Sosyo Ekonomi

July-December 2013-2

Institutional Rigidities and Their Effects on Labor Demand in Turkey

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Kurumsal Katılıklar ve Türkiye'de Emek Talebine Etkileri

Abstract

This study analyzes the effects of one of the institutional rigidities in Turkish labour market; job security regulations introduced with new labour code legislated in 2003, on the labour demand. By examining the periods before and after the year 2003 with panel data methods, the changes in the responsiveness of labour demand to the changes in labour costs are investigated. In the study in which TURKSTAT Manufacturing Industry Statistics are used, it is found that the responsiveness of labour demand to the changes in labour costs increased after 2003. It is concluded that the labour costs and job security regulations which influence these costs indirectly are effective on the hiring and firing decisions of employers. When a distinctive analysis based on gender is made, it is found that while the results related demand for male workers are similar with the total demand estimates; the demand for female workers does not have a significant response to the changes in labour costs. Estimates in which the openness variable is included show that openness effects labour demand in negative direction.

Keywords : Job Security Regulations, Labour Demand, Panel Data Analysis.

JEL Classification Codes : J23, K31.

Özet

Bu çalışma, Türkiye işgücü piyasasındaki kurumsal katılıklardan 2003 yılında çıkarılan yeni iş kanununun getirdiği iş güvencesi düzenlemelerinin emek talebine etkilerini araştırmaktadır. 2003 yılı öncesi ve sonrası dönemlerin panel veri yöntemleri kullanılarak incelenmesiyle emek talebinin ücretlerdeki değişmeye tepkiselliğindeki farklılaşma sorgulanmaktadır. TÜİK İmalat Sanayi İstatistiklerinin temel alındığı çalışmada sonuç olarak, emek talebinin 2003 yılı sonrasında ücretlerdeki değişmeye tepkiselliğinin arttığı ortaya çıkmaktadır. İşverenlerin işe alma ve çıkarma kararları üzerinde ücretler ve bunları dolaylı olarak etkileyen iş güvencesi düzenlemelerinin etkili olduğu sonucuna varılmaktadır. Cinsiyetlere göre ayrıştırıldığında ise erkek emek talebi için toplam emek talebi ile benzer sonuçlar elde edilmekte iken kadın emek talebinin ücretlerdeki değişmeye tepkiselliği olmadığı görülmektedir. Dışa açıklık değişkeninin dâhil edildiği tahmin sonuçları ise dışa açıklığın emek talebini negatif yönlü etkilediği sonucunu ortaya koymaktadır.

Anahtar Sözcükler : İş Güvencesi Düzenlemeleri, Emek Talebi, Panel Veri Analizi.

1. Introduction

For the last ten years, excluding the year 2009 when the effects of global crisis came up, Turkey has been experiencing a continual growth performance. Despite this growth performance, unemployment is still one of the severe problems of Turkish economy. The country, which is the 16th biggest economy in the world, has a relatively young population for whom every year new jobs should be created. It is an important question to be answered why Turkish economy cannot decrease its perennial unemployment problem with considerably high growth rates.

Two main reasons can be proposed for the persistence of unemployment rates. First are the conjectural reasons. They are related to flows in the economy meaning that a change in demand for goods has effects on the employment level. As it is realized in the global crisis, the decline in demand for Turkish goods in the international markets decreased the production level. Also the labour supply is an important determinant of the employment rate. Agriculture sector in Turkey is getting smaller and the labour employed in this sector is being a part of unemployment in the cities by migration. While these are important facts, they can be seen from time to time in the Turkish economy, that is to say they are not specific to the last ten years with high growth performance.

Second reason behind the persistence of unemployment rates is the structural reasons. Turkish labour code was changed in 2003 bringing several legislations on the job security. The new code highlights the reason for dismissal of the workers to be valid while the prior one's emphasis was on the fairness of the reason. In order to prove that the reason for dismissal is valid, employers need to spend more effort on screening of the workers and keeping performance records as evidences in the case of a dismissal. The prior labour code, no 1475, was criticized because it did not fully include the dismissal rules, which were mainly legislated by International Labour Organization (ILO) in 1982, as Termination of Employment Convention, no 158. With the new labour act, these procedures are internalized into the Turkish labour legislations. These legislated procedures induce new costs, both explicit and implicit, and in the lack of a valid reason supported with such evidence, a dismissal case in labour courts is expected to be concluded against employers. The regulations which increase hiring and firing costs are expected to increase the rigidity in the labour market. There are different studies which compare the rigidities of labour markets in different countries. OECD has a job security index which is being published since 1994. According to this index, Turkey is one of the countries with the most rigid job security legislations. Also International Labour Organization has a database on employment protection legislations of more than fifty countries and according to this database Turkey cannot be considered as a country with flexible labour markets.

The effects of job security regulations on the labour markets are attracting the academics since more than two decades. The special case of continental European countries, like Germany, France and Italy, was interesting to examine because they had high unemployment rates comparing to their growth rates, whereas the United States with similar growth rates had comparably lower unemployment. Some called this situation with the concept "Eurosclerosis" to describe the high unemployment with respect to the considerable economic growth. Lazear (1990) is one of the pioneers in analyzing the relationship between job security provisions and employment. Abraham and Houseman (1993), Bentolila et al. (1994), Burgess et al. (2000), Morgan (2001), Nunziata (2003), Garibaldi et al. (2003), Di Tella and McCulloch (2005), Daniel and Siebert (2005) have studied the effects of these regulations on labour markets, especially for developed countries. Nickell (1997), Feldmann (2009) and Vandenberg (2010) have contributed the literature by analyzing their effects specifically on unemployment rates in various countries. Labour market reforms performed in developing countries attract economists to study the effect of these reforms on the labour demand and unemployment in these countries. India and Latin American countries are countries for which various studies were conducted in this respect. Fallon and Lucas (1991) studied the effects of labour regulations on the demand for workers in India and an African country, Zimbabwe. There are also relatively new studies, such as Roy (2004) who employed VAR models and Besley and Burgess (2004) who used panel data methods, both for examining the relation of job security regulations and labour markets in India. For Latin American countries, a series of studies were conducted with the support of Inter-American Development Bank in 2000. Heckman and Pages (2000) have studied this situation in a comparative basis and examined both Latin American and OECD countries. There have been also individual country studies such as Saavedra and Torero (2000) for Peru, Mondino and Montaya (2000) for Argentina and Downes et al. (2000) for Carribean countries.

2. Data and Method

The data source is based on mainly the manufacturing industry statistics which are published by TURKSTAT. In the analysis, two periods, 1994-2000 and 2003-2008, are examined from a comparative perspective. Instead of using a continuous series from 1994-2008, this approach is employed because TURKSTAT has made some changes in the manufacturing industry surveys, data representation and the data classifications in 2002. So it could not publish data in required precision because low amount of responses to the surveys in this reference year. The year 2001 is not included in this study. The economic crisis of 2001 does not allow for a healthy analysis because the agents, both the firms and workers, are not expected to behave stable, so this year deteriorates the normal behavior pattern in the period as an outlier year.

The statistics on number of enterprises, number of employees, number of hours worked by employees, value added, investment, personnel costs, inventory change and production value are obtained from these surveys for both time periods. In addition to these statistics, number of male employees and number of female employees are available for the latter period. In the second part of the study in which openness variable is added to the analysis, the statistics on imports, exports and production values are used for each manufacturing industry subsector. In order to investigate the determinants of change in the labour demand, the variables are transformed to growth rates between two consecutive years in each interval. As a control variable, GDP growth rates published by the OECD are obtained. Statistics for the monetary variables are realized because they are given as nominal.

For the first period, the data is given according to ISIC Rev 2[1] classification in four digits. There are 85 subsectors of manufacturing sector for each of the 7 years in the period. The data for second period is given according to a different classification, NACE Rev 1.1[2], in four digits. This classification contains more detail with 234 subsectors of manufacturing sector for each of the 6 years in the period. In the estimation, some of the missing observations are excluded from the regression so the number of total observations decreases.

The lack of quantitative data for job security regulations limits the method of this study. So an indirect approach is being applied. A labour demand equation is formed and the responsiveness of labour demand to the changes in labour costs is examined for the periods after and before the introduction of job security regulations in the new labour code which was legislated in 2003. Because the data have both time and cross section dimensions, it is possible to apply panel data methods. Panel data methods have some advantages in analyzing the change dynamics. Baltagi (2005) states that the major advantages of using panel data are controlling individual heterogeneity, gathering more detailed information, more variability, less collinearity between the variables, more efficiency and less degrees of freedom.

3. Econometric Specification

The labour demand equation, which is derived from a cost minimization process, uses the CES cost function. Applying cost minimization has the advantage that the equation involves quantities and because the demand is the constraint, this approach is

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[1] *For the manufacturing sector in ISIC Rev 2 <http://unstats.un.org/unsd/cr/registry/regcs.asp?Cl=8&Lg=1&Co=3>, 22.02.2013.*

[2] *For the manufacturing sector in NACE Rev 1.1 <http://tuikapp.tuik.gov.tr/DIESS/SiniflamaTurListeAction.do>, 22.02.2013.*

more appropriate. The general labour demand specification to be estimated is as the following:

$$emp_{it} = \gamma + \beta_1 prod_{it} + \beta_2 wage_{it} + \beta_3 inv_{it} + \beta_4 growth_{it} + e_{it} \quad (1)$$

where *emp* stands for the growth rate of employment between two consecutive years, *wage* stands for the growth rate of labour costs including both wages and nonwage costs, *prod* stands for the growth rate on average added value per employee, as a measure of the productivity, *inv* stands for the growth rate of investments, and *growth* stands for the growth rate of real GDP of the whole economy, t is the year index and i is the four digit manufacturing sector unit which is under consideration.

This specification is estimated with fixed and random effect models using both one-way error components model and two way error components models which account for the year effects. Because year effects are significant in most of the regressions, only the coefficients estimated with two-way error components model are given in all the regression results. The choice between fixed and random effects models is made by the test, developed by Hausman (1978), which uses the difference between fixed and random effects estimates. The estimates are going to provide us the changes between the responsiveness of labour demand to changes in labour costs, average labour productivity, investments and GDP level.

For the 2003-2008 periods, the availability of data based on gender enables us to estimate the labour demand for both male and female workers. In the estimation, following two specifications are used:

$$empf_{it} = \gamma + \beta_1 prod_{it} + \beta_2 wage_{it} + \beta_3 inv_{it} + \beta_4 growth_{it} + e_{it} \quad (2a)$$

$$empm_{it} = \gamma + \beta_1 prod_{it} + \beta_2 wage_{it} + \beta_3 inv_{it} + \beta_4 growth_{it} + e_{it} \quad (2b)$$

In (2a) and (2b), *empf* stands for growth rate of employment of the female workers and *empm* stands for growth rate of employment of the male workers. Rest of the variables is same with the first specification. In the second part of the analysis, openness variable is added to the models. Openness is defined as the ratio of the sum of a sector's imports and exports to its production level and it shows the degree of its openness to international trade. It is calculated by

$$open_{it} = \frac{(\exp orts_{it} + imports_{it})}{(production_{it})} \tag{3}$$

Because export and import data are published in 3-digits, the other datasets which are in 4-digits precision are transformed into the same degree of precision by aggregating with respect to related industry branches. And the equation to estimate the total labour demand when openness variable is added is

$$emp_{it} = \gamma + \beta_1 prod_{it} + \beta_2 wage_{it} + \beta_3 inv_{it} + \beta_4 growth_{it} + \beta_5 open_{it} + e_{it} \tag{4}$$

This equation is estimated for both male and female workers for the 2003-2008 periods. The next section is devoted for the empirical results of the associated models.

4. Empirical Results

4.1. Total Labour Demand

In this section, first specification is estimated with both fixed and random effects models for both periods. Table 1 summarizes the regression results. The first implication from the estimates is that coefficients of *prod* for each periods are negative and significant. The increase in productivity growth reduces the growth rate of employment. Increase in the average added value per employee directs employers to hire less labour to reach a certain production level. The target value added can be achieved by fewer employees with the increased average productivity per worker.

Table: 1
Total Labour Demand

Variable	Fixed Effects Model		Random Effects Model	
	1994-2000	2003-2008	1994-2000	2003-2008
prod	-0.178**	-0.120**	-0.184**	-0.098**
wage	0.237	-0.207**	0.247*	-0.159**
inv	0.081**	0.042**	0.088**	0.058**
growth	0.017**	0.009**	0.005	0.006
n	475	703	475	703
F	17.94**	11.48**		
Wald			156.66**	86.86**
p-value			0.4134	0.0000

*Note: %5 and %1 significance levels are represented by * and ** respectively. The probability value in the last row is Hausman test's p-value which has the null hypothesis that random effect models are appropriate. Because of missing values, number of observations for each regression is smaller than the full sample sizes.*

The coefficient of *wage* is positive and significant for 1994-2000. On the other hand, it is negative and significant in both fixed and random effects regressions for 2003-2008. This result indicates the rigidity of wages. In the latter period, labour costs are important factors which determine the demand for workers in the Turkish manufacturing industry.

The positive relation between growth in labour demand and growth in wages in the first period can be explained by considering the effects of investments in related years. In all regressions, coefficient of *inv* is positive and significant. Even though the wages increase, employers continue to raise their employment levels to sustain their investments. It can be claimed that the wages are not a binding constraint on hiring and firing decisions in this period. On the contrary, the importance of the wages increases after the year 2003 with the new institutional settings.

Despite Roy (2004) finds that job security regulations are not effective as supposed to be in her study examining the effects of these regulations on employment dynamics in India, Heckman and Pages (2000) concludes that these regulations decrease the labour demand and increase unemployment in Latin America countries. Besley and Burgess (2004) doesn't find any evidence supporting that regulations in favor of employees promote the interests of labour for registered manufacturing sector in India. Di Tella and MacCulloch (2005) states that OECD countries having flexible labour markets have higher employment and labour force participation rates. Similarly, Morgan (2001) notes that job security decreases the speed of adjustment of employment for seven developed European countries. It can be claimed that the increase in hiring and firing costs and the reason why most of the payments for the dismissals are proportional to wages, employers' hiring and firing decisions are affected negatively.

Abraham and Houseman (1993) states that employers in Europe apply alternative adjustment mechanisms in response to rigid job security regulations. It is possible for employers in Turkey act in a similar manner. In response to a positive demand shock, employers can increase the working hours of incumbent workers instead of hiring new ones. For the opposite situation in which a negative demand shock hits the firms, employers can react via reducing working hours or giving unpaid leaves.

Growth rate is the real GDP growth rate. It is observed that this control variable is generally significant and has a positive effect on the growth rate of employment. Economic growth can be regarded as a factor which increases the labour demand in Turkish manufacturing industry.

4.2. Labour Demand Decomposed into Genders

Because the data on number of male and female workers is available after the year 2002, it should be noted that labour demand specifications in this section are estimated for only the second period. Table 2 provides the estimation results. Unlike the total labour demand estimates, coefficients of all variables except *inv* are insignificant in regressions for female worker demand. The growth rates of average worker productivity, wages and real GDP are insufficient to explain the growth rate of employment for female workers. It is observed that the coefficient of *inv* is significant and positively affects the growth rate of employment. Because the analysis mainly focuses on the coefficient of *wage*, it is implied that demand for female workers is more flexible than the demand for male workers with respect to the changes in labour costs. An increase in the growth rate of labour costs does not have a significant effect on the growth rate of female employment.

Table: 2
Demand for Male and female Workers, 2003-2008

Variable	Fixed Effects Model		Random Effects Model	
	Female	Male	Female	Male
prod	-0.220	-0.090*	-0.194	-0.069
wage	0.025	-0.261**	-0.004	-0.227**
inv	0.109**	0.026*	0.124**	0.039**
growth	0.006	0.010**	-0.015	0.010
n	692	692	692	692
F	6.11**	12.93**		
Wald			50.71**	94.62**
p-value			0.9686	0.0001

*Note: %5 and %1 significance levels are represented by * and ** respectively. The probability value in the last row is Hausman test's p-value which has the null hypothesis that random effect models are appropriate. Because of missing values, number of observations for each regression is smaller than the full sample sizes.*

Heckman and Pages (2000) states that job security regulations decrease the hopes of young, female and unqualified workers to find a job. Also, Daniel and Siebert (2005) conclude that these regulations generally bring a cost to workers who can be characterized as inexperienced, old and uneducated. With the increasing job security, employers are expected to be charier in employer selection considering the costs associated with the future dismissals; hence the demand for female workers or young workers is expected to decrease. While the estimates do not confirm this proposition for the Turkish manufacturing industry, at least for the period 2003-2008. These findings can be explained with the fact that female workers in Turkish manufacturing industry are working in less qualified jobs compared to male workers. This can be a reason why employers do not react to changes in labour costs significantly for female workers.

Estimates of the specification (2b) are highly different compared to estimates of the specification (2a). According to these estimates, growth rates of average productivity, labour costs, investments and real GDP significantly affect the growth rate of demand for male workers. The coefficient of *wage* is negative and significant which shows that labour costs are binding on the employment decisions of employers for male workers. Thus, wage flexibility for male workers after 2003 is significantly low.

4.3. Labour Demand when Openness Variable is Added

This section is devoted to the specifications which include the openness variable for both periods. It should be noted that the data is aggregated to three digits because the precision of import and export statistics does not match with the other variables' precision. So the number of observations is smaller than the previous regression results. Table 3 summarizes the regression results. The first different point from the previous estimates is that coefficients of variables except *inv* are insignificant in the regressions for 1994-2000. On the contrary, coefficients of *prod*, *wage* and *open* turns to be significant in the second period of interest. In this period, the growth rate of labour costs is important in employers' employment decisions. In addition, growth rate of average productivity and openness to international trade are also important determinants of the growth rate of employment.

Table: 3
Labour Demand when Openness is Added to the Model

Variable	Fixed Effects Model		Random Effects Model	
	1994-2000	**2003-2008**	**1994-2000**	**2003-2008**
prod	-0.188	-0.118**	-0.205	-0.99
wage	-0.102	-0.138*	-0.138	-0.080
inv	0.609**	0.062	0.630**	0.079**
growth	-0.007	0.005	-0.007	0.012
open	-0.039	-0.091*	0.006	-0.006
n	150	230	150	230
F	41.11**	3.56**		
Wald			417.43**	43.88**
p-value			0.5679	-

*Note: %5 and %1 significance levels are represented by * and ** respectively. The probability value in the last row is Hausman test's p-value which has the null hypothesis that random effect models are appropriate. Because of missing values, number of observations for each regression is smaller than the full sample sizes.*

The coefficient of openness, which is not significant for the first period, turns out to have a significant effect on *emp*. It has a negative effect on the growth rate of employment. In the second period, an increase in the degree of openness for a manufacturing industry subsector, with the new competition conditions arising, results with a decrease in employment by hiring fewer employees in order to decrease labour costs.

Günçavdı and Küçükçifçi (2000) calculates sectoral labour intensities of Turkish economy which is open to trade and finds out that a unit increase in imports increases the use of labour in some sectors and decreases it in some others. Several explanations can be proposed for such a result. Intermediate goods imported in order to produce this one unit can be more labor intensely produced. Also the composition of financing these imports is important. The extent, how much of this value is financed with financial instruments and how much of it is compensated with production which requires additional labour, is a key determinant.

Table: 4
Demand for Male and Female Workers when Openness is Added (2003-2008)

Variable	Fixed Effects Model		Random Effects Model	
	Female	Male	Female	Male
prod	-0.146	-0.063*	-0.118	-0.046
wage	-0.182	-0.103	-0.101	-0.049
inv	0.050	0.016	0.067**	0.036
growth	0.010	0.007*	-0.012	0.016
open	-0.151*	-0.099**	-0.024*	0.010
n	228	228	228	228
F	4.82**	5.61**		
Wald			34.00**	31.23**
p-value			0.0718	0.4151

*Note: %5 and %1 significance levels are represented by * and ** respectively. The probability value in the last row is Hausman test's p-value which has the null hypothesis that random effect models are appropriate. Because of missing values, number of observations for each regression is smaller than the full sample sizes.*

Table 4 summarizes the regressions for the specifications in which labour demand is decomposed into genders and openness variable is added to the models. For the fixed effects regressions, *open* is significant and negative for both male and female workers. That is to say, as the degree of openness increases, the growth rate of employment for both male worker and female workers decreases.

5. Conclusion

Despite its performance on economic growth in the last decade, Turkey is not very successful in decreasing its unemployment rates. This study claims that there is an underlying institutional rigidity behind the persistence of unemployment. More specifically, the job security regulations legislated in 2003 and responsiveness of labour demand to labour costs is examined for two periods, before and after 2003. Job security regulations, which increase the hiring and firing costs, are expected to affect the labour demand indirectly.

The most important result of this two period analysis is that the coefficient of employment growth rate turns out to be negative and significant for 2003-2008. The fact that labour costs are not binding constraints on employers' employment decisions is a sign of flexibility in labour market. But it is observed that labour costs are one of the important determinants of labour demand. When these costs matter, regulations increasing these costs, such as job security regulations, are expected to reduce the growth rate of employment and have an influence which increases unemployment rates. Considering any dismissals in a future economic contraction and the costs associated with this, employers choose to employ less.

When a distinctive analysis based on gender is made, it is observed that the growth rate of labour costs is binding for only demand for male workers. The reason of its insignificance for female workers can be that women in manufacturing industry are generally working in less qualified jobs and employers' decisions are not so strict for them in a case of increase in labour costs. On the contrary, for male workers it is an important factor in employers' employment decisions, thus an increase in labour costs can result with a decrease in demand for male workers.

The increase of openness to trade in the manufacturing industry brings out new competition conditions with the foreign producers. In addition, it makes the industry more vulnerable to the foreign shocks, and in a case of regional or international crisis, sectors which are more open to international trade are affected more. As a consequence, their employment levels decreases dramatically. This competitive environment is expected to exert a pressure on decreasing the labour costs. Employers can respond to this phenomenon by adjusting working hours of incumbents, so they can minimize their costs in the case of new employment. Estimates show that openness has a negative significant effect on the growth rate of employment after 2003. Also it is observed that the growth rate of employment is responsive to the growth rate of labour costs in this period. When a distinctive analysis based on gender is made, it is observed that the degree of openness and the growth rates of labour demand for both genders are moving in opposite directions. The increase in degree of openness in the relevant manufacturing industry subsectors decreases the growth rate of employment for both genders.

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