Chapter 2

Unemployment and its Impact on Economic Growth in the European Union: An Evidence from Panel Data Analysis

Murat Cetin
Namik Kemal University, Turkey

Davuthan Gunaydin
Namik Kemal University, Turkey

Hakan Cavlak
Namik Kemal University, Turkey

Birol Topcu
Namik Kemal University, Turkey

ABSTRACT

Unemployment has become an increasingly serious economic and social problem in many European countries. Theoretically, unemployment has a negative effect on economic growth and development. This chapter examines the impact of unemployment on economic growth in 15 EU countries from 1984 to 2012 by using several panel data techniques. Panel unit root tests suggest that the series employed in the study are stationary at first differences. In other words, the series are integrated of order one, I(1). Panel cointegration tests show that the variables are cointegrated over the period implying a long-run relationship between the variables. Panel OLS estimations show that the impact of unemployment on economic growth is negative and statistically significant. This indicates that unemployment decreases economic growth in these countries. Finally, Granger causality tests based on vector error correction model suggest that there is a bi-directional causality between the variables in the short and long run. The findings may provide some policy implications.

INTRODUCTION

Recently, unemployment and economic growth are among the most discussed topics in European countries (Christopoulos, 2004; Adanu, 2005; Tatoglu, 2011; Dogru, 2013). Firstly, the problem of unemployment has increasingly deepened from the second half of the 2000s. The dimension of this problem can be expressed by some statistics. According to EUROSTAT (2014), unemployment has raised from 4% in the 1960s to over 10% in the 2000s. The number of persons unemployed...
reached 26,553 in November 2013. Compared to a year ago, unemployment increased by 278,000 in the EU28. Among the Member States, the highest unemployment rates were registered in Greece (27.4%), Cyprus (17.3%), Portugal (15.5%), Italy (12.7%), Ireland (12.3%) and Latvia (12.0%) in October 2013. These developments emphasize the need to introduce measures overcoming unemployment both at the national and the European level.

According to the macroeconomists, unemployment which is a main socio-economic problem adversely affects the process of economic growth. It can be said that the countries which witness the largest decreases in growth rate are nearly the same countries having the highest unemployment rates. The highest decreases in growth rate were recorded in Cyprus (-5.4%), Greece (-3.9%), Italy (-1.9%) and Portugal (-1.4%) between 2012 and 2013 (EUROSTAT, 2014). The relationship between unemployment and economic growth brings to mind the Okun’s law which is well known as a major macroeconomic theory.

The main purpose of this paper is to examine the link between unemployment and economic growth. Applying several panel data techniques, we investigate the cointegration and causal relationships between unemployment and economic growth in European countries. We consider 15 EU countries from 1984 to 2012. For this purpose, we firstly examine the stationarity of the variables. So, several panel unit root tests developed by Maddala & Wu (1999), Breitung (2000) and Im, Pesaran & Shin (IPS) (2003) are employed. Using several panel cointegration techniques presented by Pedroni (1999), Kao (1999), Maddala & Wu (1999), we secondly examine the presence of long run relationship between the variables. Thirdly, we estimate the long run parameter through the panel OLS method. Finally, we investigate the existence of the long and short run causal relationship between the variables by employing panel vector error correction model (PVECM). Empirical results obtained from this paper may provide policy implications.

The remainder of the paper is organized as follows. We discuss the economic theory related to the Okun’s law in Section 2. We also discuss the empirical literature in this section. Section 3 deals with the model and data. Section 4 examines econometric methodology used in this paper. Empirical results obtained from several tests are presented in Section 5. Finally, Section 6 provides conclusions and some policy implications.

LITERATURE REVIEW

The law developed by Okun (1962) implies the presence of an inverse link between the unemployment rate and real GDP. Basically, Okun (1962)’s law states that a one percentage point change in unemployment rate reveals three percent inverse change in the real output. Therefore, Okun’s law suggests a statistical relationship between unemployment and economic growth. In the next section, the specifications used by Okun will be explained in detail.

Empirically, a number of studies have investigated the relationship between unemployment and real output (Freeman, 2001; Christopoulos, 2004; Adanu, 2005; Huang & Lin, 2008; Villaverde & Maza, 2009; Ceylan & Sahin, 2010; Tatoglu, 2011; Dogru, 2013; Elshamy, 2013). Using panel seemingly unrelated regressions, Freeman (2001) try to analyze the Okun’s law for 10 industrialized countries during the period 1962-1995. In this study, the evidences supporting the validity of Okun’s law are found in all countries.

Applying several panel unit root and cointegration techniques, Christopoulos (2004) analyzes the Okun’s law in Greece at a regional level over the period 1971-1993. The empirical results obtained from the study suggest that there is a long run relationship in 6 out of 13 regions and Okun’s law is valid for these regions.

Applying several panel unit root and cointegration techniques, Christopoulos (2004) analyzes the Okun’s law in Greece at a regional level over the period 1971-1993. The empirical results obtained from the study suggest that there is a long run relationship in 6 out of 13 regions and Okun’s law is valid for these regions.

Using a novel smooth-time-varying-parameter approach, Huang & Lin (2008) estimate the Okun’s coefficients in USA over the period 1948:Q1-