The dynamics of food, alcohol and cigarette consumption in Russia during transition

Thomas Herzfeld [a,b], Sonya Huffman [c,*], Marian Rizov [d]

[a] Leibniz Institute of Agricultural Development in Central and Eastern Europe (IAMO), Halle, Germany
[b] Wageningen University, Wageningen, The Netherlands
[c] 368D Heady Hall, Iowa State University, Ames, IA 50011, USA
[d] Middlesex University Business School, London, UK

A B S T R A C T

This paper presents evidence on the impact of individual as well as regional characteristics on the dynamics of fat, protein, alcohol and cigarette consumption, and on the diversity of the diet in Russia between 1994 and 2005. All those aspects of nutritional behavior are important inputs to the production of health. A dynamic panel data model is used to estimate demand functions for fat, protein, alcohol, cigarettes and diversity of the diet. The results suggest the existence of strong habits in drinking and smoking, and the absence of habits in fat and protein consumption. We also found evidence of habit formation for food diversity. Comparing nutritional behavior of younger and older consumers, we find significant differences in the demand for fat and cigarettes. Older consumers seem to be more persistent in their drinking and smoking behavior. Similarly, men show higher habit persistence for alcohol and cigarette consumption. The results also suggest that among individual determinants, especially education, income and employment have statistically significant impacts on consumption behavior. Regarding the macroeconomic variables, economic growth is negatively related to protein consumption, while regional unemployment rate is negatively affecting the demand for protein and food diversity. Finally, Russian consumers react to the price changes of alcohol, cigarettes, fat and protein as suggested by theory. Consumer demand for food diversity responds negatively to price changes of alcohol and cigarettes, but positively to the price of fat.

© 2013 Elsevier B.V. All rights reserved.

1. Introduction

Political, economic and social reforms in Russia since the collapse of the socialist economy in 1991 have brought significant changes to citizens' lives. The economic downturn signified the real GDP falling to 55% of its 1989 level by 1998, the lowest point over the last two decades, and a subsequent recovery to 88% by 2005 (World Bank, 2007). High inflation, which was still over 300% in 1994, emerging open unemployment, sharp declines in production, and quite common wage arrears eroded the income generating basis for many households. As a result, social indicators point to a fall in living standards, a deterioration in health conditions and increased mortality. Psychological stress and unhealthy lifestyles, which include heavy alcohol (vodka) and cigarette consumption, a high-fat diet, and a lack of recreational exercise, have been identified as the main and often intertwined determinants of poor health in Russia (Zohoori et al., 1998). Several studies describe how Russian households had responded to the economic changes during the transition from a planned to a market economy (Mroz and Popkin, 1995; Dore et al., 2003;

Skoufias, 2003; Stillman and Thomas, 2008; Staudigel, 2011).[1] However, the impact of macroeconomic developments on consumption behavior has been analyzed to a lesser degree so far. To what extent economic turmoil affects consumer behavior remains an important empirical question.

To gain a better understanding of the relationship between macroeconomic factors and healthy lifestyle behaviors, we focus directly on the potential causes of poor health. This paper investigates how the changes in socio-demographic and economic indicators affect consumption behaviors such as diet, drinking and smoking. Unhealthy lifestyles include behaviors that are found to increase the probability of getting a disease and having a negative influence on health. During the transition, there are shifts in consumption behavior as a response to fluctuations in income, prices and employment status. However, there might also be strong habits in consumption behavior that would mitigate the effects of economic turmoil in Russia. Therefore, we examine the impact of predetermined consumption habits in the context of economic fluctuations in Russia.

More specifically, we estimate demand functions for macronutrients, cigarettes, and alcohol, as well as for the diversity of diet. Data from Russian Longitudinal Monitoring Survey (RLMS) rounds 5 to 14, covering the period between 1994 and 2005, form the underlying database.[2] Our analysis aims to quantify the impact of micro- as well as macroeconomic determinants on nutritional behavior. Whereas previous studies analyze the link between socio-economic conditions and health outcomes such as life expectancy, or between healthy lifestyles and behaviors and health outcomes, this paper goes further into investigating the relationship between individual and regional characteristics and consumption behaviors, directly affecting health outcomes. The primary contribution of the paper is the examination of the relative impacts of individual, household, and regionally disaggregated (macroeconomic) determinants on food, alcohol and cigarette consumption during the economic transition. Furthermore, we test to see if older and younger generations, and men and women respond differently to the same determinants of consumption behavior.

The paper continues as follows: First, we review the literature on nutritional behavior and its changes during times of economic turmoil; Then we develop our testable hypotheses, based on this review, various theories of consumption and previous empirical results; Third, the data and econometric methodology are described, followed by a presentation and discussion of the estimation results; Finally, conclusions are offered.

2. Economic turmoil and nutritional behavior

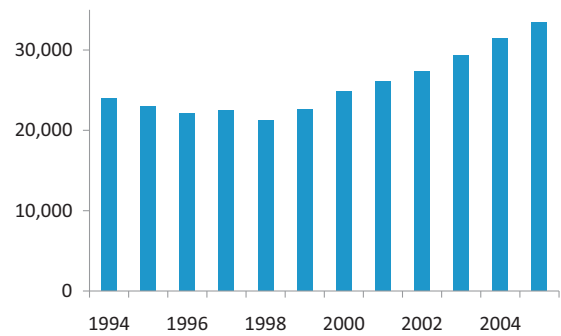The transition period has been characterized by a sharp decline in output, and exploding inflation. Figs. 1 and 2

Fig. 1. Real GDP, Russia 1994–2005 (in bln Rubles).
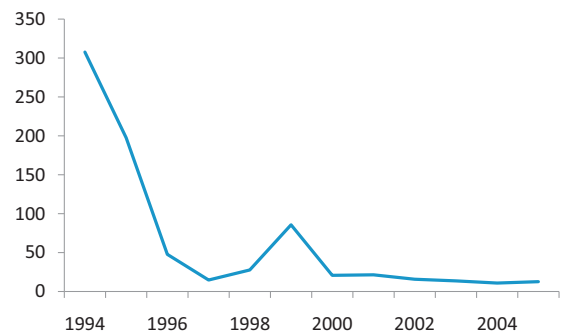*Source*: IMF World Economic Outlook database.

Fig. 2. Rate of Inflation, Russia 1994–2005 (in %).
Source: IMF World Economic Outlook database.

display the changes in the main macroeconomic indicators, real annual GDP and inflation in Russia from 1994 to 2005, which is the period analyzed in this paper. Fig. 1 shows the *J*-curve pattern of initial steep decline in output and slow recovery afterwards. The freeing of prices of government control led to an explosion in inflation at the beginning of the transition to a free market economy. Russia's economy is highly dependent on exports, particularly crude oil and natural gas. The Ruble devaluation and the Russian financial crisis in 1998 led to a further decline of economic output. Prices, especially of imported products, increased sharply, which pushed many households into poverty and increased the economic inequality in Russia (Lokshin and Popkin, 1999). By 2000, the increase in oil prices in the world market greatly facilitated the economic recovery of Russia.

Turning to food prices, Figs. 3 and 4 show the development of the prices of fat, protein, alcohol and cigarettes relative to the aggregate food price at the community level in Russia between 1994 and 2005, based on the authors' calculations.[3] Besides the mean, the figures present the 25th and 75th percentiles to give an indication of the variability across communities. Out of the four items, alcohol shows the highest increase in relative price. The price of alcohol reached a peak in 1998 and declined over

---

[1] Jahn et al. (2012) focus on the analysis of energy and fat consumption, as well as the physical activity of Russian children.

[2] The RLMS was not conducted in 1997 and 1999.

[3] For a more detailed description of the calculation of relative prices, see the section entitled "Data and econometric specification."