Conference track «Population and Economics»

The impact of gender in defining weight wage discrimination in Russia

Научный руководитель – Колосницына Марина Григорьевна

Деева Анастасия Сергеевна
Postgraduate
Национальный исследовательский университет «Высшая школа экономики», Факультет экономических наук, Москва, Россия
E-mail: tupik.volkova@yandex.ru

Short research summary. This paper investigates Body Mass Index (BMI) influence on individual's earnings subject to the gender. The aim is to examine the phenomenon of weight wage discrimination in Russian labour market, leading overweight or obese people to earn significantly less than employees with normal weight, and ascertain whether men and women are discriminated at some comparable level or not. The study is performed on the panel dataset on individuals from the RLMS–HSE database in the time interval from the year 2013 to 2023. The main issue to be resolved in the research was to construct a valid instrument for BMI in order to break endogeneity in the relation between earnings and BMI, to obtain consistent estimates and determine the role of gender in weight wage discrimination in Russia. The estimation results for mixed-gender sample show that when BMI increases by 10%, earnings are expected to fall by 7%, keeping everything else constant. When male and female subsamples are examined separately, it is detected that while women face wage reduction due to overweight, for men no consistent evidence of weight wage discrimination across models is found.

Relevance. In recent decades, obesity has been under great concern of the World Health Organization and governments' authorities due to its negative contribution to mortality rates, increasing number of chronic deceases and overall wellness of population. Another important adverse aspect of obesity is weight wage discrimination in the labour market, which may lead overweight people to have lower chances to be employed and to earn lower wages based solely on their weight parameter. Whereas, on closer analysis, it appears that women are either the only ones to be discriminated for overweight (Lin, 2016; Aleksandrova, Kolosnitsyna, 2018) or even when discrimination is detected for both genders wage penalty for women is much larger than for men (Baum, Ford, 2004). In general, numerous researches reveal that individuals with low socio-economic status and low income tend to consume products with high caloric density and to overeat, leading to overweight. Here reverse causality arises: on the one hand, individuals with upper-normal weight due to wage discrimination may have lower earnings, and, on the other hand, people with lower income tend to overeat systematically.

Methods. To break potential endogeneity in the regressions of *earnings* on *BMI* instrumental variables approach, proposed by Lewbel, is used (Lewbel, 2012). Lewbel's heteroskedasticity based instrument can be applied when two conditions hold. Firstly, there should be no available strong exogenous instrument, which is the case for *BMI* as instrumented variable. Secondly, some assumptions proposed by Lewbel ought to hold, relying on econometric tests and economic rationale. The core idea lies in using the property of heteroskedasticity of residuals in *BMI* equation to construct artificial instrument for *BMI*. Then we perform standard Two-Step-Least-Squares (TSLS) estimation, where at the second step we get consistent estimate of *BMI* coefficient. We also assume that *earnings* may depend on *BMI* non-linearly and quadratic model specifications with two endogenous regressors (BMI^2, BMI) both instrumented with Lewbel's method can be relevant.

Data. The research is performed on the panel data from the Russian Longitudinal Monitoring Survey conducted by the National Research University Higher School of Economics for the years

from 2013 to 2023. The data is collected by the RLMS–HSE as a repeated sample of individuals with a split-panel. Sample selection criteria are as follows that we include only those individuals of working age (16 and over), who have an official paid job. Panel dataset after data processing includes 72,371 observations with 15,813 unique individuals. The female subset includes 38,265 observations with 8,263 women in it, the male one includes 34,106 observations with 7,550 men. All panel datasets are unbalanced.

Results. This paper contributes to the literature by providing a deeper insight into the economic consequences of being overweight in Russia at the individual level, as little research has been conducted using Russian population data. The paper takes into account a possible reverse relationship between earnings and BMI and applies an advanced instrumental variables approach to resolve the endogeneity that occurs in order to better understand the gender role in determining the weight wage discrimination, for the first time in the literature in this field. Another contribution is the use of quadratic model specifications, where BMI^2 and BMI are treated as endogenous regressors and instrumented with Lewbel's heteroskedasticity-based IV method on male and female subsamples separately. At this stage of research, we may suggest that while women are discriminated for being overweight, no consistent evidence of weight wage discrimination for men is detected.

References

1) Aleksandrova Y. D., Kolosnitsyna M. G. (2018). Overweight population in Russia: Statistical analysis. Voprosy statistiki, 25 (10), 61–77 (in Russian).
2) Baum C. 2nd, Ford W. (2004). The wage effects of obesity: a longitudinal study. Health economics, 13 (9), 885–899. DOI: 10.1002/hec.881.
3) Lewbel A. (2012). Using heteroscedasticity to identify and estimate mismeasured and endogenous regressor models. Journal of Business & Economic Statistics, 30 (1), 67–80. DOI: 10.1080/07350015.2012.643126.
4) Lin S. (2016). Examining the relationship between obesity and wages: Empirical evidence from Taiwan. The Journal of Developing Areas, 50 (2), 255–268. DOI: 10.1353/jda.2016.0084.