The Impact of Labor Market Regulations on Economic Growth in Maghreb Countries

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Abstract:

The present paper examines the effect of labor market regulations on economic growth by shedding light on three Maghreb countries: Algeria, Morocco and Tunisia over the period 2000-2011, through the use of panel data analysis. According to Hausman test, the fixed effects model is the most suitable one, and it illustrates that the labor market regulation index (LMR) displays a positive and highly statistically significant influence on economic growth in Maghreb countries, because the *higher labor freedom leads to lower unemployment rate, and thus raises the productivity and boosts the economic growth* in the selected countries. Also, the empirical results reveal that there is a negative relationship between unemployment and economic growth in the sample under study. Moreover, the coefficient of (UNEMP) is statistically significant at the 1% level of significance, and this is consistent with theory. Based on these findings, it could be concluded that there is a great opportunity for Maghreb countries to achieve high growth rates by adopting flexible labor market policies.

Key words: Labor Market Regulations, Economic Growth, Maghreb Countries, Panel Data Analysis.

1. Introduction :

The labor-growth nexus has received a great deal of attention from economists who have brought to the fore the importance of labor freedom as catalyst for economic growth, further they have stressed that the heavy labor market regulations shrink the economic efficiency.

In retrospect, Viscusi et al., (1995) defined regulation as "the use of the *government's coercive power* for the purpose of restricting the decisions of economic agents", and this definition reflects the frustrating impact of regulations on economic performance.

Since the 1980s, the Fraser Institute has introduced the index of economic freedom; and the present paper is interesting in one of the comprising elements of EF index which is the Labor Market Regulation Index (henceforth, LMR), because it evaluates the hiring regulations and minimum wage, hiring and firing regulations, centralized collective bargaining, hours regulations, mandated cost of worker dismissal, conscription. Moreover, this index varies between 0 and 10,

and a higher LMR value means fewer restrictions on the labor market, or even, higher freedom in the labor market. Accordingly, countries that aim to achieve higher LMR score "*should* allow market forces to determine wages and establish the conditions of hiring and firing, and refrain from the use of conscription" (James Gwartney et al., 2013).

In 1995, Heritage Foundation and Wall Street Journal have provided the index of economic freedom which is based on ten economic freedoms (property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, financial freedom) each one is scaled from 0 to 100, where 100 represents the maximum freedom, and this study sheds light on the labor freedom, which assesses on the one hand the individuals' freedom to work without government pressures, and on the other hand the businesses' freedom to contract with labor and dismiss them, and that's what enhances productivity and raises economic growth. The freedom in the labor market is as much as is required in the goods and services market; because the exhausting government's interference in the labor market hinders the economic performance; for example the rigid labor regulations generate a mismatch between labor supply and demand, and it is interesting to note that the higher labor freedom leads to lower unemployment rate, and thus rises the productivity and boost the economic growth (Heritage Foundation, 2013).

In the same vein, there have been many calls for liberalizing the labor market by reducing regulations and exploitation around the globe, because instilling more constraints in the formal labor market expands the informal employment. As well as, the unfriendly labor market policies raise the unemployment rate and reduce the labor market flexibility.

Freeman, Richard B. (2009) highlighted that the high wages in urban areas increase the rural-to-urban migration, causing higher unemployment, because it may take a while for rural people to find a suitable job. Likewise, the higher labor costs engender unemployment, further the withdrawal of skilled workers makes matters worse, and harms both economic efficiency and productivity.

Furthermore, Hefeker Carsten and Michael Neugart (2007) pointed out that the unemployment benefits offered by government make it easier for firms to dismiss workers, but they extend the unemployment duration and the unemployment rate as well.

However, according to the Frontier Economics report (2012), the employment protection legislation (EPL) affects the country's economic growth in two ways: On the one hand, it induces people to work, also it raises the supply of high-skilled workers, and thereby exerts positive influence on labor productivity and growth, but on the other hand it weakens the firms' ability to keep up with new technologies, because it is harder for those companies to adjust the workforce in cases of technological change; hence these points should be taken in serious consideration by policy makers.

The present paper aims to empirically investigate the impact of market labor regulations on economic growth in the Maghreb countries that have made valuable efforts in order to enhance the growth rates, but there are many unexploited opportunities such as the labor market which remains rigid, contributing to high rates of youth unemployment, and as a result, these countries still experience modest productivity and economic growth, compared to other countries in the world. According to the 2011Fraser Institute's Economic Freedom Index, Tunisia's LMR is ranked 76th out 152 countries with a score of 6.5 in 2011, while the score of labor market regulations in Algeria is 4.9, making its market labor the 128th freest in the world, and Morocco's LMR is ranked138th with a score of 4.5, making its labor market the worst among these Maghreb countries (James Gwartney et al., 2013).

As it seems the labor market remains restricted across the Maghreb region, moreover it is associated with modest economic growth rates. It is therefore essential to investigate the impact of labor market regulations on economic growth by shedding light on three Maghreb countries: Algeria, Morocco and Tunisia over the period 2000-2011, through the use of panel data analysis. For this purpose, the remainder of this paper is organized as follows:

Section 2 presents a review of the empirical literature on labor market regulations and economic growth, section 3 introduces the data and analyses the empirical results and finally section 4 concludes the paper.

2. A Review of the Empirical Literature on Labor Market Regulations and Economic Growth

Numerous studies evaluating the impact of labor market regulations on economic growth have produced conflicting results, and the Frontier Economics report (2012) highlighted this fact in the following figure.

Figure n° 01: The Impact of Employment Protection Legislation on Economic Growth

Source: Author, based on Frontier Economics (2012)

On the one hand, some economists suggest that labor market regulation index is positively correlated with economic growth, indicating the positive influence of freedom in the labor market on accelerating the growth rates, these studies are as follows:

Cynthia J. Campbel et al., (2008) studied the effect of labor regulations on economic growth in 9 European countries and 13 non–European countries between 2001 and 2005 by using the ordinary least squares (OLS) estimates, they found a

robust positive and statistically significant relationship between the labor market regulation index and economic growth in Europe, because the cumbersome labor regulations lead to lower productivity, and hence hinder economic growth. Similarly, Basanini A et al., (2008) employed an OLS regression on panel data for testing the impact of regulations in the labor market on economic growth in OECD countries from 1982 to 2003. Findings suggested that the dismissal regulations hamper economic growth through reducing the total factor productivity.

As well as, Loayza N.V et al., (2004) revealed that a heavier regulatory burden in the labor market reduces growth rates over the period (1990-2000) by using panel data analysis for 76 countries. Furthermore, Busse, M. and Groizard, J.L. (2008) investigated the influence of labor regulations on economic growth for 84 countries throughout the period 1994-2003 by using the GMM technique. Their study revealed that the inward FDI does not enhance growth in economies with excessive labor regulation. Also, Kimlong Chheng (2005) stated that countries which enjoy higher Fraser economic freedom tend to experience faster growth, through employing the White's heteroscedasticity-consistent matrix tests on a panel data of 50 countries over the period 1981-2000.

Recently, Mariusz Próchniak and Bartosz Witkowski (2013) examined the effect of labor market restrictions on economic growth by using the Bayesian model pooling applied to Blundell and Bond's GMM system estimator for EU27 countries and transition economies throughout the period 1970-2012, the empirical results revealed that the labor market restriction index has a positive and significant influence on boosting economic growth. As well as, Belkhir, M. and Ben-Nasr, H. (2013) studied the relationship between the LMR index and growth rates by using a panel data analysis for a sample of 55 countries from 1989 to 2008; the empirical results revealed that there is a positive and statistically relationship between GDP growth rates and LMR index.

On the other hand, Freeman, Richard B. (2009) revealed that the labor regulations has a negative but insignificant impact on growth rates, through employing an OLS regression model in a panel framework for 85 developing countries during the period 1970-2004.

3. Data and Empirical Results

A. Data

This study examines the impact of labor market regulations on economic growth by shedding light on three Maghreb countries: Algeria, Morocco and Tunisia over the period 2000-2011, through employing the OLS regression model in a panel framework; using the following variables:

GDP: GDP per capita (constant 2005 US$) is used as a proxy for economic growth, from the World Development Indicators.

LMR: The labor market regulation index introduced by the Fraser Institute.

UNEMP: is the unemployment, total (% of total labor force) from the World Bank's World Development Indicators.

B. Analysis of Empirical Results

Table n°01: Regression Results for selected Maghreb Countries

Dependent Variable : GDP			
	Coefficient Estimates (P-value)		
Independent Variables	**Pooled OLS Model**	**Fixed Effects Model**	**Random Effects Model**
LMR	504.2952 (0.0000) ***	287.0541 (0.0000) ***	504.2952 (0.0000) ***
UNEMP	-5.786898 (0.5833)	-29.06314 (0.0019)***	-5.786898 (0.4011)
R-squared	0.713596	0.885853	0.713596
Prob (F-statistic)	0.000000	0.000000	0.000000

Significant at 1% (***), 5%(**), 10% (*).

Source: *Author's Computation* Using *Eviews 8.0.*

Table 1 summarizes the results of three panel data methods such as: Pooled OLS, fixed effects and random effects. The main results indicate that the LMR index has the expected sign in all regressions, the unemployment has also the expected sign and this is consistent with theory, but it is statistically significant only in the fixed effect specification.

In order to choose the appropriate model between fixed and random effects models, Hausman test has been applied as follows:

Table n°02: Hausman test

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	46.781530	2	0.0000

Source: *Author's Computation* Using *Eviews 8.0.*

The P-value= 0.0000 is smaller than 0.05, hence the Hausman test indicates that the fixed effects model is the most appropriate one, so we focus on it.

Table n°03: Fixed Effects Model

Dependent Variable: GDPP
Method: Panel Least Squares
Date: 02/20/14 Time: 11:43
Sample: 2000 2011
Periods included: 12
Cross-sections included: 3
Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1706.583	307.7614	5.545149	0.0000
LMR	287.0541	59.36602	4.835326	0.0000
UNEMP	-29.06314	8.564871	-3.393296	0.0019
R-squared	0.885853			
Prob(F-statistic)	0.000000			

Source: *Author's Computation* Using *Eviews 8.0.*

From the fixed effects model, the labor market regulation index has a positive and highly statistically significant impact on economic growth in Maghreb countries,

indicating that the friendly labor market policies raise the productivity, and hence accelerate the growth rates in the selected countries.

Also, the empirical results revealed that there is a negative relationship between unemployment and economic growth in the sample under study. Moreover, the coefficient of (UNEMP) is statistically significant at the 1% level of significance, and this is consistent with theory.

4. Conclusion

In this paper we have examined the effect of labor market regulations on economic growth by shedding light on three Maghreb countries: Algeria, Morocco and Tunisia over the period 2000-2011, through the use of panel data analysis, including Fixed Effects Model, Random Effects Model and Hausman test.

According to Hausman test, the fixed effects model is considered as the most suitable model, which revealed the following results:

The labor market regulation index (LMR) exhibits a positive and highly statistically significant influence on economic growth in Maghreb countries, because the higher labor freedom leads to lower unemployment rate, and thus raises the productivity and boosts the economic growth in the selected countries.

Also, the empirical results revealed that there is a negative relationship between unemployment and economic growth in the sample under study. Moreover, the coefficient of (UNEMP) is statistically significant at the 1% level of significance, and this is consistent with theory.

Based on these findings, it could be concluded that there is a great opportunity for Maghreb countries to achieve high growth rates by adopting flexible labor market policies.

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Appendix 1: Pooled OLS Model

Dependent Variable: GDPP
Method: Panel Least Squares
Date: 02/20/14 Time: 11:43
Sample: 2000 2011
Periods included: 12
Cross-sections included: 3
Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	338.8548	308.2362	1.099335	0.2796
LMR	504.2952	55.66971	9.058700	0.0000
UNEMP	-5.786898	10.44469	-0.554052	0.5833

R-squared	0.713596	Mean dependent var	2746.827
Adjusted R-squared	0.696238	S.D. dependent var	618.0258
S.E. of regression	340.6224	Akaike info criterion	14.57908
Sum squared resid	3828779.	Schwarz criterion	14.71104
Log likelihood	-259.4235	Hannan-Quinn criter.	14.62514
F-statistic	41.11092	Durbin-Watson stat	0.538716
Prob(F-statistic)	0.000000		

Appendix 2: Fixed Effects Model

Dependent Variable: GDPP
Method: Panel Least Squares
Date: 02/20/14 Time: 11:43
Sample: 2000 2011
Periods included: 12
Cross-sections included: 3
Total panel (balanced) observations: 36

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1706.583	307.7614	5.545149	0.0000
LMR	287.0541	59.36602	4.835326	0.0000
UNEMP	-29.06314	8.564871	-3.393296	0.0019

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.885853	Mean dependent var	2746.827
Adjusted R-squared	0.871124	S.D. dependent var	618.0258
S.E. of regression	221.8666	Akaike info criterion	13.77028
Sum squared resid	1525968.	Schwarz criterion	13.99021
Log likelihood	-242.8650	Hannan-Quinn criter.	13.84704
F-statistic	60.14494	Durbin-Watson stat	0.516036
Prob (F-statistic)	0.000000		

Appendix 3: Random Effects Model

Dependent Variable: GDPP
Method: Panel EGLS (Cross-section random effects)
Date: 02/20/14 Time: 11:43
Sample: 2000 2011
Periods included: 12
Cross-sections included: 3
Total panel (balanced) observations: 36
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	338.8548	200.7716	1.687762	0.1009
LMR	504.2952	36.26082	13.90744	0.0000
UNEMP	-5.786898	6.803218	-0.850612	0.4011

Effects Specification	S.D.	Rho
Cross-section random	0.000000	0.0000
Idiosyncratic random	221.8666	1.0000

Weighted Statistics

R-squared	0.713596	Mean dependent var	2746.827
Adjusted R-squared	0.696238	S.D. dependent var	618.0258
S.E. of regression	340.6224	Sum squared resid	3828779.
F-statistic	41.11092	Durbin-Watson stat	0.538716
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.713596	Mean dependent var	2746.827
Sum squared resid	3828779.	Durbin-Watson stat	0.538716