

ASYMMETRIC ANALYSIS OF OKUN'S LAW: THE CASE FOR TURKEY

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Extended Abstract

This paper revisits Okun's law under an asymmetric approach for Turkey applying structural threshold regression model that allows for endogeneity of the threshold variable that separates the dataset into low and high regime periods according to economic growth. Moreover, the theory is investigated taking subcategories of unemployment rate into account, such as age, education and gender. Empirical findings suggest that only the overall unemployment rate and female unemployment rate reflect significantly negative impacts in both periods. During deep recessions, unemployment rates are more responsive to economic growth.

In order to consider nonlinearities, Kourtellos et al. (2016) structural threshold regression (STR) model is employed. STR model estimates the threshold parameter and it is not known which observation belongs to which regime. In addition to the threshold variable, the model allows the regressors to be endogeneous. This methodology also allows for regime-specific heteroskedasticity.

Okun's law model in threshold regression form is given below:

$$UR_t^i = I(q < \delta)(\beta_0^L + \beta_1^L GR_t) + I(q > \delta)(\beta_0^H + \beta_1^H GR_t) + e_t$$

where UR_t^i is the unemployment rate using different subcategories (or total), such as age, gender, marital status, education, GR_t is the GDP growth rate, q is the threshold variable and δ is the threshold parameter. The threshold variable is preferred to be the growth rate to observe varying impacts of the economic cycles.

Unemployment rate data are obtained from TURKSTAT. Youth unemployment rate, UR_YOUNG , is covering the ages between 15-24. High education, UR_HIGH_EDU , unemployment rate is composed of higher education or faculty graduates. UR_FEM and UR_FEM_MAR are unemployment rate in the female and female-married group, successively. GDP is in constant prices and is obtained from Central Bank of Turkey. The dataset cover the period of 1990-2019¹ and is in semi-annual frequency². Annual growth rate is calculated in quarterly data and arithmetic average is taken.

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¹ Female married unemployment rate is not available after 2013.

² Unemployment rate is available in monthly, quarterly or semi-annual frequency in different subperiods. Arithmetic average is used during the construction of the semi-annual dataset.

Empirical findings suggest that linear Okun's law model is not holding. Only the overall unemployment rate and female unemployment rate reflect significantly negative coefficients in both periods however during deep recessions, unemployment rates are more responsive to growth. This finding is in line with "the risk aversion hypothesis" of Silvapulle et al. (2004). Female unemployment rate is more responsive in both periods compared to overall which may be attributed to a gender approach that employers may perceive the working conditions of the female workers to be more flexible. For the married-female, the response of the labor market is the highest during deep recessions, however the response to economic growth is lost during high regime period. Similarly, youth unemployment is more responsive during deep recessions compared to overall. Finally and inversely, highly educated unemployment rate is the least responsive during deep recessions. The last two findings may argued to be shedding a light to "the labor hoarding hypothesis" of Silvapulle et al. (2004) for Turkish economy.

One crucial finding is that the insignificance of economic growth on unemployment rate during high regime period may signal jobless growth for young, highly educated and married-female individuals. In other words, for these subcategories, it may be argued that economic growth is not successful in job creation. It may be suggested that job training programs to cope with skill mismatch problem, funds directed to public and non-profit organizations and active labor market programs can be useful to create jobs. Moreover, concentrating more on the vocational education can help create part-time employment hence lower unemployment rate. Furthermore, the duration of social transfers may be shortened since longer unemployment duration may discourage workers by keeping unemployment at a high rate and also these workers may fail to keep their competitive skills to survive in the labor force.

Keywords: Unemployment, Growth, Asymmetric Analysis

JEL codes: C22, E24, O47

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