

Hunger Indicators: Problems and Promises

I. Introduction

Statistics and the numbers used to portray the state of the world have a powerful influence. It prioritizes some objectives over others, frames policy creation and implementation, sets goals and targets, shapes politics and guides economics. Most notably, the United Nations (UN) statistics heavily influence both international and national institutions and shape ideas on international development at a global scale (Ward, 2002). Conventional wisdom views statistics as rooted in a rigid scientific process that ultimately arrives at an objective truth. The analysis contained in this paper assumes that social processes, which include dialogue and interaction, guide statistics. That, in fact, the numbers that have so much power are only one set of possible outcomes from a particular context and time, and that other possibilities are negotiated among several stakeholders and experts.

The paper analyzes the strengths and weaknesses of the indicators used to measure and monitor the first Millennium Development Goals I (MDG), specifically hunger gauged by Target 1C using indicators 1.8 and 1.9. A total of 842 million people in 2011-13, or around one in eight people, are estimated to be suffering from chronic hunger with lack of access to food for an active life (FAO, 2013). Hunger is

extremely important and rampant and should represent a relatively easier construct to measure since it is objectively verifiable and its consequences identifiable.

Additionally it is also a condition that a large portion of world population experiences. However truth in numbers is difficult, if not impossible to achieve. Invariably, behind every set of indicators, including MDG indicators of hunger, there exist other sets of truths uncultivated. The goal is not to disparage current indicators but to simply explore both positives and negatives. In doing so this paper hopes to achieve three main goals: 1) shed light on the important strengths and weaknesses of indicators 1.8 and 1.9; 2) explore other noteworthy perspectives on a critical affliction affecting millions, and 3) outline future alternate possibilities. Importantly, while many have pointed out critical limitations that current indicators face, it is equally important to not to overlook its strengths. Given the post-2015 emphasis on the incorporation of new characteristics of hunger, less attention is given to the advancements made possible by the advantages of indicators 1.8 and 1.9. Additionally, the international community should keep in mind the signification investments already made to monitor and make use of the current indicators.

The paper starts by laying out the historical context of the MDG I necessary to understand the rationale and framework behind the indicators currently used. The second part assesses both the strengths and weaknesses of hunger indicators from variety of perspectives, most importantly from individuals' affected by or vulnerable to hunger. More space is provided for the flaws since this opens up opportunities for potential improvements. Third, a brief case study of Ghana and Brazil provides concrete examples the arguments put forward and also help to

illustrate arguments policy implications. The conclusion explores other possible alternatives beyond 2015 drawing on lessons gleaned from paper and surveying new possibilities.

II. Historical Context

Unfortunately hunger has always been a part of human society and as the linkages among the international community increased in both size and speed, the scope of efforts to eradicate hunger increased. The MDGs represent efforts in a long process of development goal setting starting with the Universal declaration of Human Rights, the Development Decades of the 1960s and many UN summits (Hulme, 2007). Most notably, the 1974 World Food Conference (WFC) held under the United Nations Food and Agriculture Organization (FAO) after a famine in Bangladesh pledged to erase hunger within a decade. The Universal Declaration on the Eradication of Hunger and Malnutrition adopted at the conference declared “every man, woman and child has the inalienable right to be free from hunger and malnutrition in order to develop their physical and mental faculties” (World Food Conference, 1974). The conference also established the United Nations (UN) World Food Council to serve as a coordinating body for national ministries of agriculture to help achieve this lofty goal. Despite its ambitions, rates of hunger continue to grow in the 1990s.

Due to the rise of hunger and many other pressing international concerns, the UN launched a series of conferences to address hunger and other relevant issues. Two conferences were particularly important in building international

agreement on both goals and action related to hunger. The first was the 1992 International Conference on Nutrition (ICN) attended and signed by 159 governments and the European Community, which acknowledged the gloomy paradox of an increase of food production and prevalence of hunger and malnutrition. It also committed member states to achieve the four following goals: 1) eliminate starvation and death caused by famine, 2) reduce malnutrition and mortality among children substantially, 3) reduce chronic hunger tangibly, and 4) eliminate major nutritional diseases (FAO & WHO, 1992). Furthermore it proposed nine concrete strategies and 111 recommended actions to be taken at the national and international levels to solve hunger issues including incorporating nutritional objectives into development policies and improving household food security. The ICN recognized the importance of food security and also realized the linkages between nutrition, agricultural development, food consumption, income and poverty (FAO & WHO, 1992).

The 1996 World Food Summit (WFS) represents the second milestone conference attracting 185 states and the European Community. Most importantly, the adopted Rome Declaration on World Food Security declared the right to safe and nutritious food and the fundamental right of everyone to be free from hunger. Member states pledged political will and national commitment to achieving food security for all with the goal to reduce the number of undernourished people to half the present level by no later than 2015 (FAO, 1996). It also represented an important step in defining food insecurity and formally recognizing interconnected systemic factors at the root of food insecurity. Member states also recommended

developing and improving indicators of food security. In short, it built upon and expanded the scope of the 1974 ICN recognizing the complex web of issues including malnutrition, poverty, food availability, inequality and the environment, all of which influence hunger levels. “Unless national governments and the international community address the multifaceted causes underlying food insecurity, the number of hungry and malnourished people will remain very high in developing countries...” (pg 7, FAO, 1996).

These two conferences paved the road for the Millennium Summit in 2000 and the adoption of the Millennium Declaration, which established the Millennium development Goals (MDGs). The MDGs represented an unprecedented global consensus with all 189 members and at least 23 international organizations committing to reducing poverty measured by eight target goals (UN, 2000). The first goal was to eradicate poverty and hunger. The hunger target was to halve the number, rather than the proportion as stated in WFS, of people suffering from hunger. Specifically, it recognized as indicators of hunger the prevalence of underweight children less than five years of age and the proportion of the population below minimum level of dietary energy consumption (UN, 2001).

III. MDG: Strengths and Weaknesses

III.A- Strengths:

Even compared to the two major conferences related to hunger discussed above, the MDG goal to half hunger symbolizes a historic shift in both recognition and agreement that earlier conferences strove to highlight. Most importantly, it

galvanized attention and support for the eradication of hunger as indicated by the universal support for its goals (Lancet Commissions, 2010). It brought together member states with a wide variety of priorities, political systems and economic policies to acknowledge a common goal that was important to strive towards. For instance, the G8 Finance Ministers in 2005 agreed to provide funds to the World Bank (WB), the International Monetary Fund (IMF) and the African Development Bank (AfDB) to cancel \$40 to \$55 billion in debt to finance programs to improve many of the MDG goals, including poverty and hunger. The debt relief program specifically mentions progress towards the MDG as a motivating factor.

Secondly, the MDG continued the trend towards a formal definition of hunger that could be easily measured, monitored and compared across states by defining specific targets. While these targets did not incorporate many points related to food security and linkages between poverty and hunger, it did provide a simple and accessible measurement that was relatively easy to measure and monitor (Parr & Orr, 2013). While simplicity has drawbacks, which I explore later, it provided a powerful tool to monitor and track progress towards the agreed upon goals. Member states and the international community could not only easily understand and visualize progress or the lack of towards decreasing the proportion of underweight children under-five and proportion of population below the minimum level of dietary energy consumption. Since progress was quantified, this lent an element of accountability to stakeholders that included international organization, governments, non-governmental organizations, regional bodies and many others.

Third, the wide spread agreement on the same goals also meant that that progress could be compared across countries. While the specific numbers and methods of calculation may vary, for the most part, one region or state could relate its progress towards others (United Nations Development Group, 2013). This allows the UN and the international community to track the equality of development of progress to identify and aid countries lagging behind. It also allows for more reliable and valid gauges of which states have had more success in tackling hunger issues allowing for potential sources of emulation and guidance.

Finally, these measure incentivized tangible policies and progress to reach the 2015 goals. Rather than focusing on abstract goals to do away with hunger, governments and organizations now had to work towards concrete goals that were regularly measured and compared. This motivated a whole host of stakeholders to ensure that their work made a difference on the ground. Additionally, significant progress has also been made to ensure reliability of the statistics produced by both national governments and statistical division in international organizations, most notably the United Nations Statistical Division (UNSD). The UNSD has already been working on monitoring MDG since 2002 and acting as the coordinator of the Inter-agency and Expert Group (IAEG) preparing data and analysis, technical development, maintenance of databases and activities to improve capacity (United Nations Statistical Division, 2013). Conferences are regularly held worldwide to streamline both the collection and analysis of data used to compute many of the MDG goals, including target 1.8 and 1.9. For example, the UNSD holds yearly conferences to standardize the compilation and dissemination development

indicators and metadata related to MDG indicators to allow for comparability (UNSTATS, 2013).

III.B- Conceptualization and Operationalization Issues:

The 1990's conferences discussed above explicitly discussed hunger as a multi-dimensional concern and tried to incorporate both social and structural factors that influenced underlying causes of individual hunger, causes that were both direct and indirect. By using simplistic indicators that only measured one aspect of hunger, the current indicators critically overlook vulnerable populations that are often in most need of the aid that the indicators are supposed to galvanize (Parr, 2013). Many argue that specifically targeting dietary energy consumption and prevalence of underweight children potentially ignores large populations effected by hunger. These indicators while important in their own right are sometimes silent on issues of gender equality, nutrition, regional and global inequalities and food security (TST, 2013). For example, many societies are patriarchal and women and children are often the last to eat and many of the surveys only measure household data so while the overall household may meet the criteria for energy consumption, women and children may still not have enough to meet their requirements (IFPRI, 2009). This is important since women and children are the most vulnerable sections of society and the data used to measure and create public policies may overlook individuals with the highest risk for hunger and the most urgent need for aid. Data collection efforts often miss this integral aspect of cultural patterns of food distribution and quality of nutrition.

Furthermore the data also often misses potentially significant variations within countries where certain geographical areas, particular ethnic or social groups may be particularly vulnerable. In the case of Africa, ethnicity often remains a decisive issue with government leaders often favoring their own groups over other for public provision. So countrywide indicators may reflect an overall improvement while missing the nuances of who the victims of hunger are and how aid is distributed. Additionally, there may also be wide variations in hunger levels among the rural and urban populations, with the urban sections usually faring better. In short, the data and surveys used to calculate hunger indicators may overlook the potentially significant inequities inhibiting policies to target the most vulnerable sub-populations (A New Global Partnership, 2013). Narrow data that miss entire segments of sub-populations may leave considerable gaps in domestic and international coverage and focus on targeting people that require the least effort to pull above the specific threshold, neglecting groups that are more difficult to reach.

In regards to the specifics of the data itself, both the validity and reliability issues remain. Here validity refers to the extent to which the data actually represents what it claims to represent. In another words, is the measurement getting at the truth that is of interest in the study. Indicator 1.8 measures underweight children by taking into account body mass relative to chronological age and weight of the child but fails to take into account differences inherent differences between shorter or taller children (FAO, 2012). Indicator 1.9 also has similar inaccuracies as it fails to take into account differences in energy requirement of different individuals in different geographies and occupation in calculating

undernourishment. Additionally, both 1.8 and 1.9 do not take into account nutrition leaving aside important aspects of food like vitamins, minerals and protein. Insufficiency in nutrition has a detrimental impact on the quality of life and health and is an integral part of hunger but remains underexplored within the MDG framework.

Reliability of the data refers to the consistency of a measure or its ability to reduce random error each time measurements are taken. Indicators for hunger are an amalgam of data from different international organizations like FAO, World Bank (WB), World Health Organization (WHO), national statistical offices, different ministries, and several country offices. While many international organizations are well funded and equipped to handle complicated and costly surveys, national statistical offices play an important role. The development of these offices should be a country responsibility however in reality, many national statistical offices, especially in the developing world where MDGs are relevant, are less prepared to handle the same tasks (Habermann, 2008). Their performance matters for the production of the statistics since they often collect data that are integral inputs, which combined with data from other sources produces indicators 1.8 and 1.9. For example, indicator 1.9 relies on national food balance sheets, food available and food consumption estimates conducted via surveys (FAO, 2012).

To compute MDG indicators, the following data is required, often from national statistical offices: population census, demographic survey, household surveys, household budget survey and administrative data from relevant ministries like health and education (United Nations Statistical Division, 2013). This requires a

combination of financial resources, technical knowledge, statistical experience and access to large sections of the population to produce population-based surveys. However, many national statistical offices are both underfunded and understaffed. They often lack the capability or the resources to carry out reliable national surveys. The problem is compounded within developing countries where statistical agencies often compete for scarce resources with other government branches. For example, Karver claims that “Five developing countries (four of which are low-income) that previously exhibited 100 percent progress or greater on the MDG education indicator no longer have sufficient data observations available (e.g., the data was retracted). These include Guyana, Kenya, Maldives, Serbia, St. Vincent and the Grenadines, and Timor-Leste.” (Karver, 2012). Cafiero of FAO also notes “If we were only measuring in developed countries, data would be less of a problem, but it’s very partial in most developing countries.” (pg 19, IFPRI, 2013b).

A reflection of the resource and capability problems is the large gaps of times in between surveys. Household and demographic surveys are sometimes conducted between three to five years. Large gaps in time present a challenge to policymakers since they are analyzing and making decision based on outdated information reflected older trends. Critically, this can affect the effectiveness, efficiency and flexibility of strategies aimed to reduce hunger. Additionally, issues of comparability crop up with different governments using different methodologies, definitions and time frames. This often leads to discrepancies between national data on one hand and international data (UNSD, 2013). “More precisely, the weaknesses of MDG data can essentially be attributed to poor data availability and the lack of comparability

due to differences in definitions and methodologies. Data disseminated by the United Nations and other International Organizations refer to the years 1990, 1995, 2000, 2005 and 2006, whereas often third countries disseminate data for more reference years in total, but those years are often different from those published by the UN. There are significant differences in data availability between geographic areas and over time.” (pg 17, Eurostat, 2009).

III.C- Missing Dimensions and Links

While the issues explored above speak to the conceptualization and operationalization of the specific indicators, much criticism is also leveled the indicator’s neglect of the strong interdependence, linkages and synergies between poverty, agricultural development, health, education and gender inequality. Critics claim that by ignoring these connections, opportunities to increase efficiency of programs created to reduce hunger are largely missed (A New Global Partnership, 2013). In addition, by ignoring fundamental dynamics, both the national and international community miss the structural causes of hunger. Addressing structural causes of hunger can make hunger reduction programs more effective and sustainable since it requires less upkeep (Parr & Orr, 2013). Much of these criticisms stem from the conferences held in the 1990s which promoted broad, multi-dimensional approach towards food recognizing crucial aspects of availability, access, utilization and stability (FAO-CFS, 2012).

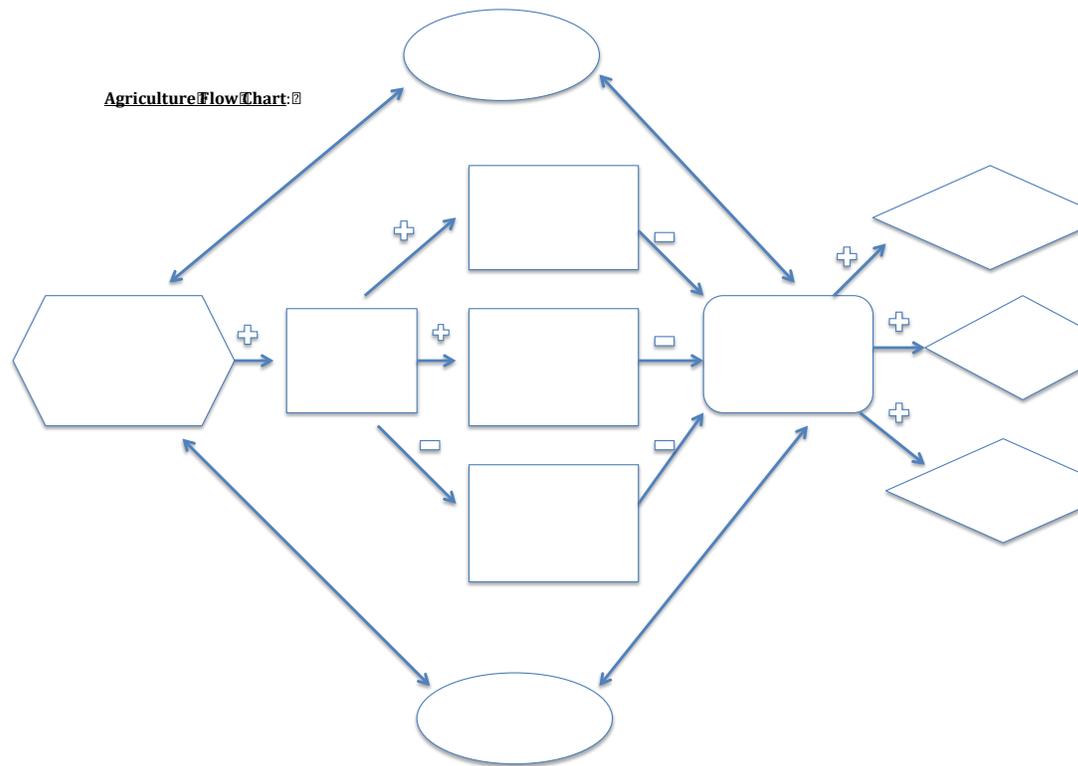
Taking into account the multi-faceted nature of hunger, FAO measurements of food security indicators look at three broad categories of: 1) determinants- availability and access, economic access and utilization, 2) outcomes- inadequate

access and, 3) vulnerability- changes in price, supply and access (FAO, 1996). The MDGs ignores categories 1 and 3 and emphasizing only outcomes. FAO's approach is helpful since it takes into account other long-term causes of hunger. For instances, the MDG may record the overall supply of food but says little in regards to whether the population have economic access to food. In another words, it poses the basic questions of whether individuals and households can afford the food instead of relying on national averages? Additionally, can they utilize food in a healthy and safe manner like supplementing food with clean and accessible water supply? To address these questions, FAO indicators gauge the level of access to improved water sources as well as access to improved sanitation facilities. Additionally, the 2008 food crisis exposed the vulnerability of the poor to global fluctuations in prices since poor households tend to spend the majority of their income on food and therefore have less flexibility for higher prices, which FAO measures look at food supply, price and production volatility among other measures (Wise, 2012). FAO measures are helpful because it explores issues that are directly connected to hunger, which may also reveal longer-term difficulties in tackling hunger. So while MDG indicators may show improvements in the short term, underlying vulnerabilities like poor access to food or volatile prices may erase much of those gains. Additionally, the most vulnerable may still be exposed to uncertainty making any progress less sustainable.

In addition to missing significant elements related to hunger, the MDG indicators are also static measurements. The data on hunger is essentially a snapshot of households at one point in time. The World Food Program (WFP) measurement of hunger addresses the time dimension of hunger by making the

important distinction between hunger as a transitory or chronic situation (WFP, 2013). Their surveys probe whether hunger is seasonal, like farmers waiting for their next crop harvest, or yearlong hunger, linked to poverty and low income. So while a household may be classified as undernourished by MDG indicators, it could either temporary or habitual (WFP, 2009). While both categories require action, the design, implementation and timeline of policies should take into account differences between temporary and permanent causes of hunger.

Considering that most of the world's poor are rural farmers, the absence of agriculture from the MDGs is shocking. Agricultural production and distribution remain key factors in reducing hunger (Wise, 2012). Investing and promoting in agriculture are powerful tools to reduce both poverty and hunger. The focus from private and public agencies on agriculture by the international community via finances, technology, know-how among other methods could generate higher incomes, keep food price levels stable, increase nutrition and many other benefits (FAO, 2012). The agriculture flow chart listed below captures the important dynamic between several moving variables important to poverty reduction and hunger. Sustainability continues to be of interest for stakeholders and agricultural investment is a promising venue that is often overlooked and underinvested despite its promise to realize many key MDG goals (A New Global Partnership, 2013).



IV. Brief Case Studies: Ghana and Brazil

Ghana is considered by many as an African success story with robust economic growth over the past couple decades with impressive GDP growth of an average of 4.5 since 1983 and 4 percent since 2011. It remains on track to meet the MDG poverty goal before 2015 and has already met its 2015 MDG hunger target goal. During 2011-13 less than 5 percent of the population were undernourished. While successful when measured by MDG indicators, Ghana had made less progress in regards to under-nutrition. Using indicator 1.8, the proportion of underweight children has nearly halved between 1993-1995, however less progress was made in the prevalence of stunting and about 23 percent of children were stunted in 2011.

Stunting provides as good measure of under-nutrition, which the MDG underweight figures missed. As discussed in the inequality part above, MDG indicators also omit considerable differences at regional levels. For instance, rural populations in Ghana were up to four times more likely to live below poverty line than people in urban areas with the highest prevalence of poverty in the Northern, Upper East and Upper West regions.

The example of Ghana is also illustrative of the mixed signals data can send out. On a scale of 0 to 100 with 0 as the most favorable, different measures send out different signals recommending different types of policies to reducing hunger. If measured by the MDG scale that uses prevalence of the percentage of people undernourished, then Ghana compares favorably to other states with a score of 4.5 faring better than India at 17.5 and China at 11.5. The global hunger index combines FAO's measure of undernourishment, WHO's data on underweight among children under five and UNICEF's data on mortality among children under five. This indicator places Ghana at 8.9 trailing China (5.1) and beating out India (22.9). Finally if we use the Economist Intelligence Unit's indicator that combines food affordability, availability and quality with 100 as the most favorable score and 0 the least favorable. Then Ghana (42.8) has the least favorable trailing India (44.8) and then China (62.8) (IFPRI, 2013b). Depending on which indicator one uses, Ghana's measure of success is a mixed one and certainly in a different position compared to other countries.

Many of the weaknesses outlined above speak to the absence of a holistic approach to hunger, which should take into account both the dynamics of each

country as well as the different aspects of hunger discusses throughout the paper. While theoretically appealing, this may be difficult in practice. Brazil's Fome Zero represents an attempt to frame policies in line with longer-term solutions that address structural causes of hunger and increase sustainability. The program aimed to guarantee access to food and took diverse strategies with three main pillars: 1) the world's largest conditional cash transfers linking basic services like health, education, and food, 2) school meal program feeding 47 million meals a day, and 3) agricultural support through subsidized credit, training and technical assistance (OXFAM, 2011).

The Fome Zero became regarded as one of the more successful programs that an incorporated comprehensive strategy. Supporters of the program note that Brazil was the first country to achieve MDG I ten years before the 2015 goal. It also made significant progress in reducing inequality (especially in rural areas), raising the income of farmers, and increasing access to social welfare system (FAO, 2011). However concerns over efficiency and a lack of focus remain regarding Fome.

V. Beyond 2015: Potential Alternatives

The analysis in the paper explored both the advantages and disadvantages of the current indicator used by the MDG however whether and what changes are considered in 2015 should carefully take into account both the costs and benefits of those changes. While the weaknesses explored in this paper suggest major oversights in the current indicators, its advantages must also be weighed against alternatives. For one, the financial and capability constraints that data collection

faces are real and often more challenging than expected. If simple indicators like 1.8 and 1.9 are difficult to collect and update, then the obstacles for more holistic visions of hunger eradication that call for the incorporation of equity, food security, agriculture, utilization and many other related concepts will be that much more difficult, if not impossible to empirically verify. Multidimensional complexity is easier to explore at a theoretical level but may be less feasible in practice. Calls to explore cross-sectional linkages will also face similar challenges.

However the difficulty of the task should not dissuade the serious exploration of alternate valid and reliable indicators, least of all due to legitimate concerns over current indicators. While data collection maybe expensive in the short term, the significant long-term gains cannot be overlooked. Large short term costs for data collection like surveys may pay off in the longer run through more efficient policies and a greater awareness of the repercussions of competing political and economic assessments. For example, it may be more costly to collect disaggregated data capable of differentiating between and among socioeconomic groups. While expensive to conduct, the long terms benefits of data capable of disaggregation may outweigh costs through efficiency gains and the ability to appropriately tailored programs that reach the most needy. However the initial investment in data collection will require political and financial mobilization on the part of the international and national community. Since national statistical offices form the foundation of all indicators, it should serve as the starting point for such a cost-benefit analysis and mobilization of resources. And while comparability is important, it is equally important to consider qualities of indicators that will be of

benefit in the local context and is suitable for the particular challenges facing each country.

The costs of richer and more nuanced information can be shared or even gleaned from other organizations since there exist a myriad of opportunities to piggyback from other public and private organizations that have tackled similar issues. The International Food Policy Research Institute (IFPRI) and the Economist Intelligence Unit (EIU) mentioned earlier calculate their own hunger index. Additionally, many western public universities also conduct comprehensive surveys. Take for instance, the Afro-Barometer surveys, which consisted of 15- 18 countries, in which approximately 25 thousand respondents were interviewed with a minimum sample size of 1200 in each country. These surveys are conducted over several rounds every 3-5 years and can serve as rich source of information especially in African countries with data deficiency. Since each survey has over 300 questionnaires with some gauging poverty levels and their effects, these could serve as reasonable proxies for food security.

Finally, the explosion of technology and global communication affords many promising venues to gain other types of relevant data in a timelier manner. Consider the rapid growth of mobile phones, which generates an incredible volume of information, including satellite positions, data use, and time. This information is productively used in many western countries to track aggregate behavior and used to analyze patterns to gauge patterns including consumption and individual expectations. The mobile phone embodies one example of the general trend of the growth of big data, which can provide copious and sometimes rich streams of

information. The increasing volume, velocity and variety of big data through social media, prices collected online, information and technology usage and many other previously unexplored sources of information present both challenges and opportunities to better capture and understand data (United Nations Statistics Division, 2013). This is especially true in the urban setting where people have more access to the Internet and computers “At the most general level, properly analyzed, Big data can provide snapshots of the well-being of population at high frequency, high degrees of granularity, and from a wide range of angles, narrowing both time and knowledge gaps.” (pg6, UNECE, 2013). For example, data from mobile phone top-ups could proxy for income shocks or key words in social media could proxy for food shortages. While this type of data can never substitute MDG-related data, it can complement that information and provide a more nuanced view of the situation.

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