THE ROLE OF EMPLOYMENT PROTECTION DURING AN EXOGENOUS SHOCK TO AN ECONOMY

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The Role of Employment Protection During An Exogenous Shock To An Economy

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Abstract

This paper explores the role of employment protection when powerful external crises reduce demand for products. We first present a theoretical framework that shows that employment protection has a U-shaped effect on abnormal unemployment during a negative exogenous shock to an economy. Using data from the 33 OECD countries, we analyze how the level of employment protection affected the stability of unemployment rates during the recent global economic crisis. The results suggest that countries with an intermediate level of employment protection will have more stable unemployment rates during a world crisis. The policy implication of our paper is that countries should seek a medium level of employment protection that may act as an automatic stabilizer of the economy on the macro level.

Introduction

This paper explores the role of employment protection during a negative shock in aggregate demand. In general, the conventional wisdom says that labor market regulations improve workers' welfare, do not affect employment and have minimal costs (see e.g., Abraham and Houseman, 1994; Blank and Freeman, 1994; Freeman, 2000). However, employment protection may have different effects on different types of workers. For example, Malul and Luski (2009) and Malul (2009) showed that labor market policies have a different impact on older and younger workers. Other studies have demonstrated that the cyclical volatility of employment is much more pronounced in those countries with relatively fewer labor regulations than in those that are more highly regulated, such as many countries in continental Europe (Bertola and Ichino, 1995). Tella and MacCulloch (2005) found evidence that increased flexibility in the labor market leads to reduce both unemployment rates and rates of long-term unemployment.

We maintain that employment protection affects economic flexibility, and as a result, in times of crisis, has a negative effect on growth. We base this hypothesis on findings from previous studies, such as those of Lazear. Lazear (1990) presented a parsimonious model of the determinants of the labor market with job security as an independent variable. The model was tested in a sample of 20 countries using data from 1956 to 1984. The majority of Lazear's estimates are from equations that include just the dismissals indicator and the time trend variable, rather than all of the variables. Lazear reports that his measure of employment protection is negatively related to the employment-population ratio and the labor force participation rate, but positively associated with unemployment. Heckman and Pages-Serra (2000) document the high level of job security protection in Latin American labor markets and analyzes its impact on employment. They show that job security policies have a substantial impact on the level and distribution of employment in Latin America. Such policies reduce employment and promote inequality. The institutional organization of the labor market also affects both employment and

inequality. Markets where employment protection legislation is more stringent feature more stable employment and unemployment. However, in the long run, employment and unemployment are not clearly correlated with the stringency of job security provisions (Scarpetta, 1996).

The outline of the paper is as follows. Section 2 presents a theoretical framework that analyzes the relationship between the labor market's level of inflexibility and changes in growth (or unemployment) during an exogenous shock to the economic system. In Section 3, we conduct an empirical analysis that supports the theoretical framework. Section 4 summarizes the paper and presents our conclusions.

The Model

What is the relationship between the labor market's level of inflexibility and changes in growth (or unemployment) during an exogenous shock to a country's economy, particularly a negative shock that comes, for example, from a world crisis? To answer this question, we constructed the following model.

Inflexibility of the labor market as an operational leverage of the economy

We assume two production factors: L for labor and K for physical capital. Total expenditures for labor and capital equal the gross domestic product (Y).

$$1.\ Y = L + K$$

Assume that the total expenditure for labor is L

$$L = A + \alpha Y$$

Where:

A = The fixed cost of labor. When employment protection (EP) in a given country is higher, A is higher as well.

αY = The variable cost of labor

Y = The gross domestic product (GDP)

α = The propensity to increase expenditures for labor as the GDP increases

The total expenditure on capital is K. Therefore:

$$Y - (A + \alpha Y) = K$$

In order to keep the capital working, it should be paid at least it alternative cost- K^*. Therefore, the minimum level of GDP (Y_m) needed to keep the existing capital in the country should be:

$$2. \ Y_m = \frac{A + K^*}{1 - \alpha}$$

The excess return K on capital in the economy could be rewritten as follows:

$$3. \ K - K^* = (A + K^*)(\frac{Y}{Y_m} - 1)$$

Equation 3 demonstrates that the higher the fixed labor costs (A), the greater the sensitivity of the return on capital in relation to changes in the GDP. Thus, when a negative exogenous shock such as a world crisis takes place, the negative effects on the economy will be stronger, meaning greater unemployment. More firms may decide to close their business or move their capital to other countries. Such decisions will negatively affect the GDP due to the multiplier effect, thereby escalating the crisis.

We can consider this situation on the micro level as well. Assume that each firm has a different k_i^*. In such a case, we can express the micro problem as: $k_i - k_i^* = (a + k_i^*)(\frac{y_i}{y_i^m} - 1)$,

where $y_i^m = \frac{a + k_i^*}{1 - \alpha}$. The first firms that would shut down their business as a result of a decline in the GDP would be those whose sales have a strong correlation with the GDP (i.e. $\frac{\partial y_i}{\partial Y}$ is relatively high) and also have a low primary $k_i^0 - k_i^*$. Bear in mind that each firm that shuts

down its business or reduces the scope of its activity creates a negative effect that is then compounded by the multiplier effect. Thus, on the macro level, the effect would be cumulative and far stronger.

Inflexibility of the labor market as an automatic stabilizer of disposable income

In a labor market characterized by weaker employment protection, job losses occur more quickly (Dolls et al., 2009). We should bear in mind that companies do not take into consideration the negative effect that such layoffs may have on the economy as a whole (such as a decline in disposable income, which reduces aggregate demand). If they did consider the effect of their local actions on the macro level, they might wait before laying off workers until they had determined whether the situation was temporary or permanent. Therefore, when employment protection is stronger, the negative external effects of laying off workers during a negative exogenous shock to the economy (a reduction in aggregate demand) will be weaker. In such a case, employment protection actually plays a role as an automatic stabilizer.

Taken together, the two effects described above imply that the total effect of employment protection (EP) on abnormal unemployment (ABU) during a negative exogenous shock to the economy is a U-shaped curve. Such a curve suggests that a medium level of employment protection is most desirable during a negative exogenous shock to the economy. Figure 1 illustrates the total effect of employment protection on abnormal unemployment.

Figure 1: Abnormal Unemployment (ABU) and Employment Protection (EP)

ABU

Total effect

Leverage effect

Automatic
Stabilizer

EP
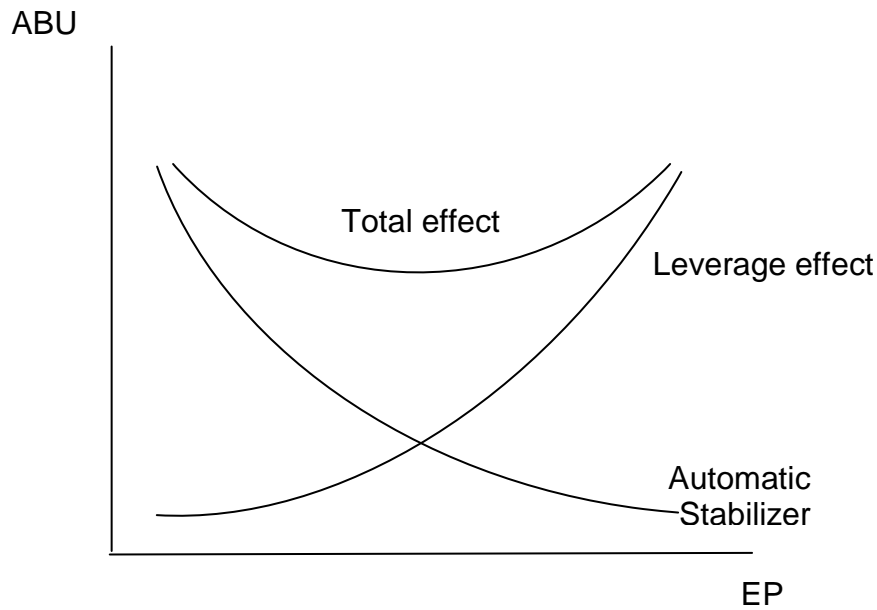
In this paper we analyze additional two variables: the share of the government in the GDP and the level of economic globalization. As Malul et al. (2011) suggested governments might play a stabilizing role during economic crises. For example, when all other things are equal, the decline in the GDP of a country in which the government plays a major role as a provider of value added services might be lower than in a country where the government does not play such a role. The reason for the difference is that private businesses are much more sensitive to decreases in demand than the public sector.

To demonstrate this point, let us define Equation 4 as:

4. $Y = Y_p + Y_G$

where Y_p = The value added by the business sector

and Y_G = The value added by the public sector

The total growth of Y could be written as follows:

5. $\dfrac{\Delta Y}{Y} = (1-\beta)\dfrac{\Delta Y_P}{Y_P} + (\beta)\dfrac{\Delta Y_G}{Y_G}$

The underlying assumption is that Y_p is much more sensitive to changes in the world GDP than Y_G. Therefore, as β increases, the total change in the GDP as a result of changes in the world GDP will be lower[1].

Second, our model predicts that the more integrated the economy of the country is with the world economy, the stronger the correlation between the local GDP and the world economy. From the basic macro model we know that:

$$GDP = C + I + G + NX$$

where C is private consumption, I is investment, G is public consumption and NX is net exports.

$$NX = f(World\ GDP)$$

Our model predicts that as the share of NX in the GDP rises, the stronger the effect of world crises on the local GDP. The model also predicts that countries with either high or low levels of employment protection will experience higher rates of abnormal unemployment (compared to countries with medium levels of employment protection) during an exogenous negative shock to the economy. In the next section, we will use data from the recent world crisis to determine the accuracy of this prediction.

Empirical analysis

The recent global economic crisis has been one of the most severe and deep economic crises in history (Friedrich and Kirchgässner, 2009). The most important economies, such as those of the United States, China and Britain, are in deep recession. In a globalized world, such a situation may have a negative impact on many other economies as well. We will construct an

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[1]   We should note that our model is not a general equilibrium model, so it is not designed to explain all of the macro economic effects.

empirical model to test our hypothesis about the relationship between employment protection and levels of unemployment in the face of a negative exogenous shock to a country's economy.

The empirical model:

$ABU = f(EP, G, GLOB)$

Dependent variable:

Abnormal unemployment (ABU): This variable measures abnormal unemployment in a country in relation to the unemployment rate before the crisis. In this case, specifically, it is the gap between the unemployment rate in 2009 and the unemployment rate in 2007.

Independent variables:

Employment Protection (EP): We used the OECD indicators of employment protection, which are synthetic indicators of the strictness of regulations about dismissals and the use of temporary contracts.

Controls:

Government (G): The average share of government expenditures out of the GDP. Specifically, we measured the average share of government expenditures out of the GDP for each country for the years 1998-2007. We calculated this variable as a dummy variable for each country whose government's share in the economy was higher than the median index (34.77%). Any country meeting this criterion was defined as a country with a relatively high share of government in the GDP (value of dummy=1). All other countries were considered countries with a relatively low share of government in the GDP (value of dummy=0).

Economic Globalization (GLOB): We used the KOF Index of Economic Globalization, which measures long distance flows of goods, capital and services as well as information and perceptions that accompany market exchanges (Dreher, 2006).

We calculated this variable as a dummy variable for each country whose government's share in the economy was higher than the median index (82.55). Any country meeting this criterion was defined as a country that was relatively highly integrated into the world economy (value of dummy=1). All other countries were considered countries that were relatively less integrated into the world economy (value of dummy=0).

Sample

Our sample includes all of the 33 OECD countries. The data for unemployment rates and the stickiness of the labor market were collected from the OECD database. The data for government expenses were collected from the World Bank (world development indicator). Finally, the data for economic globalization were taken from the KOF Index of Economic Globalization.

Results

Table 1: Estimation Results

Dependent Variable: **Abnormal Unemployment Rate**

	Model 1		Model 2	
	Coefficient	t	Coefficient	t
Intercept	2.24	2.18**	5.03	3.09***
GLOB	1.23	1.77*	1.58	2.34**
G	-2.27	-3.24***	-1.67	-2.33**
EP	0.17	0.41	-3.76	-1.99*
EP^2			0.96	2.13**
	F=4.14**, N=33 Adjusted Rsquare 0.227		F=4.62*** N=33 Adjusted Rsquare 0.312	
*** $p<0.01$, ** $p<0.05$, * $p<0.1$				

We ran the data through two different models. Model 1 assumes a linear effect of employment protection on abnormal unemployment. Model 2 assumes a U-shaped effect of employment protection on abnormal unemployment. Our results suggest that the impact of employment protection on abnormal unemployment is not linear. Model 2 explains about 31% of the variation in the abnormal unemployment rate during a worldwide recession. The U-shaped pattern of behavior for employment protection indicates that when employment protection is very low or high, the effect on unemployment will be stronger. Economies with an intermediate level of employment protection will be more stable during a world crisis. The logic behind these results is that when employment protection is relatively high, companies do not have the ability to deal with declines in sales by cutting costs, for example, by laying off workers, so their risk of bankruptcy will be higher. Therefore, when the exogenous shock is significant, many firms will go bankrupt, leading to a sharp, negative decline in the scope of economic activity. The theoretical model we presented in the previous section supports this effect.

On the other hand, when employment protection is very low, firms may over react by cutting costs (i.e., firing workers) in response to decreasing sales. Such a response may also happen as a result of panic or myopia, and exacerbate the situation by further reducing aggregate demand. In such a case, increasing employment protection may strengthen the ability of the economy to cope with the business cycle. Thus, on the macro level, a medium level of employment protection may act as an automatic stabilizer.

To further illustrate our results, we divided our sample into two groups. The first group included countries with very low and very high levels of employment protection (the first and last quartiles of our sample). The former included countries such as Canada, the United Kingdom and Ireland. The latter included countries such as Spain, Turkey and Chile. The second group included countries with a medium level of employment protection (the second and third quartiles of our sample) such as Sweden, the Netherlands and South Korea.

Table 2: Differences in Abnormal Unemployment

	Medium EP	High and Low EP
Mean abnormal unemployment	1.01	2.83
Std.	1.15	2.57
Observations	16	17
P(T<=t) one-tail	0.007	

We can see from Table 2 that when the employment protection level is medium, abnormal unemployment is relatively low (1.01). In contrast, when the level of employment protection is very low or very high, abnormal unemployment is relatively high (2.83). The difference is significant at the 1% level.

Delving deeper into the labor market attributes using OECD statistics, we looked at government policies in this area and divided them into active and passive policies. Active policies include training programs and employment incentives. Passive policies include unemployment benefits and early retirement. We found that active policies are negatively correlated with the rate of abnormal unemployment (-0.027, not significant), while passive policies are positively correlated with unemployment (0.345, significant at the 10% level).

As for the other explanatory variables, the results are as expected. In accordance with the findings of Malul et al. (2011), when the government is a larger part of a country's GDP, world crises have less of an effect on the country's economy because the government plays a stabilizing role when activity in the business sector declines. Second, the sign of the globalization coefficient is positive, indicating that the more globalized a country's economy, the more significant the impact of a world crisis on the country's economy. This effect will be reflected in higher abnormal employment rates. Such results are in line with studies that have found that globalization may increase the instability of local economies (Stach, 2008).

Conclusions

This paper explores the role of employment protection during a negative shock to a country's economy stemming from external sources. We first present a theoretical framework that shows that employment protection has a U-shaped effect on abnormal unemployment during an exogenous negative shock to an economy. Using data from the 33 OECD countries, we analyzed how the level of employment protection affected the stability of unemployment rates during an external shock to the economic system such as that caused by the recent global economic crisis.

The results suggest that countries with an intermediate level of employment protection will be more stable during a world crisis. For counties with medium levels of employment protection (for example, Sweden and the Netherlands), unemployment increased by about 1%, while for countries with relatively high levels of job security (for example, Spain and Chile) or relatively low levels of job security (for example, Canada and the USA), the increase in unemployment was higher (about 3%).

Finally, using OECD statistics we analyzed how labor market policies affect the economic response to a world crisis. We found that passive labor market policies such as unemployment benefits may increase abnormal unemployment rates, while active policies such as training programs and employment incentives may reduce abnormal unemployment rates caused by global economic crises.

The policy implication of our paper is that countries should seek a medium level of employment protection that would act as an automatic stabilizer in trying economic times. A low level of employment protection may prompt employers to layoff vast numbers of employees as a result of panic or myopia. Doing so only exacerbates the problems in the economy at large. Thus, increasing employment protection to a medium level is Pareto efficient. On the other hand, countries with a relatively high level of employment protection should reduce it to a medium

level, because guaranteeing job security hampers the ability of the economy to cope with exogenous shocks, making the economy more vulnerable.

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