

EMPLOYMENT, ECONOMIC GROWTH AND LABOR MARKET PERFORMANCE: THE CASE OF TURKEY

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Abstract

The fundamental aim of this paper is to explore the empirical relationship between employment and economic growth in Turkey over the period 1995Q₁-2007Q₄ by using modern time series techniques. The employment growth performance is a concern for Turkey as its employment rate is well below any European Union (EU) member country. Some authors have argued that the rates of employment growth in Turkey have remained low over the same period despite relatively strong economic growth. The results of cointegration tests indicate the existence of a long-run relationship between the real GDP and employment. An estimate of employment elasticity of economic growth is obtained by applying the method of least squares over the period 1995Q₁-2007Q₄. The estimation of employment elasticity has yielded a value of 0.20, indicating a positive functional relationship between employment and output. The results of Granger causality tests reveal that there exists a bi-causality relationship between real GDP and employment in the case of Turkey.

Keywords: *Employment, Economic Growth, Employment Policy, Employment Intensity of Growth, Cointegration*

JEL Classification: *J2, O4*

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İstihdam, İktisadi Büyüme ve İşgücü Piyasası Performansı: Türkiye Örneği

Özet

Bu çalışmanın temel amacı modern zaman serisi tekniklerini kullanarak Türkiye’de istihdam ve iktisadi büyüme arasındaki ampirik ilişkiyi 1995Q₁-2007Q₄ dönemi için incelemektir. İstihdam büyüme performansı Türkiye için bir endişe kaynağıdır çünkü istihdam oranı herhangi bir Avrupa Birliği (AB) üyesi ülkenin çok altındadır. Bazı yazarlar görece olarak güçlü iktisadi büyüme olgusuna rağmen, istihdam büyüme oranlarının ilgili dönemde düşük kaldığını ileri sürmüşlerdir. Koentegrasyon testleri sonuçları reel GSYİH ile istihdam arasında bir uzun-dönem ilişkisinin varlığını göstermektedir. İktisadi büyümenin istihdam esnekliği en küçük kareler yöntemi ile 1995Q₁-2007Q₄ dönemi için tahmin edilmiştir. İstihdam esnekliğinin tahmini olarak 0.20 değeri bulunmuştur ve bu istihdam ile output arasında pozitif fonksiyonel bir ilişkinin varlığını göstermektedir. Granger nedensellik testleri Türkiye örneğinde reel GSYİH ile istihdam arasında çift-yönlü nedensellik ilişkisinin bulunduğunu ortaya koymaktadır.

Anahtar Kelimeler: *İstihdam, İktisadi Büyüme, İstihdam Politikası, Büyümenin İstihdam Yoğunluğu, Eşbütünleşme*

JEL Sınıflaması: *J2, O4*

1. Introduction

Some authors have emphasized that one of the most salient features of the Turkish labor market over the past two decades was its relatively weak performance of employment generation capacity by international (and European) standards (see, for example, World Bank (2006) and Yeldan (2006)). The rates of employment growth in Turkey have remained low over the same period despite relatively strong economic growth. A number of studies argued that the Turkish labor market experience of low and declining employment rates in spite of rapid output growth performance indicated the phenomenon of jobless growth in the literature of labor economics (Pamukcu & Yeldan (2005); Yeldan (2006); Telli et al. (2006)).

Global economic crisis has aggravated the problem of chronic high unemployment in Turkey. The unemployment rate of Turkey increased from 10.3 percent in September 2008 to 15.5 percent in February 2009. Although the recent data reveal that employment levels have recovered starting the end of 2009, the employment growth mostly centered on agriculture and informal services. Since the

unemployment rate in Turkey is one of the highest among European countries, it has become a critical question how employment growth is influenced by output growth. On the other hand, employment growth performance is a concern for Turkey as its employment rate is well below any European Union (EU) member country and the EU average. The slow growth of employment in Turkey poses a serious challenge as the country strives for EU accession.

Thus, Turkey provides a particularly good example for examining the relationship between employment and economic growth. The fundamental aim of this paper is to explore the empirical relationship between employment and economic growth in Turkey over the period 1995Q₁-2007Q₄ by using cointegration, error-correction and Granger causality tests. On the other hand, the present paper aims to estimate the employment elasticity or employment intensity of economic growth in Turkey. Furthermore, the empirical findings of this paper will shed some light on the question about whether the phenomenon of jobless growth is valid for the case of Turkey.

Several previous empirical studies have analyzed the relationship between employment and economic growth for a variety of countries. Kapsos (1995) estimated the employment elasticities for 139 countries over the period 1991-2003. The findings of Kapsos (1995) suggest that the relationship between employment and economic growth weakened in a large number of countries around the world over the same period. Heintz (2006) found a similar general decline in the employment elasticity of economic growth over time by using the data for the formal manufacturing sectors of 51 countries. Using the OLS method, Heintz (2006) estimated the employment intensity of growth for Turkey of 0.93 over the period 1968-1979 and 0.26 over the period 1980-1997. Boltho & Glyn (1995) found elasticities of employment in the range from 0.50 to 0.60 for a group of OECD countries. Using the panel data of private manufacturing industry, Onaran and Aydiner-Avsar (2006) find that the impact of economic growth on employment is positive and significant in the industrial sectors of Turkey over the period of 1973-2001.

In an empirical study on G-7 economies, Padalino & Vivarelli (1997) concluded that there were substantial differences in employment elasticities between different countries. Seyfried (2006) estimated employment elasticities for specific states with an estimate of 0.47 for the United States as a whole. Using data for the G-6 + Sweden, Piacentini & Pini (2000) found negative employment elasticities in Italy, Germany, UK and Sweden. On the other hand, Walterskirchen (1999) indicated strong positive relationship between employment and economic growth with employment elasticities for the EU of 0.65 over the period 1988-98.

2. Employment Growth, Economic Growth and Labor Market Performance in Turkey

Economic growth alone is not able to generate significant improvements in employment (Islam (2004); Osmani (2004)). Employment performance is strongly influenced by macroeconomic policies (i.e., the type of economic growth is of critical importance). It has frequently been observed that informal employment has grown faster than formal employment especially in developing countries (Heintz & Pollin, 2003). The level of technology is a significant factor affecting the quantity of employment, but the broad economic policy environment is also very important. The fact that employment-intensive economic growth is achieved depends on a large number of factors such as policy priorities, the sector composition of output, the size of public employment, and the productive technologies employed.

The employment intensity (or elasticity) of economic growth is a summary indicator of the employment outcome of output growth. The employment intensity of growth can be measured by the elasticity of employment with respect to real GDP. Kahn (2007) argues that employment intensity of output growth is better represented by the gross output elasticity of employment. Due to some problems with the simplest estimate of employment elasticity (i.e., by dividing proportionate change in employment by the proportionate change in output), it is desirable to measure the gross output elasticity of employment by estimating regressions of the logarithms of employment and real GDP¹. On the other hand, an employment elasticity of output above one signifies a decline in labor productivity and is an undesirable phenomenon.

The slow performance of employment generation capacity of the economy is a major concern for Turkey as a candidate for full-membership in the EU. The rate of employment in 2009 was 44.3 percent, substantially below the EU standards². Moreover, the employment rate declined from 52.4 in 1994 to 44.3 percent in 2009. The unemployment rate in Turkey was one of the highest in Europe in 2008 with a rate of 11.2 percent and this figure did not include the substantial underemployment in the large informal sector. Table 1 presents some significant figures related to the labor market performances of Turkey and some other selected countries (including EU15 and EU19).

¹ The main problem with these arithmetic measurements is that they may show sharp fluctuations if their measurements are available for consecutive short periods. Moreover, they are biased when estimated over a time period if the end values of the variables diverge from trend values (see Kahn (2007)).

² Regarding female employment and labor force participation rate, Turkey is also far behind the employment standards of the EU.

Table 1. Employment Rates and Employment Growth in the Selected EU Member Countries and in Turkey

	Employment Rates ^a			Employment Growth		
	1994	2008	2009	96-06 ^b	2008	2009
Turkey	52.4	44.9	44.3	0.5	1.7	0.4
Spain	47.4	65.3	60.6	4.3	-0.1	-6.8
Czech Republic	69.2	66.6	65.4	-0.2	1.6	-1.3
Hungary	53.5	56.7	55.4	0.9	-1.5	-2.3
Poland	58.3	59.2	59.3	-0.3	3.7	0.4
EU15^c	59.8	67.3	65.9	1.3	1.0	-1.0
EU19^d	59.9	66.4	64.7	1.1	1.2	-0.8

Notes: ^a: OECD-standardized employment/population ratio, which covers the working age population (15-64 years of age.) ^b: annual percentage change on average over the period 1996-2006. ^c: EU15 refers to Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom. ^d: refers to EU-15 and Czech Republic, Hungary, Poland and Slovak Republic.

Source: OECD Economic Outlook (2009) and OECD Employment Outlook (2010).

Despite relatively rapid economic growth, the Turkish economy has not achieved employment growth at the desired rate. Although the annual rate of real GDP growth was approximately 4.62 percent on average over the period 1996-2006, employment grew by only 0.5 percent on an annual basis during these years. Analyzing the labor market data for Turkey, some authors have argued that Turkey has not succeed in translating economic growth into employment growth over the past decade compared to the EU countries and selected emerging market economies (World Bank, 2006).

There are alternative explanations regarding Turkey's low job creation relative to its economic growth. First, the fundamental factor for slow growth of employment may be the structural transformation in the economy as the population has been shifting out of low productivity agriculture (World Bank, 2006). When the number of workers employed in agriculture decreases significantly, employment growth in the other sectors (i.e., industry and services) may be insufficient to compensate. Moreover, this shift out of agriculture has not been converted into an expansion of industrial labor force. The empirical evidence indicates that agricultural labor surplus has contributed to the informalization of the urban labor markets (Ercan and Tansel, 2006).

Some studies emphasize that Turkey's employment growth in industry and services has also been relatively slow compared to other countries (World Bank,

2006). Thus, the contraction of employment in agriculture is not the only reason for slow employment growth. Interestingly, the recent official statistics of Turkey reveal that the structural pattern of labor-shedding in agriculture has reversed in the period of global crisis. The sectoral breakdown of the recent employment patterns shows that employment in agriculture has increased significantly in Turkey during the recovery period³. Furthermore the bulk of the recent increase in employment has concentrated on informal/small scale activities.

Second, the problem of slow employment growth is regarded by some authors as a direct consequence of excessively open capital account and international financial speculation in Turkey especially over the period 1990-2008 (see Yeldan (2006), Pamukcu & Yeldan (2005), and Telli et al. (2006)). Due to the high real rates of interest and massive inflows of short-term finance capital, the sizeable real appreciation of the local currency resulted in a substantial increase in imports together with a contraction of labor intensive, traditional export industries. Therefore, it is argued that the neo-liberal economic policy pursued by Turkey has led to a contraction of formal employment and increased informalization of economic activities.

Third, some authors have argued that the slow employment generation capacity of the economy stems from the rigid regulatory framework and the relatively high tax burden prevalent in the Turkish labor market (see, for example, Tunali (2003) and Ercan & Tansel (2006)). Non-wage labor costs (which include social security contributions of the employers and payroll taxes on labor employment) are relatively high compared to the EU countries, reaching as much as 35 percent over net wages. On the other hand, the same authors stress the adverse consequences of the new Labor Act in 2003, claiming that job security clauses make the employers reluctant about expanding employment. Thus, extremely high taxes and employment protection laws may be limiting the generation of employment and encouraging activity in the informal market.

However, a number of scholars criticize this “rigidity” argument and argue that the empirical facts do not confirm the existence of high degree of labor market rigidity in Turkey. Lawson and Bierhanzl (2004) emphasize that Turkey takes place among the highly flexible OECD countries according to a labor market flexibility

³ In the first 6 months of 2010, the total increase in employment was 2.324 millions and the increase in agricultural employment reached to 1.194 millions (51% of the total increase in employment). In contrast, the increase in industry was only 0.252 millions over the same period. In addition, the increase in informal employment is 1.570 million (67.6 % of the total increase).

index⁴. The degree of labor market flexibility increases when the informal sector and the informal practices in the formal sector are considered (Taymaz and Özler, 2003). Focusing on the rate of indexation of real wages to productivity, an OECD (2000) study shows that Turkey ranks as the second among OECD countries with regard to labor market flexibility.

Fourth, some recent empirical studies have provided evidence that the slow growth of employment is a global phenomenon. Kapsos (2005) provides evidence that the employment-growth nexus weakened in a large number of countries around the world over the same period. Employing a data set including 51 countries, Heintz (2006) concludes that a significantly large number of countries, both developed and developing, experienced both slower growth and a decrease in their employment elasticities over the last two decades.

3. Data and Empirical Results

All data used in the empirical research section of this study are taken from a publication of TUSIAD (Association of Turkish Industrialists and Businessmen) and Central Bank of Turkey (The Growth Dynamics of the Turkish Economy by Saygili & Cihan (2008)). To examine the relationship between employment growth and economic growth, quarterly data for the period 1995Q₁-2007Q₄ are used. All variables are measured in logarithms and seasonally adjusted by applying Census X12 method. The real GDP series (RGDP) of Turkey is measured by constant 1998 prices. The time series of employment (EMP) covers the figures of employment for the 15+ year population. Since all variables are expressed in logarithms, LRGP and LEMP represent the (natural) logarithms of real GDP and employment series, respectively.

The preliminary step in our empirical analysis is concerned with investigating the integration properties of the series. The results of augmented Dickey-Fuller (ADF) and the Phillips and Perron (PP) tests reported in Table 2 indicate that the logarithms of real GDP and employment are non-stationary variables but their first differences are stationary. Therefore, the two variables are integrated of order one, i.e. I(1). In each case the optimal lag length is chosen by minimizing Akaike information criterion (AIC).

⁴ The flexibility index is constructed by compiling data on minimum wages, hiring and firing practices, centralized collective bargaining, unemployment insurance, and top marginal tax rate.

Table 2. Test Results for Unit Roots

Variables	k ^a	ADF	CV (1%) ^b	CV (5%) ^b	m ^c	P-P ^d
LRGDP _t	4	0.21	-3.58	-2.93	3	-0.31
LEMP _t	0	-1.96	-3.57	-2.92	5	-1.85
ΔLRGDP _t	3	-4.06*	-3.58	-2.93	3	-6.07*
ΔLEMP _t	5	-5.01*	-3.58	-2.93	9	-7.71*

Notes: The critical values for P-P tests: -3.57 (1%) and -2.92 (5%). ^a: k denotes the optimal lag length chosen by AIC. ^b: critical values for ADF tests. ^c: m is the optimal bandwidth parameter used in Phillips-Perron test and based on Newey-West (1987). ^d: Phillips-Perron test statistics. *: indicates significance at 1 percent level.

The long-run relationship between real GDP and employment was examined by the methodology of cointegration. The use of Engle-Granger (1987) residual-based cointegration test indicates the existence of long-run relationship between real GDP and employment by using the standard ADF test. The results of the estimation are summarized in Table 3. An estimate of the employment elasticity of economic growth is obtained by applying the method of ordinary least squares. Over the period 1995Q1-2007Q4, the estimate of employment intensity of growth assumes a value of 0.20, implying that employment growth was positively and significantly related to the growth rate of real GDP in Turkey.

Table 3. The Long-Run Relationship between Employment and Economic Growth (Dependent variable is LEMP_t)

Variable	Coefficient	Standard Error	t-Statistic
LRGDP _t	0.207089	0.017498	11.83468
Constant	6.434233	0.293013	21.95890
R-squared = 0.7369	Adjusted R ² = 0.7317	F-statistic = 140.06	Prob. (F-stat.) = 0.00
The ADF test statistic on residuals = -3.3444			
Critical Values: -3.5683 (1%) -2.9212 (5%) -2.5986 (10%)			

Moreover, the test results obtained by the application of Johansen (1988) methodology confirm a long-run cointegrating relationship between real GDP and employment in Turkey over the 1995Q1-2007Q4. The null hypothesis of no cointegration between real GDP and employment is rejected at the 5 percent level of

significance. The results for testing for the number of cointegrating vectors by Johansen procedure are reported in Table 4, which presents the trace statistics, as well as the corresponding 5 percent critical values.

Table 4. Johansen Tests for Cointegration^a

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value (1%)	P-Values ^c
None ^b	0.335050	27.11991	25.07811	0.0048
At most 1	0.125720	6.717725	12.76076	0.1421
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	Critical Value (1%)	P-Values ^c
None ^b	0.335050	20.40218	20.16121	0.0091
At most 1	0.125720	6.717725	12.76076	0.1421

Notes: ^a: The optimal lag interval selected by AIC is (1, 1). ^b: denotes rejection of the null hypothesis of no cointegration. ^c: indicates MacKinnon-Haug-Michelis (1999) p-values.

Without evidence of cointegration, an error-correction procedure to model short-run dynamics is not available to us. Since a long-run relationship between real GDP and employment has been detected, it is possible to model short-run behavior of the system by using a dynamic error-correction model (ECM). Table 5 reports the estimation results of the short-run dynamic model based on error-correction mechanism. The coefficient associated with the error correction term in the ECM appear to have the expected negative sign and statistically significant at the 5 percent level. The results of estimation for the error-correction model indicate that real GDP has a negative and statistically significant impact on employment with a lag of one quarter. On the other hand, real GDP seems to have positive but statistically insignificant effects on employment in the second and third quarters.

Table 5. The Results of Error Correction Model (Dependent Variable is DLEMP_t)

	Coefficients	t-statistics	Probability
EC term ^a	-0.354116*	-2.337510	0.0245
DLRGDP _{t-1}	-0.269822*	-2.260154	0.0293
DLRGDP _{t-2}	0.091323	0.701849	0.4868
DLRGDP _{t-3}	0.079879	0.627301	0.5340
DLEMP _{t-1}	0.205471	1.198882	0.2376
DLEMP _{t-2}	-0.173729	-1.042409	0.3035
DLEMP _{t-3}	-0.074164	-0.439323	0.6628
R-squared = 0.316347 AIC = -5.59221 SC = -5.28034 DW stat. = 1.90			
Adjusted R ² = 0.196708 F-stat. = 2.6441 Prob(F) = 0.024 Log Likelihood = 142. 213			

Notes: ^a: Error-correction (EC) term. *: indicates significance at the 5 percent level.

Furthermore, this paper explores the causality relationships by implementing the Granger (1969) causality tests. Since LRGDP and LEMP series are integrated of order one, the Granger causality tests are carried out by using the first differences of each series (i.e., the stationary values). The results of testing the Granger causality between real GDP and employment are presented in Table 6. Using AIC for lag specification, column three show lag length chosen for the dependent and independent variables, respectively. The generated Wald-F test results are reported in column three and column four show the related probabilities.

Table 6. Tests for Granger Causality

Null Hypothesis:	Obs	F-Statistic	Probability
DLRGDP does not Granger Cause DLEMP ^a	48	3.07711	0.03801
DLEMP does not Granger Cause DLRGDP		3.29465	0.02983

Note: ^a: D indicates first-differences.

The results portrayed in Table 6 indicate that empirical model cannot reject Granger causality from real GDP to employment at the 5 percent level. In addition, the hypothesis of non-causality from employment to real GDP can be rejected at the 5 percent level of significance. Thus, the results of the Granger causality tests indicate a bi-causality between real GDP and employment.

Consequently, the empirical results presented in this paper are generally in line with the findings of Onaran and Aydiner-Avsar (2006), although the empirical methodologies and frameworks differ.

4. Summary and Conclusions

The global economic crisis has led to a substantial increase in the rates of unemployment in Turkey since the fourth quarter of 2008. However, the problem of slow employment growth in Turkey has become a structural phenomenon over the past two decades, remaining a high-priority issue for economic policy. Some studies emphasize a number of factors to explain Turkey's low employment growth such as the structural change in the economy (i.e. the population shift out of agriculture), the relatively high non-wage labor costs and the rigid regulatory framework in the labor market. On the other hand, the slow growth of employment is regarded by some other studies as a reflection of neo-liberal economic policies implemented in Turkey over the past decades. It is argued that traditional labor-intensive export industries lost their competitiveness over that period as a result of excessively open capital account and international financial speculation in Turkey.

Since the labor market performance of the Turkish economy is relatively low by European standards, the rapid employment growth will be a major factor for stronger economic growth and faster convergence with the EU during the accession period. Employment rates of Turkey have declined significantly over the past two decades and are substantially lower than any EU country and the standards of the EU. Thus, it is essential for economic policy-makers to take the necessary measures of economic policy to stimulate the employment intensity of economic growth and introduce employment-friendly policy measures in the period of economic recovery.

Using modern time series analysis, this paper examined the empirical relationship between economic growth and employment growth for the case of Turkey. The results of cointegration tests indicate the existence of a long-run relationship between the real GDP and employment. An estimate of employment elasticity of economic growth is obtained by applying the method of least squares over the period 1995Q₁-2007Q₄. The estimation of employment elasticity has

yielded a value of 0.20, indicating a positive functional relationship between employment and output.

An error-correction model is estimated to model short-run dynamics of the system. While the results of estimation for the error-correction model indicate a negative and significant relationship between lagged one quarter real GDP and employment, real GDP appear to have positive effects in the second and third quarters. On the other hand, the results of Granger causality tests reveal that there exists a bi-causality relationship between real GDP and employment in the case of Turkey over the period 1995Q₁-2007Q₄.

These empirical results suggest that though rapid economic growth should be regarded as a prerequisite for long-term employment growth, the employment effect of output growth is low in Turkey as the small value of estimated employment intensity of economic growth indicates. Thus, the results of this paper confirm that policies targeting higher economic growth are effective, though relatively insufficient, in stimulating long-run employment.

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