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Assessing the Odds of Achieving the MDGs

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Abstract

How many countries are on target to achieve the Millennium Development Goals by 2015? How many countries are off target, and how far are they from the goals? And what factors are essential for improving the odds that off-target countries can reach the goals? This paper examines these questions and takes a closer look at the diversity of country progress. The authors argue that the answers from the available data are surprisingly hopeful. In particular, two-thirds of developing countries are on target or close to being on target for all the Millennium Development Goals. Among developing countries that are falling short, the average gap of the top half is about 10 percent. For those countries that are on target, or close to it, solid economic growth and good policies and institutions have been the key factors in their success. With improved policies and faster growth, many countries that are close to becoming on target could still achieve the targets in 2015 or soon after.

Assessing the Odds of Achieving the MDGs

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I.   Introduction

One puzzle about the Millennium Development Goals (MDGs) befuddles greatly. Why has the overall progress toward the MDGs been so mixed when the common observation is that the economic performance of developing countries was markedly better for more than a dozen years after the mid-1990s? The external environment had been favorable until the recent economic crisis—trade was expanding, export prices were buoyant, and foreign aid and debt relief were being scaled up. And economic growth for a very broad range of developing countries was accelerating because of better policies and institutions. This was true not only for large middle-income countries like China and India but also for poor countries in Sub-Saharan Africa.[2] Furthermore, because of improved policies and institutions, the recent crisis was different for low-income countries, which did relatively well. There was no widespread failure in domestic policy. Growth remained positive. And the poor were protected by increased spending on social safety nets.[3] So the question that begs answers is—where did all the economic progress go, and what did it buy for the MDGs?

The answers lie underneath the global numbers. To solve this puzzle and to assess the prospects of countries reaching the goals in the few years remaining until 2015, this paper looks at the following questions: How many countries are attaining the goals, and how many are behind? Are lagging countries far from the goals? Are there any already close? Why are some countries behind? And what factors are key to improving the odds that lagging countries can reach the goals? We investigate these questions in this paper and argue that answers from available information are surprisingly hopeful.

The global numbers tell a familiar, mixed story in two ways.[4] In terms of the remaining distance toward the 2015 targets (figure 1a), the latest information confirms that progress remains strong on gender and education, access to safe drinking water, extreme poverty, and hunger. In terms of the distance to the trajectory required to be on target (figure 1b), the world is on track by current trends (or historical growth rates) to reach the global target of cutting income poverty in half by 2015. Thanks to rapid growth in China, the East Asia and Pacific region has already halved extreme poverty. Developing countries will also likely achieve the MDGs for gender parity in primary and secondary education and for access to safe drinking water, and will be close on hunger and the primary education completion rate. By both yardsticks, distance to the goals or distance to be on track, progress continues to lag in health-related development outcomes, such as child and maternal mortality and access to sanitation. New data and methodologies indicate much more progress than previously thought in reducing maternal mortality, but that is still the MDG that lags the most (Hogan *et al.* 2010). On current trends, the world will miss these three targets by 2015. Moreover, low-income countries, particularly fragile states and those in Sub-

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[2] This observation is documented widely. See, for example, World Bank (2008) on the decoupling of trend growth for developed and developing countries. For Africa, See Arbache, Go, and Page (2008) and Ndulu (2008).
[3] World Bank (2010) discussed the impact of the recent global economic crisis on the MDGs.
[4] For more details, see World Bank 2011 and United Nations 2010.

Saharan Africa, lag because of a combination of low starting points and difficult circumstances (Easterly 2009; Clemens and others 2007; World Bank 2010).

Figure 1. Current global distance to the MDGs is wide ranging
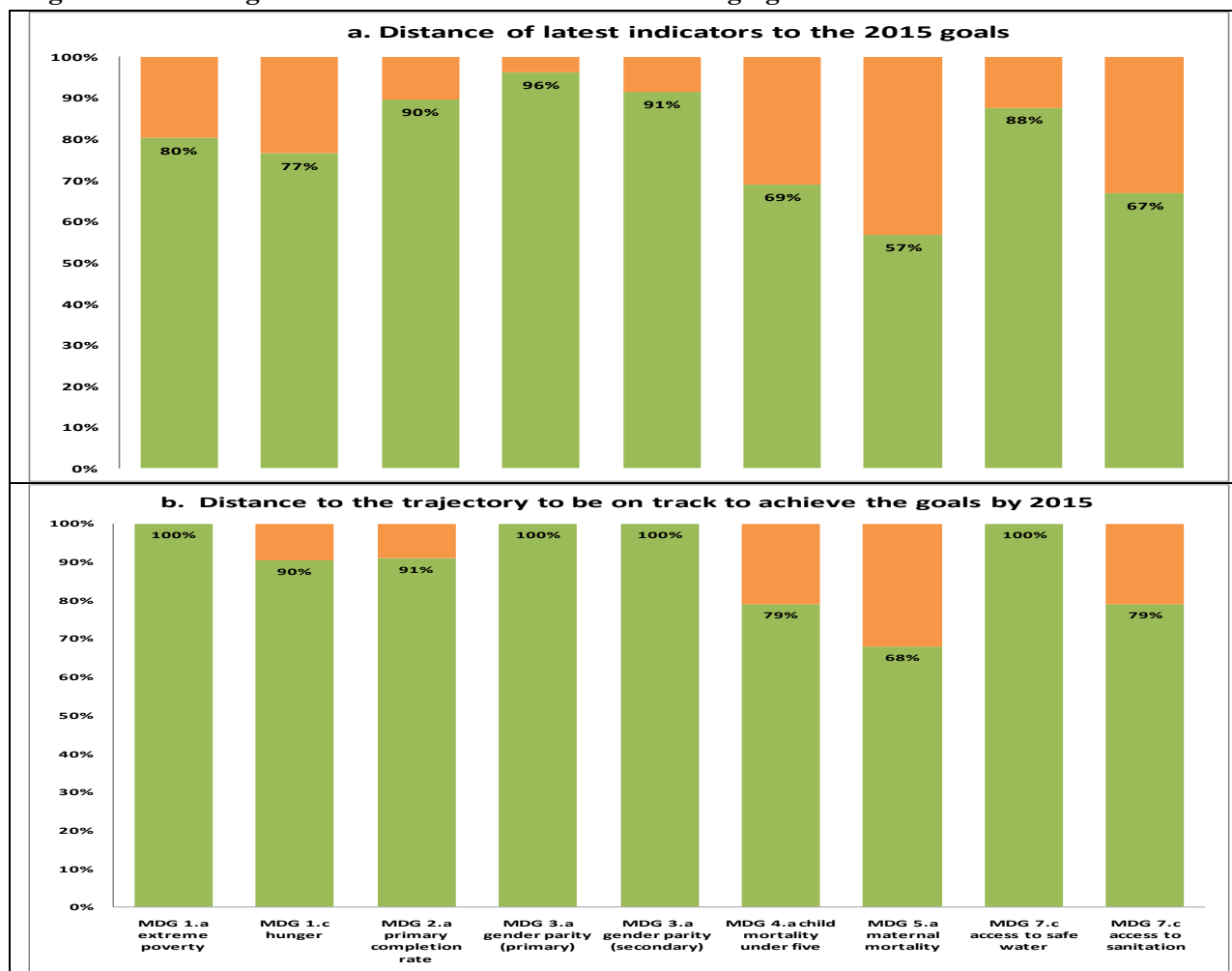
Source: Authors' calculations based on data from the World Development Indicators database.
Note: Distance to goal achieved in this graph is a weighted average of the latest indicators, using population weights in 2009.

Behind those aggregate numbers, however, there is a great diversity of performance across indicators, countries, and groups of countries that requires further analysis. Bourguignon et al. (2010), Leo and Barmeier (2010), and ODI (2010) showed that progress has been more heterogeneous than is shown by the aggregate figures. Although the MDGs were conceived as global targets to spur development efforts and support to poor countries, it is necessary to measure and describe progress at the country or other level to better understand advances and remaining gaps.[5] Global and regional summaries typically amass data for countries of dissimilar

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[5]Fukuda-Parr and Greenstein (2010) sustain that development goals are not "hard planning targets" but rather guidelines "meant to encourage countries to strive for accelerated progress". Their approach consists in comparing rates of change in development indicators before and after 2001, the year the United Nations outlined its strategy for achieving the MDGs, assuming that progress should be measured against the moment MDGs were adopted.

development and types--fragile, low-income, and middle-income countries. For example, the Europe and Central Asia region covers such middle-income countries as Albania and Bulgaria and such low-income countries as Tajikistan and Uzbekistan. Among the developing countries in Sub-Saharan Africa, some are middle-income countries (such as Mauritius and South Africa); some lower-middle-income countries (such as Angola and the Democratic Republic of Congo) are resource rich, but their levels of development may be closer to those of low-income countries.

To untangle the aggregate numbers, we examine the issue further. We introduce a simple but reasonable approach to measure and categorize MDG progress and to assess the likelihood of developing countries of reaching the goals. Our approach characterizes MDG progress by country performance in terms of countries already on track to achieve the targets and by the distance or "closeness" of lagging countries to becoming on track to achieve the targets. We also examine the importance of different typologies in the diversity of progress--such as initial income and policy-institutional conditions, subsequent growth and policy-institutional achievement, the poorest countries versus the others and level of fragility (broadly following Collier and O'Connell 2006). Finally, we explore some empirical or statistical links between basic development's drivers such as growth and policy and the different rates of MDG progress. The structure of the paper follows accordingly: section II presents our MDG performance measurement and assessment; section III describes the country progress by different typologies or factors; section IV assesses the linkages between development drivers and MDG performance, as well as their role in improving the likelihood of reaching the 2015 goals; and the final section summarizes our key findings.

II.   Where do countries stand?

Measuring country MDG performance. The MDGs are typically defined in terms of the number or percentage of people (e.g. halving the number of poor or achieving 100 percent access to primary education). While data are generally collected on a country basis, the influence of each country in the global average depends on the size of its population. When large countries like China and India are doing well, as on the poverty MDG, their progress will be reflected very visibly in the global average, but will also hide progress (or a lack of it) in smaller countries (World Bank 2010). To examine how poor countries are doing, data are presented in terms of progress in individual countries, not to replace the standard approach (e.g. figure 1) but to provide additional information.

Moreover, measuring braod development outcomes through specific indicators is never precise, so the diversity in MDG performance is partly the result of indicator or measurement issues. We do however not look at these issues here. For discussion of some of the issues in measuring broad development outcomes through the Millennium Development Goals, see box 1.2 of World Bank (2011).

To examine country progress, we distinguish countries that are on target and countries that are off target or lagging; and we further differentiate lagging countries that are "close" to becoming on target from those that are "far" from becoming on track, forming three broad categories of performance.[6] Although there are alternative ways to describe progress, the three broad categories are intuitively appealing and further refinement will likely diminish very much the number of observations for each group given data constraints (see below).

Illustration 1 - How we measure MDG performance
For example, a 50 percent reduction in poverty
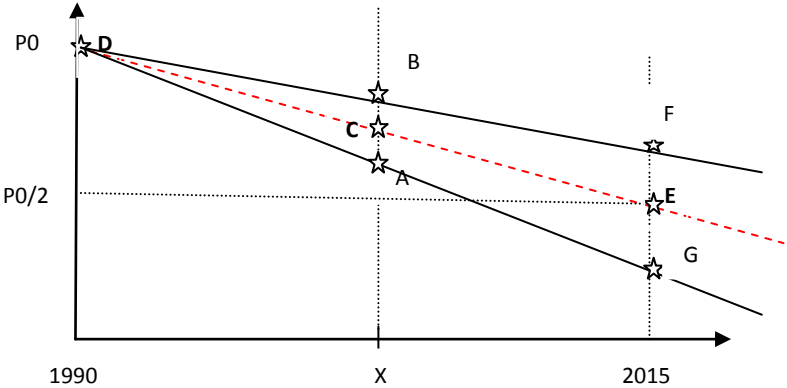
MDG performance in this paper is measured by deviations of latest data from the trajectory required to reach development goals (similar to the idea in figure 1b but applied to individual countries). Different starting points will imply a unique trajectory for each country to reach a specific goal. Hence, comparing the slope or growth rate of the historical path with the required one is a good way to assess progress. The reference year for measuring progress is officially set as 1990. For each country and indicator, we calculate the linear annualized rate of improvement required to reach the 2015 goal from the reference year. The illustration above shows how we measure MDG performance for a 50 percent poverty reduction. A country is classified as on target if the latest actual or observed MDG performance, point A, meets or exceeds a point such as C that is suggested by the right trajectory or trend required to meet the goals by 2015. Its annual rate of progress or slope between the reference year and the latest data will imply an achievement path that will land the country at point G by 2015, which is more than enough to reduce poverty by 50 percent indicated by point E. An example is China – since 1990, China has reduced its poverty rate by more than 70 percent, far above the 2015 target of having poverty. A country is considered off target or lagging if latest MDG performance, say point B, falls short

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[6] In what follows, the terms "on target" and "on track" are used interchangeably.

of this path. An example is Mali, where poverty increased by more than 25 percent from 1989 to 2006 instead of falling. The segment BC measures its gap to become on target at the point of latest data.

Within the off-target group, countries are further classified in relation to the group's average distance to be on target.[7] Mean gaps are convenient cut-off points, dividing the lagging countries into two subgroups: off target and above average; and off target and below average. We argue and show that lagging countries in the top half, off target and above average, are indeed "close to the target," whereas lagging countries in the bottom half, off target and below average, are therefore "far from the target." The computed mean gaps are generally more conservative or stringent than the cut-off points used in Leo and Barmeier (2010), which defines lagging countries as close to target if their trajectory is within 50 percent of the required progress to reach the goals, earning half a full score. In our methodology, we do not use an arbitrary cutoff point of 50 percent. Moreover, the mean gaps are all less than 50 percent across the MDGs; and they provide data-specific cutoff points to split the off-target countries. In addition to the classification of countries according to progress, the actual gaps are also retained to measure the mean gaps of each group, and to identify countries that are within 10 percent of becoming on target.

The three groups – countries on target, close to the target, and far from the target, roughly divides the developing countries into three thirds.

Detailed historical data on MDG performance are required to calculate the achievement path for each country to meet each of the MDGs. Unfortunately, such data are not available in many countries for 1990, although estimates for recent years tend to be more complete. If no country data are available for 1990, we used the closest available information in the late 1980s or early 1990s as substitutes for the starting point, and then calculated the rate of progress required from that point to meet the MDG. This approach may be inaccurate if the data for the available starting point is significantly different from the level of MDG performance in 1990 or the sample period does not capture the latest progress. The latter is a particularly important issue now, since data generally are yet not available for 2009, the year of the recent global economic crisis. In addition, for countries without at least two data points, progress cannot be measured even if data are available for a recent year. Even so, the approach allows us to include more countries than if we relied only on data from 1990 and 2008.[8]

We restrict our attention to six MDGs and nine development targets with explicit and quantifiable 2015 goals (United Nations 2008). Selected development targets are:

- MDG 1.a: halve between 1990 and 2015, the proportion of people whose income is less than $1.25 a day (Poverty headcount ratio at $1.25 a day, PPP, percent of population).

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[7] The average here is the mean of the off-target group, not the entire sample of countries.
[8] See annex table A1 for country-specific results.

- MDG 1c: halve between 1990 and 2015, the proportion of people who suffer from hunger (Malnutrition prevalence, weight for age, percent of children under 5).
- MDG 2.a: ensure that by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling (Primary completion rate, total, percent).
- MDG 3.a: eliminate gender disparity in primary and secondary education, preferably by 2005, and at all levels of education no later than 2015 (Ratio of female to male in primary and secondary enrollment).
- MDG 4.a: reduce by two-thirds, between 1990 and 2015, the under-five mortality rate (Mortality rate, under-five, per 1,000).
- MDG 5.a: reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio (Maternal mortality ratio, per 100,000 live births).
- MDG 7.c: halve by 2015 the proportion of people without sustainable access to safe drinking water and basic sanitation (Improved water source and sanitation facilities, percent of population without access).

In what follows, we take a close look at MDG performance in developing countries, with a particular focus on those countries facing the larger gaps in terms of MDG achievement.

Several low-income countries are doing well. A look beneath the aggregate global statistics shows not just middle-income countries doing well, but many low-income countries, too (table 1). This confirmed that progress in individual African and poor countries was indeed strong.[9]

Although the variation among lagging countries is large, the average gap is not. Lagging countries are, on average, only 23 percent away from being on track to achieve all the MDGs (table 2). They are especially close to the targets for gender parity in primary education (average gap is 7 percent); gender parity in secondary education (16 percent gap); hunger (19 percent gap); primary education completion (20 percent gap); and, to some extent, under-five mortality (23 percent gap). But for each target there are countries where progress has been scant. For example, several countries are far from halving extreme poverty, even as the global goal will be reached.

Progress is mixed or poor on access to safe drinking water, access to sanitation, maternal mortality, and extreme poverty. Even so, the mean gaps of all lagging countries are less than 50 percent from the targets on access to safe drinking water (25 percent) and access to sanitation (27 percent), and no worse than 40 percent on maternal mortality (32 percent) and extreme poverty (39 percent).

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[9] See Leo and Barmeier 2010.

Table 1. Several low-income countries are achieving the MDGs

Selected Millennium Development Goal	Low-income countries that have achieved the goal		Low-income countries that are on track to achieve the goal	
Poverty	· Cambodia · Kenya · Mauritania		· Central African Republic · Ethiopia · Ghana	
Universal primary education	· Myanmar · Tajikistan · Tanzania		None	
Gender parity in primary education	· Bangladesh · Gambia, The · Ghana · Haiti · Kenya · Kyrgyz Republic · Madagascar · Malawi	· Mauritania · Myanmar · Rwanda · Tanzania · Uganda · Zambia · Zimbabwe	· Benin · Burkina Faso · Burundi · Cambodia · Comoros · Ethiopia · Guinea · Nepal	· Sierra Leone · Solomon Islands · Togo
Gender parity in secondary education	· Bangladesh · Kyrgyz Republic · Myanmar		· Gambia, The · Malawi · Mauritania	· Nepal · Rwanda
Under-five mortality rate	None		· Bangladesh · Eritrea · Lao PDR	· Madagascar · Nepal
Access to safe drinking water	· Afghanistan · Burkina Faso · Comoros · Gambia, The · Ghana · Korea, Dem. Rep. · Kyrgyz Republic	· Malawi · Nepal	· Benin · Cambodia · Guinea · Uganda	
Acces to sanitation	· Lao PDR · Myanmar · Tajikistan		· Rwanda	

Source: Authors' calculation based on World Development Indicators database (as of March 2011).
Note: List of low-income countries is based on fiscal year 2011 World Bank classification; see table A1.13 in World Bank (2011a).

Table 2. Lagging countries are surprisingly close to getting on target

	Average distance to getting on target (gaps, %)		
	All off target countries	**Countries that are**	
		close to the target	far from the target
MDG 1.a Extreme poverty	39 (96)	17	67
MDG 1.c Hunger	19 (60)	9	35
MDG 2.a Primary education completion	20 (96)	9	40
MDG 3.a Gender parity in primary education	7 (22)	4	14
MDG 3.a Gender parity in secondary education	16 (52)	8	29
MDG 4.a Child mortality under five	23 (59)	8	38
MDG 5.a Maternal mortality	32 (80)	11	51
MDG 7.c Access to safe drinking water	25 (76)	14	41
MDG 7.c Access to sanitation	27 (50)	16	34
Simple average	23	11	39

Source: Authors' calculations based on data from the World Development Indicators database.
Note: A country is "close to the target" if its distance to getting on target (that is, its gap of trajectory) is smaller than the average gap of all lagging countries. Otherwise, it is "far from the target" (that is, its distance is greater than the average gap). Figures in parentheses indicate the range of variation (Maximum value – Minimum value) of countries off target, by MDG. Averages and numbers of countries cover only those with data--and that may vary by MDG.

More important, among countries that are off track, the top half are, on average, only about 11 percent away from being on target. The mean distance of this subgroup is only 4–9 percent for gender parity in primary and secondary education, child mortality, primary education completion, and hunger. Indeed, countries close to the target need to increase primary education completion only by 9.2 percent (or 1.5 percent a year), on average, to be on track to reach the 2015 target.

Table 3. Many countries are within 10–20 percent of being on target

	Distribution of lagging countries			
	Gap ≤ 10 percent		Gap ≤ 20 percent	
	Number of countries	Proportion of countries	Number of countries	Proportion of countries
MDG 1.a Extreme poverty	9	24%	13	34%
MDG 1.c Hunger	10	33%	18	60%
MDG 2.a Primary education completion	23	40%	39	68%
MDG 3.a Gender parity in primary education	28	74%	36	95%
MDG 3.a Gender parity in secondary education	16	42%	23	61%
MDG 4.a Child mortality under five	33	31%	48	46%
MDG 5.a Maternal mortality	20	21%	37	39%
MDG 7.c Access to safe drinking water	10	15%	32	48%
MDG 7.c Access to sanitation	6	6%	25	26%
Simple average	17	32%	30	53%

Source: Authors' calculations based on data from the World Development Indicators database.

Indeed, many lagging countries are already within striking distance. From another perspective, table 3 provides the proportion of countries within 10 percent or 20 percent of getting on target. A third of off-target countries have, on average, a gap of 10 percent or less from being on target across the MDGs. Countries like Bangladesh (extreme poverty, hunger, and maternal mortality), Indonesia (hunger, child and maternal mortality, access to safe drinking water), and Mali (gender parity in primary education and access to safe drinking water) are in this category. More than half have a gap of 20 percent or less. Of the countries within 20 percent of target, the best results are for gender parity in primary education, primary education completion, gender parity in secondary education, and hunger. The worst results are for access to sanitation, extreme poverty, and maternal mortality, with access to safe drinking water and under-five mortality in the middle. Table 4 lists countries that are within 10 percent of being on target by MDG.

Table 4. Lagging countries within 10 percent of being on target in achieving the MDGs

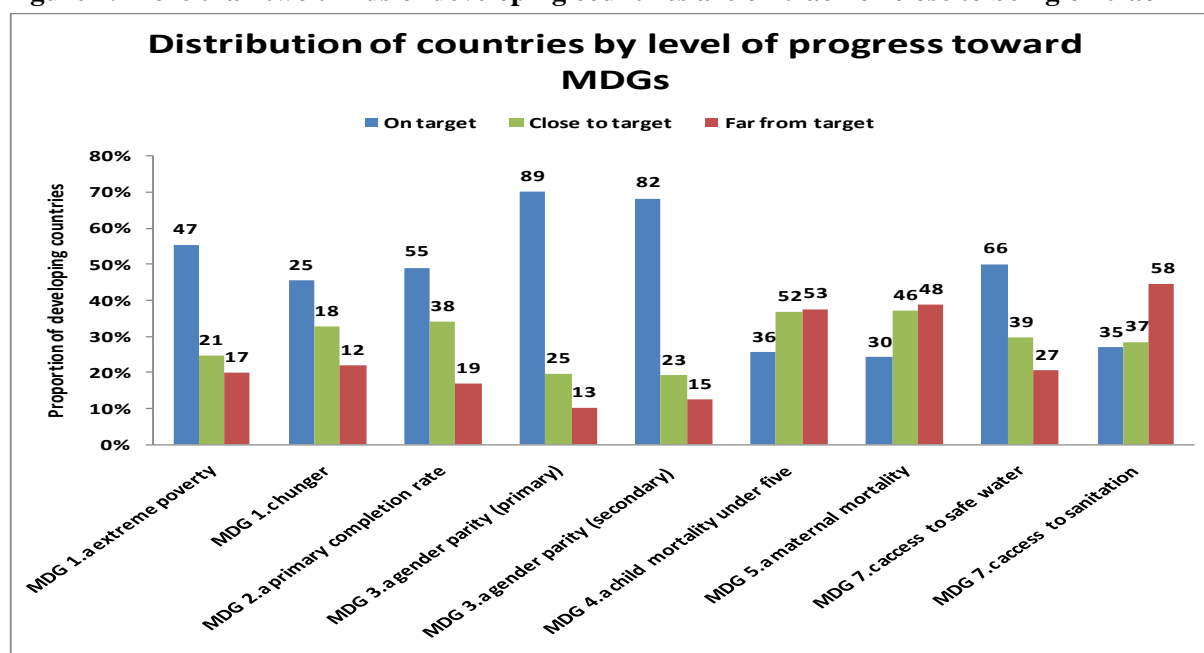| MDG 1.a Extreme poverty	MDG 1.c Hunger	MDG 2.a Primary education completion	MDG 3.a Gender parity in primary education	MDG 3.a Gender parity in secondary education	MDG 4.a Child mortality under five	MDG 5.a Maternal mortality	MDG 7.c Access to safe drinking water	MDG 7.c Access to sanitation
Bangladesh	Bangladesh	Bhutan	Belize	Bulgaria	Algeria	Algeria	Azerbaijan	Botswana
Burkina Faso	Bolivia	Cambodia	Cape Verde	Congo, Rep.	Antigua and Barbuda	Bangladesh	Colombia	Brazil
El Salvador	Egypt, Arab Rep.	Comoros	Chile	Georgia	Argentina	Brazil	Eritrea	Dominican Republic
Guinea	Indonesia	Cuba	Congo, Dem. Rep.	Grenada	Belarus	Cambodia	Haiti	Morocco
India	Jordan	El Salvador	Congo, Rep.	Guatemala	Bhutan	Cape Verde	Indonesia	Peru
Lao PDR	Kenya	Gambia, The	Djibouti	Macedonia, FYR	Cape Verde	Dominican Republic	Iran, Islamic Rep.	Turkey
Lesotho	Nigeria	Ghana	El Salvador	Madagascar	Colombia	Egypt, Arab Rep.	Kiribati	
Philippines	Pakistan	Guatemala	Grenada	Morocco	Dominican Republic	Ethiopia	Mali	
Uganda	Rwanda	Honduras	Guatemala	Pakistan	Ecuador	Haiti	Myanmar	
	Zambia	Iraq	Guinea-Bissau	Russian Federation	Ethiopia	India	Venezuela, RB	
		Jamaica	Jamaica	Senegal	Guatemala	Indonesia		
		Kyrgyz Republic	Lao PDR	Solomon Islands	Honduras	Lao PDR		
		Lebanon	Lebanon	Sudan	Indonesia	Mongolia		
		Lithuania	Maldives	Swaziland	Kazakhstan	Morocco		
		Macedonia, FYR	Mali	Vanuatu	Kiribati	Nepal		
		Mauritius	Mozambique	Zimbabwe	Kyrgyz Republic	Peru		
		Moldova	Nigeria		Liberia	Rwanda		
		Morocco	Paraguay		Libya	Syrian Arab Republic		
		Nepal	South Africa		Malawi	Tunisia		
		Philippines	St. Vincent and the Grenadines		Moldova	Yemen, Rep.		
		South Africa	Sudan		Montenegro			
		Tanzania	Suriname		Niger			
		Turkey	Swaziland		Paraguay			
			Tajikistan		Russian Federation			
			Tonga		Samoa			
			Uruguay		Sri Lanka			
			Vanuatu		St. Vincent and the Grenadines			
			Venezuela, RB		Suriname			
					Syrian Arab Republic			
					Tajikistan			
					Turkmenistan			
					Uzbekistan			
					Yemen, Rep.			

Source: Authors' calculations based on data from the World Development Indicators database.

Although many more developing countries are off track than on track to achieve the targets, two thirds or more of developing countries are actually on target or close to being on target, thanks to more than a decade of better policy and growth (figure 2). Many countries are making substantial progress in several MDGs: gender parity in primary education (89 of them), gender parity in secondary education (82), access to safe drinking water (66), primary completion rate (55), and extreme poverty (47). For instance, about 70 percent of developing countries have achieved or are on track to achieve the targets for gender parity in primary and secondary education. Although half the monitored countries (57) are off target for the primary education completion goal, two thirds of them (38) are very close to being on track.

Progress is mixed or poor on access to sanitation, maternal mortality, and child mortality. Unfortunately, more than 40 percent of low-income to upper-middle-income countries in the sample (58 countries) are significantly off target for access to sanitation. [10]

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[10] More regional details are available in World Bank (2011) .

Figure 2. More than two thirds of developing countries are on track or close to being on track

Distribution of countries by level of progress toward MDGs

■ On target   ■ Close to target   ■ Far from target

Source: Authors' calculations based on data from the World Development Indicators database.
Note: A country is "close to the target" if its distance to getting on target (that is, its gap of trajectory) is smaller than the average gap of all lagging countries. Otherwise, it is "far from the target" (that is, its distance is greater than the average gap).

How the country pattern differs from the aggregate picture. The reference unit matters. Simple country averages that give equal importance to each country qualify the global story, which uses weighted averages that give more importance to countries with large populations. This pattern can go in both directions, for examples:

- The progress in reducing world poverty and in meeting the goal is essentially the result of rapid advances by China and India, with the absolute number of poor people falling rapidly in China. Despite the progress on the poverty goal, the average shortfall of lagging countries at 39 percent is still the biggest among the MDGs. Among lagging countries in the bottom half, extreme poverty also has the largest average gap at 67 percent.

- In contrast, the average distance to becoming on target for under-five mortality is only 23 percent for lagging countries, somewhat less daunting than the global distance derived from the population of all under-five children. Moreover, the top half of lagging countries is only 8 percent from becoming on target.

- Although the progress of maternity mortality lags the most at the global level, there are hopeful signs at the country level. The average distance of the top half of lagging countries is only 11 percent to becoming on target. That said, the average gap for all lagging countries is still high at 32 percent, second only to extreme poverty; and the gap of the bottom half of lagging countries, at 51 percent is second highest.

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Where the pattern at the aggregate and country level generally support one another are in the progress of primary education completion rate, hunger, gender parity in primary and secondary education, and to a lesser extent, access to safe drinking water. The lack of progress in sanitation is also similar at both levels.

Disproportionately higher distance for the bottom half of the off-target countries point to the rather uneven distribution that affects some MDG indicators. For the bottom half of the off-target countries, --they are disproportionately far from the targets, especially for poverty (67 percent) and maternal mortality (51 percent). And the range of variation is considerably large among countries off target. For extreme poverty and primary education completion, the gap between the countries closest to and farthest from being on target is 96 percent, a fact that clearly illustrates the diversity of performance. This is the case for El Salvador and Uzbekistan on extreme poverty reduction and for Bhutan and Djibouti on primary completion rates.

Even so, country diversity generally softens the more gloomy global picture. All these statistics are remarkable, revealing progress that is much more diversified and much more hopeful than the recent pessimism about achieving the MDGs. That pessimism was likely colored by the gaps at the global level, the difficult circumstances of poor countries, the potential negative impact of the recent global crisis, and the lack of recent data to assess outcomes. For example, although only 27 percent of low-income countries are on track to achieve or have achieved the extreme poverty target, almost 90 percent of these countries are in the top half of the lagging group and, therefore, have the poverty goal within their reach. Similarly, around 40 percent of low-income countries are close to the primary education completion goal, even though only 7 percent of the countries in this income group are on target.

Why are some countries on target, but others are not? Of the lagging countries, why are some close to target and others far away? The two main drivers often cited as key to attaining MDG-related development outcomes are economic growth and sound policies and institutions (fundamental to effective service delivery to the poor. See, for example, World Bank 2004). Although it is easy to cite these two drivers, it is hard to provide empirical substance to their impact on achieving the MDGs. We pursue this tack next by examining the country pattern against growth and policy accomplishments. More specifically, we ask whether initial conditions or subsequent growth and policy improve the odds of reaching the goals. The analysis looks at these elements in two ways: using prima facie evidence from graphical associations and patterns, which point to these elements' likely association with the diverse progress of countries; and using a statistical investigation of their significance in increasing the likelihood of attaining MDG-associated outcomes.

III. The role of initial conditions, growth, policy, and other factors

Initial conditions count in MDG performance, but subsequent growth and policy also matter greatly--or more. In most cases, countries that are doing better (those on or close to the target) exhibited favorable starting conditions around 1990 (the reference year). A higher per capita GDP in 1990 is generally associated with better MDG performance (figure 3).

Figure 3. MDG performance is stronger in countries with good initial conditions
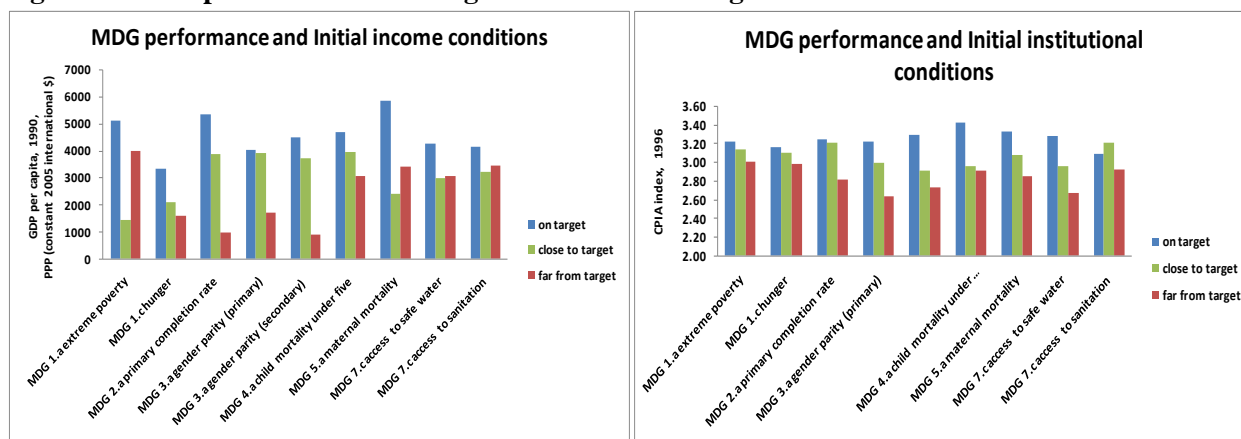
Source: Authors' calculations based on data from the World Development Indicators database.
Note: A country is "close to the target" if its distance to getting on target (that is, its gap of trajectory) is smaller than the average gap of all lagging countries. Otherwise, it is "far from the target" (that is, its distance is greater than the average gap).

Although there is no perfect indicator of the overall quality of policy and institutions in developing countries, the World Bank's annual Country Policy and Institutional Assessment (CPIA) provides a broadly consistent framework for assessing country performance on 16 items grouped in four clusters: economic management, structural policies, policies for social inclusion and equity, and public sector management and institutions. The score is from 1 (low) to 6 (high) for each policy that covers a wide range of issues.[11] The index focuses on policies and institutional arrangements--the key elements that are within the country's control--rather than on actual outcomes (for example, growth rates) that are influenced by elements outside the country's control. Over time, good policies and institutions are expected to lead to favorable growth and poverty reduction outcomes, notwithstanding possible yearly fluctuations caused by external factors.[12] Using the 1996 CPIA, the earliest index with comparable scale and criteria available,[13] suggests that countries starting with good policy and institutions tend to do better in the MDGs.

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[11] Issues include macroeconomic and fiscal policy, debt policy, trade, human development policy in education and health, gender equality, social protection, budgetary and financial management, and corruption in the public sector.
[12] See World Bank (2009).
[13] An earlier version of the CPIA goes back to 1970s but uses a different scale and criteria. For example, the assessment of governance issues was not included in the earlier CPIA.

Starting points--inherited initial conditions--explain why middle-income countries generally do better than low-income countries. Having grown earlier, they also tend to have implemented earlier a better set of policies and institutions. But there are variations. For extreme poverty and gender parity in primary education, countries making the fastest progress are those that experienced medium poverty and female-to-male primary enrollment ratios in the 1990s (see table A2 in the annex). The latter results draw attention to the challenges of poverty reduction in the proportionate way that MDGs are defined at low-income and middle-income levels--for poor countries, the distance to the goal is long; for middle-income countries, halving already low poverty rates is not easy.

So, although starting points (given their inherited nature) do not say much about what countries can or should do, they need not preordain outcomes. The good news is that economic growth and policy performance after the initial year appear to count greatly, if not more than the starting points. On average, countries that have reached or are on track to reach the targets show the fastest per capita GDP growth over 1990–2009 (table 5). In the same way, countries close to the target tend to have grown faster, in per capita terms, than countries far from the target. Likewise, a strong policy and institutional framework in the most recent year, 2009, tends to facilitate service delivery to the poor and to improve MDG performance.

Table 5. Growth and CPIA scores are higher in countries on track or close to being on track
Average values across MDGs (weighted by the number of countries in each MDG category)

	On target	Close to the target	Far from the target
Average GDP per capita growth (1990-2009)	2.4	1.8	1.2
Country Policy and Institutional Assessment Index (2009)	3.7	3.5	3.3

Source: Authors' calculations based on data from the World Development Indicators database.
Note: The pairwise correlation between average GDP per capita growth and the CPIA index is 0.32 (significant at 0.01 level). GDP per capita, purchasing power parity constant 2005 international dollars. A country is "close to the target" if its distance to getting on target (that is, its gap of trajectory) is smaller than the average gap of all lagging countries. Otherwise, it is "far from the target" (that is, its distance is greater than the average gap).

Both factors--initial conditions and subsequent growth and policy--also point to why the MDGs are such big challenges for the poorest and most fragile countries. The world's 79 poorest countries serviced by the World Bank's International Development Association (IDA) have a threshold per capita gross national income of $1,165 for fiscal year 2011, with average per capita growth and recent institutional performances well below average.[14] Half the IDA

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[14] Average GDP per capita growth in IDA countries (1990–2009) is 1.36, a point below average growth in non-IDA countries (2.38). The CPIA index in 2009 is, on average, 3.26 in IDA countries versus 3.69 in non-IDA countries. Fragile or conflict-affected countries (one or more years, 2006–09) exhibit average per capita GDP growth (1990–

countries are in Sub-Saharan Africa. With lower incomes and a late start in policy reforms and growth, IDA countries' MDG performance tends to lag that of middle-income and non-IDA countries (figure 4 left panel). Despite the greater distance to the MDGs set by low starting points, the poverty target is within reach for more than 70 percent of IDA countries as a result of more recent economic growth and policy improvement. That is also true of the hunger target for 58 percent of IDA countries. Results are also good for gender parity in primary education.

Fragile conditions in conflict-affected countries are also associated with very poor MDG performance because these countries may experience growth collapses and disastrous policy and institutional environments (World Bank 2010, 2011b. Harttgen and Klasen 2010). In broad terms, the proportion of on-target countries tends to rise with declining state fragility (figure 4 right panel). Fragility in the graph is the index from the Center for Global Policy, which ranges from 0 (no fragility) to 25 (high fragility), divided into four categories ranging from little to extreme fragility (Marshall and Cole 2010).

Figure 4. MDG performance lags in IDA and fragile countries
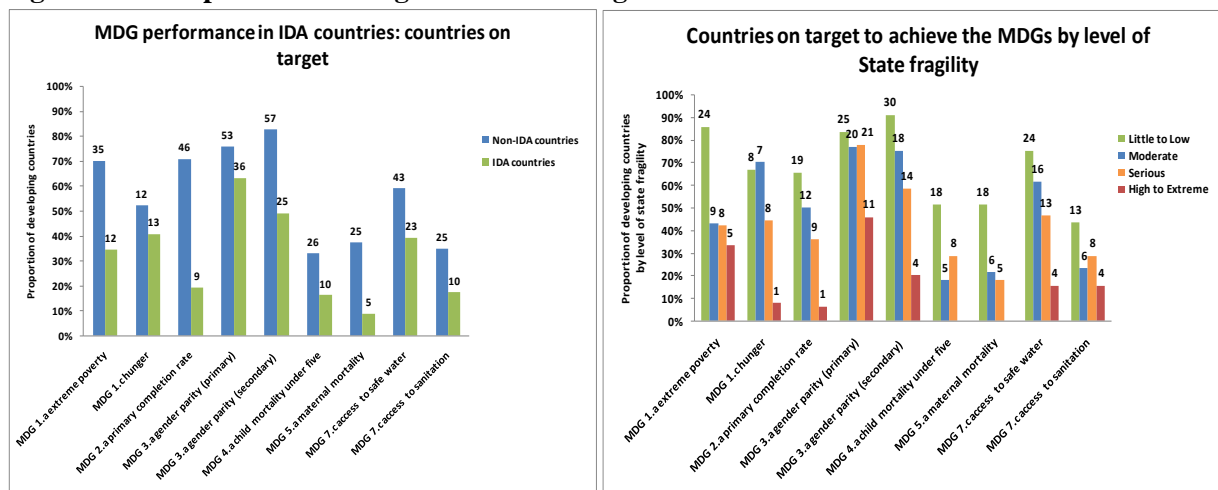
Source: Authors' calculations based on data from the World Development Indicators database and Marshall and Cole 2010.
Note: Figures above or beside each bar indicate the number of countries.

We also looked at several dimensions of trade--export sophistication and shipping connectivity, commodity versus noncommodity exporters as well as landlocked versus other countries. These associations are presented in detail in World Bank (2011a). In any case, export sophistication, shipping connectivity, and state fragility are likely to be correlated with a country's level of

2009) close to 1.03 percent and a CPIA index of 3.00 in 2009. However, non-fragile states have grown, in per capita terms, at an average rate of 2.27 percent since 1990. The CPIA index for these countries is 3.68 in 2009.

development, growth performance, infrastructure, and with its policies and institutions for trade, private sector development, and doing business.[15]

IV.   Assessing the odds of achieving the MDGs

Is it possible to link and simulate the impact of growth and policy to the likelihood of achieving the MDGs in a manner more rigorous and statistical than with graphical associations? Although formal econometric analysis, in principle, can isolate partial effects that are not apparent from the simple correlations in the previous section, there are caveats: the direction of impact between development outcomes as measured by the MDGs and the two basic drivers (growth and policy) can go both ways; the two drivers themselves are likely to be correlated; and some factors that affect the progress of MDGs are not readily measurable and available. Data constraints are also problematic. For these reasons, the findings in this section are specific to the approach and presentation of data taken; whether they would apply to other approaches or treatment of the MDG variables is uncertain and outside the scope of the paper.

With these caveats and building on the empirical patterns, previously defined measures of MDG progress, and the basic drivers of progress identified in the literature (World Bank 2004), we introduce a simple and intuitive model that is suited to assessing the probability of a country falling into one of the three defined categories, linking performance to the two drivers. For a given development indicator associated with each MDG, the likelihood of a country being on target, close to the target, or far from the target is expressed as a function of:

- economic growth (annual per capita GDP growth, 1990–2009);
- recent quality of the policy and institutional framework approximated by the current CPIA, which assesses recent changes in policies and institutions and, by design, does not correlate with recent growth;[16]
- initial conditions (per capita GDP in 1990 and CPIA index in 1996); and
- controls (specific development indicators around 1990).[17]

The probability function across the different states of MDG performance is estimated using the multinomial logit model. Estimations are performed for each of the nine development targets under consideration using "far from the target" as the reference group or base category. The

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[15] It is important to point out that these simple graphical patterns can be driven by more fundamental development factors, such as growth and institutions. The next section tackles some of these issues.

[16] A study (IDA/DECVP 2007) found the correlation between contemporaneous CPIA and growth to be weak and the correlation between CPIA and future growth to be strong. The CPIA measures the level of policies, not the change; and it focuses on actual implementation, not just introduction or announcement. It is therefore backward looking. The inclusion of the 1996 CPIA is an attempt to capture the policy achievements close to the reference year in 1990, and the 2009 index will include the more recent record.

[17] See annex table A8 for sources and definitions.

statistical analysis therefore pools all country information and focuses on the probability of a country being in one of the three states of MDG performance.

We employ the multinomial logit estimation method because it is well suited to examine the likelihood that countries fall into one of the three country groups explained above, given changes in economic growth and the policy framework. This method is typically employed to model individual discrete choices, such as the occupational choice of households in micro-simulations or demand for modes of transportation. In the annex, we discuss statistical issues relating to the estimation method, the dependent variable, the independence of irrelevant alternatives, and endogeneity and reverse causality.

Both development drivers count, but growth has an all-encompassing bearing on progress toward the MDGs. A closer look at estimation results (tables 6 and 7) reveals that economic growth has a pervasively significant and positive impact on the odds of achieving all MDGs under consideration, apart from gender parity in primary education. The quality of policy and institutions also has a positive and statistically significant relation with MDGs for hunger reduction, gender parity, and child and maternal health.

Table 6. Multinomial logit estimates: baseline representation

	(1) MDG.1a		(2) MDG.1c		(3) MDG.2a		(4) MDG.3a (primary)		(5) MDG.3a (second)		(6) MDG.4a		(7) MDG.5a		(8) MDG.7a (water)		(9) MDG.7a (sanit)	
	Above average	On Target	Above average	On Target	Above average	On Target	Above average	On Target	Above average	On Target	Above average	On Target	Above average	On Target	Above average	On Target	Above average	On Target
	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se
Annual growth in GDP pc (average for 1990-2009), 2005IdPPP	0.262	0.359***	0.335***	0.427**	0.766***	1.304***	0.627	0.470	0.922*	1.411**	0.240*	0.518**	0.187*	0.546	0.105	0.253***	0.260	0.383***
	0.217	0.131	0.051	0.177	0.187	0.197	0.440	0.340	0.513	0.558	0.132	0.211	0.101	0.397	0.120	0.038	0.187	0.129
CPIA 2009	0.609	0.211	1.071***	2.784***	-0.158	0.128	0.725	0.925***	-1.007	-0.745	1.119**	1.670***	0.864***	1.382***	-2.033**	-1.203	0.690	0.409
	0.892	1.525	0.398	0.330	0.258	0.732	0.524	0.351	0.664	1.437	0.553	0.579	0.173	0.367	1.005	0.990	0.591	0.368
GDP per capita 1990, 2005IdPPP	-0.010	0.041*	0.001	0.002	0.079**	0.087**	0.008	0.005	0.146***	0.141**	-0.005	-0.001	-0.025**	0.002	0.051***	0.046***	-0.005	-0.012
	0.059	0.023	0.014	0.012	0.034	0.039	0.013	0.016	0.071	0.069	0.005	0.010	0.012	0.008	0.014	0.010	0.006	0.016
CPIA 1996	0.906	0.740	0.585	0.294	0.726	-0.511	-0.601*	0.363**	1.295*	2.209***	-0.801**	0.047	0.183	-0.360	1.652***	1.927***	0.103	-0.355
	1.020	1.404	0.741	0.341	0.549	0.958	0.321	0.153	0.673	0.629	0.400	0.412	0.126	0.231	0.582	0.760	0.278	0.457
Extreme poverty c.1990	0.097***	0.079***																
	0.015	0.017																
Hunger c.1990			-0.004	-0.040														
			0.036	0.049														
Primary education completion c.1990					0.167***	0.221***												
					0.027	0.029												
Gender parity in primary education c.1990							0.062**	0.054*										
							0.026	0.031										
Gender parity in secondary education c.1990									0.089***	0.127***								
									0.007	0.014								
Child mortality under five c.1990											-0.006	-0.005						
											0.005	0.006						
Maternal mortality c.1990													-0.000	-0.004				
													0.001	0.003				
Access to safe drinking water c.1990															0.077***	0.041***		
															0.011	0.015		
Access to sanitation c.1990																	0.003	-0.033
																	0.017	0.022
_cons	-7.751**	-5.864***	-5.259**	-9.741***	-9.462***	-11.842***	-5.422***	-6.887***	-7.736***	-14.483***	-0.988	-7.021***	-3.069***	-4.741***	-1.408	-3.540*	-3.612	0.266
	3.479	0.897	2.281	2.609	2.271	3.435	1.896	2.277	1.148	3.278	2.204	2.794	0.507	2.101	2.251	2.085	2.263	2.259
Number of observations	77		49		90		105		95		114		104		106		107	
Adjusted R2	0.293		0.185		0.515		0.161		0.415		0.146		0.211		0.192		0.123	

Source: Authors' calculations.

Notes: *** p<0.01, ** p<0.05, * p<0.1. Robust estimates with regional clusters.

The marginal effects (table 7) show that a one unit marginal increase in per capita GDP growth is significantly and inversely related to the probability of a country being far from target in all MDGs excluding primary completion and gender parity in secondary education. Conversely, a one unit increase in GDP per capita growth significantly raises the probability of a country being on target by at least 0.05, holding other variables at their mean, for primary completion, gender parity in secondary education, and access to safe water and sanitation. In addition, CPIA scores appear to have significant marginal effects, at average values, on the probabilities of being on target (positive signs) and/or far from target (negative signs) for several health-related MDGs (hunger, child mortality and maternal mortality). For several development goals, the predicted probability of a country being close to target is significantly and inversely related to changes in per capita growth and the CPIA index (that is, higher growth may reduce the probability of being close to the target). This does not imply that high growth is correlated with poor performance. Rather, countries with relatively high growth may be on track to meeting the goals, instead of off-track but close to the target.

Table 7. Multinomial logit estimates: marginal effects (baseline representation)

	MDG.1a			MDG.1c			MDG.2a			MDG.3a (primary)			MDG.3a (secondary)			MDG.4a			MDG.5a			MDG.7a (water)			MDG.7a (sanitation)		
	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target
Change in predicted probabilities following a one unit increase in GDP per capita growth	0.04	-0.01	**-0.04**	0.05	0.01	**-0.06**	**0.13**	**-0.13**	0.00	-0.02	0.03	**-0.01**	**0.10**	**-0.10**	0.00	0.06	0.01	**-0.08**	0.04	0.02	**-0.06**	**0.05**	-0.02	**-0.03**	**0.05**	0.03	**-0.08**
Change in predicted probabilities following a one unit increase in CPIA score	-0.03	0.07	-0.03	**0.50**	**-0.22**	**-0.28**	0.07	-0.07	0.00	0.05	-0.03	-0.02	0.05	-0.05	0.00	**0.17**	0.13	**-0.30**	0.09	**0.15**	**-0.24**	0.02	**-0.22**	0.16	0.02	0.12	-0.14

Source: Authors' calculations.

Notes: Predicted probabilities and changes in predicted probabilities for each category are computed at average sample values. Results are not comparable across indicators. Bold figures denote significant changes at 0.10 level or better.

Consequently, based on the average pattern thus far and at the aggregate level, growth might have a broader impact on attaining MDGs than the quality of policy and institutions. This is likely because growth has a more immediate effect and can be generated from several sources, including better policy as well as beneficial exogenous shocks and flows in the global economic environment. By contrast, policy improvements as defined by the CPIA cover myriad areas and interventions that need a longer time to come through. In any case, given the short time left until 2015, the statistical results confirm the centrality of growth in improving countries' odds of achieving the MDGs.

How much will higher growth and better policy improve the likelihood of better MDG results?
We consider an increase of one standard deviation in growth and in the quality of policy institutional assessment equivalent to about 1.8 percentage points in added growth and to the CPIA index rising by 0.5 points.

The odds ratios or factor change coefficients (table 8) illustrate the dynamics among MDG performance outcomes. These coefficients depict the expected change in the probability of a country being on target vs. far from target and on target vs. close to target, following a one standard deviation increase in development drivers and holding all other variables constant.

Economic growth can jump-start countries particularly far from the goals. For countries that are far from the target (starting from a low base), the effects of a one-standard-deviation simulated increase in per capita growth on the probabilities of reaching some MDGs tend to be distinct and large. It would raise 12-fold the probability of reaching the targets for primary completion and gender parity in secondary education, more than double it for under-five child mortality and sanitation, almost double it for extreme poverty and hunger, and increase it by more than half for access to safe drinking water.

Table 8. Effects of a one-standard-deviation increase in selected development drivers from the multinomial logit estimates (baseline representation)

	Due to increase in GDP per capita growth (percent)		Due to increase in CPIA index (percent)	
	on target vs. far from target	*on target vs. close to target*	*on target vs. far from target*	*on target vs. close to target*
MDG 1.a extreme poverty	**93**	19	12	-19
MDG 1.c hunger	**88**	15	**281**	**128**
MDG 2.a primary completion rate	**1111**	**180**	7	16
MDG 3.a gender parity (primary)	141	-25	**67**	12
MDG 3.a gender parity (secondary)	**1191**	**143**	-34	16
MDG 4.a child mortality under five	**163**	68	**152**	36
MDG 5.a maternal mortality	189	101	**120**	**34**
MDG 7.c access to safe water	**61**	32	-48	**58**
MDG 7.c access to sanitation	**102**	25	26	-15

Source: Authors' calculations.
Note: Bold figures denote significance at 0.10 level or better. Percentage variations are not comparable across indicators. Average standard deviation increase in GDP per capita growth ≈ 1.8. Average standard deviation increase in CPIA index ≈ 0.5.

For countries close to the target, higher growth rates still appear to have a significant impact on primary education completion and gender parity, but not to the same extent as for countries far from the target. This is doubtless because growth is already higher in this group (see table 5), which likely needs better policy to move to a higher plane.

Good policies and institutions are vital for outcome-based MDGs. For lagging countries far from the target, this seems true for several health-related MDGs--under-five mortality, maternal mortality, and hunger--as well as for gender parity in primary education. A one-standard-deviation simulated improvement in the quality of policies and institutions would increase the

probability of achieving the hunger target nearly fourfold. For the remaining targets, the impact ranges from 152 percent to 67 percent.

For lagging countries close to the target, effective policies and stronger institutions also appear important to the progress on health-related MDGs. For instance, the odds of reaching targets such as maternal mortality and access to safe drinking water improve by more than 30 percent after a one-standard-deviation increase in the CPIA index.

Why do policies and institutions seem to play a greater role in the chances of reaching health-related MDGs in both groups of off-target countries? The reason is likely because the targets are outcome-based measures that depend not only on growth and resources but also on myriad factors in the system: the flow of budgets to localities where resources are needed, accountability and transparency, incentives of service providers and clients, and other institutions for service delivery. If the goals for education and gender parity were also outcome based (for example, based on learning outcomes or equal pay for workers of similar characteristics), the results could be similar. The lack of data and defined goals in these areas makes it hard to test this more systematically.

The simulation results generally show that economic growth and policy effectiveness can contribute significantly to achieving the MDGs. Although per capita GDP growth tends to have a broader impact on development targets, sound policies and institutions--basic dimensions of effective service delivery to the poor--appear crucial for achieving health-related MDGs.

Figure 5. Growth and policy reforms will put many countries on track
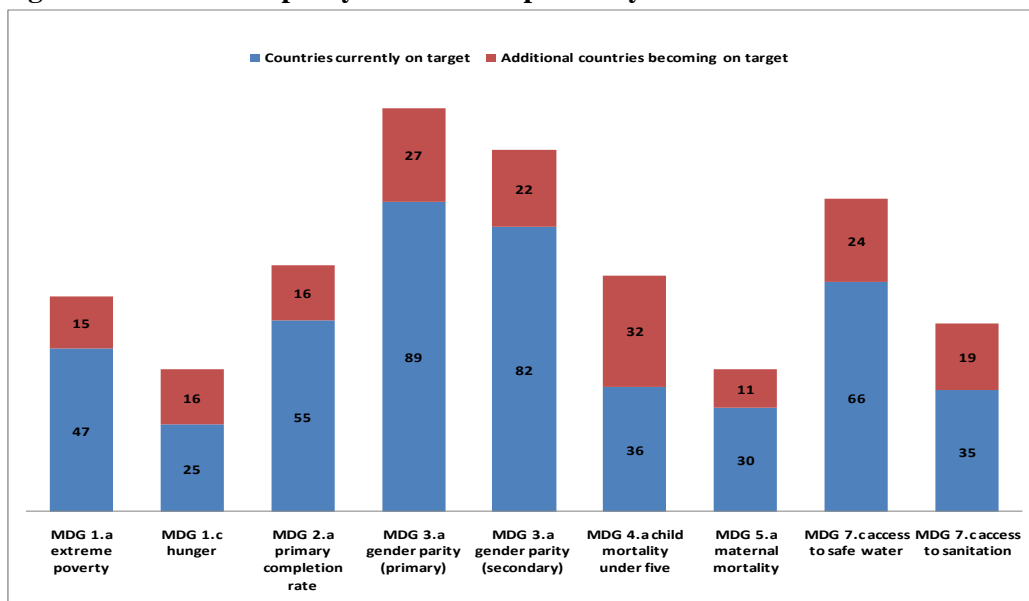
Source: Authors' calculations.

Many more developing countries can get on track, particularly for those MDGs for which they lag the most. A one-standard-deviation rise in both growth and the CPIA would mean that as

many as 32 more developing countries can get on track for the MDGs--an average increase of 44 percent in the number of on-track countries (figure 5). This forecast is based on a greater than 50 percent probability of each country getting on track. Statistically, the probability of lagging countries can only reach 100 percent as an upper (asymptotic) limit, but a 95 percent confidence interval of a 50 percent increase will generally cover that upper limit. The percentage increase in the number of countries getting on track generally rises most for the targets farthest behind-- targets such as under-five mortality (89 percent), hunger (64 percent), access to sanitation (54 percent), maternal mortality (37 percent), and access to safe drinking water (36 percent). For the other MDGs (such as poverty, primary education completion, and gender equality in primary and secondary education), the increase in the number of countries is about 30 percent, still substantial. Individual countries that are good candidates to get on track are those currently very close--that is, within 10 percent of getting on track (table 6).

How achievable are these gains? Recent history suggests they may be. Achieving the growth assumption for developing countries appears possible. To put the one-standard-deviation growth increase in context, per capita GDP growth will need to double from its historical rate of 1.9 percent a year. Even so, the historical rate is an average covering all types of developing countries and the uneven subperiods during 1990–2009, including the recent global crisis years (2008–09). The increase, in fact, is very much within the realm of actual performance for Sub-Saharan African countries during periods of growth acceleration (3.9 percent), including the high-growth period 2000–07 (See, for example, Arbache, Go, and Page 2008).

Table 9. A one-standard-deviation increase in growth is definitely achievable

Growth periods	Years covered	Developing countries (GDP per capita growth rate)		
		on target	close to the target	far from the target
I. Reference period:	1990-2009	2.42	1.77	1.22
II. Recent growth accelerations				
Modern trend-break:	1995-2007	3.46	2.61	2.01
New millennium:	2000-2007	3.97	2.90	2.25
Boom years:	2003-2007	4.82	3.65	3.07
III. Recent global economic crisis				
Crisis years:	2008-2009	1.48	1.79	1.48
Peak crisis	2009	-1.09	0.28	0.65
IV. Growth prospects:	2010-1015	3.58	3.33	3.22
V. Growth assumption			3.57	3.02

Source: Authors' calculations based on data from the World Development Indicators database. Growth prospects are from the IMF's World Economic Outlook (2010).
Note: The growth assumption is growth during reference period plus one standard deviation, or 1.8. Growth rates are all simple averages, giving equal weight to each country GDP per capita, purchasing power parity constant 2005 international dollars.

For the two off-target groups, growth during the recent global crisis did not fall below the rates in the reference period (1990–2009), corroborating other economic assessments that low-income countries did relatively well (table 6). Three factors explain why the recent crisis was different for low-income countries. First, policies and institutions improved before the crisis, and economic growth accelerated after the mid-1990s--particularly after 2000. Second, unlike previous crises, the recent one was not caused by domestic policy failure, which would have severe impacts on human development outcomes--particularly on child and maternal mortality. Third, spending on social safety nets was protected by governments with the assistance of international financial institutions and the donor community (World Bank 2010). Even during the peak in 2009, their average growth stayed in positive territory.

The global crisis struck the on-track developing countries much harder. At its peak, growth in this group was negative. However, many of the countries are higher-middle-income ones--particularly in Eastern Europe, where the MDGs were less of a challenge.

Going forward, prospects for the growth factor clearly depend very much on the strength of the global recovery from the recent global economic crisis or the Great Recession. If the financial turmoil in the industrialized countries continue to have limited effects on developing countries and if growth of developing countries returns to the pre-crisis record as expected currently, then the prognosis on the MDGs from the growth factor will be good. There is significant uncertainty and short-term downside risks however. Developing countries are generally more vulnerable to an unfavorable outturn than they were in 2007. Although developing countries' fiscal position and growth prospects are healthier than developed countries, they have generally less fiscal space and weaker conditions than in 2007 (World Bank 2011b and c).

Where a problem may likely surface is in improving policy and institutions, given the few years left until 2015. A one-standard-deviation improvement in the CPIA is equivalent to a 0.5-point increase, or about the difference between the CPIA for on-target countries and for countries far from the target (see table 5). A 0.5-point increase in a CPIA rating is the normal award for an improvement in any policy area in a country. But to do this consistently for all the 16 questions in the CPIA is much harder. In any given year, a 0.1-point increase in the overall score represents a significant policy improvement for a country; a 0.2- or 0.3-point increase represents a substantial policy shift or regime change--rare for any country.

But it is certainly conceivable over time. The World Bank's CPIA has undergone changes to improve its assessment and is only broadly consistent over time. For instance, from 1998 to 2003, 32 countries (24 percent of developing countries for which scores are available) experienced an improvement of 0.5 points or better, especially countries in Eastern Europe. More recently, during the period 2004–09 when the new system has been stable, countries that have achieved an improvement of 0.5 include Georgia, Nigeria, and Seychelles. As one of the few broad measures available for policy and institutions, it is a proxy for the point that significant policy reforms are needed, especially for outcome-based or system-oriented MDGs. Because

policy reforms can take time to implement and bear fruit, it is also important to undertake significant reforms sooner than later.

A final caveat – for lagging countries that are close to become on target, MDG performance will necessarily have to accelerate in order to reach the targets by 2015. This is just a mathematical constraint. If these countries simply continue on the historical growth rates, however decent, the gap will still widen by 2015 (segment FE versus BC in illustration 1). Depending on how recent the data is for each country, the problem can become acute with a few years left to 2015.

Are the results robust despite missing observations? Are the results affected by data constraints, rendering them optimistic because missing observations generally belong to countries with poor development outcomes? This seems unlikely from the indirect evidence. Table A3 shows available data by income level and region for each MDG under consideration. For MDGs such as extreme poverty and hunger available data account for 59 percent and 38 percent, respectively, of all developing countries. Table A4 depicts average GDP per capita growth (1990-2009) and CPIA scores (2009) by MDG, level of performance and data availability. First of all, average GDP per capita growth, in countries for which progress on the MDGs are not available, is consistently above the growth levels of countries classified as "far from target" across the MDGs, with the exception of access to sanitation. Moreover, average CPIA scores in those countries with no measureable MDG progress are also higher than in countries "far from target", for health-related MDGs, particularly hunger and maternal mortality. Hence, "missing countries" are generally not the "basket cases" of growth and policy, and are unlikely to be the worst cases of MDG performance given the model. Nor are they the exception cases. It follows that missing observation are unlikely to tilt the results in either directions. In the annex, we discuss other issues such as, alternative measures of policy and institutions, as well as, alternative model specifications and estimation procedures.

V.   Final remarks

Developing countries are doing better when looking at country-level figures than at global figures. Lagging countries, on average, are very close to the targets, and their odds of getting on track can improve dramatically with stronger growth and sounder policy. Economic growth has a pervasive effect on all the MDGs and can jump-start countries far from the target. The implications are clear. With 2015 only a few years away, growth in developing countries needs to be taken quickly to a higher plane, the fastest way to lift more countries to the MDGs.

The challenge will be in improving policy and institutions, given the few years left to 2015 and the time required to bring about significant changes. The quality of policies and institutions is especially crucial for outcome-based MDGs such as health outcomes, which are lagging the most. For countries close to the target and where growth has already taken place, further gains in development outcomes will also require further improvement in policy.

How to bring about higher growth and what constitutes good policies and institutions in developing countries are complex issues, however, covering a wide range of areas; and interventions can be broad and wide ranging or specific to local circumstances and problems. These issues, clearly beyond the scope of this paper, remain the central challenges of development and the subjects of continuing investigations.

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Annex – Methodological issues

Since the paper deals with the probability of more than two categories of outcomes regarding the progress of achieving the MDGs, the multinomial logit model is an appropriate estimation method. In contrast, most of the literature on the determinants of MDGs focuses empirical cross-country analyses that relate demand-side factors (such as income and growth, demographic characteristics, and cultural values and preferences) or supply-side interventions (such as public social expenditures, infrastructure, institutional quality, and civil service performance) to development indicators in levels.[18] Although these approaches are important to assess overall performances, they do not shed light on how much progress is needed in order to reach the 2015 targets and/or what factors are more likely to increase the odds of achieving the development goals, particularly for countries lagging behind. In using the multinomial logit model, we examine and deal with several technical issues.

Dependent variable and estimation method. The multinomial logit model does not use the actual values of MDG performance indices. Instead, MDG performance is defined in terms of three values: 1 for countries far from the target (off target and below average), 2 for countries close to the target (off target and above average), and 3 for countries on target. Avoiding the use of the actual value of MDG indices is important for two reasons. First, the index numbers that indicate progress in many MDG indicators display substantial variability for countries performing well below or above average. Taking account of this variability would require some form of data trimming, outlier identification procedure or inclusion of control variables that would reduce the available degrees of freedom, and therefore decrease the reliability of estimates, in a context of small data samples. Second and more importantly, our goal is to assess the likelihood of each country achieving or being on track to achieve the MDGs conditional on current development performance, an empirical approach consistent with the use of models of categorical dependent variables. We are not trying to determine how much per capita GDP must grow or institutions and policies must improve in order to attain the development goals by 2015, for which observed values of development indicators and linear regression models are better suited (although these models, as well as nonlinear approaches, may suffer from endogeneity and multicollinearity problems--Lofgren and Rodarte 2011).

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[18] See also Lay (2010) and Lofgren (2010) for extensive reviews on the determinants of education-related and health-related MDG indicators.

The parallel regression assumption. At first glance, an ordinal regression model seems appropriate to analyze the extent to which GDP growth and the policy framework determine the likelihood of being on track to achieve the MDGs. Our initial work therefore involved estimating this relationship using an ordered logistic regression model (see below). However, a fundamental assumption of such models is that the explanatory variables have the same impact across different values for the dependent variable (the parallel regression assumption), and this assumption is consistently rejected in several of the specifications under consideration (table A5). These rejections imply that the coefficients associated with per capita growth and institutions are not equal across levels of MDG performance. For this reason, alternative and less restrictive models that can integrate a differentiated impact of growth and policy on the dependent variable (MDG performance) are required. Consequently, we turn to the multinomial logit model, a nominal outcome estimation technique that reduces the risk of bias due to the rejection of the proportional odds hypothesis in the ordinal regression approach, but at the cost of a potential loss of efficiency given the many parameters in the model (Long and Freese 2006).[19]

The independence of irrelevant alternatives. To meet another assumption that the odds of an outcome do not depend on other alternatives that are available, the independence of irrelevant alternatives (IIA), we performed Small-Hsiao tests (Small and Hsiao 1985) with generally satisfactory results (table A6).[20] In any event, it is generally acknowledged that IIA tests have little power in small samples and may even provide conflicting results (Long and Freese 2006). According to McFadden the multinomial logit model "should be limited to situations where the alternatives can plausibly be assumed to be distinct and weighted independently in the eyes of each decision-maker" (1973, p.113). Therefore, the validity of our conclusions (in terms of the IIA assumption) relies more on the fact that our categories are conceptually independent than on this econometric test.

Endogeneity, reverse causality. Indicators of progress in human development (our dependent variables) can have an impact on growth and the quality of institutions (our independent variables). Thus our estimations could be subject to reverse causality. However, such concerns are likely to be less of a problem in our estimation than in regressions using the levels of MDGs (e.g. where the level of the poverty headcount is the dependent variable). This is because in the latter case small changes in the dependent variable (e.g. poverty headcount) may have a direct impact on the independent variable (e.g. growth). In our estimations, the dependent variable is defined by deviations from an exogenously-determined path (e.g. the rate of change in poverty necessary to achieve the goal). The connection between inclusion in one of the three groups and growth is much more tenuous.

Alternative measures of policy and institutions, reverse causality. Given the uncertainties surrounding measurements of policy and institutional quality as well as the CPIA's limited availability, we test the robustness of our results by including in the analysis 10 supplementary indicators of government performance (see table A7 for definitions and sources). Additionally, we use values for year 2006 in order to control for any possible reverse causality. The impact of these institutional variables, as well as the

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[19] An alternative to the multinomial logit model would be the generalized ordered logit model, specifically proportional and partial proportional odds models.

[20] The null hypothesis is rejected in only two cases, when testing the independence of outcome 2 (off target and above average) in equation 4 (primary education) and for outcome 3 (on target) in equation 8 (access to clean water). Our test results do not reject the assumption of independence in the seven remaining specifications.

CPIA index, on the odds of being on target is summarized in table A8 (detailed results available upon request).

Table A8 shows the linkages between governance variables and the odds of a country being on target vs, far from the target. Results are broadly consistent with our previous estimates using the CPIA index: perceptions of public management performance, two indices of functioning of government and voice and accountability are positively correlated with the hunger target. Results are less consistent when turning to gender parity in primary education and child and maternal mortality, as illustrated by the absence of significant relations between the likelihood of achieving these MDGs and most institutional indicators. Nevertheless, when using values of the CPIA index for year 2006, we corroborate one of our main findings: good institutions and policies are strongly linked to good performances in health-related MDGs.

These estimations provide additional, interesting linkages between indicators of institutional quality and the progress towards the MDGs. For instance, functioning of government, political stability, government effectiveness, regulatory quality, rule of law and control of corruption are positively correlated with poverty reduction, for countries on target vs. far from target; however, per capita GDP growth loses its significance in the case of political stability, government effectiveness and rule of law (results available upon request). Conversely, functioning of government, political stability and voice and accountability, that is civil and political rights, are significantly and inversely related to access to sanitation. In addition, a negative relationship is also found between some other governance variables, particularly good governance and regulatory quality, and the primary completion rate. A complete analysis of the role of governance in achieving the MDGs is beyond the scope of this paper. However, these apparently counterintuitive outcomes are consistent with the fact that many of the poorest countries are making important progress towards achieving the MDGs thanks to sustained growth and despite significant institutional weaknesses; a finding that highlights the necessity of a better understanding of the mechanisms through which policies and institutions promote development.

Alternative model specifications: the role of public expenses and geography. We also test the robustness of our results to alternative model specifications. We are particularly interested in assessing the role of public expenditure and geographic conditions (see table A7 for definitions and sources). Throughout the paper we have highlighted the importance of sound policies and strong institutions to achieve the MDGs. Although the quality of public intervention is fundamental for improved service delivery to the poor, quantity is equally crucial, particularly in low-income countries facing adverse initial conditions. Geography is also important when considering MDG performance. For instance, climatic fluctuations may negatively impact crops, inducing food price volatility and higher income vulnerability. Furthermore, geographic conditions may predetermine the scarcity of natural resources (e.g. water) and/or the prevalence of specific diseases (e.g. malaria); factors that are inexorably linked to MDG performance. Tables A9, A10 and A11 present our estimation results. First, we notice that our main findings persist when controlling for public expenditures and geography. Per capita GDP growth is significantly and positively related to the likelihood of being on target vs. far from target across all MDGs. Additionally, for health-related MDGs, good policies and institutions tend to increase the probability of being on target. Second, public expenses are positively correlated with the likelihood of achieving the goals on poverty and hunger reduction. The relation becomes negative when considering the goal on gender parity in secondary education. These results draw attention to the linkages between MDG performance and public expenditures, particularly, how different types of expenses (e.g. education, health, infrastructure) relate to

MDG achievement. A complete analysis of these issues is beyond the scope of this paper and left for future research. Third, geographic conditions, as proxied by the latitude of the capital city, tend to be positively and significantly related with the probability of achieving or being on track of achieving the MDGs. Put differently, countries that are further from the equator are more likely to be on target than far from target. A result consistent with the fact that many lagging countries, mainly in Sub-Saharan Africa, are located in the tropical zone (see section I).[21]

Ordered logit estimates. To finish, we perform ordered logistic estimations of our baseline specification (tables A12, A13 and A14). Results are consistent with our multinomial logit findings. A one-standard deviation increase in GDP per capita raises the odds of achieving the MDGs (with the exception of primary education) by at least 30 percent (access to safe water). Good policies and institutions are also significantly linked to better performance in health-related MDGs. For instance, a one-standard deviation increase in the CPIA index, improves the odds of a country being closer to achieve the hunger, child mortality and maternal mortality targets by 154, 102 and 75 percent respectively.

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[21] We also test for the inclusion of ethnic fractionalization and measures of state fragility. Our main findings remain robust (results available upon request).

Table A1. MDG performance in developing countries

Country name	MDG 1.a Extreme poverty	MDG 1.c Hunger	MDG 2.a Primary education completion	Gender parity in primary education	Gender parity in secondary education	MDG 4.a Child mortality under five	MDG 5.a Maternal mortality	MDG 7.c Access to safe drinking water	MDG 7.c Access to sanitation
Afghanistan	.	.	Far	Far	Far	Far	Far	On target	Far
Angola	.	On target	.	Far	.	Close	Close	Close	On target
Albania	On target	.	On target	On target	On target	On target	On target	Close	On target
Argentina	Far	.	On target	On target	On target	Close	Far	On target	Far
Armenia	On target	.	On target	On target	On target	On target	On target	On target	Close
American Samoa	.	.	.	.	.	.	.	.	.
Antigua and Barbuda	.	.	On target	.	.	Close	.	Far	Far
Azerbaijan	On target	.	On target	On target	On target	On target	On target	Close	Far
Burundi	Close	.	Far	On target	Far	Far	Far	Far	Far
Benin	.	On target	Close	On target	Far	Close	Close	On target	Far
Burkina Faso	Close	Far	Far	On target	Close	Far	Far	On target	Far
Bangladesh	Close	Close	.	On target	On target	On target	Close	Far	Close
Bulgaria	On target	.	Close	On target	Close	Close	On target	On target	On target
Bosnia and Herzegovina	On target	.	.	On target	On target	Close	On target	On target	Far
Belarus	On target	.	On target	On target	On target	Close	On target	On target	Far
Belize	.	.	On target	Close	On target	On target	Far	On target	On target
Bolivia	Far	Close	On target	On target	.	On target	On target	On target	Far
Brazil	On target	On target	On target	.	On target	On target	Close	On target	Close
Bhutan	.	.	Close	On target	On target	Close	On target	.	.
Botswana	.	.	On target	On target	On target	Far	Far	Close	Close
Central African Republic	On target	Close	Far	Far	Far	Far	Far	Close	Close
Chile	On target	.	.	Close	On target	On target	On target	On target	On target
China	On target	.	On target	On target	On target	On target	On target	On target	Close
Cote d'Ivoire	Far	Close	Far	Far	.	Far	Far	Close	Far
Cameroon	On target	Far	Close	Far	Close	Far	Far	On target	Far
Congo, Rep.	.	.	Close	Close	Close	Far	Far	.	.
Colombia	Far	Close	On target	On target	On target	Close	Close	Close	Close
Comoros	.	Far	Close	On target	Close	Far	Close	On target	Close
Cape Verde	.	.	On target	Close	On target	Close	Close	Far	Close
Costa Rica	On target	.	On target	On target	On target	Close	Far	On target	Close
Cuba	.	.	Close	On target	On target	On target	Far	On target	On target
Djibouti	Far	.	Far	Close	Far	Far	Far	On target	Far
Dominica	.	.	.	On target	.	Close	.	Far	Far
Dominican Republic	On target	On target	On target	.	On target	Close	Close	Far	Close
Algeria	.	Far	On target	On target	On target	Close	Close	Far	On target
Ecuador	On target	.	On target	On target	On target	Close	Close	On target	On target
Egypt, Arab Rep.	On target	Close	On target	On target	On target	On target	Close	On target	On target
Eritrea	.	Close	Far	Far	Far	On target	On target	Close	Far
Ethiopia	On target	.	Far	On target	Far	Close	Close	Close	Far
Fiji	.	.	.	On target	On target	Far	On target	.	.
Micronesia, Fed. Sts.	.	.	.	On target	On target	Far	.	On target	Far
Gabon	.	.	Close	On target	Close	Far	Far	Close	Far
Georgia	Far	.	On target	On target	Close	Close	Far	On target	Far
Ghana	On target	On target	Close	On target	On target	Close	Close	On target	Far
Guinea	Close	.	Far	On target	Far	Close	Close	On target	Far
Gambia, The	.	.	Close	On target	On target	Far	Close	On target	Close
Guinea-Bissau	Close	.	.	Far	.	Far	Far	Close	Far
Grenada	.	.	On target	Close	Close	On target	.	Close	Far
Guatemala	On target	On target	Close	Close	Close	Close	Far	On target	On target
Guyana	Close	.	On target	On target	On target	Close	Far	On target	Far
Honduras	On target	On target	Close	On target	On target	Close	Close	On target	On target
Haiti	.	Close	.	.	.	Close	Close	Close	Far
Indonesia	.	Close	On target	On target	On target	Close	Close	Close	Close
India	Close	.	On target	On target	On target	Close	Close	On target	Close
Iran, Islamic Rep.	On target	.	On target	On target	On target	On target	On target	Close	Close
Iraq	.	.	Close	Far	Far	Far	Far	Far	Close
Jamaica	On target	On target	Close	Close	On target	Far	Far	Far	Far
Jordan	On target	Close	On target	On target	On target	Far	Close	Far	On target
Kazakhstan	On target	On target	On target	On target	On target	Close	Close	Far	Close
Kenya	On target	Close	.	On target	.	Far	Far	Close	Far
Kyrgyz Republic	Far	On target	Close	On target	On target	Close	Far	On target	Far
Cambodia	On target	On target	Close	On target	.	Far	Close	On target	Close
Kiribati	.	.	On target	On target	On target	Close	.	Close	Close
St. Kitts and Nevis	.	.	On target	On target	On target	Close	.	On target	Far
Kosovo	.	.	.	.	.	.	.	.	.
Lao PDR	Close	.	Close	Close	Close	On target	Close	Close	On target
Lebanon	.	.	Close	Close	On target	On target	On target	On target	On target
Liberia	.	.	.	.	.	Close	Far	Close	Far
Libya	.	Far	.	.	On target	Close	Close	Close	Far
St. Lucia	.	.	On target	On target	On target	Far	.	On target	Far

Country name	MDG 1.a Extreme poverty	MDG 1.c Hunger	MDG 2.a Primary education completion	MDG 3.a Gender parity in primary education	MDG 3.a Gender parity in secondary education	MDG 4.a Child mortality under five	MDG 5.a Maternal mortality	MDG 7.c Access to safe drinking water	MDG 7.c Access to sanitation
Sri Lanka	Close	.	On target	On target	On target	Close	On target	On target	On target
Lesotho	Close	.	Close	On target	On target	Far	Far	On target	Far
Lithuania	On target	.	Close	On target	On target	On target	On target	.	.
Morocco	Far	Far	Close	On target	Close	On target	Close	Close	Close
Moldova	On target	.	Close	On target	Close	Close	On target	Far	.
Madagascar	Close	Far	Close	On target	Close	On target	Close	Far	Far
Maldives	.	On target	On target	Close	On target	On target	On target	Far	On target
Mexico	On target	On target	On target	On target	On target	On target	Far	On target	On target
Marshall Islands	.	.	.	.	On target	Far	.	Far	Close
Macedonia, FYR	On target	.	Close	On target	Close	On target	On target	On target	.
Mali	Far	On target	Far	Close	Far	Far	Far	Close	Close
Myanmar	.	.	On target	On target	On target	Close	Close	Close	On target
Montenegro	On target	.	.	.	.	Close	On target	On target	.
Mongolia	On target	.	On target	On target	On target	On target	Close	On target	Far
Mozambique	Close	On target	Far	Close	Close	Close	Close	Close	Far
Mauritania	On target	.	Far	On target	On target	Far	Far	Close	Far
Mauritius	.	.	Close	On target	On target	Far	On target	On target	Far
Malawi	.	On target	Far	On target	On target	Close	Close	On target	Close
Malaysia	On target	.	On target	On target	On target	On target	On target	On target	On target
Mayotte	.	.	.	.	.	.	.	.	.
Namibia	.	Close	Close	On target	On target	Far	Far	On target	Far
Niger	Close	Far	Far	Far	Far	Close	Close	Close	Far
Nigeria	Far	Close	.	Close	Close	Far	Far	Close	Far
Nicaragua	On target	On target	Close	On target	On target	On target	Close	On target	Close
Nepal	Close	Far	Close	On target	On target	On target	Close	On target	Close
Pakistan	On target	Close	.	On target	Close	Far	Close	Close	Close
Panama	On target	.	On target	On target	On target	Far	Far	On target	Close
Peru	Far	On target	On target	On target	On target	On target	Close	Close	Close
Philippines	Close	.	Close	On target	On target	Close	Close	On target	On target
Palau	.	.	On target	On target	.	Far	.	Close	On target
Papua New Guinea	.	.	.	Far	.	Far	Far	Far	Far
Korea, Dem. Rep.	.	.	.	.	.	Far	Far	On target	Close
Paraguay	Far	.	On target	Close	On target	Close	Far	On target	On target
Romania	On target	.	On target	On target	On target	On target	On target	.	Far
Russian Federation	On target	.	On target	On target	Close	Close	On target	On target	Far
Rwanda	.	Close	Far	On target	On target	Far	Close	Far	On target
Sudan	.	.	.	Close	Close	Far	Far	Far	Far
Senegal	On target	On target	Far	On target	Close	Close	Close	Close	Close
Solomon Islands	.	.	.	On target	Close	Far	Far	Far	Far
Sierra Leone	Close	.	.	On target	Far	Far	Far	Far	Far
El Salvador	Close	On target	Close	Close	On target	On target	Close	On target	On target
Somalia	.	.	.	.	.	Far	Far	Far	Far
Serbia	On target	.	On target	On target	On target	On target	On target	On target	.
Sao Tome and Principe	.	.	Close	On target	On target	Far	.	On target	Far
Suriname	.	.	.	Close	On target	Close	Far	Close	Far
Swaziland	On target	.	Close	Close	Close	Far	Far	On target	Close
Seychelles	On target	.	On target	On target	On target	Far	.	.	.
Syrian Arab Republic	.	.	On target	On target	On target	Close	Close	Close	On target
Chad	.	Far	Far	Far	Far	Far	Far	Close	Far
Togo	.	Far	Far	On target	Far	Far	Close	Close	Far
Thailand	On target	.	.	On target	On target	On target	Far	On target	On target
Tajikistan	.	.	On target	Close	.	Close	Close	Close	On target
Turkmenistan	Far	.	.	.	.	Close	Far	.	On target
Timor-Leste	.	.	.	.	On target	On target	Close	.	.
Tonga	.	.	On target	Close	On target	Far	.	On target	Far
Tunisia	On target	On target	On target	On target	On target	On target	Close	On target	On target
Turkey	Far	On target	Close	On target	On target	On target	On target	On target	Close
Tuvalu	.	.	On target	On target	.	Far	.	On target	Close
Tanzania	Close	On target	Close	On target	On target	Far	Far	Far	Far
Uganda	Close	Close	.	On target	On target	Far	Close	On target	Close
Ukraine	On target	.	On target	On target	On target	Far	On target	On target	Far
Uruguay	On target	.	On target	Close	On target	Close	On target	On target	On target
Uzbekistan	Far	On target	On target	On target	On target	Close	On target	Far	On target
St. Vincent and the Grenadines	.	.	On target	Far	On target	Close	.	.	.
Venezuela, RB	Far	.	On target	Close	On target	Close	Far	Close	On target
Vietnam	On target	On target	On target	.	.	On target	On target	On target	On target
Vanuatu	.	.	Close	Close	Close	On target	.	On target	Close
West Bank and Gaza	.	.	Close	On target	On target	Far	.	Far	Far
Samoa	.	.	On target	On target	On target	Close	.	Far	On target
Yemen, Rep.	Far	Close	.	.	.	Close	Close	Far	On target
South Africa	Close	.	Close	Close	On target	Far	Far	On target	Close
Congo, Dem. Rep.	.	.	Far	Far	Far	Far	Far	Far	Close
Zambia	Close	Close	.	On target	.	Far	Far	Close	Far
Zimbabwe	.	Far	Close	On target	Close	Far	Far	Close	Far

Source: Authors' calculations based on data from the World Development Indicators database.

Note: (.) no available data

Table A2. Development indicators (average levels around 1990)

	MDG 1.a Extreme poverty	MDG 1.c Hunger	MDG 2.a Primary education completion	MDG 3.a Gender parity in primary education	MDG 3.a Gender parity in secondary education	MDG 4.a Child mortality under five	MDG 5.a Maternal mortality	MDG 7.c Access to safe drinking water	MDG 7.c Access to sanitation
On target	24.14	19.47	88.61	90.76	97.26	73.37	150.73	23.75	30.43
Close to the target	55.97	25.66	68.22	91.97	79.75	87.94	525.39	38.15	51.19
Far from the target	9.70	23.04	26.09	73.65	50.92	112.47	485.98	24.52	53.03
Total	29.43	22.27	68.99	89.14	87.00	93.44	419.49	28.26	46.42

Source: Authors' calculations based on data from the World Development Indicators database.

Table A3. Data availability by MDG, income and region, from 1990 to most recent year, as of fiscal year 2011

	Total number of countries	MDG 1.a Extreme poverty	MDG 1.c Hunger	MDG 2.a Primary education completion	MDG 3.a Gender parity in primary	MDG 3.a Gender parity in secondary	MDG 4.a Child mortality under five	MDG 5.a Maternal mortality	MDG 7.c Access to safe drinking	MDG 7.c Access to sanitation
Income										
Low income	**40**	22	24	29	36	31	40	40	40	40
Lower middle income	**56**	34	20	44	50	47	56	46	51	51
Upper middle income	**48**	29	11	39	41	42	48	38	41	39
Region										
East Asia and Pacific	**24**	8	3	15	19	17	24	15	21	21
Europe and Central Asia	**22**	20	4	18	19	18	22	21	18	16
Latin America and the Caribbean	**30**	20	12	26	26	26	30	24	29	29
Middle East and North Africa	**13**	7	7	11	11	12	13	12	13	13
South Asia	**8**	5	4	6	8	8	8	8	7	7
Sub-Saharan Africa	**47**	25	25	36	44	39	47	44	44	44

Source: Based on data from the Development Indicators database.

Table A4. Data availability by MDG performance

GDP per capita (annual growth, 1990-2009)

	MDG 1.a extreme poverty	MDG 1.c hunger	MDG 2.a primary completion rate	MDG 3.a gender parity (primary)	MDG 3.a gender parity (secondary)	MDG 4.a child mortality under five	MDG 5.a maternal mortality	MDG 7.c access to safe water	MDG 7.c access to sanitation
Far from target	1.31	0.65	0.95	1.03	0.88	1.27	1.14	1.47	1.47
Close to target	1.86	1.44	1.64	2.07	1.14	2.00	1.88	1.24	2.30
On target	2.33	2.31	2.45	2.04	2.48	2.66	3.06	2.46	2.50
No data	1.75	2.09	1.94	1.71	1.28	..	2.11	2.08	1.34

CPIA index (2009)

	MDG 1.a extreme poverty	MDG 1.c hunger	MDG 2.a primary completion rate	MDG 3.a gender parity (primary)	MDG 3.a gender parity (secondary)	MDG 4.a child mortality under five	MDG 5.a maternal mortality	MDG 7.c access to safe water	MDG 7.c access to sanitation
Far from target	3.52	3.11	3.13	2.89	2.99	3.26	3.31	3.42	3.33
Close to target	3.50	3.41	3.53	3.51	3.39	3.53	3.50	3.26	3.61
On target	3.72	3.74	3.68	3.60	3.66	3.76	3.79	3.67	3.64
No data	3.24	3.49	3.32	3.22	3.25	..	3.40	3.29	3.49

Source: Authors' calculations.

Table A5. Brant test of parallel regression assumptions (baseline representation)

Equation	chi2	p>chi2	df
MDG 1.a extreme poverty	23.91	0.00	5
MDG 1.c hunger	0.94	0.97	5
MDG 2.a primary completion rate	6.35	0.27	5
MDG 3.a gender parity (primary)	10.09	0.07	5
MDG 3.a gender parity (secondary)	3.79	0.58	5
MDG 4.a child mortality under five	3.57	0.61	5
MDG 5.a maternal mortality	16.39	0.01	5
MDG 7.c access to safe water	16.86	0.01	5
MDG 7.c access to sanitation	8.85	0.12	5

Source: Authors' calculations.
Note: A significant test statistic provides evidence that the parallel regression assumption has been violated.

Table A6. Small-Hsiao tests of IIA assumption. Ho: Odds(Outcome-J vs Outcome-K) are independent of other alternatives (baseline representation)

Equation	Omitted outcome	Lnl(full)	Lnl(omit)	chi2	df	P>chi2
(1)	Close to the target	-9.65	-8.21	2.88	6.0	0.82
	On target	-2.20	0.00	4.40	6.0	0.62
(2)	Close to the target	-0.01	0.00	0.03	6.0	1.00
	On target	-0.14	0.00	0.27	6.0	1.00
(3)	Close to the target	-0.03	0.00	0.05	6.0	1.00
	On target	-8.05	-3.36	9.37	6.0	0.15
(4)	Close to the target	-21.13	-11.46	19.33	6.0	0.00
	On target	-10.43	-5.90	9.07	6.0	0.17
(5)	Close to the target	-0.01	0.00	0.02	6.0	1.00
	On target	-0.02	0.00	0.04	6.0	1.00
(6)	Close to the target	-13.66	-12.33	2.65	6.0	0.85
	On target	-24.72	-22.87	3.69	6.0	0.72
(7)	Close to the target	-14.32	-11.65	5.34	6.0	0.50
	On target	-22.85	-20.16	5.38	6.0	0.50
(8)	Close to the target	-12.54	-9.20	6.67	6.0	0.35
	On target	-20.60	-11.08	19.06	6.0	0.00
(9)	Close to the target	-24.05	-19.67	8.76	6.0	0.19
	On target	-19.08	-16.15	5.86	6.0	0.44

Source: Authors' calculations.

Table A7. Empirical model: data sources and definitions

Variable	Definiton	Source
GDP per capita growth	Growth in GDP per capita (%) (1990-2009), PPP (constant 2005 International $).	World Development Indicators, World Bank. Available at http://data.worldbank.org
CPIA scores	Country policy and institutional assessments (years 1996, 2006, 2009).	World Bank
Government expenditure (% GDP)	Average central government expenditure as a share of GDP (1990-2009).	World Development Indicators, World Bank. Available at http://data.worldbank.org
Management performance*	The score for Management Performance is obtained by calculating the mean value of the ratings for the following criteria: Steering Capability, Resource Efficiency, Consensus-Building and International Cooperation (year 2006).	Bertelsmann Transformation Index. Available at http://bti2006.bertelsmann-transformation-index.de/
Functioning of government*	The Functioning of Government category is based on indicators relating to e.g. the extent to which control over government is exercised by elected representatives, the capability of the civil service, and the pervasiveness of corruption (year 2006).	Economist Intelligence Unit. Index of Democracy. Available at http://www.economist.com/media/pdf/DEMOCRACY_INDEX_2007_v3.pdf
Functioning of government*	The variable examines in what extent the freely elected head of government and a national legislative representative determine the policies of the government; if the government is free from pervasive corruption; and if the government is accountable to the electorate between elections and operates with openness and transparency. Countries are graded between 0 (worst) and 12 (best) (year 2006).	Freedom House. Available at http://www.freedomhouse.org
Good governance*	The Index is built on nine indicators: the regulation of entry, contract enforcement, contract intensive money, international trade tax revenue, budgetary volatility, revenue source volatility, telephone wait times, phone faults, and the percentage of revenues paid to public officials in bribes, as reported in surveys of business firms. Larger numbers indicate better governance (year 2006).	Knack, S., and Kugler, M. 2002. "Constructing an Index of Objective Indicators of Good Governance". PREM Public Sector Group, World Bank.
Voice and accountability	"Voice and Accountability" includes a number of indicators measuring various aspects of the political process, civil liberties and political rights (year 2006).	
Political stability -no violence-	"Political Stability" combines several indicators which measure perceptions of the likelihood that the government in power will be destabilized or overthrown by possibly unconstitutional and/or violent means, including domestic violence and terrorism (year 2006).	
Government effectiveness	"Government Effectiveness" combines into a single grouping responses on the quality of public service provision, the quality of the bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies (year 2006).	Daniel Kaufmann, Aart Kraay and Massimo Mastruzzi (2009). "Governance Matters VIII: Governance Indicators for 1996-2008". World Bank Policy Research June 2009
Regulatory quality	"Regulatory Quality" includes measures of the incidence of market-unfriendly policies such as price controls or inadequate bank supervision, as well as perceptions of the burdens imposed by excessive regulation in areas such as foreign trade and business development (year 2006).	
Rule of law	"Rule of Law" measures the success of a society in developing an environment in which fair and predictable rules form the basis for economic and social interactions and the extent to which property rights are protected (year 2006).	
Control of corruption	"Control of Corruption" measures perceptions of corruption, conventionally defined as the exercise of public power for private gain (year 2006).	
Latitude*	The absolute value of the latitude of the capital city, divided by 90 (to take values between 0 and 1).	La Porta, R., López-de-Silanes, F., Shleifer, A.. and Vishny, R. 1999. The Quality of Government. Journal of Law, Economics and Organization, 15(1): 222-279.

Sources: World Development Indicators database. (*) Data compiled in Teorell, Jan, Marcus Samanni, Nicholas Charron, Sören Holmberg and Bo Rothstein. 2010. The Quality of Government Dataset, version 27May10. University of Gothenburg: The Quality of Government Institute, http://www.qog.pol.gu.se.

Table A8. Alternative measures of policy and institutions (year 2006), linkages to MDG performance

	MDG.1a	MDG.1c	MDG.2a	MDG.3a (primary)	MDG.3a (secondary)	MDG.4a	MDG.5a	MDG.7a (water)	MDG.7a (sanitation)
CPIA index (World Bank)*		+		+		+	+		+
Management performance (Bertelsmann Transformation Index)		+		+					
Functioning of government (Economist Intelligence Unit)	+	+	+		+				
Functioning of government (Freedom House)		+							-
Good governance (Knack and Kugler)			-			+			+
Voice and accountability (Kaufmann et al.)		+	+				-		-
Political stability -no violence- (Kaufmann et al.)	+		+						-
Government effectiveness (Kaufmann et al.)	+				+				
Regulatory quality (Kaufmann et al.)	+		-						
Rule of law (Kaufmann et al.)	+								
Control of corruption (Kaufmann et al.)	+		+						

Source: Authors' calculations.

Note: (+) denotes positive and significant coefficients at the 0.10 level or better. (-) denotes negative and significant coefficients at the 0.10 level or better. Blank cells indicate non-significant coefficients. Detailed results available upon request.

Table A9. Multinomial logit estimates: alternative representation

	(10) MDG.1a		(11) MDG.1c		(12) MDG.2a		(13) MDG.3a (primary)		(14) MDG.3a (second)		(15) MDG.4a		(16) MDG.5a		(17) MDG.7a (water)		(18) MDG.7a (sanit)	
	Above average	On Target	Above average	On Target	Above average	On Target	Above average	On Target	Above average	On Target	Above average	On Target	Above average	On Target	Above average	On Target	Above average	On Target
	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se	coef/se
Annual growth in GDP pc (average for 1990-2009), 2005IdPPP	0.635	0.753***	1.072***	0.283	0.689***	1.188***	1.772***	1.633***	0.468	1.022***	0.159	0.446**	0.297***	0.760***	0.100	0.309***	0.357*	0.378**
	0.425	0.163	0.193	0.360	0.129	0.163	0.549	0.486	0.339	0.344	0.106	0.196	0.098	0.207	0.185	0.099	0.192	0.148
CPIA 2009	1.002	0.493	-1.914***	2.610**	0.437	0.836	-1.256	-0.722	-0.332	0.008	0.734	1.274***	0.782	1.328*	-1.698	-0.936	1.130	0.739
	2.526	2.186	0.568	1.054	0.275	0.736	0.784	0.444	0.423	1.465	0.629	0.344	0.526	0.772	1.223	1.085	0.719	0.492
GDP per capita 1990, 2005IdPPP	0.017	0.042**	0.060*	0.043***	0.146***	0.168***	-0.021	-0.036	0.589***	0.590***	0.002	-0.005	-0.031***	0.003	0.049**	0.058***	-0.005	-0.009
	0.043	0.017	0.032	0.015	0.013	0.023	0.022	0.028	0.022	0.028	0.010	0.008	0.010	0.012	0.022	0.016	0.010	0.014
CPIA 1996	0.865	-0.557	1.220	1.118	0.114	-0.979*	-0.227	0.470	-0.100	0.451	-0.300	0.483	-0.173	0.086	2.272	2.215**	-0.400	-0.645
	2.078	1.948	0.899	0.865	0.111	0.549	1.183	1.271	0.453	0.400	0.492	0.483	0.360	0.399	1.457	1.066	0.444	0.403
Expense, %GDP	0.108	0.128***	0.104*	0.058*	0.057***	-0.040	-0.061	-0.022	-0.145***	-0.145***	-0.073**	-0.029	-0.005	0.053	-0.030	-0.013	-0.013	-0.035
	0.088	0.050	0.063	0.033	0.018	0.041	0.213	0.200	0.036	0.026	0.029	0.048	0.046	0.041	0.042	0.023	0.032	0.041
Latitude	2.200	3.935**	-15.355***	-6.273	14.843***	15.558***	11.591***	13.919***	15.851***	15.292***	3.792**	5.870***	3.066	10.037***	0.304	2.055***	-2.872	-4.450
	2.919	1.815	4.957	5.149	1.900	1.889	2.720	3.635	4.521	5.799	1.788	2.742	2.614	2.823	2.209	0.588	2.471	2.741
Extreme poverty c.1990	0.205***	0.161***																
	0.049	0.060																
Hunger c.1990			0.056**	0.004														
			0.027	0.036														
Primary education completion c.1990					0.103***	0.152***												
					0.005	0.015												
Gender parity in primary education c.1990							0.103***	0.078***										
							0.029	0.021										
Gender parity in secondary education c.1990									0.159***	0.196***								
									0.016	0.017								
Child mortality under five c.1990											-0.008	-0.005						
											0.006	0.005						
Maternal mortality c.1990													0.000	-0.001				
													0.000	0.002				
Access to safe drinking water c.1990															0.062***	0.058**		
															0.022	0.026		
Access to sanitation c.1990																	-0.005	-0.045**
																	0.013	0.022
_cons	-15.588*	-8.201***	0.561	-13.440***	-10.673***	-11.986***	-3.284	-4.444*	-12.703***	-18.769***	-0.370	-7.177**	-2.109	-11.379**	-3.419*	-6.493***	-2.162	2.496
	9.462	1.239	2.339	5.578	0.839	2.299	2.164	2.443	1.905	5.107	2.343	2.999	1.842	4.714	1.973	2.555	1.789	2.154
Number of observations	67		41		77		88		80		92		88		86		86	
Adjusted R2	0.379		0.297		0.529		0.259		0.465		0.183		0.290		0.193		0.146	

Source: Authors' calculations.

Notes: *** p<0.01, ** p<0.05, * p<0.1. Robust estimates with regional clusters.

Table A10. Multinomial logit estimates: marginal effects (alternative representation)

	MDG.1a			MDG.1c			MDG.2a			MDG.3a (primary)			MDG.3a (secondary)			MDG.4a			MDG.5a			MDG.7a (water)			MDG.7a (sanitation)		
	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target
Change in predicted probabilities following a one unit increase in GDP per capita growth	0.03	-0.01	-0.02	**-0.12**	**0.21**	**-0.08**	**0.12**	**-0.12**	0.00	-0.02	0.02	0.00	**0.11**	**-0.11**	0.00	0.07	-0.01	**-0.06**	**0.05**	**0.04**	**-0.09**	**0.06**	-0.03	-0.03	0.04	0.05	**-0.09**
Change in predicted probabilities following a one unit increase in CPIA score	-0.05	0.06	-0.02	**0.99**	**-0.93**	-0.06	0.10	-0.10	0.00	0.09	-0.09	0.00	0.07	-0.07	0.00	**0.17**	0.04	**-0.20**	**0.07**	0.14	-0.21	0.04	**-0.18**	0.14	0.04	0.19	**-0.23**

Source: Authors' calculations.

Notes: Predicted probabilities and changes in predicted probabilities for each category are computed at average sample values. Results are not comparable across indicators. Bold figures denote significant changes at 0.10 level or better.

Table A11. Effects of a one-standard-deviation increase in selected development drivers from the multinomial logit estimates (alternative representation)

	Due to increase in GDP per capita growth (percent)		Due to increase in CPIA index (percent)	
	on target vs. far from target	*on target vs. close to target*	*on target vs. far from target*	*on target vs. close to target*
MDG 1.a extreme poverty	**286**	24	29	-23
MDG 1.c hunger	49	**-67**	**236**	**716**
MDG 2.a primary completion rate	**961**	**170**	56	24
MDG 3.a gender parity (primary)	**2250**	-24	-33	35
MDG 3.a gender parity (secondary)	**579**	**182**	0.4	21
MDG 4.a child mortality under five	**133**	72	**102**	35
MDG 5.a maternal mortality	**337**	**146**	**111**	36
MDG 7.c access to safe water	**80**	49	-40	52
MDG 7.c access to sanitation	**102**	4	51	-20

Source: Authors' calculations.
Notes: Bold figures denote significance at 0.10 level or better. Percentage variations are not comparable across indicators. Average standard deviation increase in GDP per capita growth ≈ 1.8. Average standard deviation increase in CPIA index ≈ 0.5.

Table A12. Ordered logit estimates: baseline representation

	(19) MDG.1a coef/se	(20) MDG.1c coef/se	(21) MDG.2a coef/se	(22) MDG.3a coef/se	(23) MDG.3a coef/se	(24) MDG.4a coef/se	(25) MDG.5a coef/se	(26) MDG.7a coef/se	(27) MDG.7a coef/se
Annual growth in GDP pc (average for 1990-2009), 2005ldPPP	0.152**	0.218*	0.618***	0.068	0.612***	0.325**	0.324*	0.141***	0.264***
	0.076	0.114	0.135	0.076	0.148	0.127	0.176	0.041	0.090
CPIA 2009	-0.017	1.938***	-0.128	0.516	0.171	1.268***	0.975***	-0.177	0.250
	0.995	0.116	0.556	0.601	0.796	0.289	0.375	0.294	0.346
GDP per capita 1990, 2005ldPPP	0.041**	0.006	0.013**	-0.001	-0.004	-0.001	0.001	0.018**	-0.009
	0.019	0.008	0.006	0.006	0.006	0.006	0.013	0.007	0.011
CPIA 1996	0.721	-0.030	-0.428***	0.592***	0.877***	-0.209	-0.096	1.100***	-0.193
	0.808	0.584	0.152	0.155	0.243	0.349	0.310	0.381	0.363
Extreme poverty c.1990	0.030***								
	0.004								
Hunger c.1990		-0.025							
		0.027							
Primary education completion c.1990			0.081***						
			0.014						
Gender parity in primary education c.1990				0.022					
				0.014					
Gender parity in secondary education c.1990					0.062***				
					0.009				
Child mortality under five c.1990						-0.004			
						0.003			
Maternal mortality c.1990							-0.001*		
							0.000		
Access to safe drinking water c.1990								0.005	
								0.010	
Access to sanitation c.1990									-0.023*
									0.012
/cut1	3.359***	5.082**	1.906	3.128	6.200***	3.347***	2.917***	2.144**	-0.977
	1.135	2.162	2.282	2.032	2.317	1.279	0.985	1.063	1.771
/cut2	4.781***	7.048***	5.984**	4.848***	8.743***	5.341***	4.922***	3.694***	0.455
	0.810	2.157	2.727	1.802	2.252	1.534	1.069	0.791	1.696
Number of observations	77	49	90	105	95	114	104	106	107
Adjusted R2	0.084	0.172	0.451	0.078	0.372	0.130	0.122	0.096	0.086

Source: Authors' calculations.
Notes: *** p<0.01, ** p<0.05, * p<0.1. Robust estimates with regional clusters.

Table A13. Ordered logit estimates: marginal effects (baseline representation)

	MDG.1a			MDG.1c			MDG.2a			MDG.3a (primary)			MDG.3a (secondary)			MDG.4a			MDG.5a			MDG.7a (water)			MDG.7a (sanitation)		
	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target	On target	Close to target	Far from target
Change in predicted probabilities following a one unit increase in GDP per capita growth	**0.04**	-0.01	**-0.02**	**0.05**	-0.02	**-0.03**	**0.14**	**-0.12**	**-0.02**	0.01	-0.01	0.00	**0.13**	**-0.11**	**-0.02**	**0.05**	0.02	**-0.07**	**0.05**	0.03	**-0.08**	**0.04**	**-0.02**	**-0.02**	**0.05**	0.02	**-0.06**
Change in predicted probabilities following a one unit increase in CPIA score	0.00	0.00	0.00	**0.47**	**-0.21**	**-0.26**	-0.03	0.02	0.00	**0.11**	**-0.07**	**-0.03**	**0.04**	**-0.03**	**-0.01**	**0.21**	0.07	**-0.28**	**0.15**	0.08	**-0.23**	-0.04	0.02	0.02	**0.05**	0.01	**-0.06**

Source: Authors' calculations.

Notes: Predicted probabilities and changes in predicted probabilities for each category are computed at average sample values. Results are not comparable across indicators. Bold figures denote significant changes at 0.10 level or better.

Table A14. Effects of a one-standard-deviation increase in selected development drivers from the ordered logit estimates (baseline representation)

	Due to increase in GDP per capita growth (percent)	Due to increase in CPIA index (percent)
	Odds of improving MDG performance (>m vs. ≤m)	
MDG 1.a extreme poverty	**32**	-1
MDG 1.c hunger	**38**	**154**
MDG 2.a primary completion rate	**226**	-7
MDG 3.a gender parity (primary)	14	33
MDG 3.a gender parity (secondary)	**203**	10
MDG 4.a child mortality under five	**84**	**102**
MDG 5.a maternal mortality	**88**	**75**
MDG 7.c access to safe water	**30**	-9
MDG 7.c access to sanitation	**63**	15

Source: Authors' calculations.

Notes: Bold figures denote significance at 0.10 level or better. Percentage variations are not comparable across indicators. Average standard deviation increase in GDP per capita growth ≈ 1.8. Average standard deviation increase in CPIA index ≈ 0.5.