Subjective Well-Being Approach to the Valuation of International Development: Evidence for the Millennium Development Goals

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Abstract

The subjective well-being approach to the valuation of international development is applied to the Millennium Development Goals (MDGs). The rich countries have particular preferences for education, healthcare, and housing; they need compensation for failure to meet the targets by 2015. The poor countries view all the targets as important; they can accept compensation for failure to achieve the targets by 2015, with amounts equivalent to what would have been 0.7% proportion of the incomes of the rich countries for international aid. The MDGs are affordable and doable, yet the rich countries are foot-dragging in fulfilling their pledges for international aid.

Keywords: Subjective Well-Being, Millennium Development Goals, Valuation

JEL Codes: D60; I30; O10

1. INTRODUCTION

Despite being the foremost international agenda for addressing extreme poverty and other income poverty-related problems like illiteracy, under-five infant mortality, maternal health, HIV/AIDS and other diseases, progress on the Millennium Development Goals (MDGs) has been mixed. Large gaps remain between the targets for 2015 and the accomplishments so far. In an assessment report for the MDG Summit held in New York City last September 2010, the United Nations said that ‘unmet commitments, inadequate resources, lack of focus and accountability, and insufficient

dedication to sustainable development' (United Nations, 2010a: 4) put at risk the completion of the MDGs. The United Nations also noted that the experience in the past decade demonstrates that the gains on the MDGs were made possible because of the 'adequate funding and political commitments' (*ibid.*) from the international community. If public support and action remain half-hearted as evidenced by recent experiences, there can be no doubt that the promise of the MDG would remain just that – a promise. The quick turnaround of positions toward fulfilling the commitments made in 2000 and pledges for international aid is of critical importance to sustain the gains and accomplish all the targets by 2015. Five years are enough to accomplish the MDGs. But the call to action remains urgent.

The difficulties confronting the task set out in the MDGs are for the most part derived from the low political interest of governments as well as the lack of concern of societies, especially among the rich countries, to the plight of poor societies. Financial resources or capacity is limited in the poor countries that they cannot solve the problems on their own. International aid is needed to achieve two ends: first, to move people out of extreme poverty, illiteracy, poor health, and homelessness; and, second, facilitate the stimulation of domestic economies so the poor countries can move toward higher levels of economic development and thus be independent from aid. This endeavour is a complicated project but it is not a difficult problem to solve. Proper planning and sound management of programs in conjunction with effective leadership along with appropriate international aid can make the MDGs possible.

One way to ascertain public sentiment and determine the possibilities for collective action is to measure preferences for public policy issues. This task is usually done using a monetary valuation of preferences. However, the standard procedures are not without problems. Issues like the use of surrogate or pseudo markets (in, hedonic pricing and travel cost procedures) or the introduction of some hypothetical goods (in contingent valuation procedures) could produce misleading results.

A similar problem could occur when the responses suffer from strategic bias, anchoring problems, and scaling effects.

The happiness literature offers an alternative procedure, which is called the subjective well-being (SWB) approach to preference valuation. Welsch and Kühling (2009) and Frey et al. (2010), for example, survey the literature.[1] Overall, this procedure parallels the standard approach in that the correlations between self-reported well-being and an external variable of interest as well as that between self-reported well-being and income are used to obtain the marginal rate of substitution between the external variable and income. What the SWB approach obtains is still a monetary valuation of the external variable in the context of individual subjective experiences rather than individual choices. The concepts are discussed in the next section, but what needs to be pointed out at this stage is that the SWB approach circumvents the aforementioned problems associated with the use of a surrogate or pseudo-market or the introduction of a hypothetical good in the valuation exercise. The SWB approach is meant to be a complement to the standard procedures.

There is a growing number of studies that use the SWB approach in the study of public issues from air pollution (Welch, 2002; Luechinger, 2009), to airport noise (van Praag and Baarsma, 2005), to cigarette smoking (Gruber and Mullainathan, 2002), to civil conflict (Welch, 2008a), to commuting (Stutzer and Frey, 2008), to compensatory damages (Oswald and Powdthavee, 2008), to corruption (Welsch, 2008b), to democracy (Frey and Stutzer, 2000), to education (Michalos, 2008), to family and social relations (Powdthavee, 2007), to income inequality (Alesina et al., 2004), to inflation-unemployment trade off (Di Tella et al. 2001), to healthcare (van den Berg and Ferrer-i-Carbonell, 2007), to leisure activities such as watching TV (Frey and Benesch, 2008), to

[1] Recent surveys on the economics of subjective well-being are Frey and Stutzer (2002), Frey and Stutzer (2005), Di Tella and MacCulloch (2006), Kahneman and Krueger (2006), and Stutzer and Frey (2010).

terrorism (Frey et al., 2009), and to voting (Frey and Stutzer, 2004). There are now excellent reviews on the literature (see footnote 1). In this paper, the SWB approach is applied to the valuation of individual attitudes toward the MDGs. The contention is that the level of importance people put on the MDGs reflects the intensity of their desire to reduce extreme poverty and destitution. Different insights can be obtained from this application. In turn, the information can be a starting point for collection action toward the MDGs.

Part 2 of the paper presents the conceptual framework then the empirical strategy for the valuation of individual preferences. Part 3 discusses the results and the implications of the findings. The last part concludes the paper.

2. SWB APPROACH TO PREFERENCE VALUATION

2.1. Conceptual framework

Standard economic analysis relies on individual choices in inferring utility. In contrast, subjective well-being (SWB) reverts to classical utilitarianism to anchor analysis on the actual experiences of an individual in inferring utility (for example, Kahneman et al., 1997), and the actual stated well-being of the person is considered as the true utility of the person (for example, Di Tella and MacCulloch, 2006). This reliance on choices as the only metric of utility implies that the actual experience of a person is deemed irrelevant to economic analysis, which is intriguing if economics aims to improve well-being in the context of scarce resources and unlimited wants. Naturally, studies in SWB flourished in disciplines other than economics. Diener and Biswas-Diener (2010), for example, is a non-technical tour of the psychological research on SWB. From Easterlin (1974), but especially from Clark and Oswald (1994), Easterlin (1995), Clark and Oswald (1996), Clark (1997), Frank (1997), Ng (1997), and Oswald (1997), economic research

on SWB grew rapidly in the 2000s to form a distinct approach in economics.

The basic studies find that SWB has an affective component (that is, positive and negative feelings) and an evaluative component (that is, self-evaluation of the life of a person).[2] Each one is directly measurable (Diener et al., 1985); and, at the same time, these components are separable from but moderately correlated with each other (Lucas et al., 1996; Diener and Emmons, 1984). Studies also find that self-reports have high validation as supported by findings that correlate well-being with smiling (Ekman et al., 1990; Pavot et al., 1991) or external ratings of relevant others like spouses, relatives, and friends about the person's well-being (Costa and McRae, 1988; Sandvik et al., 1993). People with high well-being are found to succeed in many aspects of their lives (Lyubomirsky et al., 2005). In any case, Larsen and Frederickson (1999) and Kahneman and Krueger (2006), among others, argue that the components of SWB have enough reliability for analysis, albeit self-reports may change over time.[3] Meanwhile, recent studies (for example, Diener et al., 2010) find that measures of positive affect, negative affect, and life satisfaction actually correlate separately from the external factors (that is, not the individual profile and characteristics) such as average income, environmental states, political conditions, and so forth. The argument here is that research can use the association of the external components with SWB and obtain the marginal rate of substitution between the relevant components to infer valuation.

Because true SWB (SWB*) is a latent variable – it remains internal to the person – the SWB function is deemed as some positive monotonic transformation of SWB*; or, formally, $SWB = h[U(\cdot)]$, where $U(\cdot)$ *is* SWB* and SWB is the self-report of well-being. Personality traits (Costa and McCrae, 1980) and genes (Lykken, 1999) can affect well-being, but external conditions also

[2] The ratio of positive to negative affect is a measure of hedonic well-being (Larsen and Prizmic, 2008).

[3] For a survey of the literature, see Bowles (1998).

play a role and thus correlate with well-being (Diener and Suh, 1999; Inglehart and Klingemann, 2000; Diener and Seligman, 2004). However, the individual-level indicators are consistent even with the substitutions in the external variables and/or introduction of controls for personality traits (for example, Helliwell, 2006; Ferrer-i-Carbonell and Gowdy, 2007).

The SWB function can be expressed as $SWB = h(Z, Y, \boldsymbol{X})$, where Z is the external variable of interest (in this case, the MDGs), Y is income, and $\boldsymbol{X}$ is a vector of individual-level explanatory variables. Totally differentiating the expression obtains $dSWB = h_Y\, dY + h_{Zi}\, dZ_i + h_{Xi}\, d\boldsymbol{X}$. Setting $dSWB$ and $d\boldsymbol{X}$ to zero then rearranging the terms obtains the marginal value (MV) of Z; that is, $MV = -\frac{dY}{dZ} = \frac{h_Z}{h_Y}$. Income has a positive impact on SWB. If Z_i is a public good, $h_{Zi} > 0$; if it is a public bad, $h_{Zi} < 0$. The signs of h_{Xi} depend on the indicators used. MV < 0 is interpreted as the valuation of the willingness-to-pay to remove the public bad. On the other hand, MV > 0 means the valuation of the willingness-to-accept for not getting the public good.

2.2. Method and Data

The structural equation of SWB can be expressed as follows: $SWB(Z, Y, \boldsymbol{X}) = \alpha + \beta \cdot Z_i + \gamma \cdot y + \delta \cdot \boldsymbol{X} + \varepsilon$, where Z_i refers to the MDGs, y is the logarithm of gross domestic product (GDP) per capita, and X is a vector of standard well-being correlates, and ε is the residual term. Given that true SWB is latent, the estimated coefficients are helpful in indicating the direction of relationship between the right-hand side person-level indicators and well-being. However, for the valuation exercise, the ratio of the coefficients on an MDG and income is of special interest because it indicates the marginal value of that item. The indicators are described in turn.

Subjective Well-Being: The measure of SWB is life satisfaction, which is obtained as the response

to the question: 'All things considered, how satisfied are you with your life as a whole these days?' The person responds by locating satisfaction on a 10-point scale with 1 as 'completely dissatisfied' and 10 as 'completely satisfied.' The life satisfaction data are taken from the World Values Survey 2005.[4]

Millennium Development Goals, Z_i: People were asked to respond to five MDG queries following the main question: 'I'm going to read out another list of global problems and goals that world leaders have set to reduce them. Indicate for each of these goals how high a priority your own country's leaders should give to it.' The list included: '[MGD1] About 25 percent of the world's population lives in extreme poverty – that is, on less than one dollar per day. The goal is to cut this percentage in half by 2015. [MDG2] At present, more than 130 million children of primary school age are not in school. The goal is to ensure that by 2015, all children will be able to finish primary school. [MDG4] About eight out of every 100 children who are born around the world die before their fifth birthday. The goal is to reduce this proportion by two-thirds by 2015. [MDG5] About five million people become infected with HIV/AIDS each year. The goal is to stop the spread of HIV/AIDS. [MDG7] About 840 million people around the world live in slums. The goal is to make a significant improvement in the housing of at least 100 million people' (labels inserted for emphasis). There were no questions for gender quality and women empowerment (MDG3), environmental sustainability (MDG6), and global partnership for development (MDG8).

The person is asked to respond to each of the five items using a 4-point scale, where 1 means 'top priority', 2 'high priority', 3 'medium priority', and 4 'low priority.' Both 'top priority' and 'high priority' are recoded as 1 so that 'medium priority' and 'low priority' become 0, thereby

[4] World Values Data are downloadable from: http://www.worldvaluessurvey.org/

transforming each MDG item into a yes-no indicator in the regression. As such, a value 1 implies that an MDG item needs urgent attention from the leaders of one's country. There is no indication that the respondents were asked to jointly evaluate all five items. Public discussions actually treat the MDGs as composed of separable items. Accordingly, for the valuation exercise means, there is one regression for each of the five MDG items. The MDG data are available only in the World Values Survey 2005.

Income: The World Values Survey does not report individual income, but gross domestic product (GDP) per capita is used as a suitable proxy. It is worthwhile to mention that debate on whether the logarithm of income (for example, Deaton 2008; Stevenson and Wolfers 2008) or the absolute income (for example, Easterlin 1974) is the appropriate form for income remains unresolved. The economic literature stresses that the logarithm format is the appropriate specification, but the psychological literature accepts both formats. Interestingly, the marginal values derived from using absolute income and that from the logarithm of income but transformed into levels are actually comparable. The view in this paper is in line with the psychology literature. Five year average of GDP per capita is the unit used in the regression. Income data are from the World Development Indicators.[5]

Demographics and socio-economic profile: The basic indicators are: (a) age of the person in years; (b) gender of the person with male = 1 and zero otherwise; (c) marital status of the person with ex-married (either divorced or separated) = 1 and zero otherwise, widowhood = 1 and zero otherwise, and being single = 1 and zero otherwise; (d) educational attainment of the person with tertiary education = 1 and zero otherwise; secondary education = 1 and zero otherwise; and primary education = 1 and zero otherwise; (e) job status of the person with unemployed = 1 and

[5] World Development Indicators are downloadable from: http://data.worldbank.org/data-catalog

zero otherwise; and self-reported income class in deciles from 1 (or lowest decile) to 10 (or highest decile). Demographics and socio-economic profile data are taken from the World Values Survey 2005.

The database is comprised of two groups: rich and poor countries. The listing of countries is a function of data availability. The first group is composed of United States, Japan, Norway, and Switzerland. Each may be interpreted to represent of a cluster of rich countries like large-sized superpowers (that is, the United States), large-sized but not superpowers (that is, Japan), and other wealthy countries (that is, Norway and Switzerland). Alternatively, the representation could be interpreted in terms those that meet the 0.7% of GDP pledge as allocation for international aid (that is, Norway), those that meet at least half of 0.7% of GDP (that is, Switzerland), and those that fall below a third of 0.7% of GDP (that is, United States, Japan, and Switzerland).[6] The second group is composed of Ethiopia, Mali, Rwanda, and Zambia.[7] They are among the poorest

[6] Data are available from http://unstats.un.org/unsd/mdg. Between 1990 and 2005, international aid from the rich countries averaged 0.405 percent of GDP, which is roughly 60% the commitment to provide 0.7 percent of GDP to international aid. The figure is much lower for international aid to the least developing countries, which averaged 0.124 percent in the same period.

Even before 2008, international aid averaged about 0.41% of the rich countries' GDP. In 2000, Denmark, Luxembourg, Netherlands, Norway, and Sweden were the only ones that fulfilled their international aid commitments of 0.7% of GDP for international aid. The same countries fulfilled their aid commitments in 2009. Data from the United Nations indicate that Luxembourg, Norway, and Sweden actually allocated more than 1% of their GDP to international aid.

[7] The database does not contain data on other poor countries. Data for Brazil, South Africa, Thailand, and Turkey are available. However, since the MDGs are principally about giving preferential attention to the poor countries, no analysis is done for the upper middle income countries. Preliminary regression analysis dos not provide useful results.

in the world and represent the poor countries of Africa. Two of the four countries are below the average income of low income countries (namely, Ethiopia and Rwanda) and the others exceed the average income of low income countries (namely, Mali and Zambia). Pooling the countries is not advised given the disparity of the socioeconomic standings and differences in the quality of domestic institutions. Thus regressions on separate pools are done for the rich and poor countries on the presumption that the level of economic development and quality of domestic institutions affect individual attitudes toward the MDGs.

The ordered probit procedure is performed on the separately pooled cross-section dataset. The procedure implies that people perform ordinal rankings of well-being; that is, the sequence of the rankings is similar across individuals regardless of their personality traits, genes, environmental setting, and so on. What needs stressing is that the regression results are to be treated with some caution because the nature of the data from the World Values Surveys precludes the introduction of person-level fixed effects and the correction for endogeneity. Nonetheless, the size of the error term is not expected to undermine or reverse the correlation between right-hand side indicators and well-being.

Robust test can be performed to ensure that the results remain consistent despite the limitations of the dataset. To this end, political personality indicators are added in the structural model (for example, Ferrer-i-Carbonell and Gowdy 2007). Political personality is defined as citizenship and interpreted at the local, national, and global levels. Data are obtained as the responses to question: 'People have different views about themselves and how they relate to the world. Using this card, would you tell me how strongly you agree or disagree with each of the following statements about how you see yourself? [1] I see myself as a world citizen; [2] I see myself as part of my local community; [3] I see myself as part of [country name]' (numbering mine). The person responds using a 4-point scale with 1 as 'strongly agree', 2 'agree', 3 'disagree', and 4 'strongly

disagree.' As with the MDGs, 'strongly agree' and 'agree' are recoded as 1 then 'disagree' and 'strongly disagree' are recoded as 0. The effect of recoding is to transform the citizenship items as yes-no indicators in the regression. Citizenship data are available only in the World Values Survey 2005.

3. VALUATION OF THE MILLENNIUM DEVELOPMENT GOALS

3.1 Descriptive Analysis

Table 1 contains information on the gross domestic product (GDP) per capita of the rich and poor countries included in the study. The large disparity in standards of living is straightforward to see. The income gap, among other socio-economic indicators, is relevant in development discussions because it show the intended beneficiaries of the Millennium Development Goals (MDG). Put simply, the poor countries in Africa need preferential attention from the rich countries to see a reversal in underdevelopment. What is needed to fulfil international aid commitments at 0.7% of GDP – here, shown in terms of per capita – of the rich countries is also indicated in the table. Noticeably, the pledges are comparable to the average income of the poor countries.

Clemens et al. (2007) and Easterly (2009), among others, underscore a problem with the MDGs, which is that the targets put Africa in a disadvantaged position because the countries there are expected to bridge the developmental gap within one generation even as the rich countries took several generations to accomplish their development projects.[8] Regardless of the conflicting views on the nature of the problem to be surmounted, it cannot be denied that, despite very stark starting points, the poor countries of Africa have to date made real advances on many socio-economic indicators even with the mixed results of their accomplishments on the MDGs.

[8] See Saith (2006) and Vandemoortele (2008) for recent critical analysis of the MDGs.

Of course, progress on the MDGs might have become sluggish in recent periods but it is due to increased inequality and frequency of crises in many parts of the developing world. Thus, while the MDGs initially looked doable within a generation, they began to appear as ambitious targets even at the global level. Some have started to point out that less frustration and disenchantment could be had if the targets were made more realistic rather than idealized. Nonetheless, the MDGs remain useful because they focus attention and mobilize efforts of the rich and poor countries toward a collective endeavour to not only understand but also to address extreme income poverty and deprivation that confront about 20 percent of the world's population today.

[Insert Tables 1 and 2]

The MDG performance of Ethiopia, Mali, Rwanda, and Zambia are summarized in Table 2. The indicators tell a mixed story. Ethiopia, Rwanda, and Zambia seem to be on track on most goals. But if international aid falls in 2010 (United Nations 2010b), there might be problems in achieving the goals in 2015.

However, there seems to be a general lack of interest among the rich countries in providing the needed assistance to the poor countries, despite the fact that the cost to accomplish the MDGs is estimated by the United Nations at about 0.54% of GDP of the rich countries. One can therefore infer that political apathy and social detachment of the rich countries contribute to the growing divergence between the rich and poor countries. Of course, getting the rich countries to provide the funds is not a guarantee to success because there are deep structural and institutional factors that also need to be addressed but international aid is a necessary condition, if not an essential item to the whole development enterprise, to put the poor countries of Africa on the first rung on the development ladder. Of course, development is a difficult project and takes a long time to accomplish, but once there is movement out of extreme poverty and destitution, complementary

efforts can be deployed to build domestic capacities in order to sustain progress and begin the process of weaning countries from aid.

3.2 Regression Analysis

Appendix 1 contains details of the regressions. The results are to be treated with caution given the limitations of a cross-section dataset. Endogeneity is one concern that cannot be addressed, for instance. Suffice it to say that the results on the correlates of well-being are consistent with the extant literature. They are discussed in turn.

First, the age of the person is positively correlated and exhibits a U-shaped pattern with subjective well-being. Both the rich and the poor countries yield the same results, although the magnitudes of the coefficients differ between groups. All things the same, therefore, people in the poor countries experience relatively lower subjective well-beings whilst they are younger (with an estimated turning point at 43 years) than those in the rich countries (with an estimated turning point low point at 46 years). Correspondingly, the older people in the poor countries experience relatively higher well-beings earlier than those in the rich countries.

The U-shaped pattern between age and well-being is a reflection of the experience of people with life in general. As people grow older, their aspirations increase and, at the same time, they take on more responsibilities, and so forth. Disappointments come when aspirations and achievements do not match. However, people grow view life from a more sobering perspective as they grow older; that is preferences can change. They become less disappointed with their life as a result of their more mature viewpoint. Of course, the configuration of life experiences can differ across persons because of the variations in contexts. Relative to rich societies, people in the poor societies are less able to improve their life situations, notwithstanding a desire to achieve change. They get

frustrated with life sooner, which explains the earlier turning point compared to the people in rich countries. Seeing that others are better off makes the poor question why a disparity exists. In time, however, they become resigned with their lives and get less frustrated in the process.

Second, the well-being of males in rich countries is, on average, lower than females. The finding is not novel given the extant literature. One explanation of the disparity in well-being is perhaps gender socialization that puts men as the better sex. There are thus more expectations on males: higher wages, more responsibilities, and so on. There is thus the push to strive harder to meet the expectations. All things the same, gender socialization thus lead to more frustration with men and women. However, the correlation of gender and well-being in the poor countries of Africa is not statistically significant, albeit the signs on the coefficients are correct. The size of the coefficient actually tells something very interesting, namely: where extreme poverty and deprivation are the defining features of society, well-being is democratized so to speak across gender. Thus, in the context of developmental work, intervention needs to be mindful of gender equity.

Third, marriage dissolution (meaning, divorce, separation, or widowhood) is negatively correlated with well-being. The pattern is consistent across the two groupings, except that the correlation between ex-married status (that is, divorced or separated) and well-being in the poor countries is statistically insignificant. In the rich countries, the larger negative impact on well-being comes from single-hood rather than widowhood or ex-married status, although either state of marriage dissolution brings a comparable negative impact on well-being. Looking closely at the results, though, there is not much difference in the magnitudes of the coefficients on the marital states. In the poor countries, however, widowhood has greater impact than being single and the difference in magnitudes of the coefficients is rather large. Perhaps, death of a partner brings heavy personal pain and economic hardship considering that insurance and social security are inadequate, if not lacking, in the poor societies of Africa. The family burden may be intensified if people realize

that the death of a loved one (say, due to disease, infection, unsafe childbirth, and so on) was to a great extent avoidable if the health facilities, the medical professionals, and the medicines were available in their communities.

Fourth, educational attainment is, on the whole, positively correlated with well-being. For the rich countries, however, tertiary-level education is the only statistically significant education indicator with well-being. The finding is not controversial considering that basic education is guaranteed in the rich societies. For the poor countries, there is a positive role of educational attainment to well-being, with the average contribution of primary- and secondary-level education at about half that of tertiary-level education. The results also indicate that primary-level education in the poor countries has more impact than secondary-level education. The findings are in line with the view that basic education (both primary and secondary) is the key to raising well-being at low levels of economic development while tertiary-level education becomes crucial at high levels of economic development.

Fifth, unemployment is negatively correlated with SWB except in the poor countries where it is not statistically significant. In the rich countries, unemployment is costly – both in monetary and non-monetary terms – to the affected person and the family welfare in part because of the high cost of living plus and in part the cultural expectations with regards work and being gainfully employed. The findings for the poor countries are consistent with the view that there is generally little difference in well-being across job status where extreme poverty and deprivation are the defining features of a society, suggesting that well-being is democratized in terms of job status.

Sixth, income is positively correlated with well-being. In the rich countries, the contribution of income to well-being is larger than that in the poor countries. People in well-off societies can afford more goods and services and thus benefit more from their income than the people in the

poor countries whose principal interest is to first secure the basic needs. However, the results are not saying that income can only have little impact on well-being in the poor countries. Rather, the low impact of income arises from the fact that there are few economic activities and opportunities in poor societies. Thus, with economic development, income is expected to have greater impact on well-being. Moreover, people in poor countries can satisfy some of their needs without income as is the case of self-sufficient households.

At the same time, results on income decile show that the income class correlates with well-being regardless of country standing. It is natural that, all things the same, the upper income people have higher well-being than the middle income people; and, in turn, the middle income people have higher well-being than the low income people. But the findings here are interesting because, unlike income (discussed earlier), the correlation between income class and well-being is smaller in the rich countries than in the poor countries. Thus, where standards of living are already high, as in the rich countries, the income class does not bring about significant differences in well-being. Where standards of living are low, the income class is important. In fact, in poor societies, the distinctions between classes are more pronounced.

Lastly, the results indicate that there is a general desire among the peoples of the rich and poor countries to see that their leaders put high priority on the MDGs. Put simple, people care about the MDGs. There are positive correlations between each of the MDG items and well-being across both groups of countries, except for MDG1 (that is, cutting extreme poverty by half by 2015) and MDG3 (that is, reducing the proportion of child mortality before five years old by two thirds by 2015) in the rich countries where they turn out to be statistically insignificant. The results basically show that people generally see the MDGs as public goods and decisive public policy is required to accomplish them. The results further reveal that, at least in the case of the rich countries, some of the MDGs are affect public goods; that is, they pull on emotion more rather

than toward real engagement with the problems on the ground (more below).

Before proceeding to interpret of the findings, robustness tests were performed and the outcome confirmed the basic results (see Appendix 2). The findings can be summarized as follows. First, belongingness at any of the three levels of political citizenship is positively correlated with well-being except for community citizenship, which in the poor countries is negatively correlated with well-being. The finding is, perhaps, unique to the poor societies of Africa where extreme poverty and destitution are concrete and tangible at the local level that people already do not identify with their own communities. Citizenship at the national-level is statistically significant only in the poor countries, perhaps a reflection of a sense of duty and identification with a nation that is the larger tribal- or ethnic-nation and people in such nation are in extreme income poverty and destitution.
The most encouraging finding on political citizenship is that people in both the rich and poor countries see themselves as global citizens, which suggests a sense of belongingness to something larger than oneself or country. This finding says that, at the very least, people share a common identity – regardless of age, gender, life status, and so on – as citizens of the same Earth and, therefore, there is hope that people can work together to solve global problems. In this context, there is hope for the MDGs. What may need to be done is to galvanize people to take part in the global project of reversing extreme poverty and destitution.

3.3 Subjective Well-being and the MDGs

As indicated in the previous section, the rich and poor countries view the MDGs as public goods. The amounts of compensation that people are willing to accept for a failure of the political leaders to prioritize the MDGs are presented in Table 3. Consider the upper panel of the table, which shows the willingness-to-accept of the rich countries for a failure to achieve the MDGs. The figures indicate that the people in rich societies may feel disheartened by the extreme poverty and

destitution in poor societies, yet they do not consider reducing income poverty incidence by half (MDG1) and reducing under-five child mortality incidence by two thirds (MDG4) should be the top priorities of their leaders. Rather, findings indicate that the top priorities should be ensuring primary education (MDG2), stopping the spread of HIV/AIDS (MDG5), and improving housing for the poor (MDG7).

One way to make sense of these results is to focus on the public affairs character of MDG2, MDG5, and MDG7. Because basic education, healthcare, and housing are guaranteed public goods in the rich countries, if not readily available and inexpensive when acquired through the market, the people in rich societies see the deprivations in education, healthcare, and housing as injustices that are easily remediable with decisive political action. Basically, the people in rich societies need to be compensated for any unpleasant feeling that arise because of the inability of their political leaders to give the appropriate attention in reversing illiteracy, poor healthcare, and homelessness. Moreover, the results are also saying that ensuring the success on the MDGs could be cheaper for the political leaders of rich countries than giving compensation to their people for a failure on the MDGs. In addition, an implicit message of the rich countries results is the following: international aid is enough to take care of basic education, healthcare, and housing but transformations in the structural and institutional factors that bring about or perpetuate extreme poverty and destitution in the poor countries is not as important. In a way, helping people in poor societies should be limited within the doable limits of international aid. The same sentiment can be gleaned with the initiatives of global foundations and other special international interest groups working in the poor countries.

[Insert Table 3]

The compensation that the people in poor societies are willing to accept for failure to achieve the

MDG are shown in the lower panel of Table 3. The amounts are small relative to those of the rich countries, but they suggest in poor societies of Africa are reasonable in regards as the acceptable payments. Interestingly, these amounts are equivalent to what would have been 0.7% proportion of the income of the rich countries devoted for international aid (see again Table 1). Relative to the incomes in poor countries, the acceptable compensations would have significant impacts.

Five years to 2015 can be sufficient time to achieve the MDGs if political leaders put their act together and do what needs to be done. Of course, the burden remains on the poor countries to demonstrate that they possess the capacity to carry out the difficult tasks of reducing income poverty, ensuring basic education, reducing under-five mortality, stopping the spread of HIV/AIDS, providing shelter to the poor. These targets are difficult to reach without international aid because, on their own, the poor countries do not have enough resources and capacities to carry out the MDGs. Therefore, it is of utmost importance that the rich countries do not abandon their commitments in meeting their pledges of 0.7% of GDP for international aid and/or hide behind the rhetoric of economic stagnation because of a protracted global financial crisis. The targets can be achieved as demonstrated by the experiences in the past decade. Why political leaders of the rich countries are doing a lot of foot-dragging in fulfilling their pledges for international aid given that the results suggest that the acceptable compensation for a failure to achieve the MDGs is much larger than the international aid itself thus becomes difficult to understand. Perhaps, deep-seated political indifference, social apathy, or even outright disregard of the urgency to pursue the MDGs underlies the behaviour of political leaders. This state of affairs suggest that, at the very least, the utility function of the political leaders of rich countries does not include the MDGs in the same way that the MDGs are included in the utility function of the people in rich countries and, in turn, disables the poor countries from moving out of extreme poverty and destitution.

Reversing underdevelopment is a difficult task and takes time to accomplish. Reversals or failures

could occur along the way. Needless to say, solving extreme poverty and destitution requires the participation of everyone; people, civil society, and governments. People in rich countries and especially their political leaders have to realize the fact that the poor countries cannot solve the problems on their own. Regardless of the political economy of poverty and development, the findings in this paper support the view that the MDGs are achievable at low cost compared to what is needed to compensate people for a failure in the MDGs. Once again, the amounts needed to achieve the MDGs are comparable to what would have been 0.7% proportion of the income of the rich countries for international aid. Political leaders of the rich and poor countries need to stay the course and remain committed to achieving the MDGs.

4. CONCLUSION

This paper applied the subjective well-being approach to the valuation of the Millennium Development Goals (MDGs). The approach was presented as a useful alternative to the standard valuation techniques because it does not use a surrogate or pseudo market setup or a hypothesized good in the valuation exercise. Some interesting insights were gathered in the study.

First, the MDGs are public goods in both the rich and poor countries. Second, people in rich and poor societies want the MDGs accomplished by 2015 but may accept compensation for a failure to achieve them. For the rich countries, the top priorities of the people are ensuring primary education (MDG2), stopping the spread of HIV/AIDS (MDG5), and improving housing for the poor (MDG7). The public affairs nature of these public goods makes make it easy for the rich countries to focus on them. For that reason, it is understandable why there is a sense of injustice when basic education, healthcare, and housing are not readily available in the poor countries because these public goods are guaranteed, if not readily available and even affordable, to people

in rich societies. Eradication of the conditions that bring about or perpetuate extreme poverty and destitution in the poor countries is not of particular interest to the people in rich societies. In the poor countries, though, the amounts that people are willing to accept as compensation for a failure to achieve the MDGs are comparable to what would have been 0.7% proportion of the income of the rich countries for international aid. Finally, political leaders need to ensure the success of the MDG because the results suggest that doing so is cheaper compared to the costs of letting the MDGs fail.

REFERENCES

Alesina, A., Di Tella, R. and MacCulloch, R. (2004) Inequality and Happiness: Are Europeans and Americans Different? *Journal of Public Economics*, 88(9-10), pp. 2009-2042

Bowles, S. (1998) Endogenous Preferences: The Cultural Consequences of Markets and Other Economic Institutions. *Journal of Economic Literature*, 36(1), pp. 75-111

Clark, A. E. (1997) Job Satisfaction and Gender: Why are Women so Happy at Work? *Labor Economics*, 4(4), pp. 341-372

Clark, A. E. and Oswald, A. J. (1994) Unhappiness and Unemployment. *Economic Journal*, 104(424), pp. 648-659

Clark, A. E. and Oswald, A. J. (1996) Satisfaction and Comparison Income. *Journal of Public Economics*, 61(3), pp. 359-381

Clemens, M. A., Kenny, C. J. and Moss, T. J. (2007) The Trouble with the MDGs: Confronting

Expectations of Aid and Development Success. *World Development*, 35(5), pp. 735-751

Costa, P. and McCrae, R. (1988) Personality in Adulthood: A Six-year Longitudinal Study of Self-Reports and Spouse Ratings on the NEO Personality Inventory. *Journal of Personality and Social Psychology*, 54(4), pp. 853-863

Deaton, A. (2008) Income, Health, and Well-Being around the World: Evidence from the Gallup World Poll. *Journal of Economic Perspectives*, 22(2), pp. 53-72

Di Tella, R. and MacCulloch, R. (2006) Some Uses of Happiness Data in Economics. *Journal of Economic Perspectives*, 20(1), pp. 25-46

Di Tella, R., MacCulloch, R. J. and Oswald, A. J. (2001) Preferences of Inflation and Unemployment: Evidence from Surveys of Happiness. *American Economic Review*, 91(1), pp. 335-341

Diener, E., and Biswas-Diener, R. (2008) *Happiness: Unlocking the Mysteries of Psychological Wealth* (Oxford: Blackwell Publishing)

Diener, E. and Emmons, R. A. (1985) The Independence of Positive and Negative Affect. *Journal of Personality and Social Psychology*, 47(5), pp. 71-75

Diener, E. and Seligman, M. E. P. (2004) Beyond Money: Toward an Economy of Well-Being. *Psychological Science in the Public Interest*, 5(1), pp. 1-31

Diener, E. and Suh, E. M. (1999) National Differences in Subjective Well-Being, in: D.

Kahneman, E. Diener and N. Schwartz, (eds) *Well-Being: The Foundations of Hedonic Psychology*, (New York: Sage Publications), pp. 434-450

Diener, E., Emmons, R. A., Larsen, R. J. and Griffin S. (1985) The Satisfaction with Life Scale. *Journal of Personality Assessment*, 49(1), pp. 71-75

Diener, E., Helliwell, J. F. and Kahneman, D. (2010) *International Differences in Well-Being*, (Oxford: Oxford University Press)

Easterlin, R. A. (1974) Does Economic Growth Improve the Human Lot? Some Empirical Evidence, in: P. A. David and M. W. Reder (eds) *Nations and Households in Economic Growth: Essays in Honor of Moses Abramovitz*, (New York, NY: Academic Press), pp. 89-125

Easterlin, R. A. (1995) Will Raising the Incomes of All Increase the Happiness of All? *Journal of Economic Behavior and Organization*, 27(1), pp. 35-47

Easterly, W. (2009) How the Millennium Development Goals Are Unfair to Africa. *World Development*, 37(1), pp. 25-36

Ekman, P., Davidson, R. and Friesen, W. (1990) The Duchenne Smile: Emotional Expression and Brain Physiology II. *Journal of Personality and Social Psychology*, 58(2), pp. 342-353

Ferrer-i-Carbonell, A. and Gowdy, J. M. (2007) Environmental Degradation and Happiness. *Ecological Economics*, 60(3), pp. 509-516

Frank, R. (1997) The Frame of Reference as a Public Good. *Economic Journal*, 107(445), pp.

1832-1847

Frey, B. S. and Benesch, C. (2008) TV, Time, and Happiness. *Homo Oeconomicus* 25(4-5), pp. 413-424

Frey, B. S. and Stutzer, A. (2000) Happiness Prospers in Democracy. *Journal of Happiness Studies*, 1(1), pp. 79-102

Frey, B. S. and Stutzer, A. (2002) What can Economists Learn from Happiness Research? *Journal of Economic Literature*, 40(2), pp. 402-435

Frey, B. S. and Stutzer, A. (2004) Beyond Outcomes: Measuring Procedural Utility. *Oxford Economic Papers*, 57(1), pp. 90-111

Frey, B. S. and Stutzer, A. (2005) Happiness Research: State and Prospects. *Review of Social Economy*, 42(2), pp. 207-228

Frey, B. S. and Stutzer, A. (2010) Recent Advances in the Economics of Individual Subjective Well-Being. Discussion Paper No. 4850 (Bonn: Institute for the Study of Labor)

Frey, B. S., Luechinger, S. and Stutzer A. (2009) The Life Satisfaction Approach to Valuing Public Goods: The Case of Terrorism. *Public Choice*, 138(3), pp. 317-345

Frey, B. S., Stutzer, A. and Luechinger, S. (2010) Life Satisfaction Approach to Environmental Valuation. *Annual Review of Resource Economics*, 2(1), pp. 139-160

Gruber, J. and Mullainathan, S. (2002) Do Cigarette Taxes Make People Happier? Working Paper No. 8872 (Cambridge: National Bureau of Economic Research)

Helliwell, J. F. (2006) Well-being, Social Capital, and Public Policy: What's New? *Economic Journal*, 116(510), pp. C34-C45

Inglehart, R. and Klingemann, H. D. (2000) Genes, Culture, Democracy, and Happiness, in: E. Diener and E. M. Suh (eds) *Culture and Subjective Well-Being*, (Cambridge: MIT Press), pp. 165-183

Kahneman, D. and Krueger, A. B. (2006) Developments in the Measurement of Subjective Well-being. *Journal of Economic Perspectives*, 20(1), pp. 3-24

Kahneman, D., Wakker, P. P. and Sarin R. (1997) Back to Bentham? Explorations on Experienced Utility. *Quarterly Journal of Economics*, 112(2), pp. 375-405

Larsen, R. J. and Fredrickson, B. L. (1999) Measurement Issues in Emotion Research, in: D. Kahneman, E. Diener and N. Schwarz (eds) *Well-Being: The Foundations of Hedonic Psychology*, (New York: Russell Sage Foundation), pp. 40-60

Larsen, R. J. and Prizmic, Z. (2008) Regulation of Emotional Well-Being: Overcoming the Hedonic Treadmill, in: M. Eid and R. J. Larsen (eds) *The Science of Subjective Well-Being*, (New York: Guilford Press), pp. 258-289

Lucas, R. E., Diener, E. and Suh, E. (1996) Discriminant Validity of Well-Being Measures. *Journal of Personality and Social Psychology*, 71(3), pp. 616-628

Luechinger, S. (2009) Valuing Air Quality Using the Life Satisfaction Approach. *Economic Journal*, 119(536), pp. 482-515

Lykken, D. (1999) *Happiness: What Studies on Twins Show Us about Nature, Nurture, and the Happiness Set-Point* (New York: Golden Books)

Lyubomirsky, S., King, L. and Diener, E. (2005) The Benefits of Frequent Positive Affect: Does Happiness Lead to Success. *Psychological Bulletin*, 131(6), pp. 803-855

Michalos, A. C. (2008) Education, Happiness, and Wellbeing. *Social Indicators Research*, 87(3), pp. 347-366

Ng, Y.-J. (1997) A Case for Happiness, Cardinalism, and Interpersonal Comparability. *Economic Journal*, 107(445), pp. 1848-1858

Oswald, A. J. (1997) Happiness and Economic Performance. *Economic Journal*, 107(445), pp. 1815-1831

Oswald, A. J. and Powdthavee N. (2008) Death, Happiness, and the Calculation of Compensatory Damages. *Journal of Legal Studies*, 37(S2), pp. S217-S251

Pavot, W., Diener, E., Colvin, C. R. and Sandvik, E. (1991) Further Validation of the Satisfaction with Life Scale: Evidence for the Cross-Method Convergence of Well-Being Measures. *Journal of Personality Assessment*, 57(1), pp. 149-161

Powdthavee, N. (2008) Putting a Price Tag on Friends, Relatives, and Neighbors: Using Surveys

of Life Satisfaction to Value Social Relationships. *Journal of Socio-Economics*, 37(4), pp. 1459-1480

Saith, A. (2006) From Universal Values to Millennium Development Goals: Lost in Translation. *Development and Change*, 37(6), pp. 1167-1199

Sandvik, E., Diener, E. and Seidlitz, L. (1993) Subjective Well-Being: The Convergence and Stability of Self-Report and Non-Self-Report Measures. *Journal of Personality*, 61(3), pp. 317-342

Stevenson, B. and Wolfers, J. (2008) Economic Growth and Subjective Well-Being: Reassessing the Easterlin Paradox. *Brookings Papers on Economic Activity*, 2008(1), pp. 1-87

Stutzer, A. and Frey, B. S. (2008) Stress that Doesn't Pay: The Commuting Paradox. *Scandinavian Journal of Economics*, 110(2), pp. 339-366

Stutzer, A. and Frey, B. S. (2010) Recent Advances in the Economics of Individual Subjective Well-Being. Working Paper No. 1520 (Basel: Faculty of Business and Economics, University of Basel)

United Nations (2010a). *The Millennium Development Goals Report 2010* (New York: United Nations)

United Nations (2010b) *The Global Partnership for Development at a Critical Juncture* (New York: United Nations)

van Praag, B. M. S. and Baarsma, B. E. (2005) Using Happiness Surveys to Value Intangibles: The Case of Airport Noise. *Economic Journal*, 115(500), pp. 224-246

van den Berg, B. and A. Ferrer-i-Carbonell (2007) Monetary Valuation of Informal Care: The Well-Being Valuation Method. *Health Economics*, 16(11), pp. 1227-1244

Vandemoortele, J. (2008) Making Sense of the MDGs. *Development*, 51(2): 220-227

Welsch, H. (2002) Preference over Prosperity and Pollution: Environmental Valuation Based on Happiness Surveys. *Kyklos*, 55(2), pp. 473-494

Welsch, H. (2008a) The Social Costs of Civil Conflict: Evidence from Surveys of Happiness. *Kyklos*, 61(2), pp. 320-340

Welsch, H. (2008b) The Welfare Cost of Corruption. *Applied Economics*, 40(14), pp. 1839-1849

Welsch, H. and Kühling, J. (2009) Using Happiness Data for Environmental Valuation: Issues and Applications. *Journal of Economic Surveys*, 23(2), pp. 385-406

Table 1: *Standard of living, average income (in US dollars)*

Rich countries	1990	1995	2000	2005
Japan	24,432	41,834	36,789	35,627
Norway	27,732	34,156	37,472	65,324
Switzerland	35,491	44,871	34,787	50,083
United States	23,064	27,574	34,606	42,534
Av. of Group	27,680	37,109	35,914	48,392
Av. of Upper income	19,317	25,239	25,871	34,301
0.7% of GDP Per Capita				
Japan	171	293	258	249
Norway	194	239	262	457
Switzerland	248	314	244	351
United States	161	193	242	298
Average of Group	194	260	251	339
Average of Upper income	135	177	181	240
Poor countries	**1990**	**1995**	**2000**	**2005**
Ethiopia	250	133	125	165
Mali	280	258	230	448
Rwanda	361	238	218	266
Zambia	416	382	309	610
Average of Group	327	253	221	372
Average of Low income	284	249	253	333

Source of data: World Development Indicators online

Notes:

1. The 'average of upper income' is the period average of all rich OECD-member countries, while the 'average of low income' is the period average of all low income countries.

2. Current US dollar is used instead of US dollar purchasing power parity (PPP) because the latter tends to inflate the magnitude of income of countries that do not have sizeable tradable sectors, making poor countries appear 'richer'.

Table 2: *MDG performance of countries, as of 2008*

Goal	Description	Ethiopia	Mali	Rwanda	Zambia
	Eradicate extreme poverty and hunger	◎	◎	◑	◑
	Achieve universal primary education	◑	◎	⊖	◑
	Promote gender equality and empower women	◑	◎	◑	◑
	Reduce child mortality	◑	◎	◑	◎
	Improve maternal health	◑	⊘	◑	◎
	Combat HIV/AIDS, malaria and other diseases	◑	◎	◑	◎
	Ensure environmental sustainability	◑	⊖	◑	⊘
	Develop a global partnership for development	◎	⊖	⊖	⊖

Source of data: MDG Monitor: Tracking the Millennium Development Goals; http://www.mdgmonitor.org/factsheets.cfm

Definitions:

● = achieved

◑ = very likely to be achieved; on track

◎ = possible to achieve if some changes are made

⊘ = off track

⊖ = insufficient information

Table 3: *Valuation of preferences for MDG (in US dollars)*

Basic results: Rich Countries	**MDG1**	**MDG2**	**MDG4**	**MDG5**	**MDG7**	**Average**
Marginal value share to GDP (%)		6.5		8.2	7.3	7.3
Japan		2,302		2,935	2,592	2,609
Norway		4,220		5,381	4,753	4,785
Switzerland		3,235		4,125	3,644	3,668
United States		2,748		3,503	3,095	3,115
Average of Group		3,126		3,986	3,521	3,544
Average of Upper Income		2,216		2,825	2,496	2,512
Robustness Results						
Marginal value share to GDP (%)		5.8		7.4	6.5	6.6
Japan		2,057		2,643	2,322	2,340
Norway		3,771		4,846	4,258	4,291
Switzerland		2,891		3,715	3,264	3,290
United States		2,455		3,155	2,772	2,794
Average of Group		2,793		3,590	3,154	3,179
Average of Upper Income		1,980		2,544	2,236	2,253
Basic results: Poor Countries	**MDG1**	**MDG2**	**MDG4**	**MDG5**	**MDG7**	**Average**
Marginal value share to GDP (%)	41.3	21.2	26.4	48.7	53.6	38.2
Marginal value share to GDP1 (%)	0.45	0.23	0.29	0.53	0.58	0.41
Marginal value share to GDP2 (%)	0.40	0.21	0.26	0.47	0.52	0.37
Ethiopia	68	35	44	80	88	63
Mali	185	95	118	218	240	171
Rwanda	110	57	70	130	142	102
Zambia	252	130	161	297	327	233
Average of Group	154	79	98	181	199	142
Average of Low Income	137	71	88	162	178	127
Robustness Results						
Marginal value share to GDP (%)	35.5	17.4	20.1	40.5	47.0	32.1
Marginal value share to GDP1 (%)	0.38	0.19	0.22	0.44	0.51	0.35
Marginal value share to GDP2 (%)	0.34	0.17	0.20	0.39	0.46	0.31
Ethiopia	59	29	33	67	78	53
Mali	159	78	90	182	210	144
Rwanda	94	46	54	108	125	85
Zambia	216	106	123	247	287	196
Average of Group	132	65	75	151	175	120
Average of Low Income	118	58	67	135	156	107

Notes:

1. MV= $\frac{h_Z}{h_Y}$ obtains the share of the willingness-to-accept to GDP per capita and $\frac{h_Z}{h_Y}Y$ obtains the absolute dollar amounts. Statistically insignificant results are not reported in the table. Nonetheless, the coefficients on MDG items 1 and 3 are positive. The willingness-to-accept values are \$1,668-\$1,898 for MDG1 (or about 7% of GDP per capita) and \$2,156-\$2,374 for MDG4 (or about 9% of GDP per capita). Regression results are available in Appendices 1 and 2.

2. GDP1 is group average of rich countries GDP per capita and GDP2 is all rich countries average GDP per capita.

APPENDIX 1

Table A.1: *Ordered probit regression results for rich countries*

	Baseline	MDG1	MDG2	MDG4	MDG5	MDG7
GDP per capita		1.0470	1.0539	1.0567	1.0661	1.0383
		15.150	15.228	15.213	15.338	15.013
Z		0.0341	0.0680	0.0494	0.0878	0.0755
		1.0980	2.1319	1.5794	2.7507	2.4648
Age	-0.0485	-0.0479	-0.0481	-0.0481	-0.0480	-0.0481
	-8.1637	-8.0581	-8.0779	-8.0803	-8.0695	-8.0825
Age-square	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	8.8647	8.7673	8.7760	8.7933	8.7597	8.7728
Gender	-0.1063	-0.1169	-0.1160	-0.1159	-0.1130	-0.1148
	-3.4598	-3.7919	-3.7658	-3.7601	-3.6621	-3.7237
Ex-married	-0.2282	-0.2870	-0.2891	-0.2856	-0.2883	-0.2913
	-4.4747	-5.6029	-5.6439	-5.5781	-5.6295	-5.6840
Widowhood	-0.2290	-0.2595	-0.2627	-0.2594	-0.2598	-0.2633
	-3.2179	-3.6401	-3.6838	-3.6393	-3.6440	-3.6917
Single	-0.2638	-0.2947	-0.2937	-0.2925	-0.2938	-0.2974
	-5.7531	-6.4112	-6.3886	-6.3620	-6.3906	-6.4685
Tertiary education	0.3727	0.2709	0.2621	0.2691	0.2598	0.2729
	2.3439	1.6999	1.6437	1.6886	1.6295	1.7126
Secondary education	0.2706	0.2252	0.2198	0.2230	0.2171	0.2269
	1.7303	1.4383	1.4033	1.4240	1.3860	1.4490
Primary education	0.1829	0.1198	0.1190	0.1188	0.1193	0.1239
	1.1542	0.7546	0.7498	0.7485	0.7518	0.7803
Unemployed	-0.4256	-0.3818	-0.3830	-0.3812	-0.3814	-0.3817
	-3.8727	-3.4711	-3.4815	-3.4656	-3.4676	-3.4700
Income decile	0.0970	0.0903	0.0901	0.0906	0.0907	0.0904
	13.416	12.441	12.417	12.482	12.497	12.456
Pseudo R^2	0.0224	0.0359	0.0361	0.0360	0.0363	0.0362

Notes:

1. N= 4,611 observations.
2. Numbers below the coefficients are z-statistics.

Table B.1: *Ordered probit regression results for poor countries*

	Baseline	MDG1	MDG2	MDG4	MDG5	MDG7
GDP per capita		0.3841	0.3758	0.3809	0.3890	0.4052
		13.914	13.625	13.722	14.054	14.519
Z		0.1585	0.0798	0.1004	0.1895	0.2170
		3.6975	2.0072	2.5771	4.3634	6.1855
Age	-0.0216	-0.0161	-0.0162	-0.0162	-0.0162	-0.0169
	-3.9857	-2.9550	-2.9811	-2.9760	-2.9719	-3.1035
Age-square	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001
	4.0384	2.9644	3.0104	3.0108	3.0197	3.1251
Gender	-0.0181	-0.0233	-0.0237	-0.0229	-0.0223	-0.0234
	-0.6673	-0.8591	-0.8716	-0.8427	-0.8212	-0.8610
Ex-married	-0.0333	-0.0597	-0.0560	-0.0544	-0.0622	-0.0452
	-0.5210	-0.9336	-0.8765	-0.8503	-0.9733	-0.7068
Widowhood	-0.2080	-0.2284	-0.2276	-0.2252	-0.2318	-0.2175
	-3.3609	-3.6869	-3.6750	-3.6353	-3.7420	-3.5105
Single	-0.1090	-0.0701	-0.0674	-0.0654	-0.0701	-0.0728
	-2.9824	-1.9092	-1.8358	-1.7825	-1.9105	-1.9838
Tertiary education	0.2506	0.2458	0.2523	0.2503	0.2429	0.2555
	3.6026	3.5268	3.6212	3.5920	3.4840	3.6695
Secondary education	0.1282	0.1149	0.1184	0.1209	0.1114	0.1240
	3.5398	3.1684	3.2628	3.3373	3.0686	3.4244
Primary education	0.0815	0.1158	0.1202	0.1231	0.1167	0.1225
	2.4141	3.4092	3.5411	3.6274	3.4372	3.6114
Unemployed	0.0330	-0.0534	-0.0502	-0.0528	-0.0557	-0.0484
	0.9869	-1.5657	-1.4704	-1.5472	-1.6333	-1.4203
Income decile	0.1556	0.1499	0.1495	0.1496	0.1492	0.1505
	23.879	22.904	22.850	22.868	22.805	22.998
Pseudo R^2	0.0281	0.0356	0.0353	0.0354	0.0358	0.0366

Notes:

1. N= 6,041 observations.
2. Numbers below the coefficients are z-statistics.

APPENDIX 2

Table A.2: *Robustness test of ordered probit regression for rich countries*

	Baseline	MDG1	MDG2	MDG4	MDG5	MDG7
GDP per capita		1.0338	1.0406	1.0420	1.0517	1.0271
		14.922	14.995	14.956	15.085	14.822
Z		0.0252	0.0600	0.0403	0.0780	0.0669
		0.8057	1.8693	1.2816	2.4307	2.1670
Citizenship – local		0.0694	0.0713	0.0687	0.0713	0.0727
		1.5104	1.5520	1.4968	1.5527	1.5805
Citizenship – national		0.0957	0.0952	0.0955	0.0913	0.0941
		1.4837	1.4765	1.4804	1.4142	1.4586
Citizenship – global		0.0997	0.0960	0.0988	0.0949	0.0939
		2.8283	2.7259	2.8095	2.6985	2.6648
Age	-0.0485	-0.0491	-0.0492	-0.0492	-0.0492	-0.0493
	-8.1637	-8.2492	-8.2638	-8.2653	-8.2535	-8.2670
Age-square	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	8.8647	8.9234	8.9269	8.9424	8.9099	8.9231
Gender	-0.1063	-0.1232	-0.1221	-0.1222	-0.1192	-0.1209
	-3.4598	-3.9895	-3.9559	-3.9575	-3.8580	-3.9161
Ex-married	-0.2282	-0.2825	-0.2844	-0.2816	-0.2838	-0.2863
	-4.4747	-5.5080	-5.5439	-5.4898	-5.5330	-5.5778
Widowhood	-0.2290	-0.2572	-0.2602	-0.2572	-0.2577	-0.2608
	-3.2179	-3.6067	-3.6486	-3.6079	-3.6139	-3.6559
Single	-0.2638	-0.2832	-0.2823	-0.2816	-0.2825	-0.2855
	-5.7531	-6.1376	-6.1162	-6.0997	-6.1207	-6.1859
Tertiary education	0.3727	0.2505	0.2420	0.2488	0.2402	0.2515
	2.3439	1.5702	1.5163	1.5596	1.5055	1.5773
Secondary education	0.2706	0.2059	0.2007	0.2042	0.1986	0.2068
	1.7303	1.3130	1.2792	1.3017	1.2660	1.3186
Primary education	0.1829	0.1052	0.1045	0.1047	0.1051	0.1086
	1.1542	0.6617	0.6575	0.6588	0.6610	0.6831
Unemployed	-0.4256	-0.3721	-0.3731	-0.3717	-0.3721	-0.3721
	-3.8727	-3.3788	-3.3880	-3.3748	-3.3789	-3.3784
Income decile	0.0970	0.0901	0.0900	0.0904	0.0905	0.0902
	13.416	12.415	12.393	12.448	12.463	12.428
Pseudo R^2	0.0224	0.0371	0.0372	0.0371	0.0374	0.0373

Notes:

1. N= 4,611 observations.
2. Numbers below the coefficients are z-statistics.

Table B.2: *Robustness test of ordered probit regression for poor countries*

	Baseline	MDG1	MDG2	MDG4	MDG5	MDG7
GDP per capita		0.4073	0.4004	0.4035	0.4106	0.4252
		14.449	14.199	14.236	14.535	14.949
Z		0.1444	0.0697	0.0811	0.1664	0.1997
		3.3518	1.7453	2.0569	3.7886	5.6363
Citizenship – local		-0.0877	-0.0811	-0.0826	-0.0875	-0.0915
		-1.4060	-1.3007	-1.3242	-1.4028	-1.4681
Citizenship – national		0.1595	0.1578	0.1490	0.1417	0.1403
		2.1941	2.1678	2.0395	1.9437	1.9266
Citizenship – global		0.1789	0.1850	0.1831	0.1764	0.1687
		4.2366	4.3838	4.3382	4.1731	3.9889
Age	-0.0216	-0.0161	-0.0162	-0.0162	-0.0162	-0.0168
	-3.9857	-2.9496	-2.9799	-2.9724	-2.9638	-3.0796
Age-square	0.0002	0.0001	0.0001	0.0001	0.0001	0.0001
	4.0384	2.9402	2.9863	2.9854	2.9919	3.0866
Gender	-0.0181	-0.0217	-0.0220	-0.0214	-0.0209	-0.0219
	-0.6673	-0.7983	-0.8108	-0.7894	-0.7709	-0.8053
Ex-married	-0.0333	-0.0432	-0.0393	-0.0385	-0.0461	-0.0314
	-0.5210	-0.6749	-0.6141	-0.6019	-0.7198	-0.4903
Widowhood	-0.2080	-0.2126	-0.2114	-0.2102	-0.2168	-0.2045
	-3.3609	-3.4247	-3.4061	-3.3863	-3.4912	-3.2930
Single	-0.1090	-0.0691	-0.0665	-0.0648	-0.0688	-0.0715
	-2.9824	-1.8811	-1.8122	-1.7648	-1.8741	-1.9469
Tertiary education	0.2506	0.2436	0.2494	0.2484	0.2419	0.2533
	3.6026	3.4931	3.5762	3.5620	3.4676	3.6347
Secondary education	0.1282	0.1208	0.1240	0.1264	0.1180	0.1292
	3.5398	3.3238	3.4103	3.4807	3.2433	3.5588
Primary education	0.0815	0.1220	0.1260	0.1284	0.1228	0.1279
	2.4141	3.5871	3.7073	3.7781	3.6112	3.7643
Unemployed	0.0330	-0.0421	-0.0391	-0.0418	-0.0449	-0.0387
	0.9869	-1.2305	-1.1422	-1.2215	-1.3117	-1.1301
Income decile	0.1556	0.1496	0.1493	0.1494	0.1489	0.1502
	23.879	22.799	22.757	22.763	22.700	22.873
Pseudo R^2	0.0281	0.0367	0.0364	0.0364	0.0368	0.0375

Notes:

1. N= 6,041 observations.
2. Numbers below the coefficients are z-statistics