

# Wage system and employment policies in Algeria

1980-2007

## An evaluation view

M. HACHEMANE\*

A. MESLEM\*\*

[hachemane@hotmail.com](mailto:hachemane@hotmail.com)

[ag\\_meslem@yahoo.fr](mailto:ag_meslem@yahoo.fr)

### Abstract

The main aim of this paper is to draw the theoretical background of the labour market policies in Algeria, using the annual statistical data for the period 1980 - 2007 compiled from the National Bureau of Statistics and the World Bank database.

determined by the nature of the data available in the macro-economic analysis, this research work is solely intended to examine the long run behavior of the different time series with considering their trends and to indirectly identify the impact of economic policies adopted on unemployment and wage variables.

Key words: nominal wages, real wages, employment, economic policy.

### الملخص

تهدف هذه الورقة إلى استخلاص الخلفية النظرية لسياسات عالم الشغل في الجزائر باستخدام معطيات إحصائية سنوية للفترة 1980-2007 مجمعة من مصدري الديوان الوطني للإحصاء وقاعدة معطيات البنك العالمي. تتحصر هذه الدراسة التي تحددها طبيعة المعطيات الاقتصادية الكلية المتوفرة في تحليل تلك السلاسل الزمنية مع دراسة اتجاهاتها وتفسير سلوكها خلال الفترة المدروسة، مع محاولة الوقوف على أثر السياسات الاقتصادية المعتمدة على متغيري البطالة والأجور.

### Introduction

Economists together with the Governments in various countries have been concerned for long decades about unemployment phenomenon due to its socioeconomic impacts on populations and communities economic welfare.

Algeria knew the unemployment scourge since the dawn of independence. It was seen as remnants of French policy in Algeria during the occupation period. Algerian Authorities had attempted through various economic and social plans and programs to mitigate its negative effects on society and to undermine its causes.

Faculty of Economics; Business and Management Sciences; Algiers.3.

Faculty of Economics; Business and Management Sciences; Bumerdes.

\*

\*\*

This paper aims to study the impact of wage system on employment policies, as it extrapolates, through the data available, the key ideas and backgrounds of employment policies in Algeria.

Many applied studies stressed upon the importance of controlling wage systems especially those related to the guaranteed Minimum wage determination, and the estimation of its equilibrium level which has a great effect on employment policies. In fact, it has become clear that its exceeding the equilibrium level may result in strengthening the unemployment rate by negatively influencing the capacity of small and medium-sized enterprises to compete and survive in the market, [Ana Maria Iregui, Jesùs Otero].

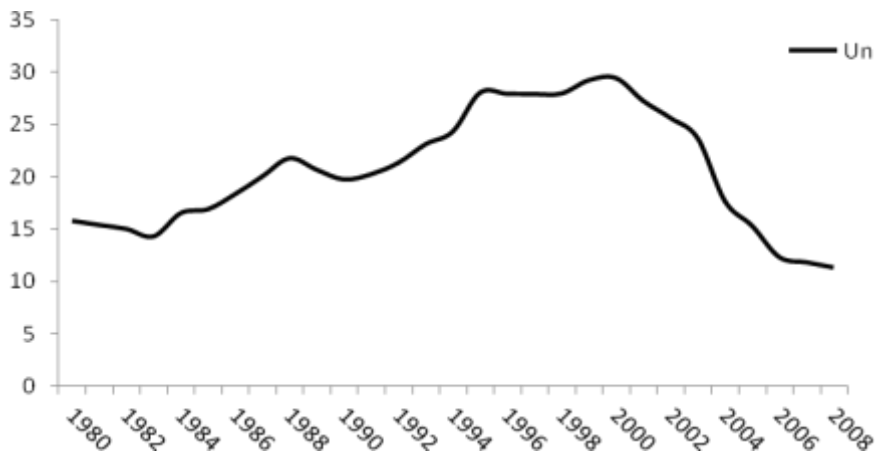
Using a combination of time-series data set during the period 1980-2007 which mainly concern macro-economic variables that are related directly or indirectly to the issue of unemployment and employment policies, we attempt to answer the following fundamental question: "what kind of relation is there between wage system and national employment policies in Algeria?". Henceforth, Can we say that adopting a low level minimum wage system rises employment, or vice versa?.

To answer this question, the study focuses on the understanding of the theoretical background of the employment policies in Algeria through the adopted wage system. In this sense, can we say that the national authorities strategy is for an objective to achieve full employment, equitable distribution of wealth or a dignified life for citizens ?.

## **Analysis**

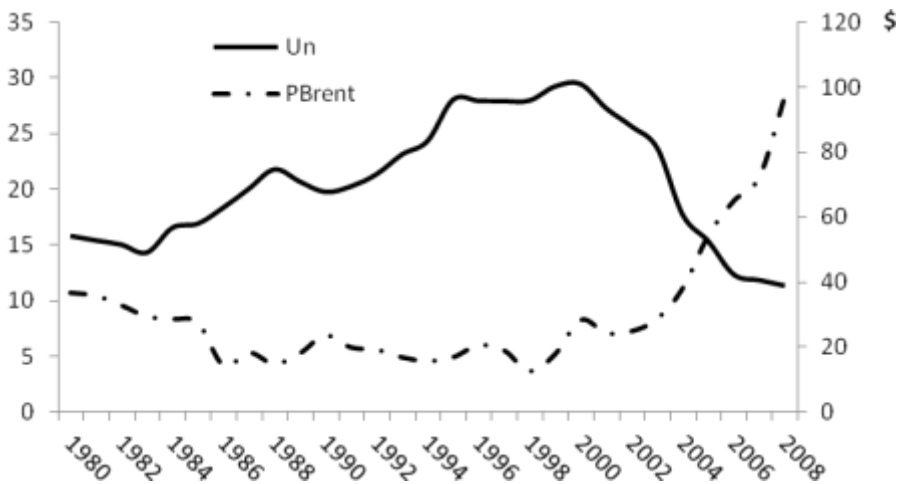
Within this context, the work is limited mainly to the extrapolation of a set of time-series statistical data on macroeconomic variables. It is conducted by using the time series techniques and regression analysis to identify the essential components and the causal relationships between the phenomenon studied variables, using annual macroeconomic data for the period 1980-2007.

Since independence, Algeria Inherited widespread unemployment in rural and urban areas, which exceeded the rate of 20% in the beginning of independence period (Hachemane 2000). Various development programs contributed to the reduction of the widespread unemployment, especially after the launch of the manufacturing industries and the adoption of socialist enterprises management system. It was clearly noticed that these programs helped the emergence of disguised unemployment for the first time in Algeria. Indeed, the unemployment rate (un) dropped to less than 10% rate in the early- eighties (1980s), as shown in the Figure 1. However, from 1986 the situation deteriorated as the unemployment rate rose significantly, due in particular to lower oil prices followed by the decline in the public treasury revenues. This fact reflects the fragility of the national economy structure and its strong link to the fuel sector, and henceforth to foreign markets.



**Figure 1. evolution of unemployment rates (Source: World bank data base)**

The behaviour of the unemployment (un) may show a strong opposite link to oil prices in the world market. Unemployment rates fluctuate accordingly to price movements thereby reducing the impact and the role of the total plans and development programs in the establishment of a strong economy depending on the different society's capacities and resources. This behavior rises questions about the feasibility study on the relationship between wages and employment variables, and the prevailing of various economic relations. for instance, can it be possible to control the trends and levels of the employment by the identification and the adoption of a certain wage system? Is it possible in these circumstances to prove the existence of an unemployment-inflation trade off in Algeria?.



**Figure 2. unemployment rates and Brent oil prices (Source: World bank data base)**

Many of the macroeconomic theories referred to in the explanation of the unemployment phenomenon correlate between employment and wages (Toumi (2004a) and affirm a link between unemployment and wages in a trade-off relationship. Within this aspect, the study focuses on the nature of the relationship

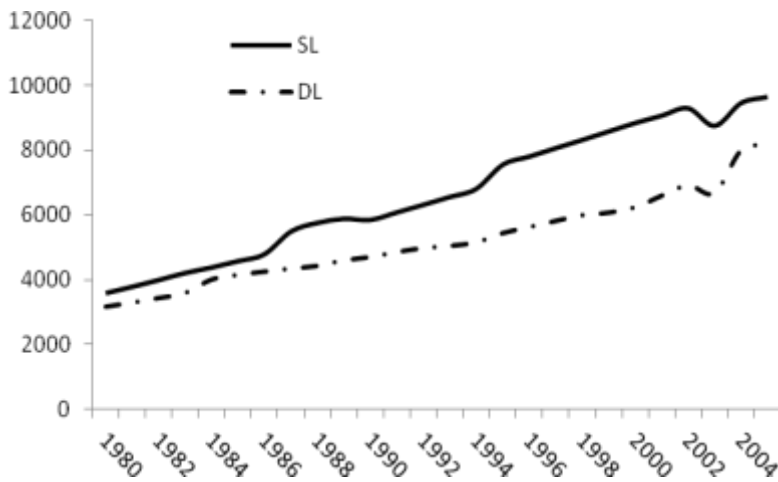
between these two variables and the examination of the possibility and means of the control of one of the two Phelps relationship variables. These to insure, in an effective way, the resolve of the dilemma facing the decision maker when trying to control one of the two variables, unemployment or inflation, as shown in Figure 3:



*Figure 3. Unemployment and inflation rates (Source: World bank data base)*

The attempts to control the deterioration of employment rates and the inability of the labour market through its two components, private and public sector were followed by an uncontrolled rise in the rates of inflation, which reached record levels. This is due to several reasons; the most common one is the focus of public authorities to respond the increase in the supply of labour that has been growing during the recent period. The widening gap between labour supply and demand continued to increase rapidly as shown in the figure 4:

For the period 1970-2002, the percentage of the active labour supply absorbed by various implemented employment policies in Algeria was less than 70% (Toumi and Chekabkab, 2004, Hachemane, 2000), registering a deficit estimated to more than 30%. Despite the low wage levels and the decline of its share to gross domestic product, it has become clear, that the different employment policies adopted have not succeeded in reducing unemployment rates to its natural level. Taken into account the presence of Cheap labour, these policies have not also attracted foreign direct investment necessary for any development programs. In fact, cheap labour is regarded as an important impetus to the movement of capital to many countries for instance Southeast Asia countries.



*Figure 4. Demand and supply of labour for the period 1980-2007 (source: World Bank database)*

### **Wage system and employment policies**

It cannot be conceived to identify an employment policy without setting an adequate wage system that prevails in the labour market. As it is well known, the equilibrium level in the labour market is reached when labour supply equals labour demand at a certain wage level called equilibrium wage. Despite its importance in the macroeconomic analysis field and the calculation of the natural level of unemployment, economists, however, focused in their applied studies on long-term equilibrium wage usually denoted as  $w^*$  (Iregui and Otero 2003).

It is emphasized that the unemployment rates increase rapidly when wage level is above the long run equilibrium level. And being less than  $w^*$  does not reduce unemployment rates, but spreads the phenomenon of reluctance from official jobs. Following the conclusions drawn by previous applied works on the relationship between minimum wage and unemployment (Carneiro 2004), it is clearly well understood that more applied scientific works should highlight on the macroeconomic topics and wage determination in Algeria. It is not any more allowed to behave and take decisions outside the area of results obtained from applied research works.

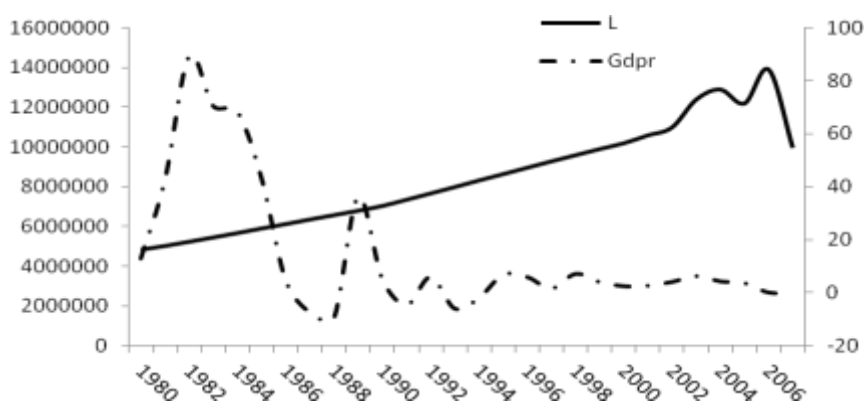
### **The wage system in Algeria**

The labour market in Algeria was established during the French occupation under harsh conditions, with an objective to force unemployment, impoverishment and subjugation, to bring to market low-paid workers. This market was also marked by duplication (segregation between local and European workers), without regard to legal norms and respect for international legislation, mainly in the application of the principle of minimum wage guaranteed for local workers (indigenous) (Hachemane 2000).

After independence, the wage system was socially characterized, and the purchasing power of workers gradually increased and reached their highest levels in the early eighties. The authorities, and for the first time since independence, openly intervened

through the legislative Decree 64-73 to determine the wages in the private and public sectors and to establish the minimum wage guaranteed condition.

In addition to various economic measures adopted to create new jobs, a great divergence between the number of jobs and the real gross domestic product was observed, as shown in the figure 4. As the real GDP growth rate (GDPr) fluctuated sharply, employment (L) increased rapidly reflected by its global trend. This shows the strong desire of public authorities in improving the employment rates at any cost, ignoring, for instance, the negative impact of such action on inflation.



**Figure (5): The actual labour force and economic growth**

According to what is observed in advanced economies, the two variables behave in the same way and have the same trend and sign as economic growth stimulate and develop employment opportunities.

This employment curve behavior reflects the degree of protection that was provided for the labour market in Algeria, as well as its direct and strong dependence on oil revenues. This can be shown in the following estimated equation:

$$\Delta L_t = 82537,5 + 342,7\Delta GDP_t$$

$$\dots\dots\dots(49124)\dots\dots(3,15)$$

$$F.Stat = 9,89\dots R^2 = 0,3$$

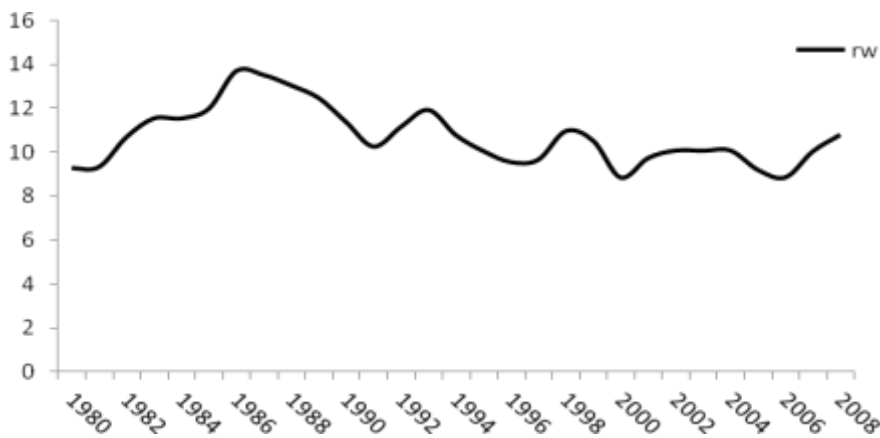
$$DW = 2,53$$

The estimated result reflects a positive relationship between changes in GDP and the first differences of actual labour force. Henceforth, given wages are solely determined by the changes in GDP and have nothing to do with productivity or performance (Ederveen and Thissen 2007).

The adopted wage system plays a key role in the reduction or the increase of unemployment rates. That is why this paper was directed to investigate the wage system and employment policies relationship in Algeria.

While the wage bill recorded a steady increase in parallel with the overall rate of inflation evolution, real wages, in the same period, showed a significant decrease

starting from 1986, as shown in Figure 6. This fact contributes significantly to the understanding of labour unrest and strikes which increased over time, especially in public service employment.



**Figure 6. Real wages for the period 1980-2008 (source: World Bank database)**

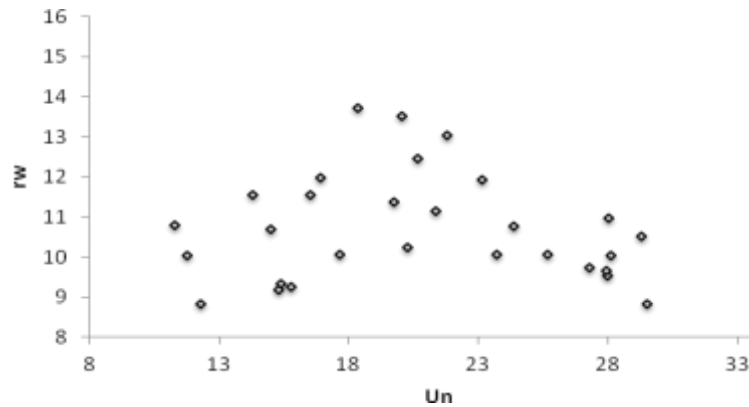
This attribute reflects, in particular, the situation of the labour markets, which is characterized by high unemployment rates. In accordance, real wages tend to decrease as trade unions are in a vulnerability status, which does not simply allow the defense of the workers. Meanwhile, the enterprises can easily attract the manpower at the same rates of wage, and at any time and without trouble.

To stand upon the nature of the relationship between real wages and unemployment rates, the next simple mathematical formulation is presented as follows:

$$\left(\frac{w}{p}\right)_t = f(Un_t)$$

Where  $\left(\frac{w}{p}\right)_t$  represents real wages in the period t and is a function of unemployment rate  $Un_t$ .

In order to identify their relationship, a scatter diagram is drawn indicating the absence of instantaneous effect as shown in figure 7.



**Figure 7. Real wages and unemployment rate for the period 1980-2008**  
(source: World Bank database)

This diagram may not indicate the presence of a systematic effect between real wages and unemployment variables. Because of a lack or absence of sources that provide access to analyzed labour market information, it takes time for job searchers and business men to realize the movement in unemployment rates and thereafter take the appropriate actions.

The dynamic effect was thought to be included in model formulation by the introduction of lagged independent variable  $un(-3)$  which showed some useful and interesting results (obtained using Eviews package).

Dependent Variable: WR  
Method: Least Squares  
Sample(adjusted): 1983 2005

Included observations: 23 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.49197	0.530511	27.31699	0.0000
UN(-3)	-0.164267	0.024204	-6.786674	0.0000
R-squared	0.686843	Mean dependent var		11.06165
Adjusted R-squared	0.671930	Akaike info criterion		2.405217
Durbin-Watson stat	1.503335	Schwarz criterion		2.503956
F-statistic	46.05894	Prob(F-statistic)		0.000001

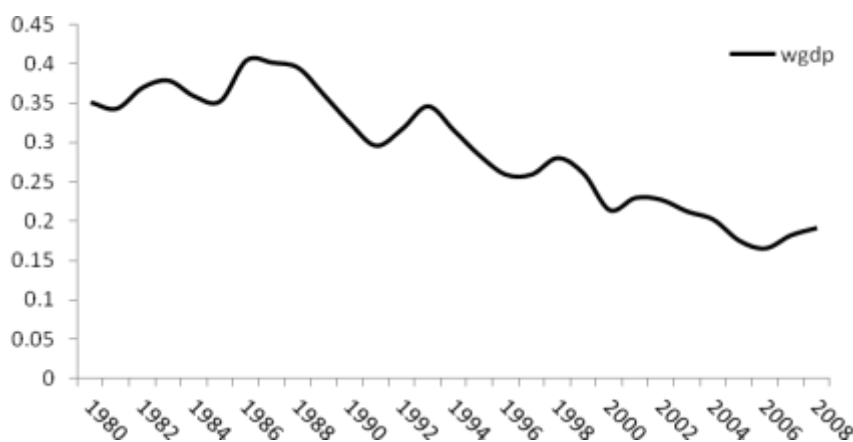
**Eviews package listing.**

Accordingly, the response of the real wages change to lagged unemployment rate changes comes three years late. Any increase in the unemployment rate for now (i.e. period  $t$ ) will be offset by a decrease in the real wages level. In the period  $t+3$ , the Lagrange multiplier test (LM test) showed the absence of error first order autocorrelation. In addition, the Durbin Watson test (DW) tends to validate the proposed functional form.

It is also useful to clarify, the fact that, the national wage share to nominal gross domestic product showed a continuous deterioration along a long period. This reflects the importance of the gap between the wage bill and gross domestic product,



which is still expanding from the beginning of the nineties (1990s). This reality is not conform with the general trend in many countries, where the share rate exceeded 60% (Hachemane 2000).



**Figure 8. The share of nominal wages to gross domestic product Unit (%)**(source: *World Bank database*)

It might come to mind that the social policy underlined by the public authorities is oriented towards the preference of ameliorating investment indicators and, consequently, ameliorating employment rates to the detriment of wage improvement. However, the overall trend estimation of the unemployment rate was relatively weak, and did not exceed 35%. This estimation might examine the impact of wage policy on the unemployment rate.

Up to now, the adopted social policy wage determination has showed its weakness as it has neither narrowed the gap between labour demand and labour supply nor improved the state of the national competitiveness and productivity.

### **Results**

In Algeria, the wage topic still has not be deeply taken into account and examined, since only very few theoretical or applied works have highlighted about this subject. The studies were particularly limited within university pedagogic works. This present work came in special conditions characterized by the deterioration of the socioeconomic environment of the country, despite the large available opportunities. Through this paper, It was showed that wage rates have nothing to do with productivity. wages are solely determined by variations in the gross domestic product. Unemployment is affected by oil prices in the foreign markets, hence, any increase in national oil revenues contribute directly in the reduction of its rates.

The outcome from this study considers that the wage system is an integral part of employment policy. We can neither stimulate growth and create prosperity, nor build a strong economy through a low level wage system.

It is time and necessary to reconsider the re-distribution of wealth in the benefit of human resources by scientific and research means. Any stochastic decision taken in the field of wage determination will be disastrous for the entire society. Moreover, this can have devastating consequences on the entire economy and the friability of good governance approaches.

## References

- Beffy, P. O., Bonnet, X., Monfort, B., and Darracq-Paries, M., (2003). MZE, Un modèle macroéconométrique pour la zone euro; *Economie et statistique* N° 367.
- Bontout O., and Sébastien J., (1998). Wages and Unemployment: Trade-off under different Labour Market Paradigms, *Centre d'Etudes Prospectives et d'Informations Internationales*, No98-13.
- Bredgaard, T., and Larsen, F., (2005), The flexible Danish Labour Market- a review, CARMA, Aalborg University, April.
- Bruno, M. and Sachs, J., (1982), Energy and resource allocation: A dynamic model of the “Dutch disease”, *Review of Economic Studies*, 845-859.
- Buettner, T., (2007), Unemployment disparities and regional wage flexibility: comparing EU members and EU-accession countries, *Empirica*, Vol. 34, 287-297.
- Castle, J. L., and Hendry, D. F., (2007), The long run determinants of UK wages, *Journal of macroeconomics*, 1860-2004.
- Carneiro, F. G., (2004); “Are minimum wages to Blame for Informality in the Labour Market?”, *Empirica* (31), 295-306.
- Constantine, S., (1999), Observations on the geometrical properties of accuracy growth in sampling with finite populations, FAO. Rome.
- Ederveen, S., and Thissen, L., (2007). Can labour market institutions explain high unemployment rates in the new E.U. member states, *Empirica* (34), 299-317.
- Fields, G. S., (2005). A guide to multisector Labor Market Models, Social Protection Unit, The World Bank, April.
- Galiani, S., and Porto, G. G., (2006), Trends in tariff reforms and trends in wage inequality, *The World Bank*, 3905.
- Hachemane, M. (2000). Wage determinants in Algeria: an econometric study, Doctorate Dissertation, Faculty of economic and Management Sciences, University of Algiers. (in Arabic).
- Hazans, M., (2007). Looking for the workforce: the elderly, discouraged workers, minorities and the students in the Baltic labour markets, *Empirica* (34), 319-349.
- Iregui, A. M., and Jesús Otero, J., (2003). On the dynamics of unemployment in developing economy: Colombia, *Applied Economic Letters* (10), 895-898.
- Lacoste, I., (2005), Education et croissance, *Economica*, Paris.
- Lutz, B., Köhler, C., Grünert, H., and Struck, O., (2007), The German model of labour market segmentation – tendencies of change, *Socio Economie du travail, Economies et Societies AB* (28), 1057-1088.
- Maillefert, M., (2004), l’Economie du travail, Concepts, Débats et Analyses, STUDYRAMA, 2nd Edition, France.
- Ralph, T., and Jack, W., (1957). The Economics of fisheries, FAO. Rome.

Rogerson R. Shimer, R., and Wright, R., (2005), Search–theoretic models of the labour market: a survey, *Journal of Economic Literature*, Vol. XLIII, 959- 988.

Teal, F. (2000), Real wages and the demand for skilled and unskilled male labour in Ghana's manufacturing sector: 1991-1995, *Journal of Development Economics*, Vol.61, 447-461.

Toumi, S., (1995). Analyse économétrique de la demande de travail durant la période 1967-1989, *Revue de l'Institut des Sciences Economiques*, Université d'Alger n°5.

Toumi, S. (2004a). What has been achieved in Algeria after more than a decade of economic transition, *Journal of Economics, Management & Trade*, No11, Algiers. (in Arabic).

Toumi, S. (2004b). Principles of macroeconomic analysis, *Dar Oussama for Printing, Publishing & Distribution*, Algiers. (in Arabic).

Toumi, S. and Chekabkab, A. (2005). An attempt to build econometric models, *Journal of Economics, Management & Trade*, No12, Algiers. (in Arabic).

Wooldridge, J. M., (2008). Introductory Econometrics: A Modern Approach, *Cengage Learning*, 2nd Edition.

Yahiate, M. (2004). Appropriate employment policy in Algeria to overcome unemployment under the current regional and global challenges, *Journal of Economics, Management & Trade*, No11, Algiers. (in Arabic).