1. Introduction

Zoltan J. Acs and Alan Lyles

Our story begins a long time ago. Hansel and Gretel were walking in the woods. They came across a house made of candy that was inhabited by two witches who ate children. Most children in those days were very thin and had to be fattened up before they would provide a tasty meal, so the witches put Hansel in a cage and made Gretel feed him to fatten him up. A recent cartoon showed a modern-day rendition of the story with two plump children strolling in the woods who come upon the witches' house. The older witch remarks to the other, 'Remember when we used to have to fatten the kids first?'.

Many people have worried about their weight for a long time (Wansink and Huckabee, 2005). But this was not a social issue. Some people were just overweight at least some of the time and most of the costs were internalized, that is, borne by the individual. Over the past 20 years a new trend has emerged – an increase in the prevalence of obesity.[1] Obesity is a state of being that has serious health and economic consequences for both the individual and society at large. While a small percentage of the population has always been obese, the obese fraction of the population started to rise rapidly in the 1970s. Moreover, while obesity used to be a problem predominantly for older people, it has now moved down into the ranks of children.

This rising trend is worrisome because it has significant consequences for individuals, business and society. Obesity leads to debilitating chronic illness (and even early death) for individuals, spiraling health costs and lost productivity for society.[2] While the increasing trend in the prevalence of obesity is not contested, the causes of the increase in obesity, the consequences of the rise in the rate of obesity and its appropriate treatment are issues on which there is much debate.

Moreover what to do about it, if anything, and who should pay for these actions are even more contentious. Is the treatment of obesity a legitimate medical cost that should be borne by insurance? Or is the cost associated with weight control a business investment in its workforce and a government's investment in its populace? Or is it a personal decision for which individuals bear full responsibility? There has been some reticence to

intrude on matters regarding weight, although weight has also been termed 'the last socially acceptable form of prejudice'.

The problem is not limited to one or two countries. The World Health Organization (WHO) estimates that in 2000 the number of obese adults stood at over 300 million people. WHO called obesity, 'an escalating global epidemic of overweight and obesity – "globesity" '. That is, the problem is pandemic. While the problem is most acute in the USA and the UK, it affects countries as diverse as China, India and Thailand. What caused this global phenomenon to emerge at this time? What can be done to arrest or even to reverse this dangerous trend? Doing so will require that we consider what must be done to avoid obesity in the first instance, along with who is responsible for treating existing obesity.

For starters let us think about this like an economist. There are demand-side and supply-side issues here. As individuals we demand certain goods and beverages that we consume. For example, these can be raw agricultural commodities like whole potatoes, or we can demand these commodities in a processed form, such as French fries. Some of our demand for food may come in the form of ready-made meals and even fine dining. What economics tells us is that if the price of food falls, the quantity demanded by individuals will increase at the lower price, other things being the same. Second, if either our tastes or income increase this may result in an increase in the demand for food, with the demand curve (if this was represented graphically) shifting to the right (advertising also plays a role in this).

On the supply side, firms are in business to supply us with goods and beverages that they think we are willing and able to purchase. The supply curve represents the different quantities that will be supplied at different prices. The quantity supplied will be an increasing function of the price. The supply curve for food and beverages will be influenced by the cost of producing the food items that are supplied and by technology that might influence the way in which food is produced. If the food-processing technology improves, the supply of food might increase – shifting the supply curve to the right, giving us more food at all levels of existing prices. For example, if the machines that produce hot dogs become more efficient by producing 50 hot dogs per second instead of 10, processors will be able to reduce the cost of supplying hot dogs. A similar result occurs if less expensive substitutes can be used.

This interaction of supply and demand may produce an equilibrial price and quantity of food available to an economy. If the supply curve shifts to the right because of a change in technology, in general the price of food will fall and the quantity supplied and demanded will increase, as long as demand is not inelastic (if individuals only wanted to consume a certain quantity of food no matter what the price, the increased supply could not

be sold at any price). However, this is not the case. As the price of food falls, the quantity consumed increases. So as food becomes cheaper, we eat more of it.

Taking a longer view, historically the issue has been one of supply. For centuries the fear was that the supply of food would not keep up with a growing population. In other words the demand curve would shift out faster than the supply curve, leading to the famous Malthusian dilemma. Of course while this situation has been eliminated in most of the developed world, the demand for food still outstrips the supply in certain countries. Most recently a serious famine killed millions in North Korea and many more die in African countries every year.

On the demand side, problems can also occur. In the eighteenth century, during the first industrial revolution, the working class had less to eat than before the industrial revolution – leading to malnutrition, as documented by Charles Dickens. In the nineteenth century a different situation arose. The working class – now with more income – shifted demand from nutritious wholewheat bread to white bread. The reason was that the upper classes ate white bread and it was seen as fashionable. Of course the upper classes also ate meat, which the working classes did not, and the nutritional value of the bread did not matter that much for their health. A public health crisis followed, with the working class being affected by malnutrition.

Today, in the industrialized world, we clearly are not in a Malthusian world (Akst, 2003). In fact, food production is at an all-time high, with the supply curve shifting to the right, in part because of modern technology and farming methods. The price of food is falling and the quantity is increasing. However, we may have some demand issues. Clearly public policy has worked very hard to make sure that families have enough to eat even if they are poor. While hunger still exists it is not viewed as a major problem.[3] However, while the quantity of food has increased and the price has fallen, making it easier for all to afford food, the quality of food has also changed.

The increase in the food supply has been accomplished by a shift to processed food, and in general more unhealthy food; in some ways similar to the way in which the English shifted from wholewheat bread to white bread. This shift seems to be more driven from the supply side of the equation, with food companies producing food of a lower quality that is of less nutritional value and bears greater consequences for public health. A case in point that José Felipé Anderson will make in this book concerns Chicken McNuggets. His argument is that it is not food in the sense that we know it, since you cannot make it at home – rather, it is an industrial product. Finally, the relative price of food, nutritious versus non-nutritious, has emerged as a major factor impacting obesity and health, with nutritious food costing much more than non-nutritious food.

So if Americans are eating more, eating less healthily and getting fatter in the process, should society change the outcome? Let us think about this from the supply-and-demand model again. A demand-side policy would focus on individuals and try to shift the demand curve to the left, reducing demand either by education, advertising or some other policy. In other words, a demand-side policy would try to get the individual to consume less food. A supply-side policy would focus on the availability of food. For example, a supply-side policy might limit the number of places where you can buy food. In other words, a supply-side policy would make food less available. When Americans visited Europe, for example, they used to be surprised that the Europeans had set hours for eating breakfast, lunch and dinner. At other times the restaurants were closed.

The government also has a role to play here by setting rules that allow for the safe functioning of the whole process. For example, the US Department of Agriculture makes sure that the food supply is safe from contaminants and disease, like mad cow disease. The Department of Health in most cities makes sure that restaurants and food establishments are clean. The government can also play a role in setting guidelines on what should be eaten to have a healthy population and thereby regulate the quality of food produced by manufacturers. This final point is important because one of the issues in the obesity debate is both the quantity of food consumed as well as the quality of the food consumed. This is especially an important issue in schools, where concerns about childhood obesity has led to schools trying to improve the quality of their food offerings.

We are then left with three routes to try to address the obesity epidemic: the individual, business and government. Who should play what role in this process? What if the process fails and the obesity epidemic continues to increase? Many have pointed to the strategy employed against tobacco use as one way to address the obesity epidemic. If you will recall, the fight against tobacco started out through advertising appeals to individuals to stop smoking. When this approach failed to stem the rise in tobacco usage, the process shifted to the supply side by trying to limit the availability of tobacco. Finally, when the whole process failed the lawyers took over as a last resort. However, this analogy does not work very well with obesity since everyone has to eat – maybe less but they still have to eat.

So limiting access to food may not be a very practical idea. A more appropriate analogy for thinking about the problem might be driving. The whole driving process is quite complicated but the outlines are simple. In a world with limited public transportation people need to drive get to work, shop and enjoy themselves. Since most people cannot manufacture an automobile by themselves, automobiles are sold by businesses. Finally, most roads are provided by the public sector. The government sets the rules by

which the whole process operates. In this process the conditions under which individuals operate is framed by certain regulations. For example, we have a set of rules on how to drive, how fast to drive, how to make turns, how to park, where to park, under what conditions to drive, and so on. These rules need to be learned before one is allowed to drive on one's own.

Thinking systematically about weight control requires that we consider both prevention and treatment once a person has become obese. Since behavioral health change is among the most difficult sustainable changes, we can think of prevention as having both active and passive aspects. With driving, some changes made the highway safer even if the driver was no more vigilant, for example: the use of international signs and symbols to communicate with drivers; moving poles further away from the highway so a car veering off the road would not be as likely to have a collision with the pole; anchoring railguards into the ground to guide a car back on the highway; the use of reflectors to make the lanes and roadway more visible during the night, rain or low visibility; and cutting ruts into the sides of the roads to warn drivers as they started to move off the lane of the roadway. In a related way there can be protective supports to assist people with avoiding the most egregious consequences of their food selections. On the supply side, the government sets rules for what type of cars can be used. While any type of car can be manufactured, they cannot all be driven on the roads. Standards exist for safety, fuel economy, emission standards, braking, airbags, materials, and so on. These rules make sure that the cars and trucks on the road are safe, efficient and compatible with the environment.

Finally, the government establishes the system of checks and balances under which the system should work. If individuals and companies do not work by the rules there exists a system of measures to bring individuals into compliance. Let us take a simple example: if you do not obey the speed limits, most likely you will be given a ticket and required to pay a fine. Repeat offenders will be fined at an accelerating rate and at some point more drastic action might be taken, including suspension of a license to operate the vehicle, sending you back to driving school or even to prison. These rules are necessary to have an orderly society where accident rates are low and fatalities at a minimum. Of course, one also has to consider the problems and time delay in getting drunk-driving laws enforced, and the role of individuals and private advocacy groups such as Mothers Against Drunk Drivers (MADD).

A similar set of rules exists for producers. Auto manufacturers and parts suppliers must meet exacting standards or they will also be fined, or forced to recall their faulty products. For example, cars must meet rigorous standards for crash safety. A passenger must be able to survive a crash at a certain speed if a seat belt is worn and an airbag deploys. The ability of a car to

meet these minimum standards will determine if a manufacturer will be allowed to produce and sell an automobile. For example, a manufacturer cannot sell a car without seat belts in order to save money. A manufacturer cannot produce cars without brakes or with less efficient brakes. In the 1970s the Chevrolet Corvair was taken out of production because it was not safe at 'any speed', and it took Detroit years to add airbags to cars.

This system works rather well because of consumer education, manufacturing responsibility and good government regulation. While at times some aspect of this process might break down and the lawyers will have to intervene, these are exceptions and not the rule.

The obesity epidemic is a 'curious' problem. We do have a problem. But the issue is as much one of how to think about it as one of how to fix the problem. Is it a failure of individual responsibility? Is it a failure of corporate responsibility? Is it a failure of regulation? Or is it the unintended consequence of the convergence of separate long-term trends? From a policy point of view, if it is a demand problem – that we just eat too much – the problem can be addressed with traditional demand-side policies. However, if for some reason this does not work, then society might be forced to look at the supply side and consider regulating the food supply more strictly. Let us look at the driving model again as a way of framing the obesity problem.

Put simply, if you are obese, or pre-obese (on the way to becoming obese), while you may think this is free choice it imposes unintended costs on society. These externalities are costs that society has to absorb because you are fat. In the driving analogy, if you are speeding you are putting others at risk at least financially because society has to pay for the health care expenditure from any accident that you might cause. (Note also the continuing debate on motorcycle helmet laws, which uses a similar argument.) Similarly, we estimate that the medical costs of obesity are about $100 billion per year (*The New York Times*, 9 January 2006). If individuals choose to be obese, they should therefore be expected to help cover the cost that they impose on society. A $500-a-year obesity tax (about what you would pay if you smoked a pack of cigarettes a day) levied on the third of the population that is obese would generate $50 billion annually. This is about one half of the additional annual medical cost associated with obesity. On average, treating an obese person cost $1244 more in 2002 than did treating a healthy-weight person.[4] Perhaps the solution could be in the form of higher health insurance premiums, as with smokers. Admittedly, a complication occurs since obesity prevalence is much higher among the poor, who are reliant on publicly funded health care. Similarly, if individuals do not know how to eat a sensible diet (one that does not lead to obesity), perhaps they should be expected to attend nutrition school and relearn how to eat.

Many in society have argued that the fault for the obesity epidemic lies with the businesses that supply us with most of our food. This includes not only the fast food industry, which has been singled out for criticism, but also the soft drink industry, the snack food industry and restaurants. The government is also implicated for the role it has played in contributing to the epidemic. At issue is not just the quantity of food, but the quality of the food supply. As examples, the introduction of inexpensive high-fructose corn syrup in the 1980s, the shift to more processed foods and the increased use of high levels of starch, fats and salts have all played a part in elevating obesity prevalence (*Baltimore Sun*, 5 March 2006, p. 5a).

Finally, the government has not played an active enough role in regulating the whole eating process, from individuals to producers. With the role of advertising increasing, and many consumers relying heavily on information from food producers, consumers may not be able to make informed choices about what and how much to eat. The government can play a much more active role in fighting obesity (*The New York Times*, 11 February 2006).

This book is not about obesity as a medical condition. Nor does it offer a wide-ranging discussion about the health effects of obesity or about the role of the 'right' diet; much of this has been discussed elsewhere. The rapid rise in overweight and obesity over the past two decades has created a debate outside of the medical community about the causes and solutions to this problem. The purpose of this book is to provide a framework for understanding this debate. It offers a framework to address the prevention and treatment of the problem from the perspectives of the individual, business and government.

The starting point of our story is the individual. Individuals make up society and to some extent individuals get obese, not society. So why are we getting fatter? Historically, people grew most of their own food and the distinction between the producers and consumers of food did not exist. Today, businesses provide most of the food that individuals consume, either in the home or outside of the home, unless individuals grow their own. Does business therefore play any role in the obesity epidemic? Finally, the government is supposed to play a role by setting the ground rules by which individuals and businesses operate. The question is how we think about framing this issue. *Obesity, Business and Public Policy* is a multidisciplinary effort to help articulate the problem and frame the debate about obesity. The book is divided into six sections: globalization; the individual; business; government; litigation; and public policy.

The first section examines the obesity problem from a cultural and global perspective. David B. Audretsch and Dawne DiOrio make an argument as to why obesity is also increasing beyond the USA. They suggest that convergence of economic performance in general and economic

growth in particular implies convergence in institutions, and social and cultural capital, so obesity is also expected to occur in other developed countries. That is, countries that participate in internationalization cannot pick and choose the institutions that are spreading around the world. Therefore, rising levels of obesity will accompany the spread of globalization as American companies spread the American diet around the world. This would clearly put the blame on the companies and argue for a supply-side solution to the epidemic. On the other hand, is this just a situation of industrialization and rising incomes rather than one of cultural imperialism by the USA?

The second section examines the obesity problem from the perspective of the individual. John H. Cawley provides an overview of the economics of childhood obesity and its relevance for policy. Economics is a useful perspective because it is the study of how people allocate their scarce resources of time and money to maximize their lifetime happiness, and of people's willingness to trade one thing they value (such as future health) for other things they value (such as enjoyment today). The chapter outlines the economic perspective on children's decisions regarding physical activity and nutrition. The chapter also outlines the economic rationales for policy intervention to address childhood obesity and offers the economic perspective on arguments for policy intervention that arise outside of economics. Childhood obesity is one of the most disturbing issues since very few children were obese 20 years ago. Moreover, if individuals are obese as children it is likely that they will be obese as adults.

Lenneal J. Henderson examines obesity, poverty and diversity. What accounts for the trend toward individuals being overweight across age, race and socioeconomic status? If the result is excess weight, are the causes the same? Are the laws of supply and demand universal? To address these causes, must we craft and broadcast the same health and safety messages in public policy, food and drug marketing, and social and cultural institutions, or must we diversify and variegate these messages? If we believe that excess weight reflects socioeconomic status, will an individual, a household or a neighborhood's economic life chances improve with weight control? Given the diversity of the population of the USA, the reality of persistent poverty and the dynamics of geography and space, what are the appropriate policies, corporate and community-level intervention strategies to reduce and prevent obesity?

In the next chapter Cawley discusses the overall correlation between obesity and wages. A review of the literature yields a strong conclusion that in the USA heavier women tend to earn less than women of a healthy weight. The well-documented fact is that obese individuals receive lower wages than non-obese individuals and are therefore assumed to be less

productive. However, the direction of causality is not clear. All of the results are no more than correlations, which means that the differences in wages cannot be interpreted as the result of weight.

The third section examines the relationship between obesity and business. We focus on two aspects of the business world that play a major role in the obesity epidemic: communications and marketing, and health insurance. Stephen J. Gould and Fiona Sussan examine the communication and advertising debate on obesity. Obesity is an issue often thought to be a marketing problem in that marketing communications messages about food are conveyed that are said to encourage overeating. However marketing, especially in the form of social marketing, also provides other messages, which concern controlling weight. These messages, moreover, address different consumer self-regulatory, weight-oriented systems respectively: promotional–hot–taste and preventive–cool–nutritional–thin. Hence there are mixed marketing communications messages; hot and cool. By applying these to establish an encompassing framework for marketing programs and policies dealing with these systems and messages (the Weight–Lifestyle Segmentation Framework (WLSF)), three broad market segments are identified, including: Weight Loss Resisters who are the most responsive to hot messages at the expense of cool ones, and Dieters and Health-Conscious Consumers who are more receptive to cool ones. Implications are drawn for creatively turning cool messages into hot ones and for applying the WLSF to the solving of obesity issues (*The New York Times*, 11 February 2006, p. B1).

Alan Lyles and Ann Cotten examine the relationship between weight control, private health insurance and public policies. Obesity has been ruled a disease and therefore many are seeking treatment for the problem. The chapter examines the obesity trends in the USA, national health goals for weight, and relevant private health insurance and public policy trends. Two critical issues raised in this chapter are the related but distinct roles that business and government have in providing access to health care services, and the related but different roles that state and federal government have in this area (*The New York Times*, 17 January 2006).

The fourth section focuses on obesity and the role of government. Zoltan J. Acs, Ann Cotten and Kenneth R. Stanton suggest that much of the difficulty in fighting obesity experienced by the individual can be found in the infrastructure of obesity that has been built up in the USA, and as Audretsch points out, has spread around the world (Stanton and Acs, 2005). This infrastructure includes the investment in fast food restaurants, their processing plants and their marketing budgets. This infrastructure has invaded the schools and cafeterias of the country. This chapter explains the distinct federal and state government roles and the primacy of state government in health matters. Under this structure state public policy

experiments are critical in trying to reverse this infrastructure with supply-side policies that limit the availability of unhealthy food (Maryland Department of Health and Mental Hygiene, 2006).

Park E. Wilde examines the role of the US Department of Agriculture in setting dietary guidelines through the food pyramid. The new *Dietary Guidelines for Americans* focus on obesity prevention. They recommend increased consumption of whole grains, fruit, vegetables, fish and low-fat dairy products within a balanced diet where total calories consumed have been moderately reduced. Nevertheless, the best-known and best-funded federally sponsored consumer communications promote increased total consumption of beef, pork and dairy products, including calorically dense foods such as bacon cheeseburgers, barbecue pork ribs, pizza and butter.

The federal government's commodity promotion programs, known as 'checkoff' programs, sponsor these communications. The programs are established by Congress, approved by a majority of the commodity's producers, managed jointly by a producer board and the US Department of Agriculture (USDA) and funded through a tax on the producers. The federal government enforces the collection of hundreds of millions of dollars each year in mandatory assessments, approves the advertising and marketing programs, and defends checkoff communication as the federal government's own message – in legal jargon, as its own 'government speech'. Federal support for promoting fruit and vegetables is small by comparison.

The checkoff programs recently have become identified more clearly as federal programs. Following a recent decision by the US Supreme Court upholding the constitutionality of the checkoff programs, calls for consistency with the *Dietary Guidelines* may get louder. The current inconsistencies in federal communication undermine the effectiveness of the *Dietary Guidelines* as an antidote to the wild private-sector market for information about weight and obesity.

Julie Ann Elston, Kenneth R. Stanton, David T. Levy and Zoltan J. Acs examine if and how tax policies may be used to help fight the obesity epidemic. Their chapter concludes that tax policy in theory may be a more effective weapon against obesity than it was against tobacco, but the problems of developing an implementable tax policy are far from trivial. At least one of the contributing factors to the problem is apparent. The externality arises because the price of calories consumed, faced by the individual, is lower than the social cost of those calories. What is required is a reduction in the quantity of calories that can be obtained at any specific price or alternatively, the price must be somehow increased to reflect the cost to society. The addition of a tax is one means of internalizing the cost. However, the model also shows how the issue might not be the absolute level of prices

but the relative price of healthy versus unhealthy food: fresh versus processed; high nutrition versus low nutrition (Sturm and Datar, 2005).

What happens when society – individuals, business and government – cannot come to a solution about a social problem? Take the case of tobacco. After years of trying to deal with the problem through the traditional means of demand- and supply-side policies the problem was given over to the courts to find a solution. Most controversial public policy issues in the USA end up in state or federal courtrooms for resolution. This is an option of last resort, as many lawyers will tell you. Part V of this book examines what happened with tobacco litigation and examines the parallels with obesity. David T. Levy and Marilyn Oblak examine the lessons for obesity control that can be learned from tobacco control. They consider the perspective of the individual, the role of public policy, the role of business and the interrelationship between the individual, business and society. However, if one-third of children are obese and getting fatter, arguments of free choice and free enterprise will not carry the day. People will demand action and the legal system is set up to do just that. The emphasis will shift from looking to individuals to change their eating and exercise habits to looking for fault with the food industry. In fact, no matter how free market oriented one is, it is hard to argue that obesity is free choice. Nobody chooses to be obese. José Felipé Anderson presents the argument from the McDonald's litigation and argues that these types of lawsuits, even if they do not succeed, change behavior; McDonald's is now serving fruit in its restaurants.

The final chapter provides a summary of the book and a framework for thinking about where public policy stands today in the fight against obesity. Zoltan J. Acs, David T. Levy, Lenneal J. Henderson, Alan Lyles and Kenneth R. Stanton provide a framework for thinking about the obesity problem. They focus on the links between the individual, the market and the role of the government. The difficulty of coordinating a solution to the obesity problem is confounded by four factors in the USA: 1) the social structure; 2) federalism; 3) political pluralism; and 4) interest group lobbying. The issue is how to facilitate discourse and consciousness of the social, economic and personal costs of obesity across such vast differences. Rational planning and intervention can achieve significant coordination and collation of complex systems. However, discourse, debate and even public dialectics as methods of radically raising the consciousness of citizens about policy issues through education may be the most important. Indeed for policy mandates and market dynamics to register, they must be interpreted and processed by these systems.

The chapter concludes with a recommendation that the most important point of intervention in the fight against obesity should focus on childhood

obesity. While the current generation of adults is overweight and half of the overweight are obese, we have never had a generation of adults that started out obese as children. The implications of a generation that will be obese for most of their lives are frightening.

NOTES

1. See www.hhs.gov/news/press/2002press/20021008b.html.
2. See www.newsinferno.com/archives/923.
3. In 2001 the number of Americans who were food insecure, hungry, or at risk of hunger was 33.6 million, a rise over the figures for 2000, when 33.2 million Americans were food insecure. The number of individuals suffering from hunger rose from 8.5 million in 2000 to 9 million in 2001. The number of food insecure households with children has also risen since 2000, by 10 000, to 6.18 million. See www.secondharvest.org/site_content.asp?s=59.
4. See www.usatoday.com/news/health/2005-06-26-health-spending-obesity_x.htm.

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