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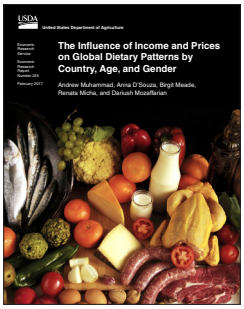

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The Influence of Income and Prices on Global Dietary Patterns by Country, Age, and Gender

Andrew Muhammad, Anna D'Souza, Birgit Meade, Renata Micha, and Dariush Mozaffarian

What Is the Issue?

Worldwide changes in eating habits and poor nutrition are contributing to a global rise in obesity and chronic noncommunicable diseases (NCDs) such as diabetes, heart disease, and stroke, putting all income groups and ages, as well as both genders, at risk of these diseases. NCDs are particularly problematic in developing countries, where they have been shown to negatively affect economic growth and development potential and are more likely than in developed countries to result in premature deaths. In recent years, a number of international meetings and reports have focused on promoting policies (1) to reduce the availability and consumption of saturated fatty acids, high-sodium prepared and processed foods, and added sugars in food and nonalcoholic beverages, and (2) to increase the availability, affordability, and consumption of fruits, vegetables, and other healthy foods. Although international organizations have encouraged healthier diets through pricing and income policies, their effectiveness could differ among countries by income levels and regional preferences, as well as within countries by gender and age subgroups.

What Did the Study Find?

ERS research confirms that changes in income and food prices more strongly affect food intakes in low-income countries than in higher income countries. Income and prices also influence dietary intake patterns across gender, age, regions, countries, and the 11 food categories considered in this study (fruit, vegetables, beans and legumes, nuts and seeds, whole grains, unprocessed red meat, processed meat, fish, milk, sugar-sweetened beverages, and 100-percent fruit juice). All findings are based on 2010 and 2011 data.

Income elasticities (the percentage change in intake due to a percentage change in income) were largest for countries in the lowest income decile (those with incomes in the bottom 10 percent of countries studied). The responsiveness of *fruit* intake to an income increase was the exception: the change was positive for all income groups except the lowest income countries, where the change was insignificant. In the lowest-income-decile countries, *milk* intake (with a more than 1.0 percent response to a 1-percent change in income) responded more strongly than other foods. Milk intake was followed by that of *processed meat* (0.8 percent) and *sugar-sweetened beverages* (0.6 percent). Across countries and income levels, in response to income growth, the intake of meat and beverages is more likely than that of other commodities to rise, and intake of plant-based food, other than fruit, shows little or no change.

Individuals in low-income countries also respond more than those in higher income countries to food prices. When intakes of fruit, milk, processed meat, and sugar-sweetened beverages were compared across income groups, countries in the lowest income decile showed the largest response to food-price changes, and intakes of processed meat and fruit were affected most strongly by those changes, followed by sugar-sweetened beverages. At the lowest income level, milk intake was not responsive to price. Across countries and income levels, a rise in prices is more likely to cause a decrease in meat and beverage intake (milk, 100-percent fruit juice, and sugar-sweetened beverages), with little or no change in plant-based food intake, other than fruit and whole grains.

The associations among income, prices, and food intake globally shown by this report may be important when considering policy options for improving diets and addressing the challenges of NCDs related to dietary intake. However, programs focusing solely on increasing incomes or lowering food prices, without a nutrition-promotion component, may fail to improve their populations' health and well-being. The results also show the importance of relating initiatives to specific groups of people and countries/regions.

How Was the Study Conducted?

Comprehensive data of global consumption patterns available from the Global Dietary Database (2010) were used in this research. The database contains intake data on 11 major food categories and provides estimates of daily consumption levels of major food groups by country, age, and gender. Per-capita 2010 gross domestic product (GDP) estimates from the World Bank were used to account for income differences across countries, and price-level indexes for related food categories from the 2011 International Comparison Program were used to account for price differences across countries. Similar to the Global Dietary Database, the 2011 International Comparison Program data represent the most up-to-date, comprehensive snapshot of global food prices available.

Intake demand for each food category was estimated separately, accounting for differences across gender and age subgroups by allowing these factors to have a direct effect on food intake, as well as an additional effect through income and price responsiveness. The modeling framework also allowed the income and price effects to vary based on income level. To account for cross-country differences due to cultural preferences or related factors, binary variables were added to the model to allow for differences in intake across the following regions: Sub-Saharan Africa, Latin America and the Caribbean, Former Centrally Planned economies of Central and Eastern Europe and Central Asia, Southeast Asia and the Asian Pacific, North Africa and the Middle East, and an aggregate category to account for rich countries in the Western Hemisphere, Australia, New Zealand, and surrounding islands.