



Can targeted food taxes and subsidies improve the diet? Distributional effects among income groups

Jonas Nordström^{a,b,*}, Linda Thunström^c

^a Department of Economics, Lund University, Box 7082, SE-220 07 Lund, Sweden

^b Institute of Food and Resource Economics, University of Copenhagen, Rolighedsvej 25, DK-1958 Frederiksberg C, Denmark

^c The Swedish Retail Institute (HUI), SE-103 29 Stockholm, Sweden

ARTICLE INFO

Article history:

Received 4 June 2010

Received in revised form 29 October 2010

Accepted 26 November 2010

Available online 24 December 2010

Keywords:

Consumer economics

Food

Health

Taxation

Income groups

Incidence

ABSTRACT

This paper analyses distributional effects of revenue-neutral tax reforms aimed at improving dietary quality and encouraging healthier grain consumption. Using data on household grain purchases, we analyse both the impact on dietary quality and the tax incidence among income groups of VAT reforms and excise duty reforms. The VAT reforms include subsidies of healthy products (products labelled with the Swedish National Food Administration's healthy symbol) funded by increased VAT on 'less healthy' products. The excise duty reforms contain a subsidy of fibre content, funded by excise duties on either added sugar or saturated fat. Our results suggest that the VAT reforms have a similar impact on dietary quality across all income groups, with increases in fibre intake, but also unwanted increases in the intake of nutrients frequently overconsumed: fat, salt and sugar. The impact on dietary quality of the VAT reforms is therefore difficult to evaluate. With the exception of the lowest income group, the excise duty reforms seem to have a positive health effect across all other income groups, with increases in the intake of fibre and reductions in the intake of saturated fat, sugar and added sugar. For the lowest income group we find the highest increase in the intake of fibre, but generally an increase in the intake of the other nutrients, too. The excise duty reforms also result in a more energy-dense grain diet, with increases in the intake of calories for all income groups. Both the VAT reforms and the excise duty reforms appear to be progressive. The lowest income group pays less food taxes and generally faces a lower overall post-reform price level. The income group that increases its tax payments most is the one with the highest income. This is also the income group that faces the largest increase in the overall post-reform price level.

© 2010 Elsevier Ltd. All rights reserved.

Introduction

Obesity and overweight have increased dramatically across the Western world as well as in many economies of transition. This increase is so alarming that it is often described as an 'obesity epidemic', and referred to as the new great threat to general welfare and healthcare budgets. The modern diet, often rich in empty calories (kilojoules) and fat, has proven to be a significant risk factor for several types of cancer, for diabetes, cardiovascular disease, osteoporosis and dental caries, as well as for overweight and obesity, the latter two themselves major risk factors for many of these diseases. In Sweden, the direct and indirect costs of obesity

and overweight alone (i.e. disregarding all other illnesses caused by poor nutrition) have been estimated at SEK 3.6 billion (Persson et al., 2004) and SEK 12.4 billion (Persson and Ödegaard, 2005) respectively, which is about 3% of the total cost for all sickness (Socialstyrelsen, 2003). The externalities imposed on tax payers could justify government intervention aimed at encouraging a healthier food intake.

An important improvement in the dietary quality of modern consumers would be an increase in the intake of dietary fibre. A high intake of dietary fibre has several health-promoting effects, including helping to maintain a healthy body weight (Burton-Freeman, 2000; Liu et al., 2003) and controlling and preventing heart diseases (Liu et al., 1999; Mann, 2002), colorectal cancer (Schatzkin et al., 2007) and diabetes (Brand-Miller et al., 2003; Schulze et al., 2004; Willet et al., 2002). Because of the health benefits of a diet high in fibre, the Swedish National Food Administration (SLV) has recommended that the average Swedish consumer should significantly increase his/her fibre intake. Women on average are

* Corresponding author at: Department of Economics, Lund University, Box 7082, SE-220 07 Lund, Sweden. Tel.: +46 46 222 4671; fax: +46 46 222 4118.

E-mail address: Jonas.Nordstrom@nek.lu.se (J. Nordström).

recommended to increase their intake by a minimum of 56%, and men on average by a minimum of 38%.¹

Along with fruit and vegetables, grain products are the most important source of dietary fibre. Grain products are also the food group that contributes the most to our daily energy intake, as well as perhaps the group with the greatest variety of food products.² Wholegrain products in particular are considered to be part of a healthy diet, whereas white, highly refined grain products are often classified as so-called 'empty calories', i.e. food that is energy dense but low in nutritional content. To increase the fibre intake from grain products specifically, and thereby the quality of the overall diet, the SLV recommends that the average household should ensure that half of the volume of bread and breakfast cereals it consumes is 'Keyhole' labelled. The 'Keyhole' is a nutritional symbol, certified by the SLV, for food products categorized as particularly healthy compared to other products in the same food category.³

Using grain consumption data, Nordström and Thunström (2009) simulated the effect of tax reforms aimed at encouraging the average household to increase its fibre consumption by the minimum recommended 38%. The authors found that a 50% subsidy of Keyhole-labelled bread and breakfast cereals or a SEK 0.046 subsidy per gram of fibre per kilogram of grain product increased the fibre intake of the average household by 38%. However, the authors also showed that subsidies in isolation increase not only the intake of fibre but also the intake of nutrients that are often overconsumed (fat, saturated fat, sugar, added sugar, salt). Nordström and Thunström therefore simulated reforms that are fully funded by taxing those nutrients or goods that are considered unhealthy. They conclude that the revenue-neutral tax scheme that appears to be most efficient in redirecting consumption to healthier levels is a subsidy on fibre, funded either by an excise duty on added sugar or an excise duty on saturated fat.

The analysis in Nordström and Thunström (2009) focuses exclusively on the impact of the reforms on the average household. Although the tax reforms that we will consider in this study are revenue neutral for the government, the monetary cost (and benefit in terms of improved dietary quality) is likely to differ among households. Building on the results in Nordström and Thunström, in this paper we study the distributional effects across income groups. In addition to the monetary costs that individuals at different income levels face as a result of the policy reforms – measured as the changes in tax payments and the overall price level – we analyse the impact of the reforms on the intake of fibre and other nutrients. To perform the analysis, we estimate a demand system for grain products and thereafter simulate the results of the tax reforms.

The empirical literature on the effects of economic policies aimed at improving food intake is limited, especially for studies analyzing effects across income groups. Chouinard et al. (2007) analyse the effect of a ten percent ad valorem tax on the percentage of fat in diary consumption. They conclude that the tax has little effect on fat consumption and would lead to particularly large welfare losses for poorer households. Smed et al. (2007) analyse

the impact of tax reforms on the intake of fibre, saturated fat, and sugar across socioeconomic groups. For the revenue-neutral reforms they consider, they find a post-reform increase in food expenditure for the highest social class, while food expenditures decrease for the other social classes. Generally, the decrease in food expenditure is greater for lower social classes. Nnoaham et al. (2009) analyse the effects of policies taxing principal sources of dietary saturated fat and 'less healthy' foods, as well as reforms that levy taxes on 'less healthy' foods and subsidize fruits and vegetables. Their findings suggest that the reforms are economically regressive and that the positive health effects will not necessarily be greater in lower income groups (where the need for dietary improvement is the highest).

To the best of our knowledge, ours is the first study to analyse the effects among income groups of economic policy instruments designed to direct consumption towards specific nutritional recommendations. This paper therefore provides valuable insights into the effects of different tax scheme designs that could be used to improve the dietary quality. It provides knowledge on distributional effects that is not available in studies of average households. For policy makers it is important to be informed both about the distributional effects in monetary terms, i.e., who will bear the tax burden, and the potential health effects that result from food tax schemes. For example, will those who bear the largest tax burden also experience the largest health benefits? The reforms that we consider in this study are revenue neutral for the government, but our results suggest that both the monetary cost and the health outcome differ among households in different income groups.

The remainder of the paper is organized as follows. In "Data and The modelling framework", we present the data and the econometric demand model and the simulation that we use. "Estimation and simulation results" outlines the results of the analysis, and "Discussion" discusses the results and concludes the study.

Data

We use three data sources to perform the analysis. To estimate the demand system for grain products, we mainly use private market research data, from GfK Sweden. However, the GfK data lack a detailed breakdown of soft bread consumption and are therefore combined with household expenditure data (HUT) from Statistics Sweden (SCB) on bread purchases. Finally, we match household purchases with their product contents using nutritional information from the SLV nutrition database.

Consumption patterns

The GfK data are based on diary recordings of grain product purchases for the full year 2003. The data contain information on annual retail purchases of bakery goods, bread, breakfast cereals, frozen and fresh ready meals, pasta, rice and flours. Household characteristics include family size, number of children under 16 years, family income and sex.

The information on products purchased by the GfK households is detailed, including type, price and size of the products bought. An exception is soft bread, for which GfK households are requested only to state whether they purchased the product (i.e. 'soft bread'), omitting all other product-specific information apart from total expenditures. To gain more information on the type of soft bread purchased, we therefore use the 1996 household expenditure data (HUT) from Statistics Sweden, which provides information on the amounts of types of bread (white or brown) purchased, as well as a bread price index. The GfK data set contain detailed information on expenditures on crisp bread.

¹ The average woman consumes 112 g of dietary fibre per week, whereas the average man consumes 126 g per week (Becker and Pearson, 2002). Recommended weekly levels are around 175–245 g of dietary fibre for both men and women (SNR, 1997).

² According to statistics collected by the Swedish Board of Agriculture, grain products constitute around a third of the total daily energy intake of the average Swedish consumer.

³ Breakfast cereals that meet the following criteria can be certified with the Keyhole logo issued by the SLV: fat max. 7 g/100 g, sugar max. 13 g/100 g, sodium max. 500 mg/100 g, fibre min. 1.9 g/100 kcal. For fresh bread, the criteria are as follows: fat max. 7 g/100 g, sugar max. 10 g/100 g, sodium max. 600 mg/100 g, fibre min. 1.9 g/100 kcal. For crispbread, the certification criteria are fat max. 8 g/100 g, sodium max. 600 mg/100 g, and fibre min. 1.9 g/100 kcal.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات