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SEGMENTATION OF THE LABOR MARKET IN ALGERIA AND THE DETERMINATION OF WAGES IN AGRICULTURE, FORMAL AND INFORMAL SECTOR

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Abstract

While anchored in the logic of empirical validation of the theory of segmented labor market, this study propose to go beyond the structure of the labor market based on the formal and informal divide, to the use of a structure based on Institutional Differentials associated with the hold job protection and Regardless formal or informal workplace. The approach in this context raises a quite relevant problematic in linking the issue of segmentation of labor market to that of validation of the theory of human capital. To do this, we used the data available from micro 'consumption and income "Among Households survey Conducted by the National Office for Statistics in 2000 (Algeria).

JEL Classification: J21, J31, O17, O55

Key words: labor market, segmented, informal, wages, Algeria

1. Introduction

For all neoclassical economists, the labor market is a homogeneous space governed by uniform rules, perfectly competitive. The salary was supposed to flexible, which allowed adjustments of supply and demand work. While other analyzes were designed to show the contrary, the labor market is not as assumed by the neoclassical, but there are various areas of mobility within the market working. Wages could be rigid or for institutional reasons or for organizational reasons and methods for managing the workforce, or because of relationships specific job.

In Algeria we are seeking of a transition economy that is experiencing serious difficulties. The low growth rates[1] added to the failure in job creation to absorb the growing demand in the labor market[2], testimony to the continuing difficulty of the country to develop.

Its structure is characterized by the limited capacity of job creation in the formal sector combined with a negative trend in productivity, lower labor compensation and inefficiencies in the education system. Such macroeconomic characteristics explain the importance of the informal economy[3]. The excess labor supply over demand in the formal private and public sectors push some young graduates to the informal labor market which actually absorbs a significant portion of the labor surplus (this is a relatively new phenomenon in Algeria). The informal sector has regained one of its essential functions and traditional "anti-crisis" implementation by households to ensure their survival. The absence of unemployment benefits for first job seekers and more generally the weakness of the welfare system accentuate this sense, the informal sector while appearing as the main opportunity to pay for the assets but also poached for newcomers in the labor market, may have thus an incentive effect with respect to certain segments of the population hitherto the inactive such as the old, women, or children. The recession of the mid-80s, as occurred in Algeria, has indeed stimulated the interest in "small trades» that appear gradually as an alternative for a young and dynamic workforce looking for their first job. Finally, the compensating effect of the informal sector also intervenes through the growing phenomenon of moonlighting as a reaction to declining purchasing power of households observed from the late 80s.

Since the 90s, no study on the segmentation of the labor market in Algeria has been made. The only attempts that existed focused on the definition and measurement of informal

[1] The GDP (Gross Domestic Product) growth rate in Algeria had an average of 1.5% between 1990 and 1999, rising to 2.2% in 2000, 2.7% in 2001, 4.7% in 2002, 6.9% in 2003, 5.2% in 2004 and 5.1% in 2005, 6% in 2007, 4.9% in 2008 and 4.5% in 2009

[2] The participation rate increased from 6% to 27.9% between the 1987 and 1998 censuses. It reached to 43.9% in 2008 census.

[3] Researchs on the functioning of labor markets in developing countries have largely developed in recent years through the analysis of the functioning of the informal sector. There have demonstrated the growing importance of the informal sector in its contribution to employment (between 1 / 3 and 2 / 3 of total employment) and production (1 / 5 of GNP) (Charmes, 2000).

employment[4] . Since 1992, surveys of the workforce could cast some criteria for defining the informal sector to informal employment to locate. In this case, the social security registration, place of performance of the activity, the size of the institution, the status of the institution, the registration form and method of taxation. All these criteria are strongly correlated, so we can settle for one as advocate Lakehal and Ali Bacha (1994). In their work, they identify the non-agricultural informal workers by the lack of registration with social security[5], justifying their choice from a preliminary work where they show that there was a strong correlation between criteria, and therefore they could settle for one. The choice fell on registration for social security since this variable is populated for all categories of workers. In addition, at present, informal employment is defined by the characteristics of the job, in this case the non-registration, there is no contract or no social protection (BIT 2003).

By taking position in this context, this study aims to fill an important gap in the analysis of the use and operation of the labor market in Algeria. It aims to answer questions relevant to the socio-economic policies. We try to answer important questions such as: How to allocate the job? Is there a segmentation of the labor market[6]? What are the determinants of the allocation of individuals to various segments? To do this, we begin with a brief presentation of the theory of segmentation of the labor market. We will then give the econometric model through which we attempt to test the hypothesis of segmentation of the labor market in Algeria. Subsequently, we will begin micro econometric study on the basis of micro data from the income-consumption survey conducted through 2000 households. We begin by identifying segments structuring labor market in Algeria, and then we will make the econometric test.

[4] Adair (2002), Adair et Bellache (2009), Hammouda and Musette (2000), Hammouda (2006),…

[5] In Algeria, each occupied must be affiliated to a social security fund, applicable to all persons of any nationality whatsoever, working in Algeria in an employed or assimilated self-employed or are in training. The Algerian social security system includes disability and death, old age insurance, accident insurance and occupational illnesses, family benefits (family allowance, schooling allowance) and unemployment insurance. Its organization is based on four cases: the CNAS (National Social Insurance Fund for employees), the CASNOS (social security fund for self-employed), CNR (National Pension) and CNAC (National Fund of unemployment insurance). They are placed under the guardianship of the Minister of Social Security, for the first three, and the Minister of National Solidarity for the last. CNAS manages the collection of all social security contributions and ensures that function on behalf of CNR and the CNAC. She manages the benefits in kind and cash social insurance of occupational accidents and diseases and family benefits on behalf of the State. CNR manages pensions and retirement allowances and pensions and allowances for dependents. CNAC administers unemployment benefits and initiates action to support troubled firms to safeguard employment, and reintegration assistance for the unemployed. CASNOS ensures the recovery of contributions from independent and manages the benefits intended for them (illness, maternity, retirement, disability and death).

[6] We adopt a structure based on the differential institutional protection of the employment and irrespective of whether formal or informal workplace.

1. The Algerian context: *Informal Employment and Social Protection: a wedding (im) possible?*

Large sections of society focus on the level and evolution of the unemployment rate to assess the situation of the labor market in Algeria. It seems that this view is somewhat simplistic since the ILO experts propose a series of key indicators of the labor market (KILM) to have an objective assessment. In the Algerian case where we are talking about an economy in transition, the dichotomy between active / inactive, occupied / unemployed, employed / self-employed are not always resolved. Indeed, in-depth analysis of labor market behavior of social agents reveals the existence of several forms of activity and employment making a halo between inactivity and unemployment. This is how the world of labor has changed dramatically over the last twenty years. These changes are both structural statutory and sectorial.

Indeed the first challenge has been that of the predominance of the public sector in the mid-eighties by a series of financial restructuring organic and financial, followed by drastic employees firing. With hindsight, we see that in reality these cuts have most affected the weakest link in the labor force meaning less skilled and older. Indeed, companies that have survived the wave of destructuring-restructuring will continue to hire more staff educated, younger and more feminine. Compressed staff will go either into inactivity (retirement and early retirement), or in the formal sector (government and formal sector) for those who have a share capital, or unemployed and will activate in the semi legality in what is commonly called the informal sector in all its heterogeneity due in part to the premium for voluntary departure. An unemployment insurance fund (NACC) will be specially created to compensate some of the workers laid off for economic reasons, usually younger and therefore can neither benefit from early retirement nor a voluntary severance consistent package since it is proportional to the length of service. During this transitional period marked by turbulence, compressed workers will continue to benefit from social protection (thanks to the contributions of the public sector) and cumulative (for some) undeclared activity in the private sector either as an employee or independent. Even retirees and pre-retirees (some of them at least) will continue to engage in gainful employment as informal because of their low pensions but also a continual loss of purchasing power due to lack of appreciation consistent. Indeed, the system of indexing pensions in force, is not quite clear, and the argument of the financial balance of cash, ultimately takes precedence, even if the union is involved. This argument is he the road given the number of new jobs announced for several years now? So indirectly it is the public sector workers that fund part of the system of social protection of employees in the private sector. This imbroglio is related to uncertainty surrounding yet the identification of assured.

To illustrate our point, we can mention the land transport sector both urban and intercity, we passed a few public enterprises operating in compliance with the labor legislation thousands of small businesses operating in the semi private law insofar as they do not comply consistently social legislation. This fragmentation of the productive system is also observed in other sectors such as trade, industry, textile or building with consequent weakening of wage labor. Indeed, even from the point of view of union representation, the law provides that from

the nine employees. It is true that the law provides for the possibility of grouping workers more businesses neighboring cell to form a union. In fact nothing of the sort happens.

How disguised wage workers intramural could be seen? This is particularly the case of working from home. In the building industry the situation is even more worrying in that the working conditions are at high risk - occupational diseases and accidents are legion. In fact, a large segment of the workers in this sector is excluded from any form of social protection. Unlike the Textile sector, building sector is more visible and therefore more controllable as part financed by public expenditure. Do not forget that a significant proportion also active in self-building, which is another difficulty to enforce labor legislation in all its rigor. The retail sector has also undergone fundamental changes to its configuration that has seen the disappearance of public enterprises and monopoly on foreign trade. Thus it has been completely atomized as a new configuration with a core group of wholesalers and importers, backed by hundreds of thousands of freelancers and employees working at the limit of legality enjoying some permissiveness, which makes any attempt to organize the profession random. In this sector as well as Services, many questions come to mind: what are the working hours? What about the weekly rest or annual leave?

Regarding agriculture, after attempts of its integration in a system of universal social protection in the 1970s, it is noted that it continues to operate according to specific standards, although Employment there grew in recent years. But wage growth in this sector, calls our attention concerning the actual functioning of this segment of the labor market. What is the part of the peasants, wage earners in agriculture who benefit from the welfare system? Women, children, elderly exercise seasonally as extra work needed at different times. Should be in this case go to insurance plans tailored to different sectors? This is the case for example in Tunisia, which has significantly improved their social security coverage.

Following this brief overview of the development sector in direct connection with the evolution of Algerian productive system, it should be interesting to analyze the evolution of employment status. We distinguish two phases: the first starting from independence until the mid eighties when the proportion of employees increases, then a second period that continues until today when the trend reverses as the proportion of non-employees is increasing. Even if the two social security funds (paid and unpaid) are independent, fleeing social tax non-employees could eventually undermine the balance of the protection system in its entirety if it remains in its current configuration. And in this case we should stay in a contributory system (funded by employee contributions) or move towards a system of universal type and therefore financed by taxes? Moreover, since there is a background consisting of 2% (3% since 2011) of the oil tax is expected to power the pension fund, and a portion of the population is directly supported by the budget State. It is even expected that the State take over all or a portion of payroll taxes for new hires according to predetermined criteria under the new employment policy. The extension of coverage is a challenge for public policy for decades to come. This question is largely obscured by the debate on the financial sustainability of the social protection system in its various components (health insurance, retirement). Note that so far the family branch remains a challenge. Its funding and generalization should be a wide debate on the extent of the issue. This debate is all the more necessary it is always a confusion largely

maintained between the minimum wage and family budget type. In fact, the minimum wage is theoretically related to labor productivity and therefore economic activity while the family budget type refers to the family structure that evolves according to the life cycle.

At this level of analysis we propose several tracks reflection for a generalization of the social security: how to account for the strong heterogeneity whatsoever among employees or non-employees? In particular how to integrate the status of the non-wage workers to non-employees? In fact, this category includes youth and women in companies that activate or family farms when this activity is not recognized and taken into account at the time of retirement. For employees, it seems to us that the treatment of TCE is unfair. Indeed, unemployment insurance introduced in 1994 was intended as accompaniment of downsizing during the structural adjustment period to minimize the social impact. So, how to widespread unemployment insurance to all TCE as well as their proportion among employees is increasing and knowing they contribute under social insurance? Flexibilisation of the labor market should be designed taking into account the need for social protection of the worker. This question should be entered in the agenda of the tripartite. What kind of union representation of employees in fixed-term contract or are they voiceless?

Changes to the actual functioning of the labor market that we have seen over the past twenty years and in the future pose the problem of the necessary institutional adaptation to correct malfunctions and informal employment. The coexistence of two segments of the labor market operating according to different standards from each other formal and informal, is it normality in economic transition or a phenomenon of exclusion of a fringe of social actors (younger, less educated, women, rural)?

We have to admit that the scrutiny of the evolution of employment over a long period makes us look more towards the second explanation, and ask The question thus bringing the way of those excluded. Are they represented in the tripartite? This question seems quite relevant to the extent that there is a question of "insiders" who are in the formal sector (government, public and private formal economy). Can we achieve social and macroeconomic equilibrium omitting expected when more than half of the labour force is excluded? Social exclusion is thus a reality on the labor market. "Outsiders" are organized to survive on the edge of the formal borders. In fact, beyond the discourse of informal, no concrete action has been implemented to protect workers from the informal sector, particularly in its legitimate form, legal and lawful.

Another remarkable change in the occupational categories, the continued decline in the part of workers section. This decline is due to the reduction in the share of industrial sector in job creation. If we consider that the worker is the figurehead of unionism because of a strong collective identity, what would be the implications of such a reconfiguration of the social landscape? In return we note increasing categories of staff and middle and senior management. Hence probably a lack of representation of emerging categories in the union which led the historic landscape reconfiguration Algerian union. This fragmentation of union representation of employees undermines the principle of solidarity in the workplace which is based on the social welfare system. While substantive questions about the mechanisms of

redistribution of the fruits of growth are obscured in favor of a single system that the redistribution of income return. How is redistributed non hydrocarbon growth between wages and profits? It is clear that the share of compensation of employees in the household income is decreasing in favor of the non employees who mixed income (profit plus remuneration of unpaid labor). On the other hand the share of wages in value added (hence the wealth created) is low. This leads us to say that informality is not due to the excessive costs of labor and therefore the cost of legality. But the new employment policy of taking over part of the salary costs for new recruits implicitly assumes that the demand for labor by employers is low because of alleged excessive cost of labor.

2. Theory of labor market segmentation: a brief introduction

The first dualistic models, including Lewis who opened the field in 1954, were based on the wage gap between a traditional (agricultural) and a modern sector. But they do not take into account the phenomenon of unemployment. This full employment assumed that authors explain the lack of services covering the risk of unemployment, did not fit the majority of empirical results.

The second generation introduced three possible deviations of the market. Each individual has a choice between a job in the modern sector employment in rural sector or unemployment. Among the most famous, quoting the publication of Harris and Todaro in 1970 and the work of Mincer in 1976. These models make account both of the dual compensation (modern urban sector, the agricultural sector) and the existence of unemployment.

The equilibrium condition is expressed by the equalization of incomes in each sector, taking into account the probability of unemployment. The interconnection between the rural and urban areas is done by migration. Although these models have not neglected the unemployed, they are still far from reality. For them dichotomy urban / rural partition is considered to modern / traditional. They do not take into account the existence of an urban informal sector, which can not be confused with the modern urban sector. It will then wait for a new generation of models appear to see specifically the urban informal sector. This differs from the modern sector covered mainly by direct access mode. The modern sector is protected (institutional regulation, union power, ..) while the informal sector is often characterized by the absence of barriers to entry. The existence of four possible states (unemployment, employment in formal, informal and agricultural) make strategies choice of actors quite difficult. Two types of behavior were identified (Roubaud, 1994, p200, 201):

Model 1: Lopez (1970), Mazumdar (1976)

- Remain in rural areas, without being able to get a job in the modern sector and earn farming income.

- Seek employment in an urban area. If an opportunity is offered to hire in the modern sector. If not, and the number of places available, work in the informal sector.
- Otherwise, remain unemployed.

Model 2: Fields (1975)

- Remain in rural areas, without being able to get a job in the modern sector, and earn income agriculture.
- Due unemployed, seeking employment in the modern sector. If an opportunity is offered to hire in the modern sector.
- Otherwise, remain unemployed.
- Due used in the informal sector, seeking employment in the modern sector, with a lower probability to get that as unemployed (which can devote all his time? If an opportunity is offered to hire in the modern sector.
- Otherwise, stay in the informal sector and earn income from this sector.

Both models need to establish a hierarchy between the three income opportunities. These are the conditions to ensure balance. were:

- Model 1: $AI < WM$ and $II < WM$
- Model 2: $II < AI < WM$

Where: I = income, W = wage, and the three sectors respectively: agricultural (A), informal modern (I), modern formal (M).

3. Empirical test of the segmentation of the labor market

If the segmented nature of the labor market corresponds to observed reality, there is no explicit model of the segmentation for a clear test of the theory. Empirical works for the most part, are based on the dual version of the theory[7] by focusing on the existence of differences in returns to education and experience between segments and barriers to entry in the sector with high wages. On the opposite, sector workers in low-wage enter the high-wage sector and force wages until wages across the sector are equalized.

Based on this conclusion, the first empirical work[8] testing the dual hypothesis is to compare two wage equations estimated over two sub-samples of a population. However, the conclusion of this test is distorted by the existence of sample selection bias (Heckman 1976, 1979). This

[7]The work of Doeringer and Piore (1971).

[8] We refer to Heckman and Hotz (1986) for a discussion of this works.

bias appears whenever you use a sample selected in a larger population to test behavioral relationships.

In order to proof to the fullest extent possible, we conducted a series of tests for market segmentation working on the basis of the application initiated by referential Gindling (1991). While starting with the Chow test to test the stability of the coefficients of earnings equations, then discusses the analysis of wage differentials that exist between the three segments of the labor[9]market.

3.1 Presentation of the econometric model

The model presented in this subsection allows on the one hand relating logarithms (natural logarithm) wages with human capital variables for each segment and on the other, to address the issue of bias selection. It is written as follows:

$$\begin{aligned} \ln w_{mnpi} &= \beta'_{mnp} X_i + e_{mnpi} = \pi' X_i + e_{mnpi} \\ \ln w_{Ai} &= \beta'_{A} X_i + e_{Ai} = \pi' X_i + d'_{A.} X_i + e_{Ai} \\ \ln w_{mpi} &= \beta'_{mp} X_i + e_{mpi} = \pi' X_i + d'_{A.} X_i + d'_{mp} X_i + e_{mpi} \end{aligned} \qquad (1)$$

Where i identifies the individual or, mnp according to the modern sector jobs unprotected, A indicates the sector of agricultural employment and mp shows the modern sector jobs protected. With $\log w$ the logarithm of the monthly salary, which is here the dependent variable of the earnings equation, X is a vector of human capital (education, experience and experience squared) , d differences, and β a vector of parameters to be estimated .

Lets Y_{ij} the unnoticed utility by the individual derived when working in the segment J . The individual must make a choice between the three segments structuring labor market. This choice is made by comparing the utilities from the various possibilities, and it focuses on the option that corresponds to the maximum utility.

Let's M_i designs the value observed of j for the individual i , then:

$$M_i = \begin{cases} mnp & if \quad Y_{imnp} = \max(Y_{ij}) \\ A & if \quad Y_{iA} = \max(Y_{ij}) \\ mp & if \quad Y_{imp} = \max(Y_{ij}) \end{cases} \qquad (2)$$

[9] This latter is in the sens with the test of the hypothesis of limited mobility in mind of Gindling (1991)..

Thus, the utility function of individual i who chooses the alternative j is written as follows:

$$Y_{ij} = K_j^{'} Z_{ij} + \varepsilon_{ij} \qquad (j = mnp, A, mp) \tag{3}$$

Where:

- Z_{ij} is a matrix of individual characteristics observed us: the place of residence, gender, marital status, education level, age and age squared.
- K_j is a vector of coefficients to be estimated.
- ε_{ij} is a random component with conditional expectation zero in Z.

Since the individual is observed only in one of three segments, then the wages will be subject to the results of (2) and (3). Thus, the wage equations are written as follows:

$$\ln w = \begin{cases} \ln w_{mnp} & if \quad M = mnp \\ \ln w_A & if \quad M = A \\ \ln w_{mp} & if \quad M = mp \end{cases} \tag{4}$$

Now, taking the expected of the logarithm of wages conditional on the segment to which the individual is affected captured by (4), we obtain:

$$E(\ln w_j / M = j) = \beta_j^{'} X + E(e_j / M = j) \qquad (j = mnp, A, mp) \tag{5}$$

Selectivity is present if $E(e_j / M = j) \neq 0$, that is to say, when individuals in a given segment are not a random subset of the population. In this case, the classical estimation method of ordinary least squares does not provide consistent estimators in general.

Gindling (1991) in his work used the procedure developed by Lee (1983) to correct the selectivity, which allows taking into account more than two alternatives. In our work, we will not develop the whole procedure, but is limited to the essentials.

Suppose that the perturbations ε are independent and follow the same law of Gompertez whose distribution function is $F(v) = \exp(-\exp(-v))$ then the allocation model to different segments of the labor market is multinomial logit. Thus, the probability that the individual i chooses the segment j is given by the following equation:

$$P(Y_i = j) = \exp(K_j^{'} Z_i) / \sum_{s=mnp,A,mp} \exp(K_s^{'} Z_i) \quad (6)$$

The correction of a possible selection bias is to introduce the inverse Mills ratio (λ) in the earnings functions as an explanatory variable obtained from the first model of affectation to the segments of employment. It is given as follows:

$$\lambda_j = \frac{\Phi\left[\phi^{-1}(P(Y_i = j))\right]}{P(Y_i = j)} \text{ , } ((J =, A, mnp, mp)) \quad (7)$$

Where ϕ and Φ are the standard normal density function, and the standard normal cumulative function respectively and the $P(Y_i = j)$ are defined before. Existence of a selection bias will result in a significant coefficient and notifies the non-random allocation of individuals in the areas of employment affects wages earned. Thus, the equations of the gain can be formulated as follows:

$$\begin{aligned} \ln w_{mnpi} &= \beta_{mnp}^{'} X_i + \tau_{mnp} \hat{\lambda}_{mnp} + u_{mnpi} \\ \ln w_{Ai} &= \beta_A^{'} X_i + + \tau_A \hat{\lambda}_A + u_{Ai} \\ \ln w_{mpi} &= \beta_{mp}^{'} X_i + \tau_{mp} \hat{\lambda}_{mp} + u_{mpi} \end{aligned} \quad (8)$$

The parameters of the system of equations (8) are estimated using ordinary least squares. A simple formal statistical test used to test the existence of selection bias; it amounts to test the null hypothesis: $H_0 : \tau_j = 0$

3.2 Stratification of the labor market in Algeria

Remaining within the logic of empirical validation of the theory of labor market segmentation, we adopt a structure based on differential institutional protection of their job and regardless of formal or informal workplace (agricultural employment, Modern unprotected and protected modern). It will be appreciated by a set of variables available in our database namely: Membership Social Security Status in employment, payment mode and the Legal sector, and using the classification procedure in dynamic clouds after having extracted agricultural employment.

This is a sample of 11063 employees drawn from a database from micro 'consumption and income "Among Households survey Conducted by the Office for National Statistics (Algeria) in 2000. The survey is spread over a year. It is conducted with a representative sample of 12000 households spread across the country. Its purpose is to estimate consumer spending Algerians and their annual income. It also covers other parameters such as employment, spending on health, education and recreation.This sample represents a total of 4145000 employees. The choice of this basis (although a bit old) is due to the fact that investigations "employment" conducted annually by the ONS do not capture earnings. It should be borne in mind that the expenditure surveys of household consumption, unlike employment surveys do not capture activity during the reference week but one week in mobile since the last survey a full year. On the other hand, the employment component is reduced to its simplest expression. These two points make comparability with surveys job is not easy.

3.3 Wage Gap

To complete our approach and to make it as rigorous as possible, we add the analysis of pay differences between the three segments. These differences may result from many factors. A portion explained by differences in productive characteristics of individuals and companies to which they belong and the one hand and unjustified related to differences in the returns on the labor market with identical characteristics. Adopting the methodology that was used by Oaxaca and Ransom (1994), the difference in log wages between two groups of workers j and j' (j and $j' \in \{A, mnp, mp\}$ $J \neq J'$,) can be written as follows:

$$\Delta \ln W = (\hat{\beta}_{0j} - \hat{\beta}_{0j'}) + \hat{\beta}^{*}(\overline{X}_{j} - \overline{X}_{j'}) + \overline{X}_{j}(\hat{\beta}_{j} - \hat{\beta}^{*}) + \overline{X}_{j'}(\hat{\beta}^{*} - \hat{\beta}_{j'}) + (\hat{\tau}_{j}\overline{\hat{\lambda}}_{j} - \hat{\tau}_{j'}\overline{\hat{\lambda}}_{j'}) \quad (10)$$

Where $\overline{X_j}$ and $\overline{X_{j'}}$ are the averages of individual characteristics for both groups, $\overline{\hat{\lambda}_j}$ and $\overline{\hat{\lambda}_{j'}}$ are the averages of terms of selectivity for both group and $\hat{\beta}^*$ represents the estimated non-discriminatory wage structure[10]. So,

$(\hat{\beta}_{0j} - \hat{\beta}_{0j'})$: The gap issue of the wages autonomous (difference between the constants).

$\overline{X}_j(\hat{\beta}_j - \hat{\beta}^*)$: The estimation of the wage advantage in favor of the majority party.

$\overline{X}_{j'}(\hat{\beta}^* - \hat{\beta}_{j'})$: The estimation of the wage disadvantage of the minority party.

$\hat{\beta}^*(\overline{X}_j - \overline{X}_{j'})$: The estimation of the productivity difference between the two populations. It is the justified part; the wage gap is explained by differences in productive characteristics of individuals.....

$\hat{\tau}_j\overline{\hat{\lambda}}_j - \hat{\tau}_{j'}\overline{\hat{\lambda}}_{j'}$: The wage gap attributable to selection bias.

4. Presentation of results

4.1 Identification of segments of the labor market

The first segment is the agricultural jobs, representing nearly 7% of the employee population, there is a majority of employees who are not affiliated to the social security and enabling the private sector. It is also non-permanent employees; the majority is paid by the day. The dominant level of education is the primary knowing that the age of 25 is the dominant one. The average monthly salary received by an employee in this job group is about 9200[11]AD.

The second segment includes nearly 23% of employees. All employees of the Group are not affiliated to social security, activating particularly in the private sector. Large fractions of them do not receive monthly salaries and do not have stability in employment (about 60% of them are not permanent). The modal age group is the 25-34. The middle school education level or less characterizes the employees in this segment. The average monthly salary received by an employee in this job category is about 9000 AD.

The third segment occupies a little more than 70% of total employees. As a whole, the employees in this segment are affiliated to the social security and almost all of them have a stable employment (more than 90% have stable contracts). They operate mainly in public administration (64.60%) and public economic sector (27.85%) knowing that all of them have monthly salaries. Women are fairly represented in the present this group compared to other segments (15.88% of employees in this segment are women, against 0.93% for the first segment and 9.39% for the second). The modal age group is the 35-49 since it represents

[10] The coefficients of the non-discriminatory situation are calculated by estimating an earnings equation on the entire population.

[11] 1 USD = 75.2569 AD in 2000.

more than 40%. The modal level of education for this group is the secondary school knowing that 13.17% of workers in this group have a higher level. This rate does not exceed 3% for the other two segments. The average monthly salary received by an employee in this job group is a little over 14700 AD.

4.2 Econometric test of the segmentation of the labor market

Firstly, a model of allocation to different segments of the labor market is estimated using a multinomial logit model. However, the use of this type of model is dependent on the satisfaction of the basic assumption "independence of irrelevant alternatives (IAA). For this, we appealed to the Hausman specification test (1978). This is to test the null hypothesis that the inclusion of a segment does not change proportionally choice between the other two segments. The strategy is to estimate the model with and without the segment failed every time. If the IIA assumption is true, the estimated coefficients restricted and unrestricted model should not be statistically different.

The test results show that the IIA hypothesis is rejected for the agricultural segment. This calls into question the multinomial logit specification for which is replaced by a multinomial probit specification.

The results of the estimation show that the assignment is not random, but is governed by a set of variables. Indeed, the fact of living in a rural area to promote access to agricultural jobs and discourages access to modern unprotected. In addition, men are more likely to be employed agricultural or unprotected against women. The fact of having a higher level of education increases the chances of getting a protected job. Moreover, being not single increases the chances of access to agricultural jobs compared to the modern protection jobs and reduces the chances of access to modern jobs which are not protected compared to the modern protected jobs. Variables related to age are growing a negative contribution in the formation of chances of getting either an agricultural job or modern unprotected one.

Secondly, testing the hypothesis of segmentation is done by integrating the functions of gains, the inverse Mills ratio calculated from the first model (probit multinomial). The results of this estimation show that the coefficient associated with the inverse Mills ratio is significant and negative in the equation for the modern protected employment and significant and positive in the equations for the modern unprotected employment as well as agricultural employment. This indicates the existence of unobservable factors that contribute to the formation of wages.

The Fisher test shows that all three models are globally significant at 1%. However, the explanatory power of these equations is considerably low[12] and varied from one segment to another. In the equation of the segment of modern protected employment, the regression has the best explanatory power, or 36.38% of the total variability. Regression equation on the

[12] Though Mincer (1993) believes that education and experience alone explain a third of the variance in wage rates in Western countries.

segment of agricultural employment ranks second with a rate of 17.49% and is the last, there is the model for the segment of modern unprotected employment, with only 16.30%. This result reinforces the hypothesis of segmented labor market insofar as the human capital theory doesn't fit with the last two segments of employment.

Finally, all variables related to human capital are significant and with the expected signs. However, the yields associated with human capital are the most important within the segment of modern protected jobs and much less in the segment of modern unprotected jobs. This conclusion is reinforced by the Chow test conducted to test the stability of the coefficients of equations taken two by two, it can reject it at a significance level of 1%. One equation can not alone explain the formation of gains on the labor market. It also reinforces the hypothesis of segmentation of the labor market in Algeria.

Having used the Oaxaca decomposition method Ransom (1994), the absolute wage gap (in logarithm) is estimated at 1.367 points for the modern protected segment from the modern unprotected segment (Table[13]5).It amounted to 1.189 if we exclude self wage differentials due to selectivity. The share is close to explain only 27%, while the rest is not explained. These wage benefits granted to protected employees (11.17%), but above all wage disadvantages imposed to employees of the unprotected modern segment (62.05%). When analyzing the absolute wage gap the results are almost the same (log) in the benefit of employees of the modern protected segment compared to the employees of agricultural segment. It is estimated at 1.293 point in favor of the employees receiving institutional protection or 1.428 points difference excluding the selectivity and wages autonomous. A little more than 20% just this difference is explained by differences in productive characteristics and the rest are associated with wage discrimination. The wage gap (in logs) for the employees of the modern segment unprotected vis-à-vis the employees of the agricultural segment is almost marginal, it is estimated at 0.074 point in absolute value.

Conclusion

In this paper, we sought to test the hypothesis of segmentation of the labor market in Algeria Based on the Heckman procedure to correct for selection bias after setting three segments structuring the labor market in Algeria. The first econometric results have shown the non-random assignment of individuals to different segments of the labor market. It turned out that the fact of living in a rural area promotes access to this segment, most men are more likely to be employed agricultural or unprotected against women. Thus, having a higher level of education increases the chances of getting a job protected. It was noted also that not being single increases the chances of access to agricultural jobs for the jobs modern protection and

[13] Coefficients of the non-discriminate are shown in Annex.

reduces the chances of access to modern jobs unprotected. Variables related to age have a negative contribution in the formation of chances of getting an agricultural or modern unprotected job.

After correcting for selection bias, the analysis of mechanisms for determining gains shows that these vary considerably across segments. This is achieved thanks to the Chow test which shows that the earnings equations are significantly different from each other. Although yields associated with human capital are the most important segment in the modern protected jobs and much less in the segment of modern unprotected jobs.

Decomposition method of wage differentials used in this work has enabled us to meet the significant differences (log) for employees working in the modern protected segment compared to those operating in the other two segments. Very important fractions of these differences are not explained (more than 75% on average). These are mainly disadvantages imposed on other employees, but also employee benefits belonging to the protected segment. The estimated wage gap in favor of employees of agricultural segment vis-à-vis employees the unprotected modern segment is marginal.

At the end of this work we were able to make some of the results that may be useful in understanding the functioning of the labor market in Algeria. Knowing that the country is about to be modernized where salary system takes another form more precarious than the old form. This institutional deprotection of employment outcome of the process of globalization of the Algerian economy can be building barriers to entry for certain jobs when the economy gets a workforce of more educated. This segmentation, attests to the interest support actions in the process of restructuring and deregulation, as well as all issues of the role of institutions in the labor market.

However, the procedure to validate the hypothesis segmentation of the labor market requires some caution and put some reservations as noted by Heckman and Hotz (1986). Dickens and Lang (1985) go further than that, they believe that even if wage-setting mechanisms have been observed in different sectors, if the workers were free to move on low-wage sectors, in order to obtain higher returns to education and experience in high-wage sectors, then the segmentation of the labor market does not exist. Both authors have developed a technique to test the hypothesis of limited mobility between sectors, however, this technique has been widely criticized by Heckman and Hotz (1986). So, the question is whether the allocation of the individual segment results from a process of exclusion or a deliberate choice especially considering that individuals maximize their utility rather than their income. This opens the door to future work.

The current situation of the Algerian labor market involves all social actors and requires the opening of a broad debate without exclusive. Indeed, no one should ignore its operation with two speeds: one governed by formal standards and labor laws and the informal sector in the margins of legality as specified by the labor code among others. Any reform of the welfare system is automatically entered in duration and can not therefore obey cyclical considerations.

To do this, the research community is particularly challenged to inform the public debate. Should this reflection can be powered by reliable data and relayed by the media and civil society!

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Table 1: Identification of segments of the labor market

	Agriculral		Modern unprotected		Modern protected	
	Effective (10^3)	%	Effective(10^3)	%	Effective (10^3)	%
Affiliation to social Security						
Yes	60	22,01	0	0	2941	100
No	214	77,99	935	100	0	0
Total	274	100	935	100	2941	100
Legal sector						
Administration	0	0	0	0	1900	64,6
Public	53	19,32	0	0	819	27,85
Private	221	80,68	935	100	222	7,56
Total	274	100	935	100	2941	100
Mode of Payment						
Month	119	43,53	625	67,21	2883	98,08
Fifteen	2	0,77	18	1,99	1	0,04
Week	8	2,81	77	8,22	10	0,36
Day	144	52,88	210	22,58	45	1,52
Total	273	100	930	100	2939	100
Situation in the profession						
Permanent	78	28,64	358	38,62	2692	91,93
Not permanent	188	68,97	554	59,79	230	7,86
Other	7	2,4	15	1,59	6	0,21
Total	273	100	927	100	2928	100
Sexe						
Male	272	99,07	847	90,61	2474	84,12
Female	3	0,93	88	9,39	467	15,88
Total	274	100	935	100	2941	100
Education						
Uneducated	66	24,2	111	11,89	329	11,19
Literate	24	8,64	53	5,65	161	5,47
Primary (1&2 cycles fondamental)	90	32,81	295	31,55	543	18,47
Average (3 cycle fondamental)	70	25,49	314	33,57	714	24,28
Secondary	18	6,46	140	15,01	806	27,41
High	7	2,39	22	2,33	387	13,17
Total	274	100	935	100	2941	100
Age						
Under 25 years	88	32	278	29,74	365	12,42
(25-34)	71	25,81	348	37,26	917	31,17
(35-49)	87	31,68	250	26,75	1281	43,57
50 years and over	29	10,51	58	6,25	378	12,84
Total	274	100	935	100	2941	100
Average wage (Algerian dinar)	9272,36		9084,88		14705	

Source: Consumer Survey, ONS, 2000

Table 2: Hausman specification test

Omitted	Chi2	df	P>chi2	Evidence
Agrical	47627,85	10	0.000	against Ho
Modern unprotected	-19385,85[14]	10	1.000	for Ho
Modern protected	-1.61e+05	10	1.000	for Ho

Source: Consumer Survey, ONS, 2000.

Table 3: Estimation of the equation of access to different segments (multinomial probit)

Variables	Coef	Sig	Coef	Sig
	Agrical		Modern unprotected	
Female	-1,383	***[15]	-0,216	***
Mal	Ref	--	--	--
No single	0,489	***	-0,042	***
Single	Ref	--	--	--
Literate	-0,297	***	-0,012	***
Primary 1 and 2	-0,521	***	-0,152	***
Average	-1,178	***	-0,721	***
Secondary	-1,957	***	-1,386	***
High	-1,705	***	-1,985	***
Uneducated	Ref	***	--	--
Rural	0,468	***	-0,214	***
Urban	Ref	--	--	--
Age	-0,235	***	-0,147	***
Age squared	0,002	***	0,001	***
Constant	3,935	***	3,35	***
Modern protected is the base outcome	N = 11036		Log likelihood = -2711498,3	
Wald chi2(20) = 692979,67	Prob > chi2 = 0, 000			

Source: Consumer Survey, ONS, 2000.

[14] Obtaining a chi-square statistic negative means that the model fitted on these data fails to meet the asymptotic assumptions of the Hausman test.

[15] Significative at 1 %

Table 4: Estimated earnings equations controlling for selection bias

	Agrical (1)		Modern unprotected (2)		Modern protected (3)	
lnw	Coef	Sig	Coef	Sig	Coef	Sig
Experience	0,0259	***	0,0231	***	0,0677	***
Expérience squared	-0,0003	***	-0,0004	***	-0,0009	***
Literate	0,0579	*	0,0418	ns	0,1274	ns
Primary 1 and 2	0,1406	***	-0,0449	ns	0,1979	***
Average	0,1559	***	0,0117	ns	0,2979	***
Secondary	0,329	***	0,0519	**	0,6516	***
High	1,0092	***	0,1183	**	0,9622	***
Uneducated	Ref	-	Réf	-	Réf	-
Female	-0,207	ns	-0,611	***	-0,1867	***
Mal	Ref		Réf		Réf	
No single	-0,004	ns	0,0632	ns	0,1532	***
Single	Ref		Réf			
lambda	0,0004	ns	0,0327	ns	-1,2395	***
constant	8,564	***	8,7061	***	8,1868	***
Model (3)	N=7494		Prob > F=0,000		Adj. R-squared=0,3638	
Model(2)	N=2226		Prob > F=0,000		Adj. R-squared=0,1630	
Model (1)	N=934		Prob > F=0,000		Adj. R-squared=0,1749	
Chow (Sig)	F (1-2) =1348,86 (***)		F (1-3) =11215,65 (***)		F (2-3)=26891,43 (***)	

Source: Consumer Survey, ONS, 2000

Table 5: Decomposition of the wage gap with equations corrected for selection bias[16]

	Gap 1	% in *	Gap 2	% in *	Gap 3	% in *
Wages autonomous (1)	-0,377	---	-0,519	---	0,142	---
Wage advantage (2)	0,133	11,17	0,133	9,3	-0,995	---
Wage disadvantage (3)	0,738	62,05	0,995	69,65	0,738	---
Part unexplained (2) + (3)	0,87	73,22	1,128	78,95	-0,257	---
Part explained (4)	0,318	26,78	0,301	21,05	0,018	---
Selectivity (5)	-2,179	---	-2,202	---	0,023	---
*= (2) +(3) +(4)	1,189	100	1,428	100	-0,239	---
Total gap	-1,367	---	-1,293	---	-0,074	---

Source: Consumer Survey, ONS, 2000.

[16] Gap 1: the estimated wage gap in logarithm between the protected segment and the agricultural segment.
Gap 2: the estimated wage gap in logarithm between the protected segment and unprotected segment.
Gap 3: the estimated wage gap in logarithm between the unprotected segment and agricultural segment.

Appendix:

Table 1: estimating the gain equation for all employees

	All employees	
lnw	Coef	Sig
Experience	0,0643	***
Expérience squared	-0,0008	***
Literate	0,1419	***
Primary 1 and 2	0,2298	***
Average	0,4488	***
Secondary	0,8347	***
High	1,1898	***
Uneducated	Réf	
Female	-0,1982	***
Mal	Réf	
No single	0,161	***
Single	Réf	
Constant	7,82	***
N = 4025449 Prob>F=0,0000 AdjR-squard=0,3152		

Source: Consumer Survey, ONS, 2000.