Causes of the Rapid Rise in Obesity and Diabetes in Mexico

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Abstract

Mexico is now considered to be the most overweight country in the world. Both obesity and diabetes have been growing at rapid and unrelenting rates in Mexico (1-8). Importantly, Type 2 diabetes is determined in large part by obesity. Together these impose significant costs on the Mexican society and economy. If both continue to grow unchecked they will harm not only the health of the public but also will impair productivity and economic growth for generations (9-12). Yet little is known about the specific causes of Mexican obesity. Understanding the causes may pave the way to designing solutions.

This paper has two main objectives. We first present data on obesity from 1988 to 2012 in Mexico (see Figure1). We use four nationally-representative nutrition surveys carried out over this period. We also present statistics on causes of mortality and show that diabetes is now by far the largest cause of death for Mexican and one of the largest for Mexican men (Figures 2 and 3). This makes for a striking comparison with the U.S. where deaths from diabetes are substantially lower in spite of similar levels of obesity.

In the second part of this paper we use our empirical analysis and extant literature on obesity and diabetes in the U.S. to gain insight into the causes of obesity and diabetes in Mexico. Based on the statistical patterns in Mexico, comparison across the US and Mexico, and factors pertinent to Mexico, we present and empirically examine explanations for Mexico’s recent rapid growth in both obesity and diabetes.
To document the growth in obesity in Mexico over time, we use the household level National Survey of Nutrition ENN (1988 and 1999) and National Survey of Health and Nutrition (2006 and 2012) which include data on height, weight, biomarkers and dietary intake. We examine differences in trends and levels in obesity by socioeconomic, demographic and regional variables including age, gender, indigenous status, marital status, and zone of residence including urban versus rural.

Using causes of death based on vital statistics and administrative information from the Secretary of Health in Mexico we provide yearly causes of death in the Mexican population over this period (using ICD codes) by age, gender, zone of residence, and education. We find that deaths due to diabetes have grown substantially over this period and that growth in type 2 diabetes (the type related to obesity) grew dramatically while deaths from type 1 have remained stable (Graphs 1 and 2).

We then turn to the potential causes of the rise in obesity in Mexico using a wide source of different data sources to shed light on the causes. Potential causes that are Mexico-specific include: 1) the recent, rapid, but incomplete nutritional transition from malnutrition to obesity; 2) a tradition of low-nutrient, high fat, readily available, cheap street food; 3) frequent consumption of sodas starting at very young ages; 4) the 1994 NAFTA agreement that made processed foods more readily and cheaply available (14, 15); 5) the government sponsored campaign against drinking water from the faucet without purification due to the cholera epidemic, which may have inadvertently encouraged the habit of consuming soda; 6) the oligopoly status of soda and food production; 7) Mexico as a sugar producing country which may have resulted in high sugar content in many foods and beverages (14-20); 8) lower ability to exercise due to security issues and to traffic (kids do not have traffic-free places to play); 9) increasing labor force participation of women; and 10) long commuting times leave less time for parents to cook nutritious meals at home.

We disaggregate these explanations into those which affect food and beverage consumption patterns from those that affect exercise and calories burned. We use data from the Mexican National Survey of Income and Expenditures (ENIGH) a repeated cross section survey carried out every two years since 1988 to characterize how food and beverage purchases have changed over time. We use data from the Mexican National Survey of Time use over the last twenty years to characterize how time spent in activities including work, exercise, cooking and commuting has changed over time. Finally we use price information on a large list of food products since 1980 to characterize how prices and inflation of healthier foods have evolved relative to less healthy foods.
Selected References.

1. United Nations Food and Agricultural Organization. 


10. Stevens G, Dias RH, Thomas KJA, Rivera JA, Carvalho N, Barquera


Figure 1: Proportion of obese men and women in Mexico: by year

![Proportion of obese women by age (20-70yrs)](image1)

![Proportion of obese men by age group (20-70yrs)](image2)


Figure 2: Principal causes of death in Mexico: by gender

![Principal causes of death in Mexico: by gender](image3)

Source: Authors’ calculations from data downloaded from website: http://www3.inegi.org.mx/sistemas/microdatos/encuestas.aspx?c=33398&s=est
Figure 3: Growth in number of deaths in Mexico due to diabetes: by type

Source: Authors’ calculations from data downloaded from website: http://www3.inegi.org.mx/sistemas/microdatos/encuestas.aspx?c=33398&s=est