

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

FOOD SECURITY SECTOR FRAMEWORK DOCUMENT

ENVIRONMENT, RURAL DEVELOPMENT, AND DISASTER RISK MANAGEMENT DIVISION

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ABBREVIATIONS

CAISAN	Câmara Interministerial de Segurança Alimentar e Nutricional [Interministerial Council on Food and Nutrition Security]
CCT	Conditional cash transfer
CDC	Centers for Disease Control and Prevention
CONSEA	Conselho Nacional de Segurança Alimentar e Nutricional [National Council on Food and Nutrition Security]
CPI	Consumer price index
CPI-P	Consumer price index for the poor
CSE	Consumer Support Estimate
DALYs	Disability-adjusted life years
ECLAC	Economic Commission for Latin America and the Caribbean
FAO	Food and Agriculture Organization
GHI	Global Hunger Index
IFPRI	International Food Policy Research Institute
IRRI	International Rice Research Institute
LAC	Latin America and the Caribbean
NREG	National Rural Employment Guarantee
OECD	Organization for Economic Cooperation and Development
OVE	Office of Evaluation and Oversight
SDG	Sustainable Development Goal
SFD	Sector Framework Document

I. FOOD SECURITY IN THE CONTEXT OF THE BANK'S SECTOR STRATEGIES

A. The Food Security Sector Framework Document as part of existing regulations

- 1.1 This Food Security Sector Framework Document (SFD) has been developed in accordance with document GN-2670-1, "Strategies, Policies, Sector Frameworks, and Guidelines at the IDB." That document governs the Bank's strategies, policies, sector frameworks, and guidelines with a view to guiding knowledge generation activities and dialogue with the countries in the area of food security. This SFD does not supersede any of the Bank's sector policies.
- 1.2 This SFD provides the Bank with concrete but flexible guidance in addressing the diversity of challenges and institutional contexts faced by the 26 borrowing member countries at different levels in the area of food security. It will apply to Bank financing for sovereign and non-sovereign guaranteed operations that support food security. It is also adaptable to the individual circumstances and preferences of each country in terms of both the design and implementation of projects.

B. The Food Security Sector Framework Document as part of the sector strategies, and its multisectoral approach

- 1.3 The proposed SFD falls within the framework of the Integrated Strategy for Climate Change Adaptation and Mitigation, and Sustainable and Renewable Energy (document GN-2609-1), particularly as concerns sustainable natural resources management that leads to increased rural productivity and improved livelihoods for the rural population. This SFD also falls within the framework of the Strategy on Social Policy for Equity and Productivity (document GN-2588-4), the objective of which is to enhance the Bank's efficacy in promoting social policies that improve equality and productivity in the region. The strategy acknowledges the following activities, which are linked to food security: (i) ensuring that poor children have access to comprehensive early childhood development services, including essential nutrition; (ii) strengthening country health systems in the region, particularly for child malnutrition and anemia (which continue to affect the poor) and noncommunicable chronic diseases; and (iii) improving care under conditional cash transfer programs in order to address structural poverty. This SFD also falls within the framework of the Strategy for Sustainable Infrastructure for Competitiveness and Inclusive Growth (document GN-2710-5), which is linked to food security through its emphasis on providing productivity-enhancing infrastructure, in the form of either irrigation, rural roads, or comprehensive improvements to logistics systems to reduce the cost of trade.
- 1.4 Food security requires interventions that are linked to more than one sector in particular, and for this reason this SFD refers to issues of social protection and poverty, health and nutrition, agriculture and natural resources management, labor, support for small and medium-sized enterprises, integration and trade, transportation, water and sanitation, and gender and diversity. These topics are addressed in greater depth in the respective SFDs, which have either already been approved (documents GN-2784-3, GN-2735-3, GN-2709-2, GN-2741-3, GN-2768-3, GN-2715-2, GN-2740-3, GN-2781-3, and GN-2800-3) or are pending approval (energy and climate change). In implementing this SFD, the Bank will

seek to adapt interventions to the specific needs and demands of each country, as well as the specificities of each client, taking into account the geographic, social, and cultural heterogeneity in Latin America and the Caribbean (LAC). In this sense, this SFD is of a strategic and indicative (rather than restrictive) nature. Specific interventions will be based on Bank country strategies, consistent with country demand.

- 1.5 For the purposes of this SFD, food security is defined as the situation that exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food to meet their dietary needs for an active and healthy life (Food and Agriculture Organization, 1996). Accordingly, there are three basic dimensions to food security that reflect the underlying logic of this SFD: (i) food availability; (ii) food access; and (iii) food utilization. The stability of food availability and access may also be seen as a fourth dimension. The definitions for each of these dimensions are laid out below.
- 1.6 **Food availability** refers to the supply of food at the national or regional levels, and is determined by national food production and food exports and imports. **Food access** refers to the ability to obtain food, and requires that households have sufficient income to purchase food or the means to produce or obtain it in other ways (e.g. transfers, payment in kind for labor). Thus, if the condition of food access is met, it does not mean that all households have the ability to obtain food, as their income-generating capacity may be limited. The ability to access food does not necessarily ensure that food intake is sufficiently nutritious for all members of a household. **Food utilization** refers to access to sufficiently nutritious and safe food, under adequate sanitary conditions, for all members of a household.¹ The importance of the fourth dimension—that of stability—is linked to the vulnerability of households to risks associated with fluctuations in food prices, incomes, and agricultural production (see [Figure 1](#)).
- 1.7 For the purposes of this SFD, food security indicators designed by the United Nations Food and Agriculture Organization (FAO) and the International Food Policy Research Institute (IFPRI) are used, among others. These indicators are based on both objective anthropometric measures and other subjective ones, such as perceptions of food access. In identifying lines of policy action, this SFD focuses on trends among countries and subregions in LAC, as well as the variability and heterogeneity of those trends.
- 1.8 This document consists of five sections that seek to address the elements that, according to document GN-2670-1, each SFD must contain. This section frames the SFD in the context of current institutional strategies and presents the definition of food security. Section II presents empirical evidence relating to food security policies and programs. Section III identifies the challenges that the Bank will address for the period during which this SFD is in force. Section IV summarizes lessons learned regarding the rationale of Bank projects linked to food security. Based on the empirical evidence and lessons learned, Section V sets out the

¹ The term “food and nutrition security” is also used in the literature to highlight the nutritional dimension. The food utilization dimension used in this document includes nutritional elements as a key aspect of food security.

dimensions of success, lines of action, and activities that are proposed as priorities for the Bank's work with the countries to address the challenges identified.

II. INTERNATIONAL EVIDENCE ON THE EFFICACY OF FOOD SECURITY POLICIES AND PROGRAMS AND IMPLICATIONS FOR THE WORK OF THE BANK

- 2.1 **Interagency coordination.** Multisectoral coordination is necessary to achieve positive food security outcomes. As highlighted in the previous section, food security requires interventions that are linked to more than one sector. The International Food Policy Research Institute (IFPRI, 2014b) carried out a comparative analysis of developing countries that were successful in reducing food insecurity between 1990-1992 and 2011-2013: Brazil, China, Vietnam, and Thailand. One of the results of the analysis of these experiences is that strategies in agriculture, social protection, and nutrition should be combined and coordinated in order to tackle hunger and malnutrition. Similarly, Ruel et al. (2013) indicate that agriculture and social protection are the two sectors with the greatest potential to support nutrition, emphasizing that strategies for the sectors should be coordinated to this end. Strategies have been prioritized and coordinated in each one of these countries based on their characteristics and demands. The experiences of China and Vietnam—economies in which the agricultural sector accounts for a high share of output and consists mainly of small-scale farmers—indicate that strategies targeting small-scale farmers helped to reduce poverty and hunger. Well-designed and implemented social protection strategies are also important. Brazil's successful experience indicates that social protection, implemented through conditional cash transfer systems, contributes to more inclusive growth by supporting asset ownership, reduced inequity, and more effective resource allocation. Thailand was one of the few countries that prioritized its nutrition strategy in the early 1980s, emphasizing health care and nutritious food supplements for those parts of the population affected by hunger and malnutrition.
- 2.2 With respect to the governance of interagency coordination, a comparative analysis of food security and malnutrition initiatives in seven developing countries (Brazil, Bolivia, Haiti, Indonesia, Madagascar, Malawi, and Yemen) carried out by the FAO (2014a) also indicates that a key challenge is to improve the effectiveness of coordination among sectors and stakeholders to harmonize and improve the impact of food security interventions. The most common model of institutional organization is the creation of food security and nutrition councils, commissions, or boards made up of various ministries and civil society representatives to coordinate and implement programs and policies. For example, in 2006 Brazil established the National Food and Nutrition Security System, consisting of the National Council on Food and Nutrition Security (CONSEA) and the Interministerial Council on Food and Nutrition Security (CAISAN). CONSEA—which comprises representatives of civil society and the government—guides and monitors food security and nutrition policies, including the national food security and nutrition plan, and promotes integration between food security and nutrition interventions. CAISAN, in turn, is the government's interministerial mechanism for the coordination, implementation, and management of the national plan for food security and nutrition. A similar architecture is found at the level of the states and municipios. Monitoring is a crucial element of food security in Brazil. The federal

government and CONSEA have set up an information system to monitor implementation of the national food security and nutrition plan. It is also important to note that the national plan is put together with the participation of various stakeholders and is supported in the federal budget. Despite the efforts made in terms of interagency coordination to address food security challenges, evaluations of the effectiveness of these institutional models are still required.

- 2.3 As in the case of the IFPRI analysis, Timmer (2015) concludes in an analysis of food security experiences in Asia that the main sector strategies that are coordinated to improve food security include boosting agricultural productivity (particularly for small-scale producers); facilitating trade flows; invigorating rural economies; designing and financing social protection programs; and promoting the provision of public goods to improve nutritional outcomes. The identification and intensity of food security interventions in countries will depend on economic structure (more or less agricultural) and the location of vulnerable groups (more rural or more urban). In the following sections covering empirical evidence, policies and interventions for the dimensions of food security will be analyzed, with emphasis on those mentioned in these analyses.

A. The link between food availability and food security

- 2.4 Food availability refers to food supply at the national or regional level. It depends on growth in agricultural production, productivity, the level of openness to trade, and the level of infrastructure services to facilitate market access. In terms of agricultural productivity, several factors help increase and maintain food availability, such as investment in agricultural research and extension, secure land tenure, access to irrigation, and adaptation to the effects of climate change, as well as the macroeconomic policy context (which affects investment incentives in the agricultural sector).

1. Food availability depends on growth in agricultural production and productivity

- 2.5 Agriculture² plays an important role in terms of food availability. An expansion of agricultural production allows food availability to respond to population growth and consumer demand. If agricultural production and productivity is to be expanded, farmers need appropriate technologies, secure land tenure, agricultural assets (such as machinery), irrigation, the ability to manage risk, and access to financial services, among other things (for further detail, see the Agriculture and Natural Resources Management SFD).
- 2.6 A key factor for growth in agricultural productivity is agricultural research and extension. A meta analysis by Alston et al. (2000) analyzes rates of return on agricultural research and extension in 292 studies,³ reporting an average rate of return of 48% for research, 62.9% for extension services, and 37% for research and extension combined. These studies demonstrate that investments in agricultural research and extension have helped to increase agricultural production through improvements in productivity. With respect to agricultural assets, land is

² As in the Agriculture and Natural Resources Management Sector Framework Document, “agriculture” is understood here to include farming activity, livestock, fisheries, and forestry.

³ The studies include analyses on crops, livestock, fisheries, and forestry.

key for food production. However, land markets frequently operate with incomplete property rights, and this acts as a disincentive to the efficient use of the resource (de Janvry, Sadoulet, and Wolford, 2001). The positive impact on agricultural productivity of investments to improve land tenure security has been recorded in Ethiopia, Vietnam, and Uganda (World Bank, 2008). In Nicaragua, producers with full property rights have accumulated more assets than producers with restricted rights, underlining the importance of investment aimed at clarifying land property rights (Hernández and Reardon, 2012). An adequate supply of financial services that eliminates credit access barriers for producers and small and medium-sized agricultural firms is also essential for boosting productivity and earnings, through productive investment to expand physical capacity (Carter et al., 2012; Karlan et al., 2012) and linkages with value chains (Fernández-Stark, K. and Gereffi, G., 2012). Access to water and irrigation is also essential for land productivity and stable yields. The productivity of irrigated land is more than double that of rainfed land (World Bank, 2008). Similarly, a global analysis estimated that improved water productivity (kcal of food produced per unit of water consumed) could boost production in areas with limited precipitation and supply food to approximately 110 million people each year (Brauman et al., 2013).

- 2.7 Food availability is also linked to the effects of natural disasters and climate change. LAC was the region with the second highest number of natural disasters in the period 2001-2012 (Guha-Sapir et al., 2013). In that context, agricultural production in the region is exposed to droughts and floods. Loayza et al. (2009), using data from 94 countries (68 developing ones) from 1961-2005, estimated that agricultural growth drops 2.2% from droughts and 0.8% from severe storms. In terms of climate change, a global agricultural simulation model by Nelson et al. (2009) predicts that one of the main effects of climate change on agricultural economies and food security will be a significant reduction in yields for the most important crops. Nelson et al. (2009) simulated climate change impacts on food availability and prices under pessimistic and optimistic scenarios for GDP and population growth. For example, an increase in animal feed prices due to climatic effects could lead to a rise in meat prices and, consequently, a slight reduction in meat consumption. Similarly, the warming of the oceans is expected to reduce the maximum potential of fisheries in several countries in Latin America and the Caribbean (Cheung et al. 2010). To deal with the effects of climate change, the implementation of adaptation measures is key (Fernandes et al., 2012; Vergara et al., 2013). Irrigation is a promising alternative for confronting problems of reductions in water supply and slow growth in crop yields in LAC (Inter-American Institute for Cooperation on Agriculture, 2007). Agricultural insurance is another means of offsetting variability in production owing to the effects of natural disasters. One study that surveyed 800 farmers in Peru demonstrated that the use of agricultural index insurance could raise yields by 20% to 60% (Boucher and Mullally, 2010). On the other hand, based on a systematic review of agricultural index insurance, Cole et al. (2012) concluded that further evidence is required regarding the impact of such insurance on sector productivity. In addition, there are agricultural practices and technologies (agroforestry, soil and water conservation, management of improved pastures) that have the potential to improve production while simultaneously reducing greenhouse gas emissions or improving the carbon capture capacity of agricultural soils (Winters et al., 2010; González et al., 2009).

- 2.8 One issue related to food production and availability is the loss of food throughout the supply chain and during the consumption phase. In developing countries, food losses are mainly the result of inadequate infrastructure, poor storage facilities, and weak technical capacity (Organization for Economic Cooperation and Development, 2013). Food losses are estimated at 25% of world production. In developing countries, more than 40% of food losses occur in the postharvest phase, prior to processing, while in the industrialized countries most losses occur at the retail and consumer levels (Gustavsson et al., 2011). Agricultural producers can reduce food losses through the use of postharvest technologies. In Kenya, for example, storage technologies reduced maize losses from 20.6% to 9.7% (Mutambuki and Mugo, 2012). In the case of rice, the International Rice Research Institute has developed postharvest handling technologies that have allowed increases in milling capacity of up to 10% (IRRI, 2015).

2. The role of trade in food availability

- 2.9 Trade plays a crucial role in food security. Evidence suggests that trade liberalization offers benefits for food security through increases in agricultural production and productivity, which help to improve global food availability and price stability. Increased food trade helps to mitigate fluctuations in domestic food supply, as global production of a food product is much less variable than production in individual countries (Gillson and Fouad, 2015). Increased trade integration has considerable potential to stabilize food prices, raise yields for farmers, and reduce consumer prices in developing countries. Countries should therefore not only import more food during periods of local scarcity and export more during periods of local abundance, but also ensure that policies create incentives for farmers and consumers to respond to demand.
- 2.10 International evidence suggests that trade openness contributes positively to increases in food production and, consequently, food availability. In Chile, a country which has undergone significant trade liberalization over the last few decades, Fleming and Abler (2013) estimated that greater trade exposure—which facilitates access to cutting-edge technologies—can boost crop yields by up to 44%. After China's accession to the World Trade Organization, Huang et al. (2007) showed that agricultural production by poor, medium-income, and rich farmers in the 2000-2005 period increased by 77, 191, and 580 yuan per household (at 2005 prices), respectively.
- 2.11 Trade openness also supports food security in small countries as a result of an increase in the availability of food at lower prices. In countries such as Uganda and Mozambique, which have consistently maintained open trade policies for basic foodstuffs, food security has improved over the last two decades owing to an increase in food availability in that region. Moreover, Uganda is considered to be the breadbasket of East Africa partly as a consequence of its level of trade openness: the government has not introduced any restrictions to the export of agricultural produce, nor has it imposed any prohibitions on trade in foodstuffs. As a result, the flow of maize from Uganda to Kenya is one of the largest and steadiest in the region. Since the end of the civil war in 1992, Mozambique has also liberalized maize imports and exports. As a result, trade has helped to stabilize prices in Maputo compared to other African capitals (Haggblade et al., 2008; World Bank, 2009).

- 2.12 An alternative to trade openness as an instrument for improving food security is the implementation of food self-sufficiency policies. These policies are based on the belief that a dependence on international markets to meet food needs is risky because of the volatility in food prices. The argument in favor of self-sufficiency is contradicted by the clear stabilizing effect of free trade in agriculture. Although price shocks can be attenuated by limited integration, as well as by the low transmission of international market prices to domestic ones, self-sufficiency would still leave markets susceptible to internal shocks and price fluctuations caused by variability in domestic production (Organization for Economic Cooperation and Development, 2013). At the same time, Timmer (2015) highlights the inefficiency of government policies to stabilize prices through market interventions. Government efforts to nationalize grain markets and regulate their prices have the effect of eliminating private sector participation in the storage and marketing of these goods, with well-known consequences for fiscal costs and regressivity.
- 2.13 Abbott (2012) points out that domestic shocks are more frequent and more serious, on average, than international ones. Ivanic et al. (2011) showed that a reduction in trade barriers leads to lower volatility in household prices; in the case of rice in East Asia, for example, volatility declines from 30% to 5%. At the same time, there is evidence that when governments isolate their domestic food markets from international price fluctuations, this can contribute to greater fluctuations in international prices (Anderson and Nelgen, 2012) and that this behavior, in turn, has a negative impact on global food security. In fact, several studies (Anderson and Nelgen, 2012; Martin and Anderson, 2012; Rutten et al., 2011) argue that such measures become ineffective because of a collective action problem. The latter creates a domino effect that pushes world food prices higher still and leads more countries to protect their markets, thus perpetuating high food prices (Rutten et al., 2011). This type of vicious circle can create greater food insecurity by reducing food availability and access.
- 2.14 Countries that isolate their domestic markets heighten instability in international markets, particularly where they are major food producers or consumers. Magrini et al. (2013) estimated the marginal impact of distortions in agricultural trade on food security during the recent price increases. Using a propensity score matching methodology, the analysis shows that countries with the greatest propensity to adopt restrictive trade policies tend to show lower food availability. The food price crisis (2006-2008) was aggravated by restrictions on the export of wheat (by Argentina, Kazakhstan, Russia, and the Ukraine) and rice (by Vietnam, India, and China) in an attempt to delink domestic markets from world markets and maintain low domestic prices. In the case of Russia, a temporary prohibition was placed on exports of wheat, barley, rye, and maize from August 2010 through the end of June 2011, in response to a rise in cereal prices. As a result, farmers reduced their harvest by almost 37% compared to the 2009 crop. This led to a fall in exports of almost 12 million tons compared to initial projections for the year (World Bank,

2011b). These types of measures influence farmers' production and investment decisions, affecting food availability.⁴

- 2.15 Complementing policies that favor the flow of trade in foodstuffs, there are market instruments for managing food price risks (i.e. price variability); these include the futures and options markets, wholesaler promissory notes, and disaster index insurance. According to Gillson and Busch (2015), the cost to trade and public resources of these instruments is small, and they have the capacity to guarantee a supply of food should local production drop. They are also an alternative to physical food reserves, which the literature has shown have a high opportunity and fiscal cost for managing price risk (FAO, et al. 2011). However, these instruments are not yet widely developed in countries that are more susceptible to food insecurity.

3. Developed infrastructure services promote food availability

- 2.16 Development of infrastructure services (e.g. roads, communications, logistics, power) affects food availability by reducing transaction costs and transportation times from the harvest location to the point of consumption, lowering food prices in turn. Specifically, a reduction in transaction costs leads to greater market insertion, which in turn increases agricultural and nonagricultural incomes through greater economic activity. Investment in infrastructure services is of particular importance for isolated communities in a country or region.
- 2.17 Tamru (2013) examined the cereals market in Ethiopia to determine whether the development of roads and communications infrastructure has been a catalyst for reducing transaction costs. In Ethiopia, cereal production more than doubled in the 2004-2011 period, while insertion in wholesale markets for wheat and maize rose by 16% (measured by the rate of price transmission between markets) and transaction costs fell by 30%. Moreover, a recent study of agricultural chains in Central America shows that between 29% and 48% of cereal import prices are accounted for by logistic costs, principally ground transportation; this factor may restrict food availability in those markets (World Bank, 2012). In Africa, the poor condition of the road system was seen as the main impediment to market insertion, with transportation costs accounting for 50% to 60% of total marketing costs (German Agency for Technical Cooperation—GTZ, 2010). In locations with a very low level of infrastructure development, a 1% increase in road density can help to increase trade flows by 0.1% to 0.7% (Bouët and Roy, 2008).
- 2.18 In summary, the evidence shows that increased agricultural production (through a growth in productivity), together with favorable policies that boost trade in agricultural products and develop infrastructure services (particularly those that reduce transportation times and costs and improve logistics services), is key to increasing food availability and, consequently, food security.

⁴ In this context, the countries of the Organization for Economic Cooperation and Development (OECD) have reduced their level of protection and their use of instruments to restrict trade in the agricultural sector over the last 25 years. Despite this, an analysis of the impact of OECD policies on the welfare of developing countries concluded that most developing countries would stand to gain if OECD countries liberalized their markets. Similarly, the analysis presented the results of various studies estimating gains from trade opening of between US\$24 billion and US\$350 billion in the agricultural sector alone, contributing to greater food availability (OECD, 2006).

B. The link between food access and food security

- 2.19 In the previous section, the evidence indicated that growth in agricultural production and productivity, trade openness, and infrastructure to facilitate market integration are essential for improving food availability. Even where there is sufficient food in an economy, a household will continue to suffer food insecurity if it lacks the capacity to access food through production, trade, labor, transfers, or any other means.⁵ This suggests that improving the capacity of the poor to generate income will enhance food security.

1. Fostering income generation through production-related programs can improve food access

- 2.20 Developing countries show slow growth in labor productivity. This leads to lower incomes in the short term and may have long-term consequences (IDB, 2013), including for food security. Winters et al. (2009) examined 15 developing countries (including Nicaragua, Guatemala, Ecuador, and Panama) with the aim of analyzing agricultural labor productivity and opportunities for rural income generation. The authors found that assets such as land, education, and infrastructure are major determinants of rural earnings.
- 2.21 Although the literature suggests a positive correlation between agricultural production and food security (Maxwell, 1998), agricultural production programs have not been recognized as policy instruments for improving food security. At the same time, very few studies have carried out impact evaluations of these food security programs (Ruiz-Arranz et al., 2006). One that does is an impact assessment of an agricultural technology adoption program in Bolivia (Direct Supports for the Creation of Rural Agrifood Initiatives Program-CRIAR), which used survey data from 1,287 households (Salazar et al., 2015). The results showed that access to technologies increased the net income of beneficiary agricultural households by 36%, and per capita income by 19%. Beneficiary households were also found to be more likely to enjoy food security (20% to 30%). Another recent study shows the outcomes of an irrigation project for small-scale farmers in Malawi, using survey data from 412 households (Nkhata et al., 2014). The results showed that the annual agricultural incomes of project beneficiaries rose by 65% and their daily per capita calorie consumption by 10%. They also showed that annual agricultural incomes in female-headed households rose by 86%.

2. Social protection programs can play an essential role in the event of short-term price increases

- 2.22 Fluctuations in food prices can affect food security in different ways. While price increases can affect food availability by encouraging higher production, they also tend to reduce household well-being, particularly in the case of the poorest segments. In this case, owing to a reduction in real household incomes, an

⁵ In this section, the evidence regarding food access relates in large part to poverty levels. Extreme poverty is defined as the share of the population with per capita income that is insufficient to meet basic dietary needs—in other words, sufficient calories and proteins to satisfy minimum required levels of nutrition. In addition, poverty is defined as the minimum estimated income level necessary to cover the cost of a basket of food and nonfood goods and services (Economic Commission for Latin America and the Caribbean, 2010).

- increase in food prices limits access and potentially leads to lower consumption. In contrast, a reduction in food prices could, on the one hand, discourage production, and, on the other, lead to higher real incomes and an increase in demand for food. The poor, who spend most of their incomes on food, are especially vulnerable to these fluctuations. In developing countries, the proportion of household expenditure allocated to food purchases is estimated to be high—averaging 50% to 60% (OECD, 2013). Although food price levels are largely determined by food availability, the evidence in this section is limited to the effect of prices upon the capacity of individuals to purchase food.
- 2.23 In general, long-term price movements may be less problematic than short-term fluctuations, given that in the long term, households adapt their livelihood strategies and consumption behavior to new price levels, while in the short term price changes entail higher welfare losses (Minot, 2013). From a food access perspective, uncertainty that leads to food price fluctuations in the short term has a negative and differential impact on the poorest segments (Dukpa and Minten, 2010; Meng et al., 2013; Ivanic and Martin, 2008; Ivanic et al., 2011). This evidence suggests that policy instruments are needed to mitigate short-term price fluctuations.
- 2.24 Increases in food prices affect both rural and urban populations, which are almost exclusively net purchasers of food. In LAC, Robles and Torero (2010) estimate that the food price crisis in the 2006-2008 period contributed to an increase of one percentage point in poverty rates in Guatemala, Honduras, and Peru, while in Nicaragua the effect was four percentage points. In LAC, a large share of the population is concentrated in urban areas, which is where most of the negative impact of increases in food prices are felt. These mainly affect the urban poor (World Bank, 2011a). In a simulation based on urban household survey data from Colombia, Rodríguez-Takeuchi and Imai (2013) showed that following the price shocks of 2006-2008 the highest quintile suffered welfare losses of 1.68%, while the number was higher for the lowest quintile (7.9%), which spent 36% of its budget on food.
- 2.25 While the best strategy for addressing food price changes in the long run is to increase agricultural production through improved productivity and favorable policies that boost trade in agricultural products, in the short term food price fluctuations affect the food security of the most vulnerable groups. Social protection programs, such as cash transfers, can play an important role in mitigating the impact of price increases. These programs can also provide a necessary source of income for the poor, allowing them to purchase food and thus ease consumption in the event of price changes or natural disasters. Accordingly, such transfers play a key role in food security strategies. LAC has been at the forefront of social protection, particularly through the use of conditional cash transfer (CCT) programs (Social Protection and Poverty SFD).
- 2.26 Using data for 2003 to 2011, Attanasio et al. (2013) showed that poor households in rural areas of Mexico were affected by the increases in food prices. Data from the CCT program “Oportunidades” (formerly “Progres”) were used to estimate welfare losses, showing that these were greater for the poorest households (23%). Attanasio et al. (2013) found that the effect of a fixed-sum transfer of 50 pesos per week to beneficiary households under “Oportunidades” would considerably

- alleviate welfare losses. This transfer policy leads to a lower range of values for welfare losses (9% to 22%, versus 17% to 23%) compared to the scenario without the intervention. The poorest households would receive the greatest benefits from this instrument, reducing their welfare losses by eight percentage points.
- 2.27 In LAC, CCT programs have affected food security through a combination of higher income and other measures that affect health and nutrition. A study of three CCT programs in Mexico, Nicaragua, and Honduras (Hoddinot and Weismann, 2010) indicates that cash transfers have a significant impact on both consumption of calories and dietary diversity. It also showed a greater impact on the poorest tercile of program beneficiary households, raising calorie consumption by 6% in Mexico, 7% in Honduras, and 13% in Nicaragua.
- 2.28 In addition to benefits linked exclusively to food consumption, a key aspect of CCTs is that they can help finance productive investment and expenditure, which can strengthen the capacity of beneficiary households to purchase food as a result. Although there is no generalized evidence in this regard, Todd et al. (2010) showed that the “Oportunidades” program in Mexico increases the value and variety of food consumed, as well as land use, livestock ownership, and spending on agricultural inputs. Gertler et al. (2012) also indicated that participation in the program is linked to an increase in land use and animal ownership, while Veras Soares et al. (2010) showed that Paraguay’s “Tekoporá” program boosted agricultural investment, particularly in the case of households in extreme poverty.
- 2.29 Public employment programs not only offer immediate jobs and income to the unemployed poor and rural workers, but they also use workers to help build public infrastructure at the local level. In 2005, India launched a demand-driven program that guaranteed employment, called the National Rural Employment Guarantee (NREG). The NREG provides a minimum of 100 days of employment with a guaranteed wage each fiscal year to at least one adult member per household who is prepared to do unskilled work (within a radius of five kilometers from the applicant’s home). One of the most recent and rigorous evaluations of the NREG shows a positive impact on calorie and protein intake in the short term, and on the accumulation of nonfinancial assets in the medium term. The effects are greatest on the poorest individuals (Deininger and Liu, 2013).
- 2.30 In summary, the evidence highlights the fact that programs to improve agricultural productivity among small-scale producers can boost local food supply, helping to lessen changes in food prices for poor households. These programs should be framed within an income generation (or poverty reduction) strategy—a crucial factor for improving access to food among the poor population. Food prices have a direct impact on poverty and the well-being of the poor. The welfare effects of an increase in food prices tend to be negative in the short term for all quintiles, but particularly for the poorest quintiles. Given that household incomes are affected by changes in prices in the short term, well-targeted social protection programs can be useful for ensuring that the poor can continue to purchase food.
- C. The link between food utilization and food security**
- 2.31 The aforementioned effects of food availability and the factors that determine food access demonstrate that availability and the ability to purchase food are crucial aspects of food security. However, these aspects are not sufficient to ensure food

security. This section presents evidence regarding how the quality and adequate utilization of food are linked to food security.

- 2.32 It is generally presumed that greater access to food as a result of higher income levels can improve household nutrition. However, the evidence shows that an increase in income is a necessary but insufficient condition for achieving improved levels of nutrition. In the study of the relationship between economic growth and nutrition, using information from 154 developing countries (34 in LAC), Heady (2011) presented evidence that economic growth is a necessary but insufficient condition for improving the nutritional status of the population, particularly in the cases of children and malnutrition caused by insufficient consumption of micronutrients. A recent study of data from developing countries showed that a 10% increase in GDP is associated with a 6% drop in prevalence of stunting in children (low height for age) and a reduction of 11% in poverty (measured as US\$1.25 per day). However, it is also associated with a 7% increase in the prevalence of obesity or overweight in women (Ruel et al., 2013).
- 2.33 The fact that higher income levels do not necessarily translate into greater food security suggests that other factors influence household decision-making regarding the consumption of nutrients. It is therefore important to study the internal household dynamics that determine the use of resources. In this context, it is important to analyze the role that each member plays in the household and the power relationships that affect decision-making regarding the use of resources. Lamontagne et al. (1998) found that in Nicaragua the children of mothers who were employed outside the household had better weight for height than those whose mothers were not employed. Recent studies show that the source of income can also affect intrahousehold decisions in relation to the type of food consumed. In Ecuador, where the CCT program “Bono de Desarrollo Humano” [Human Development Voucher] (previously “Bono Solidario”) makes payments of US\$15 to women in each eligible family (equivalent to 10% of average beneficiary incomes), the proportion of income dedicated to food purchases was between 10.5 and 12.6 percentage points higher for transfer beneficiaries than for nonbeneficiaries (Schady and Rosero, 2008).
- 2.34 An alternative strategy for attempting to influence household production and consumption decisions is to undertake direct nutrition interventions (for greater detail, see the Health and Nutrition SFD). A systematic review of the effects on child nutrition of cash transfer programs with a nutrition component, by Manley, Gitter, and Slavchevska (2012), showed that although outcomes were generally positive, they were greater in more disadvantaged areas, in the case of girls, and in countries with poorer health systems. Hoddinot (2010) and Fiszbein and Schady (2009) found similar outcomes for child nutrition in LAC. The literature on intrahousehold allocation indicates that transfer programs target women in order to increase their bargaining power and thus improve the likelihood that the transfers will be used for child nutrition, health, and education (Adato and Hoddinott, 2010).
- 2.35 Behavior change strategies play an important role in individuals’ choices of more nutritious diets and healthier lifestyles (FAO, 2013a). A nutrition education experiment involving U.S. adults with at least one child in the household showed that the frequency of meal planning increased by 29%, the ability to identify nutrient-rich foods by 35%, and the use of shopping lists by 11%. As a result, this

improved the overall quality of participants' diets in terms of the consumption of fruits, whole grains, saturated fats, and calories (Glanz et al., 2012). Barreiro-Hurlé et al. (2010) also found that the use of nutrition labels improves consumption of healthier food in Spain. Recent data relating to a behavior change intervention in Bangladesh reported a 30% increase in the proportion of children consuming a diverse diet (Alive and Thrive, 2015).

1. Agricultural interventions can have a positive impact on nutrition indicators; however, rigorous impact evaluations are necessary

- 2.36 It has recently been argued that interventions that improve the nutritional content of food and the planting of family vegetable gardens can have a positive effect on the quality of the diet consumed in a household. In a systematic and rigorous review of the evidence, Masset et al. (2011) analyze a variety of agricultural interventions (such as biofortification and vegetable gardens) to examine the impact on the nutritional status of children. The authors found a positive impact on the production of crops promoted under the interventions, with success in promoting the consumption of specific goods. However, there is little evidence regarding changes to the diet of poor households. Although the findings suggest that agricultural interventions can influence nutritional outcomes, the studies of Masset et al. (2011) and Web (2013) underline the challenges to understanding the complexity of the relationship between nutrition and production of these goods, while reiterating the need for methodologically solid and well-designed evaluations, with well-defined indicators, for evaluating the dimensions of food security.
- 2.37 De Brauw et al. (2013) found that the introduction in Mozambique and Uganda of sweet potato biofortified⁶ with vitamin A resulted in an assimilation level of around 60% in targeted households, as well as improved knowledge regarding the benefits of vitamin A, almost doubling the average dietary intake of this micronutrient. In contrast to biofortification programs, which have not traditionally been implemented on a large scale in LAC, programs to fortify sugar with vitamin A have been in place since the 1950s in LAC, with positive results (Arroyave and Mejía, 2010). However, challenges persist in the region with respect to other micronutrients. HarvestPlus has implemented several biofortification programs in Africa and South Asia and has begun to explore the possibilities of introducing similar programs in LAC, focused on rice, maize, yucca, sweet potato, and beans (HarvestPlus, 2013). There is also evidence to suggest that the promotion of family vegetable gardens could be a strategy for increasing household consumption of micronutrients. In a review of the evidence, Ruel (2001) finds that these gardens are more successful when combined with education and social communication strategies that promote behavior changes, such as, for example, spreading knowledge of the benefits of consuming foods rich in vitamin A, as well as methods of cultivating or obtaining these foods. A number of authors (Popkin et al., 1980; Bronwrigg, 1985) maintain that compared to other interventions such as biofortification and nutrition supplements, household vegetable gardens can have less of a return. In any event, further research is required to improve understanding of the effects of these interventions on food security.

⁶ The biofortification of foods refers to the introduction of micronutrients into plant genetic material.

2. The flipside of malnutrition is obesity

- 2.38 Food insecurity is often seen as a problem of hunger and undernourishment stemming from a lack of food, and not as a problem of malnutrition. Obesity is a condition that emerges as a result of consuming one or more types of nutrients in excess and in an unbalanced manner. Popkin et al. (2012) demonstrate that the problem of obesity is not related to higher-income households. On the contrary, this problem increasingly affects the poor. This study uses representative national cross-sectional surveys from 42 countries in Asia, the Middle East, Africa, and Latin America, containing data on 441,916 rural women and 364,267 urban women ages 18 to 49. It shows that obesity is increasingly a problem for the poor. The prevalence of overweight or obesity was higher on average among urban women in the 42 countries (compared with rural women) in the base year, while urban women also saw higher increases in overweight or obesity (in the case of overweight, 0.8 percentage points compared to 0.5; in the case of obesity, 0.4 percentage points compared to 0.2). However, the relative change in the prevalence of overweight is higher among rural women (3.9%), who are poorer, than among urban women (2.5%).
- 2.39 Overweight and obesity are increasingly a problem of nutrition and food security in LAC countries. This is consistent with the findings of Gómez et al. (2013), who show that countries with a medium level of development (as measured by agricultural labor productivity) have a higher prevalence of obesity than countries with low income levels. Rivera et al. (2013) estimated that in 2011 between 20% and 25% of the total population of children and adolescents in 20 countries in the region were obese or overweight.

3. Interventions that promote food safety and water and sanitation services are important for improving food security

- 2.40 Food security is closely linked to health, and evidence suggests that foodborne and waterborne diseases can drastically affect people's health through the use of food. Interventions that help to provide safe and nutritious food, drinking water, and sanitation improve food security. Food safety is mainly delivered outside the home, during the food production process, based on the use of good agricultural practices (allowing reduced chemical residues from the use of agrochemicals and veterinary drugs in food) and the implementation of food quality regulations (known as phytosanitary and sanitary measures). In 2007, developing countries only certified 18% of total good agricultural practices (Ellis and Keane, 2008). At the same time, Shephard (2008) and Strosnider et al. (2006) estimate that more than five million people in developing countries throughout the world are at risk of exposure to aflatoxins in contaminated food. Aflatoxins are produced by fungi in maize and groundnuts (Wu et al., 2011), and food safety practices related to storage are therefore of key importance to preventing contamination. Foodborne diseases are complex, and this represents a challenge to estimating their economic impact. In the United States alone, the Centers for Disease Control and Prevention (CDC) estimate that each year approximately one in six people falls ill (almost 50 million persons), 128,000 are hospitalized, and 3,000 die as a result of foodborne diseases (CDC, 2014).
- 2.41 As with food safety regulations, water and sanitation are critical for the success of food security in development interventions. The consequences of waterborne

diseases are similar to foodborne ones, including income losses from a reduction in the number of days worked and lower nutrient absorption by those who are ill. Waterborne diseases are particularly harmful to human capital development in early childhood: diarrheal diseases are the second leading cause of death (760,000 children per year) and the main cause of malnutrition among children under 5 (World Health Organization, 2013). A lack of drinking water and sanitation also affects malnutrition by reducing nutrient absorption (Spears and Haddad, 2015). Educational programs can also be a tool for tackling diseases transmitted by contaminated water.

- 2.42 In summary, the evidence shows that income is necessary but insufficient for ensuring food security. At the same time, evidence indicates that food utilization depends on intrahousehold dynamics—particularly the role of women in promoting food security through the good use and selection of food of sufficient quality within the home. The healthy use of food consumption also depends on social protection programs that focus on nutrition, as well as behavior change strategies, agricultural programs, and programs related to improvements in food and water quality (food safety systems and improvements in the quality of water and sanitation services).

III. MAIN ACHIEVEMENTS IN THE REGION AND CHALLENGES THAT THE BANK SEEKS TO ADDRESS IN RELATION TO FOOD SECURITY

- 3.1 This section identifies the main challenges for the region in relation to food security, based on an analysis of the current situation and recent trends in LAC. Global and partial indicators show that the region has a higher level of food security than other developing regions⁷ (see [Figure 2](#)). The main challenges for the region are to maintain food supply to meet the demand of a growing population and create the conditions for vulnerable groups to obtain and consume sufficient food that is of a quality that allows them to lead an active and healthy life.
- 3.2 The Global Hunger Index (GHI)⁸ groups countries according to the following five categories of food insecurity: low, moderate, serious, alarming, and extremely alarming. In the case of LAC, Argentina, Costa Rica, and Chile remained in the low food insecurity category during the 1990-2015 period (see [Table 1](#)). Over the same period, Brazil, Jamaica, Mexico, Trinidad and Tobago, Uruguay, and Venezuela moved from the moderate to the low food insecurity category. What's more, Panama and Peru went from having serious food insecurity to low food insecurity during that period. Another group of countries that has shown improvements in the

⁷ Latin America and the Caribbean's strong performance in food security will contribute to Sustainable Development Goal (SDG) 2 on "ending hunger" by 2030. The SDGs were adopted by the United Nations General Assembly in September 2015.

⁸ The index aggregates data on the proportion of the population that is undernourished (i.e., insufficient calorie intake), the prevalence of chronic malnutrition in children under 5 (i.e. low height for age), the prevalence of acute malnutrition in children under 5 (i.e. low weight for height), and the proportion of children who die before five years of age (i.e. fatal correlation between insufficient food intake and unhealthy environment). Each indicator has the same weight. Scores range from 0 to 100. The higher the index, the higher the level of food insecurity. One weakness in the index is that it does not provide an absolute number of persons suffering from food insecurity. For this reason, data on malnutrition is also provided, both as a number and as a percentage (International Food Policy Research Institute, 2014a and 2015).

- index and is now in a situation of moderate food insecurity includes Bolivia, the Dominican Republic, Ecuador, El Salvador, Guyana, Honduras, Nicaragua, Paraguay, and Suriname. Guatemala has remained in the same category of serious food insecurity, while Haiti—despite substantial improvements in recent years—is in the alarming category.
- 3.3 The daily per capita calorie consumption necessary to lead an active and healthy life is estimated at 2,300 (Economist Intelligence Unit, 2013; United States Department of Agriculture, 2013). The average for the countries of the region is over 2,500 calories. In addition to calorie intake, it is also important to consider diversity in the availability of nutritious foods. Dietary diversity in the region is heterogeneous.⁹ The supply of animal protein in the region rose moderately between 2000 and 2011, while the net per capita availability of fruit and vegetables declined (see [Figures 3](#) and [4](#)).
- 3.4 Malnutrition is a partial indicator of food insecurity, and there is a downward trend in the number of malnourished persons in the region (see [Table 1](#)). Despite this positive trend, it is estimated that more than 50 million people still suffer from malnutrition in the region. Anthropometric indicators for children under 5 capture the nature of this malnutrition (see [Table 4](#)).¹⁰ The Caribbean countries have a high prevalence (more than 5%) of wasting in children (an indicator of a lack of food in terms of both quantity and quality) (Guyana, 5.3%; Haiti, 5.2%; Suriname, 5.0%; and Trinidad and Tobago, 5.2%) (see [Table 5](#)). In comparison, the prevalence of stunting in children under 5 (an indicator of dietary quality and the presence of infections) is high in the Andean countries (Bolivia, 27%; Ecuador, 29%; and Peru, 28%) and Central America (El Salvador, 21%; Guatemala, 48%; Haiti, 30%; Honduras, 30%; and Nicaragua, 23%).¹¹
- 3.5 Food insecurity represents a significant economic cost to the region. According to Horton and Steckel (2011), LAC lost around 8% of GDP in the 2000-2009 period owing to the nutritional deficit. At the country level, GDP losses range from 2.3% in Panama to 11.4% in Guatemala (Martínez and Fernández, 2008). At the same time, the FAO (2013c) estimates that the region lost 18.5 million DALYs (disability-adjusted life years)¹² due to malnutrition in 2010, of which 6 million were related to child and maternal malnutrition, 1 million to underweight, and 11.5 million to overweight and obesity. It should be underlined that the number of DALYs lost owing to overweight and obesity in LAC has doubled since 1990.

⁹ Calories from animal protein serve as a proxy indicator for the availability of improved sources of energy. Foods of animal origin have been shown to have high energy density and are a good, high quality source of protein, iron, zinc, and important vitamins (B6, B12, B2, and A) (FAO, 2013c). Fruits and vegetables are a good source of micronutrients.

¹⁰ These indicators provide an effective approximation of the nutritional status of the population as a whole, and each one provides different information about food security. Wasting (low weight for height) is a more sensitive and direct indicator of food utilization, because it measures the short-term effects of limited food consumption. Stunting (height for age) is more an indicator of long-run effects (FAO, 2013b).

¹¹ Malnutrition indicators are partial indicators of food insecurity. Nutritional status depends on other factors in addition to the dimensions of food security, such as access to quality health services (for further detail, see the Health and Nutrition SFD).

¹² One DALY represents the loss of the equivalent of a full year of “healthy” life, thus measuring the social and economic costs of malnutrition.

- 3.6 Since the first decade of the 2000s, food security institutional development has been consolidating. Nearly 16 countries in the region (60%) have policies, strategies, and plans that explicitly address food security (FAO, 2014b). The majority of these instruments recognize the dimensions of food security and contain, to a greater or lesser extent, actions thereon, depending on the characteristics of each country. These instruments underscore the need to address poverty (food access) and the nutritional status of the population (food utilization) to contribute to food security.
- 3.7 From a different perspective, the region plays a key role in world food security given its importance as a food exporter. In 2011, the region produced 14% of world food exports and generated 52% of soybean exports, 45% of sugar, 44% of beef, 42% of chicken, 70% of bananas, 12% of citrus fruits, and a third of maize. World population is expected to grow by more than one-third (2.3 billion people) from 2009 to 2050, with most of this growth occurring in developing countries.¹³ Food demand is thus expected to rise substantially over the period (FAO, 2013a). LAC will play a key role in meeting this demand.
- A. Maintaining food availability to meet growing demand through improvements in agricultural productivity, trade, and infrastructure services**
- 3.8 Aggregate food availability has not been a limiting factor for food security in LAC. Sustained agricultural growth, based on an increase in sector productivity, is key for adequate food availability that supports an improvement in the region's food security indices. This should be accompanied by policies that facilitate trade in food, as well as sector financing and public and private investment in infrastructure services to reduce logistics and transportation costs.
- 3.9 The region saw an increase in production over the 1990-2011 period. The increase was most significant in the Southern Cone countries, where the value of production rose by 120% over the period. The other subregions also achieved significant increases (Andean region, 77%; Central America and Mexico, 63%; the Caribbean, 44%) (see [Figure 5](#)). Nonetheless, there is room to increase agricultural productivity. Recent studies (Nin-Pratt et al., pending publication) show that total factor productivity in LAC agricultural production grew by 45% between 1980 and 2012, with an average annual growth rate of 1.2%. Despite this growth, there has been great variability in changes in productivity within the region, with Brazil, Argentina, and Mexico showing higher than average growth for the region. In addition, although the gap in total factor productivity with respect to the OECD countries has narrowed, it remains significant at almost 50%.
- 3.10 According to the information highlighted in the Agriculture and Natural Resources Management SFD, international evidence shows that the productivity rate in the agricultural sector responds positively to investment in agricultural public goods, such as research and technology transfer and plant and animal health. In this respect, the region has a low level of investment in agricultural research. Only five countries exceed the regional average for investment in agricultural research of 1% of agricultural GDP (Stads and Beintema, 2009). Similarly, the region's irrigation

¹³ The population of LAC is expected to rise by 150 million by 2050 (FAO, 2013a).

systems show a lower level of efficiency¹⁴ (39%) than the world average (56%) (Willaarts et al., 2014). Additionally, the incidence of pests and diseases can translate into substantial losses in various crops of economic importance to the region (fruits, bananas, and beef).

- 3.11 One issue linked to agricultural sector productivity concerns food losses in the supply chain. Per capita postharvest food losses in Latin America are 220 kg per year, 90% of which occur before the product reaches the end consumer (Gustavsson et al., 2011). In LAC, this percentage on average is almost double that seen in developed countries. For the region as a whole, as much as 14% of cereal production, 23% of tubers, 13% of fruit and vegetables, and 7% of milk are lost before they reach the consumer (World Bank, 2011a).
- 3.12 Evidence shows that trade openness in the agricultural sector supports food security through incentives to invest in the sector and improved trade in food. Given that low-income consumers devote a high proportion of their incomes to food consumption, one of the objectives of agricultural trade policies should be to keep food prices stable and close to international prices. One indicator that allows the implications of these policies for food security to be seen is the Consumer Support Estimate (CSE).¹⁵ A negative value for the CSE indicates that consumers are largely being harmed by trade policies, because they are paying higher prices as a consequence of these policies (tariffs, quotas, or non-tariff barriers). The CSE was negative in most LAC countries over the 2009-2012 period, including in countries that are net importers of food (see [Figure 6](#)) (Agrimonitor, 2014). In that regard, although the region is a net food exporter, from 2001-2010 all the South American countries, except for Venezuela, were net exporters, while all the Caribbean countries were net importers, and the Central American countries were a mix of net importers and exporters (Valdés, 2013). As the evidence shows, net food importers would be more affected by variability in international food prices. To reduce the risk of unexpected price fluctuations, a combination of measures needs to be used that contributes to sufficient food availability, while addressing the most vulnerable population. Net food importers should consider, among other actions, reducing trade restrictions on food (reducing or eliminating import tariffs and nontariff barriers) and using social protection programs. Moreover, net food exporters should reduce trade restrictions, to send signals that encourage national production and the use of social programs. Krivonos and da Paixao (2015) found that during the food price crisis in 2006 to 2008, the use of social programs in Mexico and Brazil was more effective than the use of trade restrictions, with success in maintaining the purchasing power of the poor to access food.
- 3.13 The evidence also shows that access to agricultural markets depends to a large extent on a country's infrastructure capacity. LAC's score on the Logistics Performance Index is similar to the world average and indicates that the region lags behind with respect to countries with more efficient logistics, such as the OECD countries, East Asia, and Southeast Asia (see [Figure 7](#)). Logistics costs in the marketing of food in Peru, Argentina, and Brazil are more than 25% of the value of production. In comparison, costs in Chile—which leads the region in terms

¹⁴ Irrigation efficiency is the ratio of water used for crops to water distributed for irrigation purposes.

¹⁵ The CSE estimates the annual monetary value of gross transfers received by consumers of agricultural products, derived from policy measures to support agriculture.

of logistics—are 18% of the value of production. The latter is double the level of other OECD members (González, Guasch, and Serebrisky, 2008).¹⁶

B. The capacity of the low-income population to obtain food is limited

- 3.14 The purchasing power of a household determines its capacity to obtain food. According to the Economic Commission for Latin America and the Caribbean (ECLAC, 2012), 66 million persons in the region live in extreme poverty. Rates of extreme poverty among indigenous populations and Afro-descendants are between 1.2 and 3.6 times higher than those for the non-ethnic population (World Bank, 2013). By definition, this population lacks sufficient income to meet its basic dietary needs. Average spending on food accounts for at least one-fifth of total household expenditure in every country in the region (see [Table 2](#)). Poor households dedicate a higher proportion of their expenditure to food consumption. For example, the poorest decile of the population in Honduras, Bolivia, and Argentina spends 83.3%, 60.3%, and 56.5% of their income on food, respectively (see [Table 3](#)). This confirms, therefore, that increases in food prices have a greater impact on the poor. [Figure 8](#) compares a general Consumer Price Index (CPI) with a Consumer Price Index for the Poor (CPI-P), which measures price increases for this group. The two indices are compared for the 2006-2008 period, when food prices rose considerably. Food price increases over the period contributed to a CPI-P that was 8% higher than the CPI, with the greatest effects felt by the Caribbean and Central American countries.
- 3.15 Although the incidence of poverty in rural areas is greater than in urban ones, most of the region's poor live in urban areas. The majority of LAC's population lives in households that are net purchasers of food. More than 65% of the poor are urban (ECLAC, 2014) and 80% of producers are small-scale (FAO, 2012). High rates of urban poverty and the rapid increase in urbanization suggest that food prices and income generation capacity will play an important role in improving food security in the region. Social protection measures and instruments, which are discussed in greater depth in the Social Protection and Poverty SFD, can help to alleviate the effects of food price increases through both cash income transfer instruments and temporary employment. Likewise, improving the income of poor households will require policies to achieve greater employability in labor markets. These challenges are laid out in the Labor SFD.
- 3.16 Based on the challenges identified in the Agriculture and Natural Resources Management SFD, in poor rural households greater equality in access to resources and a greater contribution to rural poverty reduction will require addressing the challenges faced by farmers with less access to productive resources and agricultural and financial services. These tend to be net purchasers of food (De Janvry and Sadoulet, 2010). In the case of those producers whose production is dedicated exclusively to own consumption (subsistence agriculture)—usually the poorest in rural areas—a solution based solely on agriculture is infeasible. To this end, active social protection policies focused on

¹⁶ The effects on productivity of other infrastructure services (e.g. power, communications, and telecommunications), as well as the provision of other agricultural public goods and services, are covered in greater detail in the Agriculture and Natural Resources Management, Transportation, and Energy SFDs.

households engaged in subsistence agriculture would help to improve the income-generating capacity of these households (FAO, 2012). This group of small-scale farming households also tends to be the most vulnerable to the effects of climate change.

C. The quality of food consumed is limited, particularly in the case of vulnerable populations

- 3.17 Even where food is available and households have income to purchase it, malnutrition and obesity are still major problems in LAC. The evidence suggests that even where the capacity to purchase food is present, this does not ensure the consumption of more nutritious foods. This implies that in addition to implementing measures to provide the poor with sufficient income, nutrition should also be promoted through both direct actions—such as food safety, access to drinking water and sanitation, and behavior change strategies to improve eating habits—and improved access to quality health services (see the Health and Nutrition SFD for greater details regarding health services).
- 3.18 Children in the region ages 6 to 24 months have a low intake of animal products, which are a source of essential nutrients (IDB, 2014). The situation is worse for children in the lowest quintile. In the Central American countries, between 25% and 70% of poor children ages 6 to 23 months have diets that are limited in terms of diversity (Institute for Health Metrics and Evaluation, 2014). This situation is more marked in indigenous areas (Martorell, 2012). In contrast, there has been a significant increase in obesity in the region. Between 2002 and 2010, obesity in adult men rose from 10.7% to 15.9%, while in adult women it increased from 23.5% to 31.6%. Given this situation, there is a need to increase the quality of food consumed and access to that food for the most vulnerable families in the region. As highlighted in the evidence presented, dietary diversity improves as average incomes rise in countries, but problems of obesity worsen. Given that per capita income has risen over the last few decades in the region, the incidence of noninfectious diseases linked to diet is expected to grow.¹⁷ Actions should therefore be considered that create incentives to supply safe food, drinking water, and sanitation to improve nutritional status, as well as actions to improve food labeling, regulation of school feeding, and measures to reduce the consumption of foods with high sugar content.
- 3.19 Access to safe food is essential for food security. Foodborne diseases may lead to health problems for adults and children by affecting their well-being, work capacity, and capacity to absorb nutrients. It is clear that foodborne diseases are related to food safety and the quality of water and sanitation. One indication of this relationship is the incidence of diarrhea in children in the region, which is in the range of 10% to 25%. In other words, more than one in 10 children under 4 has diarrhea in any given two-week period (see [Table 5](#)). In LAC, 93% have access to safe water, and 82% have access to improved sanitation. However, coverage in rural areas is weaker than in urban ones. In 2011, 97% and 87% of the urban population had access to water and sanitation, respectively, while in rural areas 82% of the population had safe water supplies and 63% improved sanitation (Water and Sanitation SFD). Foodborne diseases also depend on developing good

¹⁷ For the first time, LAC's middle-class population is larger than the poor population (ECLAC, 2012).

agricultural and livestock practices in primary production systems. There are no regional data regarding the use of these good practices (which include water quality management for irrigation); however, the data for certain countries show that coverage may be very low (e.g. less than 1% in Colombia, the Dominican Republic, and Argentina).

IV. LESSONS LEARNED FROM THE BANK'S EXPERIENCE IN FOOD SECURITY

A. Report of the Office of Evaluation and Oversight

- 4.1 The Bank's Office of Evaluation and Oversight (OVE) has not undertaken any evaluations in the area of food security. However, it has carried out sector evaluations in the areas of agriculture, health and nutrition, and social protection, which affect food security, among other things. The "Review of the Bank's Support to Agriculture 2002-2014" examines the Bank's work in the agricultural sphere. Annex I presents an evaluation of the focus of the agricultural portfolio from 2002-2014 and the sector's contribution to food security--primarily the food availability dimension. The review recommends that the Bank promote a comprehensive, coordinated multisector approach to food security. That recommendation is consistent with the approach in this SFD. The "Health Sector Evaluation: 1995-2005" examines the principal reform measures promoted by the Bank, which seek to improve efficiency, quality of care, and equity or to expand coverage. It offers recommendations that have been incorporated into the Bank's analytic and operational work. In the case of social protection, OVE has not carried out any sector evaluations in this area. However, it has analyzed the education component in CCT programs, recommending, among other things, creation of a system to gather institutional knowledge regarding these programs. The recommendations have been incorporated into the Bank's analytic and operational work.

B. Lessons learned from IDB operations

- 4.2 This section reviews the Bank's recent experience in addressing food security. The approach of this section is to determine how a relevant sample of programs, with interventions that define sector targets, can help to foster a favorable environment for improving food security.¹⁸ To this end, 23 Bank-financed projects were reviewed, with a focus on the agriculture, health and nutrition, and social protection sectors given their relationship to food security ([see the list of projects](#)).¹⁹ It should be noted that the Bank has accumulated extensive experience with interventions in each of the sectors mentioned, as confirmed in the SFDs, which describe the respective lessons learned for each sector.
- 4.3 The Bank supports food availability through two main types of programs. The first is centered mainly on productivity improvements through support for technology research, validation, and transfer to farmers, thus increasing long-run food supply.

¹⁸ Accordingly, no Development Effectiveness Matrix outcomes are presented for food security. Instead, those outcomes have been discussed in the respective Agriculture, Health and Nutrition, and Social Protection and Poverty SFDs.

¹⁹ The sample of projects was reviewed applying the theory of change on how such projects might have contributed to the dimensions of food security (i.e. availability, access, and utilization).

The second type of program supports food quality standards and entry into high-value markets. These efforts, be they public or private, support the supply of safe food for consumption while also boosting agricultural productivity through improvements in product quality.

- 4.4 The Bank is promoting food access through both productive and conditional transfer programs. In the case of productive programs, these seek to improve farmer productivity (particularly that of small-scale farmers). These programs, which include support for the adoption of agricultural technologies and for agricultural value chains, have the dual objective of enhancing productivity and expanding farmers' agricultural income to improve food access. Conditional transfer programs also provide a source of income on the condition that households invest in health, nutrition, and education. Although human capital development is a long-term objective, there is a shorter-term objective linked to improvements in food security based on the availability of cash in a household. As the strong evidence in relation to these programs shows, transfers generally result in improved food access.
- 4.5 In terms of food utilization, programs are aimed at improving food safety; the coverage, quality, and utilization of health services; behavior change interventions to improve child feeding practices; and the provision of supplements for children. The success of these food safety programs lies in reducing the likelihood of foodborne diseases. Nutrition programs tend to focus on early childhood, during which nutritional effects can have a long-term impact (though there are also interventions to prevent and treat chronic diseases, including obesity). Conditional cash transfer programs boost the utilization of health services, including nutrition services. These can improve nutrition, and therefore food utilization, by providing supplements and preventing and treating infections that affect the absorption and utilization of nutrients. Although these programs offer cash transfers to induce demand for child health and nutrition, the supply of health services must be ensured in order for them to work. Given the availability of food in the region, the Bank also seeks to bring about changes in consumption practices through communications strategies and campaigns that promote better nutrition options.
- 4.6 Based on the evidence presented regarding interagency coordination, coordination must be fostered among the different sector areas (including agriculture, social protection, and health and nutrition) if food security outcomes are to be improved. This coordination should be at the level of public policies and sector strategies, aimed at formulating a public policy framework that helps to address food security. Particular attention should be paid to implementing public policies that establish a framework of incentives for efficient and environmentally sustainable agricultural production, as well as cost-effective social protection programs and quality health and nutrition services. Based on operational experience in the region, specific interventions in support of the goal of food security should be executed by each sector (e.g. agriculture, social protection, health and nutrition, and water and sanitation), with ongoing coordination with other sectors taking place within the framework of a national food security strategy.
- 4.7 It should also be emphasized that the lessons learned by the Bank in sectors such as agriculture, social protection, and health and nutrition, which are analyzed and presented in the respective sector frameworks, will allow the Bank to position itself

strategically and continue improving its strategic dialogue with the countries, taking advantage of its operational experience in each of these fields in the area of food security in the region.

C. The Bank's comparative advantages in food security

- 4.8 The Bank's main comparative advantage in the area of food security is its extensive knowledge and experience in various sectors that influence food security, such as agriculture, social protection, and health and nutrition. As indicated in the respective sector frameworks, the Bank has strengthened its strategic positioning in these sectors in recent years, consolidating their presence in the Bank's portfolio of regional investments and supporting the generation of relevant knowledge for clients. At the same time, collaboration has been strengthened with other public and private institutions that are committed to achieving progress on the agenda for these sectors in the region.
- 4.9 Within food security, the priority areas are those related to improving food availability, food access, and quality in food consumption. The Bank's team has the technical knowledge in these areas and the skills necessary for design and evaluation of operations through the corresponding sectors, such as agriculture, social protection, and health and nutrition. In the future, Bank interventions should give greater consideration to the role of private enterprise in food security, as well as expanding its interaction with internationally recognized bodies in food security.

V. TARGETS, PRINCIPLES, DIMENSIONS OF SUCCESS, AND LINES OF ACTION THAT WILL GUIDE THE BANK'S OPERATIONAL AND RESEARCH ACTIVITIES

A. Targets and principles of the Bank's work in food security

- 5.1 The Bank's target is to promote food security in LAC. Any Bank interventions will be governed by three basic principles:
- a. **Social return on investment:** The Bank will seek to attain high rates of social return, supporting interventions of proven cost-effectiveness. This will be achieved by carrying out robust ex ante economic analyses for all projects. Projects will be based on the most recent and relevant evidence, and will take into account accumulated experience at the global and regional levels. If there are significant gaps in knowledge, the project will generate evidence and help to close these gaps by using impact evaluation methods.
 - b. **Socioenvironmental principle:** Interventions will seek to preserve natural resources and environmental services, providing incentives for the social and economic inclusion of vulnerable (mainly indigenous and Afro-descendant) communities, while also promoting gender equality and fostering the participation of women in the benefits of these interventions.
 - c. **Intersectoral coordination:** Given that food security has multiple dimensions, the Bank will seek to promote coordination in the design of policies and sector strategies to address food security challenges in a comprehensive manner.

B. Dimensions of success, lines of action, and activities

- 5.2 To promote food security in LAC, three dimensions of success are proposed, each of which is linked to priority lines of action. These dimensions and actions are based on empirical evidence and the challenges facing LAC. The dimensions are designed to assist the Bank in developing a framework for addressing the different aspects of food security. Given the need to support food security in a coordinated and comprehensive manner, this SFD identifies activities that have been addressed previously in other sector framework documents (e.g. Agriculture and Natural Resources Management, Social Protection and Poverty, Health and Nutrition, Transportation, Water and Sanitation). At the country level, it is important to design intervention strategies that establish specific targets and the coordinated roles that private and public institutions need to perform to support food security. This should be supplemented with a system for monitoring and evaluating food security interventions. Specific interventions should be implemented by the relevant sector entities.
- 5.3 As the evidence indicates, to improve food security, a combination of agricultural, social protection, and nutrition strategies, among others, is needed. The relative importance of these strategies in the countries will depend on the structure of their economy and on the characteristics of the vulnerable population. In economies where agriculture carries a relatively significant weight (generally countries that are small and have a high incidence of rural poverty) policies that promote agricultural development, with particular emphasis on small and medium-scale farmers, are important. In countries where agriculture has relatively lesser economic weight, but poverty, hunger, and malnutrition are predominantly rural, growth in agriculture and in the rural nonfarm economy is important to reducing food insecurity. In more urbanized economies, in which agriculture accounts for a relatively smaller share of the economy and urban poverty exceeds rural poverty, social protection and nutrition programs could have greater relative importance for reducing food insecurity.
- 1. Dimension of success 1. Ensure food availability through an expansion in agricultural production based on higher productivity and market integration**
- 5.4 The evidence presented shows that an expansion in agricultural production, increased productivity, trade openness, and infrastructure services are essential for the region to support stable food prices in the long run. The following lines of action are proposed, to achieve the objective of this dimension of success:
- 5.5 **Line of action 1.** Improve agricultural service delivery and infrastructure with public goods characteristics, with a view to expanding food availability.
- 5.6 To implement this line of action, it is proposed that the Bank prioritize the following **activities**:
- a. Modernizing country agricultural innovation systems by strengthening technology generation and promotion to help producers adapt to climate change (particularly small-scale producers), based on a value chains perspective (Agriculture and Natural Resources Management SFD).

- b. Investment to improve agricultural producers' access to rural infrastructure, based on a territorial approach (Agriculture and Natural Resources Management SFD).
 - c. Modernizing country agricultural health and food safety systems (Agriculture and Natural Resources Management SFD).
 - d. Modernizing producer information systems for both prices and agroclimatic information, including studies of efficient mechanisms for transferring risks related to climate change and price variability (Agriculture and Natural Resources Management SFD).
 - e. Improving the capacities of national agricultural research institutes and private firms to develop and promote improved crop varieties with higher nutritional content, as well as implementing impact evaluations for these interventions.
- 5.7 **Line of action 2.** Improving farmer participation in markets and strengthening agricultural value chains.
- 5.8 To implement this action, it is proposed that the Bank prioritize the following **activities**:
- a. In the case of both the private and public sector windows, promoting actions to boost growth in agribusiness through risk management mechanisms such as hedging, options, and agricultural insurance, and through financial markets that facilitate the use of risk management instruments.
 - b. In the case of the Bank's private sector window, investment in agribusiness engaged in agroindustrial processing and innovation of sector products throughout value chains, as well as in companies that favor the development of business partnerships or chains (with emphasis on small and medium-sized producers) and their access to credit, basic inputs, or capital for productive investment (Agriculture and Natural Resources Management SFD).
 - c. In the case of the Bank's private sector window, investment in modernizing logistics, collection, and postharvest handling infrastructure, as well as studies to validate interventions aimed at reducing postharvest food losses at the producer and value chain levels, including gender- and diversity-based analysis.
 - d. Investment to support road and logistics infrastructure that helps to reduce food transaction and transportation costs (Transportation SFD).
 - e. Interventions that support the consolidation of trade opening in the agricultural sector.
 - f. Evaluations of the impact of trade interventions on food security (with a focus on the most vulnerable populations) and dissemination of the results.
- 2. Dimension of success 2. Increase food access for the most vulnerable populations in the region**
- 5.9 The evidence presented indicates that access to food, and not just food availability, is essential for food security. To support the expansion of income-generating

activities (particularly among the most vulnerable) and thus increase access to food, the line of action for this dimension is as follows:

5.10 **Line of action.** Increase poor households' capacity to access food, through productive activities and social protection programs.

5.11 To implement this action, it is proposed that the Bank prioritize the following **activities**:

- a. In the case of the public and private sector windows, foster credit mechanisms and guarantees for financing the working and/or investment capital needs of key sections of value chains, or small and medium-scale producers directly. Technical assistance will be provided to intermediary financial institutions (Agriculture and Natural Resources Management SFD).
- b. Implement cost-effective mechanisms to stimulate the adoption of technological innovations that are profitable, environmentally appropriate, and contribute to climate change adaption among producers, with a particular focus on vulnerable groups such as women and indigenous communities (Agriculture and Natural Resources Management SFD).
- c. Support through social protection programs for the most vulnerable with limited income-generating capacity, with emphasis on women (Social Protection and Poverty SFD).
- d. Promoting temporary employment programs to provide poor and unemployed rural workers with income (Social Protection and Poverty SFD).
- e. Impact evaluations that analyze the effect on food security of agricultural projects that promote technological innovation among small-scale farmers, including gender- and diversity-based analysis.
- f. Support for formulating and/or updating food security strategies, plans, and/or policies, under the principle of intersector coordination, as well as establishing and/or upgrading systems for monitoring and evaluating the respective intervention models.
- g. To determine best practices, perform and disseminate evaluations of the impact of social protection programs on food price volatility, with a focus on the most vulnerable populations (including women, indigenous communities, and Afro-descendants), and on the possibility of adding triggers for using these programs during food price crises.

3. Dimension of success 3. Improve the consumption of foods with high nutrient content, particularly for more vulnerable populations

5.12 Evidence shows that even where households have access to income or other means of obtaining food security, food utilization may be insufficient to meet nutritional needs. The following lines of action are proposed, to achieve the objective of this dimension of success:

5.13 **Line of action 1.** Expand support for and dissemination of key aspects of child and adult nutrition among the population, particularly among the most vulnerable.

5.14 To implement this action, it is proposed that the Bank prioritize the following **activities**:

- a. Investments in implementing behavior change strategies to improve eating habits, particularly among the poorest populations. These interventions should emphasize the role of women in managing nutritional content in the household (Health and Nutrition SFD).
 - b. Investments for the distribution of child supplements of proven effectiveness, especially to families with small children who are more vulnerable to malnutrition, and in which nutrition interventions have been shown to be more effective (Health and Nutrition SFD).
- 5.15 **Line of action 2.** Expand access to safe food, drinking water, and sanitation.
- 5.16 To implement this action, it is proposed that the Bank prioritize the following **activities**:
- a. Investments in food safety systems (Agriculture and Natural Resources Management SFD).
 - b. Investments in water and sanitation systems to ensure access to drinking water and sanitation and ensure the quality of those services (Water and Sanitation SFD).

FIGURES AND TABLES

Figure 1. Economic Flow Chart, Food Security

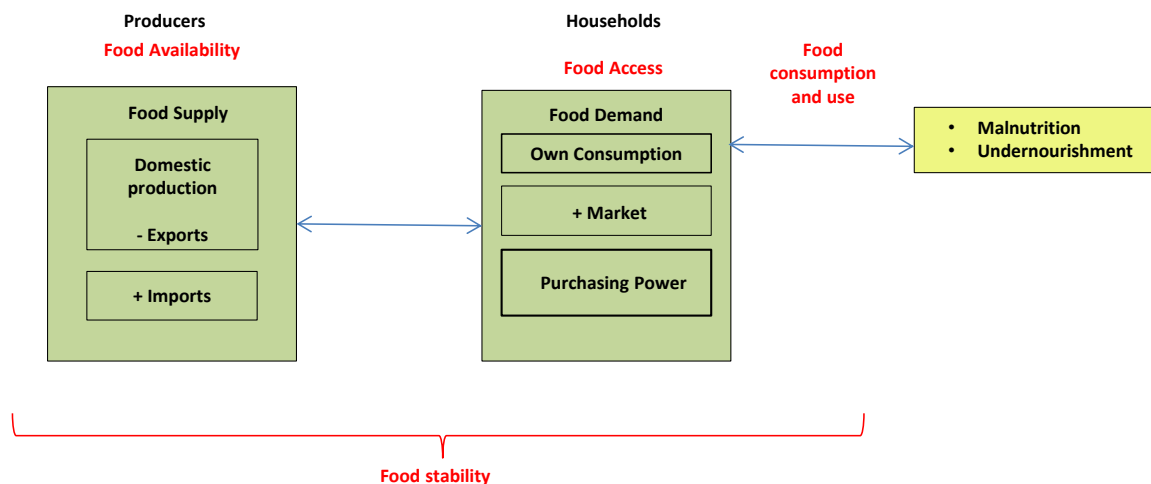
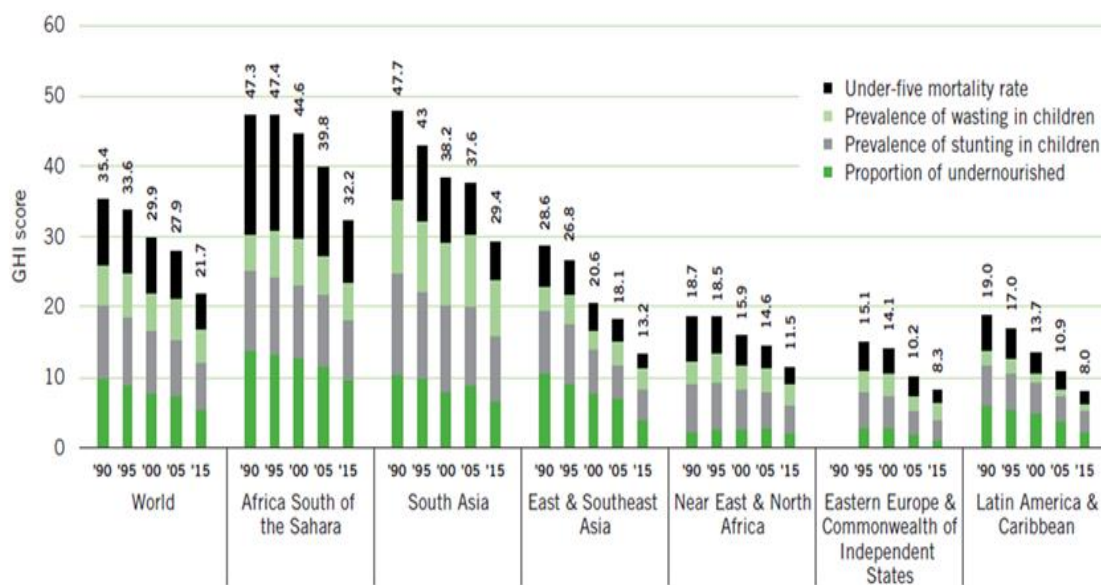
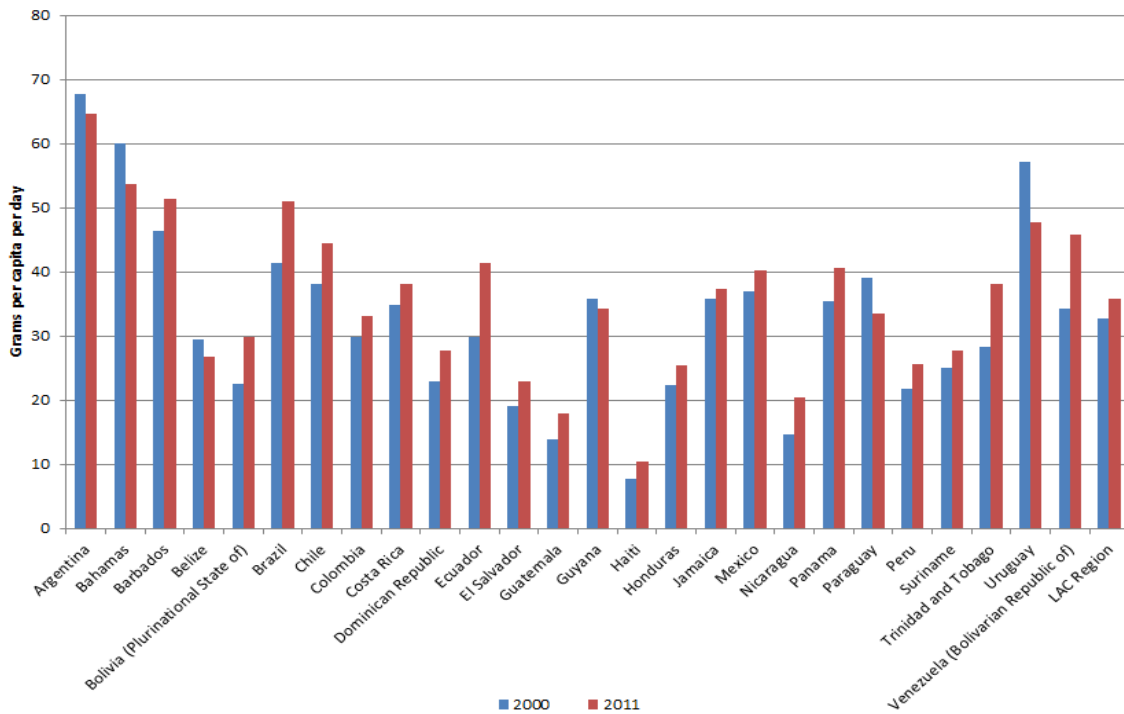


Figure 2. Global Hunger Index Trends, by Region



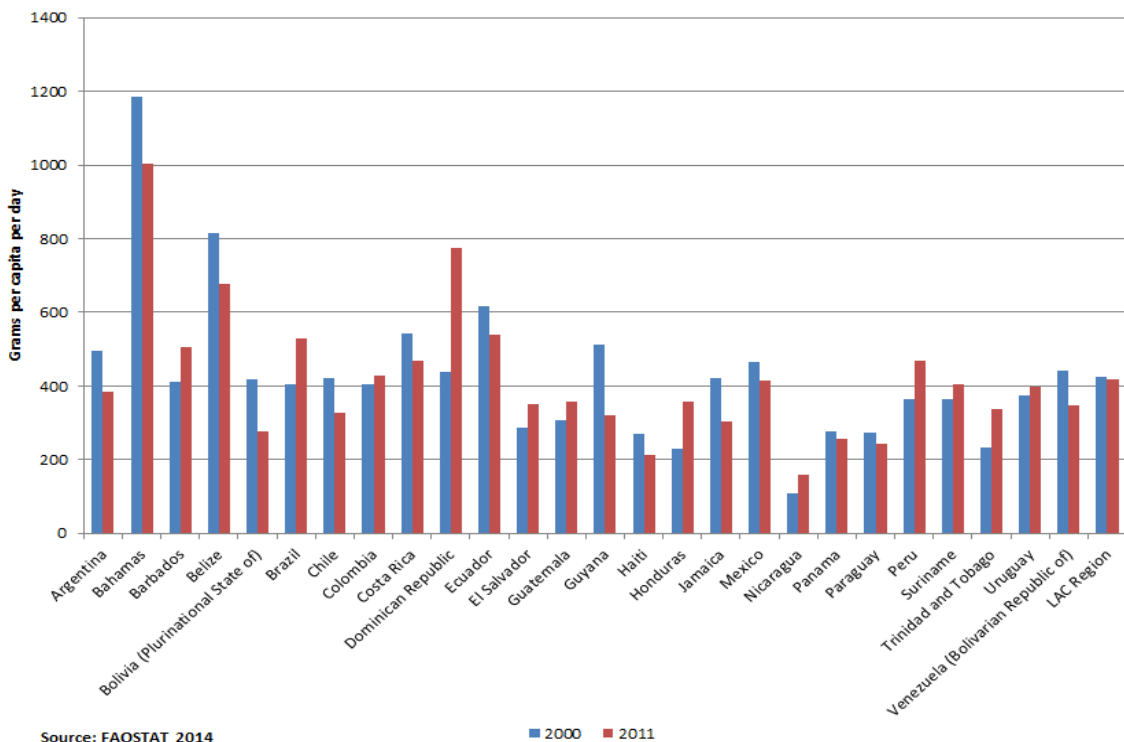
Source: Global Hunger Index 2015 (IFPRI).

Figure 3: Supply of Protein of Animal Origin, 2000 and 2011

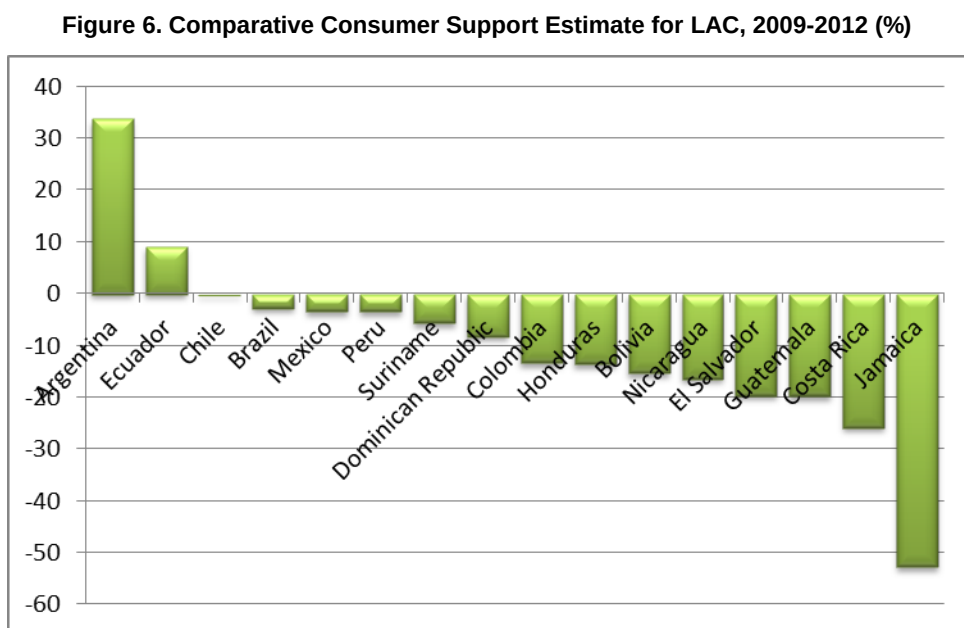
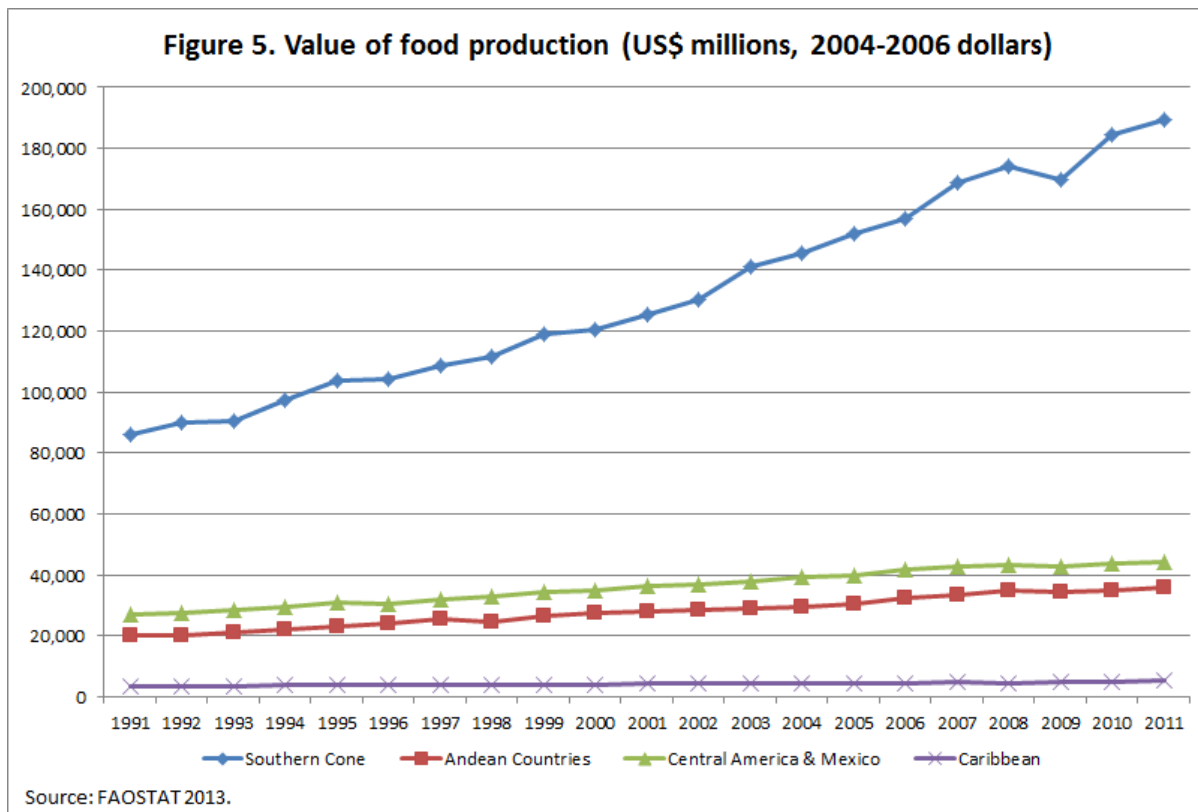


Source: FAOSTAT 2014

Figure 4: Supply of Fruit and vegetables, 2000-2011

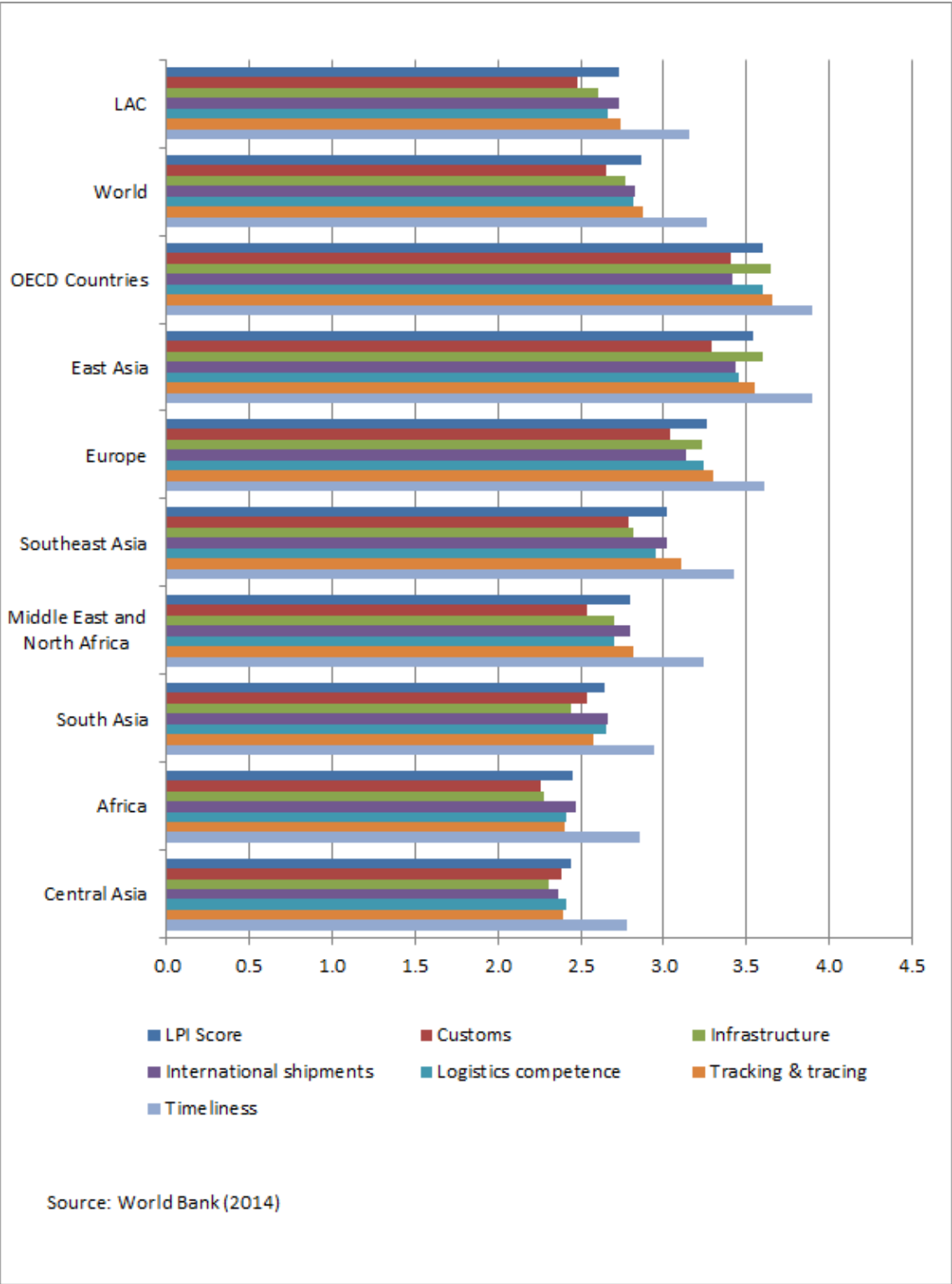


Source: FAOSTAT 2014



Source: Agrimonitor: www.iadb.org/Agrimonitor

Figure 7: Logistic Performance Index for Latin America and the Caribbean



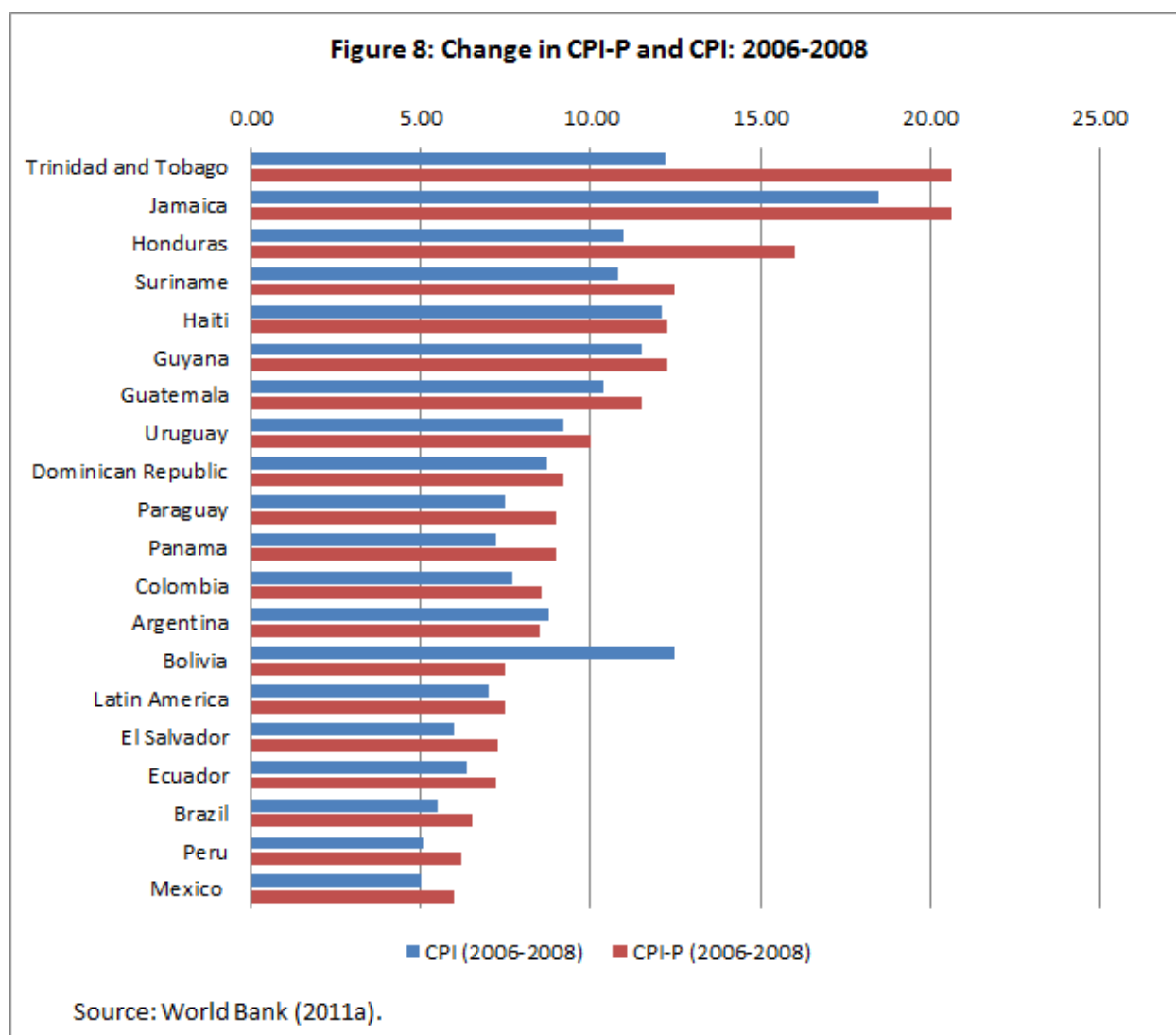


Table 1. General Food Security

Country	LAC Global Hunger Index					Undernourishment					
	1990	1995	2000	2005	2014	1991		2001		2012	
	GHI	GHI	GHI	GHI	GHI	Preva- lence (%)	Number (‘000)	Preva- lence (%)	Number (‘000)	Preva- lence (%)	Number (‘000)
Argentina	7.7	7.2	5.3	5.0	<5	5.0	1,653	5.0	1,863	3.4	1,372
Bahamas						11.3	29	6.3	19	7.2	26
Barbados						5.0	13	5.0	13	5.0	13
Belize						9.2	17	7.2	17	6.8	23
Bolivia	38.8	35.1	30.5	27.2	16.9	34.6	2,407	28.5	2,470	21.3	2,128
Brazil	18.2	15.0	12.0	6.7	<5	14.9	22,670	11.1	19,643	6.9	13,465
Chile	6.8	<5	<5	<5	<5	8.1	1,089	5.0	781	3.0	514
Colombia	16.7	13.0	11.4	10.7	8.8	19.1	6,485	13.1	5,313	10.6	4,923
Costa Rica	7.5	7.0	6.1	5.7	<5	5.0	157	5.0	200	8.2	382
Dominican Republic	26.3	20.3	19.4	18.1	10.8	30.4	2,247	21.9	1,927	15.6	1,545
Ecuador	23.8	19.7	20.2	19.0	14.0	24.5	2,538	21.6	2,760	16.3	2,361
El Salvador	22.4	18.6	16.8	13.1	11.1	15.6	846	8.8	526	11.9	739
Guatemala	28.8	27.8	28.0	23.9	21.1	16.2	1,473	25.7	2,950	30.5	4,371
Guyana	25.4	22.7	19.0	17.3	14.4	19.7	142	8.0	59	5.0	38
Haiti	52.1	52.1	42.8	45.4	37.3	63.5	4,606	54.8	4,778	49.8	4,922
Honduras	26.5	24.7	20.4	17.8	13.4	21.4	1,078	15.7	999	8.7	662
Jamaica	12.5	10.7	8.8	8.2	8.1	9.0	216	6.7	174	8.6	235
Mexico	16.8	16.9	10.8	8.9	7.3	5.0	4,394	5.0	5,266	5.0	5,296
Nicaragua	38.3	32.2	25.6	17.8	13.6	55.1	2,334	31.3	1,620	21.7	1,183
Panama	21.5	18.4	20.1	18.1	9.6	22.8	578	24.1	751	8.7	278
Paraguay	17.2	15.8	13.5	12.0	10.5	19.7	858	12.1	660	22.3	1,316
Peru	30.7	25.0	20.9	18.8	9.1	32.6	7,241	22.8	6,012	11.8	3,271
Suriname	18.5	16.5	16.5	13.1	10.4	17.7	73	18.0	85	10.2	50
Trinidad and Tobago	13.7	14.7	12.3	11.4	8.3	13.6	167	13.5	171	7.6	99
Uruguay	12.2	9.4	7.6	8.1	5.7	7.3	228	5.0	166	6.2	209
Venezuela	16.3	15.3	15.2	13.1	7.0	13.5	2,729	16.2	4,029	5.0	1,451
LAC Region	19.0	17.0	13.7	10.9	8.0	15.2	66,283	12.2	63,264	9.0	50,887

Source: GHI: IFPRI (2014 and 2015); Undernourishment: United Nations World Development Indicators (2013).

Table 2. Food consumption as a proportion of total spending

	% total spending	Year
Brazil	19.8	2008
Chile	22.5	2006
Uruguay	25.0	2005
Colombia	27.4	2006
El Salvador	28.8	2005
Honduras	28.8	2005
Paraguay	28.8	2005
Mexico	29.2	2008
Panama	30.0	2008
Costa Rica	30.6	2004
Ecuador	30.6	2005
Peru	31.8	2005
Argentina	33.4	2004
Dominican Republic	37.0	2007
Venezuela	38.3	2005
Bolivia	38.8	2004
Nicaragua	44.5	2005
Guatemala	47.2	2006
Haiti	59.0	2007

Source: Economist Intelligence Unit (2013).

Source: FAOSTAT 2013.

Table 3. Food consumption by decile

Country	Year	Food consumption as a proportion of total consumption (%)	
		1st decile	10th decile
Honduras	2004	83.3	24.7
Bolivia	2002	60.3	17.0
Argentina	1996	56.5	17.5
Guatemala	2000	55.8	15.1
Jamaica	2007	54.3	26.6
Paraguay	2000	50.9	23.7
Colombia	2003	45.8	17.5
Mexico	2004	41.0	10.8
Brazil	2002	32.1	7.2

Source: Dupriez, Olivier (2007).

Table 4. Child anthropometric indicators (% of children under 5)

Country	Year	Wasting (%)	Stunting (%)	Overweight (%)
Argentina	2005	1.2	8.2	9.9
Belize	2011	3.3	19.0	7.9
Bolivia	2008	1.4	27.0	8.7
Brazil	2007	1.6	7.1	7.3
Chile	2008	0.3	2.0	9.5
Colombia	2010	0.9	12.7	4.8
Costa Rica	2008	1.0	5.6	8.1
Dominican Republic	2007	2.3	10.0	8.3
Ecuador	2004	2.3	29.0	5.1
El Salvador	2008	1.6	21.0	5.7
Guatemala	2009	1.1	48.0	4.9
Guyana	2009	5.3	20.0	9.0
Haiti	2012	5.2	30.0	3.9
Honduras	2006	1.4	30.0	5.8
Jamaica	2010	3.5	4.8	4.0
Mexico	2012	1.2	13.6	7.6
Nicaragua	2007	1.5	23.0	6.2
Panama	2008	1.2	19.0	6.2
Paraguay	2005	1.1	17.5	7.1
Peru	2012	0.6	28.0	9.8
Suriname	2010	5.0	8.8	4.0
Trinidad and Tobago	2000	5.2	5.3	4.9
Uruguay	2011	1.1	12.0	7.7
Venezuela	2009	4.1	13.0	6.4

Source: World Bank (2013); World Health Organization (2014).

Table 5. Prevalence of diarrhea and treatment (children ages 0 to 4; %)

Country	Study	Diarrhea prevalence last two weeks	Attended health clinic for child diarrhea	Have heard or know of ORS	No ORS, RHS, or increased fluids
Bolivia	2008	26.0	47.8	79.2	34.0
Brazil	1996	13.1	32.0	83.4	26.6
Colombia	2010	12.6	43.2	88.2	26.2
Dominican Republic	2007	14.7	52.7	91.0	36.4
Guatemala	1998-1999	13.3	31.8	89.3	41.4
Guyana	2009	9.9	58.8	66.8	36.3
Haiti	2012	20.8	33.9	98.2	27.9
Honduras	2011-2012	17.8	51.8	93.8	28.8
Nicaragua	2001	13.1	44.1	97.2	32.3
Peru	2012	12.3	33.4	71.0	32.2

Source: ICF International (2012).

Notes: ORS: Oral Rehydration Solutions; RHS: Recommended Home Solutions.

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