Body Weight and Labour Market Outcomes in Post-Soviet Russia

Sonya Kostova Huffman
368D Heady Hall, Iowa State University, Ames, IA 50011, USA
515-2944299; skostova@iastate.edu

Marian Rizov
Department of Economics and Statistics, Middlesex University
Business School, The Burroughs, London, NW4 4BT, UK. Email: m.rizov@mdx.ac.uk

Selected Poster prepared for presentation at the International Association of Agricultural Economists (IAAE) Triennial Conference, Foz do Iguaçu, Brazil, 18-24 August, 2012.

Copyright 2012 by Sonya Kostova Huffman and Marian Rizov. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.
Transition, labor markets and health

• The prevalence of obesity has risen dramatically, not only in high income countries, but in middle and low-income countries as well.
• Obesity is a major contributor to the global burden of chronic disease and disability, including diabetes, cardiovascular disease, and cancer.
• Obesity is linked to lower wages and employment, increased wage penalties, and job discrimination (Puhl and Brownell 2001, Casley 2004).

Given the health effects of obesity, obese individuals are more likely to have work limiting disabilities or to miss work due to illness if they are employed (Casley et al. 2007).

Goal of the paper

To estimate the impacts of weight, measured by body mass index (BMI), and calculated as weight divided by height in meters squared on employment, wages, and missed work due to illness for Russian adults by gender, in order to better understand the mechanisms through which obesity affects employment, wages and sick-leave days.

Conceptual Issues and Methodology

Following the labor economics literature, in order to determine the effects of obesity on labor force participation (LFP), wage rate (w), and the number of sick-leave days (SLD), and to formalize the causal relationships discussed, we develop the following three equation econometric model:

\[ \begin{align*}
\ln w_{it} &= \alpha_0 + \alpha_1 X_{itw} + \alpha_2 \text{BMI}_{it-1} + \alpha_3 \text{BMIsq}_{it-1} + \tau_i + \varepsilon_{it} \\
LFP^*_{it} &= \beta_0 + \beta_1 X_{itl} + \beta_2 \text{BMI}_{it-1} + \beta_3 \text{BMIsq}_{it-1} + \delta_i + \eta_{it} \\
\text{SLD}^*_{it} &= \gamma_0 + \gamma_1 X_{itl} + \gamma_2 \text{BMI}_{it-1} + \gamma_3 \text{BMIsq}_{it-1} + \tau_i + \mu_{it} 
\end{align*} \]

where

- LFP\_it is the Ln of wage rate
- LFP*\_it is the logarithm of the probability of employment
- SLD\_it is the logarithm of the probability of work days missed
- \( X_{itw} \) is a vector of individual and household characteristics
- \( X_{itl} \) is a vector of individual and household characteristics
- BMI is Body Mass Index
- BMI\_it is one period lagged BMI
- BMIsq\_it is one period lagged BMI squared
- \( \alpha_0, \alpha_1, \alpha_2, \alpha_3, \beta_0, \beta_1, \beta_2, \beta_3, \gamma_0, \gamma_1, \gamma_2, \gamma_3, \) are coefficients
- \( \tau_i, \delta_i, \mu_{it} \) are individual and t for time.


Data and Sample

Russian Longitudinal Monitoring Survey (RLMS) for 1994—2004

- The RLMS is a nationally representative household survey that annually (including 1997 and 1999 samples) the population of dwelling units.
- Sample of 36,617 individuals
- Male—21,236 and female—15,381
- BMI share by gender in Russia 1994—2005


Results

1. BMI and labor force participation:
   - BMI has a nonlinear effect on employment, and the effect is statistically significant for the women sample and for the total, but not for males.
   - The probability of womens employment increases with the BMI until the BMI level is about 30 (the obesity category threshold), and after this level, the probability of womens employment continues to decrease with BMI.
   - The BMI overall marginal effects are positive but not statistically significant, and the magnitudes are very small.

2. BMI and wages:
   - BMI is statistically significant and positively related to wages for the mens samples, but insignificant for the women's sample.
   - One unit (or 4%) increase in men's BMI raises their wage by 1.4% at mean BMI. This result is contrary to some studies for developed economies which find wage penalties for obese workers, but consistent with Mirona (2007) and Sousa (2003) who find that BMI has a significantly positive effect on men's earnings.

3. BMI and sick-leave days:
   - BMI has a non-linear, U-shaped effect on the number of work days missed due to health problems, which is statistically significant only for the total, and for the mens samples.
   - The number of work days missed due to illness decreases with BMI for men until their BMI reaches 28.3. After this point, the number of sick-leave days increases with BMI.


Summary and Conclusions

• This paper focuses on the impacts of overweight and obesity on the probability of employment, wages, and the number of sick-leave days by gender in Russia during the transition.
• We employ econometric techniques to control for unobserved heterogeneity and potential biases due to endogeneity in BMI.
• The results show an inverted U-shaped effect of BMI on probability of employment for men and women.
• We did not find evidence of wage penalty for higher BMI. In fact, the wages for overweight males are higher.
• Overall, we find negative effects of obesity on employment only for women, but not on wages.
• The policy implications are gender specific and should help formulate more effective policies for improving the labor market performance through achieving optimal weight of the citizens in Russia.
• The effects of obesity on labor market outcomes should also raise further attention to the growing obesity problem and the associated societal costs.


References


