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GROWTH AND UNEMPLOYMENT IN THE MENA REGION: A MISSING LINK?

by
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AN ABSTRACT OF THE THESIS OF

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Recent uprisings in the Arab world have drawn special attention to the numerous escalating social problems, especially that of unemployment in the region. Despite the good growth performance Arab countries achieved in the last decade, economists identified such phenomenon as a "jobless growth" experience. This is because the region failed in having growth that is inclusive and job creating. The unemployment-growth nexus is one thing to be urgently examined in the Arab States. Knowing the structure of the unemployment in these countries would constitute a first step towards the reinforcement of a strong and inclusive growth.

In this thesis, we will be examining Okun's law for four Arab countries; those are Jordan, Egypt, Tunisia and Morocco. These countries were chosen due to key similarities: (i) they are all oil-importers and (ii) they have all undergone major socio-economic and political reforms.

Using two different versions of Okun's Law that are widely used in the literature; those are the basic *First Difference Version* and *the Dynamic Version* that makes use of an autoregressive distributive lag model (ARDL), we were able to find that that none of our short run coefficients are significant, whereas only in Egypt, there exists a significant long run coefficient indicating that over the long run at least, unemployment responds to changes in output as Okun has previously envisaged.

CONTENTS

ILLUSTRATIONS

TABLES

To My

Beloved Father

CHAPTER I

INTRODUCTION

The occurrence of the Arab Spring has recently pointed out to the several prevailing economic and social bottlenecks that need immediate alleviation in the Arab States. Non oil-exporting countries in the MENA region were the most vulnerable, given the lack of excessive sources of income and at the same time the persistence of high unemployment rates. While there still exists a debate in the literature on the exact reasons behind the masses' uprisings, there is no doubt that the decaying economic and social conditions were the top origins.

Mohammad Bouazizi, desperate for not being able to find a decent job in Tunisia who originated from Sidi Bouzid, one of the poorest regions there, instigated a long series of uprisings, of which the end is not surely known to this day. The countries investigated in my thesis are Jordan, Egypt, Morocco and Tunisia. The selected countries share several similarities: they are all oil-importers, and they have all faced different levels of uprisings, some ranged from mere revolutions that were silenced by the governments through temporary reforms such as Jordan and Morocco, while others such as Tunisia and Egypt had more than fair share of long and painful ongoing struggles.

The problem of high unemployment rates in the MENA region, especially youth unemployment has soared in the media and big think tanks in the aftermath of the uprisings. After almost four years since the start of the revolts, several reforms and drastic changes had happened to the region whose future remains fickle. What is certain on the other hand is that these countries still face very high unemployment rates and

everyone came to an understanding that a panacea to such a problem can hardly exist realistically.

For all these reasons, the unemployment-growth nexus is one thing to be urgently examined in the Arab States. Knowing the structure of the unemployment in these countries would constitute a first step towards the reinforcement of a strong and inclusive growth.

Several macroeconomic studies tried to shed light on the relation between unemployment and growth. One of the pillars of such theories is Okun's law formulated by the late American economist Arthur Okun in the early 1960s in which he analyzed meticulously the change in real GNP in relation to that of unemployment for the United States over the period ranging from 1954-1962. He found based on his analysis that an increase in output would lead to a substantial decrease in unemployment (3:1 ratio). As such, unemployment is determined to a large extent by the business cycle (Okun 1962).

While testing the robustness of Okun's relationship using panel data for developed countries exists abundantly in the literature, very few studies attempted to apply such relation on the MENA region – a region whose unemployment rates rank among the highest in the world (IMF 2012).

This thesis will be divided into four other chapters: Chapter II presents thoroughly a literature review on Okun's law on both theoretical and empirical grounds while chapter III discusses growth and unemployment figures in each of the four countries examined. Chapter IV is left for the empirical testing part using two versions of Okun's law that are widely used in the literature; those are the basic *first difference version* and *the dynamic version* using an autoregressive distributive lag model (ARDL).

We find based on our results that none of our short run coefficients are

significant, whereas only in Egypt, we were able to find a significant long run coefficient indicating that over the long run at least, unemployment responds to changes in output as Okun has previously envisaged. The remainder of our chapter provides a discussion of the results in the context of the MENA region, and provides when possible, recommendations for future research. Finally, the last chapter draws conclusions.

CHAPTER II

LITERATURE REVIEW

A. What is Okun's Law?

Okun's pioneering work in the early 1960s has opened the door to several researchers later on who attempted to answer the many inquiries on the relationship between unemployment and growth. In his 1962 paper, Okun analyzed the dynamics underpinning the percentage change in real GNP, and how these would affect the percentage change in unemployment rates in the United States using quarterly data over the period ranging from 1947:Q2 – 1960:Q4 (Okun 1962). The rationale behind the relationship is rather simple: the more the economy is growing, the more workers are needed to produce goods and services. Following this reasoning, as output increases, the unemployment must decrease since more labor force is being utilized in the economy. An indicator that summarizes employment, labor force and hours of work within an economy is the general unemployment rate, which was fiercely used by Okun. The negative relationship first explored by Okun became one of the pillars in mainstream macroeconomics and played major roles in economic theory, as it paved the way with the Phillips curve for the construction of the Aggregate Supply model (Sogner and Stiassny 2002). Before proceeding with the analysis of the different versions of Okun's law in the literature, it is important to understand and distinguish between the different types of unemployment[1]:

- Cyclical unemployment: the unemployment that occurs as a result of fluctuations in the business cycles. When there's an economic recovery or boom,

[1] All definitions are those provided by the International Labor Organization

unemployment is expected to decrease and when there's a recession, unemployment is expected to increase in an economy.

- Frictional unemployment: the temporary unemployment resulting from the flow of people in the labor force from and to jobs or in and out of employment.
- Structural unemployment: the prolonged period of unemployment that occurs as a result of the inability to find jobs that match one's specific skills.

B. Okun's Models in the Literature

The first regression used by Okun, also called the *Difference Version* of Okun's Law is a simple equation that combines two observable and widely available macroeconomic indicators; that are the percentage change in real national output $(Y_t - Y_{t-1})$ and the percentage change in unemployment rate $(U_t - U_{t-1})$. The simple version of Okun's law is stipulated as follows:

$$U_t - U_{t-1} = a + b(Y_t - Y_{t-1}) + \varepsilon_t \quad (1)$$

where b (<0) is Okun's coefficient that shows by how many points unemployment changes with respect to ΔY_t.

After running this regression, Okun found based on his analysis that an extra 1% increase in national output beyond its potential level in the United States would ideally lead to 0.3% decrease in unemployment (Okun 1962).

Okun sought to understand how unemployment changes simultaneously with output growth from one quarter to the other. Despite its relative simplicity and precision, such relationship only appears to perceive the immediate change between the two economic variables. Moreover, several researchers including Okun identified one major shortcoming in his *Difference Method*: the general unemployment rate that Okun used may not succeed in accounting for all the labor resources available in a certain

economy such as capital, technology, the fraction of the population in the labor force…etc.

This drawback gave rise to an alternative version of Okun's law in which a production function combining the different inputs is introduced to estimate the level of output in the economy. In this manner, instead of taking *ceteris-paribus* assumption regarding the change in unemployment with respect to output directly, this relationship attempts to show how the change in hours of work for instance, the capital utilization and the technology all in all would affect output or vice versa.

Prachowny (1993) starts his *Production Function Model* by representing output in the economy in the form of a production function as follows:

$$y = a(k + c) + b(\alpha n + \beta h) + \varphi \qquad a, b < 1 \qquad (2)$$

Where

Y: total output in the economy

k: capital

c: capital's utilization rate

n: number of workers

h: number of hours of work

By taking the gap between actual and potential output, Prachowny was able to find the precise link $\boldsymbol{b\alpha}$ between Δy and Δu, which is dependent on capital, supply of labor and the number of workers in the economy. His work is outlined as follows:

$$y - y^* = a(k - k^*) + a(c - c^*) + b\alpha(n - n^*) + b\beta(h - h^*) + (\varphi - \varphi^*) \quad (3)$$

Assuming $u = l - n$, $u^* = l^* - n^*$ and $k = k^*$, $\varphi = \varphi^*$and substituting into (2) we get:

$$y - y^* = a(c - c^*) + b\alpha(l - l^*) - \boldsymbol{b\alpha}(u - u^*) + b\beta(h - h^*) \qquad (4)$$

This *Production Function Method* developed by Prachowny in his 1993 article

enjoys a theoretical backing yet the application of such relationship and the measurement of production inputs are very hard to accomplish empirically.

Another question of interest with which Okun unwraps his celebrated article, is how much the economy should produce (i.e. what should be the ultimate level of Y_t) if we are operating under full-employment settings. In his formulation of the *Gap Method*, Okun identified the link between the change in unemployment rate and the gap between actual output and output under full-employment conditions as follows:

$$(U_t - U_t^*) = a + b(Y_t - Y_t^*) + \varepsilon_t \quad (5)$$

where:

$(Y_t - Y_t^*)$ is the gap between actual and potential output

$(U_t - U_t^*)$ is the gap between actual and the natural rate of unemployment

Despite the fact that this relationship has been the mostly used across researchers, two problems might arise.

- Neither the natural rate of unemployment nor potential output, are variables that are observable or available.
- The researchers need to assign numerous considerable assumptions regarding the choice of the "correct" levels of potential output and unemployment rates.

In his paper, Okun assumed U_t^* to be 4% and moved subsequently to generating Y_t^* series. It must be noted that had his choice of U_t^* be any different, the whole Y_t^* series would have to be modified.

Several detrending techniques were used by economists to obtain long trend estimates on U_t^* and Y_t^*, the most famous is the Hodrick-Prescott Filter (Hodrick and

Prescott 1997)[2]. The advantage of using the *Gap Method* is that it gives more insight on how the economy is operating vis-à-vis full employment conditions. These conditions however are estimated and not observed and hence pose several challenging issues, which Okun himself warned from.

Because of the several shortcomings arising from the simple forms of Okun's relationships, researchers extended *the difference version*, which relies on static macroeconomic variables and introduced a dynamic approach.

The Dynamic Version not only takes into account the simultaneous change of unemployment with respect to that of output, but it rather attempts to uncover how previous unemployment and output levels affect the relationship between current unemployment and growth. *The Dynamic Version* has the following form:

$$\Delta U_t = a + b\Delta Y_t + b_1\Delta Y_{t-1} + b_2\Delta Y_{t-2} + b_1'\Delta U_{t-1} + b_2'\Delta U_{t-2} + \varepsilon_t \qquad (6)$$

Equation (6) is derived from the *Difference Version* but shows lags that are not present in (1).

Recent research has favored the *Dynamic Version* over all the other versions of Okun's law because it allows for a better understanding of current unemployment trends in a certain region (Knotek 2007; Owyang and Sekhposyan 2012).

Following Okun's first empirical finding, economists assumed that since a decrease of 1 point in output growth is associated with a 0.3 points increase in unemployment, then the inverse of the relationship must also hold i.e. one can conclude that an increase of unemployment by 1% must lead to a 3% decrease in GDP growth.

[2] The concept behind the HP filter is to find the long trend constituents of a certain series x by minimizing the following equation around a certain smoothed series y: $\sum_{t=1}^{T}(x_t - y_t)^2 + \mu \sum_{t=2}^{T-1}((y_{t+1} - y_t) - (y_t - y_{t-1}))^2$.

μ, which is the penalty parameter takes several values depending on the number of periods within the same sample i.e. differs depending on whether the data is monthly, quarterly or yearly. When $\mu \to \infty, y_t \sim linear\ series$.

As such, the definition of Okun's law, which became widely used in the literature and in preliminary economics textbooks, is in fact the inverse of the original relationship first document by Okun. *The inverse* of the *Difference Version* and *the Gap Version* are given by the following equations respectively:

$$(Y_t - Y_{t-1}) = a + b(U_t - U_{t-1}) + \varepsilon_t \quad (7)$$

$$(Y_t - Y_t^*) = a + b(U_t - U_t^*) + \varepsilon_t \quad (8)$$

Okun's Law has long been considered as a statistical and empirical relationship and not one that possesses strong theoretical support; consequently inverting the relationship would not be unfitting. In their 1979 article, Plosser and Schwert were among the first to show that inverting the standard relationship cannot be reasonable since it would lead to several statistical errors. The authors succeed in proving their argument by taking the following two regressions:

$$\Delta U_t = \alpha + \beta \Delta Y_t + \varepsilon_t \quad (9)$$

$$\Delta Y_t = a + b\Delta U_t + e_t \quad (10)$$

where (9) is the original Okun's relationship and (10) is the inverse of the relationship. When running (10) there is no guarantee that the estimate $\hat{a} = -\frac{\hat{\alpha}}{\hat{\beta}}$ or $\hat{b} = \frac{1}{\hat{\beta}}$ since the Cov $(\Delta Y_t, \Delta U_t)$ is what actually determines the coefficients of the two regressions. Algebraically speaking, (9) ≈ (10) only if there exists perfect correlation between ΔY_t and ΔU_t, which ordinarily is not the case (Plosser and Schwert 1979).

C. Criticisms of Okun's Law

The empirical relationship documented by Okun is considered a "law" mainly because it showed certain stability trends throughout a prolonged period of time. Asymmetries in Okun's coefficients across the business cycle became one of the most

criticized aspects of the law. Gordon (1984) applied the output-unemployment relationship on the US economy after a rapid 3.1% drop in unemployment astounded him in the early 1980s. He found that straight after the recovery, Okun's estimate was only 2.4 while the actual rate of change in unemployment was much higher around 3.1% (Gordon 1984). Evans' (1989) study on the relation between output and unemployment for the United States over the period from 1950-85 also goes in line with Gordon's view. He also found a coefficient that exceeds the one previously found by Okun in his static relationship[3].

Following the work of the two scholars, Prachowny used two data sets for the US economy from Adams and Coe (1989) and Gordon (1987) articles and constructed his own version of Okun's law using a Production Function approach, yet restrained from using lags in his study. The time-series regression used by him was of the following form:

$$\Delta(y - y^*) = \beta_1\Delta(c - c^*) + \beta_2\Delta(l - l^*) - \beta_3\Delta(u - u^*) + \beta_4\Delta(h - h^*) + \epsilon \quad (11)$$

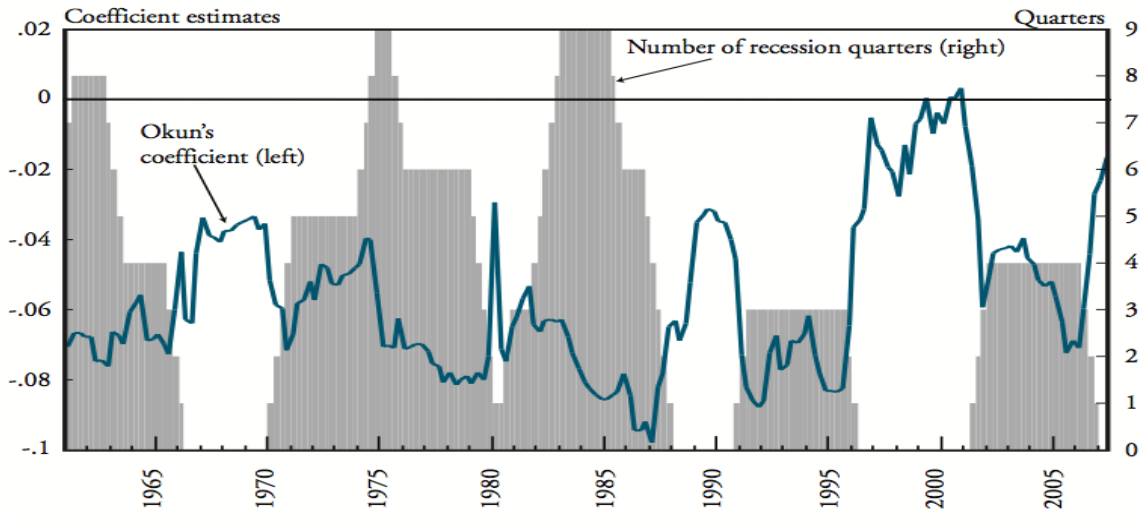
After running this regression, Prachowny found that his coefficient estimates were too low in comparison to Gordon's, Evan's and Okun's. Moosa (1999) explains that not allowing for lagged values and adding more variables to the regression may have led to the low coefficients found by Prachowny.

Weber (1995) found in his study that the estimation methods used contribute greatly to the different estimates of Okun's coefficients. He used two estimation techniques: the static OLS method and an autoregressive distributed lag method using the US postwar data. While the static OLS version supported Okun's earlier finding, the ARDL approaches he used proved otherwise (Weber 1995). Moosa (1999) on the other hand extracted the cyclical components of output and unemployment using Harvey's

[3] Both scholars used an Autoregressive Distributed Lag approach.

time series model for the US data over the period running from 1947:Q1 – 1992:Q2 and found a coefficient similar to the one depicted by Okun in 1962. Barreto and Howland's (1993) study warned against the coefficients' deviations and attributed such instability to the type of regressions used to estimate the relationship. They show thoroughly that inversing the regression between output and unemployment will only lead to confusing results. As such, there cannot be two Okun relationships but rather one.

In his recent study on Okun's relationship for the US, Knotek (2007) highlighted the fact that the relationship between unemployment and growth changes drastically during business cycles, which in turn, affects Okun's coefficients. He used rolling regressions for data that ranges over a span of 5 years only for each period. On average, he found that Okun's coefficients tend to be larger in recessions than in expansions. The following picture provided in Knotek's study shows the changes in Okun's coefficients during recessions and expansions.



Notes: Dates along the horizontal axis denote the last quarter in the sample period for each rolling regression. Each sample period is five years long. Bars denote the number of quarters within a given sample period that are classified as recessions.

Fig. 1. Changes in Okun's Coefficients throughout business cycles
Source: E. Knotek, (2007). "How useful is Okun's law?" *Economic Review: Fourth Quarter.* The Federal Reserve Bank of Kansas City.

Moreover, the recent Great Recession has re-opened the discussion on whether Okun's relationship is a viable rule of thumb. The soaring unemployment rates in the aftermath of the 2008 financial crisis and their persistence even after the slight recovery made researchers cast doubt again on the feasibility of such relationship. Daly and Hobijn's (2010) recent study on post-recession unemployment rates in the United States showed that the actual levels of unemployment are much higher than those predicted by Okun's law.

In summary, one can conclude that Okun's law, which states that there exists a negative relationship between unemployment and output growth is nevertheless a genuine one.

Whether it's still called a "law" or just a "rule of thumb" requires the scholar's interpersonal judgment. Notwithstanding, there are always four main things that need to be kept in mind before testing the relationship:

- The dynamics between output and unemployment are not fixed but rather change within the business cycle
- The type of regression used affects the outcome and the range of the coefficients
- The sample size also affects such relationship
- The inverse of the regression might be confusing and can lead to several econometric flaws.

D. Empirical Applications

Several studies tested Okun's law in both developing and developed countries and inferred from it several policy recommendations regarding the unemployment or growth issues in these regions.

Kangasharji *et al*. (2012) referred to yearly data on GDP and unemployment in Finland during the time period from 1976-2006 and found using the hidden cointegration technique, a strong long-term relationship between the two variables in question. Their research is also in line with Knotek's (2007) results: there exists asymmetry in the direction of the long-run relationship and Okun's coefficients are weaker in expansions than in recessions. Arshad's (2012) examination of the Swedish economy using quarterly data from 1993:Q1 – 2009:Q2 came up with similar results. In his study of the UK's economy, Chamberlin (2011) used both the static first difference model and the dynamic model in order to get a clearer picture on the relationship between the two variables. He went even deeper than that and took into consideration gender differences and age brackets to construct an elaborated model. He was neither able to reject the law nor accept it since the estimates were negative at all times but were not as high as they actually were. Chamberlin concludes that while the negative relationship between unemployment and output exists at all times, it is much more multifaceted than what is depicted by Okun's law. Huang and Lin (2008) applied smooth-time varying techniques via the Bayesian approach for the United States over the period from 1948:Q1 – 2006:Q1 and found that the law does indeed hold.

Regional, cross-country and panel studies were also used heavily to test for Okun's law in several regions. Sogner and Stiassny (2002) used a cross-country approach to test the relationship on 15 OECD countries and found that it holds; yet there was a significant difference between Okun's coefficients across these countries. Villaverde and Maza's (2009) application of the relationship on Spanish regions using yearly data from 1980-2004 showed that the inverse relationship holds, yet there's also difference in the coefficients across the different regions. Huang and Yeh's (2013) assessment of the relationship for 53 countries including developing and developed

countries not only supports Okun's law by finding highly significant and negative coefficients but also reveals a long-run relationship between unemployment and output. Ozel *et al*. (2012) on the other hand when conducting a panel study on G7 countries found that while the relationship between changes in output and unemployment was strong in the 2001-2007 period, it deteriorated dramatically in the 2008-2011 period. This study along others, lays emphasis on the problem now emerging in the aftermath of the financial crisis, which is the "jobless recovery" phenomenon.

Okun's law was also applied to developing countries' cases. Bankole and Fatai (2008)'s study on Nigeria, Thomas' (2013) study on India, Marinkov and Geldenhuys (2007)'s study on South Africa all found that unemployment rates only have a small cyclical component and hence are structural.

There are only very few studies that tried to apply the relationship on the Arab countries. Moosa (2008) applied Okun's relationship on North African countries (with the exception of Libya) using cross-country analysis and found that Okun's coefficients were not significant in any country. Kreishan's (2010) study on Jordan came up with similar results. It seems obvious that the unemployment problem in developing countries generally and the Arab World specifically is a very challenging one and the cyclicality assumption is ruled out in the literature so far.

In the next section, we will analyze the unemployment and growth figures for four Arab countries, those are: Jordan, Egypt, Tunisia and Morocco. The little literature provided on this region specifically makes the analysis highly thought provoking, especially that the MENA region has the highest unemployment rates in the world.

CHAPTER III

UNEMPLOYMENT AND GROWTH FIGURES IN THE MENA REGION

A. General Overview

The responsiveness of unemployment to GDP growth rates in this region has been relatively neglected in the literature. Very few scholars highlighted this issue before the recent episodes of unrest.

In their 2002 working paper, Keller and Nabli analyzed labor market dynamics in the MENA region for the 1990s. They found based on their analysis that despite the several liberalizing attempts and reforms applied in the early 90s, the growth rates in the region failed to keep pace with the fast growth of the population, and hence the labor force rate. Moreover, the increase in education, especially among females in the region contributed to higher unemployment rates. Keller and Nabli (2002) added that the still-existing dominance of the public sector vis-à-vis the private sector is one of the major constraints to the improvement of employment conditions in the MENA countries[4].

Moosa (2008) when examining Okun's Law to North African countries: Egypt, Algeria, Tunisia and Morocco found that none of the coefficients were significant. He concluded that unemployment in these countries has a structural or frictional nature. The lack of growth can by no means explain the rise in the unemployment rates. He added that the rigidity of the labor markets and the dominance of the public sector as the prime employer pose several challenges to the region. Nabli (2008) also warned against

[4] The authors included almost all the countries in the MENA region; including GCC countries such as Yemen, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the UAE.

the rising problem of unemployment. He affirmed the need to strengthen the private sector in the region while at the same time trying to fill the ceaseless loopholes in the levels of governance in the countries. Fixed exchange rate regimes, the lack of a diversified export portfolio and the underdevelopment of capital markets also contribute greatly to not only high unemployment rates but also low growth (Abed 2003; Hakura 2004).

It is important before moving to examining the specific conditions prevalent in each country under study to get a general picture on the determinants of growth and the unemployment figures in the MENA region as compared to the rest of the world. As such, this primer would constitute a comprehensive overview to where the countries stand now in contrast to other regions, and at the same time to where they stood before the occurrence of the political movements.

B. Economic Reforms in the MENA Region

Arab countries just like several other countries in the world chose to adopt a socialist regime in the aftermath of the collapse of the international economic system following the Great Depression. The State was ever since considered the benevolent safe guarder of the masses' welfare, and hence it played a decisive role in managing the economic resources. Beinin (2003) added that the 1950s period amplified the role of the state in the Arab countries, as people saw in such dominance a nationalist call in contrast to the pre/still-existing colonial controls. The establishment of "social contracts", which Abed El Nasser in Egypt for instance preserved successfully, converted dreams of opulence and growth into reality. The MENA region altogether sustained high levels of growth over the period ranging from 1960s-1970s with a high average per capita GDP growth reaching up to 6% and 3.8% respectively - which were

the highest in the world. The declining oil prices in the 1980s soon torn the growth picture apart and the region witnessed sharp declines in GDP growth and lagged well behind all other regions except Sub-Saharan Africa. The fall in oil prices was only one piece of the degrading economic puzzle; the dominance of the public sector, trade barriers implementation as means of protectionism and the lack of international competitiveness which were once the key features of the interventionist-redistributive model of governance, shifted from being growth triggers to becoming stern impediments to development. Authorities soon realized that only a shift towards market liberalization and global integration would constitute their road to redemption.

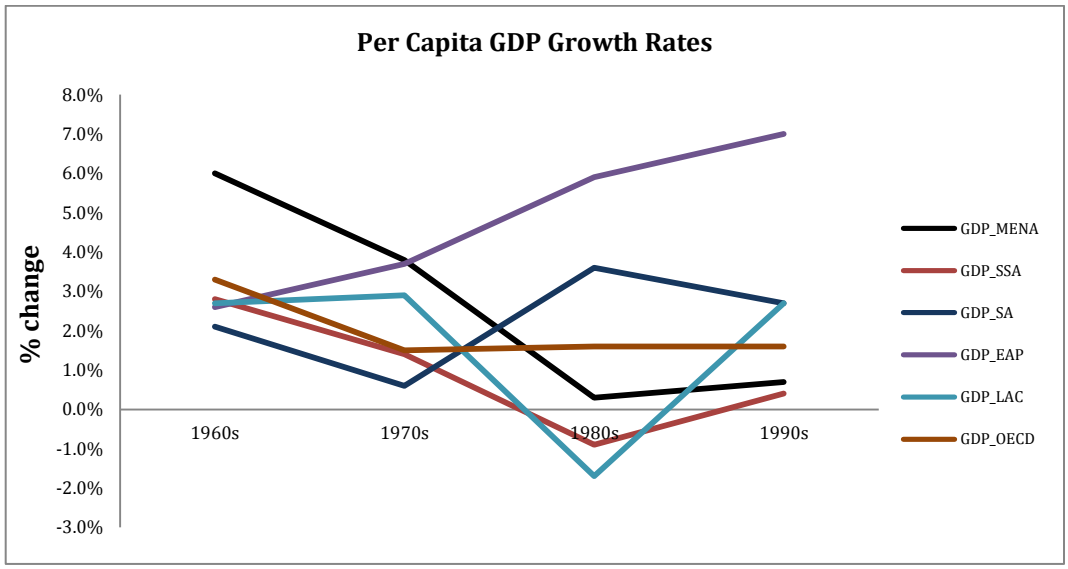


Fig. 2. Per Capita GDP Growth Rates (1960s-1990s)
Source: T. Yousef. (2004). "Development, growth and policy reform in the Middle East and North Africa since 1950". *American Economic Association* 18(3): 91-115; available from http://www.jstor.org/stable/3216808; Internet; accessed 20 January 2014.

By the end of 1989, Egypt's macroeconomic fundamentals were among the worst in the region. Inflation spurred to 18% associated with a current account deficit of $1.3 billion and a debt-to-GDP ratio of 0.07 (Yousef 2004). This also had affected

massively unemployment rates, which increased to 20% by that time (Ojo 2001). The story is similar in other countries; Tunisia's external debt reached by the end of 1986 an unprecedented high level of 69.5% of GDP (The African Development Bank, The Government of Tunisia and The Government of the United States 2013). As such, the government was no longer able to service its debt and this constituted the turning point for the Tunisian economy as a whole. In Jordan, not only declining oil prices have worsened the economic situation, but also, Jordan's engagement with the 1991 Gulf War aggravated these conditions. Being an oil-importing country with very few natural resources and a restricted agricultural base, Jordan depends mostly on remittances, especially those coming from the Gulf region. These remittances fell dramatically as a result of the Gulf War reducing the country's growth potential further, while unemployment rates soared to 14% (Ramachandran 2004).

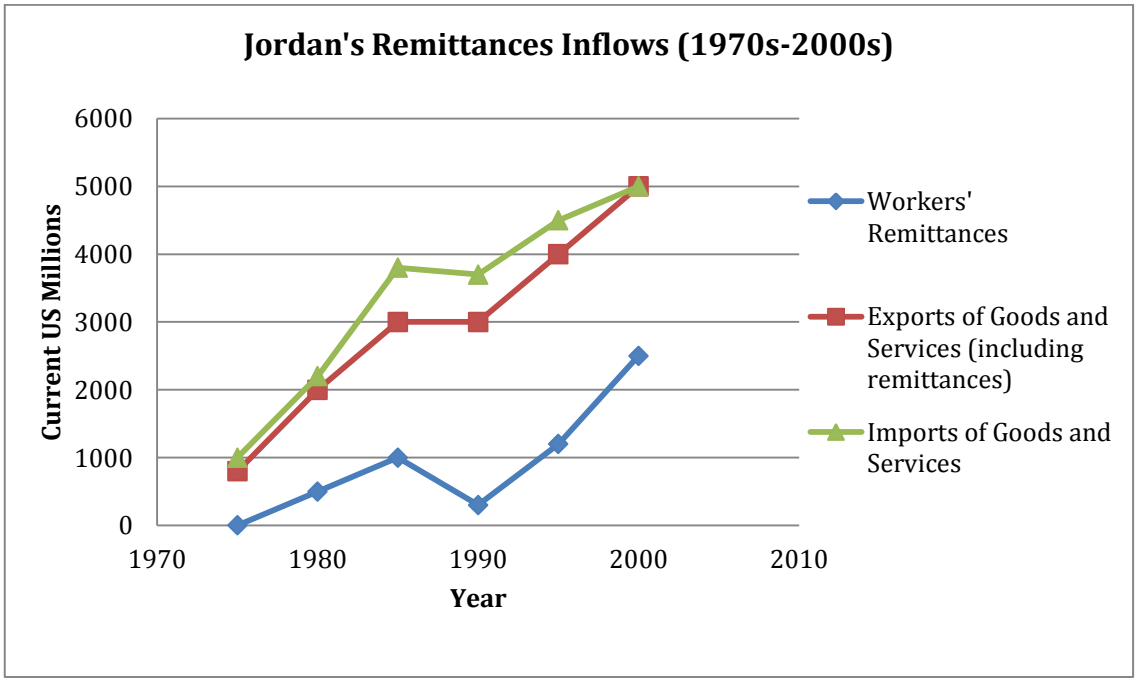


Fig. 3. Remittance inflows in Jordan (1975-2000)
Source: S. Ramachandran. 2004. "Jordan economic development in the 1990s and World Bank assistance". The World Bank Operations Evaluation Department.

Morocco's debt increased to $11.3 billion in 1984 from $1.8 billion in 1975, coupled with a drop in per capita GDP rate to 0.02% in 1988 (Hamour 1998).

Faced with all these difficulties, the governments had no other choice but to initiate a set of structural reforms that would ease these hitches. Given their proximity to Europe, countries like Egypt, Tunisia and Morocco had several trade agreements, which aimed at eradicating trade barriers between the North African Sphere and the European one. By 1990, the three governments were already on the right track and initiated a series of macroeconomic stabilization reforms under the umbrella of the Economic Reform and Structural Adjustment Program (ERSAP), sustained by the international community and donors' assistance such as the International Monetary Fund, the African Development Bank and the World Bank. The program's structure aimed at reducing poverty, stimulating growth and restructuring public organizations (Ojo 2001). The outcomes of ERSAP in each country are summarized in the table below:

Table 1. ERSAP Conditions and Results

		Egypt	**Tunisia**	**Morocco**
ERSAP	**Conditions**	Tariff reduction		
		Adjustment of Subsidies	Introduce VAT	Monetary and fiscal tightening
			Dinar devaluation	
		Plans of privatization	Privatization of 150 previously state-owned companies	Privatization of 66 previously state-owned companies
	Results	Drop in inflation	Drop in inflation	Drop in fiscal deficit
		Drop in fiscal deficit	Drop in the current account deficit	Rise in exports
		Rise in exports	Rise in exports	

Source: O. Ojo. 2001. "Critical factors in three successful structural adjustment programmes". African Development Fund Operations Evaluation Department.

Moreover, Tunisia was the first country to sign the EU Mediterranean Association Agreement in 1995, followed by Morocco in 1996 and Egypt in 2001. The countries also engaged in several bilateral trade agreements in order to promote their export portfolio, including the Agadir Agreement, which asserts the removal of trade barriers between our three North African countries (Banque Africaine de Développement 2012). In their attempt to increase growth and encourage investments, our countries established several internal policies that aimed at introducing private investments and enhancing the growth culture. For example in Tunisia, Law 11 of February 1994 promulgates the establishment of incentives to investments and exports entitled "Code d'Incitation aux Investissements" in an attempt to diversify its portfolio and stimulate growth. More recently, Law 155 of 2002 in Egypt authorized the creation of a new entity under the ministry of foreign trade entitled "the exports development fund" to increase Egyptian exports and facilitate trade activities (IFC).

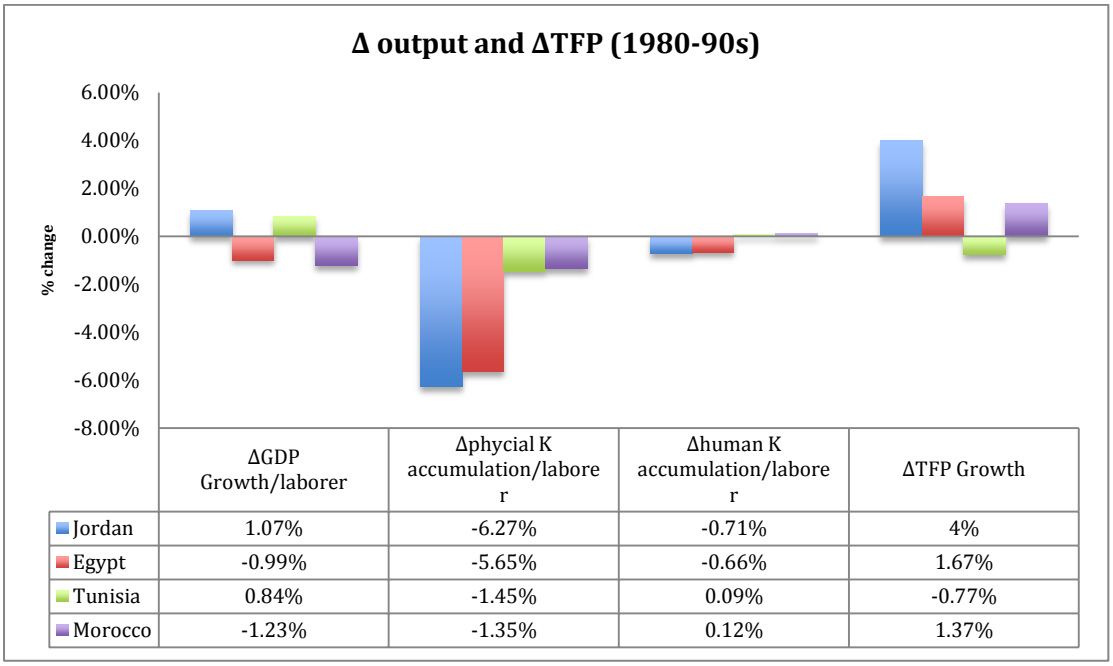
Jordan on the other hand, a small open economy with no such exposure to trade partners followed a different scenario. As a result of the shattering performance in the 1980s, Jordan sought financial assistance and borrowed from the World Bank alone $71 million between 1987 and 1991[5]. Moreover, several loan agreements continued to be granted by the World Bank in the 1990s period to ameliorate key productive sectors in the Jordanian economy. The Industry and Trade Policy Adjustment Loan (IPTAL) which amounted to $150 million granted in 1993, ameliorated the country's economic conditions and aimed to increase the country's foreign reserves, while at the same time internally, intended to enhance the effectiveness of the industrial sectors and improving structural reforms. This was then followed by the Agriculture Sector Adjustment Loan

[5] These amounts were necessary to keep the vital sectors in the Jordanian economy alive; these included aids to the Arab Potash Company and the Phosphate Mines.

(ASAL), which amounted to $87 million and had the objective of ameliorating the agricultural sector. In this context, Jordan ought to also privatize state-owned firms and eliminate some of its trade barriers (Ramachandran 2004). For instance, as a prerequisite to access the World Trade Organization (WTO) in 2000, Jordan had to reduce its tariff lines so that they don't exceed a maximum rate of 30% (Ministry of Industry and Trade 2000).

From this, one can deduce that trade liberalization and structural reforms were by no means a choice for the Arab States; the economic distress our four countries faced in the 1980s was the leading cause of structural economic alterations in the region. It is significant to note that while much has been done regarding economic liberalization, micro-scale problems such as unemployment remained relatively neglected with no presence of a ***direct*** policy reform to adjust wages or stimulate employment opportunities in the region. In an attempt to understand how these structural reforms have affected the unemployment rates in the region, Keller and Nabli (2002) used Total Factor Productivity growth[6] as opposed to the rate of GDP growth over the period ranging from 1980s-1990s in order to comprehend what indicator can potentially affect the employment in the region. The table below combines changes in TFP growth and GDP growth rates for Jordan, Egypt, Tunisia and Morocco.

[6] Explain what TFP is and how they used it.



	ΔGDP Growth/laborer	Δphycial K accumulation/laborer	Δhuman K accumulation/laborer	ΔTFP Growth
Jordan	1.07%	-6.27%	-0.71%	4%
Egypt	-0.99%	-5.65%	-0.66%	1.67%
Tunisia	0.84%	-1.45%	0.09%	-0.77%
Morocco	-1.23%	-1.35%	0.12%	1.37%

Fig. 4. Change in Output and Total Factor Productivity in Selected Arab Countries (1980-90s)
Source: J. Keller and M. Nabli. 2002. "The macroeconomics of labor market outcomes in the MENA over the 1990s: How growth has failed to keep pace with a burgeoning labor market". World Bank, 1-32.

As obvious from the table, the authors found that all countries with the exception of Morocco have shown amelioration in their TFP rates. The authors consequently concluded that *only* an increase in investments – specifically private investments, would constitute the way through which our countries can stimulate employment conditions. As such, they estimated levels of growth necessary to keep pace with the growing employment rates over the 1990s. For Morocco and Jordan at least, although the GDP growth rates weren't bad, they weren't enough to meet full labor absorption.

Table 2. Gap in GDP Growth in Selected Arab Countries

Country	Growth in the labor force	GDP growth necessary to absorb the labor force	Actual GDP growth	Gap in growth
Jordan	5.8	8.3	5.2	3.1
Egypt	2.9	4.2	4.3	-
Morocco	2.5	3.5	2.2	1.3
Tunisia	2.9	4.1	4.8	-

Source: J. Keller and M. Nabli. 2002. "The macroeconomics of labor market outcomes in the MENA over the 1990s: How growth has failed to keep pace with a burgeoning labor market". World Bank, 1-32.

Yet, our unemployment figures for Egypt and Tunisia weren't continually decreasing over this period, despite that the average GDP growth was sufficient to meet employment conditions. This implies that whereas output growth failed to absorb the growth in the labor force for Jordan and Morocco, output growth for Tunisia and Egypt was just sufficient. This however, failed to keep unemployment rates declining and hence these points out again that unemployment rates are of structural nature.

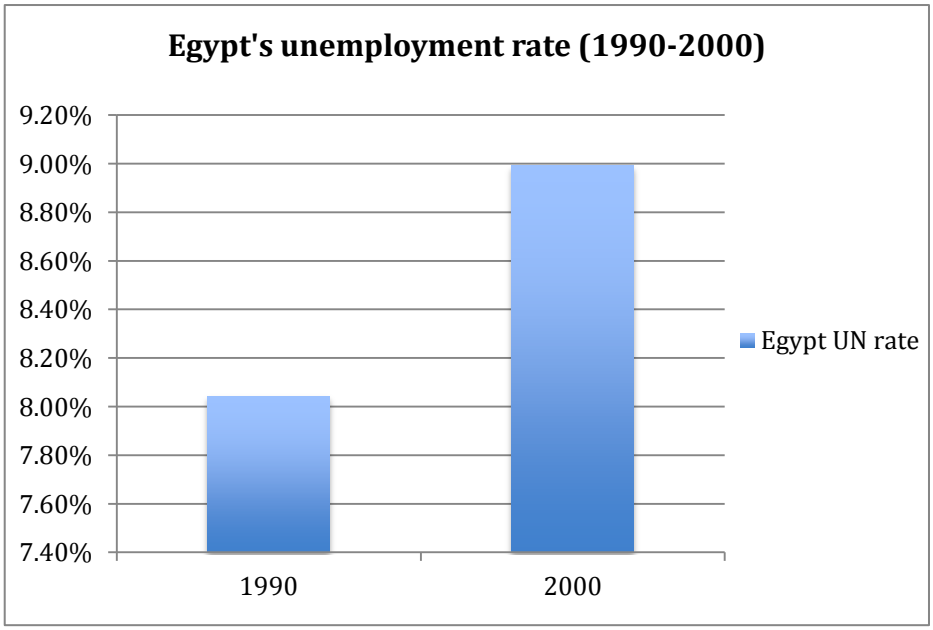


Fig. 5. Unemployment Rates in Egypt (1990-2000)
Source: World Bank Development Indicators

Gardner (2003) also added that the 1990s period witnessed a sharp increase in women's education in the region, increasing further their participation in the labor force. As a result, this added more pressure to the labor market.

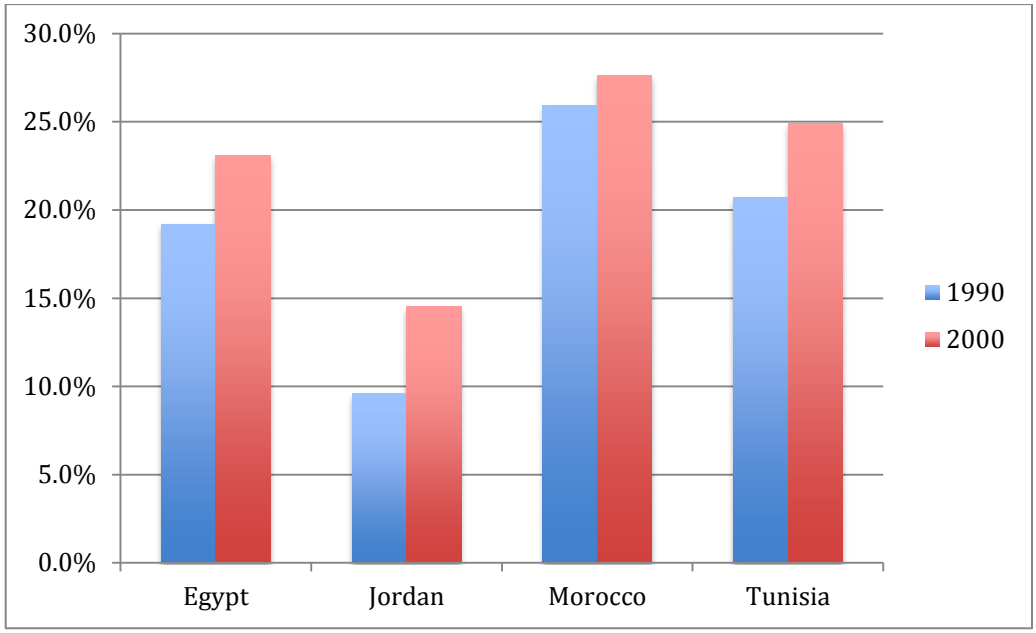


Fig. 6. Women's participation rates in the labor force in selected Arab Countries (1990-2000)
Source: E. Gardner. (2003). "Wanted: More jobs high unemployment in the MENA region presents formidable challenges for policymakers". Finance & Development a Quarterly Magazine of the IMF 40(1); World Bank Development Indicators

It has also been highlighted that MENA governments during this period succeeded in their goal to reducing poverty in the region. In 1993, only 2% of the Middle East region fell below the headcount poverty line set at PPP $1.09 (Yousef 2004).

It becomes obvious that while standards of living, literacy rates (especially among females) and output growth rates increased in the 1990s period as a result of structural reforms, unemployment was still increasing.

We will now move to examining aggregate unemployment and growth figures for the MENA region before moving to country-specific studies.

C. Current Unemployment and Growth Figures in the Mena Region

As mentioned beforehand, the recent uprisings have pointed out to the several issues in the MENA region especially that of unemployment. Despite the structural reforms Arab countries embarked on since the previous decade, the 2000s period failed to transform the gains from the reforms to lower unemployment rates.

Although unemployment rates have been declining since 2000, the Middle East and North Africa region still has the highest unemployment rate in the world of 10% as compared to the rest of the world based on 2010 estimates.

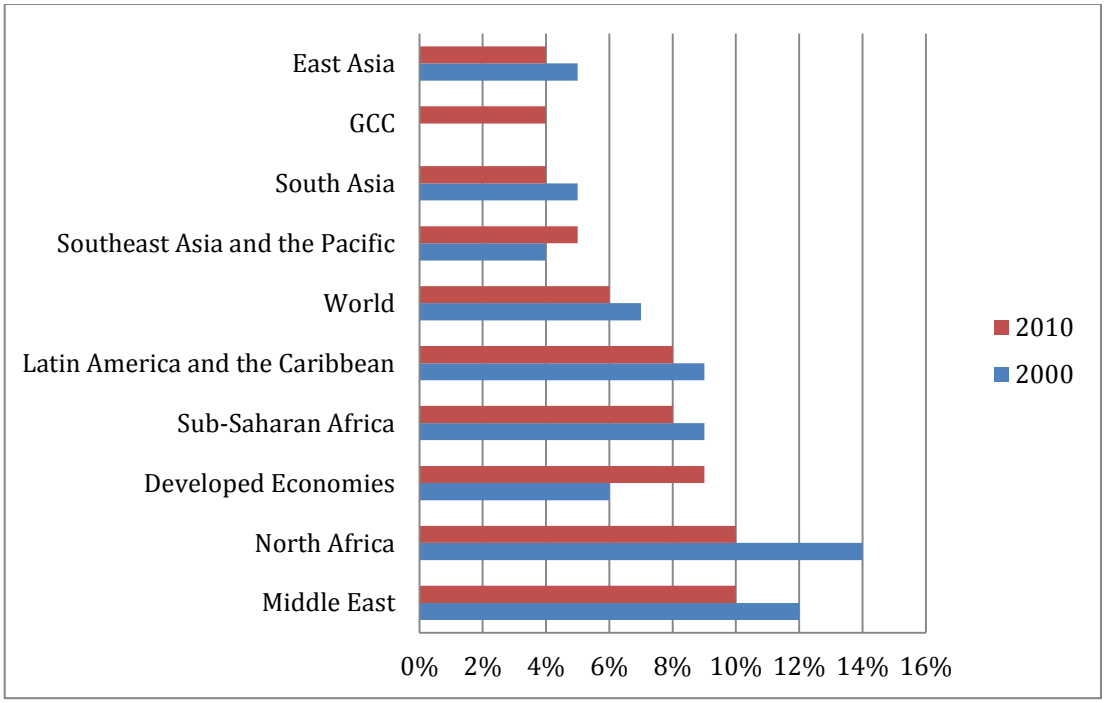


Fig. 7. Unemployment Rates by Region (2000-2010)
Source: International Labor Organization (ILO) database 2011.

What's even more peculiar about this region is the presence of very high unemployment rates among the youth specifically. In Tunisia alone for example, youth unemployment[7] accounted for 30% in 2009, and is projected to have increased in the years that followed.

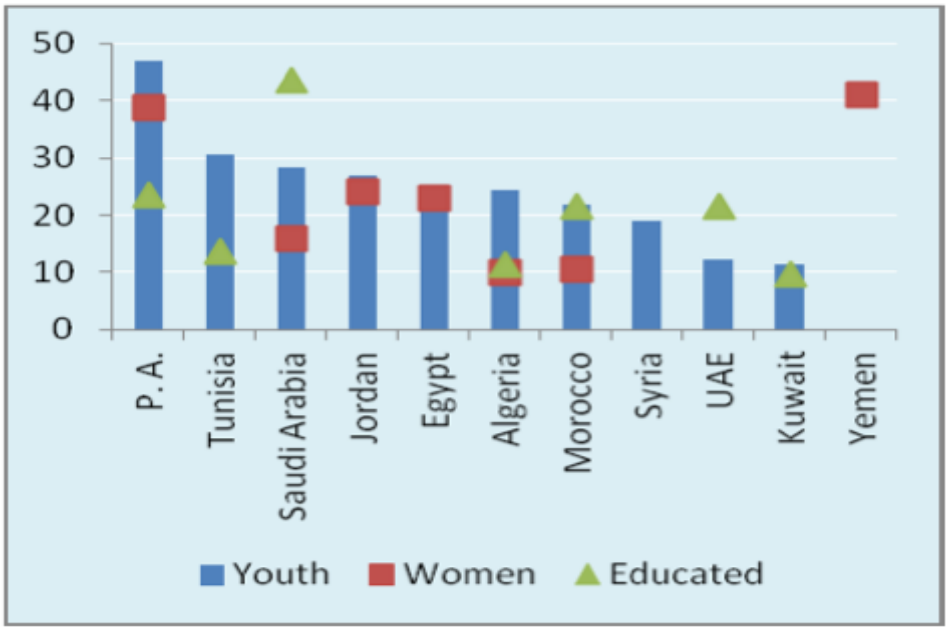


Fig. 8. Unemployment among the youth, the educated and by gender in Selected Arab Countries (2011)
Source: O'Sullivan, A., Rey, M., and Galvez Mendez, J. 2011. Opportunities and challenges in the MENA region. OECD Publishing.

Unemployment among the educated is also high in the region, reaching a level as high as 22% in Morocco. Moreover, the region has one of the fastest population growth rates. From 2000 until 2010, the MENA region's population grew at a compounded average growth rate (CAGR) of 2.2%, exceeding that of the world during that period of time (Al Masah capital Management Limited 2011).

[7] According to the International Labor Organization, youth unemployment is defined as the percentage of total unemployed belonging to the age bracket [16-24].

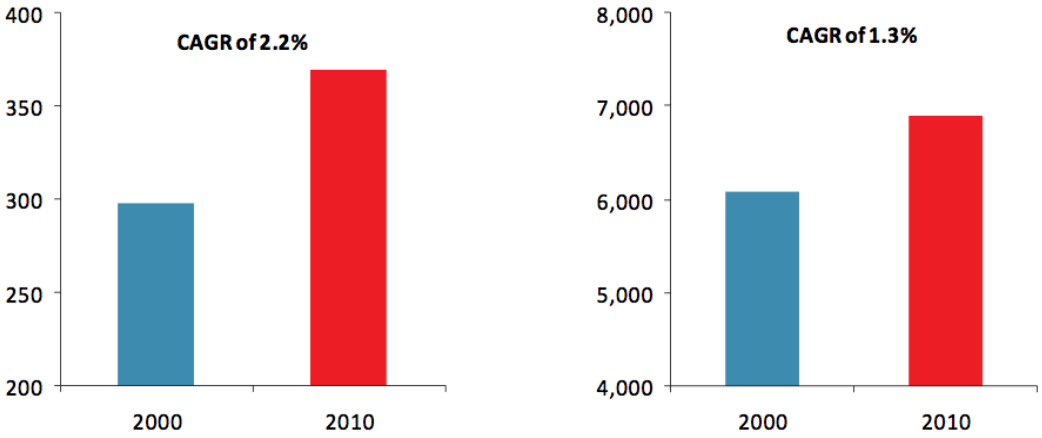


Fig. 9. Compounded Average Growth Rates in the MENA and the World (2000-2010) *Source*: IMF and US Census Bureau 2011.

Due to this, it is estimated that the MENA region ought to create 100 million new jobs so it could absorb the population growth as well as the new entrants to the labor market especially that 21% of the MENA population are those belonging to the 16-24-age bracket (IMF 2012).

Furthermore, the high dominance of the public sector as a potential employer constitutes a key feature of the MENA region. The perception of the public sector as the major employer is founded on the nationalistic approach Arab countries chose to embark on in the early 1960s. Although several efforts in the 1990s period tried to downsize the role of the public sector, its status remained unchanged. In Egypt for example, Law 14 of 1964 grants every college, secondary or technical institutes graduate a position in a certain public entity (Assaad 1997). This further contributed to the increasing trend in enrollment levels in tertiary education[8], which consequently leads to an increase in the participants in the labor force. As foretold, the number of applicants soon outweighed the number of public vacancies available. It is estimated

[8] Over the 1960s period, primary education increased by roughly 9% on a yearly basis.

that in 1981, the ratio of applicants to the number of available vacancies was around 5:1. By 1991, 48.5% of agriculture graduates looked for public employment opportunities (Assaad 1997). The story is similar in other MENA countries, where the public sector is still regarded to this day as the preferred employer. It is estimated in 2010, that 29% of the labor force are employed by the public sector in contrast to 8% in Japan and 15% in the US; in Jordan for example, 44% of the labor force are employed by public entities.

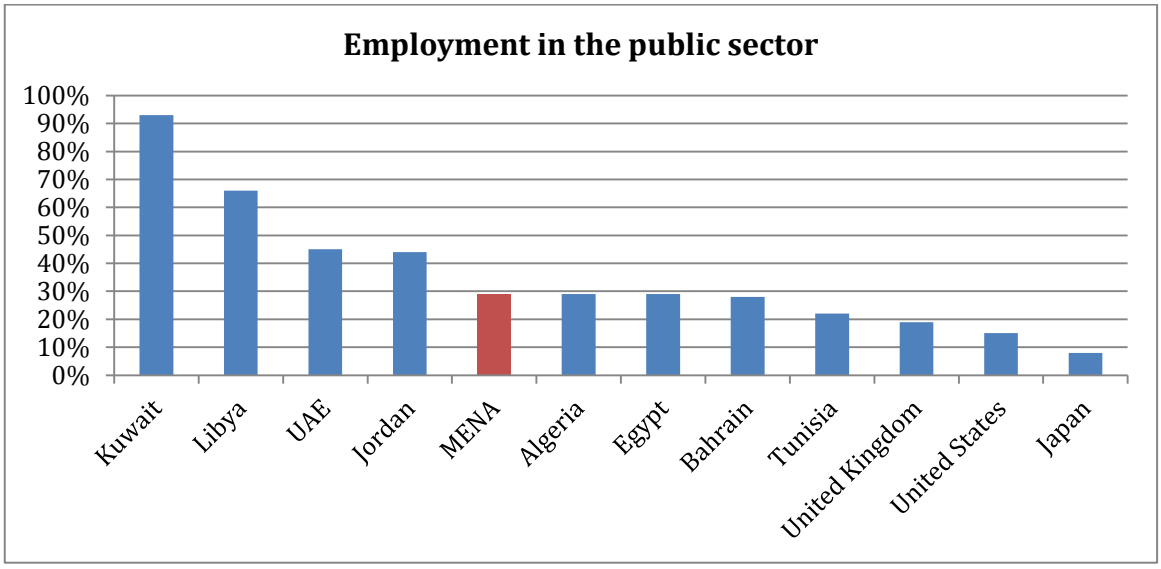


Fig. 10. Employment in the Public Sector in selected Arab and Developed Countries
Source: World Bank, London School of Economics 2011.

The question of how much should GDP growth level become in order to generate new job opportunities just sufficient to absorb current and new entrants to the labor force is a question that needs to be undoubtedly answered.

In recent years, MENA countries' growth rates were 5% higher than the 1980-90s period, mainly as a result of the structural and trade reforms employed in the region. The region was performing relatively well in contrast to other regions in the world.

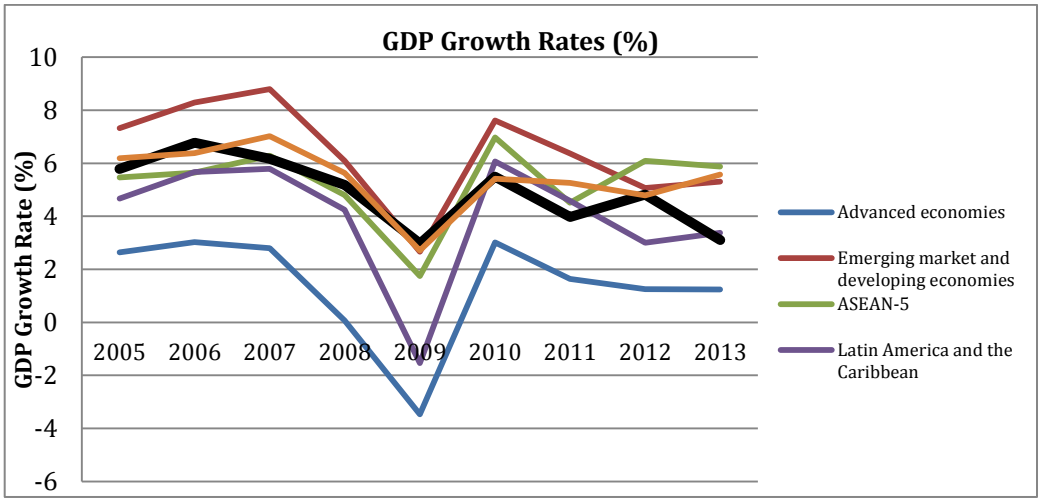


Fig. 11. GDP Growth Rates by region (2005-2013)
Source: World Bank Development Indicators.

The MENA region was also performing well in terms of investments. Recent data shows that the MENA region has one of the highest investment rates (% GDP) rates in the world. In this context, it is important to note that even in 2011 when the region was going through several political unrests, the investment levels in the MENA region remained as high as 25% of GDP. After 2011, investment rates were increasing again, but slowly.

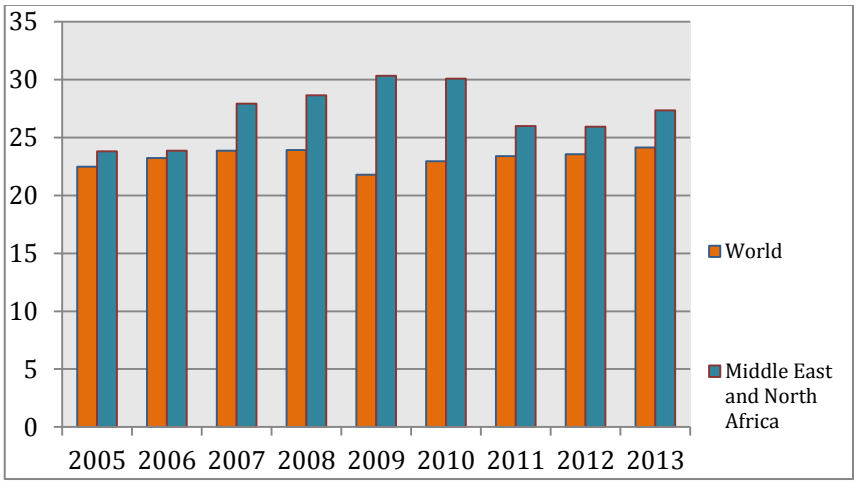


Fig. 12. Investment (% GDP) in the MENA Region as compared to the World
Source: World Bank Development Indicators.

Looking at only these two indicators isn't sufficient; whereas GDP growth and investments were at high levels in the past few years, changes in GDP per capita show otherwise. According to a study conducted by OECD in 2011, output growth has failed to keep pace with the growing population and fertility rates in the region. The gap created as a result of the difference between GDP growth and per capita GDP growth is very high, only second to Sub-Saharan Africa (O'Sullivan, Rey and Galvez Mendez 2011).

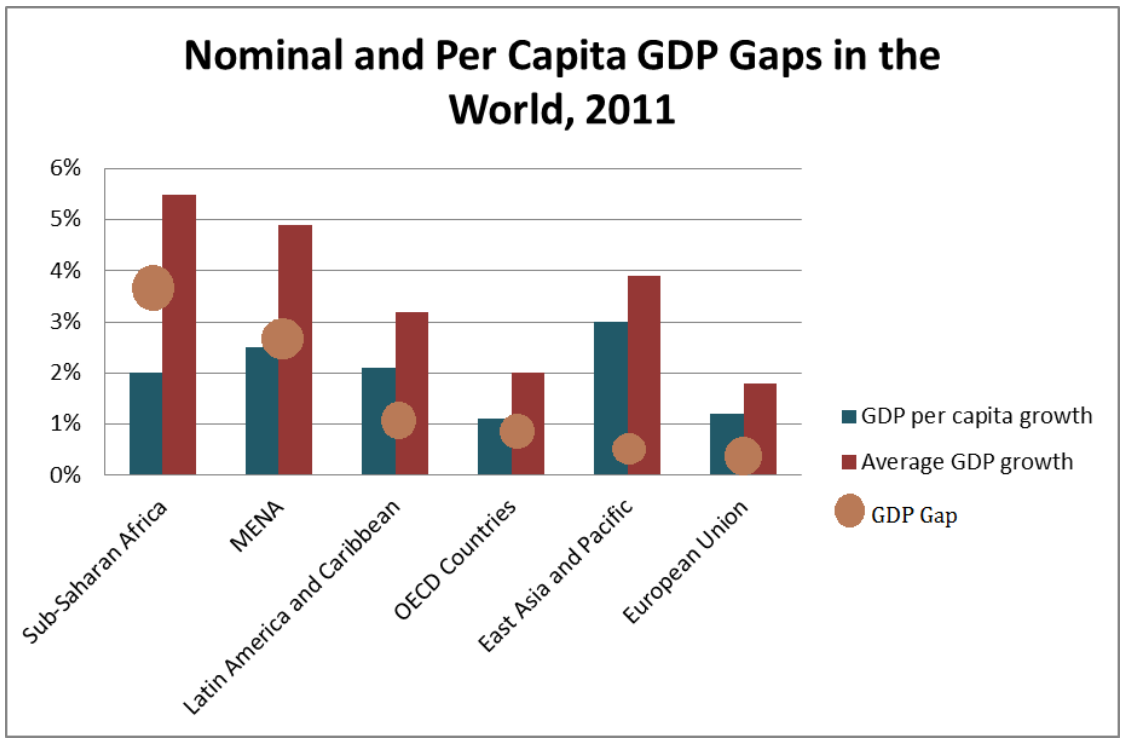


Fig. 13. Nominal and Per Capita GDP Gaps by region, 2011
Source: O'Sullivan, A., Rey, M., and Galvez Mendez, J. 2011. Opportunities and challenges in the MENA region. OECD Publishing.

Foreign direct investments although high in recent years especially in Egypt due to the privatization of previously publicly owned companies dropped significantly as a result of the revolts to reach a negative rate of -482 million dollars. In Tunisia, FDI

levels also dropped in 2011, but increased back to their historic average in 2012.

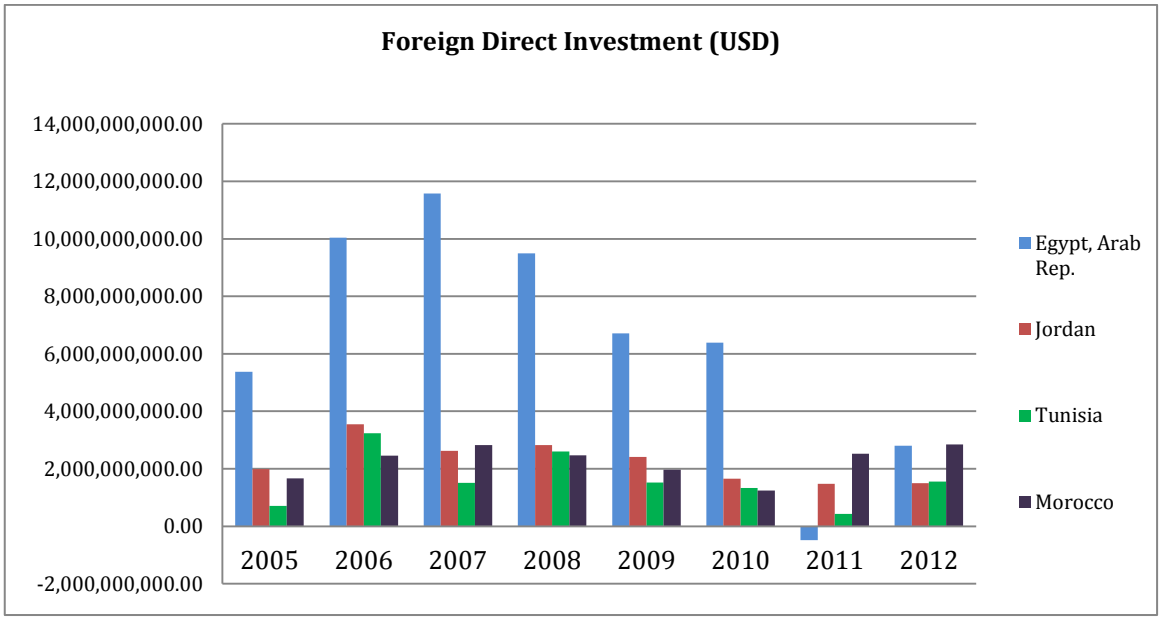


Fig. 14. Foreign Direct Investment Inflows (USD) in selected Arab Countries
Source: World Bank Development Indicators.

Several studies have linked inflows of foreign direct investments to the stimulation of job opportunities and growth in a certain region. This however depends greatly on the sector, which these investments target (World Bank 2011). When applied to the MENA region, it was found that most of the FDI inflows targeted the construction/real estate sector and the mining sector, yet these two sectors precisely, were found to be the lowest in terms of generating additional employment opportunities.

The manufacturing sector on the other hand, although it only attracted 20% of FDI in the past decade, was able to generate jobs the most.

Oil importing countries in the region generally, and our countries specifically attract FDI the most in the real estate and the tourism sectors; given their lack of natural resources.

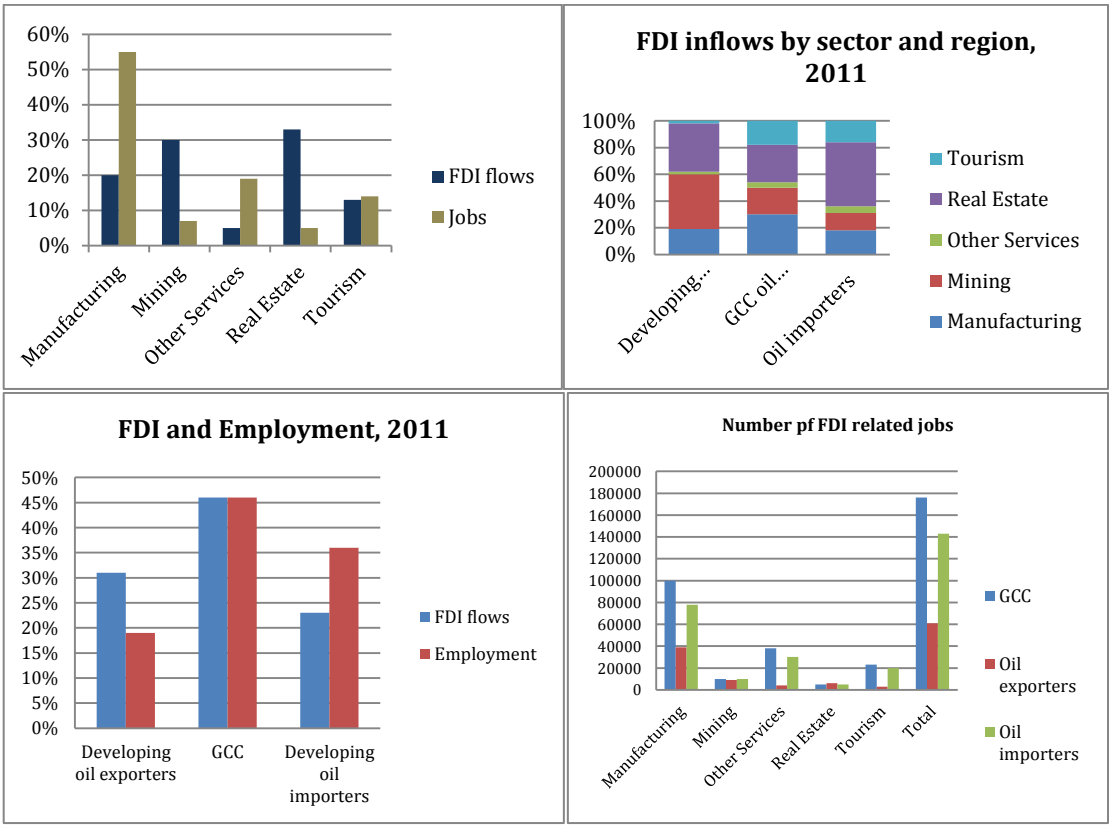


Fig. 15. FDI inflows and FDI-related jobs in Arab Countries by region and sector, 2011
Source: IMF, UNCTAD, World Bank 2011.

The MENA region also faces a very high level of inflation, which has been the highest in the world as compared to other regions. Despite the decrease in inflation in 2009 and 2010, inflation surfaced again in the aftermath of the recent revolts and peaked to 10.7% as compared to 7% in emerging markets and 2.6% in advanced economies. This can be mainly attributed to the fact that the region imports almost 50% of its food necessities. Moreover shocks in oil prices greatly affect the region whether it's an oil-importer or exporter. In Morocco for example fuel imports constitute 20% of total merchandise imports, while in Egypt on the other hand, 17% of goods imported is food. The story isn't much better in other Arab countries, which makes the region highly vulnerable to volatility in fuel or food prices (O'Sullivan, Rey and Galvez Mendez 2011).

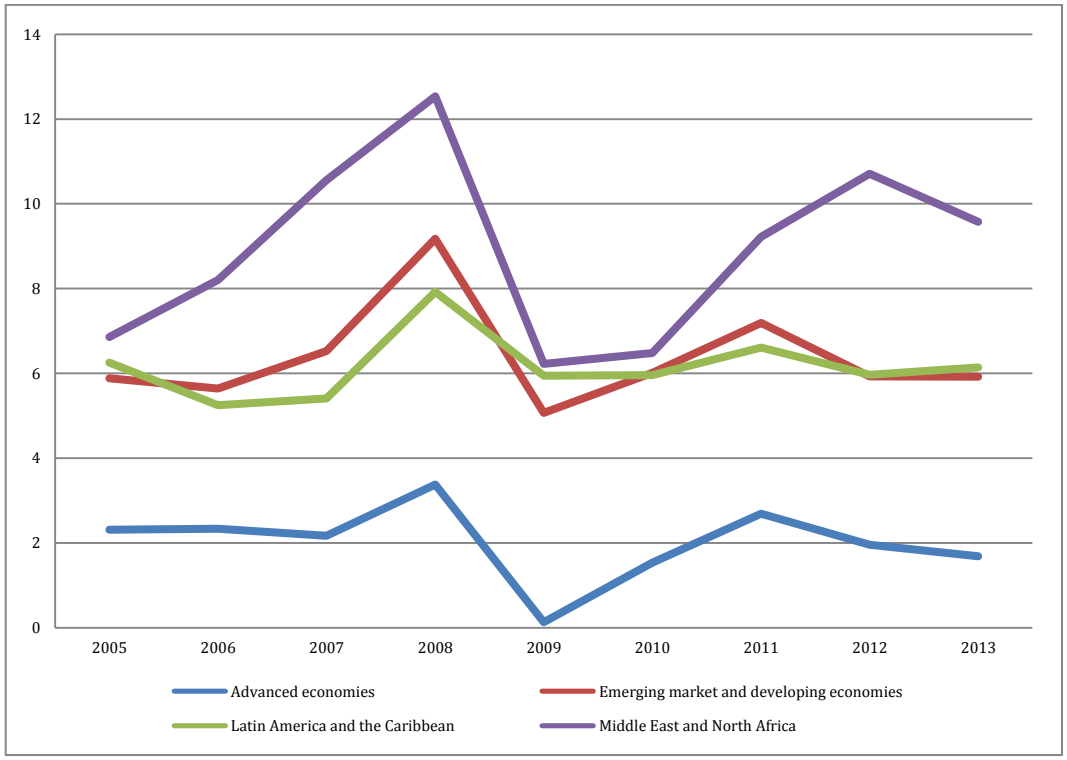


Fig. 16. Inflation by Region, (2005-2013)
Source: World Bank Development Indicators.

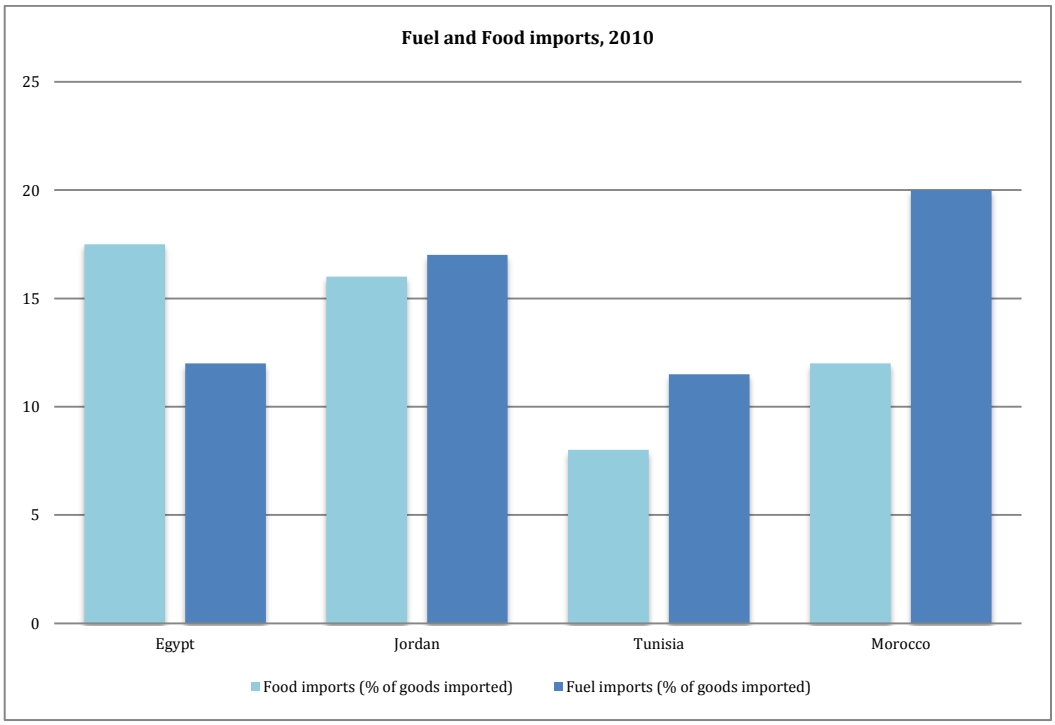


Fig. 17. Fuel and Food Imports in Selected Arab Countries, 2010
Source: O'Sullivan, A., Rey, M., and Galvez Mendez, J. 2011. Opportunities and challenges in the MENA region. OECD Publishing.

Oil-importing countries in the MENA region also struggle with high government debts. Government debts materialized since the early 1990s as a result of the several loans Arab countries took from international donors in order to found their economic reforms. As the picture started getting better, the recent uprisings made the countries go back to square one. In Egypt for example, whereas debt was only 70% of GDP in 2008, it rose to approximately 90% in 2013.

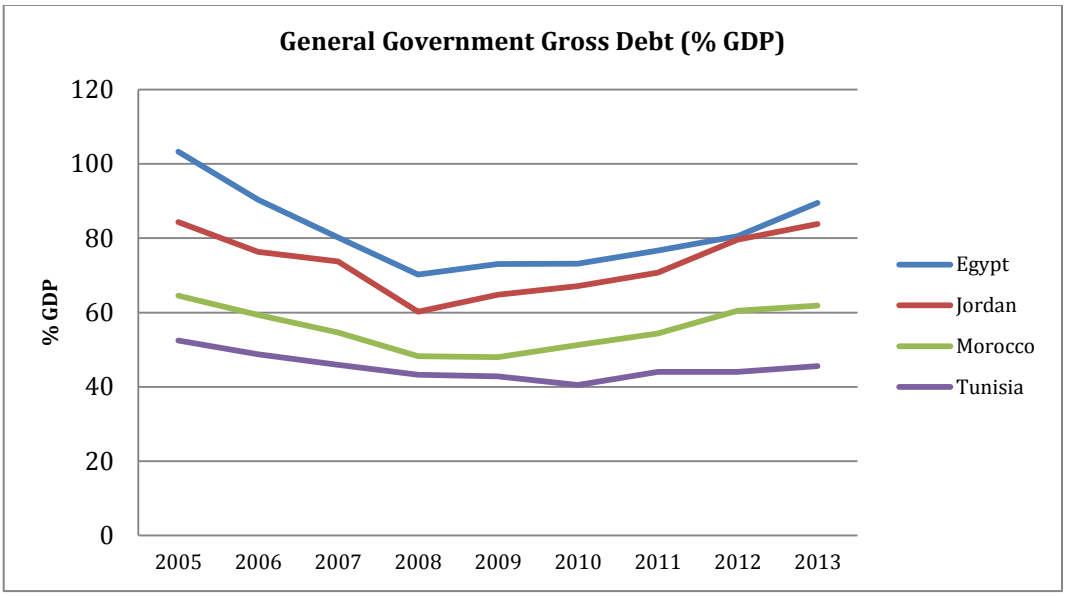


Fig. 18. General Gross Government Debt (% GDP) in Selected Arab Countries (2005-2013)
Source: IMF World Economic Outlook Database 2013.

Terms of trade in the MENA region show huge discrepancy across the different countries. Oil-exporters for instance, have large surpluses in their current account balances whereas oil importers show chronic deficits. Morocco and Egypt had surpluses in their current account balances in 2005 and 2006 but soon these surpluses turned into deficits that were negatively affected by the European debt crisis, the recent uprisings and fluctuations in food and oil prices.

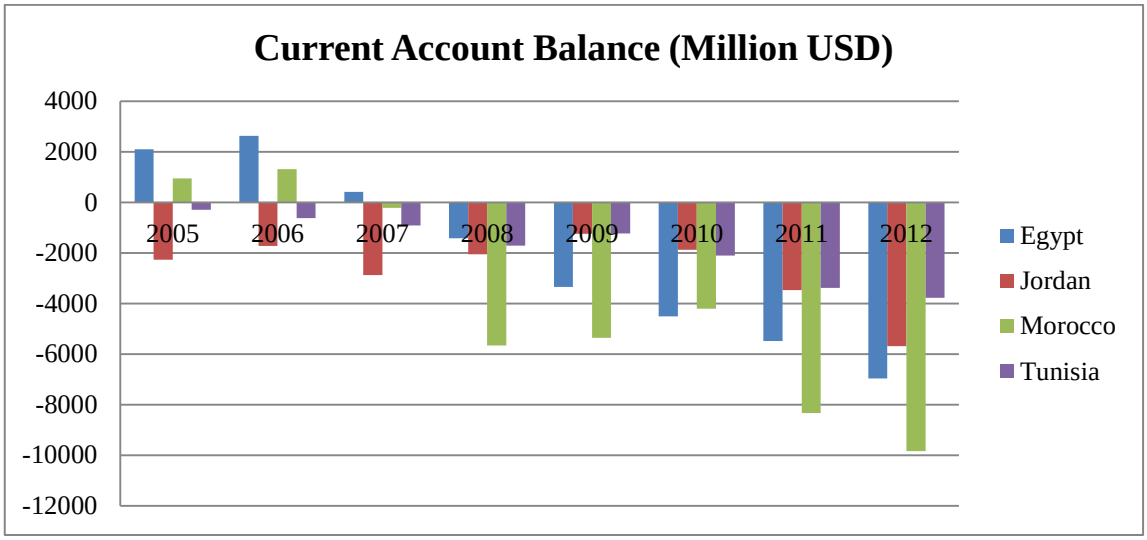


Fig. 19. Current Account Balance in Selected Arab Countries (2005-2012)
Source: IMF World Economic Outlook Database 2013.

In summary, the MENA region in the past decade was able to grow at rates much higher than those achieved in the 1980-90s period, specifically as a result of the several reforms and trade agreements it chose to pursue. The uprisings recently pointed out to micro-scale problems, which were not included in the total scheme of growth the region chose to embrace. In fact, looking only at GDP growth in previous years does indeed give a feeling of comfort; however, when looking at GDP-per capita rates, unemployment figures and debt and inflation numbers, the "growth figure" shatters. Our next section will provide a deep understanding of sources of income and labor market policies in each country examined, in order to shed further light on the challenges the region currently faces.

D. Country Specific Study: Unemployment and Sources of Income Figures

Our countries share several similarities not only because of their relevant proximity, but also because they lack excessive sources of growth and are vulnerable to several exogenous shocks. Moreover the rise of *joblessness* as a common trait in all our

four countries is also significant to discuss.

1. Jordan

Due to its geographical location, Jordan doesn't have much of a chance to improve its agriculture sector and hence, the role of agriculture in spurring GDP growth has always been restricted. Jordan is one of the poorest countries in the world in terms of access to water with only 5% of its land being fertile for agriculture purposes (Taghdisi-Rad 2012). Just like other Middle Eastern countries, Jordan's growth strategy shifted to the services sector, while at the same time it managed to reinforce an export-led economic profile. According to 2012 figures, the services sector alone comprises 33.8% of GDP, whereas the agriculture sector constitutes only 2.9% of GDP (Moabi 2012). In this context, it's important to mention that tourism is a vital element in Jordan's economy, and is estimated according to the 2011 figures to 2.2 billion, which approximately accounts to 8% of GDP. This rate has decreased in 2011 as compared to the previous year due to the ongoing Syrian conflict and the instability in the region.

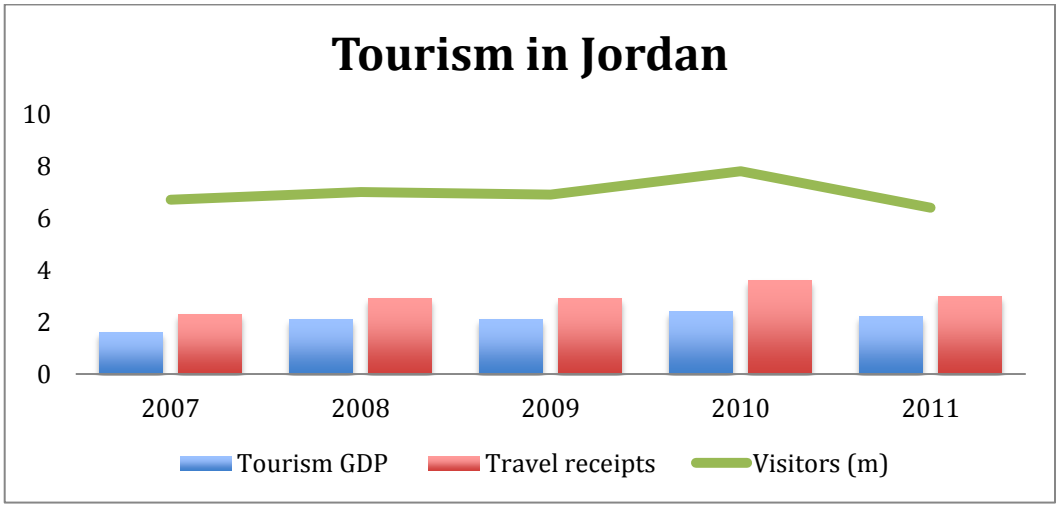


Fig. 20. Tourism GDP, Travel Receipts and the number of visitors in Jordan (2007-2011)
Source: QNB 2012.

As the services sector expanded over time, it started to act as a major attraction to job seekers. The employment rate in the services sector has increased exponentially from 2000 until 2006, yet the percentage of non-Jordanians to Jordanians in this sector specifically remains high, especially in the tourism sector such as hotels and restaurants since the nature of the job requires little skills and foreign workers can accept much lower wages than nationals would. The table below shows the distribution of employment of Jordanians versus non-Jordanians in the services sector.

Table 3. Jordanian Versus Non-Jordanian workers in the services sector (2000-2006)

Services sector components	**Jordanian nationals**		**Non-Jordanians**	
	2000	**2006**	**2000**	**2006**
Electric, Gas, Water Supply	1.6	1.5	0.2	0.1
Wholesale and Retail Trade	18.9	18.8	9.3	6.7
Financial Intermediation	2.2	2.3	0.8	0.7
Education	14.1	16.2	1	0.5
Health and Social Work	4.8	5.7	0.4	0.4
Public Administration and Social Security	8.4	8.8	0.3	0.1
Renting and Business Activities	3.4	5.5	1.5	0.7
Hotels and Restaurants	2.4	2.5	6.5	5.3
Other Services	6.2	6.6	15.4	21.1

Source: Ababna, A. and AlBashayra, A. (2012). "Characteristics of employed and unemployed Jordanians: Demand trends on Jordanian workers". Fund of Vocational Training and Technical Education; Al Manar Project Database 2007.

Moreover and as mentioned beforehand, the country relies heavily on workers' remittances from abroad. Approximately 10% of Jordanian nationals work abroad, with the majority of them working in the Gulf region specifically (Moabi 2012). As such, while Jordan benefited from the rapid rise in oil prices in the 2000s era given that more remittances were flowing in, it experienced a chronic account deficit reaching up to

$3000 million in 2007 since it imports most of its energy products[9]. Remittances make up approximately 20% of the GDP in Jordan, which implies a heavy reliance on external sources of income. Most of the Jordanian nationals who work abroad are the most educated and are engaged in jobs that require high skills. Data has shown that almost 800,000 Jordanians are employed overseas[10]. On the other hand, evidence shows that most of these remittances target middle and upper class families; poor families get only 3% of its income from remittances in contrast to families belonging to the upper class where 14% (more than the double of that of the poor) of its income comes from remittances. This implies that most of the remittances are captured by the elite, upper level classes of the society, which in turn should be more carefully addressed by Jordanian authorities to allow for a more inclusive growth (World Bank 2008). The trade agreement Jordan signed with the United States in the beginning of the previous decade and its membership in the World Trade Organization contributed greatly to its rise as one of the players in the international trade environment. Jordan's main exports include apparel, pharmaceutical products, potash and phosphate and limited yet growing agricultural products. India is the major potash importer whereas the United States captures approximately 30% of Jordan's apparel exports (NBK 2008). Although the establishment of Qualifying Industrial Zones with the United States succeeded in enhancing Jordan's exports portfolio, it contributed nonetheless to the increase in unemployment trends. This is so because products eligible to be in the qualifying industrial zone need to have at least some Israeli content embedded in them. As such, most of those employed in these industrial zones are not Jordanian nationals but rather

[9] Energy related imports (oil and gas) constitute approximately 25% of Jordan's GDP.

[10] Which according to the International Labor Organization (ILO), represents approximately 50% of the labor force

migrant workers (Taghdisi-Rad 2012).

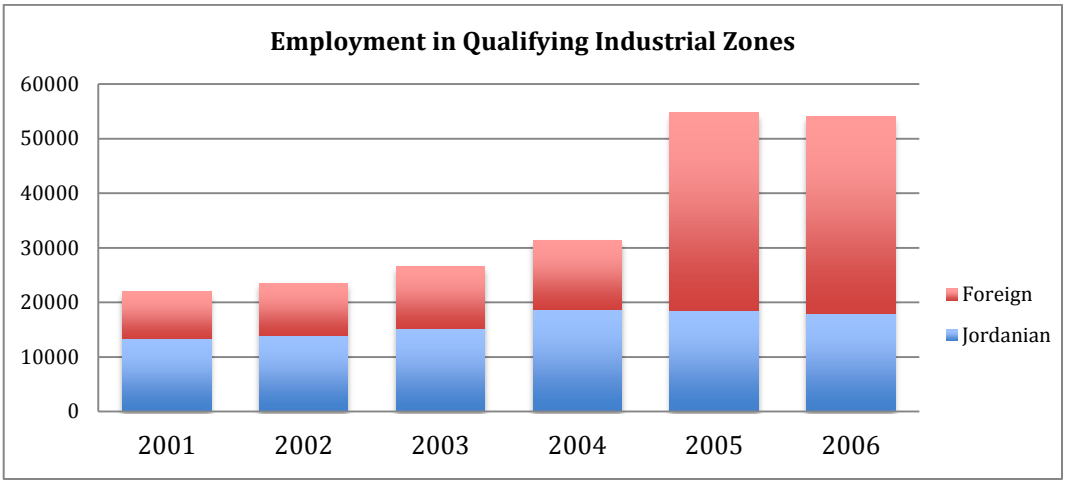


Fig. 21. Employment in Qualifying Industrial Zones in Jordan (2001-2006)
Source: World Bank 2008.

Mining and manufacturing industries also play a significant role in the Jordanian's economy and their cumulative share was 9.1% of GDP in 2007. This share however followed a decreasing trend to reach only 1.2% of GDP in 2010 as a result of the contraction in the construction and potash mining sectors (Moabi 2012).

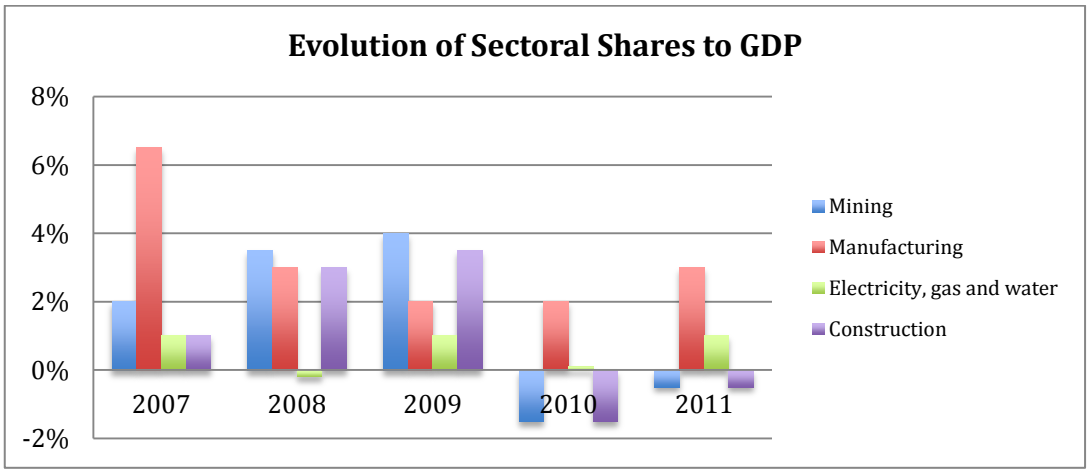


Fig. 22. Evolution of Sectoral Shares to GDP in Jordan (2007-2011)
Source: Moabi, M. 2012. "Jordan economic insight 2012". Qatar National Bank SAQ.

This share recovered afterwards and is forecasted to have reached 4.1% of GDP by the end of 2013. Although these sectors represent vital elements for the country's GDP growth, employment in mining, construction and manufacturing has been fairly exclusive to non-Jordanians, as it requires little skill and low pay. According to 2006 estimates, 24.1% of foreign workers worked in the manufacturing sector as compared to only 12% of Jordanians. The story is similar for the construction sector, where 6.4% of those employed were Jordanian nationals as compared to 15.3% of non-Jordanians (Ababna and AlBashayra 2012). The "appealing" sectors for Jordanians to work in remain education, health services and the public sector. The rush of new entrants in the market to get a job exclusively in these three sectors especially the predominant reliance on the public sector adds several pressures to the Jordanian labor market. The growth trend in Jordan relies mainly on sectors where unskilled and foreign workers are favored over skilled and national ones. According to 2012 estimates, those who have attained tertiary education are the ones with the fewer jobs, as contrasted to those who have less than secondary education. This discrepancy is also vast when gender differences are taken into account. In 2012, the number of males employed was 1,056 thousands i.e. 83.3% of the labor force while the number of females employed was only 212,100 representing roughly 16% (Ababna and AlBashayra 2012).

Although wages have increased in previous years[11], such increase wasn't comprehensive for all regions. Inequality and the differences in the wage bases in each region points out to several features of the labor supply across Jordan. The average wage across the different regions ranges from JOD 300-499.

[11] Real wages have increased by 3% from 2005 until 2011 as a result of increasing minimum wages from JOD110 to JOD150, which approximates to $200.

Fig. 23. Number of Employed by gender in Jordan (2010-2012)
Source: Ababna, A. and AlBashayra, A. (2012). "Characteristics of employed and unemployed Jordanians: Demand trends on Jordanian workers". Fund of Vocational Training and Technical Education**.**

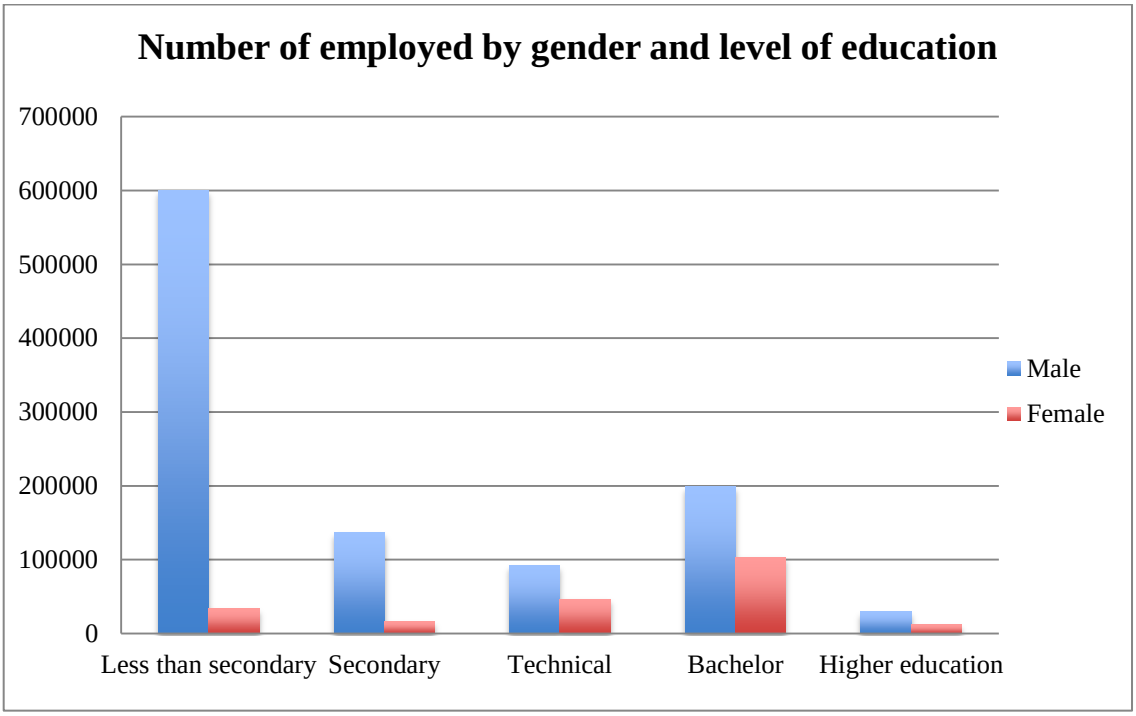


Fig. 24. Number of Employed by Gender and Level of Education in Jordan, 2011
Source: Ababna, A. and AlBashayra, A. (2012). "Characteristics of employed and unemployed Jordanians: Demand trends on Jordanian workers". Fund of Vocational Training and Technical Education**.**

It must be noted that this average wage is only within the range JOD 200-299 in the Zarqaa' and Balqaa' regions (Department of Statistics 2012). Moreover, based on 2011 estimates, the average wage for males was JOD379 as compared to only JOD249 for females (Department of Statistics 2012). Moreover, taking the minimum wage of $200 as reference, results show that 58.9% of the total population in Jordan lives under this line, which is highly problematic[12]. Such minimum wage structure was also found to put a family composed of four members under the poverty line estimated at around JOD46/month (Ministry of Labor 2011). The vast difference between unemployment rates across regions also highlights not only the existence of high inequality, but also the lack of a comprehensive scheme for growth; where as expected, rural areas depict much higher unemployment rates than urban areas. For instance in 2012, the unemployment rate in Tafiela (located in the southern part of Jordan) was 19.6%, as compared to only 10.3% in Amman.

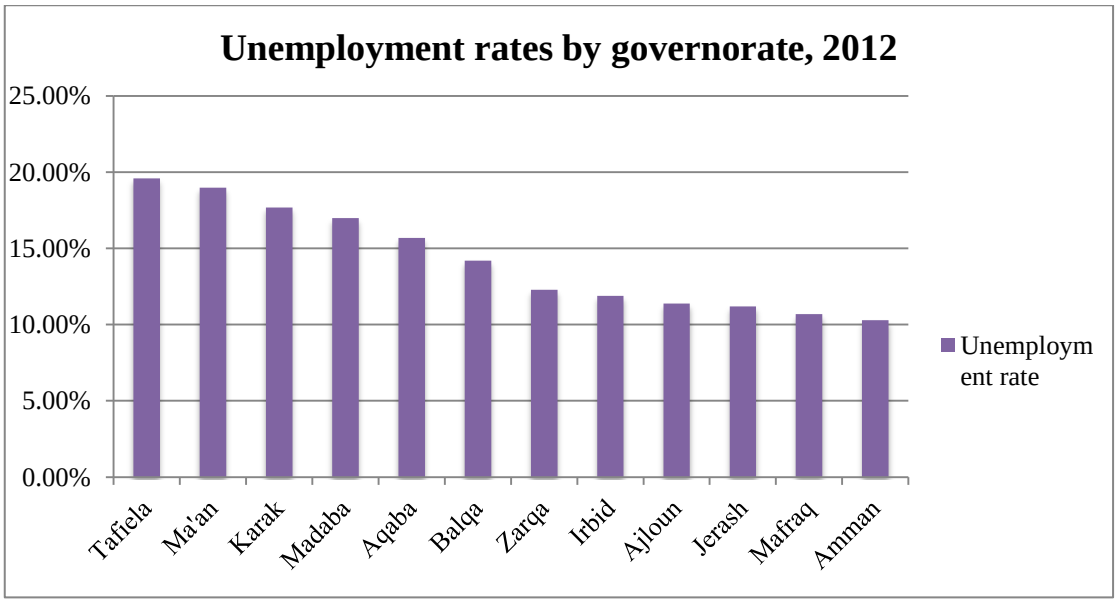


Fig. 25. Unemployment rates by Governorates in Jordan, 2012
Source: Department of Statistics 2013.

[12] Author's calculations based on PovCalnet, World Bank.

The southern part of Jordan in general has the highest unemployment rates, whereas the middle part (where Amman is located) has the lowest (Ministry of Labor 2011).

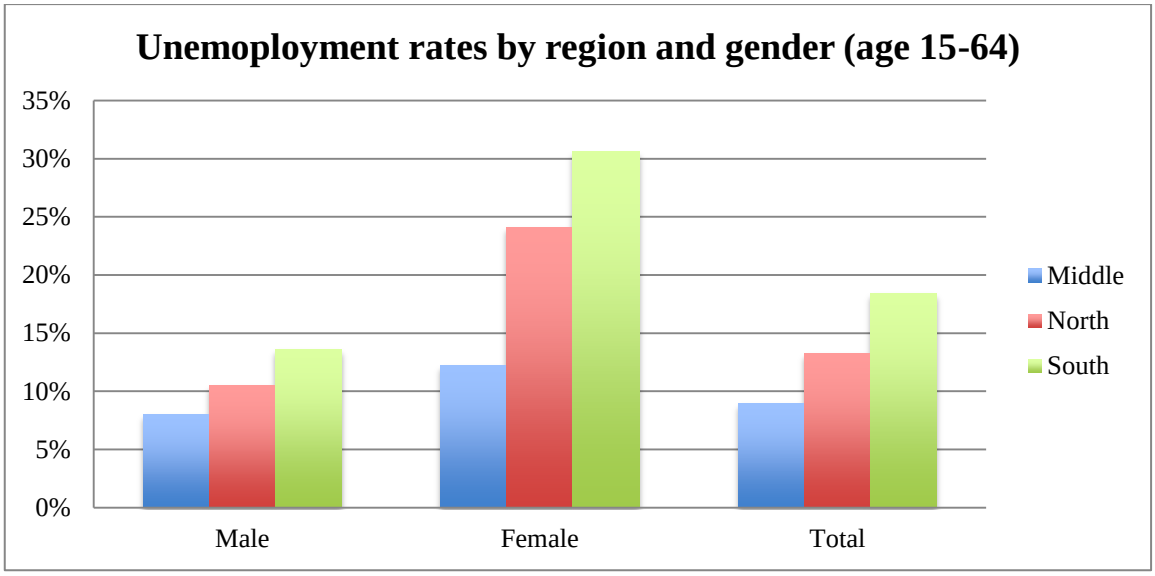


Fig. 26. Unemployment rates by region and gender in Jordan (age 15-64), 2012
Source: Department of Statistics 2013.

By 2012, 25.5% of the employed worked in public sector entities, followed by 12.6% in the education sector. Only 0.21% of Jordanians were employed in the construction sector, followed by 0.81% in the mining sector and 2% of in the agriculture sector (Ministry of Labor 2011).

Unemployment among the youth is another feature of the Jordanian economy where 49% of the unemployed belong to the 16-24 age bracket. Moreover, estimates show that 56% of the current unemployed have already acquired previous experience whereas 44% of the unemployed are fresh graduates.

The shares of employment in Jordan point out to the high expectations recent graduates or workers in general have. Civil service related jobs constitute the most

sought positions by the youth. In 2004, 139300 unemployed filed applications for employment in the public sector; yet only 8800 were appointed. Furthermore, when looking at the qualifications needed to be appointed in public sector positions, one finds a wide disparity and rather a mismatch between the job requirements and the qualifications possessed by the applicant (World Bank 2008). Reducing such a mismatch should be the government's first goal since the public sector plays a significant role in attracting Jordanian workers.

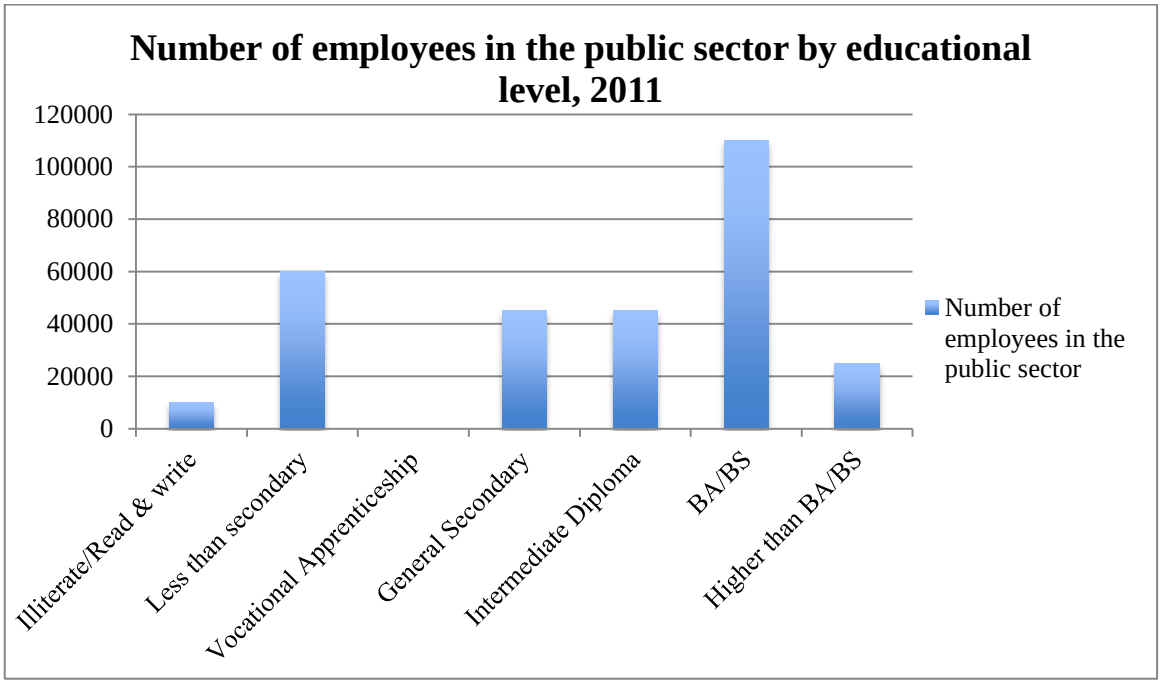


Fig. 27. Number of Employees in the Public Sector by Educational Level in Jordan, 2011
Source: Department of Statistics 2012.

Early retirement age presents another feature of the labor market in Jordan. Such feature is widely observable in both public and private sectors where the retirement age dropped by 11% from an average of roughly 56 years in 1999 to only 50.5 years in 2009 (Ministry of Labor 2011).

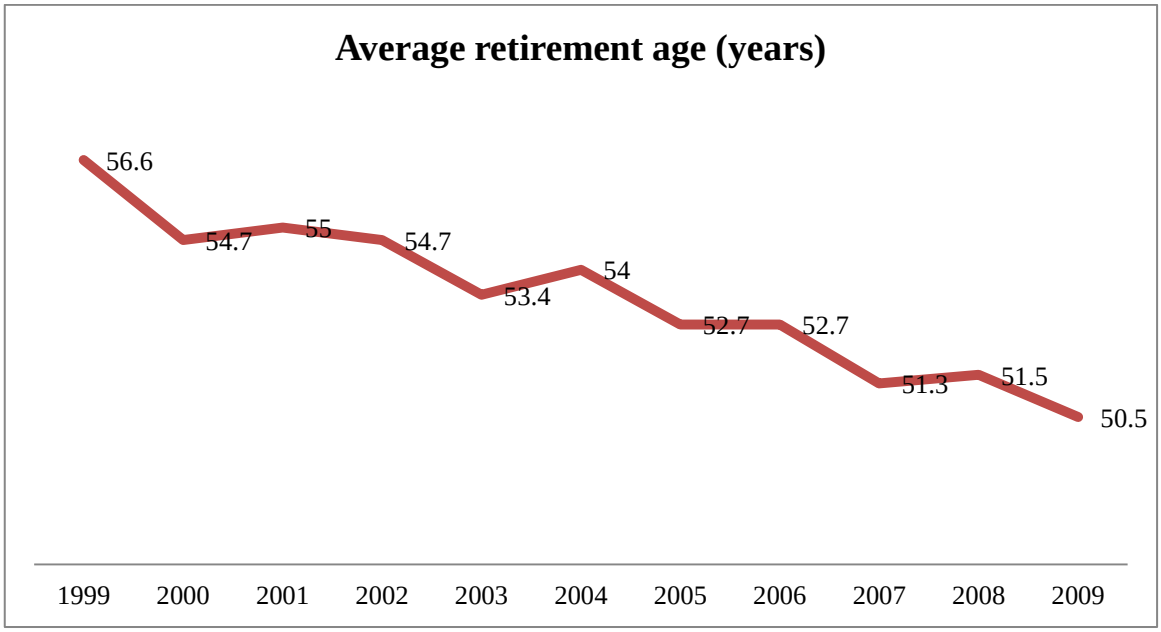


Fig. 28. Average Retirement Age (1999-2009)
Source: Ministry of Labor 2011.

Private sector employment plays a negligible role in spurring employment opportunities for young Jordanians, especially among females. The scope of work in the public sector given that it provides short hours of work, stability in the long-run and social security benefits has been attracting nationals to pursue a job in that sector. Moreover, Social Security Law No.7 of 2010 states that female workers are eligible for an extra 75% of their salary while on maternity leave in the form of a contribution (Ministry of Labor 2011). This is usually avoided in the private sector sphere, which also adds to the existing gap between public and private employment (Figure 29).

Add to this, only big private firms provide their workers with medical insurance. A private firm with only 1-3 employees only provides 3% of medical insurance to its employees as contrasted to a private firm of 100+ employees that provide them with a much higher proportion (Figure 30).

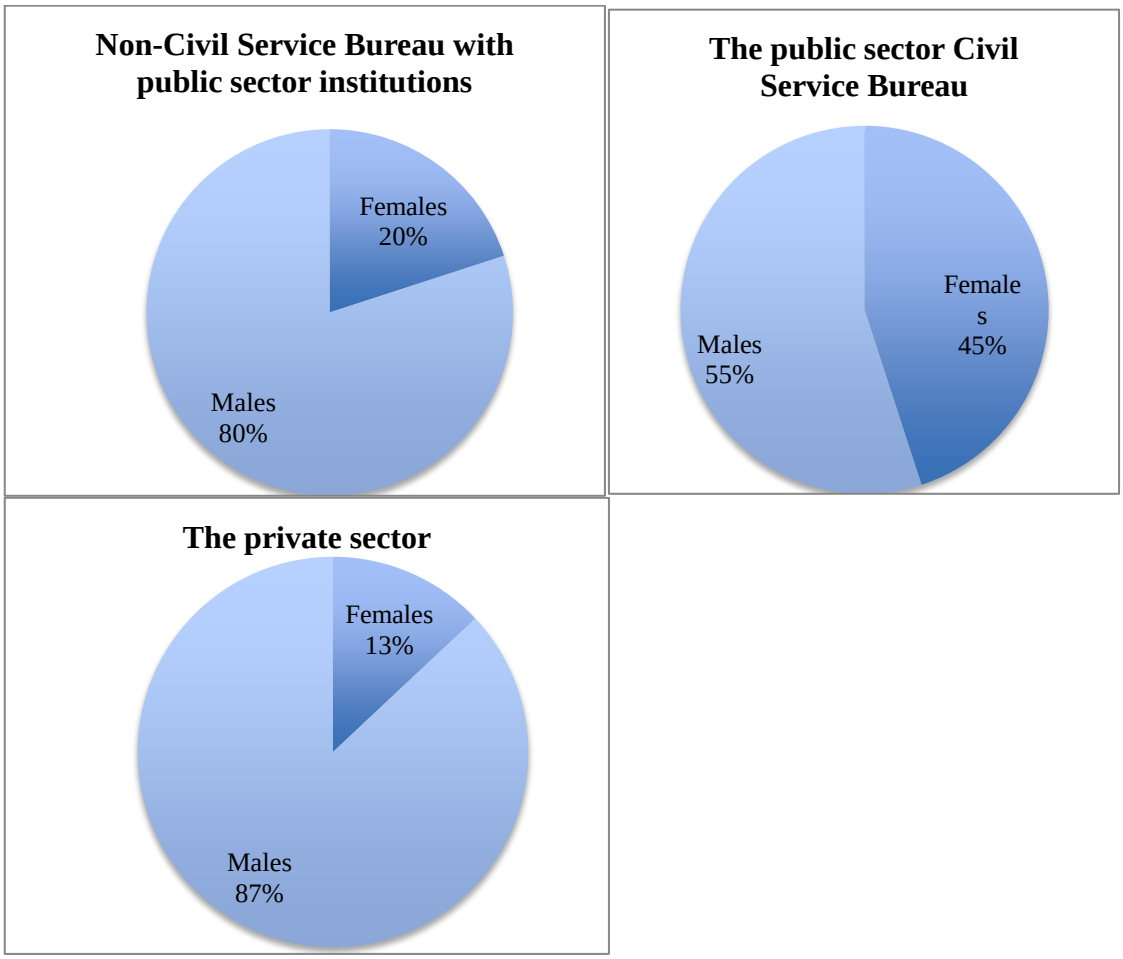
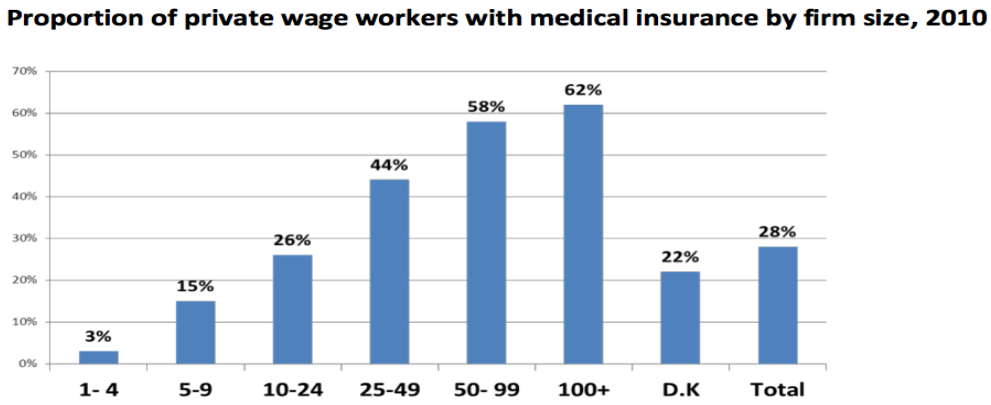


Fig. 29. Employment by Gender in the Public and Private sectors in Jordan
Source: Al Manar Project Database 2009.



Source: DOS JLMPS 2010.
Note: D.K. = "Don't Know."

Fig. 30. Proportion of Private Wage Workers with Medical Insurance by Firm Size, 2010
Source: Department of Statistics 2010.

For all these reasons, the private sector has been the least attractive employer for Jordanians, and despite the fact that this sector has been relatively growing in the Jordanian economy, most of those employed are non-Jordanians. Over the previous decade, more than 50% of those employed in the private sector were foreigners. Another alarming issue is that from 2000-2008, the share of employment of non-Jordanians to that of total employment was very high accounting for 42% (Department of Statistics 2012).

Table 4. Jobs Created in the Public and Private Sectors for Jordanians and non-Jordanians

	2000-2008	**2008-2009**
Total jobs created (public + private) for Jordanians	264387	47820
Total jobs created (public + private) for non-Jordanians	192745	32383
Total jobs created	457132	80203
Percent jobs for non-Jordanians to total jobs	42%	40%
Percent jobs for non-Jordanians in the private sector	55%	48%

Source: DOS, Ministry of Labor based on the number of work permits issued to foreigners.

In summary, several mismatches act as impediments to increasing employment opportunities in Jordan. The primacy of the public sector over the private sector, regional inequality, low wages and the high share of non-Jordanian workers all contribute to the high problem of unemployment Jordan suffers from.

2. Egypt

Egypt is the largest country in North Africa, and has the highest GDP, mainly due to its large size. After embarking on several reforms that included privatization and global integration, Egypt also followed an export-led growth and took several steps to

improve its business environment. Egypt's export performance has been impressive over the last two decades. Exports have increased by 10.3% from 2000-2004 and increased even further to 17.4% from 2005-2009 (Banque Africaine De Développement 2012). Main exports are natural gas and petroleum related items, chemical products and iron (Banque Africaine De Développement 2012). However, Egypt has a relatively high exports concentration index of 29.66 according to 2010 estimates.

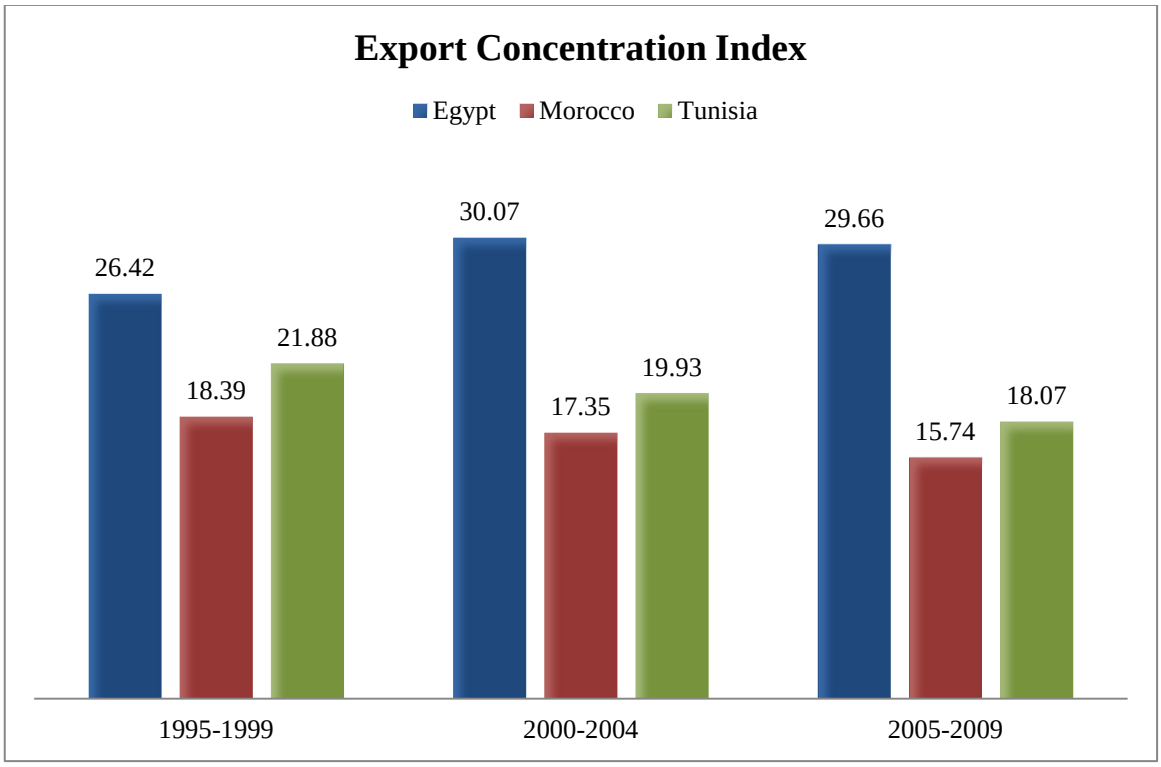


Fig. 31. Export Concentration Index in Selected Arab Countries (1995-2009)
Source: Banque Africaine De Développement 2012.

Goods exports include manufactures, which represented 36.65% of total goods exports in 2010; this share however is relatively small as compared to other net oil importing countries such as Morocco and Tunisia with rates of 65.45% and 75.37% of GDP respectively, which implies that most of the manufacture goods produced in Egypt

are for the domestic use and not for international competitiveness (Banque Africaine de Développement 2012). Egypt's trade agreement with the EU and the establishment of Qualifying Industrial Zones with the United States have encouraged Egypt's exports performance. As such, the EU and the US became the major trade partners of Egypt.

The main challenge facing growth in Egypt is the rapid rise in population growth. The population growth rate in Egypt stood at 1.7% on a yearly basis and is still at around this level, with the working age population i.e. those belonging to the 16-64 age bracket growing at a slightly higher rate of 2.4% per year (World Bank 2012). With higher standards of living, lower mortality rates especially among newborns and an increased life expectancy from only 68 in 2004 to 70.68 years in 2012 (World Bank 2012), Egypt has been struggling even more with the problem of the fast growth in population.

Ever since the 1990s, Egypt has followed several liberalizing attempts to spur growth. The shift towards the services sector and the emphasis on external trade changed drastically the sectoral contribution to GDP growth. Agriculture, which used to be one of the main contributors to GDP growth in Egypt, has been falling ever since the 1990s to reach only 14.1% of GDP in 2006. This share grew afterwards to 14.5% of GDP in 2012 as a result of good weather conditions, yet it still captures the lowest investment of only 2.7% of GDP as compared to 9% and 11% for transportation and manufacturing respectively (AfDB, OECD, UNDP and UNECA 2012). Industry, petroleum and mining have the largest contributions to GDP in Egypt, while the services sector has been the key driver of growth.

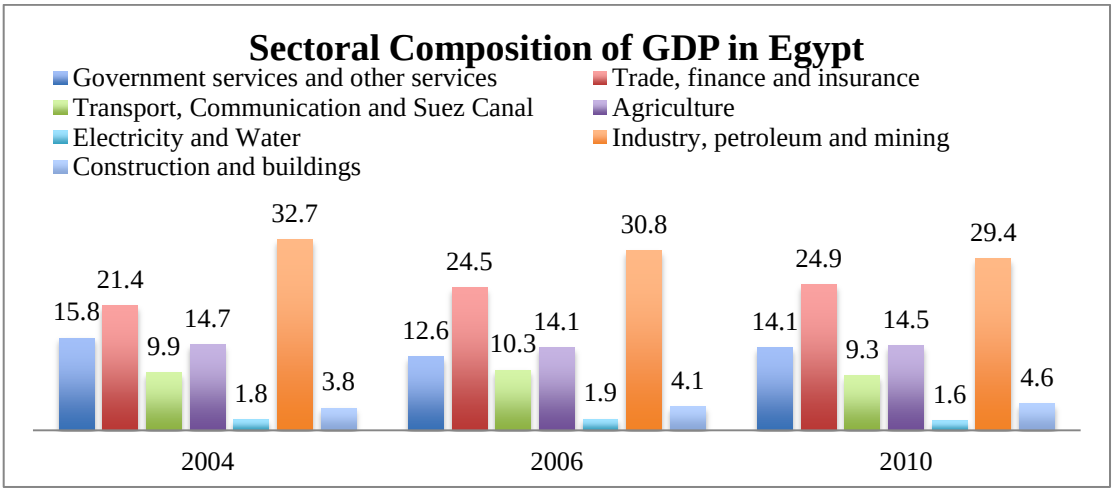


Fig. 32. Sectoral Composition of GDP in Egypt
Source: AfDB, OECD, UNDP and UNECA. (2012). "Tunisia." In: *African Economic Outlook 2012: Promoting Youth Employment*. OECD Publishing, 8.

The recent revolts in Egypt had a long-lasting effect on GDP growth. The tourism sector, which used to constitute 20% of GDP in Egypt, shrank by 26% from 2011 to 2012, and although it recovered from 2012 on, it is still 25% below the level achieved prior to the uprisings (AfDB 2013). It is worth mentioning that approximately 18% of the labor force in Egypt is employed in the tourism sector (AfDB 2013).

Fig. 33. Tourist Arrivals and Nights in Egypt (2011-2012)
Source: AfDB. (2013). "Egypt economic quarterly review". In: the African Development Bank's Country Office in Egypt, 3(1).

Remittances also play an important role in the case of Egypt. Egypt has the highest remittance rates in the world that reached $6 billion dollars in 2006 (Wahba 2007). Most of the growth that materialized in the aftermath of the uprisings was led by private sector, especially in the agriculture, manufacturing and tourism sectors. Public sector contribution to GDP growth was almost negligible, with a negative contribution from the extraction sector by -0.34% in 2012 (Central Bank of Egypt 2013). Moreover, political instability in the region in general and in Egypt specifically has had deteriorating effects on the country's FDI inflows, which are considered a major factor of growth for the Egyptian economy. As such, in the third quarter of 2011, FDI inflows recorded a negative rate of USD -0.2 billion, which continued to fluctuate due to the instability and change of regimes that followed this (AfDB 2013).

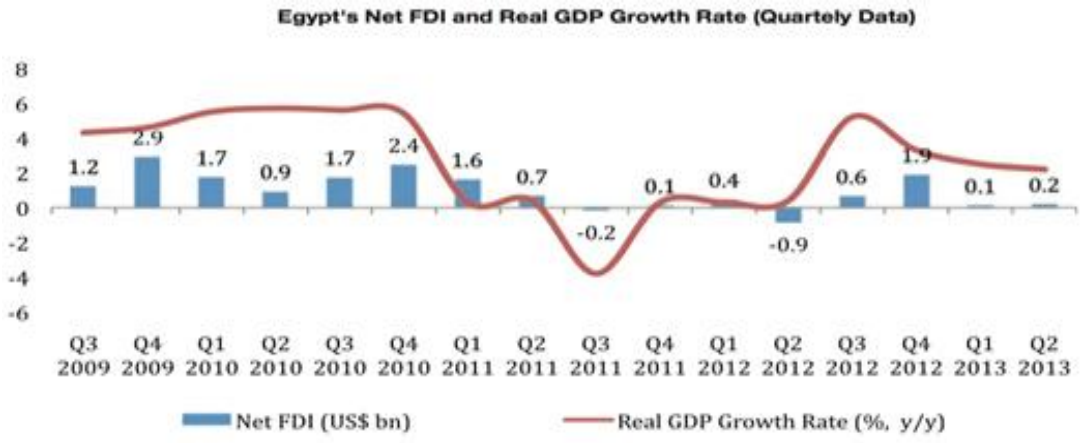


Fig. 34. Egypt's Net FDI and Real GDP Growth Rates (2009-2013)
Source: Source: AfDB. (2013). "Egypt economic quarterly review". In: the African Development Bank's Country Office in Egypt, 3(1).

With the continuing instability in Egypt, several questions are being raised concerning the future growth figures and whether such political unrest would have long-term effects on the main sectors of income, especially tourism, which not only acts as a

catalyzer of growth in Egypt but it is also a significant absorber of the Egyptian labor force.

According to the most recent employment survey in Egypt[13], 17% of the Egyptian labor force works in the tourism sector alone, while the services sector, which comprises tourism, financial services and public services, accounts for a total of 42%, which again points out to the importance of services not only in spurring GDP growth, but also as a potential employing sector (Assaad 2007). The agriculture sector in Egypt plays a significant role and based on 2006 estimates, 25% are employed in this sector. It is worth mentioning that the public sector still predominates the labor market, where 22% of Egyptians work in the public services sector (Assaad 2007). The other main sectors include manufacturing, construction and transportation. Because of the increase in the services sector in the previous decade, the percentage increase in the services sector from 1990 until 2007 has been the highest, especially within the housing and real estate services accounting for approximately 230% (Nassar 2011).

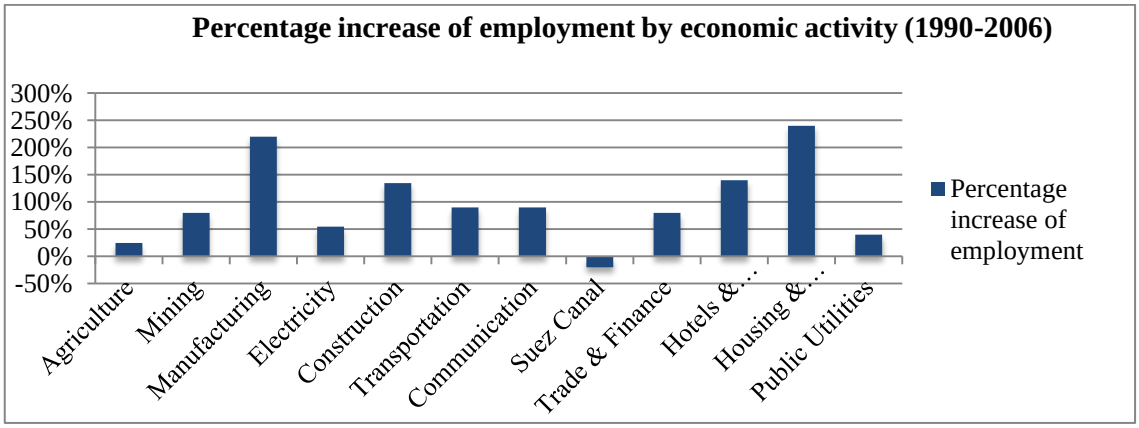


Fig. 35. Percent Increase of Employment by Economic Activity in Egypt (1990-2006)
Source: Nassar, H. 2011. "Growth, employment policies and economic linkages: Egypt". International Labor Organization: Employment Sector Employment Working Paper, 85.

[13] The most recent employment survey was conducted in 2008. No official detailed data on employment by sector or gender was provided after this date.

Female participation rates, especially in urban areas increased at an average rate of 7.9% per annum from 1998 until 2006 (Nassar 2011). In terms of educational attainment, only 13.7% of male workers have a university degree or above whereas 22.8% of female workers have tertiary education. The remaining shares of working individuals have much lower educational levels, with almost 30.1% of the total labor force being illiterate (Nassar 2011).

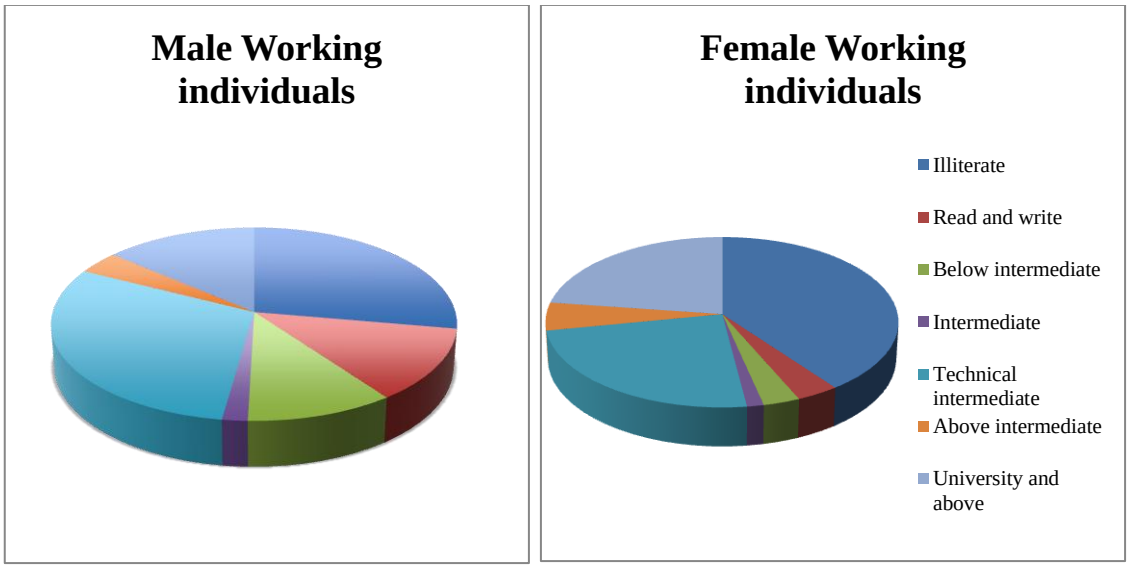


Fig. 36. Male and Female Working Individuals by level of education
Source: Nassar, H. 2011. "Growth, employment policies and economic linkages: Egypt". International Labor Organization: Employment Sector Employment Working Paper, 85.

Moreover, according to 2008 estimates, 52.8% of the unemployed had an intermediate technical background, while 31.7% had a university degree or above (Nassar 2011). Surprisingly, the lowest level of unemployment was among the illiterate with a corresponding unemployment rate of only 1.7%. In this context, skill polarization has been a major trend threatening the labor market in Egypt. During the past decade, there has been a considerable increase in the shares of employment of low skilled (e.g.

machinery operators) and high skilled positions (e.g. managers), while middle skill occupations (e.g. fishery and agriculture) decreased by 5.9% (Helmy 2012). This drift has been further reinforced by the wage structure in Egypt. From 2000 until 2009, wages specified for craftsmen, agriculture workers, technicians and clerks; have decreased by 9.3%, while those specified for other activities increased (Helmy 2012).

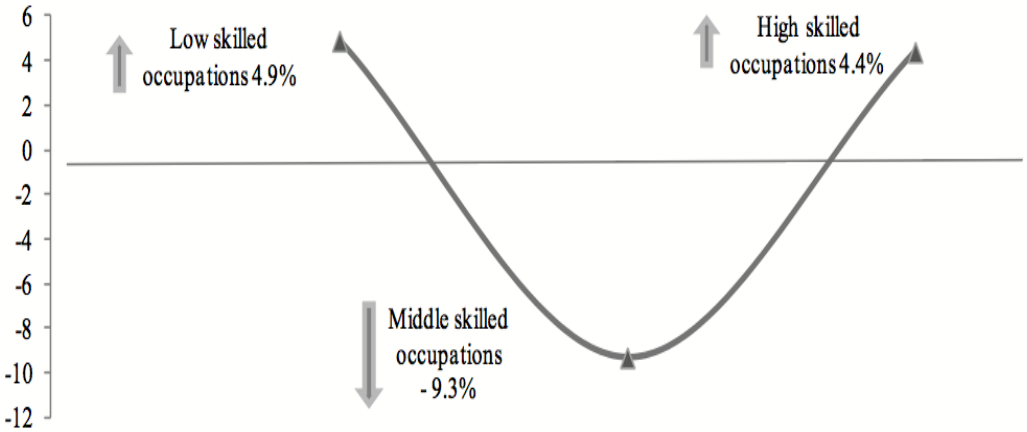


Fig. 37. Wages by Occupation in Egypt, 2011
Source: Helmy, O. 2012. "Skill demand polarization in Egypt". Economic Research Forum Working Paper Series, 168.

There is a need therefore to mobilize the demand for workers belonging to middle skilled occupations. Data shows that the manufacturing sector is the most vulnerable between all other sectors specifically because it has been shrinking over the past decade; the share of employment lost as a result of technological change alone increased by 5% from 2000 until 2009 (Helmy 2012). This can be explained by the fact that human capital development in Egypt is not only the worst in the region, but also followed a decreasing trend over the past decade (Reda 2012).

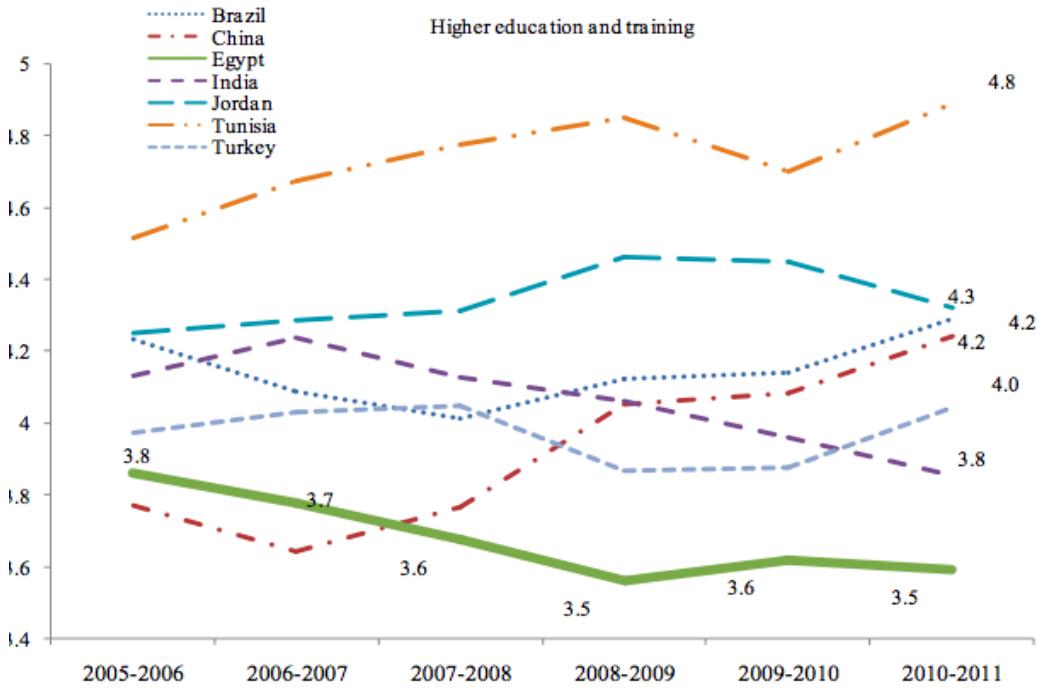


Fig. 38. Egypt Compared to Selected Countries in Higher Education and Training Indicators
Source: World Economic Forum and Reda, M. 2012. "Enhancing Egypt's competitiveness: Education, innovation and labor". Economic Research Forum Working Paper Series, 167.

In contrast to Jordan, the private sector in Egypt plays an important role in the Egyptian labor market. While the government still has a large share of the total employment capturing almost 25% of the total employed, the private sector nonetheless had a large share of 50% in 1990, which followed however a decreasing trend to reach only 22% in 2008 (Helmy 2012). Informal employment trends on the other hand were on the rise; private employment (outside enterprise) increased exponentially from a mere 15% in 1990 to reach a level as high as 48% in 2008. Reinforcing the role of the private sector as an absorber of the labor force while taking the appropriate measures to reduce informal employment should be one of the authorities' highest priorities.

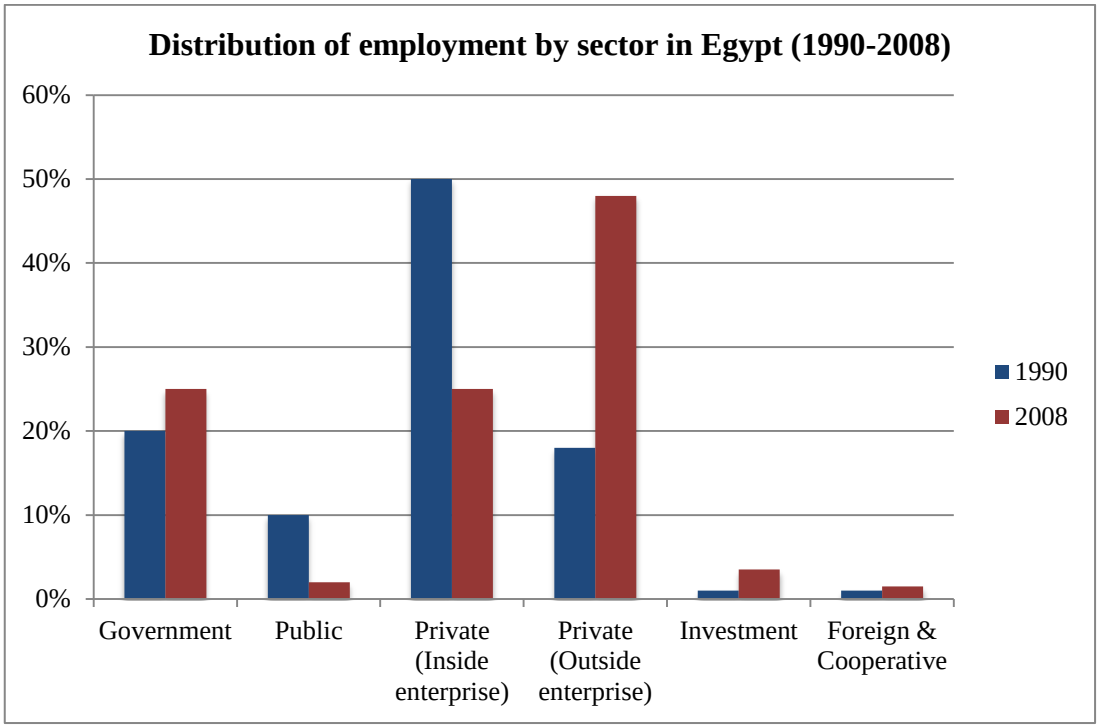


Fig. 39. Distribution of employment by sector in Egypt (1990-2008)
Source: Reda, M. 2012. "Enhancing Egypt's competitiveness: Education, innovation and labor". Economic Research Forum Working Paper Series, 167.

The most basic step in attempting to reinforce the private sector is to investigate the key sectors operated privately, and what are the skills demanded accordingly. Almost 96% of workers in the communication and information services are employed in the private sector, in contrast to only 19% of workers in the electricity sector (Reda 2012). The figure below highlights the importance of the private sector as a potential employer in Egypt. More importantly, it is noticeable that middle-skilled occupations are highly demanded by the private sector. Therefore, enhancing the efficiency and the existence of the private sector could contribute to a higher absorption of new entrants to the labor market.

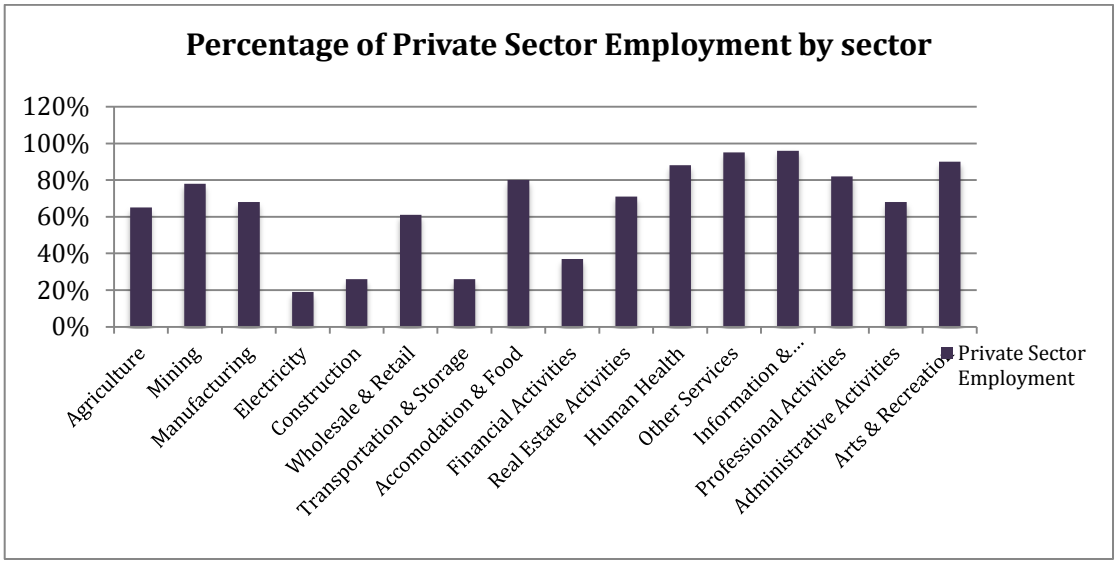


Fig. 40. Percentage of Private Sector Employment by Sector, 2012
Source: Sieverding, M. (2012). "Female disadvantage in the Egyptian labor market: A youth perspective". *SYP Policy Brief* (4).

The public sector acts as the most attractive employer for female workers in Egypt, especially those who are married. By 2012, whereas 10% of males were engaged in the public/government sector, 37% of employed females are in the public/government sector with only 12% engaged in formal private services (Sieverding 2012). The social security and compensation benefits combined with shorter hours of work might explain such concentration in the public sector. It is however reported that poor conditions that predominate the private sector are another factor to blame. According to recent studies, the lack of respect and trust in the private sector in Egypt that females often face is a major reason why they usually choose to engage in the public sector. Moreover, the fear of sexual harassment accompanying "being alone" in the office is another reason. The most recent employment survey (ELMPS06) shows that approximately 92% of females employed in private establishments work in small offices that have less than 10 employees in total (Barsoum, Rashed and Hassanien 2009).

Rigidities in the labor market in Egypt need to be also addressed. Hiring and firing policies are to be adjusted in order to ease these rigidities. According to the Global Competitiveness Report, Egypt's rank in terms of hiring and firing regulations was 79 out of a total of 139 countries. Moreover, firing costs are extremely large in Egypt and it ranked the 129th (Ehab 2012). As shown in the figure, the notice period pay following a dismissal is one of the highest in the Arab World, reaching 10.1 weeks of salary, which is highly generous in this case.

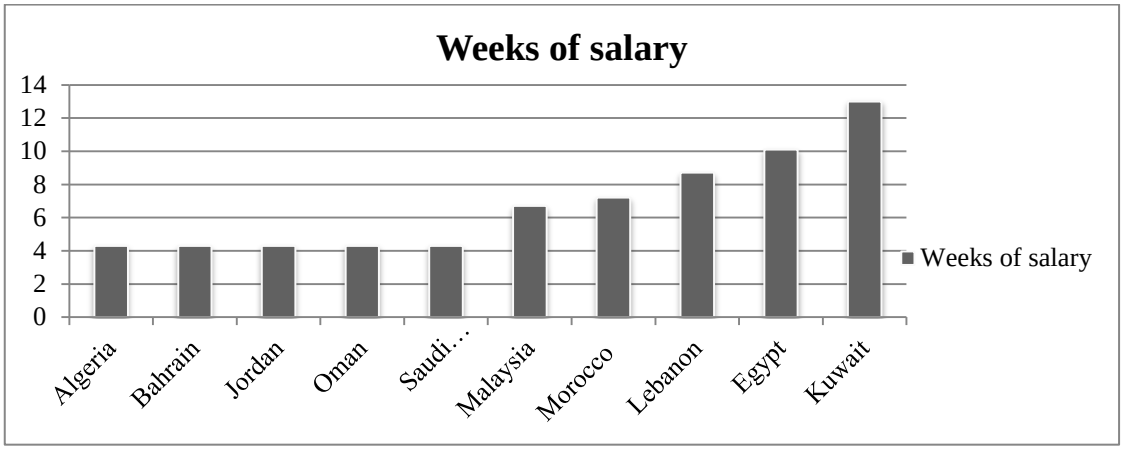


Fig. 41. Weeks of Salary following Dismissal in Selected Arab Countries, 2012
Source: Ehab, M. (2012). "Labor market flexibility in Egypt: With application to the textiles and apparel industry". *Economic Research Forum Working Paper Series*, 170.

Whereas the private sector in Egypt is considered to be an important employer, Egyptian workers still prefer to engage in the public sector. Not only because of shorter hours of work and social pensions, but also because the private sector requires many adjustments, especially when it comes to female workers' treatment in the workplace. Moreover, rigidities in the labor market need to be adjusted to allow more space in terms of hiring and firing, and hence, creating some space to boost future employment opportunities.

3. Morocco

Morocco is one of the few African countries that enjoyed a sustained and good performance of GDP growth in the previous decade. It was able to maintain a balanced GDP growth as compared to the 1990s period that witnessed sharp volatility in terms of the overall growth figure. The agriculture sector in Morocco is the primary one, but its outcomes highly depend on weather conditions such as insufficient rainfall or droughts. In 2002 for instance, the agriculture sector constituted 16% of total GDP, and had the highest contribution to GDP by value (AfDB and OECD 2004). Other sectors that are considered key drivers of growth are manufacturing, tourism and the services sector. Morocco's main exports are agricultural and fishery products, textile apparel and inorganic chemicals and its main trade partners are the European Union and the United States (International Trade Center 2012).

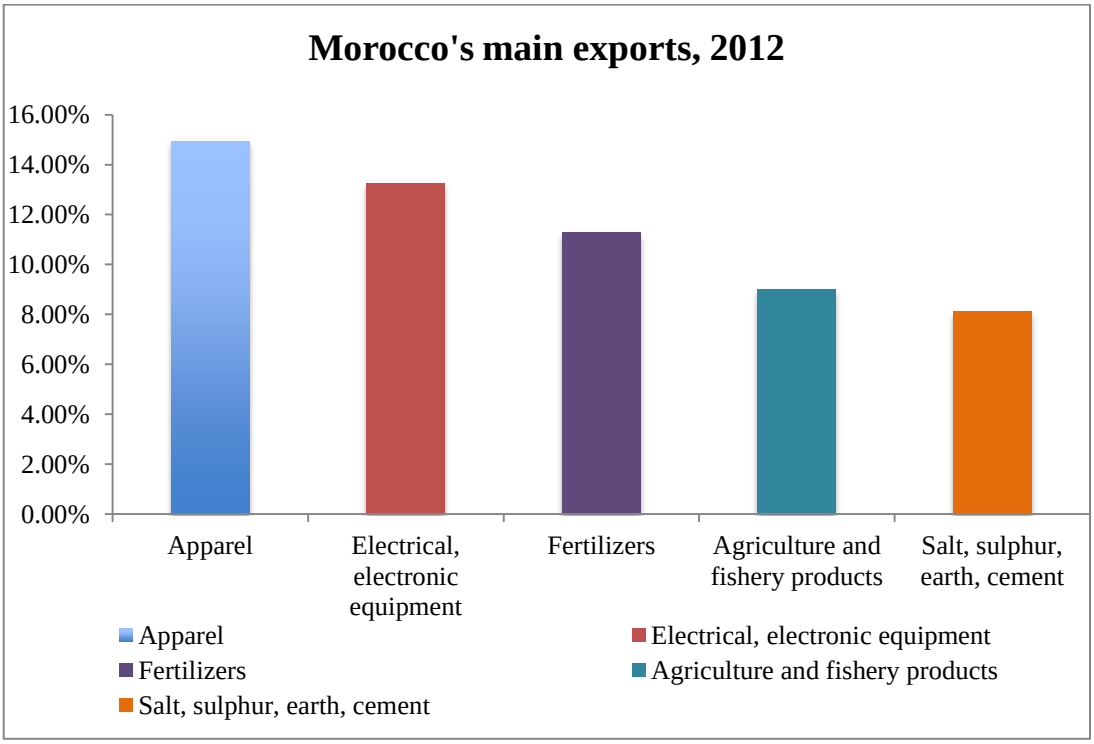


Fig. 42. Morocco's Main Exports, 2012
Source: International Trade Center 2012.

It must be noted that Morocco lacks diversification in its exports, and the main sources of growth, which are mostly concentrated around apparel, tourism and agriculture are highly volatile. Not only droughts and weather conditions are one source of volatility, but also political turmoil or low raw material prices affect growth drastically. In 2012, as a result of the political instability in neighboring countries, tourism growth as percentage of GDP growth declined from 19% in 2011 to a mere 7.7% (Ruggles-Brise and Aimable 2012).

What's peculiar about Morocco as compared to other countries in the region is that agriculture still plays a significant role in spurring GDP growth. The agriculture sector's share of GDP remained fairly stable over the years, while the services sector on the other hand followed an increasing trend.

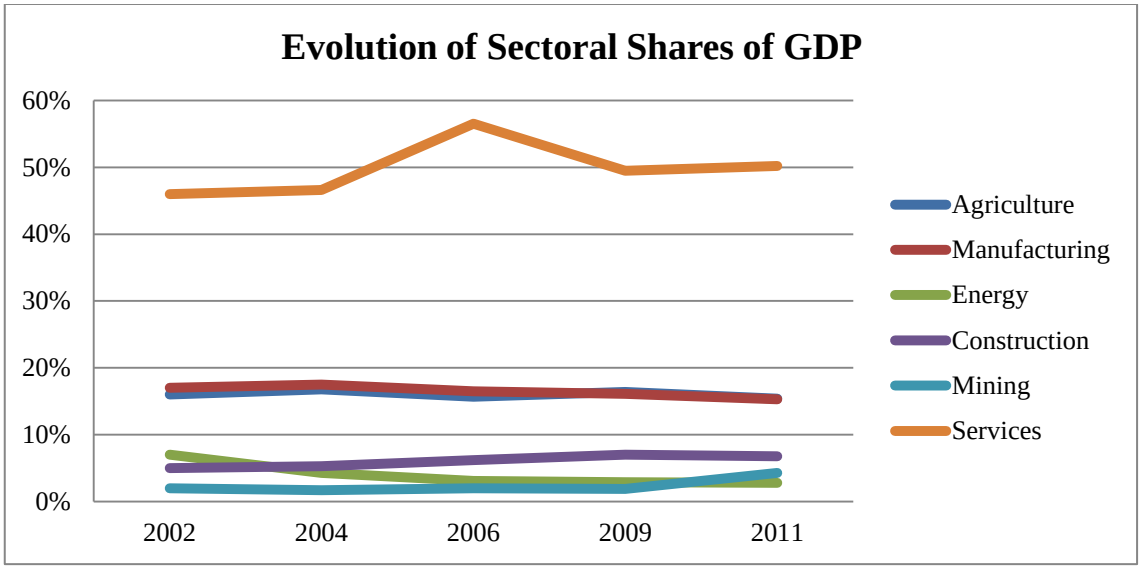


Fig. 43. Evolution of Sectoral Shares to GDP in Morocco (2002-2011)
Source: AfDB 2012.

In an attempt to increase investments, Moroccan authorities promulgated a law in 1995 that allows foreigners without limitations on nationality or business type to

invest freely in the country without asking for an authorization. Moreover, increasing FDI inflows was the main goal behind the establishment of the Moroccan Investment and Development Agency in 2009 (Banque Africaine de Développement 2012). According to the World Investment Report, Morocco's FDI inflows in 2012 were among the highest in the African continent reaching a level as high as $2.84 billion, which represents an increase of 10.5% from 2011. Throughout the previous decade, most of the FDI inflows were targeting the telecom and services sector with a share of 25% and 41% of total FDI inflows respectively. Although Moroccan authorities tried to enhance the industry in the country, the sector only captured 19% of total FDI inflows (Banque Africaine de Développement 2012). Two key factors are behind such moderate performance of the industrial sector: high production costs, mainly because of the high bill of imported fuel and oil, and low local demand combined with several bureaucratic processes that all lead towards a constrained industrial export production. To further stimulate investments, ongoing negotiations are currently being developed between Morocco and the European Union to introduce the Deep and Comprehensive Free Trade Agreement (World Investment Report 2012).

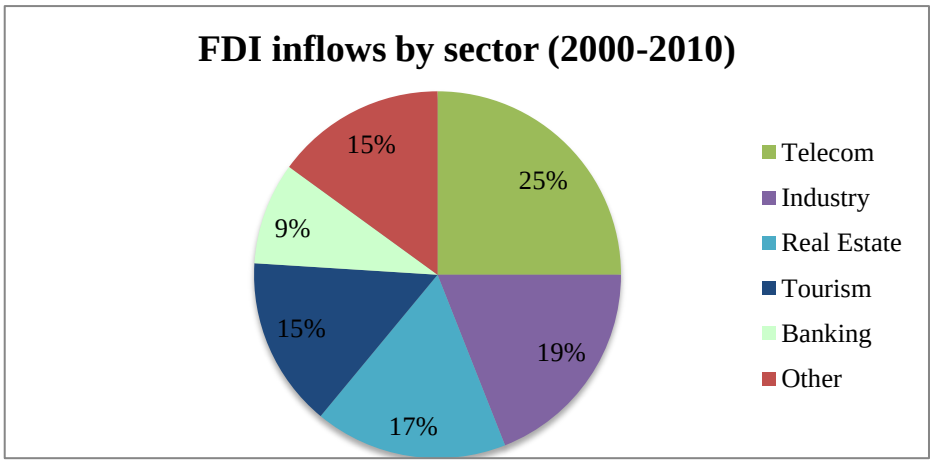


Fig. 44. FDI inflows by sector in Morocco (2000-2010)
Source: MIDA 2011.

Despite these developments, Morocco has the lowest literacy rate in North Africa estimated around 56.1% only. Furthermore, there exists a huge discrepancy between female and male literacy rates, as depicted by the figure below.

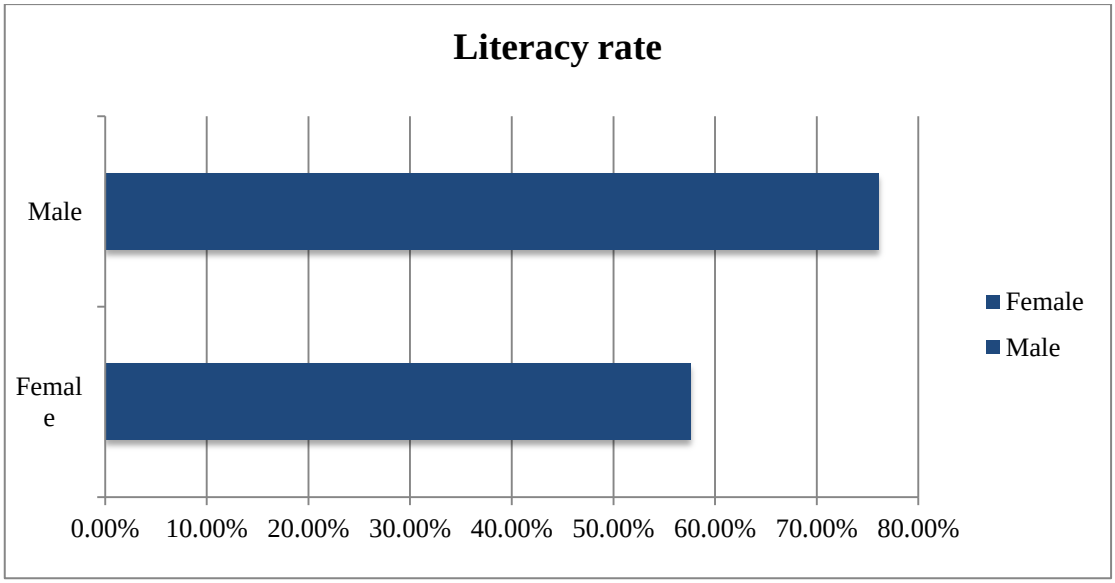


Fig. 45. Literacy Rates in Morocco (15-64 years)
Source: UNESCO 2011.

Morocco also has a very low average of years of schooling of 7.5 years, only higher to that of Yemen, with 7 years of schooling (UNESCO 2011).

Low levels of literacy are reflected in the distribution of employed in the labor market. According to 2011 estimates, 32.4% of the employed are illiterate, whereas most of those employed have primary education and only 8% have achieved tertiary education (HCP 2011).

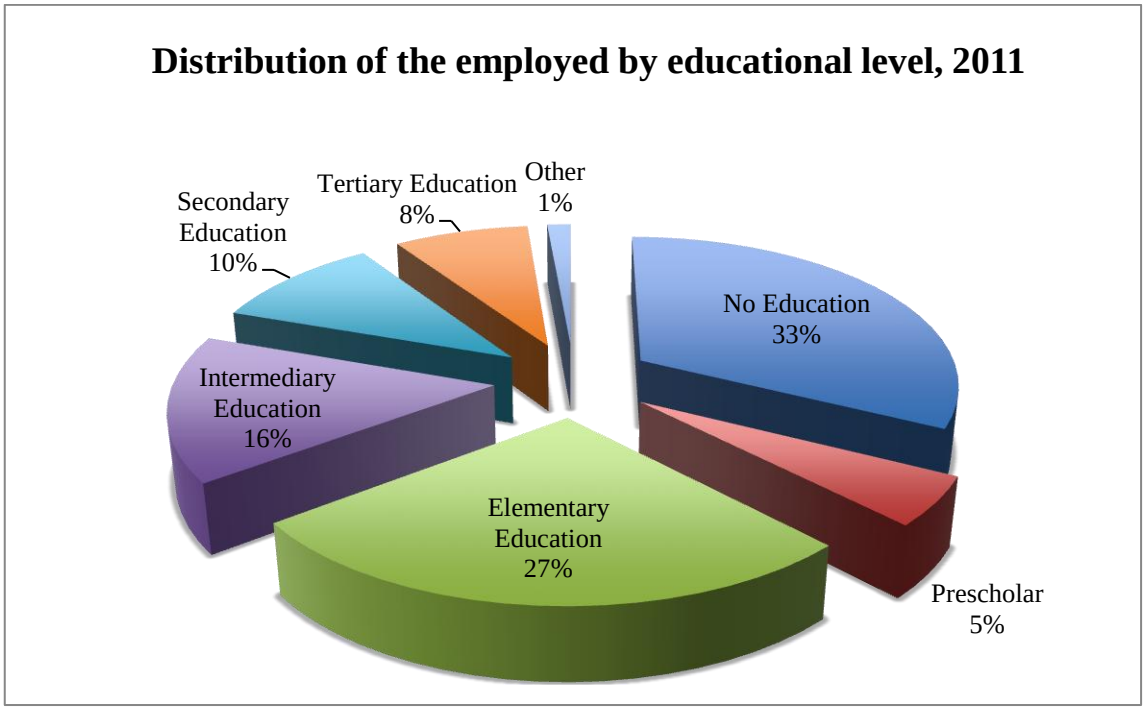


Fig. 46. Distribution of the employed by educational level in Morocco, 2011
Source: HCP 2011.

Sectoral composition of the labor force shows that 39.8% are employed in the agriculture sector - which is the highest share, followed by 38.3% in the services sector. 94.2% of rural female workers are engaged in the agriculture sector, and only 2.7% work in the services sector. The story for male workers in the rural area is also similar to this, where the highest share of employment is that of agriculture. In urban regions, the services sector takes the lead, where 65.7% of females and 62.2% of males work in this sector (HCP 2011). It must be noted that only in the construction sector, the number of male workers outweighs that of the females. On the other hand, total females working in the agriculture and industry sectors is greater than that of males, indicating that in contrary to Jordan and Egypt, there exists no evident gender discrepancy.

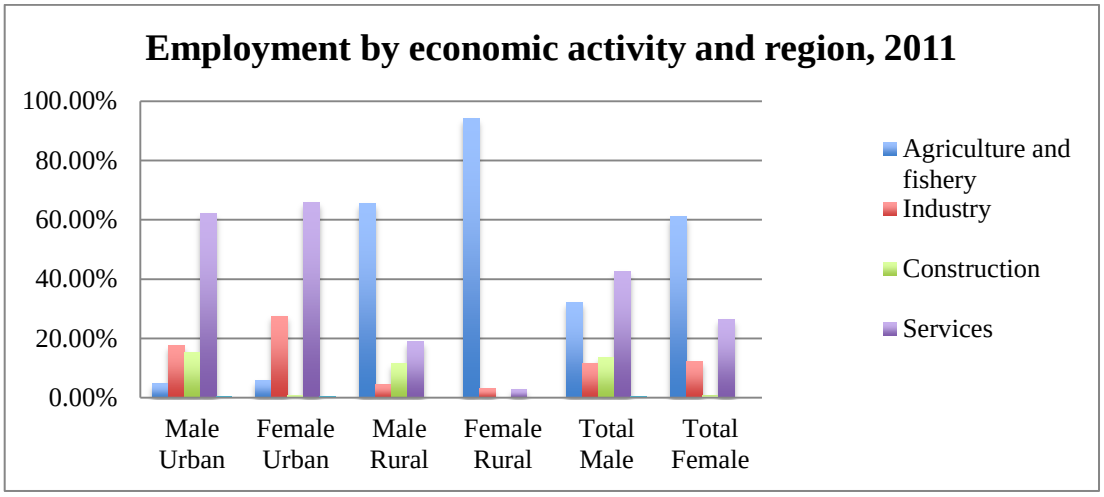


Fig. 47. Employment by Economic Activity and Region, 2011
Source: HCP 2011.

The Moroccan labor market has however a key similarity with that of Egypt, which is the vital role of the private sector. The public sector in Morocco is not perceived as the primary employer, especially for female workers. In urban areas, 71% of females work in the private sector as compared to only 21.5% in the public sector. In rural areas, this feature is more apparent, where 99.2% of females work in the private sector.

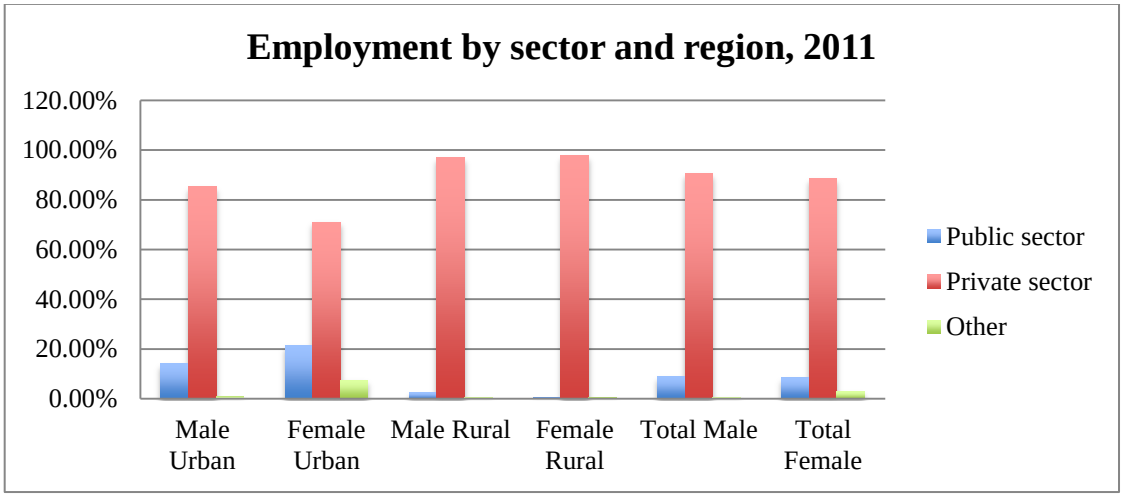


Fig. 48. Employment by Sector and Region, 2011
Source: HCP 2011.

Another feature of the Moroccan labor market is that unemployment is an urban phenomenon. This is so because the unemployment rate in urban areas estimated at around 13.4% is less than that in rural areas, which is only 3.9%. This is mainly because the major sector in rural areas is that of agriculture, and doesn't require any high qualifications or a good educational level (HCP 2011).

The unemployment problem in Morocco is mostly of a persistence nature[14], where persistent unemployment in urban areas accounts to 69.2% and 48.6% in rural areas (HCP 2011). Moreover, those who have a university diploma or equivalent are more prone to long-term unemployment than those who have a lower level of education. The estimated period of unemployed for those with tertiary education is around 24 months for males and 30 months for females as compared to only 6 months and 8 months for those who don't have a diploma. Although the level of unemployment has decreased recently, studies have found that this was primarily because of the decrease in the unemployment of males of -4.3%, while that of females has increased by 7%. Moreover, participation in the labor market is principally concentrated around main cities such as Casablanca and Rabat, which highlights the problem of regional inequality.

As mentioned beforehand, the private sector in Morocco plays a very important role. The private sector in Morocco is dominated by SMEs, which provide more than 50% of jobs in this sector (Benson and Al Arkoubi 2006). Belahrach (2010) praises the role of SMEs in being a vital element in the labor market, yet he warns against their lack of transparency and at some times, the possibility of not complying with international labor regulations. Such structural issues need to be highly addressed by the

[14] Based on ILO definition, persistent unemployment is defined as the unemployment that lasts for a period greater or equal to 1 year.

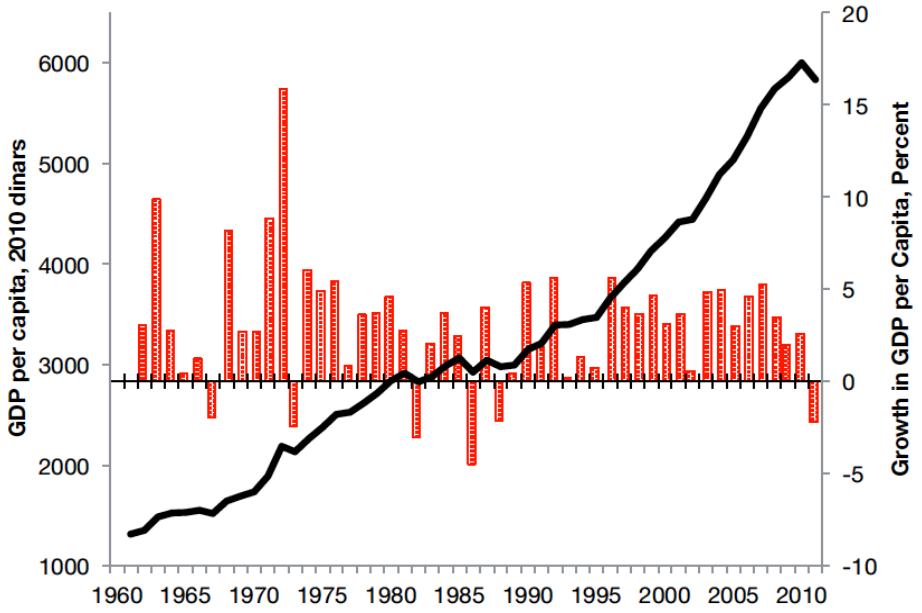
Moroccan government.

The wage bill needs to be highly tackled in Morocco, especially that the country is suffering from a chronic budget deficit, and most public finances are wasted on energy-subsidized products. The Labor Law of 2003, that's still in effect to this date, promulgates a minimum wage of approximately $421/month, with an average of $436 received by male workers and only $307 received by females, indicating discrepancy among the different genders, not in terms of participation in the labor market, but rather in the wages they get (Ulandssekretariatet 2013). It must be noted that at a rate of $421, this minimum wage in Morocco is higher than the average minimum wage in the North African sphere that stands at approximately $276/month.

Regional inequality needs to be addressed in Morocco, given the fact that most of employment opportunities in sectors other than agriculture are only concentrated in big urban cities, which has been creating a phenomenon of "urban unemployment" over the past decades. Literacy rates and reinforcing education should be the government's priorities, while enhancing transparency within the private sector given the significant role it plays in fostering growth as well as employment opportunities.

4. Tunisia

Tunisia's growth picture is not much different than that of Morocco or even Egypt. The structural reforms Tunisia chose to embark on since the 1990s have turned the country that once relied on agriculture and mining as its main growth triggers into one that has an export leading profile. Prior to the recent revolution, Tunisia's macroeconomic performance was one of best in the African continent.



Source: World Development Indicators and Tunisian National Institute of Statistics.

Fig. 49. Per Capita GDP Growth in Tunisia (1960-2010)
Source: TNS and AfDB 2011.

Tunisia realized early the necessity to increase its economic integration and competitiveness on a global scale; as a result it became one of the first countries to have an Association Agreement with European countries in 1995. Such agreement not only aimed at eradicating tariff barriers between the two, but also increased the Tunisian proximity to the Euro zone, whether on the economic or the political level. Although this intended to improve Tunisia's exports portfolio and increase its participation internationally, it also meant that Tunisia would be more exposed than other countries in the region to shocks affecting the European Union.

France is the major trading partner of Tunisia, followed by Italy, Germany and Spain.

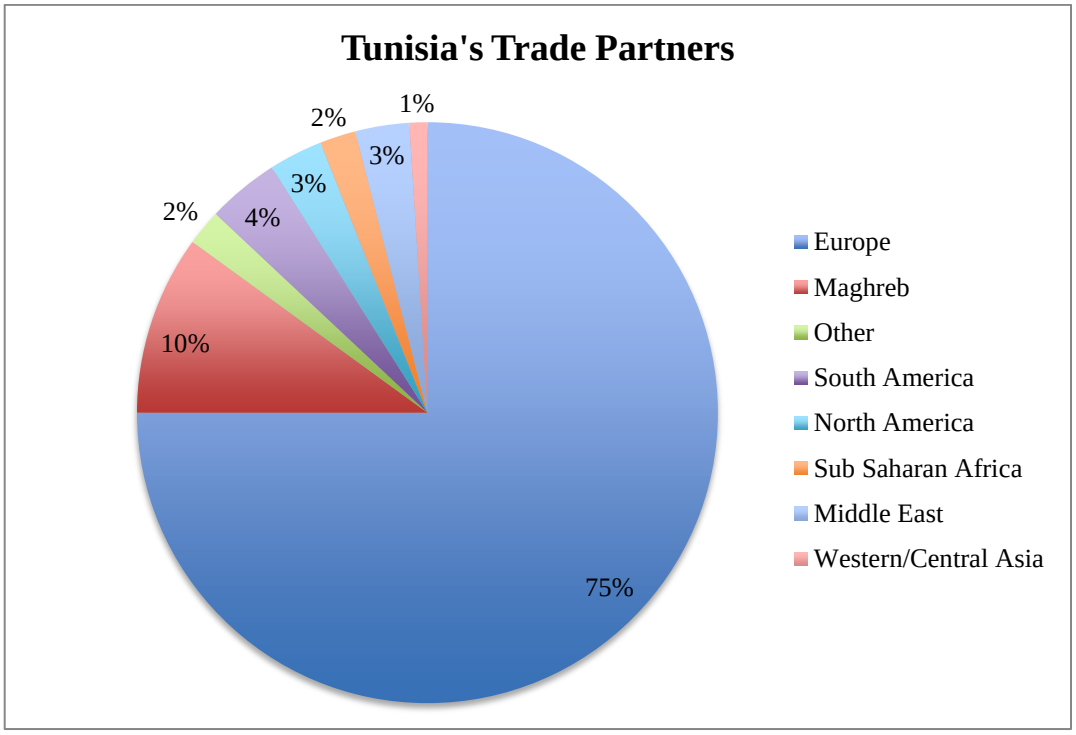


Fig. 50. Tunisia's Main Trade Partners
Source: UNCTAD 2011.

While Tunisia's main exports are optical fibers, agricultural products and textile, it mainly imports manufacturing goods. Tunisia has a fairly moderate level of crude oil reserves, and relies mostly on agriculture, manufacturing, tourism and services. Good weather conditions improved the agriculture sector, which constituted in 2004 around 15% of GDP growth (AfDB and OECD 2004). In an attempt to increase international competitiveness, the Tunisian government initiated series of programs aimed at developing the industrial sector. Despite combined efforts, the manufacturing sector remained quite limited. The increasing growth rates were mainly attributed to the upsurge in tourism and services levels (AfDB and OECD 2012).

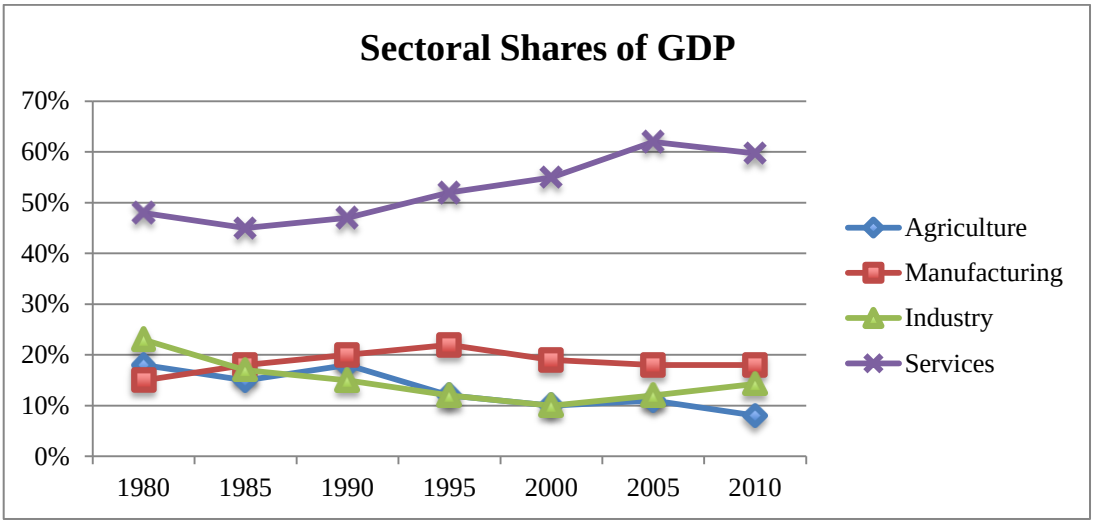


Fig. 51. Evolution of Sectoral Shares to GDP in Tunisia (1980-2010)
Source: AfDB and TNS 2011.

Tunisia has a modest level of oil reserves, but due to an increase in domestic demand, Tunisia shifted from being a net exporter of oil to a net importer starting 1995.

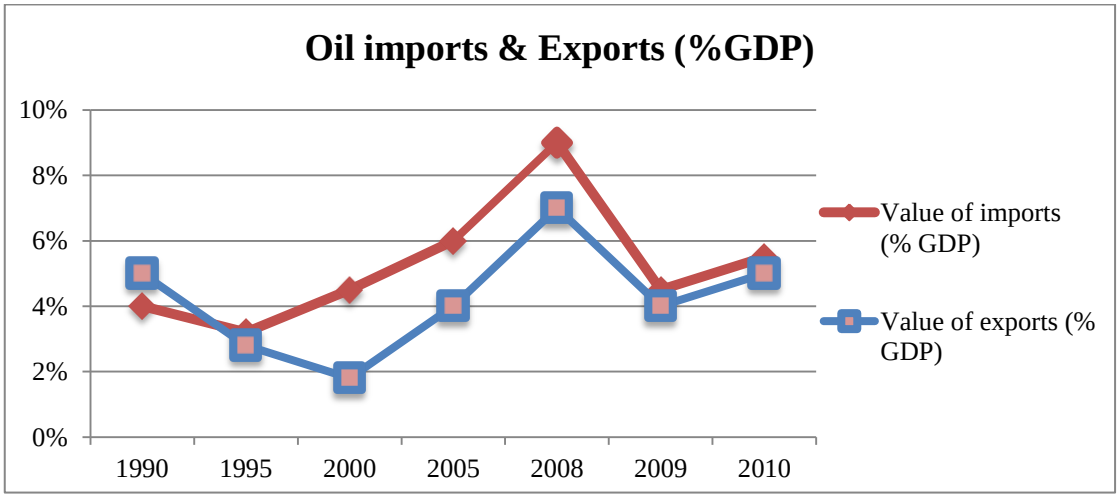


Fig. 52. Oil Imports& Exports in Tunisia (% GDP) 1990-2010
Source: AfDB and TNS 2011.

The removal of protectionist measures threatened the textile industry in Tunisia, which constituted a major export source, as it had to compete with Chinese

fabric products. As a result, the clothing industry tightened by 2.5% in 2005 (AfDB and OECD 2010).

Due to volatility in international prices inflation increased to 4.15% in 2006, but the Central Bank was able reduce inflation levels to 3.45% in 2007 by following a restrictive monetary policy and gradually making the exchange rate more flexible. This sound economic stance allowed Tunisia to sign the Free Trade Zone Agreement in 2008, and attested its vigorous ability to defy shocks and difficulties.

The proximity to Europe made Tunisia very vulnerable to external shocks, and the effects of the EU debt crisis are obvious by looking at the downward trend of real GDP growth starting 2008. In fact, real GDP growth decreased to 3.11% in 2009 and only recovered slightly in 2010.

Unemployment rates however stagnated at 13% by the end of 2010, and were among other things, the main reason behind the Jasmine revolution that occurred in January 2011. Directly after the revolution real GDP growth deteriorated to an unprecedented negative level of -1.937%, combined with a further increase in public debt and deficit. Whereas the growth rates rose again in 2012 and 2013 to 3.6% and 4% respectively, the problem of debt and deficit continued to surface the economic turmoil.

It must be noted that the revolution magnified other problems already present, especially that of unemployment. Unemployment levels soared to 18.3% in 2011, and only a small decrease was realized in 2012 and 2013, leaving the task of creating job opportunities a very difficult challenge to both present and future authorities.

The problem of youth unemployment specifically is thought to be one of the main reasons behind the uprisings. This is due to several institutional causes but demographic pressures on the labor market also play an important role in aggravating this problem. The population in Tunisia has been growing over the last decade by a

yearly average of 1%, and is further increasing to reach approximately 1.14% by May 2011, with 66.6% of the current population belonging to the 15-59 age bracket (TNS 2012). Education in Tunisia is ameliorating, yet there still exists a high illiteracy rate especially among females. In 2004, the illiteracy rate for females was 31%, and declined to reach 25.9% in 2011 (TNS 2012). This is reflected in the low participation rate of females in the labor market. The percentage of female to male employment in Tunisia is one of the lowest worldwide, and hasn't been improving over the years.

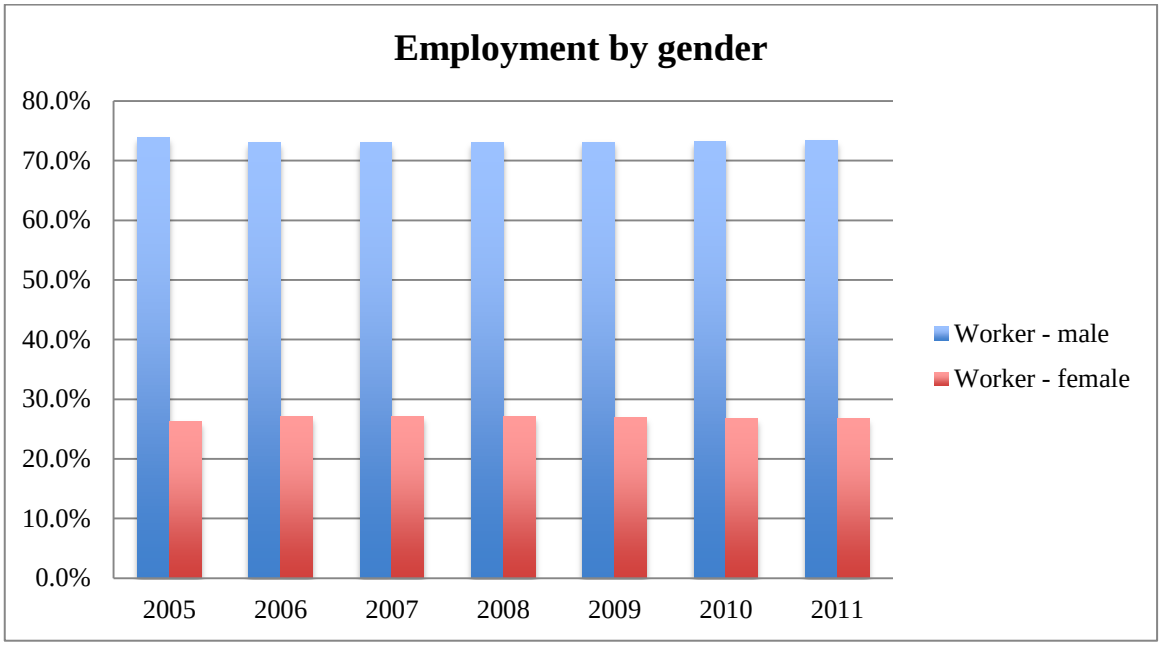


Fig. 53. Employment by Gender in Tunisia (2005-2011)
Source: TNS 2012.

Just like the three other Arab countries, higher educational attainment does not seem a pre-requisite to higher employment rates. In fact, those with tertiary education and above had an employment rate of only 16.9% in 2011, only slightly higher to those who have no formal education of any sort.

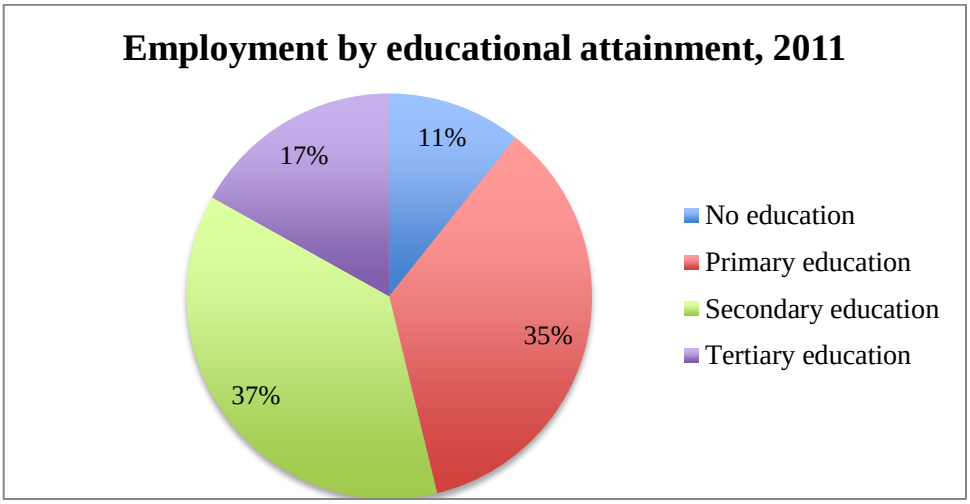


Fig. 54. Employment in Tunisia by Educational Level, 2011
Source: TNS 2012.

In terms of sectoral composition, the services sector has the most significant role in absorbing the labor force in Tunisia. The agriculture, mining and construction sectors have the lowest employment shares. Whereas one would expect such result for Jordan mainly because of its climate and geographical location, the agriculture sector has been on decline over the past decade in Tunisia, despite the country's favorable climate conditions, especially on the coast.

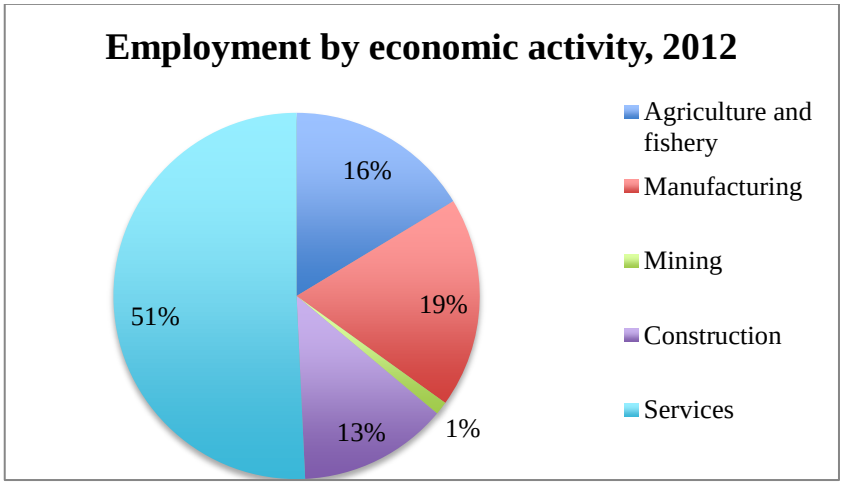


Fig. 55. Employment by Economic Activity in Tunisia, 2012
Source: TNS 2013.

The public sector in Tunisia plays a vital role and is still regarded as the primary employer, just like Jordan. The difference is that in Tunisia, the higher the education level one has attained, the more likely they will end up working at the public sector and not at the private one with the exception of those who have an engineering degree. For instance, 48.6% and 56.7% from those who have a master in hard sciences and a degree in medicine or pharmacy respectively work in the public sector. The same is true for all other degrees, with the only exception of those majoring in economics, management or law (Stampini and Verdier-Chouchane 2011). It should be noted however that most of those who only have a secondary degree or less are mostly employed by the private sector, whereas those with far higher educational level are only employed in small numbers there. For instance, only 25.3% of those who have a PhD are employed in the private sector as compared to 47.7% n the public sector (LFS 2007).

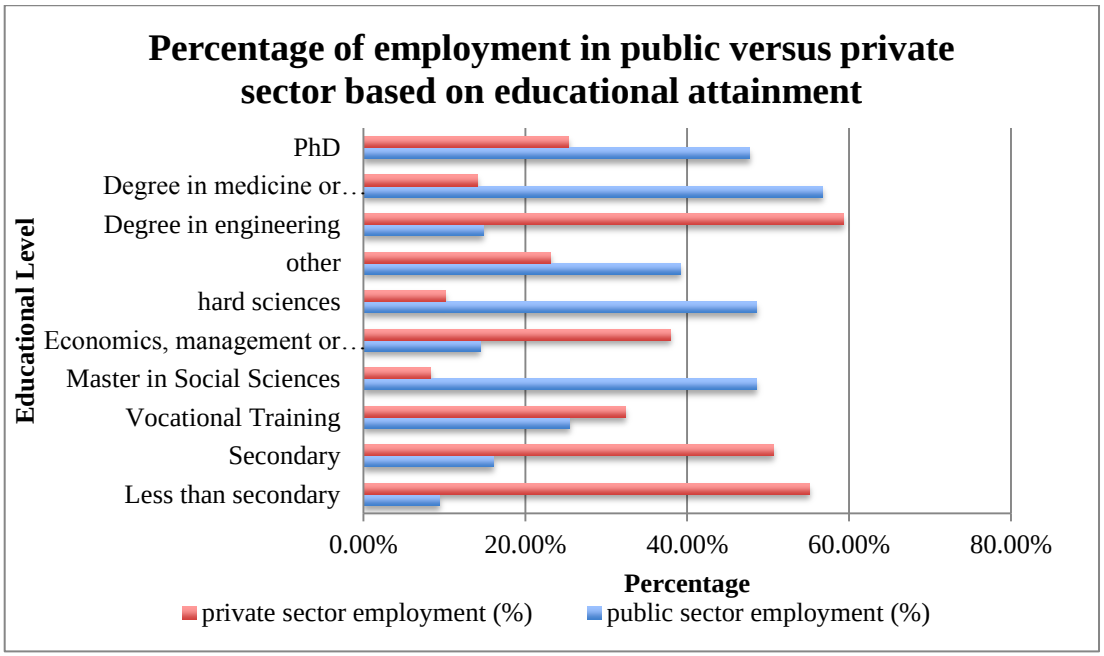


Fig. 56. Percentage of Employment in Public Sector Vs. Private Sector based on Educational Attainment in Tunisia, 2007
Source: Labor Force Survey 2007.

Similarly, the public sector has certain notoriety for female workers in terms of preferences, where 18.4% of females were employed by the public sector as compared to only 12% of males (LFS 2007). It must be noted however that following a series of reforms and trade agreements, the Tunisian government almost privatized all industries it once owned - except for banks that are still largely publicly owned – and hence this implies that the ability of the public sector to provide as many job opportunities as before has decreased, and currently contributes to only 8-10% (Achy, Malki and Rhmani 2010).

The problem currently facing Tunisia is the inability to create jobs just enough to absorb the new entrants to the labor force. With the rise of literacy rates and education levels, unemployment among skilled or those having tertiary education and above has been rising on a fast rate at an approximately 10% yearly average. This problem was negligible before the 2000s, but while the authorities failed to create job opportunities specific for the educated, unemployment has been increasing continuously, whereas that of the unskilled has been decreasing (Achy, 2011). It was also found in the Labor Force Survey of 2006 that graduates with postsecondary education have much higher unemployment duration than those with a lower level or even without any education at all[15].

[15] The duration of unemployment for university graduates is estimated around 30 months in contrast to only 19 months for non-graduates.

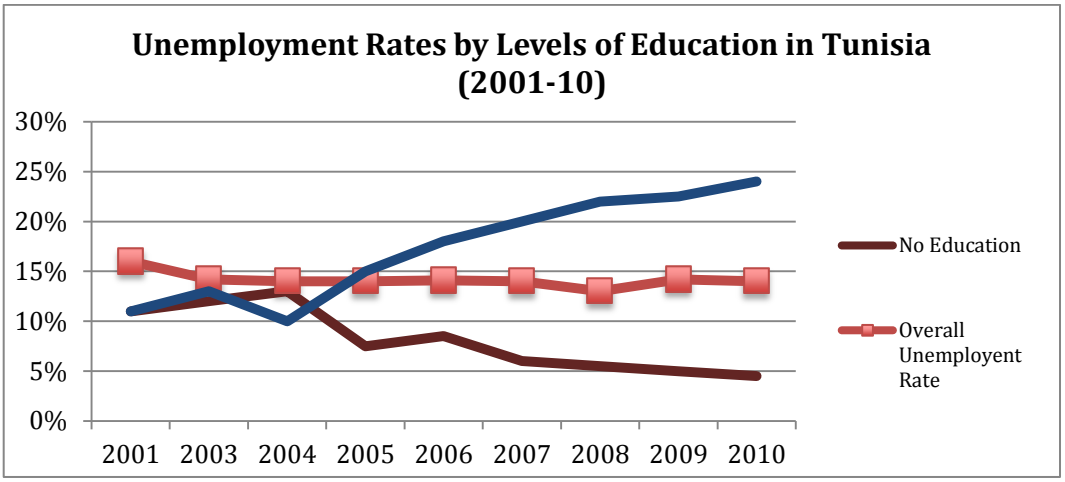


Fig. 57. Unemployment Rates by Levels of Education in Tunisia (2001-2010)
Source: Statistiques Tunisie, 2011.

If we decompose the unemployment rate among the educated even further, we find that the unemployment rate for females with tertiary education has been growing at a larger rate than that of males. For instance, in November 2011, the rate of unemployment for females with tertiary education stood at 45%, while that of males stood at a much lesser rate of 22.6% (TNS 2013). The trend of growth in unemployment has been on a steady increasing trend however.

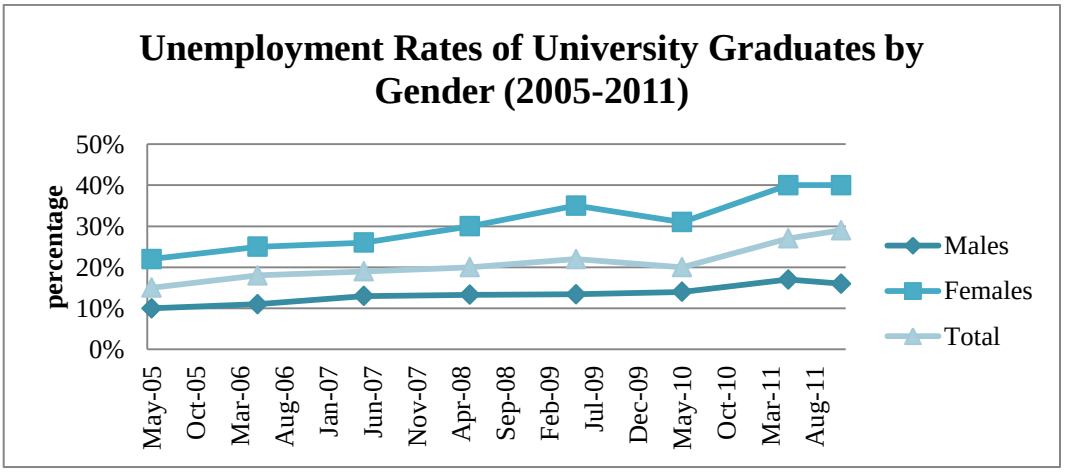


Fig. 58. Unemployment Rates of University Graduates by Gender in Tunisia (2005-2011)
Source: TNS 2012.

Furthermore, the choice of university major is another factor highly affecting the unemployment situation in Tunisia. Interestingly enough, those holding a Bachelor of Science in topics like math, physics…etc. find themselves more prone to unemployment than those with a bachelor in humanities or social sciences (TNS 2012). The highest rate of unemployment remains among those holding a technical degree, reaching a level as high as 43.1% in May 2011.

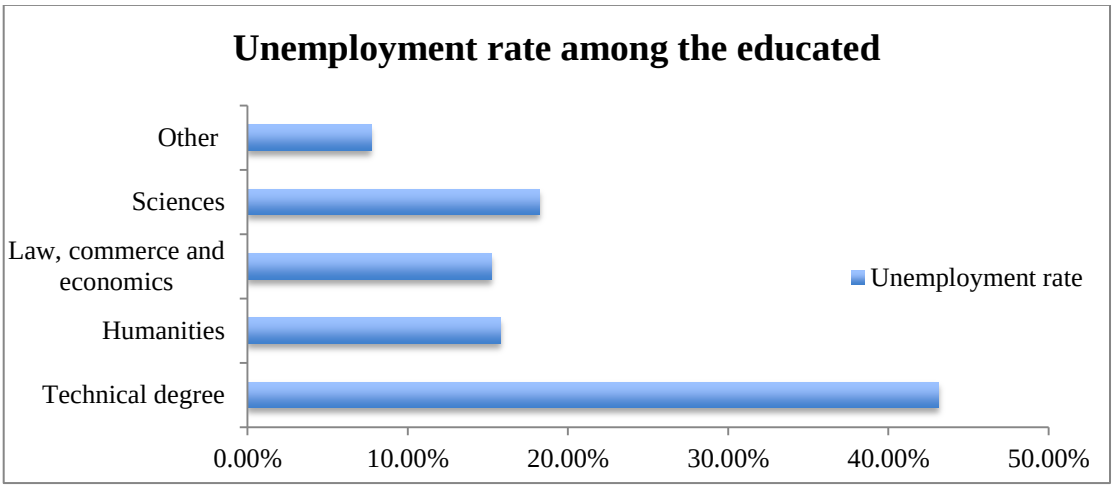


Fig. 59. Unemployment Rate in Tunisia according to the University Major, 2011
Source: TNS 2012.

The quality and conditions of the jobs available are also factors that need to be addressed by the Tunisian authorities. According to 2011 estimates, 44% of the total employed work full-time jobs in companies without signing any contract, which is especially high for males in comparison to females (TNS 2012).

Unemployment across the different regions is another feature to be investigated in the labor market in Tunisia. As expected, unemployment rates in rural/least-favored areas are much higher than those in the capital Tunis or even all the regions on the northern side of the country (TNS 2013).

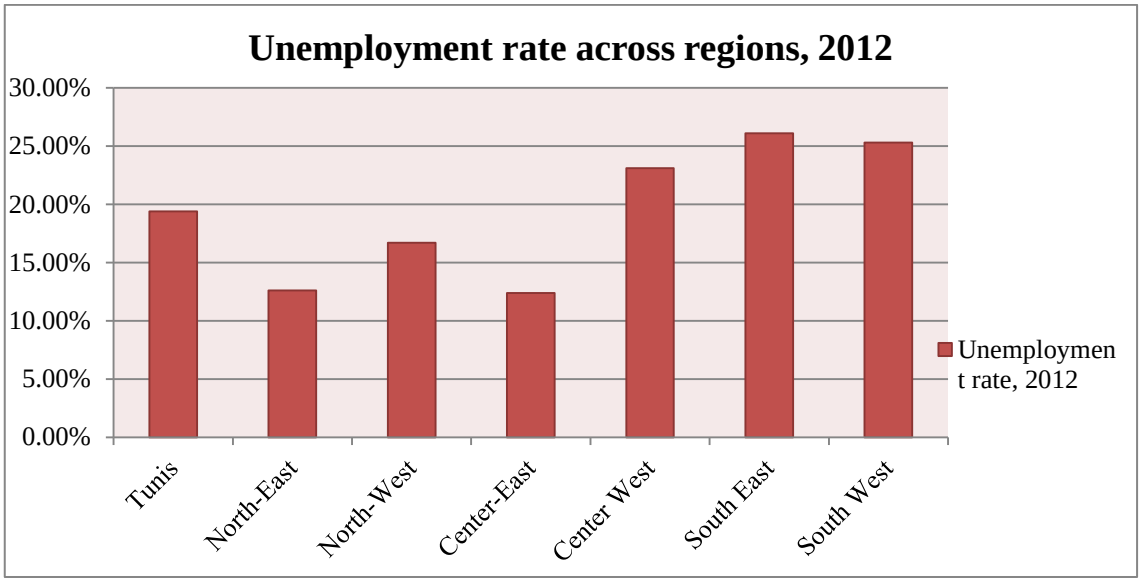


Fig. 60. Unemployment Rate across Tunisian Regions, 2012
Source: AfDB and TNS 2013.

These results go in line with poverty and inequality figures in Tunisia, where the three regions that happen to have the highest unemployment rates (Center west, South east and South west) also have the highest poverty rates (The African Development Bank, The Government of Tunisia & The Government of the United States 2013).

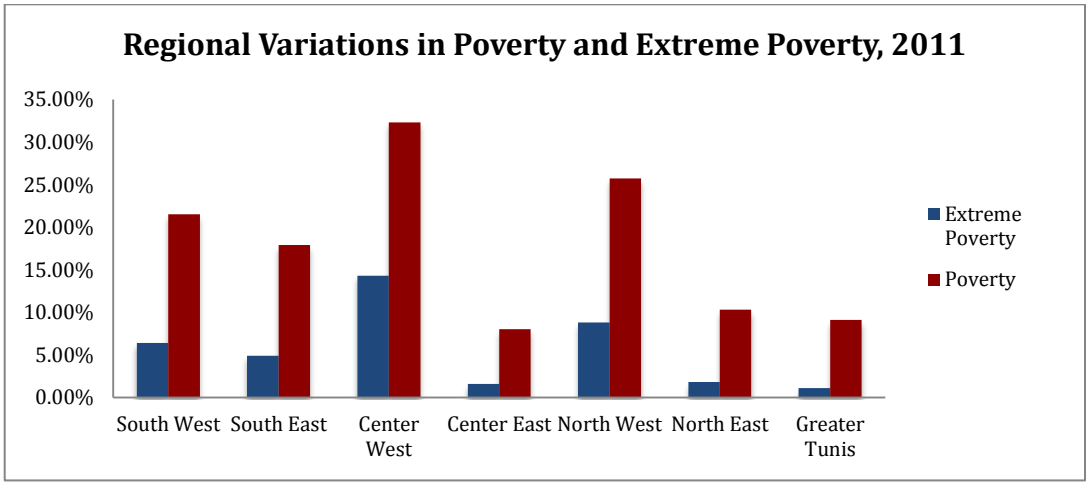


Fig. 61. Regional Variations in Poverty and Extreme Poverty in Tunisian regions, 2011
Source: AfDB and TNS 2013.

Besides, looking at the trend of the change in unemployment rates in these disadvantaged regions in Tunisia shows that the employment conditions failed to improve in these regions as well, implying the existence of a strong segmentation across the different regions in Tunisia.

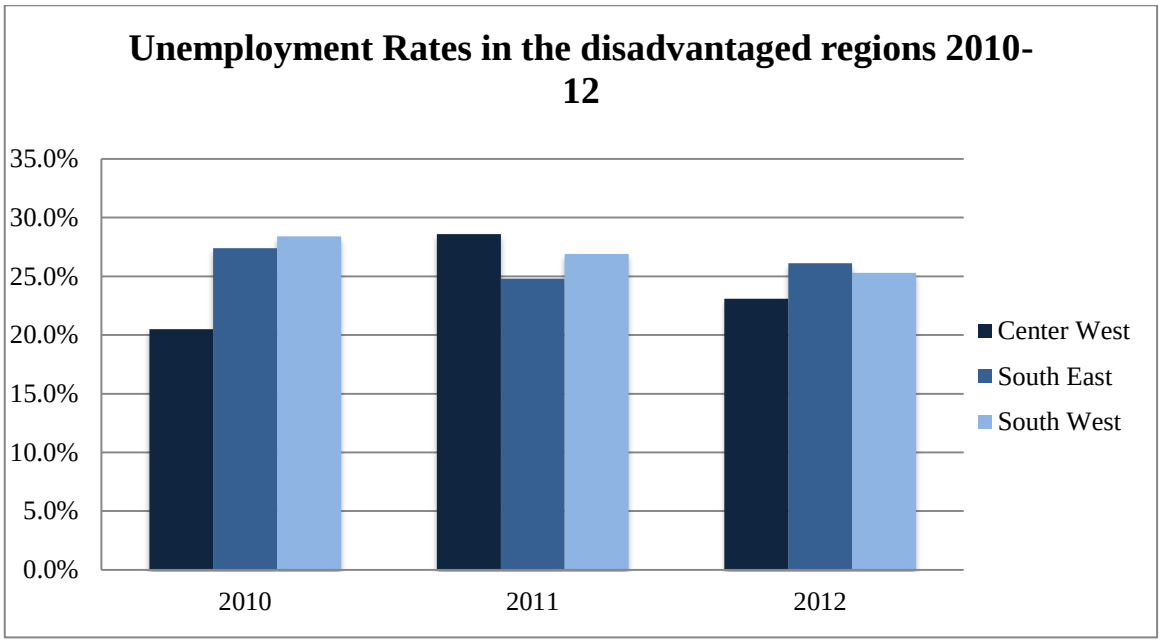


Fig. 62. Unemployment Rates in the Disadvantaged Regions in Tunisia (2010-2012)
Source: TNS 2013.

With the private sector in Tunisia employing mostly unskilled workers and the public sector no longer offering as many jobs as before, the educated youth find themselves unemployed for several months before finding a job. As the agriculture sector is on continuous decline, regions in Tunisia that rely on this sector as a vital element for employment and economic growth has been segregated over the past decade, and hence, unemployment was on the rise and growth generated by the services sector failed to stimulate these regions. Nevertheless, mismatches between labor supply

and labor demand and the rapid population growth among other things all represent a common feature that our four countries share.

CHAPTER IV

EMPIRICAL METHODOLOGY

Despite the different forms used in the literature to test empirically the validity of Okun's law, we will rely on two approaches: the difference model, which is static, and a dynamic approach of the relationship using the ARDL method.

A. The Difference Method

1. Methodology

Our data consists of yearly GDP growth rates and Unemployment rates for the four countries examined. The data ranges over the period from 1990-2013 for Jordan, Egypt and Tunisia (IMF 2013). We were only able to find data on unemployment for Morocco from 1995.

The Difference Version of the relationship is given as follows:

$$\Delta U_{it} = a + b\Delta Y_{it} + \varepsilon_{it} \quad (1)$$

Where

ΔU_{it}: the change in the unemployment rate

ΔY_{it}: the change in GDP growth rate

ε_{it}: the error term

i and t represent the country under question and the time period respectively.

This relationship has been favored over the gap version, which is also static due to its simplicity and most importantly because it relies on directly observable macroeconomic indicators. By running this regression using the Ordinary Least Squares method, we get an estimate $\hat{b}$ of b, which constitutes our Okun's coefficient. Should

Okun's Law prove to be valid, not only there must be a negative Okun's coefficient indicating a negative relationship between the change in unemployment with that of GDP growth, but these coefficients must be also empirically significant. As such, provided that these coefficients are significant, we can infer that changes in unemployment rates are responsive to changes in output in the short run.

Due to the heterogeneity in the pool of the countries examined, a cross-country study will be carried out. Likewise, we suspect divergence in the Okun's coefficients across the region due to the discrepancy in the political and economic regimes, labor policies and the business environment in the different countries assessed.

2. Unit Root Tests

In order to avoid the problem of a spurious regression, two unit root tests will be implemented to determine the degree of integration of the variables in question: the Augmented-Dickey Fuller (ADF) test followed by a stronger test, which is Phillips-Perron (PP) test.

Both tests aim at finding the degree of integration of our variables by checking whether the null holds against the alternative (Dickey and Fuller 1979; Phillips and Perron 1988).

H_0: The time-series is integrated of the first order i.e. I(1)

H_1: The time-series is integrated of order 0 i.e. I(0)

ADF tests these hypotheses by running the following regression:

$$\Delta y_t = \theta' \mathbf{A}_t + \gamma y_{t-1} + \sum_{j=1}^{n} \varphi \, \Delta y_{t-j} + \varepsilon_t \quad (2)$$

Where n represents lagged terms determined by the Akaike Criterion, $\mathbf{A}_t$ is a vector containing constant trend terms. Per se, if the series is integrated of the first order, i.e. has a unit root, then $\gamma = 0$.

The same applies to the PP test, which estimates a similar regression given by:

$$\Delta y_t = \theta' \mathbf{A}_t + \gamma y_{t-1} + \omega_t \quad \text{and} \quad \omega_t \sim I(0) \tag{3}$$

Our results from both tests are outlined in tables 5 and 6 below.

Table 5. ADF Test Results

ADF t-stat	$\boldsymbol{\Delta Y_t}$	$\boldsymbol{\Delta U_t}$
Egypt	-4.49**	-4.22**
Jordan	-6.61**	-2.47
Morocco	-9.32**	-4.83**
Tunisia	-8.29**	-5.78**

Where * denotes rejection of the null at 5% significance level and ** denotes rejection of the null at 1%

Table 6. PP Test Results

PP t-stat	$\boldsymbol{\Delta Y_t}$	$\boldsymbol{\Delta U_t}$
Egypt	-4.52**	-4.05**
Jordan	-7.62**	-7.81**
Morocco	-13.64**	-4.77**
Tunisia	-15.18**	-5.78**

Where * denotes rejection of the null at 5% significance level and ** denotes rejection of the null at 1%

Both tests indicate that ΔY_t series is stationary for all countries i.e. integrated of order 0. Although ΔU_t series proves to be stationary for Egypt, Tunisia and Morocco from the two tests, ADF test employed for Jordan gives an associated p-value of 0.1364 > 5% level of significance, indicating non-stationarity. This result of non-stationarity is however rejected by PP test's stronger results, which show an associated p-value of 0 implying that ΔU_t is indeed stationary for Jordan. Hereafter, we can conclude that the variables in our regression are all I(0). This is also supported by mere visualization of

the graphs, which show a constant trend exhibited by our variables[16].

3. Regression Results

After establishing the stationarity of our variables, we will move to the regression results. The table below shows the regression's output and Okun's coefficients estimates for each country. None of these short-run coefficients are significant; which deems predictable in the Arab region (Moosa 2008).

Table 7. Regression Results

Country	**Okun's Coefficient**	**t statistic**	R^2	**F statistic**
Egypt	-0.258	-1.638	0.11	2.68
Jordan	-0.052	-0.71	0.02	0.5
Morocco	-0.008	-0.46	0.01	0.21
Tunisia	0.16	1.58	0.11	2.51

Where * denotes significance at 10%, ** denotes significance at 5% and *** significance at 1%

Despite the negative sign of Okun's coefficients in Egypt, Jordan and Morocco, the absolute value of the t-statistic of the regressions is always < 2. This confirms that the coefficients are only "accidently" significant. As such, unemployment is not cyclical and decreases only slightly when output increases. Moreover, the small R^2 and the F statistic show enormous weaknesses in the regression. The weak responsiveness of unemployment to changes in output implies that an economic boom will have little effect on stimulating employment in the region.

Startlingly, Okun's coefficient is positive in Tunisia with a corresponding

[16] Check Appendix I.

value of 0.16. Although such coefficient is also insignificant, the positive sign of the coefficient indicates that unemployment and GDP growth in Tunisia follow the same trend: when output increases by 1%, unemployment increases as well by 0.16%. This finding is a first in the literature and it deeply points out to the several deficiencies in the many policies addressing the job market and the unemployment issues in Tunisia.

B. The Dynamic Version of Okun's Law

1. Methodology

In order to test for the Dynamic Version of Okun's Law, we will run the following time-series regression for each country. The regression has the following ARDL format[17]:

$$\Delta U_t = \alpha + \sum_{i=0}^{2} \beta_i \, \Delta Y_{t-i} + \sum_{i=1}^{2} \gamma_i \, \Delta U_{t-i} \quad (5)$$

$$\Delta U_t = \alpha + \beta_0 \Delta Y_t + \beta_1 \Delta Y_{t-1} + \beta_2 \Delta Y_{t-2} + \gamma_1 \Delta U_{t-1} + \gamma_2 \Delta U_{t-2} + \varepsilon_t \quad (6)$$

Where:

α: The constant term

ΔU_t: $U_t - U_{t-1}$

ΔU_{t-1}: $U_{t-1} - U_{t-2}$

ΔU_{t-2}: $U_{t-2} - U_{t-3}$

ΔY_t: $Y_t - Y_{t-1}$

ΔY_{t-1}: $Y_{t-1} - Y_{t-2}$

ΔY_{t-2}: $Y_{t-2} - Y_{t-3}$

ε_t: The error term

As such, we have 2 coefficients that determine the responsiveness of unemployment to changes in output. We can differentiate between the two as one

[17] As used by Hendry *et al.* (1984) and Moosa (1997).

indicates the short-term relationship between the two (similar to the one in the static version) and is given by β_0. Our long-term indicator will not only take into account the simultaneous changes in U_t and Y_t but rather takes into account the lagged parameters.

Following Hendry et al (1984) and Moosa's (1997) study, our long-term coefficient θ is expressed by the following formula:

$$\theta = \sum_{i=0}^{3} \beta_i \Big/ \sum_{i=1}^{3} \gamma_i \qquad (7)$$

Two problems arise in our case:

- What should be Okun's coefficient? Is it β_0 or θ?
- Where to get enough data to generate this ARDL model?

The first coefficient β_0 only captures the simultaneous changes between the two variables and hence, it is exactly similar to the standard Okun's coefficient provided in the static version earlier and only shows short-run dynamics. Since Okun's Law is not only concerned with the short-term relationship but rather seeks to identify the trend of responsiveness of U_t to changes in Y_t, we can think of θ as Okun's coefficient in this case.

The other problem that we encounter is that our dataset is very limited. We were only able to find annual data over a span of 23 years for Egypt, Tunisia and Jordan and 18 years for Morocco. Therefore, in order to be able to apply the Dynamic Version, we will use the temporal disaggregation method documented by numerous economists[18] in order to extract quarterly observations from our annual datasets.

Since we are dealing with *the changes* in growth rates of GDP and the unemployment rates, our variables securely fit the interpolation model, which can be

[18] See Chow and Lin (1971); Khan *et a.l* (1976); Wymer (1979); Moosa (1995); Moosa (2008).

algebraically described as follows:

Let A_t be a flow variable which can be expressed as a function of a certain time path where:

$$A_t = \int_{t-1}^{t} g(t)dt \tag{8}$$

where *t* represents the # of years.

And $g(t)$is a quadratic function expressed by the following:

$$g(t) = a + bt + ct^2 \tag{9}$$

where a,b,c are unknown parameters that need to be estimated.

Throughout a period of 1-year say, we'll have:

$$A_1 = \int_{0}^{1} g(t)dt \tag{10}$$

Throughout a period of 2 years say, we'll have:

$$A_2 = \int_{0}^{2} g(t)dt \tag{11}$$

And so on and so forth.

In order to derive the quarterly observations from our flow variable for the first year, we can simply express the following integral; where, instead of t ranging from 0 → 1; it will be from 0 → $^1/_4$ for the first observation.

$$A_1^1 = \int_{0}^{0.25} g(t)dt \tag{12}$$

This process will go on until we get all the quarterly observations for the years we have collected.

Substituting (9) in (8) will leave us with the following:

$$A_t^i = \int_{t-1}^{t} (a + bt + ct^2)dt \tag{13}$$

where *i* denotes the quarter and t denotes the year.

In order to solve (13) for t=1, 2, and 3 say, we will need to construct a matrix as follows:

$$\begin{pmatrix} A_1 \\ A_2 \\ A_3 \end{pmatrix} = \begin{pmatrix} x_1 & y_1 & z_1 \\ x_2 & y_2 & z_2 \\ x_3 & y_3 & z_3 \end{pmatrix} \begin{pmatrix} a \\ b \\ c \end{pmatrix} \quad (14)$$

Then when we get the estimated values of a, b and c, we can move to solving the integral in (13) for each quarter i=1, 2, 3, and 4 for each year t=1, 2, 3…. 18… 23.

2. Unit Root Tests

After getting the interpolated quarterly data for every country[19], we can move to our regression. Before running the regression, we will check for the stationarity of the Δ in the lagged values using both ADF and PP tests. The results are outlined in the tables below:

Table 8. ADF Test Results

ADF t-stat	ΔY_{t-1}	ΔY_{t-2}	ΔU_{t-1}	ΔU_{t-2}
Egypt	-2.36434	-2.34933	-2.13463	-2.12605
Jordan	-1.88336	-1.87322	-2.32337	-2.30873
Morocco	-7.63246**	-7.59885**	-2.00801	-2.00749
Tunisia	-3.00782*	-3.10584*	0.197802	0.234912

Where * denotes rejection of the null at 5% significance level and ** denotes rejection of the null at 1%

Table 9. PP Test Results

PP t-stat	ΔY_{t-1}	ΔY_{t-2}	ΔU_{t-1}	ΔU_{t-2}
Egypt	-3.884**	-3.86213**	-3.59534**	-3.59033**
Jordan	-4.57748**	-4.5517**	-4.73582**	-4.71013**
Morocco	-5.28763**	-5.25906**	-3.73415**	-3.71904**
Tunisia	-4.78598**	-4.7596**	-4.23079**	-4.14649**

Where * denotes rejection of the null at 5% significance level and ** denotes rejection of the null at 1%

[19] We ended up with 92 observations for Egypt, Jordan and Tunisia and 72 observations for Morocco.

Although only ΔY_{t-1} and ΔY_{t-2} turn out to be stationary for Morocco and Tunisia by the ADF test, our results from the PP's test show that all our variables are stationary (at 1% level of significance). Figure in Appendix I asserts such results as the variables show a constant trend.

3. Regression Results

We can now move to test the regression using the quarterly observations we got via the interpolation method. Moreover our Okun's coefficient θ is highlighted in the table below.

Table 10. Dynamic Regression Results

	Egypt	Jordan	Morocco	Tunisia
α	0.016356	-0.028519	-0.035071	-0.002719
	(0.889245)	(-1.18086)	(-2.42981)	(-0.10959)
γ_1	0.850039	0.772487	0.813539	0.826466
	(7.879845)	(7.270631)	(6.624487)	(7.69138)
γ_2	-0.128131	-0.184959	-0.174899	-0.165589
	(-1.19132)	(-1.79322)	(-1.4202)	(-1.51316)
β_0	-0.189699	-0.111409	-0.007966	0.168312
	(-2.48764)	(-3.24582)	(-0.9277)	(3.628916)
θ	-0.45632*	0.009144	-0.02411	0.029652
	(-2.26538)	(0.099445)	(-1.19974)	(0.24143)
R^2	0.643168	0.508383	0.511349	0.577693
DW	2.055628	2.134987	2.088003	2.082082

Where * denotes significance at 5% level
And () indicate the corresponding t-stat for each parameter

We can infer from the results that unemployment in the previous period say t-1 influences greatly the current unemployment rates at period t as $\gamma_1$is significant for all the countries examined. Turning to our long-run i.e. Okun's coefficient, we notice from

the results that Egypt's coefficient θ turns out to be significant with a corresponding t-stat value of -2.26538. We can conclude that unemployment in Egypt at least, responds to fluctuations in output in the long run. As such, stimulating GDP growth by 1% in Egypt must lead to a decrease in the unemployment rate by 0.45%. For Jordan, Morocco and Tunisia on the other hand, the results affirm those we got from the static regression analysis. Tunisia's coefficient is still positive even in the long run despite being insignificant, which implies that unemployment and growth have a positive relationship. This again, points out again to the numerous deficiencies in addressing employment opportunities in Tunisia and that the growth in Tunisia fails deeply to be inclusive; in other terms, as output has been increasing, little has been done to stimulate new job opportunities in this country. Regional and income inequality might be the main players behind such lack of an inclusive developmental scheme.

C. Discussion and Recommendation

Given the endurance of labor rigidities, skill mismatches and persistent unemployment rates in our countries, the results are not surprising. The dominance of the private sector in the labor market in Egypt as compared to the other countries might help explain the significance of the long-run coefficient. In Tunisia however, the positive sign of both long run and short-run coefficients is highly problematic. While investments in Tunisia have mostly targeted the services sector and played a significant key for growth over the previous two decades, very few targeted the agriculture and industry sectors, which represent key sectors in several regions in Tunisia. And even if these investments were directed at these sectors, the paradigm of elite capture was always present. Sidi Bouzid, where the revolutions initially started is one example of

such regions, as it relies mostly on the agriculture sector[20]. In fact, since the 1990s the governorate observed a trend of growing private investments in the agriculture sector that aimed at increasing irrigation and agriculture productivity. As a result, Sidi Bouzid agrarians sold their lands to foreign investors, who in turn, concentrated the farms in the most fertile regions in the governorate, leaving the original owners in the least privileged areas (Boughzala and Tlili Hamdi 2014). Although growth in the region has largely induced higher education among the youth, whether on the secondary or post-secondary levels, the fresh graduates found themselves jobless, mainly because the market in such governorates offered little employment opportunities meeting their qualifications that were outside the agriculture sector. Moreover as found earlier, the poorest areas in Tunisia, are the ones whose unemployment rates remained almost stagnant over time, indicating the absence of an inclusive scheme of growth. Another factor that might help explain our results is the predominance of the tourism sector as a vital element of growth. This sector requires very few skills and hence, those with higher education levels won't fit in the positions available. In Jordan for instance, this sector is almost fully dominated by foreign workers. Besides, structural reforms adopted by all our countries encouraged the creation of an exports-leading profile. It should be noted however, that most of the merchandise being exported in our countries requires technical skills and handwork such as apparel, light industry and agricultural products. All these industries naturally are neither appealing nor convenient to university graduates.

The "culture of shame" is also another factor that might explain the results. This phenomenon is especially prevalent in Arab countries, where one would feel that

[20] Almost 70% of the residents in Sidi Bouzid are engaged in agriculture activities.

engaging in certain type of work would be disgraceful and hence, would worsen one's social status (Benedict 1945). This relates to the problem of high reservation wages[21] in the Arab world. Although there are currently no statistics on what reservation wages are truly in the region, the social stigma associated with the culture of shame reinforces such notion. High entry and exit costs constitute yet another factor to be considered[22]. Entry costs are especially high in Morocco for instance and reach up to 0.69 as compared to only 0.21 for the United States. As mentioned beforehand, Arab countries are still regarded as generous in terms of severance pay for redundancy dismissal, which proxies the exit cost. In Egypt for example, such pay for an average worker with 10 or less years of tenure is for 26.7 weeks, which is very high when compared to 2.7 weeks and 4.6 weeks for the UK and France respectively. Addressing these legal obstructions would create room for further flexibility in the labor market.

Developing all sectors in the economy without neglecting a single one is a key priority for governments at the moment. Recent research argued that a territorial dimension for growth would constitute a first step to solve this problem instead of adopting classical national strategies and other top-bottom approaches to development that might strengthen the elite further while leaving the poor behind (Brnovic and Hatoum 2013).

Reinforcing the role of the private sector in Arab countries is extremely needed to stimulate job creation and reduce the heavy reliance of graduates on the public sector. In Tunisia for example over the past decade, due to chronic current account and budget

[21] A reservation wage is defined as the wage below which, the job would not be accepted.

[22] Based on the Economic and Social Commission of Western Asia's definition, the entry cost is the minimum wage divided by the added value/worker; whereas the exit cost is proxied by the firing cost i.e. severance pay for redundancy dismissal.

deficits, the public sector was no longer able to offer as many jobs and before, which led to an exponential increase in unemployment rates, which doesn't normally occur in countries outside the Arab region. Government policies that would be supporting entrepreneurship initiatives and the establishment of SMEs are encouraged, yet at the same time imposing regulatory constraints on conducts within the private sector, such as disrespect and sexual harassments of females in the workplace in Egypt for instance or their compliance with international labor codes is another thing that needs to be promptly applied. The public sector should be more efficient and consequently, set a common bar to educational levels required to fill public sector positions, which would reduce the discrepancy. Family planning programs aimed at controlling population growth; especially in rural areas is a fundamental approach that needs to be considered by the governments, as it would slightly lessen demographic pressures on the labor market.

CHAPTER V

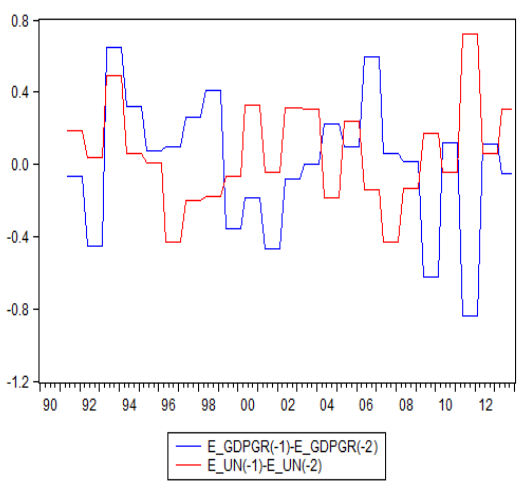
CONCLUSION

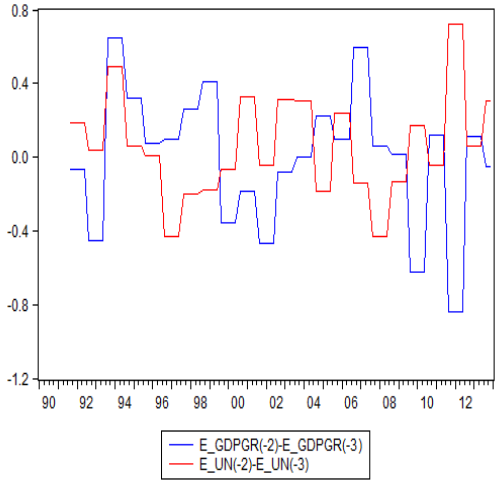
In this thesis, we tried to examine the problem of unemployment in four Arab countries from all aspects, while relying on Okun's Law to empirically test whether the prevalent unemployment rates have a structural or cyclical nature. Several factors act as impediments to the stimulation of employment opportunities; the lack of a uniform employment strategy, heavy reliance on the public sector as the top employer, uncontrolled population growth and the substantial demand of unskilled workers in contrast to educated ones all contribute to the persistence of high unemployment rates. Since the previous decade while our four countries shifted to an exports oriented strategy and a heavy dependence on the services sector, mainly the tourism sector, little has been done regarding less catchy sectors such as manufacturing or agriculture that shrank significantly over time. By conducting a cross-country approach using a static first difference version and another dynamic version that makes use of an autoregressive distributed lag model (ARDL), we found that indeed unemployment is not cyclical. Empowering disadvantaged sectors through investments, the establishment of SMEs and the adoption of a territorial approach to development to ensure the formation of an inclusive growth strategy all constitute prerequisites to eliminate the problem of inequality and unemployment in Arab countries. Furthermore, controlling population growth in these countries to reduce demographic pressures on the labor market is another target that governments should strive to.

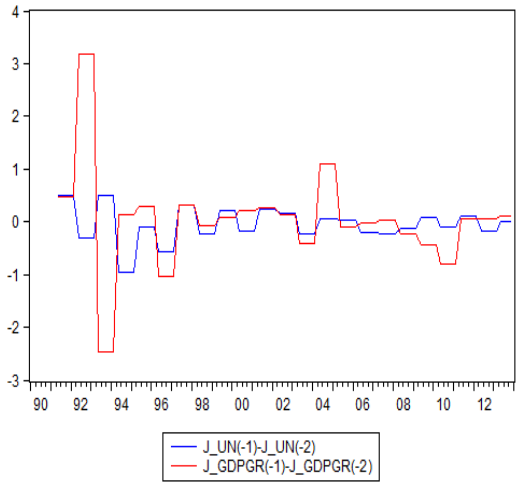
In order for governments to overcome labor market rigidities, much remains to be done. Stimulating the business environment through investments and easing bureaucratic procedures that govern this environment is a key priority.

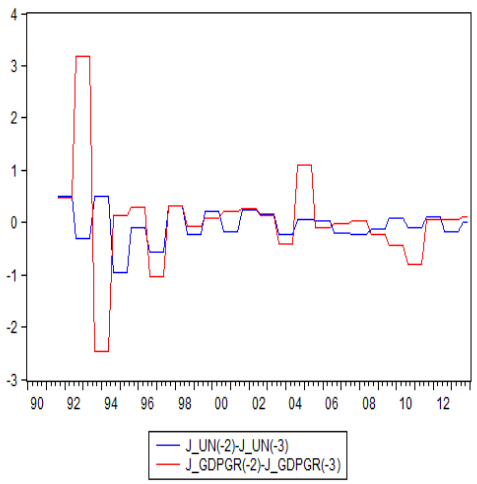
APPENDIX I

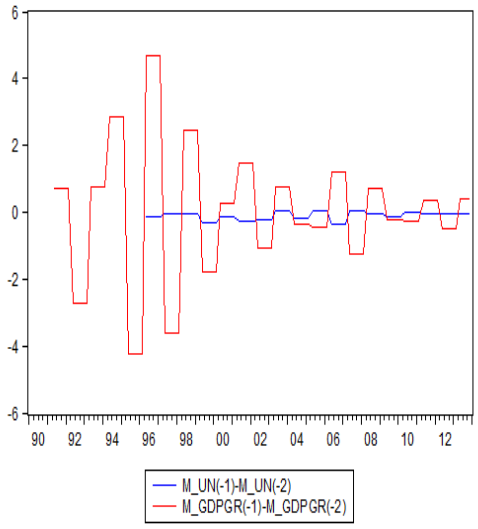
FIRST AND SECOND LAGS DYNAMICS OF ΔYT AND ΔUT, IN EGYPT, JORDAN, MOROCCO AND TUNISIA







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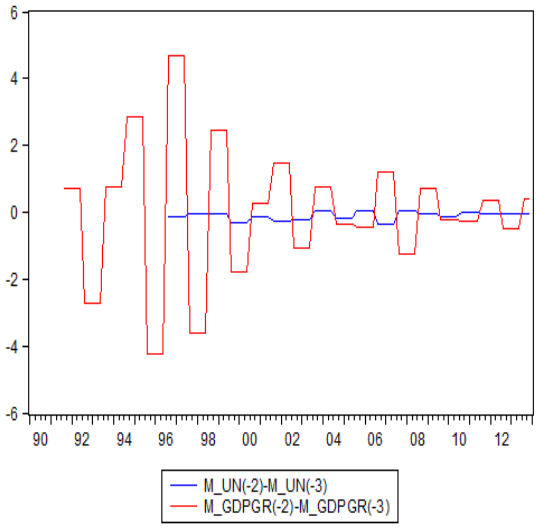
M_GDPGR(-1)-M_GDPGR(-2)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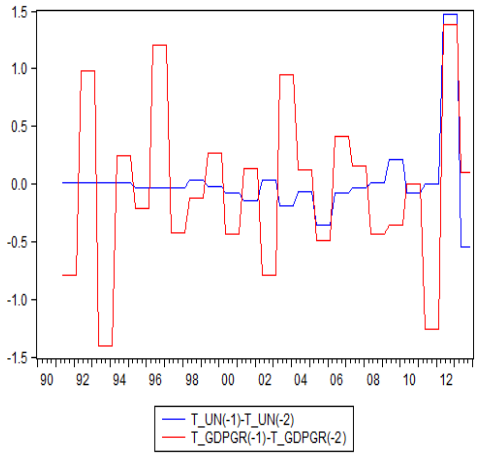
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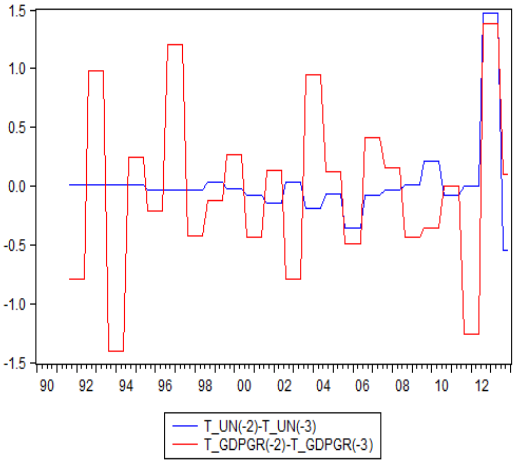
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T_UN(-2)-T_UN(-3)
T_GDPGR(-2)-T_GDPGR(-3)

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