

# Sugar-Sweetened Beverage Taxation

*[A Policy Guide for India]*

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## EXECUTIVE SUMMARY

India is the world's second largest sugar producer<sup>1</sup> and is home to the second largest population of people suffering from diabetes.<sup>2</sup> For the last 150 years, the Indian government has heavily invested in the sugar industry through funding, research, and policy, representing a major influence over the six million sugarcane growers<sup>3</sup> and the nearly 50 million employees and their families supported by the sugar industry today.<sup>4</sup> India is projected to become the world leader in the prevalence of type 2 diabetes by 2025<sup>5</sup> and it is estimated that by 2030, the number of adults in India with diabetes will reach nearly 121 million, accounting for over 10% of the adult population.<sup>6</sup>

Currently, the Indian population accounts for 13% of total worldwide sugar consumption and both the Indian population and its demand for sugar is growing steadily every year.<sup>7</sup> India's population is expected to reach 1.5 billion by 2030, which will lead to twice the demand for sugar if appetites for this commodity continue on the same trajectory. Sugar products, like sugar-sweetened beverages (SSBs) account for 65% of domestic demand,<sup>8</sup> and the consumption of sugar-sweetened beverages (SSBs) has been recognized as a significant global driver of obesity and attendant complications.<sup>9</sup>

Considering the severity of these combined issues, addressing chronic disease has created a unique intersection between policy, economics, and public health.<sup>10</sup> Public health officials and academic studies consistently cite taxing SSBs as the primary mechanism for reducing the impact of SSB consumption on obesity and other chronic diseases.<sup>11</sup> Although this report focuses on fiscal policy, a tax in isolation is insufficient to eradicate the obesity and diabetes epidemics. Policies that address public health issues are likely to have small effects if global economic forces are not also

addressed.<sup>12</sup> Optimizing the effect of a tax will depend on the strategies implemented by policymakers to educate consumers, support farmers, challenge the sugar lobby and address the spiraling forces of globalization and inequality.

Although Indians have traditionally consumed sugar at high rates, the colonization of the country and Westernization of the food industry has led to unprecedented dietary changes and health consequences.<sup>13</sup> The spread of capitalism into developing nations, like India, has "provoke[d] both nutritional insufficiency and nutritional excess," creating the "dual burden" of under- and over-nutrition across the same populations.<sup>14</sup>

India has been targeted as a key market for multinational food and beverage corporations, which over the last several decades have increased the availability and accessibility of nutritionally deficient, high calorie foods and beverages in the marketplace. Both genetic factors and changes in diet make South Asians particularly vulnerable to diabetes without the added risk of obesity, which is also a significant risk factor of diabetes.<sup>15</sup> Historically, the burden of malnutrition in India is attributed to undernourishment. Yet the excessive consumption of nutrient deficient foods has caused staggering rates of obesity and diabetes making overnutrition a serious challenge.

The leading argument against SSB taxes is that they are regressive, disproportionately affecting lower-income populations than high income groups, further contributing to systems of inequality already very present in India. We suggest that while the tax may in some cases be mildly regressive, the disease associated with high sugar consumption disproportionately, and far more seriously, affect the poor.<sup>16</sup> In India, low-income groups suffer disproportionately from an overburdened public healthcare system.<sup>17</sup> Over 75% of deaths from non-communicable diseases occur in low and middle income countries making India

significantly more vulnerable to the consequences of diet-related chronic diseases. The variability in consumption of SSBs between low and high income groups presents an equity issue. Any intervention that reduces the purchasing and consumption of SSBs thereby also reduces the incidence of these chronic diseases in lower income groups more than higher income groups, creating a disproportionate benefit to society. Addressing chronic disease must include addressing inequality. An intervention that limits the continued increase of dietary related diseases in India will both reduce the burden on the healthcare industry and alleviate the growing inequity in health outcomes of disparate populations.

Fiscal policies are recommended as only one aspect of intervention discussed in this report. Policymakers are advised to consider additional components in a comprehensive public health strategy that includes elements such as public education campaigns, restrictions on advertisements targeting children, and support for farmers to reduce their dependence on sugar production. Furthermore, a fiscal policy that combines both a tax and a shift away from sugar subsidies to more environmentally sustainable, nutritionally viable crops has the potential to exponentially increase the impact of the policy on intended outcomes. The possibility of combined interventions may both reduce the incidence of diabetes as well as generate revenue that can be invested in education, healthcare, and other public benefits in India.

There are no quick fixes. This report offers an extensive review of policies around food sin taxes that have been implemented in other countries and offers insights that may be useful for developing the SSB tax in India. The case studies serve as a guide, not a definitive roadmap. The long history of sugar consumption, commodification, and cultural relevance will influence the trajectory of impact. Regardless, the current data and projected estimates demonstrate the need for policy intervention to not only reduce the dependence of the agricultural sector on

sugar production, but also mitigate the public health epidemic that India and the rest of the world face.

Non-Communicable Diseases (NCDs), also known as chronic diseases, are not passed from person to person and can result from environmental factors and unhealthy behaviors. They are of long duration and generally slow progression. The 4 main types of non-communicable diseases are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes. Roughly 75% of deaths from NCDs occur in low and middle income countries. *Source: World Health Organization*

## INTRODUCTION

### MALNUTRITION AND CHRONIC DISEASE

Malnutrition is a condition that can be characterized both by undernutrition, which results from an inadequate intake of nutrients or overnutrition, which results from excessive consumption of food. The World Health Organization (WHO) claims that malnutrition is “the gravest single threat to global public health,”<sup>18</sup> and chronic diseases, specifically dietary related non-communicable diseases (NCDs) have become a growing concern for countries across the globe. The simultaneous occurrence of both types of malnutrition within countries and often across populations with similar characteristics is known as the “dual burden.”<sup>19</sup>

Obesity has become a global phenomenon, and mounting evidence suggests it is a risk factor for other NCDs, specifically heart disease, diabetes, and certain types of cancers.<sup>20</sup> Obesity was once considered a concern of only high income countries, but more recently, evidence suggests that both low and middle income countries experience large negative economic impacts from obesity and other chronic diseases.<sup>21</sup> Obesity is an increasing problem in urban areas as well as among the indigenous populations living in industrialized nations.

Historically, undernutrition has been associated with low-income countries and overnutrition with high-income countries; however the last several decades have seen an “epidemiologic transition” in many developing countries, redefining the terms of global health, making it possible for populations and even households to have members who are overweight and undernourished.<sup>22</sup> There has been a rapid increase in obesity rates across many populations, including India’s, demonstrating a variety of physical, genetic, and lifestyle characteristics including wide ranges in

diets, diseases, and nutritional histories.<sup>23</sup> The dual burden of undernourishment and overnourishment is common in many countries, and as developing economies improve and more people move out of poverty, chronic diseases are becoming an increasing problem.<sup>24</sup>

### CURRENT TRENDS IN GLOBAL NUTRITION

Certain foods have been identified as significant drivers of the global diabetes epidemic. Robert Lustig from the University of California describes SSBs as a “particularly potent cause of diabetes.” He says, “When people ate 150 calories more every day, the rate of diabetes went up 0.1 percent. But if those 150 calories came from a can of fizzy drink, the rate went up 1.1 percent. Added sugar is 11 times more potent at causing diabetes than general calories.”<sup>25</sup>

Research has also found a clear link between obesity and SSB consumption and that “individuals with a greater genetic predisposition may be more susceptible to obesity induced by SSBs.”<sup>26</sup> Around 90% of adults with diabetes are also obese,<sup>27</sup> drawing a direct link between these diseases. “Obesity, like undernutrition, is thus fundamentally a state of malnutrition,”<sup>28</sup> and the consequences are now reaching across generations, income groups, and geographic divides.

A number of experts have noted that “in the modern world it is primarily global economic forces that perturb nutritional status within and across generations.”<sup>29</sup> The globalization of the food supply and Westernization of more developing nations has caused large changes in diet. The worldwide rise in NCDs can be attributed to several factors, including shifts in diet and lifestyle, the proliferation of processed food, specifically SSBs, as well as a combination of factors such as genetic predispositions to certain chronic diseases and increasing rates of sugar and fat intake. Traditional diets have shifted away from coarse grains and refined cereals to diets that include few

micronutrients and increasing amounts of fats, oils and sugars. This, in addition to the spread of western-style fast food and less active lifestyles, has compounded the consequences of malnutrition.<sup>30</sup>

A cursory look at India's media reveals the emerging changes in the Indian diet landscape. Television and print advertisements are filled with food and beverage companies, with Unilever, Coca-Cola, Dabur and PepsiCo being some of the largest advertisers in the country marketing ultra-processed foods.

Historically, political and economic forces have driven nations towards various states of malnutrition. Capitalist economies are able to influence the "susceptibility and exposure to [the] obesogenic niche" by creating the "loss of individual agency."<sup>31</sup> Corporations are able to subtly influence consumers through creative marketing strategies, price manipulations, and the inclusion of food additives like sugar and caffeine. The increased marketing of obesogenic foods of India has curbed decades of progress towards reducing malnutrition.

Economic policies that make it possible for cheap, addictive, and low-nutrient foods to enter the market are contributing to the obesity and diabetes epidemics, simultaneously allowing undernutrition to exist.

**The dual burden of malnutrition allows large private food corporations to expand their profits while socializing the costs that result.**

The obesity epidemic has emerged at the same time as undernutrition persists. Additionally, urbanization has contributed to the emergence of a new class of consumers far removed from the inner workings of the food system. Large disparities in health, income, and employment between low and high income populations result. Profiting from these differences, corporations control the global production, supply, distribution,

and marketing of food, often at the expense of smaller family farms and production centers.<sup>32</sup>

The power of food corporations has far surpassed any government and public health effort to address the health consequences of the shifting food landscape.<sup>33</sup> In 2002, a senior scientific officer of the Nutrition Foundation of India (NFI) reported that the growing obesity problem is largely due the variety of fast food available in the Indian market. That the report was published over a decade ago indicates that this has been a long-term problem that remains unaddressed.<sup>34</sup> The fast food industry has increased its national presence in the past decade, finding its way into the lobbies of hospitals and cafeterias across the country. Changing the course of malnutrition will take thoughtful and strategic interventions that work alongside the powerful forces of the political systems already in place.

## MALNUTRITION IN INDIA

Epidemiological studies of South Asians have found a genetically predisposition to diabetes under conditions of the Western diet<sup>35</sup> and that type 2 diabetes occurs nearly ten years earlier and at lower BMI levels compared to other ethnic groups.<sup>36</sup> The prevalence of diabetes in India was at least 8% in 2014, according to the World Diabetes Federation, recognizing that there is a large number of undiagnosed cases. When looking at regional data, diabetes rates are increasing at much higher levels among low income groups both in rural and urban areas.<sup>37</sup> Studies suggest that South Asians are significantly more insulin resistant than other groups,<sup>38</sup> which is likely due to higher stores of visceral abdominal fat.<sup>39</sup> The storage of visceral fat increases the risk of type 2 diabetes,<sup>40</sup> putting even healthy weight Indians at a greater risk of developing this disease.<sup>41</sup> Furthermore, nearly 75% of individuals in India with type 2 diabetes have a first-degree family member that also

suffers from the disease, indicating a genetic and multi-generational predisposition.<sup>42</sup>

Historically, the majority of research on malnutrition in India has focused on undernutrition; however, obesity is on the rise. The 21st century has brought stagnating levels of undernutrition but increasing rates of overnutrition, especially in women.<sup>43</sup> The number of undernourished is greater than the number of overnourished, but the prevalence of a poor diet across the population is a common factor.<sup>44</sup> The coexistence of the dual burden in India is a “unique paradoxical nutritional scenario” and a problem for the entire nation.<sup>45</sup> Malnutrition appears to be increasing among the poorest Indians while obesity is increasing among wealthiest.<sup>46</sup> The trends in India indicate the greatest shifts among women. The propensity for being underweight is seen most often in low income female groups; however, this appears to be declining as overweight rates are increasing in those same groups. The obesity problem is expected to emerge in poorer, rural areas in the future as developing countries adopt a Westernized diet high in fat and sugar.<sup>47</sup>

This shift is seen in many developing nations, and although it has not appeared as intensely in India, there is evidence that it has already started to occur. The nutrition transition in India is showing up in some states where rates of overnutrition outweigh rates of undernutrition. The prevalence of obesity in rural Punjab and Kerala is greater than in their urban areas, providing evidence that obesity is beginning to spread across geographic boundaries, defying previous theories that obesity is a problem exclusively of the high-income population.<sup>48</sup> Malnutrition is found across all social and economic groups in India, and likely to worsen.<sup>49</sup>

## CONSUMPTION OF SUGAR IN INDIA

International levels of sugar consumption are increasing by roughly 2.2% every year. It is predicted that by 2050 agricultural production worldwide will have

to increase by 60% of current levels into order to meet the demands of a growing world population. Sugar production alone is predicted to be 26% higher by 2021 than averages in 2011. Currently, the global sugar trade accounts for more than US\$24 billion, and more than 80% of this share is held by developing countries.<sup>50</sup> Combined, India and Brazil account for 37% of sugar production worldwide,<sup>51</sup> comprising nearly half of all developing countries contributions to sugar production. Many parallels can be drawn between Brazil and India due to similarities in their economic development status and their strong positions in the global sugar market.

In the last five decades, India’s share in global sugar production has increased from 5% to 15%, which mirrors its spike in sugar consumption.<sup>52</sup> Although Brazil is the most cost efficient and largest producer and exporter of sugar in the world, India ranks at the top as the second largest producer and third largest exporter of sugar.<sup>53</sup> Brazil is unique in that an increasing share of domestic sugar production is dedicated to ethanol production, which will be explored further in this report. By contrast, a key driver for change in India is sugar consumption, which is growing at a higher rate than it is globally.<sup>54</sup>

The trends in sugar production in India over the last decade demonstrate extreme highs and lows; however, consumption has held a relatively constant upward trend. The production of sugar, to be discussed more in depth in the next section, is directly related to consumption in India because of the unique pricing system.<sup>55</sup> Although India is one of the most significant non-OECD (Organization for Economic Cooperation and Development) sugar-producing countries, OECD policies around sugar have very little impact in India because of high domestic prices for sugar.<sup>56</sup> Sugar and sugarcane were declared an essential commodity under the 1955 Essential Commodities Act, but prices have varied across states because of a decentralized pricing system. Pricing intervention between

the states, the union, and the federal government have created a unique pricing strategy that has disabled both the states and the center to “adequately reward farmers on the quality of cane supplied, especially with reference to high sugar content and yields.”<sup>57</sup>

This pricing system has allowed nearly 65% of annual sugar production to be consumed by bulk purchasers. These include both beverage and sugar manufacturers. Indian sugarcane prices are among the highest in the world, but the prices for sugar are among the lowest because of consumer price shifting. The sale price for sugar is much lower than its production cost because of this unregulated and decentralized pricing system.<sup>58</sup>

A study of SSB consumption finds that there is little variation in levels of consumption across demographic cohorts in India.<sup>59</sup> There has been a resurgence of diabetes in India in part due to increased consumption of sugar, mostly among wealthier populations who also have a historically higher prevalence of the disease.<sup>60</sup> Currently, consumption of SSBs is slightly higher in urban and higher income groups, but this is predicted to rapidly expand to rural and lower income groups.<sup>61</sup> Sugar production is located primarily in rural areas, which directly contributes to rural economic development and employment<sup>62</sup> as well as availability of the domestic sugar supply. Studies that predict increased sugar consumption across income and geographic groups in India offer warnings about the serious health impacts likely to manifest in India.

## PRODUCTION OF SUGAR IN INDIA

India is credited with inventing sugar by developing the technological method for turning cane juice into a crystallized form.<sup>63</sup> The inhabitants of India have been growing sugar cane since before the 4<sup>th</sup> century BCE.<sup>64</sup> Ancient texts reference sugar as a medicine, a sacred symbol of religion, and a wholesome food.<sup>65</sup> The first evidence of processing sugar cane was done in the state

of Bihar, India.<sup>66</sup> The first factories for large-scale processing of sugarcane appear in the early seventeenth century on the Coromandel Coast and Surat on the West Coast. In 1920, India officially designated sugar as an industry and there were 29 mills producing over 100,000 tons of sugar each year.<sup>67</sup>

Despite having the largest national economy in the world in the 18th century, India was controlled by the British who demanded the export of the majority of all food and cotton production. This led to unprecedented levels of famine and mortality in India.<sup>68</sup> British health improved while malnutrition in India worsened. An unhealthy balance between imports and exports dominated the country for decades. The Sugar Industry Protection Act of 1932 helped to increase domestic competition leading to a large increase in sugar mills made possible by wealthy investors.<sup>69</sup> Small farmers came to depend on these mills to process their crop, which moved the government to create more regulations around private ownership and eventually led to the establishment of the Cane Growers' Programme, officially forming the sugar cooperatives.<sup>70</sup>

Today, the Indian sugar industry stands behind Brazil as the second largest producer in the world, producing 15% of the world supply of sugar.<sup>71</sup> Five million hectares of land are used to produce over 340 million tons of sugarcane per year, which are processed in 490 sugar mills.<sup>72</sup> Sugar is manufactured across ten states<sup>73</sup> and approximately 60% of the domestic sugar production takes place in the states of Uttar Pradesh and Maharashtra.<sup>74</sup> Nearly 45% of the State of Maharashtra's rural population relies on sugar production for their livelihood.<sup>75</sup> The industry brings in around US\$14 billion per year, which accounts for about 1.1% of the national GDP and 10% of the agricultural GDP.<sup>76</sup> Six and a half million farmers, mill workers, and agricultural laborers work in the sugar industry, and if one includes the dependents of these workers, sugar supports 7.5% of the rural population.<sup>77</sup> Nevertheless, there exists a



strong historical link between economic policies and the state of malnutrition in India.

## THE BEVERAGE INDUSTRY IN INDIA

The global non-dairy beverage market is a \$820 billion industry and carbonated soft drinks command the market accounting for \$350 billion of that amount. Coca-Cola and PepsiCo control 69% of the global market, having a large presence in both carbonated beverages and the sports and energy drinks market. One study found that the 94% of the world population recognizes the Coca-Cola logo. Coca-Cola does not own or control the majority of the 250 bottling companies that exist worldwide, however they do brand and contract with these partners and oversee marketing and advertising.<sup>78</sup>

Marketing, especially towards children, has played a major role in increased SSB consumption and its associated health problems worldwide. In 2014, Coca-Cola's global advertising expenses were \$3.5 billion compared to PepsiCo's \$2.3 billion. That same year, Coca-Cola claimed to add \$1 billion into advertising directed towards emerging markets. \$5 billion has been dedicated to India between 2012-2020. Coca-Cola is strategically distributed to remote corners of the world where in many instances there is no access to essential medicine. Between 30% and 50% of children in sub-Saharan Africa do not have access to modern pharmaceuticals but do have access to Coca-Cola. Coca-Cola's distribution networks are so vast that public health organizations and humanitarian foundations, such as the Gates Foundation, have looked to Coca-Cola as a model and a means to deliver essential medicines along with its sugary products to remote corners of the world.<sup>79</sup>

Emerging markets are critical to growth of Coca-Cola and PepsiCo. 58% of Coca-Cola's operating revenue in 2013 was spent in developing markets and PepsiCo has been reported as claiming that "further investment and expansion of operations in

emerging markets is key to [their] business strategy." Since 2012, sales of Coca-Cola in India have risen 16% and PepsiCo has placed special attention to the Indian market. In a 2012 filing with the US Security and Exchange Commission they said, "we believe that these countries and emerging and developing markets, particularly China and India... present important future growth opportunities for us..."<sup>80</sup>

These growth opportunities have an environmental as well as social footprint. Soft drink industry leaders like Pepsi and Coca-Cola, are often blamed for immense water usage in their bottling plants.<sup>81</sup> Stiff community opposition to the water used by beverage companies in India has led to a number of bottling plant closures, as well as shelving proposed plants. According to the Water Foot Print Network, it takes 442 liters of water to make one liter of Sugary Carbonated Beverage in a PET Bottle using cane sugar, and 618 liters of water when using High Fructose Corn Syrup.<sup>82</sup> As India's population grows and strains the unreliable water supply, the available per capita water is projected to drop dramatically in the coming years,<sup>83</sup> teetering on the edge of official water scarcity. A growing population also means an increased demand for food. The agricultural industry currently accounts for nearly 70% of all water usage, highlighting the need for a comprehensive understanding of this usage and a plan for water conservation in the future.<sup>84</sup>

The largest opponents of SSB taxes are not surprisingly from the beverage industry. They focus on the negative impact a tax would have on the economy, highlighting significant job loss as an immediate and inevitable consequence, while emphasizing the importance of individual responsibility for health.<sup>85</sup> They argue that the problem of obesity would not exist if consumers exercised. The food and beverage industries deny responsibility for the increase in chronic disease and attribute the rise in obesity to a reduction in physical activity. Furthermore, they claim there is no scientific evidence connecting obesity to SSB

consumption.<sup>86</sup> The tobacco industry made similar arguments when the tobacco tax in the United States attracted major scrutiny. Years later, higher prices for tobacco are now widely recognized for prompting a reduction in smoking in the U.S. population and leading to an overall better quality of life.<sup>87</sup>

## POLICY AND PUBLIC HEALTH

The dual burden of malnutrition today is the result of a shifting food system over the last several decades.<sup>88</sup> Currently, 12.5% of adults in the world are obese and this rate is projected to increase to 20% by 2025. Roughly 2.8% of global GDP (about \$2 trillion in 2012) is spent addressing the economic impact of obesity, making this chronic disease “one of the top three global social burdens generated by human beings.”<sup>89</sup> The negative externalities associated with NCDs justify a significant public intervention.<sup>90</sup>

Extensive research suggests that there is no single policy to address these health issues. A complex problem needs a variety of policies to address malnutrition and its associated health outcomes. These strategies include taxing of unhealthy foods to limit and reduce consumption as well as subsidizing healthy foods.<sup>91</sup> Fiscal policies can be used to target food products in an effort to improve health outcomes. These policies offer incentives to increase consumption of healthy foods and decrease consumption of unhealthy foods that are linked to poor health outcomes. Additionally, non-fiscal policies and programs can be used simultaneously to increase the effect of policies already in place

While there are many fiscal policy options to address the public health challenges related to diet, taxes on specific products, like SSBs, have been the most widely researched and tested intervention to date. Taxes on SSBs are attractive because SSBs contribute significantly to total calorie intake, fail to provide any nutritional substance to a diet, are marketed

aggressively, and are easily accessible and widely available.<sup>92</sup> Historically, the prices of unhealthy foods have declined at a much faster rate than healthy foods<sup>93</sup> making them justifiable targets for taxation. Further, SSBs account for the largest contribution to added sugar in the diet with a combined lowest associated contribution to overall nutrition. In the United States, where 69% of adults are overweight or obese, 36% of the added sugars consumed are liquid calories, coming from carbonated beverages, juices and energy drinks.<sup>94</sup> “Our biology has conditioned us to consume beverages without reducing food intake,”<sup>95</sup> and studies have found that “individuals on average to do not compensate for the increased energy intake from SSBs by reducing intake of other caloric sources.”<sup>96</sup> Consumption of SSBs has increased in conjunction with the rise of the obesity epidemic, and evidence-based research demonstrates a clear link between SSB consumption and chronic diseases such as obesity and diabetes.<sup>97</sup>

Over the last decade there have been numerous conferences bringing together international organizations in support of fiscal interventions to address the rising global public health concern associated with NCDs. The 2011 UN General Assembly High-Level Meeting on NCDs recommended using fiscal interventions to help improve diets and health outcomes. Countries around the globe responded with enthusiasm. Both Hungary and Denmark imposed a ‘fat tax’. Over the last several years, news outlets have published thousands of articles related to fat and soda taxes,<sup>98</sup> demonstrating significant awareness and attention to this issue. The 2013 Bellagio Declaration on ‘Countering Big Food’s Undermining of Healthy Food Policies’ called for governments, international agencies, and civil society to take steps to ensure that public policymakers weigh the benefits to the health of the public more than the commercial interests of big food corporations.<sup>99</sup> OECD conducted a review of obesity prevention interventions and found that fiscal measures are the only interventions that produce greater health

gains in lower income groups. Mexico's representative of the Pan American Health Organization (PAHO) and vocal supporter of Mexico's SSB tax, Maureen Birmingham, was quoted at a 2013 press conference saying that a tax "is very logical based on the evidence. It's not just a law to save lives, but also to alleviate poverty, because these diseases related to obesity and being overweight are causing poverty."<sup>100</sup> This is an important counterargument to the position that sugar taxes are regressive – affecting poor people disproportionately. While it is true that value added taxes on food will disproportionately affect the poor, who spend a greater share of their income on food than the rich, it is also true that taxation can prevent further medically-related poverty.<sup>101</sup>

Not surprisingly, the food industry resists taxes on their products<sup>102</sup> and many groups that oppose food taxes argue that food is relatively inelastic and taxes on goods are largely regressive, impacting lower income groups more severely.<sup>103</sup> The American Beverage Association (ABA) argues that obesity is "a very complex problem" requiring nutrition education rather than a tax that would most harm middle-income Americans.<sup>104</sup> However, evidence from Brazil and Mexico, explored further in the next section, demonstrates that consumption patterns and price sensitivities are not that different between high- and low-income countries.<sup>105</sup> In fact, low-income groups who tend to be more price-sensitive actually reduce their consumption of taxed goods,<sup>106</sup> rather than disproportionately hurt their economic status through continued consumption.

An excise tax, which is initially a tax on producers, often results in an increase in the sale price of the good, referred to as the "pass through rate," which results in higher prices for consumers. Both producers and retailers use strategic pricing methods to limit the price increases to consumers so they are able to maintain sales and profits.<sup>107</sup> The public health benefits of an SSB tax are realized when there is a significant shift in consumer behavior, and therefore these taxes

are not sufficient on their own to mitigate the global obesity epidemic. Optimizing the effect of a tax will depend on the strategy implemented by policymakers to both educate consumers and restrict the ability of producers and retailers to circumvent the tax.

## COUNTRY PROFILES

Studies on the effect of SSB taxes have been conducted across the globe with varying results and can serve as helpful guidance for developing successful fiscal policies in India. The following section provides a detailed profile of different countries' attempts of using fiscal policies and targeted programs to address chronic disease. Not all adoptions of sugar taxes are included in the list below. Although each country is unique and none are faced with the exact same public health and economic conditions of India, each case study offers insights that are critical to understanding the possible impacts of an SSB tax in India.

### MEXICO

Mexico's population suffers from some of the highest rates of overweight, obesity, and diabetes in the world.<sup>108</sup> Compared to other OECD member countries, they rank second in obesity prevalence and first in cases of diabetes, with roughly 14% of the adult population suffering from the disease.<sup>109</sup> Currently, roughly 73% of women are overweight and obese, compared to 69% of men and 30% of children.<sup>110</sup> From 1998 through 2012, the number of overweight and obese children rose from about 27% to 34%; for women, from close to 35% to 71%; and for men 62% to 69%,<sup>111</sup> and these rates have continued to rise.

The obesity and diabetes epidemics in Mexico are driven by high consumption of SSBs.<sup>112</sup> Nearly 75% of all deaths in Mexico

are caused by NCDs, and obesity linked to an unhealthy diet was ranked as one of the six largest risk factors of death in 2010.<sup>113</sup> Diabetes is the third leading cause of death in Mexico, higher than violence, stroke, and traffic accidents.<sup>114</sup> Evidence shows that overall trends of overweight and obesity do not vary significantly between socioeconomic groups, but larger disparities occur between children in low-income groups compared to middle- and high-income brackets.<sup>115</sup> Mexico stands out for having some of the highest rates of obesity in the world,<sup>116</sup> and is coincidentally one of the largest consumers of soda in the world. In 2010, Mexico had the highest burden of SSB-associated deaths among the 15 most

programs and policies,<sup>118</sup> many of which target nutrition and specific foods. Roughly 71% of added sugars in products in Mexico come from SSBs, and 66% of the total population exceeds the WHO recommendation of no more than 10% of total calorie intake from added sugar.<sup>119</sup> SSBs are the highest caloric beverage consumed by adults in Mexico, and from 1992-2012 the increase in calorie intake from SSBs was highest among children and women. It is currently estimated that more than 160 liters per person are consumed annually, and 80% of teenagers and 71% of adults consume at least one regular soda each day. The 21<sup>st</sup> century has seen a concomitant decrease in water consumption, making

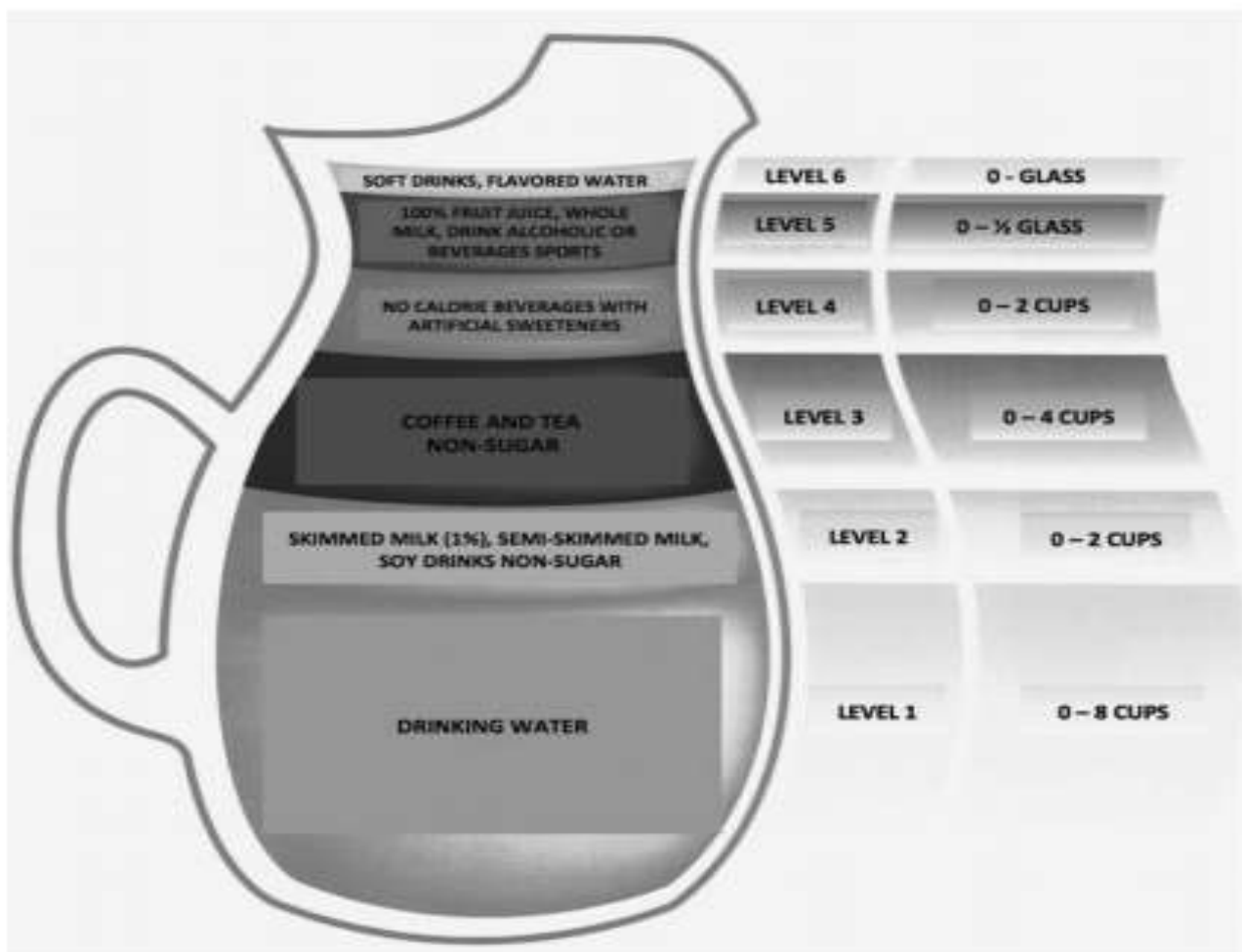


Figure 1: Healthy beverage pitcher from Barquera et al 2013

populated countries in the world.<sup>117</sup>

Mexico has a long history of attempts to address obesity through a variety of

SSBs the main target for public health advocates and medical professionals.

In 2005, the Mexican Social Security Institute (IMSS), one of the main healthcare systems in Mexico that serves about one-third of the population, developed a program called ‘PrevenIMSS’ using media campaigns to address obesity prevention. In 2006, scholars suggested promoting water for beverage consumption, and the National Institute of Public Health (INSP), IMSS and other government agencies began to develop programs and policies to address obesity and other dietary related diseases.<sup>120</sup> Due to a lack of alignment with other healthcare systems, the programs had little impact.<sup>121</sup> A 2006 survey showed soda and other highly caloric beverages common in the Mexican diet, like *agua fresca* and rice flavored drinks, as having a significant negative impact on kids starting at age 12.<sup>122</sup> By 2008 the Ministry of Health (MOH) established an expert panel to develop recommendations for “beverage intake for a healthy life” which they distributed through social networks and the media.<sup>123</sup> The support from the Mexican medical community was unprecedented and the ‘healthy beverage pitcher,’ a take on the traditional food pyramid, was endorsed by all major medical professional institutions.<sup>124</sup> The healthy beverage pitcher is now included in textbooks and is part of the national school health curriculum.<sup>125</sup> 2010 saw the removal of all soda sales in schools,<sup>126</sup> but by 2011 Mexico ranked the highest per capita for consumption of soft drinks in the world.<sup>127</sup>

Carbonated beverages, which include SSBs, encompass more than 85% of total beverage sales in Mexico.<sup>128</sup> The beverage market has been described as an oligopoly where the main producer is accountable for 70% of total sales and the second largest producer at 15%.<sup>129</sup> In 2007, 20% of total calorie intake was from beverages. Furthermore, there was a 226% increase in caloric beverage intake by children and 252% increase by adults between 1999 and 2006.<sup>130</sup> A 2013 survey from the manufacturing industry shows that sales from carbonated beverages reached \$594

million compared to \$94 million in sales from juice and flavored water.<sup>131</sup>

There has been a dramatic rise in consumption of SSBs in Mexico in conjunction with a decline in expenditures for healthier foods like fruits and vegetables.<sup>132</sup> Obesity related healthcare costs were roughly \$880 million in 2013 and were predicted to rise above \$1 billion over the next seven subsequent years absent of an intervention.<sup>133</sup> The dual burden of obesity and diabetes in Mexico has led to losses of more than 400 million work hours, which have cost the government nearly \$6 billion in treatment and other indirect costs.<sup>134</sup> This, in combination with rising rates of obesity and diabetes, justified an SSB tax policy.

After nearly a decade of media attention and attempts to raise public awareness around SSBs and chronic disease, opinion polls between 2013 and 2014 demonstrated a 52% increase in consumer awareness around the link between SSBs and obesity.<sup>135</sup> Mexico was able to implement an SSB tax January 1, 2014.<sup>136</sup> Prior to implementation, a 20% tax was proposed and endorsed by medical professionals.<sup>137</sup> Despite recommendations that the tax should be at least 20% in order to produce higher declines in consumption and a greater impact on health outcomes,<sup>138</sup> the excise tax was set at 10% using 2013 prices to be adjusted for inflation every two years.<sup>139</sup>

Public health scholars, consumer federations, and MOH were the largest proponents of this tax. MOH facilitated the development of ANSA (National Agreement for Healthy Nutrition), which developed objectives for policymakers to address obesity and other NCDs. Support from the medical community was unprecedented.<sup>140</sup> Despite the variety of influential supporters, there was a lack of cohesion between ANSA and the interests of the beverage industry. Soda and beverage companies began to put pressure on the government in 2008 when ANSA was first developed. Specifically, they argued that regulating advertisement of the unhealthy components of beverages was a “threat to their profits.”<sup>141</sup> However,

Mexican sugarcane producers were not affected by the tax to the degree that the sugar industry claimed they would. The beverage industry largely transitioned to using high fructose corn syrup (a derivative of corn, not sugar), prior to the implementation of the tax. The sugar industry was already harmed by this shift, which is now falsely attributed to the tax on SSBs.<sup>142</sup>

The 10% tax results in a one-peso-per-liter tax on all non-alcoholic beverages containing added sugar, excluding medical drinks. The intention was for the tax burden to fall on the producer, but evidence shows that the tax price quickly shifted onto consumers.<sup>143</sup> Other strategies were implemented subsequently, such as front of label packaging and school restrictions around food and beverage guidance panels.<sup>144</sup>

One study found that the price increases from the tax resulted in an increase in milk consumption,<sup>145</sup> and presently there has been an increase in water consumption and an overall shift in demand for healthier beverage substitutes.<sup>146</sup> Another study saw price over-shifting, where the increase in prices for SSBs actually exceeded the tax itself. The price over-shifts were variable depending on package sizes, with smaller packages having a larger per unit increase in cost, which may ultimately encourage higher consumption in an effort to avoid a larger price burden found in smaller quantities. The over-shifting occurred just one month after the tax was implemented.<sup>147</sup> As of 2016, all taxed beverages underwent nearly complete price shifting, the most significant of which in carbonated beverages.<sup>148</sup>

One year after the tax was implemented, purchases of taxed beverages declined by 6%. Even further, the largest reductions in purchasing occurred in the lowest socioeconomic populations.<sup>149</sup>

By December, purchases had declined by 12% in conjunction with a 12% increase in the retail price of soda.<sup>150</sup> As of early 2016, the largest declines in SSB purchases were in the lowest income groups.<sup>151</sup> These results indicate the tax is not regressive.<sup>152</sup>

Overall, the evidence from Mexico is consistent with that of high-income countries suggesting that policymakers in middle- and low-income countries may be able to create similar models and expect comparable effects.<sup>153</sup>

Mexico has largely used the revenue from the tax to pay for obesity prevention efforts.<sup>154</sup> Although the revenue has not been earmarked for a specific use, the Senate did pass a resolution to use a portion of the tax revenue to fund potable drinking water facilities in low-income public schools.<sup>155</sup>

## FRANCE

In 2006, roughly 18% of the population was obese and 32% was overweight. The risk factors for obesity were identified as poor nutrition and a lack of physical activity.<sup>156</sup> In January 2012, an excise tax on soda, fruit juice, and flavored water was implemented. The tax was roughly 6% of the average price of soda, which was slightly more than 7 euros per 100 liters.<sup>157</sup> The tax was intended to discourage the consumption of unhealthy drinks containing added sugars,<sup>158</sup> and taxes on sweetened beverages eventually included both natural and artificial sweeteners.<sup>159</sup> The intervention was developed as a measure to prevent obesity, specifically targeting SSBs. Over time, it became a revenue raising measure, leading to the eventual taxation of artificially sweetened beverages.<sup>160</sup>

A national public health nutrition program in France has been in place since 2000, which may have raised public awareness around the nutritional effects of sugar consumption.<sup>161</sup> Although a significant over-shift of prices on soda occurred six months after the implementation of the tax,

there still remains an under-shifting of prices on fruit juices and flavored waters.<sup>162</sup> Despite the significant increase in soda prices, the support for the tax and the perceived economic burden on consumers has varied.<sup>163</sup> The degree of consumption of correlated with, age, income, and education level. Less educated populations were more likely to view the tax as unfair.<sup>164</sup>

Overall, the variation in public acceptance of the tax has largely been dependent on how its intended objectives have been marketed. More support has been garnered when the tax has been targeted at improving public health and the healthcare system. The French case demonstrates the need not only for fiscal reform, but popular education in support of the tax.<sup>165</sup>

## UNITED STATES

Sugar-sweetened beverages are the largest source of added sugar in U.S. diets. Nationwide efforts to prevent obesity and chronic disease target the reduction of SSB consumption.<sup>166</sup> Initially, SSB taxes were seen primarily as revenue raising measures, but have now come to be widely viewed as anti-obesity policies,<sup>167</sup> indicating a shift in public perception largely attributed to the success of France and Mexico's SSB taxes. Despite the tax victories in these countries, cities in the United States have faced significant scrutiny in their attempt to implement similar policies. Until June 2016, Berkeley California had been the only U.S. city to successfully implement an SSB tax. However, just last month, Philadelphia adopted the highest SSB tax in the United States to date.

## BERKELEY

Despite national attention around the issue, SSB tax legislation in the U.S. has only occurred at the state and city level. By 2014, more than 10 areas had proposed some kind of soda tax.<sup>168</sup> The city of Berkeley

passed a one-cent-per-ounce tax in November 2014, which excluded artificially sweetened beverages. The tax passed with 76% of votes and unanimous support from the city council. Berkeley is characteristically a small and progressive community in California, with overall low SSB consumption compared to other cities, yet they were able to form a broad coalition of support comprised of influential local and national organizations.

The tax was implemented in March of 2015 but it applied only to large distributors, and in January of 2016 it was extended to also include small distributors. Data thus far is preliminary, but it has been found that the tax has partially passed onto consumers in the form of higher prices and has been highest for sodas and fruit-flavored drinks. Coca-Cola had the highest price increase.<sup>169</sup> After only four months, prior to implementation for small distributors, price over-shifting (when the increase in the price of the product is more than the tax itself) was seen in both chain grocery stores and gas stations. A partial pass through (when the price for the product increases but does not exceed that of the tax) in chain pharmacies. After six months, a complete pass through was seen for all taxed beverages; however, the volume of sales for both taxed and untaxed beverages remained constant.<sup>170</sup> Additionally, researchers found, like in Mexico, that larger quantities of SSBs had lower pass through rates, resulting in an incentive to purchase in larger quantities in an effort to reduce the overall tax burden.<sup>171</sup>

A recent study reports that a 50-150% range in pass through rates from a one-cent-per-ounce tax may result in a 10-30% reduction in consumption. Higher prices as seen in Berkeley in such a short period of time indicate success of notable importance for public health advocates. Higher SSB prices are a major component of chronic disease and obesity reduction measures. *Dollar Tree*, a large national chain, completely stopped selling SSBs in two locations. However, in general, drugstores had the lowest pass through rates

with large variations in pricing methods. Ultimately, this research suggests that educating retailers prior to implementing the tax may result in earlier effects and faster pass through rates on taxed beverages.<sup>172</sup> Additionally, considering the varied effects of SSBs taxes on different income groups, it is necessary to consider the types of stores where taxes have greater effects compared to where different income groups tend to shop. More research is needed before the true effects of this tax on consumption can be evaluated in the U.S. At the time research was conducted it was too early to determine if similar pass through rates on tobacco taxes would have the same effect on SSB consumption.<sup>173</sup>

Thus far, the Berkeley tax has mostly passed through. Total beverage sales have remained relatively constant; sales of unhealthy beverages have declined and healthier beverage sales have increased, resulting in stable profits for businesses. The tax has generated revenue of \$1 per capita per month, equating to four times more annual per capita funds as the annual amount in the U.S. Federal Prevention and Public Health Fund, which has been used to pay for nutrition and obesity prevention programs in schools, child care settings, and other community environments.<sup>174</sup>

## PHILADELPHIA

On June 16, 2016, the city of Philadelphia, the fifth largest city in the U.S., became the first city of its size to adopt a tax on sugar-sweetened beverages. The City Council voted 13-4 in approval of a 1.5 cent per ounce tax on sugar-sweetened and diet beverages.<sup>175</sup>

The tax, which is expected to generate \$91 million in annual revenue after coming into effect January 1, 2017, is intended to “fund quality pre-K expansion, community schools, reinvestment in parks and recreation centers, and help pad the City’s General Fund,” according to the Philadelphia City Council.<sup>176</sup> The

Philadelphia sugar tax, which was introduced by the mayor of Philadelphia, Jim Kenney, avoided framing the policy as a solution to the negative health impacts of sugar. Rather, the proposal emphasized using the tax as a way to generate funds for pre-K education and investment in the community, thereby framing it as an economic issue and poverty reduction measure.

Philadelphia’s tax will affect “thousands of products - essentially anything bottled, canned, or from a fountain with either sugar or artificial sweetener added.”<sup>177</sup> The tax will also apply to diet drinks with artificial sweeteners such as aspartame. The mayor had initially sought a 3 cent per ounce tax on sugary beverages, and a compromise was reached at 1.5 cent per ounce.

Initially, the tax will be applied to the distributors, and it is not yet clear how much the price increase will be passed on to consumers. Philadelphia news outlet Philly.com has estimated that the “tax could add up to 18 cents to the cost of a 12-ounce can, \$1 to the cost of a 2-liter container, and \$2.16 to the cost of a 12-pack. It will affect sodas, teas, sports drinks, flavored waters, bottled coffees, energy drinks, and other products.”<sup>178</sup>

Not unlike the resistance faced in other countries, the tax in Philadelphia was met with immediate backlash from the American Beverage Association (ABA) who spent “nearly \$5 million on advertising against the tax,” compared to a nonprofit organization that “spent just over \$2 million” to promote the tax.<sup>179</sup> After its passage, ABA threatened a legal challenge, calling the SSB tax “regressive” and “discriminatory.”<sup>180</sup>

The successful passage of the SSB tax in Philadelphia is expected to encourage other cities in the U.S. to introduce similar taxes as a means to increase their budgets. In 2016, the California cities of San Francisco,<sup>181</sup> Oakland,<sup>182</sup> and Albany,<sup>183</sup> in addition to Boulder, Colorado<sup>184</sup> and the state of Illinois,<sup>185</sup> are expected to propose taxes on sugar-sweetened beverages.



## DENMARK

The ‘fat tax,’ implemented in 2011 and then quickly repealed nearly one year later, serves as one of the world’s largest examples of a food sin tax failure. Politicians considered the tax first as a source of revenue and second as a public health initiative. The tax was intended to improve the health conditions of Danes by discouraging the consumption of foods high in fat. Unfortunately, the structure of the tax was such that it limited the actual health benefits for consumers, and was ultimately repealed because of its negative effect on the Danish economy.<sup>186</sup>

Denmark has one of the lowest rates of obesity in Europe, just under 14% of the population, yet 80% of Danish people exceed the recommended intake for both sugar and fat. Additionally, Danes had a lower life expectancy compared to other OECD countries and deaths are commonly attributed to lifestyle related illnesses.<sup>187</sup> This in combination with many other poor lifestyle habits such as excessive alcohol intake, low physical activity and high smoking rates, posed a serious strain on society largely because of their publicly funded healthcare system.<sup>188</sup> The fat tax was part of a larger government reform that included proposed sin taxes for other goods, most notably sugar, cigarettes, and soda. The Danish government faced opposition early on from farmers and producers, as well as pushback from consumers, ultimately leading them to revoke the tax. Despite the failure of the tax, the situation in Denmark offers unique insight into the particular nuances and sensitivities these kinds of taxes can have if not developed and implemented carefully.

In October 2011, Denmark passed the first ever tax targeting a specific nutrient: saturated fat. This distinguishes it from other food sin taxes, like SSB taxes, that are more popular across the globe. The decision to introduce this tax was a result of rising rates of obesity and associated healthcare costs. The intention was to generate a needed

source of revenue that could simultaneously reduce the burden on the healthcare system.<sup>189</sup> All foods containing more than 2.3% fat were taxed, including milk, butter, meats, cheese, and processed foods.<sup>190</sup> The fat tax was part of a larger income tax reform in 2010, but negotiations began as early as 2008. In an attempt to reduce the burden of income taxes on the Danish people, the government implemented a series of ‘health taxes,’ which included an increase in taxes on sugar products, SSBs, and saturated fat. The tax was based on the total weight of saturated fat in foods; however, foods earmarked for export were exempt.<sup>191</sup>

How the tax was formed, communicated to the public and industry stakeholders through arguments and evidence, and ultimately how it was abolished, offers important lessons for policymakers. One year before the tax legislation was passed it was presented to stakeholders for consultation. The food industry and trade associations presented over ten responses to the tax, which have been described as “the most critical consultation responses ever seen.”<sup>192</sup> These criticisms included arguments that the tax violated EU law, threatened jobs, lacked evidence to support positive health outcomes, and diverted the focus away from other more important issues. Despite these concerns, the bill was modified only slightly and the tax was implemented just two weeks after the Danish elections, becoming what was referred to as “a pawn in the political game.”<sup>193</sup>

Before the fat tax was even imposed, it suffered intense criticism from the food industry, similar to the responses by the tobacco industry and its fight against policies that threatened their business. Yet myriad reasons led to its ultimate demise. Denmark was suffering an economic recession at the time the tax was passed, and after the election many politicians revoked support they have previously given for the tax. Media attention was extremely negative, and the tax was criticized as difficult for companies to impose and for exacerbating

social inequality. Because of an infrastructure intended to minimize the administrative burden on food producers in calculating and imposing the tax, the tax yielded few health benefits due to a weak connection between the tax imposed and the content of saturated fat in the food product. Some argued that the fat tax should have been combined with a reduction in taxes on healthier foods, but mostly that it had overwhelmingly negative effects on the Danish economy. Ultimately, this sentiment prevailed and the abolishment of the tax has been touted as “more of a matter of a healthy economy than a healthy population.”<sup>194</sup>

The demise of the Danish fat tax can be attributed to a combination of an absence of public health professionals in the political design as well as an intense priority over the economic impacts.

Some public health advocates argued that the Danish government should have given the tax more time to better evaluate its long-term effects. But analyses that projected detrimental economic effects, like the one from the Danish Agriculture and Food Council that estimated 1,300 job losses with the continuation of the fat tax, swayed the government towards rapid abolition.<sup>195</sup> Politicians were convinced to repeal the tax by strong economic arguments rather than weak and inconclusive health benefits.<sup>196</sup> A stronger balance between financial and public health perspectives may have led to a more successful policy addressing chronic disease through fiscal intervention.

## SOUTH AFRICA

On February 24, 2016, South Africa’s Finance Minister Pravin Gordhan announced the introduction of a tax on sugar-sweetened beverages in his presentation of the budget before the parliament. The tax on SSBs is planned to come into effect on April 1, 2017,

however the exact tax rate is yet to be finalized.<sup>197</sup>

A comparison of health data in South Africa between 2003 and 2012 shows that in less than a decade the prevalence of obesity rose nearly 2% in men and over 10% in women. Additionally, in 2010 7% of deaths were attributable to high BMIs, leading to excessive economic costs. Between 11% and 23% increases in healthcare costs were due to moderate to severe cases of obesity. The South African Declaration on the Prevention and Control of NCDs was a commitment signed in 2011 to reduce the obesity rate by 10%. Some estimates suggest that SSB consumption in South Africa is roughly 400ml per day, and Coca-Cola represents nearly half of the market.<sup>198</sup> Taxes on SSBs had been examined as a method to meet the declaration goal.

South Africa has looked to other countries to serve as a guide for developing regulatory policy to address their nation’s health concerns. The South African Department of Health has closely examined Mexico, Brazil, France, and Denmark and has used the success of the tobacco tax to increase smoking cessation as evidence to justify a tax on SSBs. Between 1993 and 2003, a combination of an excise tax and other regulations around tobacco use decreased per capita cigarette consumption by 40%, one of the most successful tobacco policies in the world.<sup>199</sup> Thus far, South Africa has passed limited regulations on food but the Minister of Health has pushed for a significant increase on the regulation of foods with excessive sugar content.

In 2014, a study was conducted in South Africa on the effects of a 20% tax on SSBs and the prevalence of adult obesity. The study was an attempt to gather evidence for the Department of Health to support a fiscal intervention to address growing public health concerns. The study found that a 20% tax on SSBs would reduce the adult obesity rate by nearly 4% in males and 2.5% in females even though significantly higher increases are seen in obesity rates amongst women. Furthermore, the evidence

demonstrated that half of the weight change would occur within one year of implementation of the tax and 95% within three years. Another notable finding was that a decrease in SSB consumption as a result of a tax could potentially alter the *rate* of weight gain, resulting in even greater impacts on obesity rates in the long run.<sup>200</sup>

The model found that the tax would not be regressive because it would reduce both the purchase and consumption of SSBs, creating more benefits than harm. Researchers argued that although the tax could potentially affect lower income groups more, it would ultimately serve to decrease health disparities across all income groups because lower income populations are also disproportionately affected by obesity and other chronic diseases, and have fewer resources or income to seek healthcare treatment.<sup>195</sup> The planned SSB tax in South Africa offers another opportunity to assess this intervention method.

## UNITED KINGDOM

On March 16, 2016, UK Chancellor George Osborne announced a tax on sugary beverages that is planned to come into effect April of 2018. The Chancellor noted that child obesity is a national problem, and the “estimated cost to the UK economy today from obesity is approximately £27 billion.” He pointed directly to SSBs as significant driver of obesity, noting that “sugar consumption is a major factor in childhood obesity, and sugar-sweetened soft drinks are now the single biggest source of dietary sugar for children and teenagers. A single 330ml can of cola can contain more than a child’s daily recommended intake of added sugar.”

The SSB tax in UK is a result of campaigning by notable celebrities such as Chef Jaime Oliver, and organizations such as Sustain and Action on Sugar. Additionally, in October 2015, Public Health England, the UK’s government advisory group, suggested the “introduction of a price increase of a

minimum of 10-20% on high sugar products through the use of a tax or levy such as on full sugar soft drinks, based on the emerging evidence of the impact of such measures in other countries.”<sup>201</sup>

The tax will be applied to “producers and importers of soft drinks that contain added sugar, and it is expected to bring in £520 million in revenue the first year it is in effect. Proceeds from the tax will largely be used to fund measures to increase participation in sports in primary schools in England. Scotland, Wales and Northern Ireland have yet to decide how they plan to use the revenue.”<sup>202</sup>

The UK has decided to implement two tiers of the tax. The first tier includes beverages with a sugar content above 5 grams per 100 milliliters, and the second tier will be an even higher tax on beverages with sugar content above 8 grams per 100 milliliters. The exact rate of the tax is yet to be determined, but the Office for Budgetary Responsibility has estimated the taxes will be 18 pence per liter for the first tier, and 24 pence per liter for the second tier.<sup>203</sup> It is being reported that the soft drink industry will launch a legal challenge to the sugar tax in the UK.<sup>204</sup>

## BRAZIL

Brazil is a unique actor in the global sugar market. Sugar in Brazil is produced not only for human consumption, but also as a renewable source of energy. International energy security became a leading issue in the decade after 1990 because of growing concerns with climate change and the human contribution to those changes. The discussion also came at a time when oil prices were surging, and the search for renewable resources and production of biofuels became a global priority.<sup>205</sup> Brazil now stands as the second largest producer and exporter of sugarcane ethanol, a sugar-based biofuel. Despite the need for alternative forms of energy, the rapid growth of biofuel production has left concerns over

“social sustainability and economic viability” of this energy source in the long run.<sup>206</sup>

Social inequality is directly related to food insecurity. The nearly 900 million malnourished in the world makes addressing the human needs for food and energy in ways that are environmentally and economically sustainable of the utmost importance. The 2007-2008 global food crisis was paralleled with a large global increase in biofuels production, demonstrating the potential conflict between energy and food security. A competition for already degrading natural resources was magnified as the needs for food and energy production were addressed simultaneously.<sup>207</sup> Sao Paulo, the richest state in Brazil in terms of contributions to GDP, also experiences significant inequality. Land designated for sugar production in this region has increased more than in any other area of the country, accounting for more than half of the total land used to produce sugarcane, but coincides with a large decrease in land used to produce other major crops.<sup>208</sup> In Brazil, sugar has become the primary source to address both of these needs, although with questionable success. The social impacts from a growing sugar industry, such as slave labor and farmers losing land without adequate compensation, are rarely researched and little discussion is centered on the health implications, poverty, and the inclusion of small farmers in the ever-expanding industry.<sup>209</sup>

In 2004, 40% of Brazil’s population had some kind of nutritional deficiency, placing the country at that time in a serious nutrition transition.<sup>210</sup> From 1974-2003 the share of calories consumed per household from soft drinks alone increased 525% and in same time period, obesity rates among adults increased from close to 19% to 41 % in men and 29% to 39% in women.<sup>211</sup> After 2008, development in ethanol production in Brazil began to cause instability in the national food supply.<sup>212</sup> By 2010, half of the population was overweight and 15% were obese with the incidence highest in areas that were also

at the highest risk of hunger. Yet, Brazil has been recognized as a global model for eradicating food insecurity because they were able to achieve the Millennium Development Goal for halving poverty and malnutrition six years prior to the goal’s deadline in 2015. This has been attributed to a governance structure that “facilitates learning, adaptation, and collaboration” between all players involved in the food system, with a special focus on food in schools. Schools are seen as having “the potential to catalyze the broader political and systemic changes needed to redress food insecurity beyond the intermediate term.”<sup>213</sup>

The expansion of the sugar industry in Brazil has powerful implications for India. Despite criticism and apparent challenges with sugar and ethanol production, Brazil has made strides towards farmer equality and food security. The National Program Production and Use of Biodiesel (PNPB) was designed to include family farmers in biofuel production and help them grow more suitable crops with the assistance of price controls, technical support, and seed supply. Like sugar, tobacco cultivation in Brazil has come under scrutiny more recently. Research supports moving small farmers off tobacco production with the support of technical innovation and an increase in farmer autonomy. Additionally, research has encouraged expanding cooperatives, extending rural activities in the marketplace, and improved policies to support the needs of smaller, rural farmers.<sup>214</sup> Though PNPB and research demonstrate policy change and evidence-based investments in the fight against poverty, results will not happen immediately, yet the implications and potential benefits are notable for a country facing very similar circumstances in the industry.

In President Lula led the federal government to adopting the ‘Zero Hunger’ program and later, the ‘Brazil without Poverty’ campaign. Food security became a national public policy goal and school food policies were re-developed to promote healthier eating, respect regional differences

in cuisines, increase the inclusion of non-processed foods, as well as address structural poverty such as wages and food prices.<sup>215</sup> “Access to improved quality of food and at lower prices favors local and regional food security and consequently, population health.”<sup>216</sup> A new law linking school feeding to rural development was enacted in 2009, and by 2012 the amount of food sold by family farmers to schools more than doubled. Furthermore, the law set a standard on the maximum amount of allowable added sugar, fat, and salt in meals provided to children in schools.<sup>217</sup> Over time, Brazil has demonstrated their ability to reconnect producers and consumers to nutritious food within their larger goal of enhancing food security.

## LESSONS LEARNED

The positive health impacts from a tax may be limited and should be considered “as part of a package of intervention” to address the negative health outcomes and economic burdens that result from obesity and diabetes.<sup>218</sup> An SSB tax alone is not the panacea for obesity; it is part of a larger effort to address chronic disease. Many studies investigating the effect of food-related taxes on consumption patterns and resulting health outcomes are purely simulations. The fiscal interventions that have been established are relatively new and the long-term effects have yet to be truly understood. Even still, many of these studies offer significant and valid conclusions worthy of analysis. Using best practices and available evidence, policymakers in India may carefully and strategically develop a policy that will reduce the incidence of diabetes and the country’s dependence on sugar as a commodity in the national and world market. The following section outlines the notable impacts and lessons learned from case studies across the globe.

## POSITIVE HEALTH EFFECTS

An extensive amount of research suggests that higher SSB prices will result in declines in consumption leading to overall reductions in weight.<sup>219</sup> Some studies suggest that for every 1% increase in the price of an SSB there will be a corresponding 1% decline in consumption.<sup>220</sup> One study that looked at a 20% tax on SSBs found that this would result in a per capita reduction of body weight between 1.54 and 2.55 pounds per year.<sup>221</sup> Sanjay Basu, a leading medical researcher of the effects of policy on chronic disease, specifically across socioeconomic groups in India, used projection models between 2014 and 2023 to estimate that a 20% tax on SSBs would avert 4.2% of overweight and obese individuals and reduce the incidence of diabetes by 2.5%.<sup>222</sup> Another study that followed a cohort of thousands of adults over 20 years, found reductions in calorie consumption, weight, and risk of diabetes associated with an increase in SSB prices.<sup>223</sup> There is a substantial amount of credible evidence quantifying the effect of increased SSB prices on significant reductions in obesity and diabetes rates.

## THE REGRESSIVE TAX ARGUMENT

The prevalence of obesity in India is greater in many urban areas compared to rural, indicating that obesity is beginning to stretch across geographic boundaries and defying previous theories that obesity is a problem exclusively of the high-income population.<sup>224</sup>

**An SSB tax is not regressive; rather, obesity and diabetes are as these diseases have a greater incidence in low-income populations compared to high-income groups.**

Additionally, the higher costs for healthcare for the treatment of these diseases will hurt low-income groups more than high-income. Therefore, reduced consumption that results from a price increase from a tax will disproportionately but more equitably benefit the lower-income population.<sup>225</sup>

Food industries are the strongest opponents of this sin tax. Multinational food corporations and beverage associations consistently claim that it is a regressive tax in an attempt to persuade policymakers against its implementation. The Union of European Soft Drinks Associations has frequently argued against an SSB tax claiming that it does not help to reduce negative health impacts.<sup>226</sup> However, the evidence from various country studies indicates that it is in fact progressive, leading to a reduction in purchasing from low income groups who tend to bear a larger health burden from these products. Strategically addressing the potential for regressivity with a combination of an adequately high tax rate, collaboration with public health and industry stakeholders, and a targeted education campaign may help offset some of the unintended effects. Malnutrition is spread across all social and economic groups in India, likely to worsen if not addressed with urgency.<sup>227</sup>

## STRATEGIC MARKETING

There is a growing global trend in consumption of SSBs among children, with higher consumption patterns found in low-income children compared to high-income. An American study found that SSBs contribute more to total calorie intake than any other beverage, and for children, this accounts to 15% of their total calorie intake.<sup>228</sup> There is debate around whether there is sufficient evidence to support a resulting reduction in obesity with a simultaneous reduction in SSB consumption; however, a WHO meta-analysis in children found that higher consumption of SSBs was associated with a 55% higher risk of overweight and

obesity. Regardless of the evidence, it cannot be denied that “SSBs are nutrient poor and provide ‘empty’ energy to children’s diets.”<sup>229</sup>

The high consumption rates of SSBs in children are largely attributed to targeted marketing efforts towards this demographic. Children are “easy targets” because they are readily influenced by unique marketing techniques that utilize celebrities, catchy phrases, cartoon characters, free gifts, collectable items, competitions and games that easily entice children and are strategically placed in areas frequented by children. Children, who have a large influence over their parents’ purchasing habits, consume low cost food items that they see in advertisements, or worse, cheaper alternatives that are even more nutritionally deficient and hazardous to their health.<sup>230</sup>

Specific food companies in India, like Complan, advertise nutritional benefits by targeting lower income children using promotional techniques giving the appearance that upward mobility will be achieved through the consumption of their products. The impact of advertising is more severe in young children because they do not yet have ability to recognize “persuasive intent.” With 96% of children in urban slums in North India having access to television, and one study found a significant association between obesity and television watching in children.<sup>231</sup>

Marketing regulations in India exist, but enforcement is minimal. The rules and regulations on their own are insufficient without effective enforcement procedures in place. After many years of recommendations and policy objectives, in 2011 WHO made a new goal to “reduce both the exposure of children to, and power of, marketing of foods high in saturated fats, trans-fatty acids, free sugars, or salt”. India has signed this declaration. Policies that focus on schools, the food industry, and the telecommunications industry combined can address a problem that isn’t simply restricted to children – adults are subject to similar marketing pressures for unhealthy food.<sup>232</sup>

## DEFINING THE TAX

Variation in the effects of SSB taxes implemented in other areas has been dependent upon the extent to which the tax has been clearly defined. The taxation policy ought to have a “rigid” definition around what is taxed,<sup>233</sup> have a tax rate that is likely to generate an impact, as well as clearly identify and communicate how the revenue from the tax will be used. Previous food tax failures, such as in Denmark, can be attributed to weak definitions of the tax.

The available data suggests that efforts to reduce SSB consumption should not be limited to soda (carbonated soft drinks), but should include all SSBs with naturally occurring, added, and artificial sweeteners. Defining the bottom line will help negotiations focus on the ultimate goal.<sup>234</sup> High substitution effects, such as switching from soda to fruit juices, undermine research that may demonstrate lower health effects from SSB taxes.<sup>235</sup>

Ultimately, understanding the political context in which the tax is being proposed generates the most opportunity for success. Garnering political support, understanding the economic conditions, and reframing the purpose as needed, such as the case in Philadelphia, ought to be a priority. The rationale that will generate the most support should be pursued as long as the underlying health objectives are intertwined and will be achieved with its passage.<sup>236</sup>

As mentioned earlier, the higher the tax rate, the greater the effect will be on obesity and diabetes rates. 20% is the most commonly recommended threshold; however, one study found that a price increase by 30% would lead to a reduction in consumption by 25% on average, 31% for low-income groups and 20% for high-income groups. This offers yet another indication that a tax would more greatly benefit the low-income population, who also has a higher prevalence of obesity and diabetes.

Furthermore, the use of the revenue generated from the tax is likely to influence the acceptance of tax if it is used to improve societal health through programs, media, and support for healthier food in schools. A 30% excise tax per liter would likely generate sufficient revenue to fund such programs as well as subsidize healthy food.<sup>237</sup>

## BUILDING A COALITION

Key to the passage of the SSB tax in Mexico was the creation of a sense of urgency from the public and policymakers. This was achieved through a series of tactics such as lobbying, media advocacy, sharing of scientific evidence and data, and opinion polling, but most notably the strong coalition building. The coalition in particular was successful because of the “combined skill set of the partners work[ing] together synergistically” as well as a strong understanding of the political system and helpful ties to the media. Media can be used strategically to promote the proposed policy changes.<sup>238</sup>

Opponents of the tax in Mexico argued, like in many other places, that it would have a negative economic impact. Advocates utilized coalition organizations’ involvement in beverage producer networks to be the spokespeople at press conferences addressing this opposition. These coalition spokespeople provided critical data and were important allies throughout the debate over the tax. Proponents’ biggest wins centered around coalition building and using scientific evidence to bring more awareness to the problem in order to build more support for the policy. Key to their success was adequate preparation around anticipated opposition. The coalition identified potential



counterarguments and formed strategies to respond.<sup>239</sup>

## ECONOMIC OPPOSITION

While research and existing evidence provide a convincing argument for the implementation of a tax on SSBs, opposition parties present a myriad of economic and behavioral theories as to why the tax would be an ineffective intervention. These arguments should be considered by policymakers developing fiscal policies to address chronic disease. Understanding the concerns of the opposition will allow policymakers to purposefully address and design an intervention model that equitably mitigates the negative health impacts of an unhealthy diet. Furthermore, garnering the support of a broad coalition of stakeholders who represent diverse interests, specifically those that can counter the opposition from big industry and government leaders, will further establish the necessity of the tax.

Substitution effects have been consistently documented as one of the most significant reasons SSB taxes are unsuccessful.<sup>240</sup> Higher calorie consumption may occur if consumers substitute taxed goods with other goods that are still high in natural sugar content.<sup>241</sup> Policymakers are advised to consider cross-price elasticity between close substitutes of taxed products. When the tax is high enough to encourage the consumption of close untaxed substitutes (i.e., switching from soda to fruit juice or sweet tea), the improvements to health may be minimal. Therefore, policies that encourage consumers to shift their behavior away from entire categories of foods or nutrients may be more effective in the long run.<sup>242</sup>

Strategic pricing occurs when producers initially absorb the majority tax in an attempt to reduce the impact of higher prices on consumers in an effort to sustain the sales of their products.<sup>243</sup> While this may initially lower profit margins, it gives producers and retailers superficial evidence

that an SSB tax ineffectively reduces purchasing and minimizes the likelihood that consumers will be fiscally demotivated to reduce their consumption of SSBs. Strategic pricing was an outcome seen in many countries where larger quantities of sugar products were cheaper per unit and therefore more attractive to consumers.

Price perception is an especially important factor to consider if a tax on SSBs coincides with a subsidy for healthy food. Often consumers perceive prices as too high or too low, which influences their purchasing and consumption patterns. More often than not, consumer perceptions are not aligned with actual prices for products.<sup>244</sup> Price perception guides consumer behavior more than real prices and healthy food is generally perceived as more expensive. If healthier foods become less expensive through subsidies, finding ways to influence consumer perceptions of prices for these foods through public education and strategic marketing will become necessary.

The value effect is a critical component for developing equitable policies. Policymakers often impose solutions for perceived problems without incorporating the values and desires of the individuals who will be most impacted. If considering a subsidy to encourage consumption of healthier goods, it will be important to determine what healthy goods consumers actually value. For example, lowering fruit and vegetable prices through a subsidy may encourage increased consumption by consumers who already purchase these goods rather than change the purchasing behavior of consumers who do not value nor purchase those goods already.<sup>245</sup> The intended impact of a subsidy may not align with reality if consumer values are not significantly considered.

Individuals at different income levels will respond differently to a tax. Generally, as income increases, the demand for food products will also increase. This means that individuals with higher incomes will be less likely to substitute or decrease their consumption of SSBs if those goods are



already in high demand. However, lower income groups may suffer a greater impact from a tax because they may switch to unhealthy substitutes or worse, maintain their demand for the taxed goods, which will lower their income even further.<sup>246</sup> The tax may be regressive in the sense that lower income people may not have the resources, knowledge, or understanding necessary to adjust their behavior and therefore will end up paying more for food, which will also limit the amount of healthy food they can purchase as certain items they purchase become more expensive.<sup>247</sup> However, evidence from several countries suggests that an SSB tax is in reality progressive, encouraging lower income groups, who also bear larger health burdens from chronic disease, to decrease the purchasing of the taxed goods, which indicates a possible increase in health outcomes without hurting their income status.

As seen in the case in Berkeley, California, the speed at which taxes are passed onto consumers will depend on the amount of preparation retailers have before implementation. Retailers handle the tax in different ways, which places bias on consumer behavior when smaller stores tend to increase prices more significantly than larger supermarkets.<sup>248</sup> Adequate outreach to retailers has been noted as a necessary mechanism for phasing in the tax more rapidly. Retailers need time to prepare and adjust prices on their goods so the effects of the sin tax are felt by consumers in a dramatic and effective way.

In each instance of opposition, the benefits outweigh the objections. Chronic diseases related to SSBs disproportionately affect low-income groups and would therefore experience a larger benefit to a tax-incentivized reduction in consumption. Furthermore, the subsidizing of healthy foods would offset regressive effects. “Indeed a single intervention will not solve the problem of obesity, but that is not a sound rationale for taking no action.” Big food industries strongly oppose the tax and

make similar arguments as the tobacco industry.

## RECOMMENDATIONS

Sugar has been a large part of the Indian diet for thousands of years, appearing in historical texts that describe farming and production of sugarcane as well as its use in Ayurvedic medicine. The cultural importance of sugar is deeply embedded in the nation’s history, a factor to be considered in any policy decision. Although the incorporation of sugar in the Indian diet has been linked to the first known cases of diabetes, research also shows that the modern rise in diabetes rates is not due to cultural consumption practices, rather the Westernization of traditional diets causing unprecedented increases in chronic disease rates.<sup>249</sup>

Globalization has led to an increase in the availability and consumption of processed foods,<sup>250</sup> which in combination with Indians’ biological predisposition to diabetes and the dual burden of malnutrition, makes this nation particularly vulnerable to the modernization of the food industry.<sup>251</sup> Lessons from other countries can serve as a best practice guide and warning of the possible outcomes and challenges India may face as they move forward with developing a multi-dimensional approach, in which taxation forms a part.<sup>252</sup>

The following sections outline specific fiscal and non-fiscal interventions that have the potential to enhance the recommended SSB tax in the recent GST bill.

## FISCAL RECOMMENDATIONS

To generate a large change in consumer behavior in food purchasing, the price changes have to be significant.<sup>253</sup> Many countries have experimented with a

variety of tax rates, but 20% is consistently recommended by medical professionals and policy experts, and universally cited as the minimum tax that will produce an effective and rapid result. 20% is the recommended threshold to stimulate a large effect on consumption and chronic disease, and even larger effects are seen when subsidies for healthy foods are implemented in conjunction with taxes on unhealthy foods.<sup>254</sup> In addition to the health outcomes, the potential for tax revenue is significant.<sup>255</sup>

Although the impacts on public health outcomes from an SSB tax will take time to emerge, changes in consumer behavior and SSB purchasing patterns are expected to occur more rapidly at this tax rate. Additionally, a 20% minimum will help mitigate the substitution effects if the tax on SSBs includes all available beverages that are high in naturally occurring sugars and have added natural sugars or artificial sweeteners.

The revenue generated from a tax on SSBs will be significant given their growing market share across the world, and the revenue from an SSB tax would be optimized if used in concert with the following policies:<sup>256</sup>

- Support for obesity reduction programs
- Support for school nutrition programs
- Financing advocacy groups (like the Health Promotion Foundation in Mexico)
- Subsidies for healthy foods and beverages
- Financing the healthcare system, including preventative incentives

Outlining the uses of the revenue generated from the tax prior to implementation is imperative.<sup>257</sup> Both transparency and specificity in the policy will help both consumers and producers understand the purpose behind the intended outcomes of the policy intervention. Clear messaging and intentionality will both expedite and increase the impact of the tax.

The importance of sugar production to the national economy and the strength of the growers cooperative that is heavily dependent on sugar will make a tax on SSBs unfavorable, and likely ineffective, if not implemented in tandem with a policy that supports farmers. Policies around sugar in India are recommended to address the current, decentralized price supports for sugarcane and the regulation of the sugar trade by the central government.<sup>258</sup>

Subsidies can move farmers away from dependence on sugar toward other crops that are both healthier and less environmentally destructive. Sugar production uses an enormous amount of water, an increasingly scarce resource in India. The Indian government is encouraged to develop a strategic transition plan for sugar farmers to invest in subsidies that will allow for a less water-dependent and nutritionally superior crop industry to emerge.

## NON-FISCAL RECOMMENDATIONS

Sugar-sweetened beverages are a gateway for sugar into the diet, but are not the only source. “Use of taxation in isolation is not sufficient to lead to the anticipated responses. Consumers also need to have sufficient knowledge of what is a healthy substitute to the taxed foods, and furthermore, the substitute has to be readily available to consumers.”<sup>259</sup> There are many policy alternatives that can act as enhancements to a fiscal intervention policy if combined. Policymakers are encouraged to address broader social and economic forces in order to increase the equitable distribution of healthy and safe food while simultaneously reducing the sources of undernutrition that are inevitably linked to obesity and diabetes.

Mexico’s attempt to influence the perception of healthy beverages through public education, media, and soda sale restrictions offers a unique opportunity for India to address similar challenges.

Encouraging higher consumption of water through a combination of limiting SSB sales in high-risk areas such as schools and hospitals and providing a mechanism to increase the availability of potable drinking water can help improve health outcomes without the negative association of a sin tax. Effective media campaigns and community outreach can help individuals better understand the implications of the SSB tax by creating public awareness around the negative impacts of sugar on health.

The widespread public perception of sugar's harmful effects is largely attributed to the success of the soda tax in France. Progress has already begun on this front in India. The Ministry of Women and Child Development issued a report in 2015 titled, "Addressing Consumption of Foods High in Fat, Salt and Sugar (HFSS) and Promotion of Healthy Snacks in Schools of India,"<sup>260</sup> which helped define healthy foods and junk foods. Additionally, the report made recommendations for limiting the availability of junk foods in schools, implementing front-of-label packaging (also a mechanism used in Mexico), and suggestions for inter-departmental interventions. The report is extensive and provides clear and specific programs and policies that would strongly support the SSB tax policy in India.

Big food producers and SSB corporations found profit through marketing and advertisements, especially directed towards youth. Implementing a ban on celebrity endorsements of SSBs, in addition to all marketing tactics aimed at children, is recommended. Additionally, it is recommended that India consider becoming a signatory to the WHO policy declaration around marketing of unhealthy foods towards children. This will demonstrate a national stand around marketing regulations, thereby encouraging stronger rules and enforcement.

## FUTURE PROJECTIONS AND INDICATORS OF SUCCESS

Under a variety of assumptions, an SSB tax is expected to limit the increase in disease rates and lower BMI and diabetes levels even without large increases due to substitution effects. Projections find highest rates of decline among younger, low-income males and rural populations with the largest declines in diabetes rates in urban regions.<sup>261</sup> Other evidence points to increased effects of an SSB tax with corresponding increases in water consumption. This simultaneous behavior could lead to up to 0.5 kg of weight loss per year, which, over a ten-year period, is more than 5 kg of total weight. One study in France found that a fat tax has only a minor effect on body weight in the short run, but a much larger effect in the long run.<sup>262</sup> However, substitution effects are expected to occur in India in the presence of an SSB tax because of the availability of fruit juices, like mango juice, milk, and tea in the traditional diet. If fruit juice is not taxed, it may lead to adverse effects when used as a substitute.<sup>263</sup> This data demonstrates that in the long term, an SSB tax associated with an incentive to increase water consumption is an effective policy to reduce obesity<sup>264</sup> and other related diseases.

## SUMMARY

The implications for an SSB tax in India are profound. Given the political context and current window of opportunity, drawing on similarities from France, Mexico, and Brazil, the Indian government is in a unique position to not only implement an SSB tax but execute it in a way that has tremendous health benefits, targets environmental sustainability, and includes measures of social equity that benefit the entire country. Given India's current dependence on sugar production, it will be imperative to consider the welfare of its farmer population and plan strategically to support the development of alternative crops.

An SSB tax in isolation will not end or even prevent the obesity and diabetes epidemics from advancing. It is strongly recommended that the implementation of the tax be preemptively aligned with regulations around marketing, education around healthy eating, and incentives to encourage more water consumption. The revenue from the tax might be used to fund supporting program and infrastructure; however, these

recommendations are time-sensitive. The window of opportunity is open, and health problems and social inequalities grow larger day by day as natural resources rapidly disappear. India has the opportunity to become the next world leader by reversing the detrimental health impacts of a sugar-laden population, sweetening the future for all of its citizens.

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