Mind the Gap: Analyzing the Impact of Data Gap in Millennium Development Goals' (MDGs) Indicators on the Progress toward MDGs

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Summary. — This paper analyzes the impact of data gap in Millennium Development Goals' (MDGs) performance indicators on actual performance success of MDGs. Performance success, within the MDG framework, is quantified using six different ways proposed in the existing literature, including both absolute and relative performance and deviation from historical transition paths of MDG indicators. The empirical analysis clearly shows that the data gap in performance measurement is a significant predictor of poor MDG performance in terms of any of the six progress measures. Larger the data gap or weaker the performance measurement system, lesser is the probability of MDG performance success. The empirical methodology used in the paper combines a Heckman correction and instrumental variable estimation strategies to simultaneously account for potential endogeneity of the key data gap variable and bias due to sample selection. This result holds true even after controlling for overall national statistical capacity and a variety of socioeconomic factors. The paper underlines the need to strengthen the performance measurement system attached to the 2030 agenda for sustainable development and the associated Sustainable Development Goals (SDGs). This paper is the first attempt at empirically evaluating the value of data in the context of international development goals and gives empirical evidence for the need to harness the "data revolution" for sustainable development.
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Key words — MDG, SDGs, value of data, performance measurement, monitoring and evaluation, goal setting

1. INTRODUCTION

The Millennium declaration,[1] signed by 189 countries, including 147 Heads of States, marked a watershed moment in the course of international development. The momentum generated by the declaration resulted in the formulation of Millennium Development Goals (MDGs). Eight MDGs, 21 targets and 60 associated indicators, became ensconced as the yardstick of development within the policy parlance.[2] Weiss, Richard, and Emmerij (2009) states that the MDGs were among the most important UN ideas that changed the world. The MDGs expire in 2015 and the world has already adopted an ambitious 2030 sustainable development agenda. The Sustainable Development Goals (SDGs), a central component of this new agenda, comprise of larger number of goals (17) and targets (169) and a much larger set of indicators to measure progress toward these goals and targets.[3] Discussions are currently underway on the elements of its implementation and monitoring framework and the nature of indicators that would accompany the SDGs.

At this juncture, it is important to derive relevant lessons from the MDG implementation experience that would help in the implementation of the 2030 agenda for sustainable development. This paper focuses on one specific aspect of the MDG implementation: the data availability of the performance indicator framework of MDGs. Most countries invested in developing mechanisms to diligently report annual progress made under the MDG indicators. However, as explained later in this paper, considerable data gap exists within the MDG performance indicators. Hence, the paper poses the following question: how closely is the quality of performance measurement system (proxied through data gap) of MDGs linked to actual performance? While there have been previous analyses highlighting the extent and nature of the data gap of MDG indicators, to our knowledge this is the first attempt at linking the quality of MDG performance measurement system to the actual MDG performance itself.

The paper quantifies performance success using six different approaches to measure progress toward MDGs proposed in the existing literature. Using the MDG official database,[4] the data gap that exists for most of the quantifiable MDG indicators[5] within each country for the period 2000–12 are identified. We use this data gap measure as a proxy for the quality of the MDG performance measurement system. Combining an instrumental variable estimation and Heckman correction procedure, we find that controlling for other relevant parameters, the quality of the performance measurement system emerges as a significant predictor of performance success in terms of MDGs. Higher the data gap problem or weaker the performance measurement system, lesser is the probability of performance success. This provides evidence for the age-old management principle—"you can't manage what you can't measure". Countries were able to tackle the goals better when

they were able to measure and quantify those goals properly. Taylor (2009) notes that there are relatively limited number of empirical studies that exist on performance measurement. Hence, this paper also contributes to the growing empirical literature on implications of performance measurement to actual performance.

A data revolution is currently underway, characterized by an explosion of data available from a variety of new sources (including big data, open data initiatives, satellite imagery and so forth), a commensurate demand for data and emergence of new applications of data. At the request of the UN Secretary General, an Independent Expert Advisory Group (IEAG) on a Data Revolution for Sustainable Development, submitted recommendations in a report titled "The World That Counts" (IEAG, 2014). The report proposes ways to mobilize the data revolution for sustainable development as we proceed to the new 2030 agenda for sustainable development. Providing further granularity, the PARIS21's [6] report on "Road Map for a Country-led Data Revolution" (PARIS21, 2015) sets out a step-by-step action plan across four areas, namely, capacity building; principles and standards; technology, innovation and analysis; and governance and leadership. The results of the paper highlight the fact that implementing the proposals of these reports and strengthening the performance measurement system of SDGs would be a prerequisite for the achievement of SDGs.

The next section provides a general introduction to the MDG indicator framework. Section 2 introduces the MDG framework and discusses issues associated with data availability within the MDG framework. A short theoretical framework connecting the need to measure performance with actual performance is provided in Section 3. Section 4 describes the data set and the key variables used in our analysis. Section 5 outlines the methodology used in the paper. Section 6 discusses the main results and associated robustness checks. Section 7 provides the policy implications of the results, especially in the context of the 2030 agenda for sustainable development and Section 8 concludes.

2. MDG FRAMEWORK

The MDGs capture the multidimensional aspect of development and hence integrate themes such as poverty, inequality, education, health, environment under its framework. These targets and goals were motivated by various summits and big developmental conferences that took place in 1990s (Melamed & Sumner, 2011).[7] This is one of the reasons behind the differences between the numerical targets and the very nature of some of the indicators.

Some of the architects of the MDGs reveal that some of these targets were set based on the existing trends of each of these targets before 1990 (Vandemoortele, 2005). This helped to bring the targets closer to reality rather than becoming overly ambitious. In any case, the MDG framework had a profound impact on national development data collection process. Demand for MDG monitoring has resulted in more available data, parallel data collection mechanisms, while bringing both challenges and opportunities to national statistical capacity (Chen, Francois, Johannes, & Klasen, 2013). The MDGs galvanized the international statistical community around a fixed set of goals and indicators, resulting in a marked improvement in indicator availability, and a similar effort is needed in the lead up to 2015 to ensure continued improvement in data collection, reporting, and dissemination (Cassidy, 2014).

Aryeetey et al. (2012) finds the "quantified" approach of MDG to be a major advantage of this framework. He argues

that this in turn forced an unrelenting spotlight on the need for better data and that the crisp numerical targets underpinning most of the MDGs allow them to be tractable at every policy level. Partly, it is this quantified approach of the MDG framework that motivates this paper.

Interestingly the MDGs were set as global goals and they were not conceptualized to be national-level goals. Hence, they were divorced from any strong understanding of potential country-level rates of progress based on historical experience (Karver, Kenny, & Sumner, 2012). However, during the course of implementation of MDGs, they were taken as national-level targets and performance at country level for each indicator was expected to be recorded, reported, evaluated, and discussed. Translating global targets to national level sometimes drastically altered the level of ambitiousness of these targets. As a result, many have criticized this approach, particularly because this generated significant pessimism and bias against developing countries, especially in Africa, and resulted in labelling of success stories as failures (Easterly, 2009). Even at the country level, it has remained unclear if the MDGs were intended as average targets for each country or a minimal target that each country was under pressure to achieve (Gauri, 2012).

Albeit this criticism, the MDGs were integrated into the national development plans and strategies of many countries. It helped focus attention to many social development issues and emphasized the importance of tackling multi-dimensional poverty. An UNDP survey found that out of 118 countries, 86% had adopted one or more of the goals, targets or indicators as part of their national-level objective setting. While a subset of countries had integrated the MDGs into their policy making to a quite considerable extent, including by adapting or adding to the goals to make them more relevant to national-level issues and priorities (UNDP, 2010).

This by no means suggests that MDG framework is devoid of criticisms. Right from its inception phase many criticized it for the opaque manner in which it was drafted, the method of implementation and most of all in terms of its contents. Some of the main criticisms are that it omits some key dimensions of development such as human rights (Manning, 2010), it adopts a one-size-fits-all approach (Vandemoortele, 2009), they are unrealistically ambitious for many countries (Clemens, Kenny, & Moss, 2007; Easterly, 2009), inadequate focus on growth or on improving productive capacity (Chang, 2008), diversion from important issues such as global inequality and the fact that the inter-connectedness between the goals are not recognized (Lomazzi et al., 2014).

(a) Problem of data availability in MDG framework

An unprecedented attempt was made, particularly since 2000, in collecting and bringing together data on what is happening on the ground in all aspects of development and the MDG framework has been one very significant stimulus for this (Manning, 2009). However, despite 15 years of MDG implementation, there are huge data gaps and data quality issues across several indicators in many countries.

Poku and Whitman (2015) points out that the following data issues directly pertinent to the comprehensiveness and reliability of MDG indicators were identified, shortly after its inception: the 1990 baseline statistics were not available; the indicators were not being compiled by government agencies within national statistical systems; indicators may not be comparable across countries because of differences in compilation methodologies and/or definitions; some indicators may not be consistent across years because of differences in data