach the national target of 60 percent by 2015, the country needs to increase attendances by 12 percent annually between 2010 and 2015. This will require greater commitment on the part of government and its partners in devising and implementing measures to improve access to a range of maternal health and family planning services across the country and thereby accelerate progress towards meeting the maternal mortality MDG target by 2015.

Antenatal Coverage (at least one visit)

Ethiopia is one of the four countries in Africa with lowest antenatal attendances of below 50 percent in Africa (MDG Report, 2010). The MDG target on antenatal coverage for Ethiopia is to have 86 percent of deliveries by mothers that have made at least one antenatal visits by 2015, from a baseline of 20.2 percent in 1992. This means that for the country to remain on target, it should increase antenatal coverage by 6.5 percent annually between 1993 and 2015. By 2006, the country needed to have expanded coverage to 49 percent and later to 63 percent by 2010. Initially progress was well on target, with antennal visits reaching 52 percent in 2006. By 2010, however, antenatal coverage increased to 59.4 percent instead of the projected 63 percent required to bring the country on track. Towards the MDG end period, the country needs to raise coverage rates by more than 6.5 percent per annum in order to get back on track and achieve the target of 86 percent coverage by 2015.

Figure 3.5: Trends in Antenatal Coverage by Region (2006—2010)

Which regions have better coverage and which ones are making the most improvement? Interestingly, most of the regions except emerging regions of Afar, Somali and Benshangul Gumuz, are on target with coverage rates of above 62 percent in 2010 (Figure 3.5). However, when it comes to progress to target, emerging regions have made significant strides over the last five years, posting increases in coverage rates of over 100 percent largely because they were coming from a very low baseline. With the exception of Addis Ababa, most regional states that had relative better coverage rates in 2006 recorded slow progress, generally reflecting program prioritization as coverage rates increase and exceed a certain threshold. In order to reduce regional disparities and ultimately attain the target on antenatal coverage, government needs to scale up interventions in emerging regional states and some parts of Oromia where benefits of population numbers would help to boost up the national antenatal coverage levels and ultimately help to reduce the country's high maternal mortality rates.

3.3: HIV/AIDS, Malaria, Tuberculosis, and Other Diseases: MDG 6

Have halted by 2015 and Begin to Reverse the Spread of HIV/AIDS

HIV pandemic has adversely affected the pace of human development in many countries in Sub-Saharan Africa (SSA)[3]. The relationship between HIV prevalence and infections and human development (MDGs) is complex one. For instance, high poverty levels and low educational attainment expose the population to HIV infections and retards progress in health related MDGs including maternal and child health. On the other hand, high HIV prevalence erodes human capital and exacerbates poverty and vulnerability and increases destitution. In Uganda, malaria, anemia, and HIV/AIDS are the three leading indirect causes of maternal mortality, with HIV/AIDS accounting for approximately 70 maternal deaths per year (Mbonye etal, 2007, UNDP 2010), making it even more important for the Ethiopian government to ensure HIV interventions are among priority interventions for reducing maternal and child mortality in the country.

At the national level, the Government of Ethiopia has made tremendous progress towards reducing overall HIV prevalence to 2.5 percent by 2015. In fact, recent data indicates that in 2010, the country's HIV prevalence rate fell to 2.7 percent and is expected to reach one percent by 2015. However, HIV/AIDS prevalence among mothers in reproductive ages (15-24) increased from 0.9 percent in 1990 to 8.6 percent in 2005 before slowing down to 5.6 percent in 2007. The MDG target seeks to reduce HIV prevalence rates to less than 4.5 percent by 2015, and significant progress has since been made to achieve this target. The government has increased facilities providing HIV counseling and testing (HCT), Prevention of Mother to Child Transmission (PMTCT) and Anti-Retroviral Treatment (ART) to 1,469, 877, and 420 facilities in 2009 from 525, 877 and 32 facilities for HCT, PMTCT, and ART in 2005, respectively. This is commendable, but these facilities should boost utilization and reduce HIV prevalence even further and make treatment more effective and accessible to those affected and need of them.
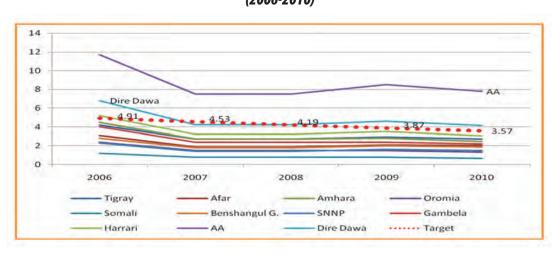
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Figure 3:6: Trends in HIV/AIDS Prevalence Rate by Region (2006-2010)

3- It is estimates that HIV prevalence rate of 10 percent reduces the growth in GPD per-capita by 0.8 percent. This means that for Ethiopia which had prevalence rate of 2.7 percent in 2010, HIV reduced the country's per-capita income down by 0.3 percent in 2010 (UNECA, 2008), Securing our future, Commission on HIV/AIDs and governance in Africa, UNECA, Addis Ababa].

To analyze disparities in HIV prevalence rates across regions, the MDG target of reaching 2.5 percent HIV prevalence rate by 2015 was annualized to determine the annual targets and the rate at which HIV prevalence should be reduced annually in order to meet the MDG target by 2015.

Figure 3:6 shows that between 2006 and 2010, all regional states registered significant gains in reducing HIV prevalence rates among their respective populations. Between 2006 and 2010, HIV prevalence rates fell by 33 percent to 4.5 percent across regional states. Addis Ababa and Dire Dawa had the highest HIV prevalence rates of 11.7 percent and 6.8 percent, respectively compared to an average of 3.3 percent in the rest of the regions. With the exception of Addis Ababa, all the regions managed to reduce HIV prevalence rates below the annual target of 4 percent. These gains should not make government complacent in the fight against the epidemic but rather inspire it to consolidate and sustain these gains with a view to eradicating the scourge [4]. Some of the areas that require further progress include the need to broaden access to HIV treatment to all those infected by the epidemics and ensure that by 2015 universal access to ARTs by all those who need them is achieved.

Rural and poorer regions had much lower prevalence rates and made more progress in reducing prevalence rates than more urbanized regions. In this context, preventative and curative interventions coupled with communication and sensitization campaigns should continue to be areas of strategic focus—treating already infected persons, reducing mother to child transmissions, and ensuring that new infections are prevented will enable Ethiopia to rapidly progress towards eradicating the HIV/AIDS pandemic, which in turn will boost its desire and efforts towards becoming a middle income country.
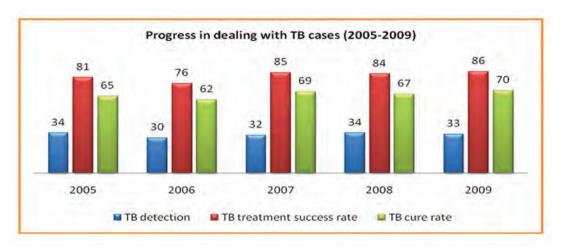
Reduce Incidence, Prevalence, and Deaths Associated with Tuberculosis

Making progress on detection and treatment of TB illness is one of the targets under MDG 6. Ethiopia has one of the highest Tuberculosis burdens and was ranked 7th in the World and among the top three in Africa (WHO, 2008) [5]. Ethiopia targets to achieve TB treatment success rate of 90 percent in 2015 from the 2005 baseline of 60 percent. This means that the country needs to increase TB treatment success rates by 2.7 percent annually in order to meet the MDG target by 2015. While the country is poised to meet this particular target having already exceeded the international standard of 85 percent treatment rate, there is need to substantially increase TB detection rate in order to justify the current favorable treatment rates. TB detection rates are very low and below international standards of 70 (Federal Democratic Republic of Ethiopia, 2009). One is therefore inclined to conclude that the high treatment success rates so far achieved have been driven by the unusually low numbers of TB cases detected, currently at 33 percent of total cases (Figure 3.7). By inference, this seems to indicate that TB deaths should be much higher than officially reported as only 20 percent of all TB illnesses are successfully treated and cured. The other 66 percent of the total TB illness that are not detected are most likely not treated and therefore cause deaths. In this regard, government should scale up efforts with regard to TB screening and detection if it is serious about reducing the country's high incidence of TB illness and deaths and ultimately contribute towards meeting the health-related MDGs by 2015.

4- This is important in the sense that some countries that made significant strides in combating the HIV/AIDs pandemic like Uganda are facing a resurgence of high infection rates with about 1.2 million people infection, and 43 percent of these are among old age and mature groups (Republic of Uganda, 2010)
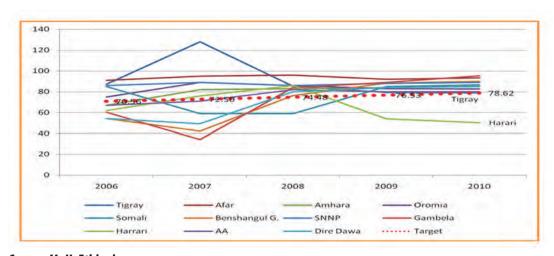
5- WHO (2008) Global TB control, surveillance, planning and financing, WHO report, Geneva.

Figure 3:7: Trends in TB Detection, Treatment, and Cure (2005-2009)

Progress in dealing with TB cases (2005-2009)

Source: MoH, Ethiopia

Figure 3.8: Trends in TB Treatment Success Rates by Region (2006-2010)

Source: MoH, Ethiopia

In terms of regional performance in TB treatment rates, figure 3.8 above shows that all regions are currently on target, except Harrari, and regional variations have been narrowed down significantly over the period between 2006 and 2010. Benshangul Gumuz made the most progress in TB treatment, having raised its TB treatment to 90 percent in 2010 (66 percent increase from 2006) and ranks second to Afar with 93 percent TB treatment rate. Generally, variations across regions have also narrowed down significantly (80 percent-93 percent, except Harrari) over the period. Improvements in terms of treatment and cure success rates are needed, and can be achieved by implementing measures aimed at making Directly Observed Treatment Short Course (DOTS) more effective by enhanced reporting, community mobilization and participation in achievement of the treatment therapy (FDRE, 2009).

Incidence of TB illnesses may be correlated with HIV/AIDS infections and therefore effectiveness in HIV/AIDS prevention, testing and treatment will in this case have a measureable impact on TB detection, treatment and cure. As indicated above, measures to increase detection will deliver better outcomes both in terms of treatment and curative effectiveness and must be prioritized in the remaining five years of the MDG target timeline.

IV. Summary of Key Findings

The paper examines progress towards achieving the three health related MDGs and looks at performance in each of the goals using targets and indicators developed for monitoring the country's progress on MDGs on maternal health, child health, and other diseases (HIV/AIDS, TB and Malaria). The analysis focuses on unmasking national MDG progress assessment published in the 2010 report by conducting detailed analysis on disparities in performance across regional states in Ethiopia. Since health related MDGs are aimed at improving health outcomes for all, understanding differences in performance across regions provide vital information for determining how health benefits are distributed across regions. The analysis is also vital in assisting government and its development partners in the sector to device and implement strategies to accelerate progress in regions that are currently lagging behind, prevent progress reversals, and ensure a more inclusive and equitable health service delivery systems across the country. No attempts have been made in this paper to explain the determinant of these disparities.

Table 1 in the appendix summarizes regional performance across health related indicators in 2010. The national annualized target is presented in column two and regional performance in the rest of the columns. Regional states that met the 2010 annualized targets are indicated with a tick while those that did not indicated with a cross. The results indicate that only three regional states met the 2006 annualized target on IMR, two regional states met the target on under-five, and seven regional states met the targets on child immunization. At the national level, the data shows that the country is on course and will achieve all MDG targets on child health by 2015. However, there are concerns over high regional disparities in child health outcomes, especially for under-five children where disparities are almost twice higher than for infants. These regional gaps need to be narrowed down in order to promote social equity across regions. Disparities in child immunization coverage which were initially high have fallen significantly, declining by 44 percent and 50 percent for measles and DPT3 vaccinations, respectively. On aggregate, the country is on track to meet child immunization targets by 2015.

With respect to maternal mortality the goal is to reduce maternal mortality from 870 deaths per 100,000 deliveries in the baseline period (1990) by three-quarters to 290 deaths per 100,000 deliveries by 2015. By 2006, maternal mortality had fallen to 673 deaths per 100,000 deliveries, and was projected to reach 590 deaths per 100,000 deliveries. The recent DHS seems to suggest that little progress has been made between 2006 and 2010 and MMR has pretty much remained at its 2006 level in 2010. In addition, the proportion of deliveries attended by professional personnel is very low at 32 percent and antenatal coverage was only 28 percent in 2005 (UNECA, MDG Report 2010). The maternal mortality goal is far from being achieved and the country is unlikely to achieve this target unless it reduces MMR by a phenomenal 18.2 percent annually in the remaining five years to 2015.

Ethiopia is on track on MDG 6 with impressive progress recorded across regional states. National HIV/AIDS prevalence rates declined to 2.5 percent in 2010 while TB treatment success rate marginally declined to 84 percent from 86 percent in 2009. Only Addis Ababa has HIV prevalence rates higher than the 2010 annual target. With respect to TB, seven of the eleven regions met the 2010 targets on TB treatment success rates albeit at much lower TB detection rates of 33 percent.

On the overall, the analysis shows that Afar, Benshangul Gumuz, and Dire Dawa have performed dismally across all the health related MDGs reviewed in this paper and require special focus in the remaining five years. In addition, the following final commentaries can be discerned from the analysis: Firstly, we observe significant disparities in progress, performance against targets and health outcomes across regional states. Unmasking these disparities is important in improving targeting of interventions to meet MDGs and to addressing glaring inequalities in access and utilization of health services within and across regional states.

Secondly, the data indicates despite having low baseline conditions, emerging regional states have made significant progress in terms of improving health indicators to meet the millennium development goals, often recording the greatest improvement in health indicators. This indicates that progress towards the target seems to accelerate more rapidly from relatively poor initial conditions and begins to slow down, stagnate or retrogress as health conditions improve. This implies that the cost of health interventions or service provision tends to increases with coverage and geographical spread. Policymakers should take initial conditions into account when designing and implementing health interventions and financing mechanism. Third, regional states that had already attained improve health outcomes with regard to MDG goals and targets by 2006 decelerated progress towards meeting annual targets for 2010. Government should ensure that while accelerating progress in regions that are currently lagging behind, progress already made is not reversed but sustained.

Thirdly, with respect to the fights against the HIV/AID pandemic, the analysis shows that the incidence of HIV/AIDS is higher in urbanized than rural regional states and therefore interventions to prevent infections in rural regions should be prioritized while at the same time scaling up prevention and treatment interventions in Addis Ababa and Dire Dawa where the prevalence rates are relatively high.

Lastly, the analysis indicates that maternal mortality rates are high in all regional states and reducing mortality and morbidity remains the most difficult heath challenge facing the country. Government and its development partners should substantially scale-up resources and enhance effectiveness of maternal health interventions in order to accelerate progress towards meeting the millennium development goal on maternal health. While all other health targets are achievable, the goal on maternal mortality is unlikely to be achieved by 2015. But this should not make the government to relax and give up its current efforts; instead, it should soldier on and ensure that country's maternal mortality rate, which is currently one of the highest in the world, is substantially reduced to promote safe motherhood in all regional states.

V. Conclusion

The MDGs were endorsed by governments at a meeting of Heads of State and Government in 2000 and represented one of the most critical initiatives for advancing human progress and development in the World and particularly in developing countries. The MDGs are expected to be achieved by 2015 and therefore analyzing progress and identifying strategies for accelerating progress towards achieving those MDGs is timely and more critical now when countries are actively seeking ways to accelerate progress and their commitments.

This study is part of a series of studies aimed at generating information to support government and development agencies to address constraints and improve performance across all the MDGs. Analyzing and understanding disparities in performance across health related MDGs is an important step in this regard. Such analysis enables the unmasking of disparities across regions and other socio-economic strata thereby enabling deeper understanding of both the severity of disparities and inequality in access and provision of health services that exists across the country. Such information should be useful in targeting health interventions to enhance social progress across regions and socio-economic groups in the country.

The analysis shows that significant regional disparities in health outcomes actually exist and are quite severe in some regions. Factors that explain these disparities need to be investigated and findings used in developing strategies to address them in a bid to advance inclusive and equitable access and strengthen the provision of health services across the country. Results also show that progress towards achieving MDG targets varies across regional states. Emerging regions that had less favorable initial conditions have progressed more rapidly than the rest of the regions in a number of health indicators. This reflects prioritization of health sector interventions in lagging regional states and the fact that raising health service coverage in initially depressed regions may be easier and less costly than broadening coverage to the last 10 percent of the population to achieve universal access to health and reproductive services.

Resource allocation and interventions should be intensified in regions that are lagging behind in MDGs, while ensuring that progress in regions currently on track is sustained and progress reversals are prevented in all regions. Government and its development partners should scale-up resources and interventions to speed up progress in the area of maternal health, which is currently off-track both nationally and across all regional states. There is need to improve the quality and availability of disaggregated data on heath indicators to permit detailed analysis and isolate the key determinants of disparities in health outcomes. This is critical in developing policy and program interventions to address bottlenecks and streamline the health service delivery systems across regional states in Ethiopia.

Appendix

Table 1: Summary of Regional Performance on Health Related MDGs

	Target	National	Tigray	Afar	Amhara	Oromia	Somali	Benshl.	SNNP	Gambella	Harrari	AA	Dire Dawa
Goal4: Reduce Child Mortality													
Under 5 mortality rate (per 1000)	61/1000	√	X	X	X	X	√	X	X	X	X	√	X
Infant mortality rate (per 1000)	41/1000	√	X	√	X	X	√	X	X	X	X	√	X
Immunization – Measles (%)	90 (national)	√	√	X	√	√	X	√	√	X	√	√	X
Immunization – DPT 3 (%)	90 (national)	√	√	X	√	√	X	√	√	X	√	√	X
Goal 5: Improve Maternal Health													
Maternal mortality ratio (100,000)	290/100,000	X											
Proportion of births attended by skilled personnel (%)	60/100,000 (national)	X	X	X	X	X	X	X	X	X		√	√
Antenatal coverage	90 (constructed)	√	√	X	√	√	X	X	√	√	√	√	√
Goal 6: Combat HIV/AIDS, Malaria and other Diseases													
Overall HIV/AIDS prevalence rate (%)	4.5	√	√	√	√	√	√	√	√	√	√	X	√
TB prevention & control (% of cases successfully treated with DOTS)	90 (national)	√	√	√	√	√	√	√	√	√	X	√	√
% of population with treated bed nets (%)	100	√											
Total of indicators on target (%)		80.0	75.0	37.5	62.5	62.5	62.5	37.5	62.5	25.0	75.0	75.0	25.0

√ = The Regional State is on target

X = The Regional State is not on target

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