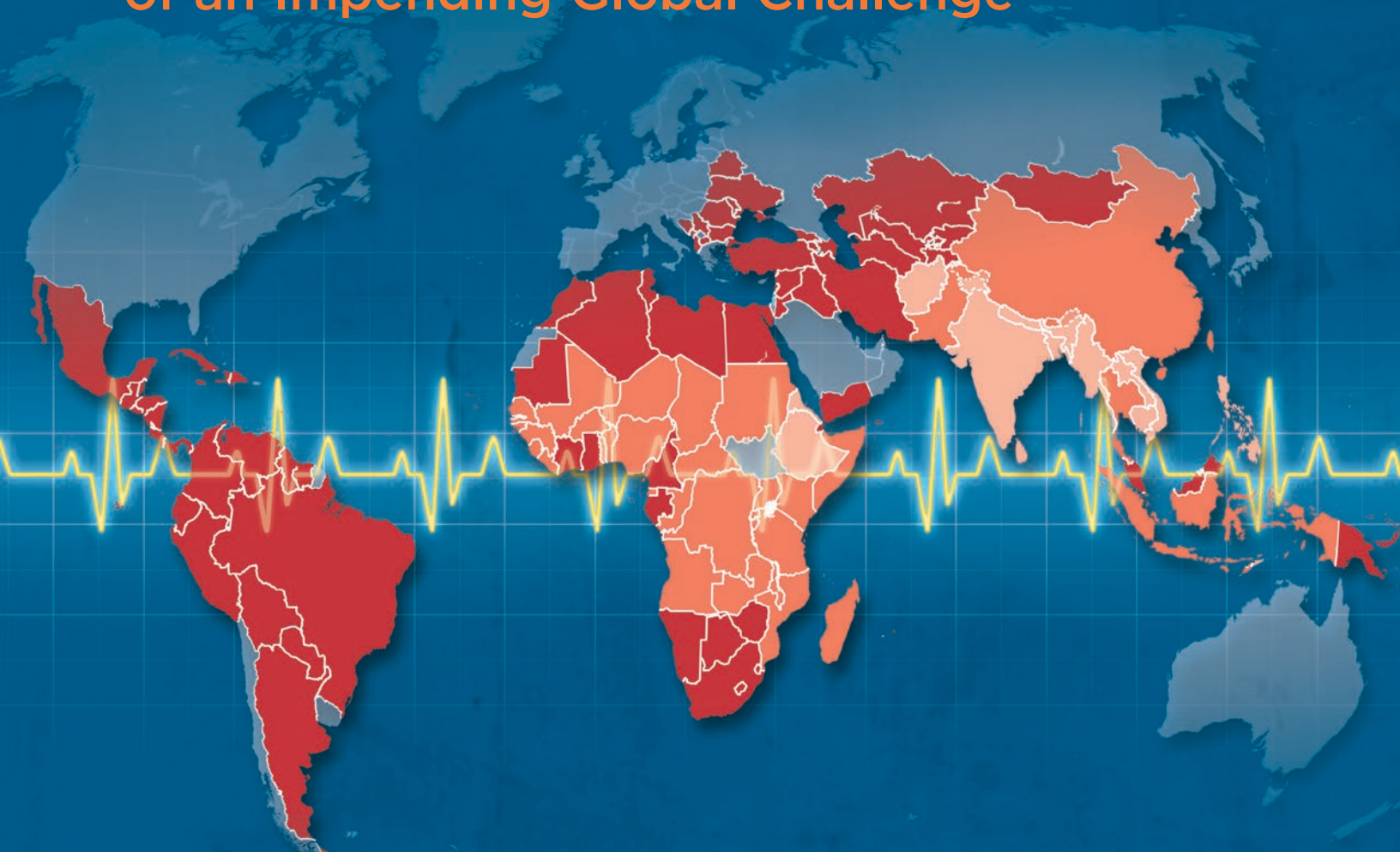


Obesity

Health and Economic Consequences
of an Impending Global Challenge



Meera Shekar and Barry Popkin, Editors

HUMAN DEVELOPMENT PERSPECTIVES

OVERVIEW

Obesity

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This overview booklet contains the executive summary, as well as the list of contents, from *Obesity: Health and Economic Consequences of an Impending Global Challenge* (doi:10.1596/978-1-4648-1491-4). A PDF of the final book, once published, will be available at <https://openknowledge.worldbank.org/> and <http://documents.worldbank.org/>, and print copies can be ordered at www.amazon.com. Please use the final version of the book for citation, reproduction, and adaptation purposes.

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Foreword

Being overweight/obese has long been perceived to be a problem only in high-income countries. However, recent data show that since 1975 obesity has nearly tripled and it now accounts for 4 million deaths globally every year. In 2016 over 2 billion people globally (44 percent) were overweight or obese, and more than 70 percent of these live in low- or middle-income countries, dispelling the myth that obesity is a problem only in high-income countries. Further, somewhat unexpectedly, 55 percent of the global rise is in rural areas, highlighting the huge potential negative economic and health impacts, especially for the poor and people living in rural areas. Overweight/obesity has a large impact on national economies—through reduced productivity, increased disability, increased health care costs, and reduced life expectancy. For example, in China between 2000 and 2009, the estimates of increased health care costs associated with obesity grew from 0.56 percent to 3.13 percent of China’s annual national health care expenditure. In Brazil, obesity-related health care costs are expected to double, from US\$5.8 billion in 2010 to US\$10.1 billion in 2050.

Today, overweight/obesity-related non-communicable diseases are among the top-three killers in every region of the world except Sub-Saharan Africa. Furthermore, as obesity increases rapidly and child stunting rates decline at relatively slow rates, many countries across the globe are now suffering from what is referred to as the “double-burden of malnutrition”—high stunting and increasing obesity rates—thereby further jeopardizing human capital.

This report, *Obesity: Health and Economic Consequences of an Impending Global Challenge*, is timely as it complements some recent and

forthcoming technical reports on this issue. It is also at the core of the World Bank’s Human Capital Project, which highlights the importance of investing in people to boost economic growth. The report reviews the changing epidemiology of overweight/obesity; current trends globally and by region, gender, and age; the health and economic costs, and the potential impacts of failure to address it, including on the climate; the potential effectiveness of policies and interventions; and country experiences and lessons learned, particularly with diet-related taxes and other preventive actions across several sectors. It puts forward a call to action for next steps in fighting this growing challenge.

Reducing overweight/obesity is a global public good. While the evidence base is still emerging, many countries are already struggling to put in place new policies, such as taxation on unhealthy foods and interpretive labels, to urgently address this looming epidemic. Governments and development partners such as the World Bank have key roles to play in supporting this effort through a transformative approach and additional financial and human resources dedicated to this agenda. Scaling up promising interventions and policies, and supporting reforms through multisectoral engagement, including through the private sector, and continuing to build the evidence base is key to preventing the rise of overweight/obesity in future generations. Proactively addressing this issue will contribute significantly to building human capital, ensuring higher economic growth, and sustaining a workforce that is healthy and prepared for a productive future.

Annette Dixon

Vice President, Human Development
World Bank

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This report was prepared by a team led by Meera Shekar (World Bank), who conceptualized the overall report, co-authored several chapters, and provided guidance and direction for the report. Barry Popkin (UNC Chapel Hill), Julia Dayton Eberwein (Consultant), Anne Marie Provo, and Kyoko Shibata Okamura (World Bank) contributed substantially to the overall report, as well as to several chapters. Pia Schneider, Jonathan Kweku Akuoku, and Georges Bianco Darido (World Bank) and Vanessa Oddo (Consultant) contributed as co-authors for specific chapters.

Anne Marie Provo and Carolyn Shelton led consultations with several World Bank sectoral teams. Juan Pablo Orjuela (Consultant), and Felipe Targa and Georges Bianco Darido from the World Bank's Transport Global Practice (GP) contributed to chapter 5.

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The team thanks Hope Steele for her incredibly skilled editing, done at rapid speed, and her patience with the technical terms and abbreviations. Thanks to Nicole Hamam for preparing the graphics.

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About the Editors

Barry Popkin is the W. R. Kenan, Jr. Distinguished Professor of Nutrition at the University of North Carolina at Chapel Hill (UNC). He developed the concept of the Nutrition Transition—the study of the dynamic shifts in our environment and the way they affect dietary intake, physical activity patterns and trends, and obesity and other nutrition-related non-communicable diseases. His research program focuses globally on understanding the shifts in stages of the transition and programs and policies to improve the population health linked with this transition (see www.nutrans.org). He is actively involved in work on the program and policy design and evaluation in the United States and globally, including collaborative research with colleagues in Brazil, Chile, Colombia, Mexico, and South Africa, for example (see Global Food Research Program at <http://globalfoodresearchprogram.web.unc.edu/>). He has a PhD in economics. He has received many major awards for his global contributions, including the 2016 World Obesity Society: Population Science and Public Health Award for top global public health researcher, the UK Rank Science Prize, and the Friends of Mickey Stunkard Lifetime Achievement Award of the Obesity Society.

Meera Shekar is Global Lead for nutrition with the World Bank's Health, Nutrition and Population Global Practice, managing key partnerships and firmly positioning nutrition within the World Bank's new initiative on Human Capital. She steered the repositioning of the nutrition agenda that led to the new global Scaling Up Nutrition (SUN) movement and was a founding member of the Catalytic Financing Facility for Nutrition that evolved into the Power of Nutrition. She is Chair of the SUN executive committee, and has been one of the principals for the aid-architecture for nutrition within the G8 and G20 agenda-setting process. She led the development of the first global Investment Framework for Nutrition and co-leads (with the Bill and Melinda Gates Foundation) the Nutrition Financing working group for the Nutrition for Growth (N4G) summit to be hosted by Japan in 2020. She has a PhD in international nutrition, epidemiology, and population studies from Cornell University; has consulted and published extensively; and is on various advisory boards and panels, including the Essential Living Standards index (forthcoming), Legatum Institute, UK and the advisory group at Gates Ventures.

Executive Summary

WHAT THIS REPORT DOES

This report lays out why overweight and obesity is a “ticking time-bomb” with huge potential negative economic and health impacts, especially for the poor and people who live in low- or middle-income countries, dispelling the myth that it is a problem only in high-income countries and urban areas. The report also lays out many of the current trends concerning overweight and obesity and complements all of the new and forthcoming technical reports on this issue in four distinct ways:

- First, it focuses on identifying evidence-based opportunities for fiscal and regulatory policy reforms and investments across several sectors that could potentially prevent overweight and obesity. In doing so, it builds on the epidemiological evidence from several technical reports to identify potentially promising actions; adds new information on the economic implications of overweight and obesity, including the equity perspective, that may be useful in making the case for action; and identifies the growing list of “double-burden” countries so as to spur urgent action in these countries.
- Second, it brings to bear implementation challenges and lessons learned from several country case studies where policies or interventions to prevent overweight and obesity have been rolled out at scale, with variable success.
- Third, and perhaps most important, it identifies an action agenda—specifically on the unique

role that client countries, with support from institutions such as the World Bank, can play in this space—and the instruments (policy and regulatory levers, technical assistance, and results-based financing instruments as well as investment lending) that the World Bank (and other similar institutions) can use in the near future to support countries in addressing the emerging epidemic of overweight and obesity and related non-communicable diseases (NCDs) across sectors.

- Fourth, the report reiterates research findings from recent technical reports from the *Lancet* that suggest that changing diets and food systems are also key to addressing the ongoing challenge of child stunting/undernutrition, along with the growing challenges of climate change. It also identifies key areas requiring further research and evaluations that may be important for future actions in this area.

OBESITY: THE PROBLEM DEFINED

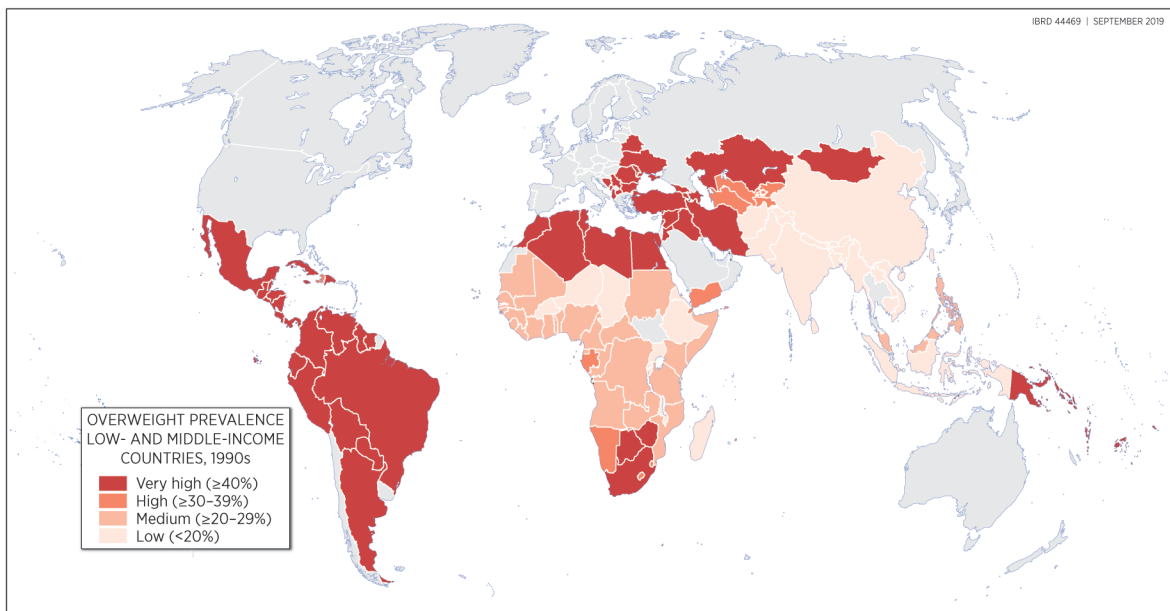
Overweight and obesity result from an imbalance between energy consumed (too much) and energy expended (too little). Globally, there has been a shift in food consumption patterns whereby people are consuming more energy-dense foods (those high in sugars and fats); at the same time, they are engaging in significantly reduced physical activity. Using the World Health Organization (WHO)’s cutoffs, adults with a body mass index (BMI; this is weight/height squared) of 25 or more

are classified as overweight; those with a BMI of 30 or more are classified as obese. The terms *overweight* and *obesity* both identify people who are at risk for health problems from having too much body fat. For simplicity in this executive summary, we will be using the term *obesity* to refer to both conditions.

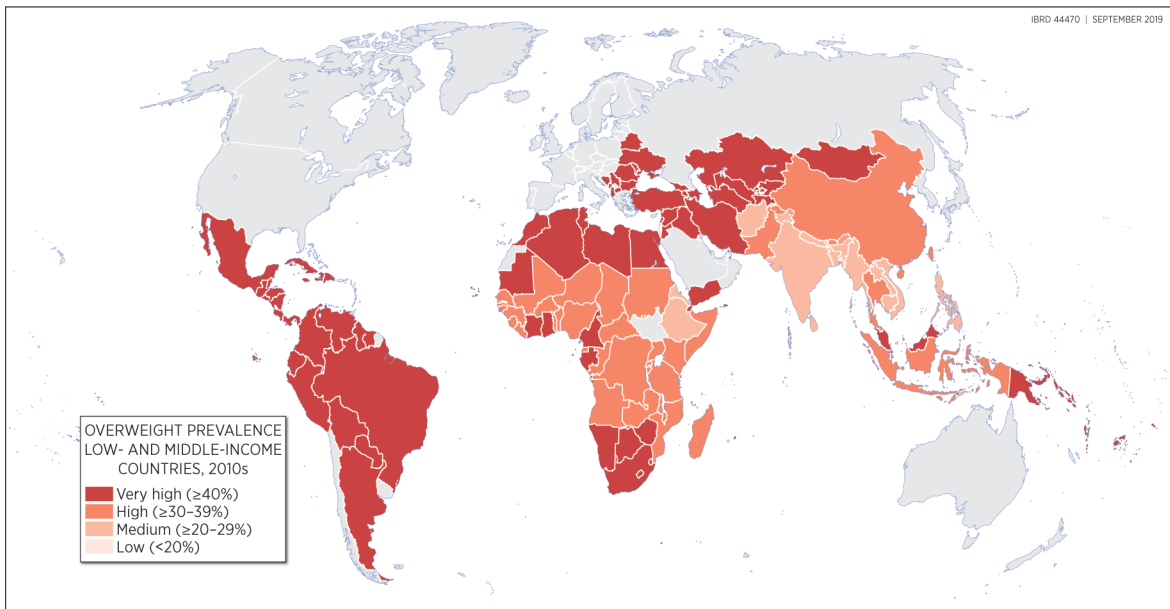
The ticking time-bomb of obesity has huge potential economic and health impacts, especially for the poor. As of 2016, an estimated 44 percent of adults (more than 2 billion) worldwide are overweight or obese, and over 70 percent of them live in low- or middle-income countries (see map 1 and figure 1).

MAP 1 Overweight and Obesity Prevalence: By Country Income Level

a. Low- and Middle-Income Countries
1990s



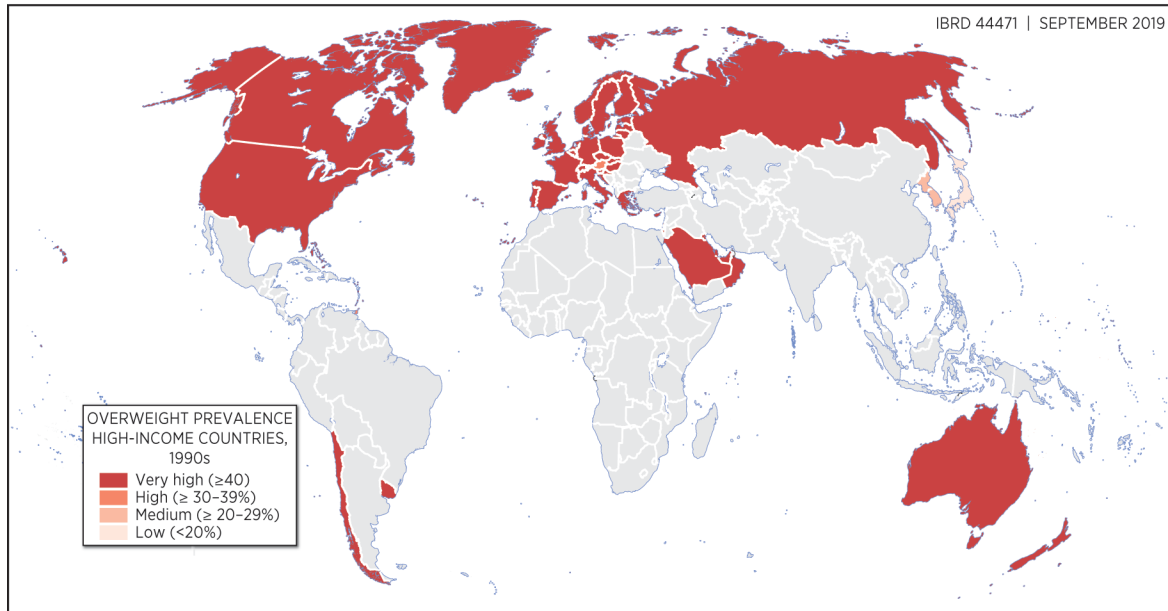
2010s



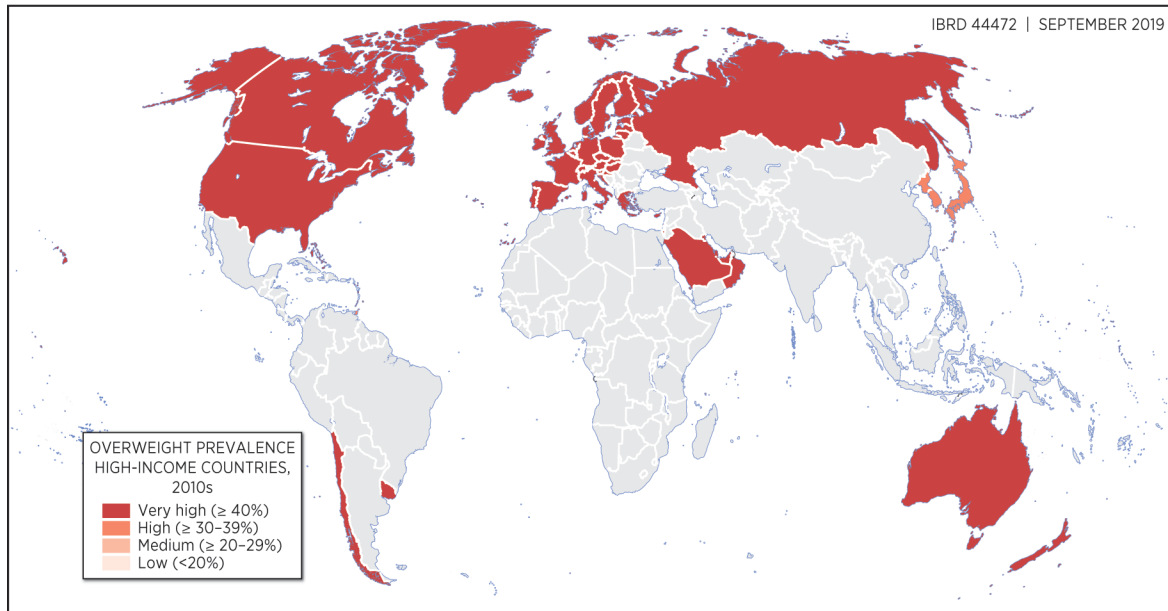
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MAP 1 Overweight and Obesity Prevalence: By Country Income Level (*Continued*)

b. High-Income Countries 1990s



2010s



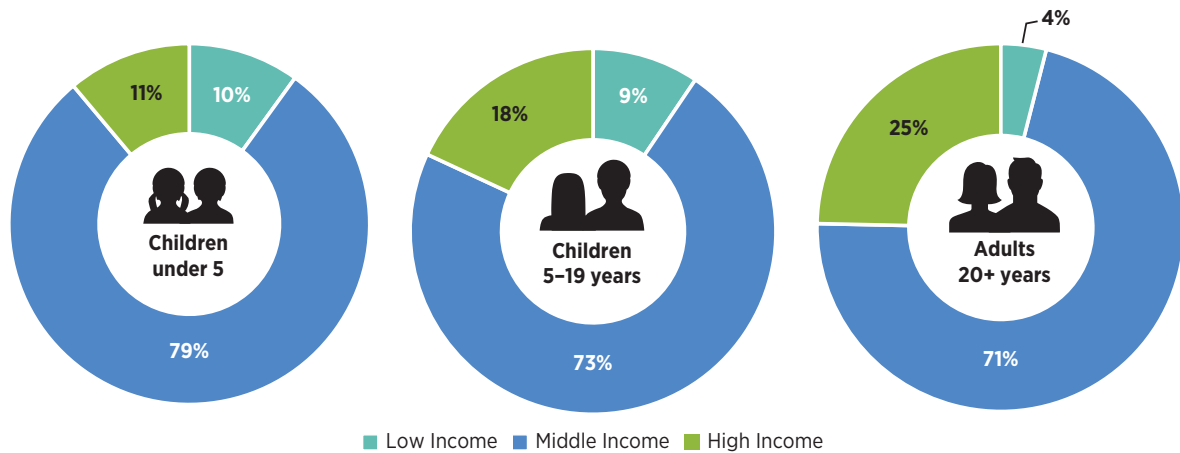
Sources: Popkin, Global Food Research Program, University of North Carolina. Data are from UNICEF, WHO, World Bank, and NCD-RisC estimates, supplemented with selected Demographic and Health Surveys and other country direct national measures.

Note: Based on 1990s and 2010s weight and height data.

Over 70 percent of countries—the vast majority of which are low- and lower-middle-income countries—currently face a double burden: a high prevalence of both undernutrition and obesity. As per capita income increases, the burden of obesity

shifts to the poor and to rural areas across low- and middle-income countries. Over 55 percent of the global rise in obesity is found in rural areas; in South East Asia, Latin America, Central Asia, and North Africa this increase is close to 80 or 90 percent of the

FIGURE 1 More Than Three-Quarters of Overweight or Obese Individuals Live in Middle-Income Countries



Data source: Data on overweight and obesity levels from NCD-Risc data for 2016, <http://ncdrisc.org/data-downloads.html>; county income classifications based on World Bank criteria as of 2015.

recent shift. This has significantly closed the urban-rural gap in most regions except Sub-Saharan Africa and South Asia. Today most of the countries in the world with high levels of the double burden are found in Sub-Saharan Africa, South Asia, selected South East Asian countries (Indonesia being most prominent), and Guatemala. This is a marked shift from the 1990s, when Mexico and most of Central America, Bolivia, Peru, South Africa, Francophone Africa, Egypt, parts of Central Asia, and the Philippines faced severe levels of the double burden.

In addition, in many low- and middle-income countries, for an array of genetic and epi-genetic reasons, populations are more susceptible to NCDs at BMI levels lower than 25 (overweight).

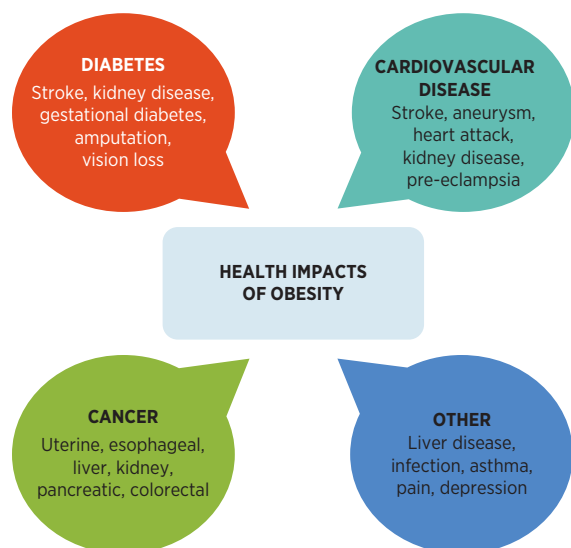
Childhood obesity is particularly damaging. It puts the child at high risk of developing debilitating NCDs earlier in life and living with them longer, denying the child her or his full health and economic potential. It also puts in place a trajectory of poor diet and activity patterns that accentuate the risks of increased weight gain. Concurrently, stunting and poor growth during the first 1,000 days of life significantly increase children’s risks of accumulating visceral fat (obesity in central areas of the body) and many related NCDs later in life when they are exposed to a lifestyle dominated by ultra-processed foods and

reduced physical activity. Consequently, many low-income countries are starting to suffer from the double burden of malnutrition—increases in overweight and obesity even as the burden of undernutrition remains high. The long-term costs of obesity and NCDs will be significantly exacerbated by the lag in the impact of current and past stunting reduction programs.

THE HEALTH AND ECONOMIC COSTS OF OBESITY

Increasing health care costs linked to increasing obesity rates are a trend across the world, and both overweight and obesity are significant risk factors for NCDs (see figure 2).

The critical issue in understanding the economic impacts of obesity is that mortality, albeit significantly increased, is not the only major outcome. Reduced productivity, increased disabilities, increased health care costs, early retirement, and reduced length of disability-free healthy living across the life cycle—all of which will impact human capital outcomes in countries—are also significant consequences. As obesity rates are rapidly increasing, global attention to this issue is increasing. Poor diets, a lack of physical activity, and overweight and obesity are now recognized as the top preventable causes of NCDs in all countries in the world.

FIGURE 2 Health Impacts of Obesity

The estimated economic costs of obesity vary considerably, since studies use different methodologies to estimate direct and indirect costs. For example, estimates from the United States range from US\$89 billion to US\$212 billion in total costs; those from China are expressed as 3.58 and 8.73 percent of gross national product (GNP) in 2020 and 2025, respectively; and Brazil projects a doubling of the obesity-related health care costs from US\$5.8 billion in 2010 to US\$10.1 billion in 2050. The effects of obesity on productivity, early retirement, and disabilities have rarely been studied in low- and middle-income countries. In addition, the same poor diets dominated increasingly by ultra-processed foods and the reduced activity patterns that affect obesity increase the risk of a wide array of NCDs directly as well as indirectly.

Whatever estimates one might subscribe to, the big picture message is that increasing health care costs linked to increasing obesity rates are a trend across both the developed and the developing world. Preventing obesity therefore makes sense from a public finance perspective. Governments and development partners have a key role to play in this effort, including by ensuring that consumers are informed about the health and other consequences of their dietary and lifestyle choices.

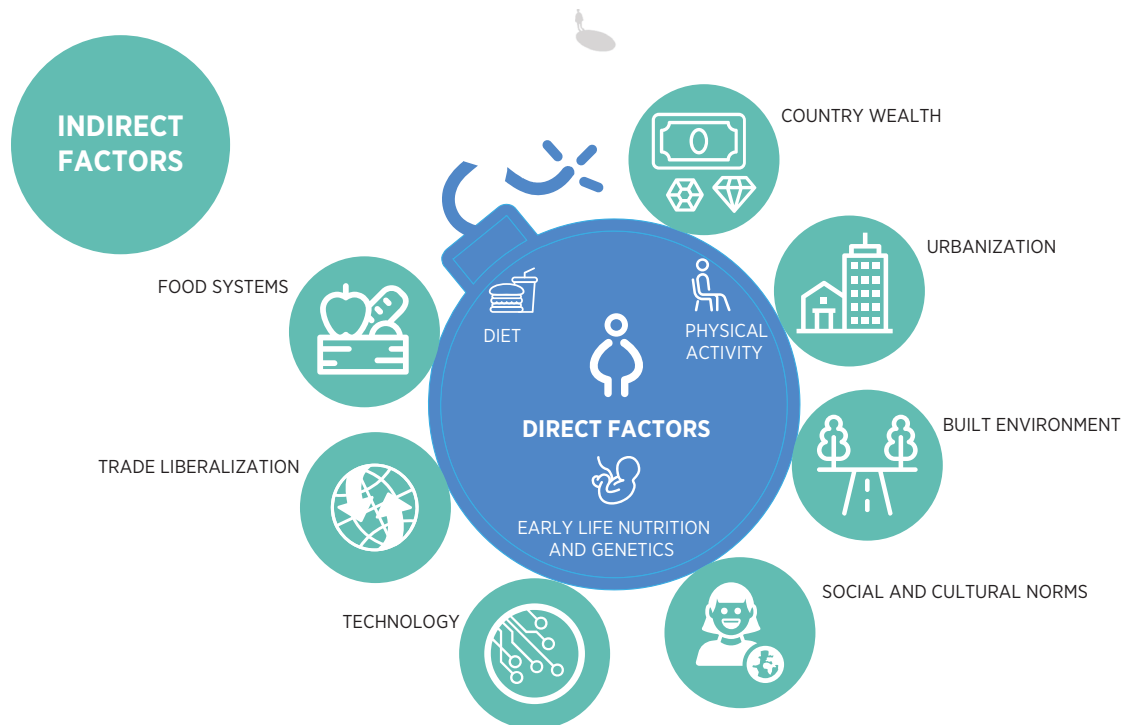
FACTORS AFFECTING OBESITY

The analyses presented in this report suggest that the following conditions that emerge with globalization, urbanization, and technological development are affecting the rise in obesity rates globally:

- Rapid reductions in physical activity in all domains of activity, from market-related work and home production (for example, water gathering, food preparation/cooking) to transportation and leisure in low- and middle-income countries in the last 15–35 years. These were based on global access to labor-reducing technologies.
- Rapid shifts in the built environment, which contributed both to reduced physical activity in many cases and to changes in the food environment.
- The spread of modern food retailing and a rapidly changing food system. This has led to major shifts toward diets dominated by ultra-processed foods, and was linked to higher price increases for healthy foods than for unhealthy products.
- Women entering the formal market labor force in large proportions in most high-income countries and in low- and middle-income countries, requiring changes in food consumption.
- Shifts in eating patterns, which have led to increased snacking and away-from-home eating.
- Increased country and household income, which have been linked to a shift to greater obesity among the poor in all high-income countries and in an increasing proportion of low- and middle-income countries.
- Increased wealth in many low-income countries, which has shifted them to middle-income countries and in some cases to high-income countries.
- Modern media and marketing that, along with globalization, has shifted social and cultural norms related to dietary and activity patterns.

Based on these emerging conditions, the conceptual framework below highlights the actionable direct and indirect factors associated with obesity (figure 3).

FIGURE 3 Factors Affecting Obesity: A Conceptual Framework



OPPORTUNITIES TO ADDRESS OBESITY

The evidence base for preventing obesity is still emerging. Table 1 summarizes the promising interventions/policies that have the potential to prevent obesity. These include a range of:

1. fiscal policies such as taxation and subsidies;
2. regulatory policies on marketing and advertising (including direct marketing to children in schools);
3. food systems approaches, including the proliferation of modern food retailing and away-from-home food service options—some formal and many informal;
4. education sector policies that affect areas such as school cafeterias, marketing, and sales of unhealthy food in and around schools, as well as physical activity in schools;
5. transport and urban design interventions such as mass transit and city and building design; and
6. early childhood nutrition programs to address undernutrition.

Unlike many other public-health interventions, very few of these policies or interventions (except for early childhood programs) have been rigorously evaluated, and they have not been and cannot be tested through randomized controlled trials. Few have undergone systematic reviews because their effectiveness has not yet been demonstrated or carefully documented. Nonetheless, initial assessments, a limited number of systematic reviews, and lessons from several countries suggest that the following policies/interventions are promising—not just for their potential impacts on preventing obesity, but also for potential climate co-benefits. In addition, there are a series of interventions that have been shown to impact undernutrition, such as breast-feeding promotion, that are also triple-duty actions in terms of their simultaneous impact on undernutrition, obesity, and climate change.

COUNTRY EXPERIENCE TO DATE

While fiscal policies linked mainly to taxation on sugar-sweetened beverages have dominated as key interventions in over 40 countries to reduce

TABLE 1 Key Interventions with Potential for Impact

Policy			
Intervention type	Goal	Effectiveness demonstrated	Potential impact and scope of impact on target population
Fiscal policies			
Taxes/subsidies	Reduce consumption of ultra-processed foods and beverages, primary focus to date on sugar-sweetened beverage reduction	Chile, Mexico United Kingdom and South Africa [papers forthcoming]; U.S. cities	<ul style="list-style-type: none"> Impact depends on the size/design of the tax Nutrient-based taxes such as tiered taxes and taxes based on number of grams of sugar promote reformulation Impactful in reducing consumption among high-volume consumers, with potential for prevention of overweight/obesity among children/adolescents
Regulatory policies on marketing and advertising			
Front-of-the-package warning labels	Reduce consumption of ultra-processed foods and beverages; change eating norms	Chile [unpublished series of papers forthcoming]	<ul style="list-style-type: none"> Very impactful when combined with other linked policies Universal targeting
Marketing controls on foods for children	Reduce consumption of ultra-processed foods and beverages; change eating norms	Chile, many others	<ul style="list-style-type: none"> Potential for impact when linked to other policies Can reduce child exposure; total family exposure does not change
Regulations on total marketing and sales of unhealthy foods	Reduce consumption of ultra-processed foods and beverages; change eating norms	Chile	<ul style="list-style-type: none"> Potential for changing norms Reaches all children; more impactful on younger children
Retailer interventions	Reduce consumption of ultra-processed foods and beverages	United States, United Kingdom	<ul style="list-style-type: none"> Potential for high impact Potential for important food purchase changes
Agriculture/food systems approaches			
Agriculture research	Incentivize research on underserved foods (legume, fruits, vegetables)	CGIAR	<ul style="list-style-type: none"> Potential for high impact Potential to shift relative prices
	Ensure agriculture research has a nutrition focus, not just a yield focus	CGIAR, country programs	<ul style="list-style-type: none"> Potential high in general; only initial stages of efforts globally Potential huge for shifting relative food prices
Agriculture subsidies	Eliminate subsidies for unhealthy ingredients (for example, sugar, corn, palm oil)	Yet to be implemented	<ul style="list-style-type: none"> Potential impact unclear for shifting relative prices; but could provide fiscal benefits for countries
Food processing	Build awareness of unhealthy ingredients used in food processing	Yet to be implemented	<ul style="list-style-type: none"> Potential impact unclear
Formal food service sector	Reduce consumption of ultra-processed foods and beverages	None	<ul style="list-style-type: none"> Potentially impactful As income increases, the proportion of meals eaten outside the home increases rapidly, so the potential impact rises Dependent on laws impacting pricing policies, labeling, sizing
Informal food service sector	Reduce consumption of ultra-processed foods and beverages	Singapore	<ul style="list-style-type: none"> Great potential but requires experimentation (existing experience shows limited impact as focus is on sanitation, healthy oils; no pricing/portion controls used)
Education sector approaches			
School food service quality and school premise sales regulations	Reduce consumption of ultra-processed foods and beverages; change eating norms for children	CGIAR, country programs	<ul style="list-style-type: none"> Potential high; only initial stages of efforts globally Potential huge for shifting relative food prices
Active transport and building/city design			
Mass transit system	Increase movement, energy expenditure	None	<ul style="list-style-type: none"> Minimal potential for impact on overweight/obesity but important for health and climate Mostly affects low- and middle-income populations

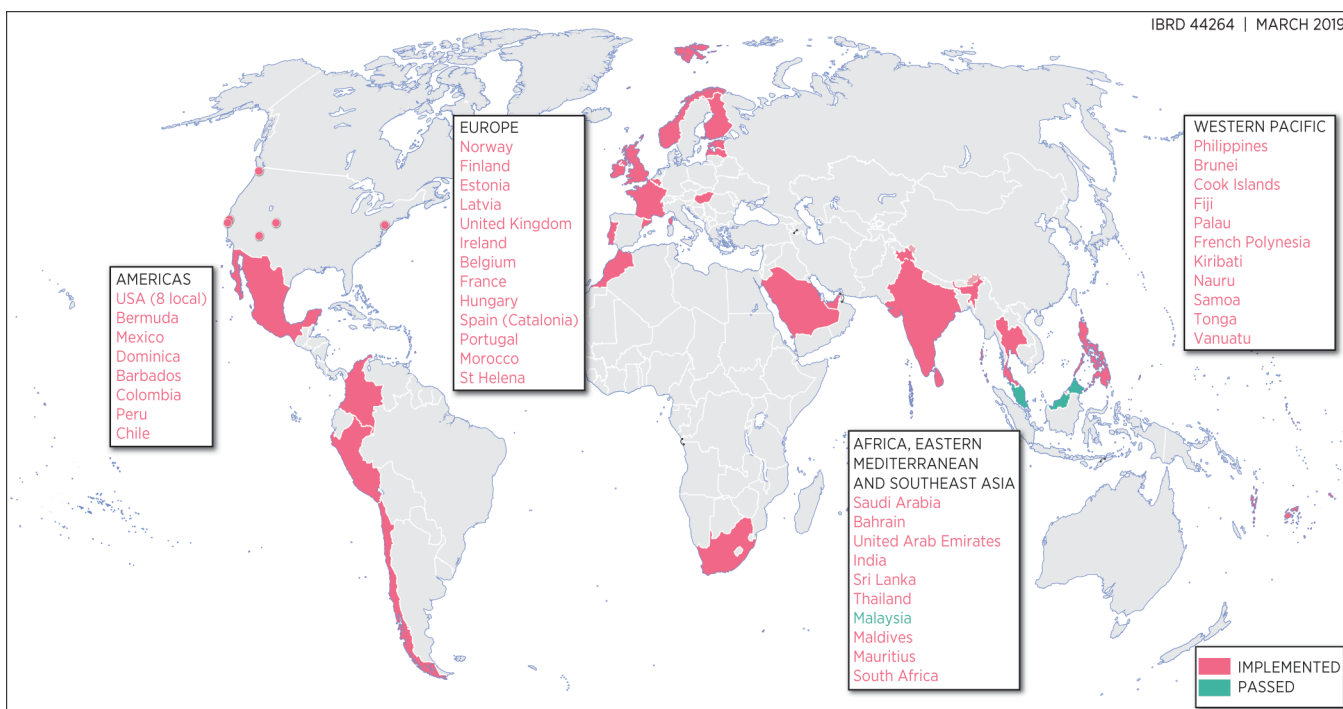
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TABLE 1 Key Interventions with Potential for Impact (Continued)

Policy			
Intervention type	Goal	Effectiveness demonstrated	Potential impact and scope of impact on target population
City design: parks, cycling lanes	Increase movement, energy expenditure	Colombia, Netherlands, United Kingdom	<ul style="list-style-type: none"> • Potential for impact among users
Building design to enhance walking	Increase movement, energy expenditure	Europe, United States, Australia	<ul style="list-style-type: none"> • Minimal impact on overweight/obesity but important for health • High potential for increasing physical activity
Early childhood nutrition programs			
Breastfeeding promotion	Improve breastfeeding rates	Many countries	<ul style="list-style-type: none"> • Impact global as documented across many low-, middle-, and high-income countries
Prevention of early childhood stunting	Well-documented package of interventions across sectors	Many countries	<ul style="list-style-type: none"> • Relevant mostly for low-income countries and some middle-income countries

Note: CGIAR = Consultative Group on International Agricultural Research.

MAP 2 Sugar-Sweetened Beverage Taxes around the World

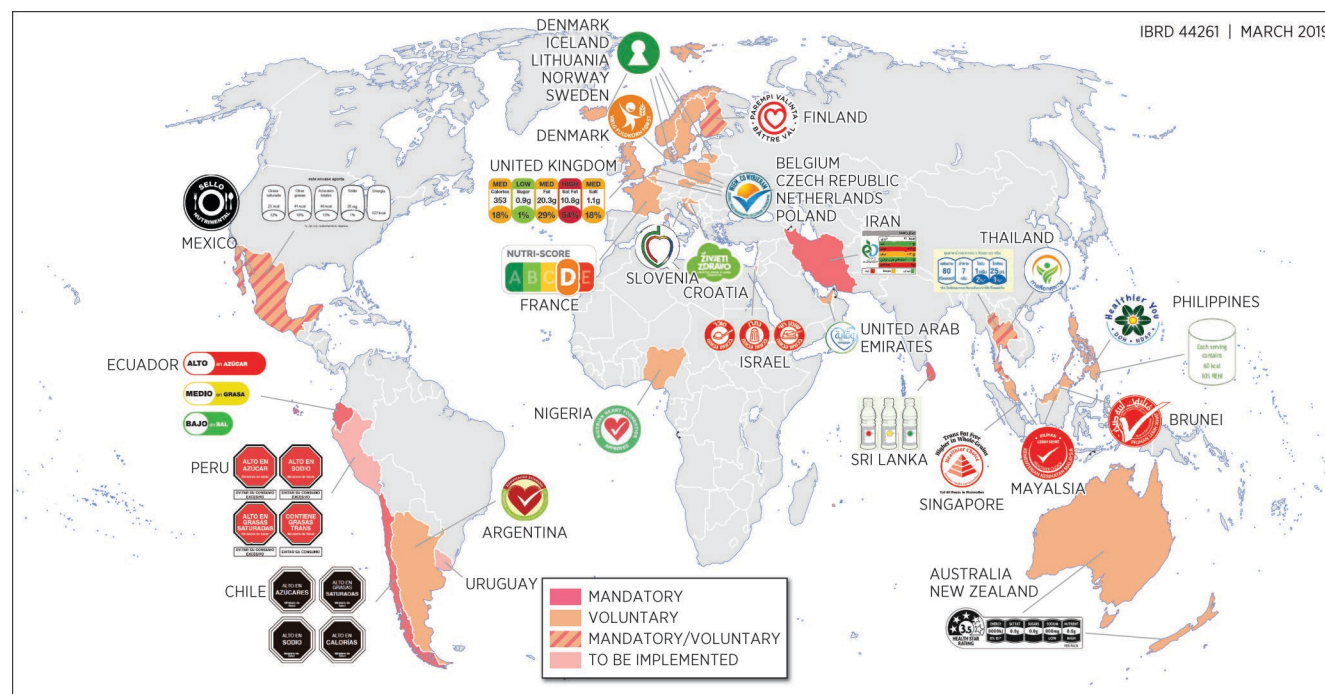


Source: Global Food Research Program, University of North Carolina, <http://globalfoodresearchprogram.web.unc.edu/multi-country-initiative/resources/>.
 Note: SSB = sugar-sweetened beverages.

consumption of unhealthy foods (see map 2) and there is extensive experience in this area, many other regulatory options are being used by countries to improve diet quality (map 3). These include front-of-the-package labeling, nutrient profiling, school-based food regulations and

education, market and retail solutions, and marketing controls and regulations. Front-of-the-package labeling and related nutrition profiling models with warning labels show great promise; diet-related taxes also remain a promising approach, albeit they will face challenges.

MAP 3 Countries with Mandatory or Voluntary Front-of-the-Package Labels



Source: Global Food Research Program, University of North Carolina, 2019, <http://globalfoodresearchprogram.web.unc.edu/multi-country-initiative/resources/>.

The main challenges to the successful implementation of these taxes are a tax system's administrative capacity, substitution effects, tax evasion, and opposition from the food industry. These challenges need to be considered when designing effective tax policies. Countries with strong tax administration generally design excise taxes based on nutrient content, albeit taxes on product volumes may be easier to implement in countries where tax administration is not so strong. Tiered tax systems based on sugar content appear to be another promising approach. And experience suggests that a regional approach to taxation will likely reduce cross-border purchases and prevent resulting tax evasion. A combination of policies, such as those in Chile, promises important synergies and much larger impacts.

No countries have yet considered tying the taxes to subsidies for healthier legumes, vegetables, and fruits and other healthful, less obesogenic foods, although earmarking sin taxes for public programs brings even more challenges. Experience in marketing regulation of unhealthy foods is also limited, except perhaps what has been learned from the marketing of infant formulas. However, new

research emerging from Chile will shed more light on this approach, suggesting that carefully designed laws may be impactful on exposure to obesogenic foods. Furthermore, emerging evidence also suggests that impacts of such obesity-prevention policies are starting to be realized. For example, the 10 percent tax on sugar-sweetened beverages in Mexico is estimated to reduce obesity by 2.5 percent by 2024 and prevent 86,000 to 134,000 new cases of diabetes by 2030; another study estimated a reduction of 189,300 fewer cases of type 2 diabetes, 20,400 fewer cases of strokes and myocardial infarctions, and 18,900 fewer deaths occurring from 2013 to 2022 in Mexico as a result of this taxation.

Important shifts in urban planning and design are also being undertaken. All forms of design that increase physical activity—from building design that makes stairs an attractive option to urban design that incentivizes and enables biking and walking—are important. Reducing car use and increasing mass transit/biking/walking are major global needs, which also have significant climate co-benefits. However, current experience with improved

physical activity and obesity prevention is limited to a handful of countries, mostly in the global north and South America. While these are promising strategies, future efforts need to build in evaluation of large-scale urban or national programs to document their impacts. There are no evaluations as yet equivalent to the Mexican or Chilean rigorous evaluations of their food-related fiscal and regulatory policies in the physical activity domain.

It is also important to note that this is the beginning of large-scale policies and regulations designed by countries to improve diet quality, increase physical activity, and prevent obesity, and so to contribute to healthy living throughout the life cycle. Many of these policies and regulations will have significant climate co-benefits as well. In the first half decade, over 50 countries have engaged in some major fiscal policy or regulatory action in this area. Many evaluations currently underway will assist in providing evidence on which approaches may also have the greatest impact on water use and carbon emissions, but major gaps still exist between the evidence concerning impact and best practices today.

CONCLUSIONS AND NEXT STEPS

The global obesity epidemic presents a formidable challenge to human capital acquisition, national wealth accumulation, and the goals of ending extreme poverty and boosting shared prosperity. While reductions in undernutrition are being observed globally and investments in reducing undernutrition are at an all-time high, obesity rates are rising rapidly.

Continued economic growth among the world's low- and middle-income countries will only intensify the magnitude of the devastating impacts of obesity on health, well-being, and productivity. Furthermore, as economies grow, the burden of obesity will shift even more toward the poor, making it all the more imperative for the global development community, including institutions such as the World Bank, to engage.

Obesity has a large impact on national economies—both through reduced productivity, increased disability, and reduced life expectancy, and through significantly increased health care costs. The effort to reduce obesity is therefore a

global public good and governments have a key role to play in addressing this challenge through a comprehensive approach to policy formulation and intervention, including in the agriculture, environment, transport, education, fiscal, and health care sectors.

Recent technical reports from the *Lancet* suggest that, in addition to addressing obesity, changing diets and food systems are also key to addressing the growing challenges of climate change as well as the ongoing challenge of child stunting and undernutrition. The shift in diets and activity patterns globally linked to increased obesity are also linked to important water and carbon emission concerns, thus perpetuating what is termed by the *Lancet* Commission on Obesity as the *syndemic of undernutrition, overweight/obesity, and climate change*.

The good news is that there are also potential double- and triple-duty actions that will provide climate co-benefits in addition to being promising interventions to address obesity and undernutrition. For example, sugar is one of the more water-intensive crops, and reduced sugar consumption is expected to lead to important reductions in water use and related climate co-benefits. The *Lancet* EAT Commission report also advocates a shift toward more sustainable plant-based diets to address both obesity and climate change. The World Bank has the ability to work across these sectors and to help guide countries toward fiscal and regulatory policies as well as investment policies to prevent further increases in obesity, while also tackling undernutrition and climate change through double-duty and triple-duty actions that have an impact on undernutrition, obesity, and climate change.

Countries need to act urgently to address obesity. Development partners such as the World Bank are in a unique position to support client countries in low-, middle-, and high-income countries to better prevent obesity. In their engagement with country governments, development partners can highlight the issue of obesity as one requiring corrective public action rather than one of individual responsibility. And agencies such as the World Bank can transform this advocacy into tangible investment opportunities through the repertoire of analytical, diagnostic, policy, technical assistance, and

investment tools that can be deployed to address different aspects of the obesity challenges.

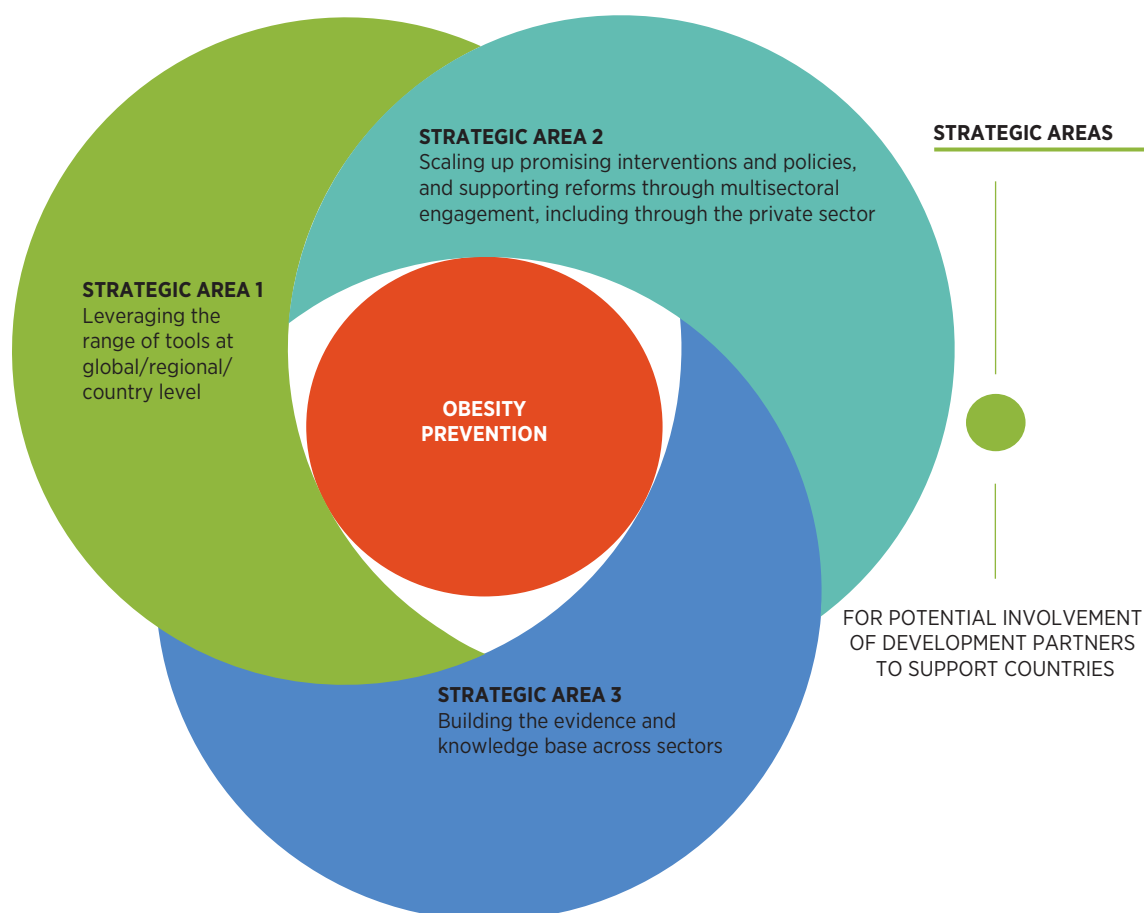
Given the renewed global focus on human capital, its links to the obesity epidemic, and the growing evidence base for double- and triple-duty actions, there are both an urgent need and great opportunities for advocacy and action at scale. The health sector needs to lead on diagnostics, but tackling this complex agenda will require both a whole-of-government and a whole-of-development partner approach, with the agriculture, transport, macroeconomics, trade and investment, and education sectors each having a major role to play.

The report concludes that client countries, with support from development partners such as the World Bank, are well positioned to address the economic and health consequences of obesity.

There are three key strategic areas in which these agencies, including the World Bank, can support countries to maximize their impact (figure 4). These are:

- Strategic Area 1: Leveraging the range of advocacy, policy, and investment tools available to countries and development partners at global, regional, and country levels
- Strategic Area 2: Scaling up promising interventions and policies, and supporting reforms through multisectoral engagement, including through the private sector
- Strategic Area 3: Building the evidence and knowledge base across sectors to document impacts and best practices on how to implement these policies/interventions

FIGURE 4 Strategic Areas for Potential Action



The following five key areas are identified as critical for further research and analysis by countries and development partners:

- Documenting the impact of fiscal and regulatory policies and cross-sectoral interventions in countries where these are being applied, including a focus on how these can be adapted in different country contexts
- Quantifying the climate co-benefits of investing in obesity prevention policies and programs
- Building the evidence base for food systems approaches to prevent obesity
- Instigating stronger engagement with the private sector
- Quantifying the contribution of obesity to adult survival rates and the Human Capital Index

Small tweaks to current engagement models will not be sufficient. A transformative approach and additional financial and human resources need to be dedicated to this agenda by all countries, as well as by development partners. Building internal capacity within client countries as well as within partners such as the World Bank to work across sectoral boundaries and with nontraditional partners will be crucial. The experience with tobacco suggests that this will be a long road, but it is feasible, in consultation with like-minded global and national partners such as Bloomberg Philanthropies, the EAT Foundation, UN partners such as the WHO and UNICEF, and academia and civil society.

This report, *Obesity: Health and Economic Consequences of an Impending Global Challenge*, is timely; it complements recent and forthcoming technical reports on this issue. It is also at the core of the World Bank's Human Capital Project, which highlights the importance of investing in people to boost economic growth. The report reviews the changing epidemiology of overweight/obesity; current trends globally and by region, gender, and age; the health and economic costs, and the potential impacts of failure to address it, including on the climate; the potential effectiveness of policies and interventions; and country experiences and lessons learned, particularly with diet-related taxes and other preventive actions across several sectors. It puts forward a call to action for next steps in fighting this growing challenge.

