Attaining the Millennium Development Goals in Ghana by 2015: Myth or Reality? A Statistical Evidence from Kumasi

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Abstract
The Millennium Development Goals (MDGs) represent the first collective and integrated attempt to improve the lives and life chances of the world’s poor. By adopting the MDGs, Ghana committed itself to making substantial progress toward the eradication of poverty and achieving other human development goals by 2015. Although Ghana has now attained the lower middle-income status as at 2013, this paper empirically at the micro-level established that it will not meet the majority of the goals by the target date of 2015. Nonetheless all is not lost and with about two more years to reach the target date of 2015, this paper recommends the need to increase commitment from multilateral donors in and of course from the Ghanaian government to meet majority of the targets set by 2015.

Keywords: Millennium Development Goals, collective, integrated, attempt, multilateral donors, targets.

Introduction
A major difficulty in comparing theories of economic development is that two authors writing on the subject seldom mean the same thing by the phrase “economic development” (Robinson, 1972). In strictly economic terms, economic growth is defined as increases in aggregate product, either total or per capita income without reference to changes in the in the social and cultural value systems. Economic development on the other hand, is defined to include not only growth but also social and cultural changes which occur in the development process. It is as a result of its broad and general applicability that a number of economists and policymakers and the 189 members of the United Nations in September 2000 clamoured for and adopted the eight Millennium Development Goals (MDGs). By adopting the MDGs, they committed themselves to making substantial progress toward the eradication of poverty and achieving other human development goals by 2015. The Ghanaian government was a signatory to the MDGs document. As a result, a greater number of references have been made by the Ghanaian bureaucrats and officialdom to the MDGs concerning government policies and implementations. However with the publication of the MDGs 2013 Report and with two years to reach the MDGs final implementation stage, one argues whether the Ghanaian government policies and its implementation will ensure the overall attainment of the MDGs by the year 2015. This is so because there has been little empirical work at the micro-level investigating how government policies are geared towards attaining the MDGs. This is aggravated by the fact that the attainment of the MDGs has become a technocratic project informed by experts, driven by governments and multilateral agencies and based on measures of success that pay little heed to local desires (Hasan et al. 2005). This paper attempts to overcome this problem by undertaking a micro-level empirical study on the views of the Ghanaian public about whether the Ghanaian government policies and its implementation will ensure the overall attainment of the MDGs by the year 2015. The remainder of the paper is structured as follows. The next section reviews the original literature of the MDGs which are of primary interest to this study. A description of the micro-level survey data used for the empirical analysis follows. This is followed by the section that deals with the statistical methodology used for the study. The penultimate section discusses some statistical issues related to the estimation of the empirical relationship of interest and presents the empirical results. The last section offers some concluding remarks.

The Millennium Development Goals
At the 8th plenary meeting on September 8, 2000 of the Fifty-fifth session United Nations General Assembly, the United Nations Millennium Declaration under the various headings of, Values and Principles, Peace, Security and Disarmament, Protecting our Common Environment, Human Rights, democracy and Good Governance, Protecting the Vulnerable, Meeting the Special Needs of Africa, and Strengthening the United Nations were declared. The UN then adopted the eight goals which are linked to eighteen targets, which are in turn determined by forty-eight indicators of the Millennium Development Goals (MDGs).

Data
The empirical analysis for this paper uses information obtained from a unique individual-level survey designed

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1 Readers are referred to (http://www.un.org/millenium/declaration/ares552e.pdf) for the original version of the MDGs.
to elicit information on the views of Ghanaians in Kumasi, the second largest city after the capital city Accra on how the Ghanaian government policies and implementations are geared towards achieving the MDGs. The survey dealt with the 2013 Millennium Development Goals report and amongst other things sought information on the socio-economic status of an individual respondent. The data are based on responses to individual-level questionnaires drawn from purposive sampling, designed to be *ad hoc* and combines elements of ‘snowballing’. This procedure however, does not vitiate the exercise as the information obtained from such surveys do provide important statistical estimates for policy inferences (Markova & Reilly 2007). The survey obtained information on:

a) individual respondent’s level characteristics including gender and whether the respondent works in the formal or informal sector;
b) the number of years the respondent has worked. In addition to the conventional biases associated with obtaining complete and correct responses from a sample survey, a survey on civil/public/private employees encounters difficulties arising from the zeal of respondents to reveal or over emphasize the difficulties and problems confronting them. In order to attenuate the effect of this systematic bias on survey responses, the approach of interviewing was modified to minimize respondent bias. The confidential nature of the survey was emphasized and respondents were assured that the information would only be used for research purposes. The sequence and wording of the questions on the questionnaire were adjusted to elicit an honest response from the respondents as possible under the circumstances. A total number of 170 respondents were interviewed; however, the responses for six respondents were excluded as they could offer no meaningful responses.

The Millennium Development Goals Report 2013 is presented in Table 1.

**Statistical methodology**

This paper primarily considers the MDGs Report 2013, asked an individual respondent that considering the MDGs Report 2013 will the Ghanaian government policies and its implementation ensure the overall attainment of the MDGs by the year 2015?

It is hypothesized that:

- $H_0$: The Ghanaian government policies and its implementation will not ensure the overall attainment of the MDGs by the year 2015.
- $H_1$: The Ghanaian government policies and its implementation will ensure the overall attainment of the MDGs by the year 2015.

The chi-squared test of independence is commonly used to test the association between two categorical variables. This test compares actual (or observed) values in a given set of categories to the values expected if a given distributional assumption is satisfied. The Ghanaian government policies and its implementation takes either a value of 1 or 0 depending on whether an individual respondent considered the Ghanaian government policies and its implementation will ensure the overall attainment of the MDGs by the year 2015 or not. The goodness-of-fit test focuses on the differences between the observed proportions (or frequencies) and the expected proportions (or frequencies). Large differences between observed and expected frequencies cast doubt on the ‘null hypothesis’ that there is no association between the Ghanaian government policies and its implementation and the overall attainment of the MDGs by the year 2015. A chi-squared test provides the statistical basis for testing whether the large differences observed are statistically significant or not, using a conventionally defined critical value. The test statistic for the goodness-of-fit is denoted by:

$$
\chi^2 = \sum_{i=1}^{n} \sum_{j=1}^{m} \left[ \frac{f_{ij} - e_{ij}}{e_{ij}} \right]^2
$$

Where $f_{ij}$ = observed frequency for category $i_j$, and $e_{ij}$ expected frequency for category $i_j$, based on the assumption of independence. The test statistic is distributed as chi-squared with $(n - 1) \times (m-1)$ degrees of freedom, provided that the expected frequencies are five or more for all categories under consideration. In this two-by-two example, the test statistic is distributed with one degree of freedom, since $n = m = 2$. If $\chi^2 > \chi^2_\alpha$ then we can reject the null hypothesis, where $\alpha$ is the level of statistical significance.
Table 1: The Millennium Development Goals Report 2013

<table>
<thead>
<tr>
<th>Goal (s)</th>
<th>Target (s)</th>
<th>Indicator (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOAL1: ERADICATE EXTREME POVERTY &amp; HUNGER</td>
<td>Target A: Halve between 1990 and 2015 the proportion of people whose income is less than $1.25 a day</td>
<td>1. The target of reducing extreme poverty rates by half was met five years ahead of the 2015 deadline.</td>
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<tr>
<td></td>
<td>Target B: Achieve full and productive employment and decent work for all, including women and young people</td>
<td>2. The global poverty rate at $1.25 a day fell in 2010 to less than half the 1990 rate. 700 million fewer people lived in conditions of extreme poverty in 2010 than in 1990. However, at the global level 1.2 billion people are still living in extreme poverty</td>
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<tr>
<td></td>
<td>Target C: Halve between 1990 and 2015, the proportion of people who suffer from hunger</td>
<td>3. Globally, 384 million workers lived below the $1.25 a day poverty line in 2011—a reduction of 294 million since 2001.</td>
</tr>
<tr>
<td>GOAL2: ACHIEVE UNIVERSAL PRIMARY EDUCATION</td>
<td>Target A: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling</td>
<td>4. The gender gap in employment persists, with a 24.8 percentage point difference between men and women in the employment-to-population ratio in 2012.</td>
</tr>
<tr>
<td>GOAL3: PROMOTE GENDER EQUALITY AND EMPOWER WOMEN</td>
<td>Target A: Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015</td>
<td>5. The hunger reduction target is within reach by 2015. Globally, about 870 million people are estimated to be undernourished. More than 100 million children under age five are still undernourished and underweight.</td>
</tr>
<tr>
<td></td>
<td>Target B: Halve, between 1990 and 2015, the proportion of people who suffer from hunger</td>
<td>6. The world has achieved equality in primary education between girls and boys, but only 2 out of 130 countries have achieved the MDG for gender equality in all levels of education. Globally, 40 out of every 100 wage-earning jobs in the non-agricultural sector were held by women in 2011. This is a significant improvement since 1990.</td>
</tr>
<tr>
<td>GOAL4: REDUCE CHILD MORTALITY</td>
<td>Target A: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate</td>
<td>7. In many countries, gender inequality persists and women continue to face discrimination in access to education, work and economic assets, and participation in government. For example, in every developing region, women tend to hold less secure jobs than men, with fewer social benefits. Violence against women continues to undermine efforts to reach all goals. Poverty is a major barrier to secondary education, especially among older girls. Women are largely relegated to more vulnerable forms of employment.</td>
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<td></td>
<td>Target B: Achieve universal access to reproductive health</td>
<td>8. The need for family planning is slowly being met for more women, but demand is increasing at a rapid pace. Official Development Assistance for reproductive health care and family planning remains low.</td>
</tr>
<tr>
<td>GOAL5: IMPROVE MATERNAL HEALTH</td>
<td>Target A: Reduce by three quarters the maternal mortality ratio</td>
<td>9. More women are receiving antenatal care. In developing regions, antenatal care increased from 63 per cent in 1990 to 81 per cent in 2011. Only half of women in developing regions receive the recommended amount of health care they need. Fewer teens are having children in most developing regions, but progress has slowed. The large increase in contraceptive use in the 1990s was not matched in the 2000s. The need for family planning is slowly being met for more women, but demand is increasing at a rapid pace.</td>
</tr>
<tr>
<td>GOAL6: COMBAT HIV/AIDS, MALARIA AND OTHER DISEASES</td>
<td>Target A: Have halted by 2015 and begun to reverse the spread of HIV/AIDS</td>
<td>10. New HIV infections continue to decline in most regions. More people than ever are living with HIV due to fewer AIDS-related deaths and the continued large number of new infections with 2.5 million people are newly infected each year. Comprehensive knowledge of HIV transmission remains low among young people, along with condom use. More orphaned children are now in school due to expanded efforts to mitigate the impact of AIDS.</td>
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<td></td>
<td>Target B: Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it</td>
<td>11. While the target was missed by 2011, access to treatment for people living with HIV increased in all regions. At the end of 2011, 8 million people were receiving antiretroviral therapy for HIV. This total constitutes an increase of over 1.4 million people from December 2010.</td>
</tr>
<tr>
<td></td>
<td>Target C: Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases</td>
<td>12. The global estimated incidence of malaria has decreased by 17 per cent since 2000, and malaria-specific mortality rates by 25 per cent. In the decade since 2000, 1.1 million deaths from malaria were averted. Countries with improved access to malaria control interventions saw child mortality rates fall by about 20 per cent. Thanks to increased 6-all children are sleeping under insecticide-treated bed nets in sub-Saharan Africa. Treatment for tuberculosis has saved some 20 million lives between 1995 and 2011.</td>
</tr>
<tr>
<td>GOAL7: ENSURE ENVIRONMENTAL SUSTAINABILITY</td>
<td>Target A: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources</td>
<td>13. Forests are a safety net for the poor, but they continue to disappear at an alarming rate. Of all developing regions, South America and Africa saw the largest net losses of forest areas between 2000 and 2010. Global emissions of carbon dioxide (CO2) have increased by more than 46 per cent since 1990. In the 25 years since the adoption of the Montreal Protocol on Substances that Deplete the Ozone Layer, there has been a reduction of over 98 per cent in the consumption of ozone-depleting substances.</td>
</tr>
<tr>
<td>GOAL8: DEVELOP A GLOBAL PARTNERSHIP FOR DEVELOPMENT</td>
<td>Target B: Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss</td>
<td>14. More areas of the earth’s surface are protected. Since 1990, protected areas have increased in number by 58 per cent. Growth in protected areas varies across countries and territories and not all protected areas cover key biodiversity sites. By 2010, protected areas covered 12.7 per cent of the world’s land area but only 1.6 per cent of total ocean area. The world has met the target of halving the proportion of people without access to improved sources of water, five years ahead of schedule. Between 1990 and 2010, more than two billion people gained access to improved drinking water sources. The proportion of people using an improved water source rose from 76 per cent in 1990 to 89 per cent in 2010.</td>
</tr>
</tbody>
</table>

Source: www.iiste.org
Table 2: Summary Statistics for the Variables Used in the Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pooled</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>.2987805</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>(.4591253)</td>
<td>(1)</td>
<td>(0)</td>
</tr>
<tr>
<td>Government Policy</td>
<td>.25</td>
<td>2434783</td>
<td>.2653061</td>
</tr>
<tr>
<td></td>
<td>(.4343389)</td>
<td>(.4310596)</td>
<td>(.4460713)</td>
</tr>
<tr>
<td>Achieve MDGs</td>
<td>.3414634</td>
<td>.2782609</td>
<td>.4897959</td>
</tr>
<tr>
<td></td>
<td>(.4756529)</td>
<td>(.4501038)</td>
<td>(.5050763)</td>
</tr>
<tr>
<td>Sample Size</td>
<td>164</td>
<td>115</td>
<td>49</td>
</tr>
</tbody>
</table>

Results and Discussion
Reported values of the chi-squared test and critical values in this paper are presented in Table 3 which used prob-values to indicate the significance level at which one can reject the null hypothesis. The lower the prob-value, the lower the probability that one wrongly rejects the null hypothesis which therefore ensures that inferences are statistically reliable. Using the conventional 95 per cent confidence interval, one infers from a prob-value below 0.05 that one safely rejects the null hypothesis of independence between the variables used in the cross tabulations, that is between government policies and implementations and the achievement of the MDGs by 2015.
Table 3: The Chi-Squared Cross Tabulations Results

govtpolicy | achieveMDG
---|---
0 | 83 | 40 | 123
0 | 81 | 42 | 123
1 | 25 | 16 | 41
1 | 27 | 14 | 41
Total | 108 | 56 | 164

Pearson chi2(1) = 0.5785 Pr = 0.447

The statistical analysis was performed using the STATA (version 10) statistical software package. A chi-squared value of 0.5785 and a prob-value of 0.447 were recorded. The null hypothesis of the Ghanaian government policies and its implementation will not ensure the overall attainment of the MDGs by the year 2015 is accepted as the prob-value 0.447 obtained from the results is higher than the conventional 0.05 percent prob-values used to indicate the significance level at which one can reject the null hypothesis.

Conclusion

The MDGs represent the first collective and integrated attempt to improve the lives and life chances of the world’s poor. Although Ghana has now attained the lower middle-income status, it already seems, however, that it will not meet the majority of the goals by the target date of 2015. Nonetheless all is not lost and with about two more years to reach the target date of 2015, there needs to be an increase commitment from both donors in terms of increased assistance and of course from the Ghanaian government to meet majority of the targets set by 2015.

References

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