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Full Length Research Paper

Poverty Profiles Across Labor Market Segments in Benin

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This article, based on the theory of labor market segmentation tries to assess the participation in the labor market in connection with poverty status. Using cross-sectional data from household standard living condition survey of 2006 and K-means algorithm, the paper shows that the labor market in Benin consists in five segments that can be characterized by irregular workers, rural vulnerable independent, rural competitive salaried, urban competitive salaried and a mixed group of protected employees and independent with capital. The poverty profile for each segment is produced. The segments of rural vulnerable independent and that of the rural competitive salaried proved to be the poorest. The poverty status is estimated with a continuous censored dependent variable with selection controlled for by the conditional probabilities deriving from a multinomial logit. Results show the presence of unobserved factors affecting participation in segments that influence poverty status.

Keywords: K-mean algorithm, poverty, labor market, selection bias.

INTRODUCTION

Employment is the starting point from which economic growth reduces poverty. When employment opportunities increase as economic activity expands, the benefits of growth are widely shared. Access to employment has been identified as an important factor in reducing inequality and poverty gaps. The situation of individuals with respect to job becomes a key determinant of their living conditions. This is especially strong in developing countries where many households derive an income from their labor force selling. The most disadvantaged individual are often the most vulnerable to changes in the labor market [El Aynaoui, 1996]. Several other studies show that poverty should not be regarded as a mere residual problem, but rather as the result of a particular dynamic of the labor market [Laïb, 2006, Addison and Demery, 1995].

Indeed, the structure of the labor market and its mechanisms contribute to aggravate, or even generate poverty. This market may not be regarded as a place where goods and services would be exchanged in the strict sense and the equilibrium would be realized by simple adjustments in prices. The relationship between sellers and buyers has here a composite content that does not limit itself to the market. The heterogeneity of conditions on the labor market, the variety of institutions and mechanisms determining access to employment and it stability, the legal and social context are part of a wider social process that determines the use and the

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remuneration of labor. Poverty rises from this "employment process" in the broad sense as well as from obvious factors such as the general level of production and productivity in the economy (Rodgers, 1989). There is a multiplicity of underlying dynamics of poverty. The structure of the labor market and the nature of its stratification proved to be central elements in explaining the incidence of poverty.

The heterogeneity of the labor market is generally translated into developing countries by it duality. The labor market in developing countries is generally characterized by the presence of a large informal sector. While the formal sector is subject to regulation and taxation, with wages paid on a regular basis and explicit contracts between employers and employees, the informal sector is not subject to institutional regulation and most often is consisting in small firms or self-employment. The informal sector has a very important place in the economies of developing countries. Indeed, it is not uncommon that evaluations show a contribution to 50% of this sector to GDP in these countries. The main players in this sector are individual workers (street vendors, household etc.) as well as enterprises. The goods and services produced by this sector are mainly supply to low-income populations. It is also a sector that creates jobs, particularly jobs requiring unskilled workforce.

This duality of labor markets in developing countries through its underlying mechanisms guide toward the informal sector individuals with low relative productivity (with respect to the formal sector) [Heckman and Sedlacek, 1985] or individuals rationed in the formal labor market [Fields, 1975]. According to this thesis, the informal sector would be counter-cyclical. Gradually, as production declines, layoffs and the unemployment rate increases in the formal sector, this will increase the workforce in the informal sector. The informal sector is regarded as a survival strategy or as a buffer between the unemployment situation and the formal work. This credits the argument that there exists a correspondence between unemployment or low pay and poverty. The job is important, but the type of employment and the job quality are not less significant. The informal keeps people in poverty because of low incomes, the insecurity and the vulnerability of their jobs. In this logic, one is tempted to believe that the informal sector develops mechanisms that hold people in poverty, and it becomes appropriate to explicitly incorporate the informal in the poverty reducing.

The new directions of the development policies give to the informal sector and a new and central role in the strategies to fight poverty. The focus on poverty reduction (through the PRSP and HIPC initiatives and the MDGs), puts the support policies to the informal sector at the heart of the development strategies.

All this reflects a renewed interest in matters of employment, micro-credit, all intimately related to the informal sector. Benin appears to acquire to that idea since the implementation of microfinance programs to the poorest and the National Fund for the promotion of youth employment, that finance respectively, women and youth of the informal sector. The goal of these programs is therefore to fight poverty in its field, ie the progressive formalization that will result from the development of micro-enterprises would reduce the informal and in turn the poor.

This highlights the idea of working poor which include all poor workers because of their insufficient income. This reflects a positive correlation between low wages, poverty and informal. Existing data do indeed show the complexity of this relationship. An estimate of the International Office of Employment shows that more than 500 million individual employees across the world live in poor households (Kapsos, 2004) while on the 3 billion people worldwide who are employed nearly 1.8 billion work in the informal sector (OECD, 2009). These statistics show that all individuals working in the informal sector are not poor. Recent data on Benin also seem to confirm these predictions. The trade in contraband petrol (70% of national demand) generates a net profit of 34 billion FCFA per year, a monthly gross margin between 70,000 FCFA and 170,000 FCFA for each player in this trade (Igué 2008). Compared to the wages of the public employees, the situation of the individual in this sector of the informal is far better. The situation is similar for other important activities of the informal such as distribution (informal trade), zemidjan Motor bike taxi

(which brings about 75,000 FCFA per month) or restaurant (Igué 2008). In light of these statistics, it would be difficult to conclude that in Benin or in general, that the informal is the refuge of the poor, and that economic growth would reduce the informal sector and hence the proportion of the poor. Many other studies confirm these reserves one must make on the conclusions that incomes are systematically polarized in favor of the formal sector (Fields, 1990; Lachaud, 1995).

Vulnerable forms of employment do not follow the lines of the two mutually exclusive sectors. In fact, some employees of the formal are also disadvantaged as are independent workers of informal sector. These arguments show that the labor market is very heterogeneous and considering it as homogeneous in these two segments (formal and informal) would contribute to bias the policies. The reality is rather that of a fragmented market into sub-segments different from each other. Then the forces that structure the labor market condemn certain groups of workers into poverty, by confining them in precarious and vulnerable jobs. The incidence of poverty thus maintains links with the participation of individuals in the labor market, but also with how this integration is made. Thus, the status on the labor market strongly influences the standard of living of households. This is the analytical direction this work

seeks to explore.

Building on the heterogeneity that characterizes the functioning of the labor market, this study aims to analyze its implications in terms of poverty-induced, and break the collective thinking that is to say that participation in one of the mutually exclusive sectors (informal or formal) justify the poverty status.

The study will fill the gap in Benin with respect to the interaction between the labor market and poverty. In the past, most studies conducted in Benin, were especially interested in the measure of poverty and its dynamics [Adjovi, 2004; Atanasso, 2003; Adjovi, 2002; Mededji, 2002; Adegbidi 2002]. Some authors still focusing on the evaluation of poverty reducing policies [Medjigbodo, 2003; Mensah, 2003; Medjigbodo 2002]. Throughout these works, no formal reference is made as to the potential complexity of the links between labor markets and poverty. It is worth mentioning the study of Lachaud (1996) on poverty and labor markets in Benin, which is the only study that tries to link poverty and the status on the labor market. If this study is a precursor, it is subject, however, to fundamental methodological criticism. His work does not address the problems of selection nor the truncation or censure inherent in this type of study. It also uses 1986 data for which the dynamics that characterized the labor market is no more relevant today.

The main objective of this research is to determine the role of the informal economy and the involvement of the poor in its animation. Specifically, these include:

- Proving the existence of segmentation by capturing the latent process of allocating individuals into segments
- Testing the existence or not of simultaneity between the choice of sector and poverty status

The study uses data from the Integrated Modular Survey on Household Living Conditions (EMICOV) conducted by National Statistics Institute INSAE (2006).

The work is organized as follows: in the first section we present the objectives of the study; then in the second section we present an overview of the literature on the segmentation of the labor market and poverty. In the third section, we make an empirical analysis of market segmentation in relation to poverty in Benin; in this section, after having presented the analytical framework, we characterized the labor market in Benin. The issue here is to have a typology (hierarchical cluster) of individuals surveyed in order to obtain homogeneous groups vis-à-vis to their characteristics. Then, using standard measures of poverty, we define poverty profiles corresponding to each group or segment of the labor market. In the fourth section, we present an econometric analysis of poverty and work status. We assume that the status of the household head on the labor market strongly influence the level of the households welfare. In this regard, a model of poverty status (from expenditure) is estimated by controlling for the selection bias with the conditional probabilities deriving from a multinomial logit. Then, in a final section, we present the conclusions and policy recommendations.

Labour market segmentation and poverty: a literature review

The apprehension of the dynamic evolution of the labor market in developing countries is hampered by the immanence of its discontinuities and heterogeneity. We propose a review of the economic literature that accounts for this stylized fact and its influence on the distribution of income, therefore on the evolution of poverty.

The labor market dualism and poverty

Traditionally, the labor market is assumed to be segmented into two parts. On the one hand the formal, modern, industrial and on the other hand the informal sector, traditional, agricultural or rural. The approach of dual labor market runs from the fact that earnings of individuals are largely based on their sectoral location on the labor market. The segmentation of the labor market in formal and informal sector has been analyzed in depth during the past two decades. Two different views on the role of the informal sector coexist. On the one hand, proponents of the theory of rationing in the formal sector [Fields 1975]. Those who cannot get a job in the formal sector, are either unemployed and are prospecting opportunities from this position or decide to work temporarily in the informal sector. The idea is that the informal sector is a drop point for individuals who have not yet found a work in the formal sector. The informal sector is then considered as a buffer area between unemployment (not working) and the formal sector. On the other hand, the two sectors are considered as symmetric and competitive. The formal and the informal have different productions functions and the heterogeneity between workers justifies the fact that some are more productive in one sector or another. This view clings to the assumption that the wage differentials observed are the result of underlying individual differences in human capital endowment. Thus, the worker chose to work unrestricted in the area where it is most productive, and can earn the highest salary [Heckman and Sedlacek, 1985].

The conceptual distinction between formal-informal is based on two principles: the free entry into the informal sector, in the sense that this sector is not subject to rationing, and differentiation of the labor market arising from production system. De facto, the location of individuals in different strata of the labor market depends on their membership in a particular productive sector. According to these dichotomization criteria, the informal

becomes the refuge of the poor. Facing with the general lack of formal employment thus constrained on the formal sector, and by the limited of the social security systems, the poor often have to accept any type of work to ensure their survival and that of their family. Those dismissed must often take the first job that comes along; even if it is less good than that they just lost. The low level of productivity relative to the sector contributes to developing a mechanism that retains the individuals who participate in poverty.

Informal jobs are often insecure, low productive and low overall quality. Most informal workers are exposed to various risks - health, safety, loss of income - and do not receive adequate protection. This is especially true for those who are self-employed or are employed in the informal sector. In developing countries, many people are unable to manage periods of unemployment. Recourse to informal work becomes a survival strategy. In addition, some groups - such as youth and women - are disproportionately represented in this job category. Except the income level, informal employment causes an erosion of fundamental rights and makes their defense more difficult. As such, it can be a major cause of poverty regardless of income level.

The dual approach of the labor market is a theoretical justification of the relationship informal sector - poverty in the sense that only excluded from the formal market is reflected in the informal sector. Thus, since the adoption of the MDGs in 2000 by over 190 Heads of State and Government, the reduction of poverty is among the major concerns of policymakers in developed and developing countries. Discussions on how to enable the achievement of these targets have raised questions again about the role of employment in this matter (Islam, 2006, Cook et al. 2008; Ronnas and Lundström, 2006) and how to create not just more jobs but also better jobs (Paci and Serneels, 2007). Many studies that analyze the "pro-poor growth" indicate that the existence of well functioning labor markets is critical to effective reduction of poverty through growth (Osmani, 2005; Islam, 2006; Ronnas and Lundström, 2006).

But to better understand the relationships that bind the labor market (or sector) and poverty, the debate has focused from the 1990s on the question of whether workers and firms deliberately choose to leave the formal or if they are excluded from the formal structure that is constituted of laws and obligations. Two schools of thought dominate according to the two options outlined in a 2007 study by the World Bank, the "*exit*" or "*exclusion*" (Perry et al., 2007). The idea here is to study the motivations of individuals participating in the labor market. If the choice of the industry is voluntarily then it would be difficult to link poverty and informal. Because in the absence of constraint, any individual chooses the maximal utility so then the maximum level of welfare he can achieve. By cons in a situation of exclusion it is possible that poverty and informal is linked because the poor are the most vulnerable and more likely to be excluded.

For supporters of the theory of *exit* or *deliberate choice*, the majority of entrepreneurs, and to an extent, employees choose to work in the informal after weighing the advantages and disadvantages of formality. Empirical analysis has been conducted in this direction, particularly in the context of studies in Latin America and Sub-Saharan Africa (Diagne and Thiaw, 2008, Perry et al. 2007; Maloney, 2004). These works emphasize tax evasion issues (Lewis, 2004) but in its complete version, the recent literature also highlights the fact that individuals or companies deliberately don't choose informality only for purposes of tax avoidance. Several other factors can motivate this choice, among them, the financial factors (the costs of compliance or return on investment of social security services) or nonfinancial factors (entrepreneurship or greater freedom from self-employed). In this logic as one cannot voluntarily choose to be poor, it is difficult to link poverty to the industry or to the informal.

Conversely, proponents of the theory of *exclusion* argue that informal workers are denied access to formal jobs. This vision is consistent with the dualist school, which focuses on the segmentation of the labor market, but also with the legalistic school (de Soto 2000), whereby the segmentation stems from the prohibitive cost of formality imposed to a subset of the population. Finally, the heart of the problem lies in the relative incentives to work and segmentation in the justification of informal employment.

The debate has given rise to a third point of view that argues that the labor market and the informal in particular are heterogeneous.

Heterogeneity of informal employment and poverty implications

The controversy over the motivations of individuals participating in the labor market associated with many studies have shown that proclaimed duality of the labor market was not particularly obvious and it does not cover the reality of the labor market and therefore does not explain all the motivations that are developed in it. The data provide even less support to the idea that the modern-informal dichotomy corresponds to the reality of the market in the sense that homogeneous form of work is unequally paid for reasons of sectoral affiliation (Kannappan 1985; Mazumdar, 1983). Thus, the observed differential in earnings doesn't not allow saying that revenues are systematically biased in favor of the formal sector.

Originally, it was assumed that working in the informal sector was not rewarding for entrepreneurs and workers.

However, more recently, empirical evidence (Charmes, 2002) showed that small entrepreneurs in the informal sector earn several times the minimum wage and sometimes even several times the average wage in the formal sector, while employees - generally younger in all employees - roughly earn the equivalent of the minimum wage. In one study, the OCDE (2009) shows that the incomes of small informal sector entrepreneurs are systematically higher than the legal minimum wage: the multiple varies from 1.5 in Niger to 4.3 in Morocco and 5.8 in Mali. Turkey, which experienced extremely high inflation during this period, is an exception (19.9 times). In Benin, the average minimum wage in the informal sector is 1.7 times the minimum wage in the formal sector. Kalugina and Najman (2003) show that in Russia, working in the informal sector, as sole and exclusive activity, decreases the probability of being or feeling poor, compared to the status of formal employment. Lachaud (2003) showed, by studying poverty and the labor market in Benin, that the living standard of households is enhanced when the head of household is located in the informal sector. These results show that the informal group is very heterogeneous. The heterogeneity of the earnings and of activities within each segment is a serious analytical limit (Fields, 1990; Lachaud, 1995; Mazumdar, 1989).

Consider the labor market in general or the informal in particular as a homogeneous mass is likely to bias the analysis and thus compromise the effectiveness of policies to eradicate poverty, which are designed around the informal and labor market. In terms of diversity and heterogeneity, informality does not seem to be the refuge of the poor but a sector whose relationships with poverty are complex and multifaceted.

Econometric analysis of the relationship of labor market segmentation and poverty

Most studies that explore the relationship between labor market and poverty, after identifying the segments of the labor market, determine the poverty profiles and poverty measurement based on standard indicators from the family of measures proposed by Foster, Greer and Thorbecke. The interest of these measures is that they relate statistically poverty in sub-groups to total poverty. In this category of study we can include El Aynaoui (1996), Lachaud (1994). The limitation of this approach is that it gives only statistical correlations that do not reflect a cause and effect. But increasingly, the authors, in a complementary way, adds an econometric analysis, we propose here a non-exhaustive survey of this literature.

Lachaud (2003) uses a selection model to estimate the choice of sector and poverty in Burkina Faso. He explains the choice of this model by the fact that the endogeneity of sectoral choice implies a simultaneous explanation of the determinants of socio-economic and living standards of households. Indeed, the process of determining the causes of poverty, regardless of the choice equation, may face a selection bias when the choice of the labor market segment is endogenous. He proceeds by a two-stage estimation, where in a first step, he estimates a multinomial logit model of segment choice by the method of maximum likelihood and then in a second step using the estimated bias deriving from the first step he estimates the living standard of the households by the least squares method.

The results of Lachaud (2003) show that all the variables considered in the model are statistically significant. There are variables on the household head and on household: (i) household head: education, sex, marital status, ethnicity, employment status, specific experience in the work, migration status - looking for work or cropland, (ii) household: size, age structure, geographical location and transfer. Regarding employment in non-agricultural own account, to the above factors except the status of work and experience in the work - one can add elements that characterize the functioning of the company: age, mode of operation, size, trends in employment, branch. It is the same for farm businesses for which the regression functions of the standards of living incorporate, in addition to factors inherent to the employees, the following variables: livestock, farm equipment, owned farmland, marketing, inputs, credit and management.

El Aynaoui (1996) uses a multivariate regression analysis to try to capture more accurately the interactions between, on one hand the standard of living of households and, in the second hand individual characteristics relating to the household head. In his model, he uses as Lachaud (2003) two types of explanatory variables. A first set of variables relates to the household head (job status, education, training and learning, age, age squared) and a second category of variable more specific to the household (size household and the percentage of individuals employed in the household). He estimates his equation by the method of ordinary least squares. His results indicate that only the variables related to employment status, education and household characteristics are significant. Parameters related to the status of work contribute to most of the variance of the adjusted expenditure (standards of living). Ultimately, El Aynaoui (1996) highlights the power of the dependence of the standard of living of households with respect to the status of the household head on the labor market, and to a less extent on his education. Furthermore, the analysis showed the significant role of labor market participation of the other members of the households in terms of its impact on the well-being of the household.

Lachaud (1996), to better specify the strong dependence of the well-being of the household with

respect to the status of the household head, proposes to test the existence of a relationship between the employment status of the household head and the living standard of the households. It captures successively living standards with the current expenditure and the adjusted real income, and estimates its model by the method of least squares. His model includes as explanatory variables the status of work, secondary activities, age, its square, nationality, household size, number of persons employed by the household. All explanatory variables of the model except age and its square are binary. His results show that the variables which refer to employment status, education, nationality, size of household and the percentage of people employed by the household are significant. The main result that comes from the model is the strong dependence of the standard of living of households with respect to the employment status of the household head.

Kalugina and Najman (2003) use a biprobit model that they estimate by the method of maximum likelihood to explain the link between labor market status and poverty in Russia. They estimate simultaneously a probit model of participation in the labor market (formal and informal) and a probit model of poverty status (poor and non poor). They also make use of an objective measure (monetary) and a subjective measure of poverty. For the objective poverty, compared to the childless couple, all other statutes have a higher probability of being poor. The presence of dependents, children and / or the elderly, increases the probability of being poor. Being a single person is also disadvantage vis-à-vis the objective poverty. For subjective poverty, couples with children feel better than couples without children and, instead, the single alone or with relatives feel more vulnerable. The variable of household size is always negatively correlated with subjective poverty. Individuals feel less poor in large families.

In all their regression (with exception of the regression with objective poverty where the variable formal employee and informal employee are used as reference), Kalugina and Najman (2003) obtained a significant correlation coefficient ρ. This justifies the use of a bivariate probit model that takes into account the strong relationship between poverty and the status on the labor market.

The main result of their study is that formal employment does not individual to feel wealthier, and especially do not allow them to be richer, relative to the informal. Having a single activity increases the risk of poverty compared to the multi-activity. Working in an informal activity provides a feeling of greater wealth relative to work in the formal sector.

Empirical analysis of the relationship between business and poverty in Benin

The stratification of the labor market in Benin

To understand the dynamic evolution of the labor market in developing countries, it is undeniable to face its heterogeneity. Taking into account this is essential for modeling the functioning of the labor market in Africa and in Benin in particular. In this section we will present the conceptual approach and the analytical method.

The conceptual approach

The theory of labor market segmentation developed by Taubman and Wachter (1986) is difficult to apply in developing countries. Indeed, this theory applied initially to the U.S., examines the functioning of the labor market through the formal-informal dualism approach. It states that the earnings of individuals are largely a function of their sectorial location (formal-informal) on the labor market. Thus, the mode of wage setting is completely different depending on the chosen market segment. Also, the emphasis has been placed on the nature of occupations than the qualification of workers. To have dualized the labor market, Todaro (1969) is one of the first to make an application of it in developing countries. However, several studies have shown that the duality of the labor market is not obvious because it ignores the reality of the urban labor market. Indeed, the criteria used to dualize the labor market fail to make the separation between the formal and the informal sector (Kannappan 1985). Indeed, significant differences between the earnings are not a proof that incomes are systematically oriented in favor of the formal sector. There is an heterogeneity of incomes in activities within a single segment formal or informal that considerable restricts the analysis of the functioning of the labor market (Fields, 1990; Lachaud, 1995; Mazumba, 1989).

Noting the failure of the market segmentation approaches in a dualistic theory, more pragmatic work attempt to articulate the segments of the labor market around the concepts of protection, control and autonomy [Lachaud, 1993, 1994a, 1994b]. Thus, based on a cluster analysis of groups, the following stratification has been identified by Lachaud, (1993, 1994a, 1994b):

- Group of irregular workers;
- Group of protected workers : regular salaried work, permanent contract, monthly remuneration, skilled worker;

- Group of independent marginal workers: self-employed regular job, capital below a certain threshold (varies by country);

- Group of independent workers with capital: self-employed regular job, capital exceeding a certain threshold (varies by country);

- Group of non-protected workers: regular paid employment; term contract with determined term, monthly remuneration or not, semi-skilled worker.

The empirical analysis in a number of African countries except Benin has confirmed the relevance of this pragmatic approach analysis of urban poverty and social exclusion. It helped to highlight the close link between urban poverty and employment status of the household head, to identify the segments of the urban labor market.

In this study, it is assumed that the emergence of inequalities is linked to the segmentation process and to the mode of integration and the evolution of individuals in the labor market. We'll discuss and bring out a segmentation based on the nature of occupation of individuals on the labor market. This stratification based on the differential in the activity status is of great interest in the analysis of the interactions between the labor market and the poverty in Benin. In this study, it is indeed the approach that will be used to conduct the analysis.

ANALYSIS METHOD

The analysis method is two folds. Firstly, we use the K-means classification method to subdivide the sample in homogeneous segment of the labor market and secondly we use an econometric method to estimate the belonging to a specific class and the poverty status.

The labor market segmentation method

As noted, the thoughts that follow are based on the pragmatic approach presented in the previous section. Instead of relying on market segmentation work postulated without being demonstrated and thus does not guarantee homogeneity within segments, a group classification will be made to segment the workforce into groups statistically homogeneous emerges from the data analysis. The advantage of this method is that it allows taking into account a range of variables to capture the impact of institutional dynamics on the segmentation of the labor market. However, the items included in the procedure are crucial because it determines the points of similarities within groups and dissimilarities between groups. Thus, the variables used to identify these homogeneous segments of the labor market are related to characteristics of the individual occupations. In other words, these variables are chosen among other as criteria autonomous (independent or dependent) and the overall quality of employment (decent or indecent). These are: industry, occupational category, type of business, contract of employment, wage, workplace, presence of trade union, (Lachaud, 1993, 1994a, 1994b ; El Aynaoui, 1996).

To do this, the k-means group classification procedure will be used because the number of individuals to segment is above 200 (Anderberg, 1973).

The K-means procedure classification groups has been used by several authors to segment the labor market (Anderberg, 1973; Lachaud, 1994; El Aynaoui, 1996). It is an algorithm to determine whether an individual belong to a specified group with regard to a given principle. The k-means algorithm The procedure quick-cluster SPSS is used in this study, Norusis (1994) is an improved version of the method of dynamic clusters. It is currently one of the most used and most effective data analysis. In fact, it allows a partition of a set of individuals in K (integer) classes, K is a fixed number set by the user. Let σ_j $(1 \leq j \leq N)$ be the N individuals in the population that is to be partitioned. The K-means algorithm is as follows:

We choose the first K individuals of the data The file contains all individuals. In SPSS, the first K individuals represent the k initial centers starting

1. as the starting K initial centers of each class. Let $(R_1, R_2, ..., R_K)$, the family of K selected individuals. These are the representatives of the K classes $(C_1, C_2, ..., C_K)$ that are empty for now (they are also called the centers of the K classes).

One affects each person of the set to one of the classes according to the nearest representative (center) on a principle of distance Euclidean distance between two individuals X and Y is calculated by the quick-cluster command of SPSS and expressed as follows: Distance (X,Y)= ($\sum$ –) , Norusis (1994)

2. or similarity: $argmin_{k,1\leq k\leq K}\, d(\sigma_j , R_k)$, where d is a distance or a similarity between individuals.

3. We calculate the new representatives for the classes. The new class representatives correspond to the average of individuals in the class. The calculation of the new representatives is as follows:

$$\forall k, 1 \leq k \leq K, R_k = \frac{1}{|C_k|} \sum_{j,\sigma_j \in C_k} \sigma_j$$

4. On returns to step 2 until two successive iterations lead to the same partition, i.e two successive iterations give the same representatives of the classes (or you can also return to step 2, as the difference $\Delta(R)$ between old and new centers is greater than a threshold set discretionary and with a very small value). One can also bind to a fixed number of iterations to perform. In this case, the algorithm stops as soon as one reached the maximum number of iterations set.

The order of complexity of the k-means According to Anderberg, 1973, the procedure k-means classification

groups provides a better score for the number of specific groups, where the number of cases to be classified is large (over 200). The quick-cluster procedure of SPSS software is used in this study and runs according to the algorithm described Norusis (1994)

algorithm is *O(KNIs*) where *I* is the number of iterations to achieve in the algorithm and *s* the complexity of the distance or similarity calculating. It should also be noted that the k-means algorithm is related to the number of classes *K* fixed, and resulting partitions are strongly and closely related to *K* Moreover, to overcome this dependence, we execute the algorithm of k-k-means and being fixed with different initializations, and retains the best score. The quality of the score is measured by the following quantity: $D = \sum_{k=1}^{K} \sum_{j,\sigma_j \in C_k} d\left(\sigma_j, R_k\right)$ This quantity measures the cohesion of the classes obtained centers from the first level.

Econometric strategy

The estimation of the poverty status of individuals is biased by a selection in the entry of the segments one should account for. The bias stems from the fact that participation in a segment is not random. Indeed there are variables that affect both the fact of participating in a business segment and poverty status (Lachaud, 2003). The use of the method of least squares produces inconsistent estimates due to the endogeneity of labor market segments. It is therefore essential to make use of selection models.

To account for the selection bias in the membership of the segments and its effect on poverty status (measured through expenditures), we use a multinomial logit model selection described in Bourguignon, Fournier and Gurgand (2004). Their model generalizes the contribution of Lee (1983), Dubin and McFadden (1984) that are extensions to the selection model of Heckman (1979). Bourguignon et al. (2004) relax the assumption made by Dubin and McFadden (1984) on the structure of the correlation. We describe the model as follows.

The segmentation of the labor market, produced by the present paper gives five classes or segments: irregular workers, rural vulnerable independent, rural competitive salaried, urban competitive salaried and a mixed group of protected employees and independent with capital.

Determinants of the participation in these segments can be estimated using a multinomial logit model. Let *L* be the variable indicating the status of individuals. Theutility of belonging to the institutional sector *j* is
denoted and is assumed to be linear in *Z*, a vector of observable characteristics of individual *i*:

$$^{*} = + \qquad (6)$$

The probability that individual *i* belongs to sector is the probability that the utility derived from membership in this segment is higher than the levels it would have reached in the other *j* segments, with .

$$\forall = 1,\ldots, \quad (= \quad) \qquad = \quad {}^{\cdot} > \quad {}^{*}, \neq \quad , \in \quad 1,\ldots,5 \qquad (7)$$

$$\forall \quad = 1,\ldots, \quad - \quad > \quad - ,$$

$$\neq , \quad 1,\ldots,5 \qquad (8)$$

Assuming that the are iid and follow a Weibull law, the probability of belonging to segment is given by:

$$(= \quad) = \Sigma \quad ' \qquad (9)$$

For the model to be identifiable, we assume that $= 0.$ As described estimating the status of poverty in this context refers to estimate Continuous censored dependent variable with selection being controlled for by the conditional probabilities deriving from a multinomial logit. The model of Bourguignon et al. (2004) fit well with this situation and can be presented as follows The index of the individual is omitted for simplicity.

$$= \cdot = + \qquad = 1,\ldots, \quad + \qquad (10)$$

Where is the poverty status (as measured by the level of expenditure of each individual The rationale for this choice is made in Appendix 3), is observed for the class *j* of *M* classes (irregular workers, rural vulnerable independent, rural competitive salaried, urban competitive salaried and a mixed group of protected employees and independent with capital) if $^{*} > {}^{*} \neq$. The variable *Z* contains the covariates of sector participation such as household size, education level of head of household, sex, place of residence, age, immigration status, household type, the ethnicity and religion, while the variable *X* does not include variables related to ethnicity and religion, but contains variables related to household type. (Kalugina and Najman, 2003; Lachaud, 1994a, 1994b, 1995, 1996, 2003, Charmes, 2002; El Aynaoui, 1996, Pradhan and Van Soest, 1995; Ambapour, 2006).

Because residues, , respectively of poverty status and participation in the segments are correlated because of the selection bias, we estimate as described in Bourguignon et al. (2004) the equation:
= + + (11) More detail in Appendix 4

corrects for the selection bias related to membership in the class *j* rather than another class of potentially resulting unobservable. Les parameters are created as a result of the estimated multinomial logit in the first stage

of estimation. In the above equation, the residuals are

now independent of residues belonging to the

segments. We will implement this equation with the stata11 program of Bourguignon et al. (2004).

Data

The data used in this study came from the Integrated Modular Survey on Household Living Conditions (EMICoV) organized by the National Institute of Statistics and Economic Analysis (INSAE) between 2006 and 2007. EMICoV is a national survey of four (4) passages on a sample of 18,000 households. It is representatice of the 77 communes of Benin and incorporates several themes including poverty, land microfinance, governance, democracy, employment and the informal sector. The EMICoV sampling is developed from a stratified area frame with two degrees. In the first degree, 750 enumeration areas (EAs) of the General Census of Population and Housing (PHC) of 2002 were obtained and updated; in the second-degree each selected EA, an average of 24 households are selected. 17,982 households were selected at national level.

In this study, the main variables used are those relating to the employment module of the first passage of EMICoV. The choice of these variables is due to their availability and the predictions of theoretical and empirical models discussed above in the review of the literature (Lachaud, 1994, 1996, 2003; Kalugina and Najman (2003), El Aynaoui, 1996). Thus we have:

Poverty: several variables from EMICoV allow measuring poverty. Note that like most AFRISTAT countries members, the threshold of absolute poverty in Benin is calculated from the method of the cost of basic needs. The various indicators of poverty according to monetary and nonmonetary approaches (incidence, depth and severity) are calculated by the INSAE and the corresponding variables are available in the EMICoV data base used for this study.

Activity status (SITAC): This variable has four modes including the employed, unemployed according to ILO, the registered unemployed and inactive.

Job Type (TYPEMPL): this variable measures the two major forms of employment: formal and informal. It has four terms include employees, independent of formal, independent of informal and dependents of the informal sector. It is a very important variable in the segmentation of the labor market.

Industry: the choice of the industry of the worker as an important variable in this study is justified by the fact that it facilitates the targeting of the poverty phenomenon in the labor market.

Level of education: Education is an important variable used to make analyses on the labor market and to appreciate the ability of a household to leave the state of poverty. In this study, it is chosen because of its importance in the theoretical literature as well as the empirical.

Age of the household head: it is a critical variable to see the position of the household head on the labor market.

Migration status: the literature on the functioning of the labor market gives an important place to migration as a movement maintaining the informal sector in developing countries. Thus, the choice of this variable allows measuring its importance in this study for Benin.

Finally we use the variables of gender, religion, and ethnicity. The last two variables allow taking into account the contribution of family ties to membership in a market segment The informal sectors in Africa are mainly composed of micro-businesses and then are mostly family based. The influence of the family in the creation of businesses is sometimes critical especially for activities such as shoemaker, blacksmithing and jewelry. And participation in the informal sector is not all the time an expression of free choice but a choice imposed by the fact the individual belong to specific ethnic groups or to some families. Sometime, to survive in the informal, one makes use of family networks. So it is easier for some individual from an important ethnic or religious group of the informal to exercise in that sector. The use of these variables is justified by the social capital theories. Social capital is a complex concept, which can be approached on an individual level but also at an aggregated level (Durlauf, 2002). Social capital at the individual level refers to the idea of a set of relations of trust and influence on which individuals can rely during their decisions process (Bourdieu, 1980; Coleman, 1988). This capital reflects a greater capacity to benefit or not from the interactions with others. According Pénard and Poussing (2006), this ability is often linked to membership and other social networks or communities. Thus defined, trust developed between members belonging to the same religion, ethnicity or gender can lead to social capital creation. Moreover, several studies have attempted to measure the impact of these factors on the participation of individuals in several business activities (Jones, 1972; Himbara, 1994; Fafchamps, 2002).

RESULTS

We present here, the nomenclature of the labor market according to its structure and typology. The structure of the labor market is described along several dimensions, including job type, sector and industry, migration, dependency, networks, educational level, age, sex etc. The typology of the labor market of Benin is performed using the segmentation method of K mean. Finally, we present the poverty profiles per class or segment.

Structure of the labor market in Benin

According to the sector of activity, the informal dominates the labor market in Benin (93.5%), with a large majority operating as a unit of independent production (60.6%).

Table N°1. Participation in segment of activity determinants

Variables	Irregular workers		Regular competitive salaried		Urban competitive salaried		Mixte group	
	Coef.	Sd. Err.	Coef.	Sd. Err.	Coef.	Sd. Err.	Coef.	Sd. Err.
Tailmen	-0.09***	0.0177	-0.03**	0.0155	0.00	0.0229	-0.02	0.0183
Sexe	0.47***	0.1867	0.19*	0.2215	-0.01	0.2725	0.06	0.2055
Rural	-1.50***	0.1156	-0.07	0.1165	-1.42***	0.1898	-0.21	0.1351
Instruction	1.02***	0.1463	-0.32	0.2154	3.04***	0.1975	0.43**	0.1964
Age2	-0.36	0.2562	-0.00	0.2658	0.20	0.4081	-0.23	0.2947
Age3	-0.31	0.2571	0.17	0.2663	0.29	0.4083	-0.11	0.2934
Age4	-0.75***	0.2571	0.15	0.2611	0.75*	0.4069	-0.43	0.2902
Migratoire2	0.18	0.1487	0.29*	0.1666	0.66***	0.2331	0.35**	0.1513
Migratoire3	1.24***	0.1365	0.88***	0.1610	1.86***	0.1968	0.93***	0.1716
Ethnie1	-0.83***	0.1369	-13.41	0.3204	-0.42**	0.1981	-0.20	0.1462
Ethnie2	-1.44***	0.2154	24.51***	0.3221	-0.29	0.2970	1.96***	0.2089
Ethnie3	20.40***	0.3907	47.01	.	21.71***	0.4340	23.87***	0.4309
Relig2	3.96***	0.2560	3.03***	0.3258	3.80***	0.3322	3.88***	0.2271
Relig3	1.32***	0.2455	-1.70***	0.1675	0.13	0.3649	-37.27	0.3487
Relig4	1.59***	0.1613	-1.03***	0.2000	1.03***	0.2507	-36.22	0.3944
Constance	-0.33	0.3194	-23.31	.	-4.14***	0.5221	-0.95***	0.3545

Source: Authors from EMICoV (2006)
* significative at 10%, ** significative at 5%; *** significative at 1%

The formal sector accounts for only 6.5% with a predominance of employees (4.3%). The agriculture sector remains by far the most provider of employment (61.1%) while the banking and insurance sector is the least employment sector (0.2%). This can be explained by the low quality of the workforce that is made up of over 62% of illiterate or uneducated and largely rural (64%).

Description and characterization of the classes from K-means segmentation

The k-means algorithm has yielded five statistically homogeneous classes of individuals. Indeed, the quality assessment of this result is twofold. First, the review of Euclidean distances between the centers of classes provides a final assessment of the differentiation between the different groups: if all the classes are distinguished correctly between them, some distinguished themselves more than others. Thus, class 2 is more different to the other four classes [1] See Appendix 5 for Table of the matrix of Euclidean distances between the centers end.

To give an idea of the variability in inter-and intra-group, the analysis of variance shows that all the variables differ between classes as the observed significance levels of the Fisher test are zero [1] The F tests should be used only for descriptive purposes because the classes were chosen to maximize the differences between the observations of various classes. Significance levels observed are not corrected and therefore cannot be interpreted as testing the hypothesis that the means of the classes are equal. See Appendix 4 for the results.

In the following, it is to check the consistency of the groups from the statistical procedure with the conceptual framework defined above, and specify the structure of the labor market across the various segments obtained. In this regard, the examination of cross-tabulations between the classification variable Once executed the method of k-means, a variable reflecting the allocation of each individual selected for five classes. This variable is a categorical variable with five terms as follows: Class 1, Class 2, Class 3, Class 4 and Class 5.

and the variables allowing capturing the characteristics of the labor market will be of great importance.

The first group from the analysis consists of informal sector workers (25.4%) mostly laborers (33.6%) and very young with 81% aged under 35. This class includes much of child labor with 37.5% under 15 years. 27.4% individuals in this group is degree or did not complete primary school. They are largely dependent on the informal sector (31.6%). We can call this stratum of *irregular workers* group whose presence in the labor market depends on the fluctuations of economic activity.

The second group consists mainly of informal workers (34.2%), largely young, under 35 years represents more than 90% of this group, over 90% of individuals in this group do not reached university level and are largely rural (38.4%). But it differs fundamentally from the first group by the institutional sector in the sense that they are

Table N°2: Result of the Selection model of poverty status by segment of activity

Variables	Irregular workers		Vulnerable rural independent		Rural competitive salaried		Urban competitive salaried		Mixte group	
	Coef.	Sd. Err.	Coef.	Sd. Err.	Coef.	Sd. Err.	Coef.	Sd. Err.	Coef.	Sd. Err
Tailmen	0.16 ***	0.0599	0.23***	0.0783	0.14 ***	0.0442	0.12 ***	0.0380	0.11	0.0648
Sexe	-0.82***	0.3870	-0.41	0.2443	-0.06	0.4450	-0.28	0.2236	0.33	0.6261
Rural	-1.23***	0.7209	-0.17**	0.2286	-0.27	0.4032	-0.41	0.2268	-0.06	0.2665
Instruction	0.64 **	0.4195	-0.53	0.2749	-0.42	1.0979	0.86 **	0.7356	-0.45 **	0.2971
Age2	0.25	0.4170	0.01	0.2689	-1.25	0.5939	-0.28 **	0.3753	-0.04	0.3775
Age3	0.32	0.5516	0.27	0.3146	-1.50	0.6797	-0.03 **	0.3961	0.50	0.4412
Age4	0.11	0.3616	0.05	0.2802	-1.56	0.8677	0.15 **	0.3864	-0.05	0.3921
Migratoire2	0.08	0.6549	-0.34	0.1712	-0.21	0.4193	0.12	0.2660	0.60	0.6139
Migratoire3	0.17	0.4717	-0.49	0.3334	0.08	0.5189	0.74	0.6038	0.29	0.3155
Typemenage1	0.38	0.4589	0.50***	0.1715	0.10	0.4113	-0.44	0.4137	0.12	0.6464
Typemenage3	0.04	0.6128	0.21	0.2140	0.03	0.3333	-0.54	0.4092	0.55	0.7900
	-0.89	1.4712	-0.53***	0.5273	0.46 ***	1.0309	1.30	1.1878	-0.76**	0.6705
Constance	0.08	2.1782	-0.22	0.8183	2.66	3.4513	0.45	0.7148	-1.20	1.0666
Sigma	17.67 ***	12.1150	8.50 ***	4.6522	5.04***	5.4346	18.09	14.7059	15.57**	11.2053
Rho	-0.21	0.2719	-0.18 ***	0.1576	0.20	0.3087	0.30	0.2234	-1.19 *	0.2207

Source: Authors from EMICoV (2006)

This result comes from the estimating the status of poverty using the model of Bourguignon et al. (2004). In this context, it refers to estimate Continuous censored dependent variable with selection being controlled for by the conditional probabilities deriving from a multinomial logit.

Dependent variable: The amount (normalized) to pay to the poor to escape poverty status; this amount is positive for poor and 0 for non poor. Independent variables: Size of the household (tailmen). The segmentation of the labor market in formal and informal. Household size. The sex of household head (sexe). Place of residence (Rural). The education level of the head of householde (instruction). The age group of the head of householder (Age 1, 2, 3). Migration status of household head (Migratoire 1, Migratoire 2). Typology of household (Typemenage 1, 2).

mostly informal self-employed (38%). We can call this layer of *rural vulnerable independent*, meaning they are very vulnerable to any deterioration in economic conditions.

A third group is composed mainly of formal workers (17.8%) and on average of employees, public workers (20.2%), managers of formal private sector (26.5%), and employees of the private (35.3%). They have an average low level of education: only 13.2% reached the university, and 22.6% had secondary level. They are found in construction (34.0%), trade and restaurant (28.1%) and transport and telecommunications (30.5%) and more over are urban dominated. We can talk for this category, presumably exposed to competitive forces, whose employment conditions are unstable, *urban competitive wage sector*.

The fourth group is predominantly informal (15.4%) and rural (18.6%) with a very low level of schooling, less than 3% of high school level. The main distinction

of this class with class 1 is the predominance of rural areas. They are also characterized by the lowest unemployment rate. Only 15.1% of individual from this class haven't experienced migration; this shows their inability to sell their work force in other more remunerated area. In other words, in this group are people that can do anything to survive in the rural area. They are also widely dependent (49,3%). We can categorize this group of *rural competitive wage* sector. It is a class of marginal worker without. The low level of unemployment rate is due to the availability of member of this group to accept low wage rate.

Finally, the analysis distinguishes a fifth group composed mostly of workers from the formal (56.1%). This class is composed of 81.1% of public manager, 68.7% of employee of the public, 47% of formal private sector manager. Over 76% have reached the university; they occupy activities such as banking and insurance (75.5%), transport and telecommunications (67.7%). The group is mainly composed of formal sector employees (64.2%) with jobs mostly urban (33.2%). One shall note that in this group found nearly half (40.5%) of Independents in the formal sector. This segment, in which individuals are given priority in terms of protection and security of their jobs (because of the predominance of public and private formal), is a mix of *protected employee and independent with capital*.

Link between poverty status and the five classes

Three indicators are used to measure the degree of poverty in each class: the incidence, depth and the severity.

Thus, according to the incidence of poverty, class 4 is the poorest (36.7%), while Class 5 has the lowest incidence (27.7%). This result reinforces those obtained at the level of segmentation. Indeed, class 4 is that of *rural competitive wage sector* that may be most vulnerable to the phenomenon of poverty cause for the exaggerated low wage paid in that class. Class 5 by opposition is the class of secured workers with salary protections as well as that of independent with capital so logically the less exposed to poverty.

As regard to the monetary poverty depth index, we find that the average income gap of workers in class 1 relative to the poverty line is the highest (0.11) while that of workers in Class 5 is the lowest (0.084), reflecting a greater depth of poverty in the first class and a lower depth of poverty in the fifth class. This analysis allows capturing the fundamental difference between *irregular workers* and the mixed *group of protected employee and independent with capital*. All the expenses necessary to bring the poor of the class 5 to the poverty line is low compared to what will be necessary to bring the poor of class 1 to the poverty line.

It is important to note that class 3 that includes *urban competitive wage sector* displays a low incidence of poverty (31%) compared to other classes except Class 5. This is justified by the fact that individuals in Class 3 are mostly in the formal sector and thus benefit during the term of their contract of a regular wage that guaranteed them a steady income and thus avoid them the risk of poverty. Compare to class 4 of *rural competitive wage sector*, the individual that can migrate will always prefer to be a salaried of the urban competitive sector than the rural competitive one.

Although the poor are mainly in class 4 (36.7%), the poorest are in class 1 (P1=0.11 and P2=0.054). this is due to the irregularity of the employment of individual from class 1; this make them to be monetary poorer than individual of class 4 who are often in activity (low unemployment rate) though with low wage.

Total poverty status between and within class confirms the predictions of the classification approach of K-mean.

RESULTS OF THE ECONOMETRIC ANALYSIS

Participation in segment of activity determinants

Variables related to family background (Table N°1) play an important role in the participation decision of individuals to a segment of the labor market. Thus, variables related to household size, gender, level of education, residence area, status of migration, ethnicity and religion significantly affect participation in the activity segment.

The level of education plays a fundamental role in the occupational situation. It is observed that the higher the educational level, the higher the individuals concerned are found in the class of irregular workers and that of urban competitive salaried. This is explained by the fact that graduates in Benin are generally found in a buffer situation between unemployment and employment in maintaining their employability through small seasonal and irregular jobs. The significance of the parameter with respect to the segment of urban competitive salaried, is due to the fact that the probability of integrating formal segments, increases with educational attainment.

The age level is generally not significant except for participation in the segment of irregular workers for which the probability of participation declines with age level. This is explained by the fact that family responsibilities become more important with older ages (over 45) and this force people to find their equilibrium in a class that is not subject to the irregularity. One can also think that at this age the individual has explored enough the labor market in order to find equilibrium in a stable activity.

Migration status is assigned a positive coefficient on participation in all segments. We can say that immigration status is not a source of exclusion in the labor market. In

other words, there is work for all immigrants relative to non immigrants if the first accept all types of job. It is important to note that the back from immigration status positively and significantly influence the likelihood of the individual to participate in urban competitive salaried segments or in the mixed group of protected employees and independent with capital. This is explained by the fact that immigrants who choose to come back, for the most part, have the certitude of having good working conditions in the formal or settled in freelance with the financial and material saving they made.

Ethnicity and religion are involved in the explanation of the participation of individuals in different segments. This can be explained by the importance of trust relationships and influence networks that are based on ethnic and religious groups in the country.

The results of table 2 are from the estimation of the conditional probabilities a multinomial logit model of belonging to a labor market segment deriving from.

Dependent variable: segment of activity. Independent variables: Size of the household (tailmen). The segmentation of the labor market in formal and informal. Household size. The sex of household head (sexe). Place of residence (Rural). The education level of the head of householde (instruction). The age group of the head of householder (Age 1, 2, 3). Migration status of household head (Migratoire 1, Migratoire 2). Ethnicity (Ethnie 1, Ethnie 2 Ethnie 3); Religion (Relig 2, 3 and 4).

Selection model of poverty status by segment of activity

The results (Table N°3) show that the selection parameter λ is significant and positive in the segments corresponding to rural vulnerable independent segment and the mixed group of protected employees and independent with capital segment, and is negative in the rural competitive salaried segment and non-significant both in the irregular workers and urban competitive salaried segments.

In the rural vulnerable independent segment and the mixed group of protected employees and independent with capital segment, unobserved characteristics affecting segments participation positively and significantly influence the probability of being non-poor. We can say that individuals participating in these two segments have chosen voluntarily to work in these sectors because they were more productive in these sectors, and can then expect the highest wage. This result is consistent with the model of voluntary choice of sector of activity of Heckman and Sedlacek, 1985.

In the segment of the rural competitive workers, unobserved characteristics negatively influence the potential earnings of workers (and then on their expenditure) and therefore on the probability of belonging to the group of non-poor. In Benin and workers participating in the rural competitive salaried segment have not made this choice to maximize their utility (income) but have made this default choice because they are constrained by lack of capital (land, financial resources, ...). So they are there against their will.

In the segments corresponding to irregular workers and urban competitive salaried, these characteristics have no influence on poverty status.

As for the observed characteristics, we find that variables related to the individual and the household influence the probability of belonging to the group of non-poor. These include the level of education that positively influences the probability of being non-poor when one participates in the segments of urban competitive salaried, mixed group of protected employees and independent with capital and irregular workers.

The results show that poverty remains a rural phenomenon. Indeed, the coefficients associated with the rural variable remain negative for all segments but are significant for segments corresponding to the irregular workers and vulnerable rural independent. The results show that all things being equal irregular workers in rural areas are more vulnerable to poverty than those living in urban areas. Household type does not influence the overall poverty status; however being single positively and significantly affects the probability of belonging to the group of non-poor when one participates in the rural vulnerable independent segment. This can be justified by the absence in these conditions of family responsibilities that can be captured through the household size.

The variable gender (female) is negative and significant only in the segment of irregular workers. Being a woman then negatively influence the probability of belonging to the group of non-poor when one participates in the segment of irregular workers. This variable is not significant (although sometimes with a negative sign) in other segments. This suggests that poverty in Benin is not a phenomenon related to sex.

All other variables are non significant and their exclusion from the model does not modify the influence of the other variables.

CONCLUSION AND POLICY RECOMMENDATIONS

This study allowed understanding the links between sector of activity and poverty status based on survey data on household living conditions conducted in 2006. The current debate on poverty and the persistence of inequality is related to the dominant theories of human capital and labor market segmentation. Contrary to the predictions made by neoclassical theory, proponents of the theory of segmentation suggest that there are distinct segments in the labor market. This paper is based on the

thesis of the segmentation of the labor market. Variables related to ethnicity, industry, age, area of residence, educational attainment, gender, sector of activity are used for this purpose.

The study found that initially the job market in Benin can be segmented into five homogenous classes. These classes are irregular workers, vulnerable rural independent, rural competitive salaried, urban competitive salaried, and a mixed group of protected employees and independent with capital. The analysis shows that employees in the rural competitive salaried segment are strongly linked to the group of poor people followed by the vulnerable rural independent and irregular workers segments.

In a second step, the results of the estimation of poverty status for which the selection bias is controlled for by a conditional probabilities derived from a segment participation multinomial logit model confirms the simultaneity between poverty status and some segments. The results show that unobserved characteristics affecting participation in segments positively influences the probability of not being poor in the vulnerable independent segment and that of the mixed group of protected employees and independent with capital. However, these characteristics influence negatively the probability of not being poor in the rural competitive salaried segment and have no influence on the segments of irregular workers and that of urban competitive salaried. Based on these results one can speculate that there is simultaneity between the sector of activity and the poverty status for workers belonging to the vulnerable rural independent segment, the rural competitive salaried segment and the mixed group of employees protected and with independent capital.

By these results, the study confirms the existence of some heterogeneity of the labor market in relation to the poverty status. This diversity goes beyond the traditional division formal informal because informal workers are found in all segments. These observations support the idea of co-existence of an survival informal sector where the poor are found (the case of rural competitive salaried) and an informal sector whose choices are rather dictated by economic rationality and the objective of productivity maximization. In this logic, formalizing the whole economy would both worsen the poverty of individuals (those excluded from formal) and create new poor (the deliberate choices of the informal sector).

The economic policies learning from this study focused on three points. First, since labor force is the primary source of household income in Benin, the fight against poverty must always continue by giving great importance to the possible implications of participation in the labor market. In this logic, it becomes important to consider the labor market not as a formal informal division, but as a cohabitation of different segments of several features that go beyond the informality. These include for Benin in the industry, the professional group, the employment status, the job type, the education level, the area of residence, the age, the migration status, the sex, the religion and ethnicity. When considering all these features we have a labor market segmented into five classes. Public policies should therefore prioritize the participants in the informal sector who are in the segments most affected by poverty (rural competitive salaried, vulnerable rural independent). Second, the lack of capital creates rural competitive salaried and the vulnerable independent. It becomes important to fight against financial non-financial (endowment of arable land) exclusion by supporting self-employment initiatives. Third, irregular workers and urban competitive salaried though mainly in urban areas are also closed to the status of poor. Attention should also be given to legislation on the types of contracts that guarantee a certain stability of employment.

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