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I N S T I T U T E

Measuring Progress on Hunger and Extreme Poverty

by Lauren Toppenberg

What is the 2030 Agenda for Sustainable Development?

Bread for the World's mission is to build the political will to end hunger both in the United States and around the world. From 2000 to 2015, an essential part of fulfilling our mission at the global level was supporting the eight Millennium Development Goals (MDGs)—the first-ever worldwide effort to make progress on human problems such as hunger, extreme poverty, and maternal/child mortality. The hunger target, part of MDG1, was to cut in half the proportion of people who are chronically hungry or malnourished.

The MDGs spurred unprecedented improvements. The goal of cutting the global hunger rate in half was nearly reached, and more than a billion people escaped from extreme poverty. Building on these successes, the United States and 192 other countries agreed to a new set of global development goals in September 2015, ahead of the MDG end date of December 31, 2015. Among the new Sustainable Development Goals (SDGs) are **ending hunger and malnutrition in all its forms** and **ending extreme poverty.** The SDG deadline is December 31, 2030.

The SDGs are universal—they apply to all countries in the belief that every country, regardless of its current level of development, can make progress. This report focuses on how the SDGs to end extreme poverty and hunger (goals 1 and 2) can be applied to the United States, and what existing measures and indicators could be used to assess progress. These are the SDGs most directly related to Bread's mission. The MDGs applied only to developing countries, so in one sense, a U.S. plan to achieve global development goals is a new idea. On the other hand, the U.S. government, state and local governments, nonprofit groups, churches, community organizations, and individuals from all walks of life have a long history of initiatives to reduce hunger, poverty, and inequalities—and,

FIGURE 1:   **Sustainable Development Goals**

of course, these efforts continue today. There are groups and individuals working on all 17 SDGs scattered throughout U.S. government and civil society. These initiatives aren't (yet) considered actions toward meeting the SDGs, but that is what they are. The SDGs offer an opportunity to articulate a common vision and to tailor a framework for action to the work of the various stakeholders.

Once achieved, the SDGs will make an enormous difference to this country, to humanity, and to the planet. "Leave no one behind" and "reach the furthest behind first" are, in effect, the 2030 Agenda mantras. The Agenda cannot be considered successfully accomplished until everyone enjoys a fair share of the progress. Not surprisingly, then, the SDGs are comprehensive and ambitious, with 169 targets to meet and more than 230 individual indicators to measure progress.

It is important to note that the SDGs are not meant to be individual, isolated goals. They are interconnected. Progress on one often requires progress on others. Targets, which are more specific components of goals, are closely linked with targets under other goals. For example, increasing access to safety-net programs, a target in SDG1, will contribute to increasing food security in SDG2.

This interdependence means that collaboration and collective action are critical—and that is precisely where the 2030

Lauren Toppenberg was a summer 2016 Crook Fellow with Bread for the World Institute.

Bread for the World Institute provides policy analysis on hunger and poverty, as well as strategies to end it.

Agenda presents a new opportunity. We need to ensure that U.S. policies are as effective as possible by addressing issues in a more comprehensive manner and by making improvements in how the United States sets and evaluates goals, including the SDGs. Agencies and organizations in different fields and sectors need to work together more closely than in the past. All parties need to make specific efforts to bridge "silos" in government agencies, traditional divisions among the public, private, and nonprofit sectors, and other boundaries that may keep us from solving holistic human problems in a holistic way. The success of the 2030 Agenda ultimately hinges on national, state, and local ownership, and on partnerships. The United States should establish and strengthen partnerships aimed at building a broad base of public support and political will.

Equity in the 2030 Agenda

Hunger and extreme poverty are multi-dimensional issues. They are inseparable from the social, economic, racial, and gender inequities that drive them. In order to end hunger and food insecurity for good, we must frame the task in ways that fully acknowledge—and counter—the role of systemic injustices.

Equity is the principle that all people should have a fair opportunity to attain their fullest potential.[1] The concept of equity differs from equality, the equal treatment of all people, by capturing the reality that not everyone begins in the same place, and that targeted support to create a level playing field may be needed.[2] Progress often happens first—and sometimes only—for the people and problems that are easiest to see and respond to. But these are not usually the people and problems most in need of solutions. Many of the poorest and most vulnerable people are left behind.

This harsh truth explains why SDG measures must be designed to help reveal disparities. While national-level statistics compare progress between countries, using this national-level data domestically is likely to underestimate, overestimate, or mask what is happening at different state and local levels and within different demographic groups. If we do not capture and analyze data at disaggregated levels, we will not know whether the progress we make is inclusive, leaving no one behind, helping the farthest behind first. Data should always drive our policy decisions, so data must accurately reflect reality.

This report delves into the data currently available for measuring progress towards goals 1 and 2. We hope that this report can serve as a guide for other sectors and groups to analyze the SDG targets and indicators that most impact their work. But we also want to reiterate the importance of using specific analyses like this one only in conjunction with and in the context of all 17 interconnected goals.

Poverty and Hunger in the 2030 Agenda

Poverty and hunger are facts of life for millions of people in the United States. The Sustainable Development Goal targets offer a way for U.S. advocates on hunger and poverty issues to amplify their work and its impact.

SDG 1.1, the first target under "ending extreme poverty," calls for the eradication of extreme poverty. This is defined,

TABLE 1:	**SDG1 and 2 targets**

Goal 1: End poverty in all forms everywhere	
Target	
1.1	By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.90 a day.
1.2	By 2030, reduce at least by half the proportion of men, women, and children of all ages living in poverty in all its dimensions according to national definitions.
1.3	Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable.
Goal 2: End hunger, achieve food security and improved nutrition	
Target	
2.1	By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round.
2.2	By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.

Source: http://unstats.un.org/unsd/statcom/47th-session/documents/2016-2-IAEG-SDGs-E.pdf

using a multidimensional framework, as living below the international poverty line of $1.90 a day.[3] At first glance, it might seem unthinkable to use such a shockingly low figure when discussing poverty in the United States. Yet some recent studies suggest that approximately 3 million children in our country do in fact live on less than $2.00 a day. The United States may have a higher rate of extreme poverty, as defined internationally, than previously assumed.[4]

SDG1 also takes into account that using the international poverty line by itself might not capture all those living in poverty, particularly in developed countries. So the second target, SDG 1.2, calls for reducing the poverty rate by at least half, using each country's *own* national standards to measure progress. The exact language in SDG1 includes reducing poverty "in all its dimensions," and the concept that ending extreme poverty means more than simply ending income poverty is part of the U.S. understanding of poverty. It also requires finding solutions to the numerous consequences of poverty, including those related to health, education, housing, and participation in the economy.[5]

Lastly, recognizing the importance of a concerted approach to poverty, target SDG 1.3 requires that countries create and implement social protection systems to ensure that every person has access to services that meet basic needs. The United States provides social services through three overarching programs, as outlined in the Social Security Act. They are worker benefits, health insurance programs, and safety net programs, or programs that provide assistance in times of hardship.[6]

SDG2, ending hunger and all forms of malnutrition, similarly calls for a multifaceted approach. Its first target, SDG 2.1, is very straightforward: ending hunger and food insecurity for all people, all year round. To be free from hunger and malnutrition, or to be food secure, means that every person has safe,

nutritious, and sufficient food, and that the food is affordable and accessible in a convenient and socially-acceptable way.[7]

Like poverty, hunger has many dimensions. While SDG 2.1 focuses on the availability and accessibility of food, SDG 2.2 calls for ending all forms of malnutrition. Malnutrition includes not only stunting and wasting—conditions that indicate chronic and acute shortages of calories and nutrients—but also problems more common in the United States, such as overweight and obesity. SDG 2.2 specifically includes ending malnutrition in vulnerable populations, those at greater risk of hunger. These include children, adolescent girls, pregnant and lactating women, and elderly people.

In summary, the targets for SDG1 and SDG2 identify multiple dimensions of hunger and poverty and emphasize the need to identify subpopulations and individuals at greater risk. They create a framework that the United States and other countries can use to develop plans to end hunger and extreme poverty within their borders. Of course, nothing in the 2030 Agenda discourages countries from doing *more* to redress hunger and poverty once the SDGs have been met. For a wealthy country like ours, meeting Goals 1 and 2 should not be a stretch.

The success of the SDGs in the United States depends on our leaders and other individuals taking full ownership of the goals and applying their targets and indicators to the specific needs of our populations.

How do we measure the SDGs and why does it matter?
History of the SDG Indicators

It is key to the success of the 2030 Agenda that national governments develop effective ways of measuring progress. International organizations, such as the Food and Agriculture Organization (FAO) and the World Health Organization (WHO), will also track national progress, but each country capable of developing a national measurement plan is responsible for doing so. National plans must include appropriate indicators at national, state, regional, and local levels, and for all subpopulations.

Some aspects of measuring progress are quite technical. In 2015, the U.N. Statistical Commission endorsed the formation of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (IAEG-SDG) to lead the development of the SDG global indicator framework. The IAEG describes the proposed indicators as the result of an inclusive, open, and transparent process that involved consultations and briefings with, as well as feedback from, all participating countries, regional and international agencies, civil society, academia, and the private sector.[8]

In choosing indicators, the IAEG considered whether they are relevant, methodologically sound, and universal.[9] They do not match one-to-one with targets. Some indicators measure more than one target, while some multidimensional targets need more than one indicator to capture all the necessary data.[10] IAEG proposed a global indicator framework in the expectation that it will serve as a model for indicators at the regional, national, and subnational levels. But it also recognizes that different or additional indicators might be necessary at subnational levels of society in order to capture the unique and diverse circumstances of individual countries.[11]

The IAEG indicators are grouped into three tiers based on how ready for use they are, i.e., whether their methodology is well developed and the needed data available. Tier I indicators have both a developed methodology and widely available data. Tier II indicators have an established methodology but do not have readily available data. Tier III indicators are considered important in measuring progress toward the SDGs but do not yet have an internationally agreed-upon methodology.[12] Indicators in Tiers II and III need additional development, which will require partnerships across all sectors of society in order to identify new data sources and technologies for data collection.[13]

Another important consideration in choosing an indicator is whether it contributes to the pledge of leaving no one behind in efforts to reach the SDGs. This means in practice that analysts must be able to disaggregate the data for each indicator by income, sex, age, race, ethnicity, migratory status, disability, geographic location, and/or any other characteristics appropriate for the target population.[14] In places where the ability to collect data is limited, ensuring that this level of detail is available will require extensive efforts to strengthen data collection and systems.

Measuring the SDGs

The role of measurement in improving the human condition cannot be overstated. There can be no sustainable improvements under any of the SDGs, no matter how well-intentioned the initiatives and policies, unless the benefits actually reach the people who need them. We also cannot know how effective a policy is until we are able to evaluate its impacts.

Together, the IAEG global indicators and the national indicators selected by each country will be the core methods of monitoring progress toward the 2030 Agenda. . A well-thought-out and effective framework of indicators will serve as a guide for countries to develop implementation strategies and reporting mechanisms. These, in turn, enable countries to fulfill their responsibilities and be held accountable for making timely progress. The framework of indicators must also reflect the fact that the SDGs function as an integrated entity. Indicators should be monitored on different issues, as well as within singular goals and targets, to gauge impacts, potentially either positive or negative, on other goals.

The IAEG's extensive work to develop global indicators has put the world on the right track to measure progress toward the SDGs. Now the United States is in the process of developing its own national indicator framework. Just as not every target will be applicable to each country, not every global indicator listed by IAEG will apply to each country. Creating a measurement framework requires the U.S. government to conduct critical analyses of which targets in each SDG are applicable, and which indicators will best measure progress toward those targets. If the United States uses national indicators different from

TABLE 2: **UN proposed SDG1 and 2 indicators**

Target	Indicator
1.1	1.1.1 Proportion of population below the international poverty line, disaggregated by sex, age group, employment status and geographic location (urban/rural).
1.2	1.2.1 Proportion of population living below the national poverty line, disaggregated by sex and age group.
	1.2.2 Proportion of men, women, and children of all ages living in poverty in all its dimensions according to national definitions.
1.3	1.3.1 Proportion of the population covered by social protection floors/systems, disaggregated by sex and distinguishing children, the unemployed, old-age, persons with disabilities, pregnant women/newborns, work injury victims, the poor, and the vulnerable.
2.1	2.1.1 Prevalence of undernourishment
	2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale.
2.2	2.2.1 Prevalence of stunting among children under the age of 5 years of age.
	2.2.2 Prevalence of malnutrition among children under the age of 5 years, disaggregated by type (wasting and overweight).

Source: http://unstats.un.org/unsd/statcom/47th-session/documents/2016-2-IAEG-SDGs-E.pdf

or in addition to the IAEG global indicators, it's important to ensure that these indicators are also both precise and accurate. They must have been rigorously tested for their ability to reliably capture the measurement values in question and to accurately measure the true value of the target.[15] Indicators that are not valid or do not represent an SDG target will introduce bias into the estimates of progress. Ultimately, this will distort or even derail progress on one or more goals.

As the United States develops an indicator framework to measure progress in this country toward SDG1 and SDG2, it will be critical to evaluate the validity and representativeness of both global and national indicators used to measure poverty and hunger as they exist in the United States. As we will discuss, this evaluation process may be contentious.

The first and most arduous task will be to reach a consensus among all stakeholders on how poverty and hunger should be defined. Without an agreed upon definition of hunger and poverty, we cannot determine which indicators will best measure them. This may sound obvious, but in fact, one reason for the many controversies surrounding how to fight hunger and poverty is that stakeholders are using different definitions. It's not a conversation where apples are being compared to apples.

It's not surprising, then, that reaching a consensus on indicators will require collaboration on a scale not seen before. All those with a stake in achieving the SDGs need a common understanding of what we are trying to achieve. These stakeholders include federal, state, and local governments; advocacy groups; citizen organizations (particularly those led by people from within low-income communities); churches; philanthropies; the private sector; and individuals who are committed to making a difference for hungry people.

Once reached, however, these common understandings will help stakeholders find the overlaps and gaps in data collection, analysis, and evaluation. Groups often do parallel work on

issues such as hunger. Working outside our own "silos" on how to measure success will help us direct our collective resources where they are most needed.

Building A Domestic 2030 Agenda Framework

People in the United States have just started to explore the implications of the 2030 Agenda for our own country. At this writing, there is still no implementation plan. Are we ready to move forward?

The United States did not score well on an unofficial "SDG Index" that examined countries' overall readiness to make progress across all 17 SDGs. The study, released by the Sustainable Development Solutions Network (SDSN) in February 2016,[16] included 34 developed countries, the members of the Organization for Economic Co-operation and Development (OECD). The Index found that the United States is on track to achieve one SDG, but falls into the category "needs significant extra effort" for the other 16, including SDG1 and SDG2.

Despite this poor grade on national readiness, organizations from different fields, representing various types of institutions, are beginning to define what our domestic implementation plan might look like. These include offices within federal agencies that are considering how to best integrate SDG targets into their strategic plans. Mayors and other city leaders are designing SDG implementation plans. Researchers are investigating ways of measuring SDG progress at federal, state, regional, and city levels. Advocacy and philanthropic groups are coming together to raise awareness of the 2030 Agenda among their own members as well as policymakers at all levels. If we want to meet, or at minimum get on track to meet, SDG1 and SDG2 targets by 2030, it is imperative that we support these efforts and continue working to galvanize collective engagement and active participation. We need to reach agreement on an SDG implementation plan as soon as possible.

The remainder of this report builds on the work of these pioneers of U.S. efforts to achieve the SDGs by exploring a measurement framework for selected targets and indicators for SDG1 (end extreme poverty) and SDG2 (end hunger and malnutrition). After offering an overview of poverty and hunger problems in the United States, we will take a look at global indicators and national indicators proposed for use at subnational and subpopulation levels. We will briefly evaluate their strengths, limitations, and likelihood of leaving no one behind.

SDG1: NO POVERTY

"Very often a lack of jobs and money is not the cause of poverty, but the symptom. The cause may lie deeper in our failure to give our fellow citizens a fair chance to develop their own capacities, in a lack of education and training, in a lack of medical care and housing, in a lack of decent communities in which to live and bring up their children... Our aim is not only to relieve the symptom of poverty, but to cure it and, above all, to prevent it. No single piece of legislation, however, is going to suffice."

—Lyndon Baines Johnson, January 8, 1964

In 1964, during his first State of the Union address, President Lyndon Baines Johnson declared an unconditional War on Poverty.[17] The War on Poverty was a set of initiatives proposed, passed, and implemented during Johnson's tenure. These efforts worked on a range of social issues, from economic and educational opportunities to food assistance and social security.[18]

People have strong, frequently conflicting opinions of the War on Poverty. Depending on one's ideological stance, it may be viewed as either a failure or a success. For our purposes, the uncontested and more important point is that Johnson's declaration shone a bright light on the extreme, often hidden, poverty in the United States. Most important of all, the War on Poverty explicitly acknowledged that poverty is not simply a lack of income, but rather a multidimensional condition rooted in inequities. Both the many facets of poverty and the inequities that contribute to it make it difficult to overcome poverty with money alone.

As is often true of complex social problems, poverty has no single agreed-on definition. In general, though, people take it to mean living on the edge of subsistence, struggling or being unable to meet basic living needs such as food, clothing, and shelter. In 2015, more than 43 million people in the United States—more than 13 percent of the population—lived below the official federal poverty line.[19] A staggering 20 percent of children lived in poverty.[20] For some subpopulations, the numbers are even more disturbing: 24 percent of African American households lived in poverty, compared to 9 percent of white households.[21] And 15 percent of women lived in poverty, compared to 12 percent of men—a disparity that held true for all ethnic and racial groups.[22]

It is unnecessary—and ironic—for so many people and communities to continue to confront poverty in the United States, one of the most bountiful nations in the world. Eliminating extreme poverty and preventing its recurrence hinges on numerous initiatives based in different sectors, from education to health care to housing. We must take an integrated approach that focuses on ensuring that each person has a fair playing field to develop their personal strengths and capacities.

Children who grow up in poverty are at risk of less cognitive development, which leads to lower academic achievement and lifetime earnings.[23] Compared to people with higher incomes, poor adults have more illnesses, diseases, and disabilities—and a shorter life expectancy.[24] Poor households are burdened with elevated levels of psychological distress and depression[25] and family members have less social and economic mobility.[26]

The United States measures the number of people living in poverty using federal poverty thresholds that were originally developed in 1963 by the U.S. Department of Agriculture (USDA). These thresholds are based on the cost of food and families' ability to afford it.[27] The U.S. Census Bureau uses income data from one of two surveys to determine the proportion of people whose income falls below the pre-determined threshold for their family size. At the national level, the Census Bureau uses household pre-tax cash income data from the Annual Social and Economic Supplement (ASEC) of the Current Population Survey (CPS).[28] At the state and local levels, the data comes from the American Community Survey (ACS).[29]

Both surveys use monthly data sampling to collect annual estimates, and they disaggregate data by family status, race, sex, age, nativity, region, location, work experience, disability status, and educational attainment. CPS data is only reliable at the national level; state-level data is not reliable due to small sample sizes.[30] Using ACS data can produce calculations of poverty rates for states, cities, counties, and census blocks.[31] Using ACS rather than CPS data does have the drawback that ACS collects less information about income sources and asks fewer questions about noncash benefits, which often help pull people out of poverty.[32]

For 2015, the federal poverty threshold for a single-person household was $12,071.[33] The United States does not calculate the proportion of the population below the international poverty line of $1.90 a day, but it does calculate "Deep Poverty," defined as half of the poverty threshold, or about $5,885 a year for a single person.[34] The federal poverty threshold can serve as an indicator for target 1.2, reducing poverty by half, and Deep Poverty can be used as a U.S. indicator for target 1.1, ending extreme poverty.

How does the government determine "poverty line" figures? Currently, the incomes considered below the poverty line for families of various sizes are calculated by taking the cost of the USDA Thrifty Food Plan for that family and multiplying it by three. The original reasoning behind this was that low-income families were spending about one-third of their incomes on food.[35] But there are two difficulties with this. First, the Thrifty Food Plan is a food budget intended for families under economic stress.[36] Because it was designed for emergencies and never intended for longer-term use, it does not enable people to consistently buy healthy foods. Second, both the economy and family life have changed since 1963. Families no longer spend anywhere near a third of their incomes on food. Housing, transportation, and—unlike in 1963—childcare costs take up much of a household's budget. In fact, a year of infant care can easily cost more than a year of college. Basing the poverty threshold on outdated assumptions about expenses and spending can mean significantly underestimating the actual cost of meeting a family's basic needs.

In addition to measuring income alone, SDG2 aims to capture the depth of poverty by measuring many of its dimensions. Some of these are tied to institutional systems, such as education, health care, housing, and social protection programs. Some are social problems, such as violence, discrimination, and inequality. While "poverty in all its dimensions" is not explicitly defined, an indicator to measure it should, at the very least,

Poverty Threshold: How Poor Is "Poor"?

At the time of its creation in 1963, the poverty line for a family of four was 50 percent below median family income—or half the income of the typical four-person family in the United States. However, by 2015, the poverty line for a family of four had fallen to 66 percent below the median family income, or only one-third the income of a typical family. So to be considered poor in 2015, a family had to be poorer compared to an average U.S. family than in 1963. In fact, if the federal poverty line in 2015 was set at 50 percent below median family income as it was in 1963, the 2015 poverty threshold for a family of four would be about $33,000, rather than the actual figure of $24,000.[37]

Even $33,000 is significantly below what most American families believe is needed to "get by" in their communities. A 2013 Gallup poll found that a "living wage" would be at least $58,000.[38] And participants felt that the income needed to "live comfortably" (spending 50 percent of income on necessities with 30 percent for discretionary spending and 20 percent for savings) in major metropolitan areas is considerably higher than that. To live comfortably, those polled said that a family would need an income ranging from $61,000 in Houston and Nashville to $77,000 in Miami and $83,000 in Washington, DC, and Boston.[39]

include the topics of health, education, standard of living, and housing in order to capture the depth and breadth of poverty.[40] It may prove difficult to factor all of these into the equation. But an essential first step is to identify what is missing from the indicators and consider ways of filling these gaps.

Another important measure of several dimensions of poverty is how well social protection systems and other measures to prevent and alleviate poverty are designed and implemented. As mentioned earlier, U.S. social protection systems consist of three overarching services: benefits for workers and their families, health insurance programs, and safety net programs such as the Supplemental Nutrition Assistance Program (SNAP) and Temporary Assistance for Needy Families (TANF).[41]

Targets 1.1 & 1.2: Measuring Extreme Poverty

Tracking global progress on target 1.1, eradicating extreme poverty for all, requires indicators that can meaningfully be compared across countries. This is why it's important to use a global indicator such as the international poverty line to measure the world's collective progress. However, national measures that reflect each country's progress at a subnational level and take into account the unique conditions and standards of each nation[42] are equally important. As mentioned earlier, to help measure these, SDG1 has target 1.2, which calls for cutting in half the proportion of those living in poverty in all its dimensions, to be measured according to thresholds set by individual countries, including the proportion of the population living below the national poverty line.[43]

Indicators

International Poverty Line

In October 2015, the World Bank issued an updated definition of the international poverty line (or "extreme poverty") as living on $1.90 or less a day. This new definition is incorporated into the indicator for target 1.1, progress toward eradicating extreme poverty globally. The international poverty line applies only to working households; it's the proportion of the population that, despite having employment, makes less than $1.90 a day.

Measuring poverty using an international poverty line

enables stakeholders to compare countries' progress toward eradicating poverty over time.[44] The International Labor Organization (ILO) is responsible for calculating the proportion of the world's employed population living below the international poverty line. The ILO disaggregates estimates by age (whether youth or adult), sex, and employment status, as well as by regional groupings.[45] The IAEG considers data for target 1.1 to be Tier I (methodology in place and data available).

A potential drawback of using this definition of extreme poverty is that in practice, the poorest people in high-income countries are seen in a similar light as people who are not poor in low- and middle-income countries.[46] The two groups are in fact equivalent in absolute dollar terms. But this obscures the difficulties of people in middle- and high-income countries who live above the extreme poverty line, but below the poverty line using their national standards.

This is why IAEG suggests that this indicator should not be used as a threshold for developed countries. Using an absolute poverty threshold, such as $1.90 a day, will only identify people living in the deepest poverty in high-income countries.

United States Poverty Thresholds

Recognizing that the international poverty line leaves behind a substantial portion of the world's poor people, the SDGs provide space for countries to use their own standards to measure poverty within their borders. Because national poverty lines are not based on an agreed-upon international poverty standard, the national poverty line indicators used to measure both targets 1.1 and 1.2 cannot be used for global comparisons. Rather, they are designed to track trends and patterns of poverty within a country. This holds true, for example, for the U.S. official poverty line and deep poverty line, which are both based on U.S. pricing and consumption patterns.

Indicator Evaluation

As mentioned earlier, there is no consensus among policy experts as to which components are essential to measuring poverty in the United States. Unlike many developing countries, which may struggle to administer even one institutionalized living standards survey, the United States administers many surveys. But they are collected at different intervals by different

agencies asking slightly different questions about various facets of poverty.[47] The abundance of data sources presents policymakers with the opportunity to measure poverty more precisely by including multiple factors, but it also adds the task of choosing which definitions and measures to use.

Many specialists argue that the U.S. federal poverty line is simply not appropriate as a way of measuring poverty, because it includes only income-based components. The poverty line cannot take purchasing power into account, differentiate among states or between urban and rural areas, or exclude fixed expenses (costs such as rent that individuals cannot decide to spend more or less on) from calculations. Therefore, a significant number of people and groups are overlooked.[48] Following are several indicators whose aim is to go beyond the limitations of the poverty threshold by looking at other relevant circumstances. Using them in conjunction with the federal poverty line could make our measurement of progress more accurate.

Alternative Indicators

Supplemental Poverty Measure

In 2010, the Census Bureau introduced a new measure of poverty, the Supplemental Poverty Measure (SPM). As the name suggests, SPM was developed to supplement rather than replace the existing official poverty measure. It considers some of the additional resources that households may have in addition to their income, such as tax credits and housing subsidies, and some of the additional expenses that must be paid out of the household income, such as Social Security taxes and childcare costs. SPM uses household income data collected by the Current Population Survey (CPS).[49]

In a significant departure from how federal poverty thresholds are calculated,[50] the Supplemental Poverty Measure thresholds are derived from data on what people actually spend on basic necessities such as food, clothing, utilities, and housing. The thresholds are adjusted for family size and the cost of living in the region. The Bureau of Labor Statistics collects this expenditure data from the Consumer Expenditure Survey (CEX),[51] which asks households and families about their buying habits, income, and household characteristics.[52] The data from CEX can be disaggregated by age, race, region, housing, education, occupation, income, and number of earners.[53]

The SPM captures and includes more complete information than the official federal poverty threshold, and should be part of the measurement of poverty.

Concentrated Poverty

Another indicator that could contribute to measuring extreme poverty is the rate of concentrated poverty. An area of concentrated poverty is defined as a U.S. Census tract where 20 percent or more of the population lives below the poverty line.[54] The U.S. Census Bureau data indicate that the poverty rates of U.S. Census tracts vary widely—from less than 14 percent to 40 percent or more. American Community Survey (ACS) data is used to disaggregate the information by demographic and socioeconomic characteristics.[55]

In 2014, of the 48 million people in the United States who lived below the federal poverty threshold, 14 million lived in communities whose poverty rates were 40 percent or higher—a figure that has more than doubled since 2000.[56] This dramatic rise cannot be explained simply by an increase in U.S. poverty overall. Instead, it throws into stark relief the fact that over the last 15 years, poverty has disproportionately affected areas that were already depressed and poor.[57]

Living in an area of concentrated poverty compounds the burdens on low-income people who are already struggling. Studies have shown that living in a community with a poverty rate between 20 percent and 40 percent worsens problems such as crime and dropping out of school and traps people below the poverty line longer.[58] With information on which areas are disproportionately affected by poverty, the U.S. government can make progress toward SDG1 by targeting anti-poverty efforts to the people who need them most. These areas might not be visible if we simply look at the federal poverty threshold data.

$2.00-a-Day Poverty

Analysis by Luke Shaefer and Kathryn Edin suggests that millions of people in the United States—approximately 4.3 percent of nonelderly households with children—live on less than $2.00 a day.[59] This is emerging as a new measure of extreme poverty. Shaefer and Edin base their estimates on three categories of household income: monthly pretax cash income, including cash assistance; benefits from the Supplemental Nutrition Assistance Program (SNAP); and an estimated monthly value of the Earned Income Tax Credit (EITC), the Child Tax Credit, and Housing Choice Vouchers.[60]

The analysis uses data collected in the Survey of Income and Program Participation (SIPP), a household-based survey conducted as a continuous series of national "panels." Each panel is a nationally representative sample of households. All households in the panel are interviewed regularly over a period of time, ranging from 2.5 to 4 years.[61] The survey collects data on such topics as types of income, eligibility and participation in safety-net programs, and labor force participation.

There has been some criticism of how Shaefer and Edin calculated their $2.00 a day poverty rate measure. One of these is that the estimates include only data from households with children; another is the choice of the public programs included under "non-cash income supplements." To test the analysis, the Brookings Institution did a series of follow-up calculations of $2.00 a day estimates, using data from households with and without children; from a range of public programs; and from SIPP, CPS ASEC, and Consumer Expenditure (CEX) surveys. Brookings found that the rate of $2.00 a day poverty ranged from as high as 4 percent to as low as effectively 0 percent.[62] These findings demonstrate how important definitions and data sources are for poverty calculations, and they highlight the need to come to a national consensus on which factors and data are to be used to measure poverty.

Target 1.2: Measuring Poverty in All Its Dimensions

Recognizing the limitations of basing poverty calculations on income and other monetary resources alone, the second indicator for target 1.2 enables countries to look at poverty through a multi-dimensional lens and identify the non-financial deprivations of poverty that most affect their populations. It is important for U.S. policymakers to identify these deeper systematic failures that prevent people from making progress, such as those described by President Johnson.

Indicators

United Nations Multidimensional Poverty Index

The SDG framework views "measuring poverty in all its dimensions" as a task to be completed using national standards. There is, however, a global indicator that could potentially measure many of these multiple dimensions in countries all over the world. This is the Multidimensional Poverty Index (UN-MPI) for developing countries.[63] The United Nations has begun to collect and report data using this index, but UN-MPI is currently categorized as a Tier II indicator.

Using micro-level data from surveys of individual households, UN-MPI groups "deprivations" into three categories—education, health, and standard of living—with a total of 10 indicators.[64] (*See Table 3*). To calculate UN-MPI, each person is assigned a "deprivation score" based on these 10 indicators. People are considered to be affected by multidimensional poverty if they score as "deprived" in four or more of the indicators. The index gauges the intensity of poverty by calculating an average degree of deprivation for the 10 indicators and estimating the contribution of each of the three fields to the overall deprivation score.[65] This can help policymakers and advocates identify and target the areas where people have the most need.

U.S. Multidimensional Poverty Index

Using similar methods to those used to create the UN-MPI, the Institute for Research on Poverty (IRP) at the University of Wisconsin has proposed a U.S. Multidimensional Poverty Index (US-MPI).[66] While US-MPI is not yet a measure recog-nized by a governing authority, it is the start of a conversation about how to measure poverty in the United States using the many deprivations of poverty and their severity, rather than income alone.

US-MPI measures deprivation in four dimensions, each of which has eight indicators. The dimensions are health, education, standard of living, and housing. (*see Table 3*). These are different from the UN-MPI indicators—they reflect standards of living in the United States. They are also more precise since they don't have to rely on household data for individual values. US-MPI uses a similar "dual cut-off" approach as UN-MPI: the first cut-off establishes whether a person is deprived under a particular indicator, and the second determines whether a person is "multi-dimensionally poor," i.e., whether she or he is deprived according to two or more indicators.[67]

US-MPI uses micro-level data from the ACS and disaggregates estimates by age, gender, race, ethnicity, and region. As mentioned above, US-MPI is not an officially recognized measure, so no government body is currently responsible for measuring and reporting on it. Finding an agency or office willing to be responsible for monitoring US-MPI could advance the U.S. framework for achieving SDG1.

Evaluation of Indicator

The indicators for US-MPI were carefully selected, but they are also certainly up for debate. When it comes to what poverty means beyond a lack of income, various groups and individuals have different assessments of what is important. For example, someone who does not understand or speak English may or may not agree that not being fluent in the country's primary language is a deprivation. In other words, the indicators make certain assumptions about poverty and deprivations that may not resonate for all subpopulations.

US-MPI acknowledges that others may choose to define the deprivation indicators differently. It is, as mentioned earlier, the opening of a discussion of an alternative poverty measure based on multiple cross-sector deprivations. Developing such a measure is essential to capturing progress in all dimensions of poverty.

Measuring Social Protection Systems

A third target in SDG1 is target 1.3, which calls for the implementation of nationally appropriate social protection systems and measures for all people. A social protection floor—a minimum level of resources that enables people to withstand economic and social hardships[68]—is an important part of a social protection system. Together, the components of a social protection system form a framework within which we can reduce and ultimately prevent and end poverty.

Indicators

International Labor Organization Recommendations

The global indicator for target 1.3, the proportion of the population covered by social protection

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TABLE 3: **UN-MPI Indicators versus US-MPI**

UN-MPI		US-MPI	
Dimension	**Indicator**	**Dimension**	**Indicator**
Health	Nutrition	**Health**	Health Insurance
	Child Mortality		Disability
Education	Years of Schooling	**Education**	Years of Schooling
	School Attendance		English Fluency
Standard of Living	Cooking Fuel	**Standard of Living**	Income poverty
	Improved Sanitation		Employment Status
	Safe Drinking Water	**Housing**	Housing Costs
	Electricity		
	Flooring		Crowded House
	Assets		

Sources: http://www.ophi.org.uk/multidimensional-poverty-index/ & http://www.irp.wisc.edu/publications/dps/pdfs/dp142715.pdf

floors/systems, is based on two recommendations from the International Labor Organization (ILO). ILO recommendation No. 102, Social Security Minimum Standards, sets qualitative and quantitative benchmarks for nine social security "contingencies" (medical care, sickness, unemployment, old age, employment injury, family responsibilities, maternity, invalidity, and survivorship). ILO recommendation No. 202, Social Protection Floors, states that protection floors, at a bare minimum, must guarantee basic income security and essential health care for persons of "active age" who are unable to earn sufficient income.[69]

In its annual Social Protection Report, ILO discusses several areas of potential difficulty in the measurement of protection floors and systems. One of these is distinguishing between potential coverage (how many people are covered by a given contingency) and actual coverage, and collecting data on both. Another is distinguishing between legal coverage and effective coverage. A certain number of people will be covered under the law, but enforcement may be inadequate, making the effective coverage (how many are in reality covered) lower than the legal coverage.[70]

Gauging progress on target 1.3 will be difficult because social protection floors and systems have numerous components. IAEG has categorized the indicators for target 1.3 as somewhere between Tier I and Tier II, because the availability of data varies by the type of benefit, and the methodology must be further developed to ensure that poor and vulnerable people are in fact included.[71] Moreover, the IAEG has as yet not provided guidance as to which specific indicators should measure the proportion of the population covered by social protection floors/systems. Further guidelines are needed to ensure that the indicators for target 1.3 are consistent across countries.

Social Security Act Services

Within each category of U.S. social protection services—worker benefits, health insurance, and safety nets[72] –is a collection of programs aimed at preventing or responding to poverty. Monitoring progress toward providing social protection floors and systems to everyone in the United States will mean measuring changes in each of these three broad services.

Worker benefits, such as Old-Age, Survivors, and Disability Insurance (OASDI), are essential components of the social protection system. OASDI are programs established within the Social Security Act that pay for (1) monthly benefits to retired workers, their spouses, their children, and the survivors of insured workers who have died (OASI) and (2) monthly benefits to disabled workers, their spouses, and their children, plus the benefits and rehabilitation services provided to people with disabilities (DI).[73] One indicator of progress in how many workers have access to these forms of social protection is the trends in how far above or below the poverty threshold the households of OADSI beneficiaries fall. This data can be disaggregated by age, race, ethnicity, gender, family size, and location.[74] The Social Security Administration (SSA) tracks these disaggregated trends using data from the SIPP household survey in conjunction with Social Security administrative records.[75]

Health insurance is a second major component of the U.S. social safety net. The indicator of health insurance coverage must, of course, count only those who actually receive benefits. People who qualify for Affordable Care Act subsidies, Medicaid, Medicare, the Children's Health Insurance Plan (CHIP), or other public health insurance programs, but do not receive them, cannot be considered part of any progress toward providing insurance for everyone. The number of people who qualify for insurance benefits can be calculated using data from the CPS ASEC, which collects the information needed to determine whether people are eligible.[76] The Kaiser Family Foundation offers a method of using this data in its publication "A Closer Look at the Remaining Uninsured Population Eligible for Medicaid and CHIP."[77] As for the actual number enrolled, the Centers for Medicare & Medicaid Services prepares reports on enrollment based on its administrative data.[78]

The third U.S. social safety net service provides assistance to people facing hardship. It includes such programs as the Supplemental Nutrition Assistance Program (SNAP) and Temporary Assistance for Needy Families (TANF). Safety net programs such as these are not only able to meet people's immediate needs, but are also vital to ensuring that the children of low-income parents avoid some of the worst early harms of poverty—impacts that make it more difficult for them to escape poverty later in life. An emerging body of research shows, for example, that safety net programs help reduce infant mortality and low birthweight, improve measures of academic achievement such as high school completion and college entry, and increase future earnings.[79]

The Center on Budget and Policy Priorities (CBPP) recently released state-by-state fact sheets evaluating how the U.S. safety net impacts poverty.[80] Using data from CPS and administrative enrollment records, CBPP estimates the number of people lifted above the federal poverty threshold as a result of social safety net programs, including Social Security, SNAP, the Earned Income Tax Credit (EITC) and Child Tax Credit, Supplemental Security Income (SSI), and housing subsidies. Trends in how many people are lifted out of poverty by the social safety net could potentially be the final indicator needed to monitor target 1.3.

Because social protection systems are broad by definition, it is difficult to identify a set of indicators that is both a manageable number and reflects the full extent of the systems. We need national discussions of which aspects of our social protection systems best respond to poverty and the problems that come with it. Such discussions will point us to the best indicators for this target.

Another important question to ask about measuring our social protection system is whether the percentage of the population covered by social protection floors/systems, as proposed by target 1.3, actually captures how efficient and effective the system is. Of course, whether people are eligible to participate is very important, but it does not tell us much about the quality of the benefits or whether they are an adequate response to

poverty. Moreover, this indicator cannot capture limitations or barriers to obtaining services. A person may be covered by public health insurance, for example, but this does not necessarily mean that he or she has transportation to a doctor, can take time off work to go to an appointment, can afford an out-of-pocket copay, etc. Finding ways to identify and measure such constraints is essential to efforts to fill the gaps in our social protection system and ensure that it helps people out of poverty. Government needs to make it a top priority to help put indicators in place to measure these problems and gaps and ensure that we are leaving no one behind.

SDG2: NO HUNGER

SDG2 is a broad goal that targets both the nutritional and agricultural sides of hunger. This report focuses on only the nutritional component.

We are very fortunate: the United States has more than enough food for every person to have enough nutritious food to lead an active and productive life. The problem is that while there may be enough food to go around, this doesn't help families without enough money to buy nutritious food. In 2015, more than 43 million Americans lived in households that struggled to put enough food on the table.[81]

Critics of this statistic point to the paradox that U.S. overweight and obesity rates have continued to rise even as hunger and food insecurity rates rose. When you look more closely, however, this is not a paradox: people who are food insecure are actually also at greater risk for overweight and obesity. Why? Because both of these conditions have a common cause: inability to afford enough nutritious food. When you're almost out of grocery money for the month, you are forced to buy whatever is cheap and filling. You've helped your children avoid hunger pangs, but you had no choice but to buy foods with too much salt, saturated fat, and/or sugar. Your children are more at risk of gaining weight than children from families that can afford fresh fruit and other healthier but more expensive foods.

Hunger is more than simply not getting enough calories. It's a complex physical, socioeconomic, and psychological concept that encompasses people's subjective experiences as well as their physical sensations. For example, it can mean having to choose between buying food or paying rent, or having to sacrifice the quality of food purchased in favor of quantity. Ignoring these dimensions of hunger will prevent us from ending it for good.

Malnutrition, undernourishment, and food insecurity are key concepts relating to the physical effects of hunger. To nutritionists, malnutrition is the inappropriate intake of necessary components of foods, such as proteins and micronutrients,[82] while undernourishment is the inadequate consumption of calories needed for an active life. Often referred to as a dual burden,[83] malnutrition can take the form of undernutrition or over-nutrition (the under- or over-consumption of certain nutrients and dietary energy).[84] In either case, people may be getting enough calories but consuming the wrong types of

foods—foods that are nutritionally poor even if they are energy dense. Nutrient rich foods tend to be more expensive and thus less accessible to many people.

Both undernourishment and overweight go hand in hand with food insecurity—the limited or uncertain availability of nutritionally adequate and safe foods, or the limited or uncertain ability to acquire adequate food in socially acceptable ways.[85] Of the three concepts, food insecurity is the most abstract. It can take many forms, such as skipping meals, reducing the quantity or quality of food consumed, and relying on emergency food services.

The SDGs take into account that no single indicator can represent all facets of hunger. This is why SDG2 has multiple targets, including ending malnutrition, undernourishment, and food insecurity. Because hunger can look quite different in developed and developing countries, the SDG indicators alone are not able to capture the entire multidimensional hunger landscape of the United States. Doing this will require additional U.S. indicators.

Target 2.1: Measuring Hunger and Food Insecurity

Target 2.1 calls for ending hunger and ensuring access to safe, nutritious, and sufficient food year-round for all people. There are two proposed indicators to measure this multidimensional target: the prevalence of undernourishment and the prevalence of moderate or severe food insecurity. Multiple indicators are needed because it is difficult if not impossible to reduce hunger to a single "prevalence rate." Instead, hunger is conceptualized as having a *range* of severity, from mild food insecurity to chronic undernutrition, depending on the conditions and circumstances under which it is measured.[86] Using multiple indicators helps us get a more complete picture by capturing multiple facets of the issue.

Hunger

Indicators

Global Prevalence of Undernourishment

The prevalence of undernourishment (PoU), as calculated by the Food and Agriculture Organization of the United Nations (FAO), is used to estimate the proportion of people suffering from hunger. It measures whether people are able to consume enough calories for an active and healthy life.[87] PoU is intended to represent the most severe level of lack of access to food. PoU is constructed using a mean level of dietary energy consumption (DEC) compared to the minimum dietary energy requirements (MDER).[88] FAO annually updates both MDER and DEC. MDER is a weighted average of energy requirements according to sex and age from United Nations population ratio data, and DEC is a measure of per capita consumption using FAO Food Balance Sheets.[89] Although PoU would ideally use DEC collected at the individual level, using actual energy intake compared to minimum dietary energy requirements, this would be infeasible at a global level given the varying data collecting capacities in each country.

Instead, FAO estimates PoU with reference to national populations by combining available micro-data of food consumption from representative individuals and macro-data from food balance sheets.[90]

IAEG categorizes PoU as a Tier I indicator, but this applies only to the national level measurements that FAO provides. There is no disaggregated information on countries' subnational levels or subpopulations. FAO indicates that individual countries can calculate PoU at the subnational level, but, not surprisingly, adds that the strength of those estimates depends on how much information the various countries have available on habitual food consumption in their various subnational populations.[91]

Domestic Prevalence of Undernourishment

The United States does not estimate and report PoU, although the government collects the data necessary to do so. Not only is there no government office with responsibility for measuring it, but it appears that no nongovernmental group is calculating it either. To calculate PoU under FAO's parameters will require agencies to collaborate in order to compile data from multiple sources:

Identifying MDER: In its publications of Dietary Guidelines every five years, the U.S. Department of Agriculture (USDA) estimates individual caloric needs per day by age, sex, and level of physical activity.[92] These estimates are based on the Estimated Energy Requirements (EER) equations, as recommended by the Institute of Medicine. The EER calculations use reference height and weight for each age-sex group and can serve as a U.S. version of the MDER.

Identifying DEC: The National Center for Health Statistics within the Department of Health and Human Services (HHS) runs a program called the National Health and Nutrition Examination Survey (NHANES). NHANES collects data on health and nutritional status in the United States at both the household and individual level, including a dietary intake interview called What We Eat in America (WWEIA) that collects data on what people recall and report having eaten in the previous 48 hours.[93]

Using the Food and Nutrient Database for Dietary Studies, the Economic Research Service (ERS)—a research arm of USDA—codes individual foods and portion sizes reported by WWEIA[94] in order to calculate various nutrient intakes, including daily calorie consumption.[95] Dietary data from WWEIA can be disaggregated to a significant extent–by gender, age, race, ethnicity, income, and percentage living below the poverty threshold.[96] This is possible because the data is collected from individuals in a survey that, at the same time, asks them for an array of demographic and geographic information.

The ERS also collects data on loss-adjusted food availability per capita, most recently updated in February 2015.[97] Total calorie availability estimates come from a variety of data sources, including NHANES and Nielson Homescan data,[98] but the data does not support breakdowns by socioeconomic, demographic, or geographic status. Thus, this data from ERS on food availability per capita should only be used as a supplement for calculating PoU in the United States. Because U.S. national household surveys are more comprehensive and reliable than those of most other countries, the United States does not need to rely on FAO methods such as Food Balance Sheets to calculate its PoU.

Evaluation of Indicator

There are several limitations of the global PoU indicator. First, because it derives its estimates from household level surveys, it is unable to take into account differences that may exist *within* a household.[99] Thus, the global PoU cannot draw conclusions about the hunger status of individuals and can only make inferences about households within a general population. Similarly, the construction of the global PoU does not allow for inferences about the severity of hunger experienced by particular sub-populations; in other words, PoU can estimate the undernourishment of a whole population, but cannot assess the degree of severity of undernourishment among groups within that population.[100]

The U.S. PoU, if calculated, would have access to individual level survey data from NHANES, so it could provide information about individuals and subpopulations. It comes with its own limitations, though. Any data based on dietary recall, as WWEIA is, is always subject to bias.[101] In fact, NHANES 2011-2012 shows that calorie consumption falls below EER in the United States—yet, on average, Americans continue to gain weight. This means that the U.S. population was consuming more than people reported. Perhaps individuals don't accurately recall what they ate over a full 48 hours, or perhaps people tend to report eating what they consider socially desirable or acceptable foods and amounts. For this reason, dietary recall estimates should be used carefully and in tandem with ERS loss-adjusted food availability data to identify any discrepancies.

PoU as an indicator of undernourishment has been criticized for inaccurate estimations of hunger. PoU is based solely on energy intake (calories), the narrowest definition of hunger.[102] It can't tell us about the quality of food consumed, yet we know that this quality generally declines as people have more difficulty obtaining enough food to meet their daily requirements.

Perhaps the U.S. government does not consider it important to estimate undernourishment because it is not the driving force of hunger or malnutrition status in our country. The United States as a whole has a PoU of less than 5 percent, which FAO categorizes as low. On the other hand, the 5 percent is for the whole population. Different subpopulations may have far different rates of PoU. U.S. figures have the same limitations as other countries: the potentially higher undernourishment rate of subpopulations is not known. This will not change until the United States calculates PoU using data that has been disaggregated by various populations, particularly groups of the poor and vulnerable people who are most at risk of not getting enough calories.

Food Insecurity

The concept of "food insecurity" first came to widespread use in the United States in the late 1960s, although it was already commonly used in the field of international development.[103] It is a way to encapsulate the social and economic problems that come along with hunger. As mentioned earlier, the global definition of food insecurity is facing uncertainty, insufficiency, inaccessibility, or unavailability of the food needed for an active, healthy life. While not being able to afford food is generally the biggest problem for food-insecure people in the United States, other constraints such as a lack of reliable transportation, too few grocery stores, or cultural barriers may also pose problems and hinder progress toward food security.[104] While basic measures of food insecurity cannot tell us the details of these constraints, they can identify which subpopulations and locations are likely to be affected.

Indicators

Food Insecurity Experience Scale

In 2014, FAO's Voices of the Hungry (VoH) developed the Food Insecurity Experience Scale (FIES) to monitor global food security.[105] FIES is used to estimate the prevalence of moderate and severe food insecurity by identifying the proportion of a population that faces difficulties in accessing food. FIES also measures progress toward achieving food security.[106] FIES is distinct from PoU because FIES captures the degrees of severity in obtaining food, rather than measuring consumption alone. FIES and PoU should be pointing in the same direction, but we would expect FIES to be larger since it includes people who are considered "nourished" yet have difficulty acquiring food. FIES is helpful in "leaving no one behind" since it includes everyone who is food insecure[107] and can be disaggregated by gender, race, age, geographic location, and other categories.

FIES consists of eight self-reported yes/no questions that focus on people's behaviors and experiences with difficulties in accessing food under various constraints. The questions encompass three domains of food insecurity: uncertainty and anxiety, changes in food quality, and changes in food quantity. Responses situate each person on a scale of mild, moderate, or severe food insecurity.[108]

The Gallup World Poll (GWP) surveys nationally representative samples at the individual and household levels in countries each year.[109] GWP administers the FIES scale to individuals in either face-to-face or telephone interviews. Through this partnership, FAO has access to the data needed to compute country-level estimates of food insecurity prevalence, and each year it provides representative data on individuals' access to food for a range of countries. Combined with the demographic and other data that GWP collects,[110] FIES' focus on individual rather than household information enables FAO to estimate food insecurity for subpopulations[111] as well.

IAEG considers FIES data to be Tier I, meaning there is an established methodology and readily available data. But the data will be stronger and more inclusive as countries are able to integrate FIES into their national population surveys. A more complete picture of global food insecurity will emerge when data is collected at the subpopulation level, since it will be possible to conduct detailed analysis of data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location, and other characteristics relevant to developing effective policies.[112]

Household Food Security Survey Module

The United States measures national food insecurity levels through the USDA Household Food Security Survey Module (HFSSM). There is considerable overlap between FIES and the HFSSM since FAO adapted parts of HFSSM when it was developing FIES.[113] The HFSSM consists of either 10 or 18 questions, depending on whether a household has children, that ask about a household's behavior and experiences in having difficulty meeting its food needs. Combined, the answers to the questions place each household along a continuum: high food security, marginal food security, low food security, or very low food security.[114]

Each year, ERS, an office of USDA, publishes a Household Food Security Report that quantifies the state of food insecurity in the United States. The statistics are based on data from the HFSSM, which the Census Bureau collects either in person or by phone. It serves as an annual supplement to the monthly CPS.[115] Approximately 45,000 state and nationally representative households respond to the HFSSM each year. Nesting the HFSSM within the CPS, and thus collecting a vast amount of demographic data alongside it, enables USDA to estimate the prevalence of food insecurity within subpopulations, including by household composition, gender, age, race, ethnicity, poverty status, and geographic location.[116]

Healthy People, a science-based, 10-year national goal-setting collective led by the U.S. Department of Health and

FIGURE 2:   **Food Insecurity Experience Scale (FIES)**

mild food insecurity   **moderate food insecurity**   **severe food insecurity**

worrying about ability
to obtain food

compromising quality
and variety of food

reducing quantities,
skipping meals

experiencing
hunger

Source: http://www.fao.org/in-action/voices-of-the-hungry/fies/en/

TABLE 4:   **Food insecurity continuum with definitions**

Food Security Status	Description
High food security	Households had no problems, or anxiety about, consistently accessing adequate food.
Marginal food security	Households had problems at times, or anxiety about, accessing adequate food, but the quality, variety, and quantity of their food intake were not substantially reduced.
Low food security	Households reduced the quality, variety, and desirability of their diets, but the quantity of food intake and normal eating patterns were not substantially disrupted.
Very low food security	At times during the year, eating patterns of one or more household members were disrupted and food intake reduced because the household lacked money and other resources for food.

Source: http://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/measurement.aspx

Human Services (HHS), has also named reducing food insecurity a U.S. national priority.[117] Now in its third decade, Healthy People 2020 underscores that addressing the social determinants of health, such as food insecurity, is imperative in order to ensure the health, safety, and well-being of all Americans.[118]

Evaluation of Indicator

There are a couple of key differences between FIES and HFSSM. First, FIES and HFSSM categorize the severity thresholds of food insecurity differently.[119] Food insecurity varies in severity along a continuum. Each country marks points along that continuum in a way that meets its own policy needs. This means that the various labels may not be assigned according to statistical measures, and they may not mean the same thing from country to country. For example, the U.S. measure, HFSSM, defines severe food insecurity (the term used is "very low food security") to mean that individuals are forced to reduce their food consumption below an amount usually considered appropriate. But the FIES threshold for what looks as though it might be the same thing, severe food insecurity, is that individuals have sometimes gone an entire day without eating. Because of the sometimes stark differences in definitions of severity, there will often be discrepancies between what FAO reports as a country's prevalence of food insecurity and what individual countries report.[120]

Another difference between FIES and HFSSM is that while FIES surveys individual adults,[121] HFSSM references households, including adults and children. Its questions are about "you or any other adults in the household" and "any children in the household." This means that a U.S. household is considered food insecure if *anyone* in it is food insecure. Adults in the same household may have different degrees of food security, so the figures may be higher than if they were determined using the FIES method.[122]

As with any measurement method, FIES and HFSSM come with some limitations. Food insecurity is such a complex and expansive concept that it is nearly impossible to capture all its dimensions with one indicator. FIES and HFSSM focus on access to food, but they do not tell us anything about other important components of food security, such as food safety, nutritional status, whether food is available through socially acceptable channels, and community-level factors such as the sources of the food supply.[123] It is therefore important to evaluate the prevalence of food insecurity based not only on

the FIES or HFSSM, but also using a range of other food security indicators, such as average dietary energy supply adequacy and domestic food price volatility. FAO's annual State of Food Insecurity in the World (SOFI) report includes a full suite of food security indicators.[124]

Lastly, the severity thresholds used to categorize food insecurity status are open to debate. Critics argue that the way the severity categories are demarcated could just as easily overestimate as underestimate the "true" number of individuals or households in each category.[125] But as long as the categories are consistently defined and measured, the food security numbers are useful in tracking an individual's or household's food security status over time.[126] They may not reflect the "actual numbers" as accurately as they do the trends.

Target 2.2: Measuring Malnutrition

The second SDG 2 target we will consider here is target 2.2, which calls for the end of all forms of malnutrition. This includes, for example, ending stunting, wasting, and overweight in children younger than 5, as well as meeting the nutritional needs of adolescent girls, pregnant and lactating women, and elders.

Child Growth Measurements

Growth measurements such as stunting, wasting, and overweight are the most common indicators used to estimate children's nutritional status. To create a standardized method of measuring them, the World Health Organization (WHO) developed the WHO Child Growth Standards. These describe the ideal growth of healthy children under optimal conditions. The Child Growth Standards are based on global growth curves, which WHO calculates using length-for-age (children 0 to 24 months), height for age (children 2 to 5 years), and weight for height.[127] While there can be many reasons other than malnutrition for abnormal growth in height and weight, children who experience stunting, wasting, and/or overweight as a result of a poor diet are at greater risk of suffering debilitating illnesses and even death.[128] This is why it's extremely important to develop and use methods of measuring that are able to quickly and reliably detect these problems.

Indicators

Global Prevalence of Stunting, Wasting, and Overweight

The prevalence of stunting (PoS), as defined by WHO, is the proportion of children under the age of 5 who are too

short for their age group.[129] Children are considered stunted if their length/height-for-age is more than two standard deviations below the Child Growth Standards' median.[130] Similarly, the prevalence of wasting (PoW) and prevalence of overweight (PoOW) are used to estimate the proportion of children under the age of 5 whose weight is too low or too high, respectively, for their height.[131] Children are considered wasted if their weight-for-height falls below the two standard deviations threshold in the Child Growth Standards, and overweight if their weight-for-height is more than that at the two standard deviations above the median mark of the Child Growth Standards.[132]

PoS, PoW, and PoOW all serve as indicators of global progress toward ending malnutrition in all its forms. WHO estimates these three indicators at the country level using data from national nutrition surveys, population-based household surveys, and national surveillance systems.[133] It is then able to disaggregate them by administrative region, age, health region, geographic location, and sex. This indicator for global child growth is therefore considered Tier I.

Domestic U.S. Prevalence of Stunting, Wasting, and Overweight

The Centers for Disease Control and Prevention (CDC) use length, height, and weight data from NHANES to create reference growth charts for U.S. children from birth to 18 years of age.[134] The reference growth charts are similar in purpose to the WHO Child Growth Standards—they provide national benchmarks of how children in the United States have historically grown so that an individual child can be compared to other children as a group.[135] The CDC reference charts establish criteria for stunting, wasting, and overweight; these values are different depending on gender, height, or body mass index (BMI) for age.

The CDC recommends using a modified version of WHO's Standards to assess the growth of children under the age of 24 months, and using CDC's reference charts for children over that age.[136] The rationale for using WHO's Standards for the first 24 months is that breastfeeding is the universal recommendation for feeding at this age, and WHO's Standards reflect growth patterns among children who were predominately breastfed for at least four months and are still breastfeeding at 12 months.[137] The WHO and CDC charts use similar calculation methods, but the CDC charts can be used for children and adolescents up to age 19.[138]

The terms used in the United States are slightly different. Instead of prevalence of stunting (PoS), CDC uses low length-for-age or stature-for-age.[139] Similarly, instead of wasting (PoW), CDC refers to the indicator as prevalence of low weight or prevalence of underweight. The thresholds for meeting the criteria are also slightly different using the CDC charts, but they measure the same fundamental concepts of low height-for-age and low weight-for-height, respectively. We refer to the U.S. indicators as PoS and PoW in this report.

The CDC's National Center for Health Statistics (NCHS) uses data collected by NHANES to calculate the PoW and PoOW for children 0 to 19 years old. NHANES measures recumbent length for children under the age of 24 months, after which the standard practice is to measure standing height. For those under the age of 24 months, NCHS estimates PoW[140] and PoOW[141] using both WHO Child Growth Standards and

CDC's growth reference charts. Using CDC's sex-specific growth charts, a child is considered to be low weight if his or her weight is less than the 2nd percentile of weight-for-length, and to be high weight if his or her weight is greater than or equal to the 98th percentile of the weight-for-length.[142] For children age 2 to 19, NCHS also calculates PoW[143] and PoOW,[144] but uses CDC reference charts and BMI-for-age, rather than weight-for-height. The percentile cutoffs for low and high BMI-for-age are the 5th and 95th percentiles respectively.[145]

When computing these statistics, the CDC does not disaggregate PoW and PoOW other than by age and sex, which leaves many subpopulations and locations unidentified. But this gap can easily be filled since NHANES collects the information necessary to disaggregate PoW and PoOW across additional demographic and geographic factors. It appears that neither the CDC nor any other agency reports PoS in the United States, although it has issued growth reference charts for length-for-age for children ages 0 to 24 months. It is not difficult to estimate PoS by combining the information captured by NHANES with the CDC growth reference chart thresholds.

Evaluation of Indicators

The CDC and WHO Standards reference charts have no significant differences for children younger than 2. The CDC reference charts should be used to calculate PoW and PoOW for children older than 24 months because they are more accurate for growth and nutrition in the U.S. context.

Anthropometric measurements, such as height, length and weight, are among the measures most commonly used to gauge nutritional status. They are noninvasive, inexpensive, easy to collect from large sample sizes, and tend to be more sensitive than other indicators over the full spectrum of malnutrition.[146] Anthropometric measurements are suitable for young children in particular, because growth has been shown to be the most important indicator of nutritional status as well as of other development markers.[147]

However, there are some limitations to anthropomorphic measurements. There is a demonstrated positive relationship between poor growth and malnutrition, but this is not always causal—poor growth is not always caused by malnutrition. Moreover, anthropomorphic measurements cannot take into account the complex environmental, socioeconomic, and cultural factors that impact growth and development in addition to malnutrition.[148] They can alert parents and healthcare providers that a child is not growing properly, but they provide no information about the underlying causes of poor growth and cannot distinguish between nutritional deficiencies and other causes such as repeated illness.[149]

Needs of Vulnerable Populations

Indicators

Healthy Weight

While Goal 2 has a target of "addressing the nutritional needs of adolescent girls, pregnant and lactating women, and older persons," there are no specific indicators against which to measure progress. Here, we propose indicators for the United States based on nutritional needs that these three groups have in common.

Good nutrition and a healthy weight is essential for women during adolescence, pregnancy, and lactation.[150] Adolescent girls who are underweight can develop anemia, reduced levels of estrogen and other hormones, loss of bone density, and extreme fatigue,[151] while those who are overweight are at higher risk of type 2 diabetes, asthma, and obesity in adulthood.[152] Adolescence is such a formative time that struggling with underweight or overweight can lead to long-term social-emotional problems such as malaise,[153] low self-esteem, and negative body image.[154]

Maintaining a healthy weight is also particularly important for women of childbearing age, since being either underweight or overweight poses significant risks during and after pregnancy.[155] Underweight women may have infants with low birth weights,[156] while being overweight increases the risk of gestational diabetes mellitus, hypertension disorders, and intergenerational weight gain.[157]

The weight of elderly people, the third vulnerable group under this target, is also an indication of whether their nutritional needs are being met. It can be difficult to determine whether malnutrition among elderly people is caused by their diets alone, or whether it is caused or worsened by other factors, such as chronic illness.[158] But elderly people are particularly vulnerable to the problems caused by not maintaining a healthy weight–especially being underweight, which is often due partly to poor nutrition. Elders who are underweight face worse health outcomes, and being underweight often obscures the presence of other health issues.[159]

Thus, the prevalence of healthy weight among adolescent girls, pregnant women and lactating women, and elderly people should be one indicator of the target of meeting their nutritional needs.

The Healthy People 2020 initiative has several objectives that align with the indicator of healthy weight. Healthy People is in the process of being updated to reflect the 2030 SDGs, but currently includes an objective is to increase the proportion of U.S. adults who are a healthy weight as measured by a Body-Mass Index (BMI) of between 18.5 and 25.[160] A second objective is to reduce the proportion of adolescents ages 12 to 19 who are considered obese. CDC reference charts of age, height, and weight for each gender are used to determine healthy weights among children and adolescents. Obesity is defined as having a BMI at or above the 95th percentile on the appropriate CDC chart.[161] The same charts could be used to identify underweight adolescent girls, those below the 5th percentile. The data for calculating weight status comes from NHANES. NCHS can disaggregate the data to ensure that it is accurately identifying those who are underweight.

One caveat is that there is some controversy over using BMI as an indicator of nutritional status. Since only height, weight, and age are required to calculate it, it is an inexpensive and easy-to-understand measure. But this same simplicity calls into question whether it really represents good nutritional status. For example, two people with the same height and weight will have the same BMI, but one person could be lean and muscular and the other overweight. This is because overweight and obesity pertain to having excessive levels of body fat, not weight, and BMI calculations do not take this into account. Nonetheless, body fat and BMI are correlated to a significant extent, and at this writing, the CDC has determined that BMI is one of the best available methods for assessing overweight and obesity in a population.

Preventing Anemia

Another key nutrition problem among adolescent girls and pregnant and lactating women is anemia. Iron deficiency is a leading cause of anemia, a condition that can result in lethargy, a weakened immune system, and an irregular or rapid heart rate.[162] Reducing iron deficiency among adolescent girls and pregnant women is another goal of Healthy People 2020. The indicator to measure progress is the percentage of women with a body iron score of less than zero.[163] Body iron data is collected as a part of NHANES and data analysis is carried out by NCHS.[164] Like all NHANES data, data for this indicator can be disaggregated and stratified by age, sex, race and ethnicity, income, and percentage of the group living below the poverty threshold.

Preventing folate deficiency in women of reproductive age, particularly pregnant and lactating women, is also important to meeting the nutritional needs of this group, as this subpopulation has been shown to be at risk of low blood folate levels.[165] Human body stores of folate, an important B vitamin, are not large, and a person's reserves can be depleted fairly quickly, especially during lactation.[166] Maternal folate deficiency is most commonly associated with an increased risk of neural tube birth defects, but it can also cause megaloblastic anemia during pregnancy and lactation.[167] Healthy People 2020 calls for reducing the proportion of women of childbearing years who have low red blood cell folate concentration, using data collected by NHANES. NHANES also collects data on pregnancy and lactation status, so this objective could be expanded to identify women within the larger group who are pregnant or breastfeeding.

Conclusions

The SDGs are a renewed opportunity to make lasting progress against hunger and poverty by bringing together the world's leaders and resources to tackle these multidimensional and interconnected problems. The United States is in a strong position to begin measuring progress toward the SDGs. The federal government already calculates some relevant indicators, and it collects additional data that could be used to measure progress on other indicators.

Although the United States has advanced capabilities in data collection, our data analysis does not consistently disaggregate data for all the subpopulations and geographic locations necessary to track progress for all people, as envisioned in the SDGs. There are also some communities and groups whose data is still not adequately collected, such as homeless people, undocumented immigrants, and people who identify as LGBTQ. In order to capture all their voices and their varied experiences, we must strengthen our national surveys and data collection methods. The federal government must lead the way in ensuring that we collect and evaluate all the data necessary to consistently capture the realities of U.S. hunger and poverty for everyone.

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