Decomposing Gender and Ethnic Earnings Gaps in Seven West African Cities

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Abstract

In this paper, we analyse the size and determinants of gender and ethnic earnings gaps in seven West African capitals. The study is based on a unique dataset taken from an original series of urban household surveys in West Africa, the *1-2-3 Surveys* conducted in seven major WAEMU cities (Abidjan, Bamako, Cotonou, Dakar, Lome, Niamey and Ouagadougou) from 2001 to 2002. Analysing gender and ethnic earnings gaps in an African context raises a number of important issues that our paper attempts to address. First, our surveys use identical methodologies and virtually identical questionnaires in each city, making for totally comparable results. Second, since gender and ethnic labour allocation between public, private formal and informal sectors can be expected to contribute to earnings gaps, we provide comparable estimates of the size and determinants of gender and ethnic earnings gaps using a full decomposition method that addresses the sectoral allocation issue. Our results show that gender earnings gaps are large in all the cities of our sample and that gender differences in the distribution of characteristics usually explain less than half of the raw gender gap. By contrast, majority ethnic groups do not appear to have a systematic favourable position in the urban labour markets of our sample of countries and observed ethnic gaps are small relative to gender gaps. Whatever the "sign" of the gap, the contribution of differences in the distribution of individual characteristics varies markedly between cities. Taking into account differences in sectoral locations in the decomposition of gender earnings gaps provides evidence that within-sector differences in earnings account for the largest share of the gender gap and that the differences in sectoral locations are always more favorable to men than to women. By contrast, concerning ethnic earnings gaps, the full decomposition indicates that sectoral location sometimes plays a "compensating" role against observed earnings gaps. Looking at finer levels of ethnic disaggregation confirms that ethnic earnings differentials are systematically smaller that gender differentials.

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1. Introduction

Enhancing the gender and ethnic gap literature on the poorest countries is important for several reasons. First, there are manifest shortcomings of studies on African countries, particularly due to the shortage of available data (Bennell, 1996). Second, gender and ethnic inequality is likely to be greater when markets do not function efficiently and the states lack resources for introducing corrective policies. Third, understanding the roots of inequalities between the sexes and ethnic groups and reducing the gender and ethnic gap have a central place in term of policies in these countries. For example, under the Poverty Reduction Strategy Paper (PRSP) initiative that concerns over sixty of the world's poorest countries, policies designed to counter gender discrimination are among the most often recommended solutions to reduce poverty: Goal 3 of the Millennium Development Goals (MDG) is specifically aimed at reducing gender inequalities. In Sub-Saharan countries, the deterioration of the labour markets as well as the partial freeze on public sector recruitment from the mid-1980s may have accentuated the circumstances (i.e. labour market entry and exit) that could give rise to gender and ethnic inequalities in the labour market.

In the case of Africa, there is in fact very little known about inequalities in labour market outcomes. While there is a sizeable number of papers dealing with ethnic and gender wage gap in developed countries (Altonji and Blank, 1999; Blau and Kahn, 2000), we can infer from Weichselbaumer and Winter-Ebmer (2005)'s meta-analysis that only 3 percent of the studies on gender wage gap stem from African data out of all the empirical literature since the 1960s. Concerning gender gaps, the existing literature[1] indicates that there is a wide consensus on the presence of important inequalities between men and women, both for salaried and self-employed workers. For instance, in Guinea, Glick and Sahn (1997) find that differences in characteristics account for 45 percent of the male-female gap in earnings from self-employment and 25 percent of the differences in earnings from public-sector employment while, in the private sector, women actually earn more than men. Armitage and Sabot (1991) also found that such gender inequality exists in the public sector of Tanzania but observed no gender discrimination in Kenya's labour market. The latter result holds true both for the

[1] See, notably, Glewwe (1990) for Ghana; Cohen and House (1993) for Sudan; Milne and Neitzert (1994) and Agesa (1999) for Kenya; Glick and Sahn (1997) for Guinea; Lachaud (1997) for Burkina and Cameroun; Armitage and Sabot (1991) for Kenya and Tanzania; Appleton, Hoddinott and Krishnan (1999) for Uganda, Côte d'Ivoire and Ethiopia; Isemonger and Roberts (1999) for South Africa; Siphambe and Thokweng-Bakwena (2001) for Botswana; Kabubo-Mariara (2003) for Kenya; Nordman and Roubaud (2005) for Madagascar; Temesgen (2006) for Ethiopia; Nordman and Wolff (2007) for Morocco; Kolev and Suarez Robles (2007) for Ethiopia and Nordman and Wolff (2008) for Madagascar and Mauritius.

public and private sectors of the Kenyan economy. Similarly, Glewwe (1990) found no wage discrimination against women in Ghana. On the contrary, females seem better off than males in the public sector. More recently, Siphambe and Thokweng-Bakwena (2001) show that in the public sector of Botswana most of the wage gap is due to differences in characteristics between men and women and not to discrimination. On the other hand, in the private sector, most of the wage gap is due to discrimination. Likewise, in Uganda and Côte d'Ivoire, Appleton et al. (1999) find evidence that the public sector practises less wage discrimination than the private sector. However, from their data on Côte d'Ivoire, Ethiopia and Uganda, they conclude that there is no common cross-country pattern in the relative magnitudes of the gender wage gaps in the public and private sectors.[2] Concerning the ethnic wage gap, the literature is even scarcer. Barr and Oduro (2000) found for Ghana that a significant proportion of earnings differentials between ethnic groups can be explained by standard observed workers' characteristics. The question of the role of ethnolinguistic fractionalization on development has received much more attention. For instance, Easterly and Levine (1997) conclude that "Africa's growth tragedy" is in part related to its high level of ethnic diversity, resulting in poor institutional functioning. However, this result is still debated (see Bossuroy, 2007 for a discussion).

In this paper, we cast new light on these issues by using labour market surveys carried out in seven economic capitals of francophone West Africa. We analyse both gender and ethnic gap issues using the same methodological approach. Given that these are the two most important individual characteristics expected to give rise to discrimination, we believe it is interesting to compare the magnitude of discrimination, if any, against females and against minority or other ethnic groups.

The remainder of the paper is divided as follows. Section 2 discusses the data, concepts and econometric methods used in this study. In section 3 we comment on the results. Finally, in section 4, we draw together the main findings and conclude.

2. Data, Concepts and Methodology

In this section, we first present the data and concepts used in this study before discussing the methodology of earnings decompositions, an essential aspect of our investigation of the gender and ethnic disparities in the West African labour markets.

[2] In Uganda, the authors find that the wage gaps in the public and private sector are comparable. In Ethiopia, there is a much wider gap in the private sector than in the public sector. In Côte d'Ivoire, the reverse is true.

2.1. Data and concepts

Our data are taken from an original series of urban household surveys in West Africa, the *1-2-3 Surveys* conducted in seven major WAEMU[3] cities (Abidjan, Bamako, Cotonou, Dakar, Lome, Niamey and Ouagadougou) from 2001 to 2002. The surveys were carried out by the relevant countries' National Statistics Institutes (NSIs), AFRISTAT and DIAL as part of the PARSTAT Project.[4] The surveys cover the economic city, i.e. the "administrative city" and all the small towns and villages directly attached to it and with which there are frequent exchanges. As suggested by its name, the *1-2-3 Survey* is a three-phase survey. The first phase concerns individuals' sociodemographic characteristics (including education and literacy) and labour market integration. The second phase covers the informal sector and its main productive characteristics. The third phase focuses on household consumption and living conditions. The same methodology and virtually identical questionnaires were used in each city, making for totally comparable indicators. Our study uses only the Phase 1 data. Phase 1 of the *1-2-3 Survey* is a statistical employment survey designed to (i) provide the main indicators to describe the situation of individuals and households on the labour market. It covers household employment and economic activities, especially in the informal sector; (ii) serve as a filter survey to identify a representative sample of informal production units, which are then surveyed in Phase 2.

The sample surveyed in Phase 1 has a total of 93,213 individuals (17,841 households) with country sample sizes varying from 9,907 individuals in Togo to 19,065 individuals in Senegal. All individuals are asked about their ethnic group. The groups obviously differ between countries: the number of groups taken into consideration in the questionnaire varies from 9 in Benin and Niger to 40 groups in Togo. However, in order to harmonize the data and the number of categories considered, the 40 Togolese groups and the 18 Ivorian groups were "reduced" to 6 groups. Non response appears to be the exception with only 665 missing or "Does not know" answers.

2.2. Wage gap decomposition techniques

In the following, we discuss earning equations estimations and present methods that are traditionally used to decompose gender wage gaps. A full decomposition method *à la*

[3] WAEMU: West African Economic and Monetary Union. The survey was not carried out in Guinea-Bissau

[4] Regional Statistical Assistance Programme for multilateral monitoring sponsored by the WAEMU Commission.

Appleton, Hoddinott and Krishnan (1999) is also presented. The application of these methods to decomposing ethnic wage gaps is then discussed.

2.2.1. Earnings determination

Traditional gender earnings decompositions rely on estimations of Mincer-type earnings functions for men and women of the form:

$$\ln w_i = \beta x_i + \varepsilon_i \quad (1)$$

where $\ln w_i$ is the natural logarithm of the observed hourly earnings for individual i, x_i is a vector of observed characteristics, β is a vector of coefficients and ε_i is a disturbance term with an expected value of zero.

Earning functions are first estimated separately for males and females, and also for the different sectors. There is no universally accepted set of conditioning variables that should be included for describing the causes of gender labour market outcomes differentials. Yet, the consensus is that controls for productivity-related factors such as education, labour market experience and marital status should be included. However, it is debatable whether job characteristics, occupation and industry should be taken into account: if employers differentiate between men and women through their tendency to hire into certain occupations, then occupational assignment is an outcome of employer practices rather than an outcome of individual choice or productivity differences.[5]

In this paper, it is not possible to account for the workers' actual experience in the labour market, but only for potential experience which can be viewed as reflecting the 'gross' time that individuals have spent while in the labour force (measured as age minus years of schooling minus six – the legal age at school entry). This is a possible limitation of our study since, as argued in the empirical literature, differences in labour force attachment across gender are important to explain the extent of the gender wage gap. Indeed, measures of women's work experience are particularly prone to errors given their discontinuity in labour market participation (for child care for instance). Using proxy measures such as potential experience may lead to overestimate the amount of experience for females, while it might be a good approximation of true experience for men with higher labour force attachment. Nordman and Roubaud (2005) show for Madagascar, however, that the corresponding potential bias in the estimates of the returns to experience depends on the institutional sector

[5] Conversely, one can argue that analyses that omit occupation and industry may underestimate the importance of background and choice-based characteristics on labour market outcomes (Altonji and Blank, 1999).

and on whether other labour force attachment variables can also be controlled for (the number of work interruptions, unemployment, spells of inactivity, etc.). In absence of such measures, potential experience might be a better proxy than the solely used actual experience since including this variable may introduce additional endogeneity problem in the estimation of the earnings function.[6]

Concerns arise over possible sample selection biases in the estimations. Strictly speaking, there are two sources of selectivity bias involved. One arises from the fact that wage-earners are only observed when they work, and not everyone is working. The second comes from the selective decision to engage in public wage employment rather than private wage employment or the informal sector. Here, we only address the second issue using Lee's two-stage approach to take into account the possible effect of endogenous selection in different sectors on earnings (Lee, 1983). In the first stage, multinomial logit models of individual *i*'s participation in sector *j* are used to compute the correction terms λ_{ij} from the predicted probabilities P_{ij}. Lee's method has been recently criticized because it relies upon a strong assumption regarding the joint distribution of error terms of the equations of interest (see Bourguignon, Fournier and Gurgand, 2007). However, the existing alternative methods we tried, such as Dubin and McFadden's or Dahl's, did not appear more efficient given the small size of our sectoral sub-samples[7]. We then chose Lee's correction method which has the advantage of allowing a more intuitive interpretation of the correction terms. Another potential problem is that the multinomial logit may suffer from the Independence of Irrelevant Alternatives assumption (IIA), which in most cases is questionable. We performed Hausman-type tests (Hausman and McFadden, 2004) for each city and sector which massively provide evidence that the IIA assumption is not violated, with the exception of the informal sector in Bamako[8].

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[6] Regan and Oaxaca (2006) show that using potential versus actual experience in earnings models is best viewed as a model misspecification problem rather than a classical errors-in-variable framework. Instrumental variable techniques are the traditional approach taken to correct classical measurement error. Then, as underline Regan and Oaxaca (2006), instrumenting potential experience would not solve the model specification problem.

[7] Indeed, based on Monte-Carlo simulations, Bourguignon et al. (2007) conclude that "Lee's method is adapted to very small samples (…)".

[8] Note that Bourguignon et al. (2007) argue that selection bias correction based on the multinomial logit model is a "reasonable alternative to multinomial normal models when the focus is on estimating an outcome over selected populations rather than on estimating the selection process itself. This seems even true when the IIA hypothesis is severely at odds". Since we are interested in results in the second stage regression, this allows us to be confident regarding the choice of a multinomial logit.

In Lee's procedure, identification is achieved by the inclusion of additional individual variables in the first stage selection equations which are omitted in the second stage earnings regressions: a set of four dummies indicating relationship to the household head and the inverse dependency ratio (number of working individuals divided by the total number of individuals in the household)[9]. Our assumption is that these variables have arguably no reason to influence earning levels. We tested the appropriateness of this identification strategy using Wald tests of joint significance of the identifying variables in the first stage and insignificance in the second stage for each sector of all cities. For women and men alike, Wald tests of joint significance of the instruments in the first stage never rejected the null at the 1% level, thus indicating that these identifying variables are strong predictors of both participation and sector choice[10]. The tests in the second stage highlighted the appropriateness of their choice in most cases[11]. However, bearing in mind the methodological controversies surrounding the choice of identifying variables in general, we present results from uncorrected earnings functions (OLS) as well.

2.2.2. Oaxaca and Neumark's traditional earnings decompositions

The most common approach to identifying sources of gender wage gaps is the Oaxaca-Blinder decomposition. Two separate standard Mincerian log earnings equations are estimated for males and females. The Oaxaca decomposition is:

$$\overline{\ln w_m} - \overline{\ln w_f} = \beta_m(\bar{x}_m - \bar{x}_f) + (\beta_m - \beta_f)\bar{x}_f \qquad (2)$$

where w_m and w_f are the means of males and females' earnings, respectively; x_m and x_f are vectors containing the respective means of the independent variables for males and females; and β_m and β_f are the estimated coefficients. The first term on the right hand side captures the earnings differential due to different characteristics of males and females. The

9 Similarly, in the same context of a two-step sectoral selection correction, Appleton et al. (1999) use the proportion of children in the household as an identifying instrument.

10 Results are not presented in this paper but are available upon request.

11 The exceptions are the formal private sector in Niamey and Dakar, where the appropriateness of the excluding conditions in the second stage is rejected at the 10% and 1% levels respectively. In these two cases, we then tried to restrict the number of exclusions using as identifying variable only a dummy indicating whether the respondent is the household head (together with the dependency ratio). The test then passed and the results in the second step did not differ from those obtained previously. We hence chose to report the results including the full set of exclusions in order to assure perfect comparability across the countries. Note that the second-stage equation is still identified without excluding conditions for the need of the tests since identification relies then on the distributional assumption of Lee's model (see Bourguignon et al., 2007).

second term is the earnings gap attributable to different returns to those characteristics or coefficients.

It can be argued that, under discrimination, males are paid competitive wages but females are underpaid. If this is the case, the male coefficients should be taken as the non-discriminatory wage structure, as in equation (2). Conversely, if employers pay females competitive wages but pay males more (nepotism), then the female coefficients should be used as the non-discriminatory wage structure. Therefore, the issue is how to determine the wage structure β^* that would prevail in the absence of discrimination. This choice poses the well-known index number problem given that we could use either the male or the female wage structure as the non-discriminatory benchmark. While *a priori* there is no preferable alternative, the decomposition can be quite sensitive to the selection made. The literature has proposed different weighting schemes to deal with the underlying index problem: first, Oaxaca (1973) proposes either the current male wage structure as β^*, or the current female wage structure suggesting that the result would bracket the "true" non-discriminatory wage structure. Reimers (1983) implements a methodology that is equivalent to assigning identical weights to men and women. Cotton (1988) argues that the non-discriminatory structure should approach the structure that holds for the larger group and use as a weighting structure the fraction of males in the sample. Neumark (1988) proposes a general decomposition of the gender wage differential such as:

$$\overline{\ln w_m} - \overline{\ln w_f} = \beta^*(\bar{x}_m - \bar{x}_f) + [(\beta_m - \beta^*)\bar{x}_m + (\beta^* - \beta_f)\bar{x}_f] \qquad (3)$$

This decomposition can be reduced to Oaxaca's two special cases if it is assumed that there is no discrimination in the male wage structure, i.e. $\beta^* = \beta_m$, or if it is assumed that $\beta^* = \beta_f$. Neumark shows that β^* can be estimated using the weighted average of the wage structures of males and females and advocates using the pooled sample to estimate β^*. The first term is the gender wage gap attributable to differences in characteristics. The second and the third terms capture the difference between the actual and pooled returns for men and women, respectively. In this paper, we rely on the decomposition proposed by Neumark.

2.2.3 Earnings decompositions with sample selectivity

Neuman and Oaxaca (2004) show that sample selection complicates the interpretation of earnings decompositions. They offer several alternative decompositions, each based on different assumptions and objectives. We use one of them that consist in considering selectivity as a separate component. This technique has the advantage of not calling for any

prior hypothesis regarding the links between individual characteristics and selectivity. An additional term in the decomposition measures the contribution of selection effects to the observed gender earnings gap: $\hat{\theta}_m\hat{\lambda}_m - \hat{\theta}_f\hat{\lambda}_f$ where $\hat{\lambda}$ and $\hat{\theta}$ denote respectively the mean correction term (generalised Mill's ratio) and its estimated coefficient from each regression by sex. In the full sectoral decomposition that follows, we will then also make use of earnings offered instead of actual earnings only, i.e. earnings net of the selection effects $\hat{\theta}\hat{\lambda}$ (see Reimer, 1983).

2.2.3. A full sectoral decomposition

While the improvement proposed by Neumark's decomposition is attractive, it is not immune from common criticisms of decomposition methods in general. One of them is that, without evidence that employers care only about the proportion of each type of labour employed, it is not clear that the pooled coefficient is a good estimator of the non-discriminatory wage structure (Appleton, Hoddinott and Krishnan, 1999). Appleton et al. (1999)'s full sectoral decomposition takes into account sectoral structures between genders by using a similar approach to that of Neumark and decomposing the gender earnings gap into three components. Since this technique is based on Neumark's decomposition, it does not suffer from the index number problem encountered by previous authors who attempted to account for differences in occupational choices (Brown et al., 1980). Let $\overline{W}_m$ and $\overline{W}_f$ be the means of the natural logs of male and female earnings and $\overline{p}_{mj}$ and $\overline{p}_{fj}$ be the sample proportions of men and women in sector *j* respectively. Similarly to Neumark (1988), Appleton et al. (1999) assume a sectoral structure that would prevail in the absence of gender differences in the impact of characteristics on sectoral choice ($\overline{p}_j^*$, the proportion of employees in sector *j* under this common structure). They then decompose the difference in proportions employed in three sectors such as:

$$\overline{W}_m - \overline{W}_f = \sum_{j=1}^{3} \overline{p}_j^* (\overline{W}_{mj} - \overline{W}_{fj}) + \sum_{j=1}^{3} \overline{W}_{mj} (\overline{p}_{mj} - \overline{p}_j^*) + \sum_{j=1}^{3} \overline{W}_{fj} (\overline{p}_j^* - \overline{p}_{fj}) \qquad (4)$$

A multinomial logit model is used to specify the selection process of an individual into the different sectors. If q_i is a vector of *i*'s relevant characteristics, the probability of a worker *i* being in sector *j* is given by: $P_{ij} = \exp(\gamma_{ij} q_i) / \sum_{j=1}^{3} \exp(\gamma_{ij} q_i)$ with $i = m, f$.

If the distribution of men and women across sectors is determined by the same set of coefficients γ_j^*, then the probability of a worker with characteristics q_i being in sector j is:

$$P_{ij}^* = \exp(\gamma_j^* q_i) / \sum_{j=1}^{3} \exp(\gamma_j^* q_i) \ .$$

Hence, by estimating pooled and separate multinomial logit models for men and women, it is possible to derive the average probability for male and female workers in the different sectors. These mean probabilities are denoted by $\overline{p}_{ij}^*$. The relationship between γ^* and γ_i is similar to that of β^* and β_j in Neumark's decomposition. Embedding the self-selection process in (4), the full decomposition can be written in the following way:

$$\begin{aligned}\overline{W}_m - \overline{W}_f = &\sum_{j=1}^{3} \overline{p}_j^* (\overline{x}_{mj} - \overline{x}_{fj}) \beta_j + \sum_{j=1}^{3} \overline{p}_j^* \overline{x}_{mj} (\beta_{mj} - \beta_j) + \sum_{j=1}^{3} \overline{p}_j^* \overline{x}_{fj} (\beta_j - \beta_{fj}) \\ &+ \sum_{j=1}^{3} \overline{W}_{mj} (\overline{p}_{mj}^* - \overline{p}_j^*) + \sum_{j=1}^{3} \overline{W}_{fj} (\overline{p}_j^* - \overline{p}_{fj}^*) + \sum_{j=1}^{3} \overline{W}_{mj} (\overline{p}_{mj} - \overline{p}_{mj}^*) + \sum_{j=1}^{3} \overline{W}_{fj} (\overline{p}_{fj}^* - \overline{p}_{fj}) .\end{aligned} \quad (5)$$

The first three terms are similar to Neumark decompositions of within-sector earnings gaps. The fourth and fifth terms measure the difference in earnings due to differences in distribution of male and female workers in different sectors. The last two terms account for differences in earnings resulting from the deviations between predicted and actual sectoral compositions of men and women not accounted for by differences in characteristics.

2.2.4. Earnings gap decomposition for ethnic groups

Extending decomposition methods developed and traditionally used to analyse possible discrimination against women to the study of earnings differentials between ethnic groups is not straightforward. One of the main issues is related to the definition and measurement of ethnicity: what defines an ethnic group? In developed countries, there exist conflicting views and different traditions regarding the collection of data on ethnic origin: while Anglo-Saxon societies are used to measuring and analysing data on so-called racial or ethnic groups, a number of countries refuse to categorize individuals using ethnic or racial criteria[12] and, as a result, do not collect statistical data on ethnic origin. In Africa, the notion of ethnicity also raises a number of questions that have been extensively debated among social scientists (see for instance Bayart, 1989). Works by anthropologists have indeed shown that, contrary to a naïve *a priori*, ethnic groups are not characterized by the genetic homogeneity of their

[12] In France, the collection of data on ethnic origin is subject to the authorization of a government body and is not granted systematically. Recently, a survey designed to study racial discrimination in the labour market gave rise to a strong opposition from French public opinion.

members. Depending on countries and contexts, the constitution of ethnic groups appears to be more or less recent and their definition is moving. While some groups have their origin in a common myth and/or ancestor, others only share a common language and culture, and some have been constructed from "outside", i.e. by other groups, either upon a migration or invasion event, or through an exogenous categorization constructed and imposed by colonial rulers. Despite their various origins, it is widely admitted that the notion of ethnicity plays a certain role in the social relations of many African countries. There is, for instance, strong evidence of high levels of endogamy, not only in rural areas where ethnic homogeneity is often observed at the local level, but also in urban areas where different ethnic groups usually cohabit. In the past ten years, economists have seized the "ethnic" issue around the question of its impact on development and growth. The seminal paper is Easterly and Levine's contribution (1997) that concludes that "Africa's growth tragedy" is in part related to its high level of ethnic diversity, resulting in poor institutional functioning. However, this result is still debated nowadays (see Bossuroy, 2007 for a discussion).

In this paper, we focus on the impact of ethnicity on labour market outcomes measured through earnings. In order to apply the methods developed for the analysis of the gender earnings gap, one is inclined to construct a dichotomous variable identifying either a possibly favoured or discriminated against ethnic group. Data collection on ethnicity at the household or individual level is common in Africa: most household and employment surveys include a variable indicating the ethnic group. However, given the diversity of national contexts, two difficulties arise: the first one is related to identifying *a priori* a discriminated ethnic group: should one consider the majority ethnic group as favoured? Or should one consider instead the group related to the head of state? The second difficulty arises because of our comparative framework: how does belonging to the different groups compare across countries? For instance, if one considers majority ethnic groups in the cities of the 1-2-3 *Surveys*, is it the same to be a Mossi in Ouagadougou (76.6 percent of the population) and a Bambara in Bamako (34.0 percent of the population)? Although we do not attempt to answer this question in the paper, we try to consider various aspects of possible ethnic discrimination on urban labour markets while keeping in mind the different national contexts.

3. Results

3.1. A Neumark decomposition of gender and ethnic earnings gaps

In this section, gender and ethnic earnings gaps are analysed using traditional decomposition approaches. As mentioned earlier, in order to apply these methods to decompose the ethnic earnings gap, one is inclined to construct a dichotomous variable identifying either a possibly favoured or discriminated against ethnic group. For that purpose, we identify a majority ethnic group in each city. Descriptive statistics indicate that these majority ethnic groups represent an absolute majority of the capital's population in three countries out of seven. More precisely:

- the Fon represent 60.9 percent of the population of Cotonou (Benin);
- the Mossi represent 78.2 percent of the population in Ouagadougou (Burkina Faso);
- the Akan represent 34.2 percent of the population in Abidjan (Cote d'Ivoire);
- the Bambara represent 34.4 percent of the population of Bamako (Mali);
- the Djerma represent 49.5 percent of the population of Niamey (Niger);
- the Wolof represent 40.4 percent of the population of Dakar (Senegal);
- the Ewe-Mina-Wachi represent 74.2 percent of the population of Lome (Togo).

In six cities out of seven, the majority ethnic group corresponds to the majority group at the national level. The only exception is Niger where the majority ethnic group in the capital is the Djerma while it is the Haoussa at the national level (54 percent of the population).

A first look at earnings gap decompositions based on gender and majority ethnic groups is provided in Table 1 which reports a decomposition of earnings gaps based on Neumark's approach (see section 2.2.2). A number of results are worth emphasizing:

- Raw gender earnings gaps are large, significant and vary from 50.2 in Niamey to 79.2 in Abidjan: these figures indicate that females in Niamey (resp. in Abidjan) earn on average 49.8 percent (respectively 20.8 percent) of male earnings.

- Gender differences in the distribution of characteristics related to productivity - such as education and experience – usually explain less than half of the raw gender gap in six cities out of seven: Lome is an exception with differences in characteristics explaining almost 60 percent of the gap. Including variables related to the type of occupation decreases the unexplained (possibly related to discrimination) share of the raw gender gap. This decrease appears to be substantial in Ouagadougou, Abidjan and Lome.

- Majority ethnic groups do not appear to have a systematic favourable position in the urban labour markets of our sample of countries. It is only in Abidjan that the gap appears both significant and favourable for the majority ethnic group: there the Akan earn on

average 28.0 percent more than other ethnic groups; on the contrary, majority ethnic groups in Ouagadougou and Bamako earn significantly less on average than other ethnic groups.

- Concerning the decomposition of ethnic earnings gaps, results for the three cities mentioned above differ markedly. In Abidjan, the results indicate that differences in the distribution of individual characteristics explain more than 85 percent of the gap so that little is left for what could be labelled discrimination (the unexplained share) against non majority ethnic groups; in Ouagadougou, where the majority ethnic group (Mossi) receives lower earnings than other groups, the gap is also in large part explained by differences in the distribution of observable characteristics such as education and experience; as a result, the unexplained share is low at 18.6 percent; in Bamako, the unexplained share of the gap against the majority ethnic group (Bambara) is much higher: there, differences in returns to characteristics account for 43.3 percent of the gap (down to 39 percent when occupation status dummies are included in the regressions).

3.2. A full decomposition of gender and ethnic earnings gap

It is widely acknowledged that there are at least four types of labour markets in most developing countries: rural (or agricultural), public, formal private and informal. These markets each have their own characteristics, such as job seasonality, uncertainty of demand, nature of contracts and structure of wages and earnings. As a result, gender and ethnic labour allocation between these sectors can be expected to contribute to earnings gaps. Following Appleton, Hoddinott and Krishnan (1999), we provide comparable estimates of the size and determinants of gender earnings gaps using the decomposition method described in section 2.2.3. Given that we are analysing urban labour markets, only three types of labour markets are taken into consideration: public, formal private and informal. Results are reported in Tables 2 and 3 for gender and 4 and 5 for ethnic groups, without and with correction for selectivity of sectoral allocation. The main results are also illustrated in Figure 2 (for gender) and 3 (for ethnic groups) :

- Within-sector differences in earnings account for the largest share of the gender gap with contributions ranging from 60 percent in Abidjan to 75 percent in Cotonou. Then, the last three terms of the full decomposition tell us the share of the gender gap which may be attributed to gender differences in proportions of workers in each sector. The positive sum of these three terms for all cities implies that the differences in sectoral locations are more favorable to men than to women. For instance, the gender earnings gap would have been 40% and 25% smaller respectively in Abidjan and Cotonou if men and women had been

equally distributed across the three sectors. This is because fewer women than men are located in the higher paying sectors such the public and private formal sectors.

- Differences attributable to characteristics only account for a relatively small share of the within-sector differences in earnings: their contribution varies from 14 percent in Dakar to 46 percent in Lome. Conversely, differences attributable to characteristics account for a very large share of the sectoral location differences between genders: their contribution varies from 65 percent in Dakar to 85 percent in Bamako.

- Concerning differences attributable to deviation in male and female returns, their contribution to within-sector differences in earnings are of the same order, indicating that both "discrimination" against women and "nepotism" in favour of men contribute to the gender earnings gap; both "discrimination" against women and "nepotism" in favour of men also contribute to differences in sectoral location but at a much lower level.

- Taking into account selectivity leads to analysing the decomposition not of actualearnings but of offered earnings. These are computed using the coefficients of the selection term in the wage equations (see section 2.2.3). Results in Table 3 show that offered earnings gaps are much higher in Cotonou, Bamako and Dakar, while they are lower in the other cities. Higher earnings gaps when sectoral selectivity is accounted for are not systematically associated with higher contribution of sectoral location differences however. Except in Niamey, within-sector earnings differences remain the main contributor to gender gaps.

Concerning ethnic earnings gaps, our result (without correcting for selectivity) indicate that:

- In Ouagadougou, both within-sector differences in earnings and sectoral location differences between ethnic groups contribute to the ethnic earnings gap. Differences attributable to characteristics account for a large share of both components of the gap.

- In Abidjan, it is differences in sectoral location that explain the highest share of the gap (87%) of which 80% are accounted for by differences in characteristics.

- In Bamako, within-sector differences in earnings account for 75% of the earnings gap and only 32.1% are attributable to differences in characteristics; both "nepotism" (16.0%) and "discrimination" (27.4%) significantly contribute to the gap through their contribution to within-sector differences in earnings. On the contrary, sectoral location differences are almost entirely explained by differences in characteristics.

- Contrary to the results obtained for gender, where sectoral location systematically increases the gap "against" women, it is in some cities the case that sectoral location plays a "compensating" role against observed earnings gaps.

- Results reported in Table 5 show that taking into account selectivity leads to reassessing most measures of the gaps. More specifically, all the ethnic earnings gaps now appear significantly different from zero at least at the 10% level. While in the case of Dakar, the gap widens in favor of the majority group, in Lome, it even changes sign to the detriment of the minority groups. In Niamey, the change of sign goes in the other direction and shows that the majority group faces a disfavourable earnings gap. Finally, in Cotonou, the gap widens in favor of the minority groups. These results possibly point to the importance of taking into account endogenous sector choice.

3.3. Ethnic earnings differentials

In this section, we examine earnings differentials between ethnic groups. As mentioned earlier, several ethnic groups can be differentiated in each capital. The highest number of groups is in Bamako (11 groups), followed by Ouagadougou (10 groups), Cotonou, Niamey and Dakar (9 groups) and Abidjan and Lome (6 groups). Figure 3 reports two Herfindhal's concentration indices for ethnolinguistic fractionalization (ELF) in each country: the first one is computed at the national level while the second is computed at the level of capitals using the *1-2-3 Surveys*. Levels are similar across countries except for Burkina Faso where the ELF index appears to be much lower in the capital than at the country level. This could stem from the fact that the ethnic majority group (Mossi) represents 78.2% of the population in Ouagadougou and only 50% at the national level. This points to a factor that can explain why majority ethnic groups are not systematically favoured in the labour markets of our sample: indeed, in the case of Burkina, where Mossi have lower average earnings than other ethnic groups, it could be the case that only the better performing non-Mossi actually "migrate" to the capital. This is consistent with the results of the Neumark decomposition of the ethnic earnings gap in section 3.1. where we find that the gap "against" the Mossi is mainly explained by differences in characteristics.

Coefficients of the dummies indicating each ethnic group in city-level earnings equations regressions are reported in Table 6a. In the first column, ethnic group dummies are the only regressors while a set of usual controls is introduced in the specification reported in the second column (coefficients for these variables are reported in Table 6b). Results show two things: first, there are at least one significant coefficient on ethnic dummies in all the cities of

the sample (except Lome) meaning that there exist differences in average earnings between ethnic groups. However, these differences diminish and, in some cases, vanish once other observables characteristics are controlled for. In the case of Cotonou, the Dendi people (1.4 percent of the population of the city) appear favoured *ceteris paribus* with respect to the reference group (Adja), while both the Yoa (1.1 percent of the population) and Peul (0.5 percent of the population) have lower earnings *ceteris paribus* than the Adja. In Ouagadougou, the Senoufo people (0.7 percent of the population) are favoured compared to the Bissa. In Abidjan, both the Volta people (7.6 percent of the population of the city) and the foreign born (22.9 percent of the population of the city) have lower earnings *ceteris paribus* than the reference group (Akan). In Bamako, both the Peul (17.1 percent of the population of the city) and the Sarakole (11.9 percent of the population of the city) are favoured with respect to the majority ethnic group (Bambara). In Niamey, the Djerma (50.1 percent of the population of the city), Peul (7.1 percent), Gourma (0.5 percent) and Arabes (0.1 percent) are favoured compared to the Haoussa. In Dakar, the Serere people (13.7 percent) have lower earnings *ceteris paribus* than the Wolof.

Despite the fact that some earnings differentials hold *ceteribus paribus*, one should note that in most cases, the groups considered represent very small shares of the population. Consequently, the question of the size of our samples for analysing the characteristics of these groups can be raised. This is one of the reasons why we did not implement decomposition methods at this level of ethnic disaggregation.

4. Conclusion

In this paper, we analyse the size and determinants of gender and ethnic earnings gaps in seven West African capitals. The study is based on a unique dataset taken from an original series of urban household surveys in West Africa, the *1-2-3 Surveys* conducted in seven major WAEMU cities (Abidjan, Bamako, Cotonou, Dakar, Lome, Niamey and Ouagadougou) from 2001 to 2002. Analysing gender and ethnic earnings gaps in an African context raises a number of important issues that our paper attempts to address.

First, international comparisons of earnings gaps are still scarce in Africa. Our surveys use identical methodologies and virtually identical questionnaires in each city, making for totally comparable results. Second, we address the issue of sample selectivity due to endogenous sector choices (public, private formal and informal sectors) as gender and ethnic labour allocation between these sectors can be expected to contribute to earnings gaps. Following

Appleton, Hoddinott and Krishnan (1999), we then provide comparable estimates of the size and determinants of gender and ethnic earnings gaps using decomposition methods that address the sectoral allocation issue.

The results show that gender earnings gaps are large in all the cities of our sample and that gender differences in the distribution of characteristics usually explain less than half of the raw gender gap. By contrast, majority ethnic groups do not appear to have a systematic favourable position in the urban labour markets of our sample of countries and observed gaps are small relative to gender gaps. Whatever the "sign" of the gap, the contribution of differences in the distribution of individual characteristics varies markedly between cities.

Taking into account differences in sectoral locations in the decomposition of gender earnings gaps provides evidence that within-sector differences in earnings account for the largest share of the gender gap and that the differences in sectoral locations are always more favorable to men than to women. By contrast, concerning ethnic earnings gaps, the full decomposition indicates that sectoral location sometimes plays a "compensating" role against observed earnings gaps. Looking at finer levels of ethnic disaggregation confirms that ethnic earnings differentials are systematically smaller that gender differentials.

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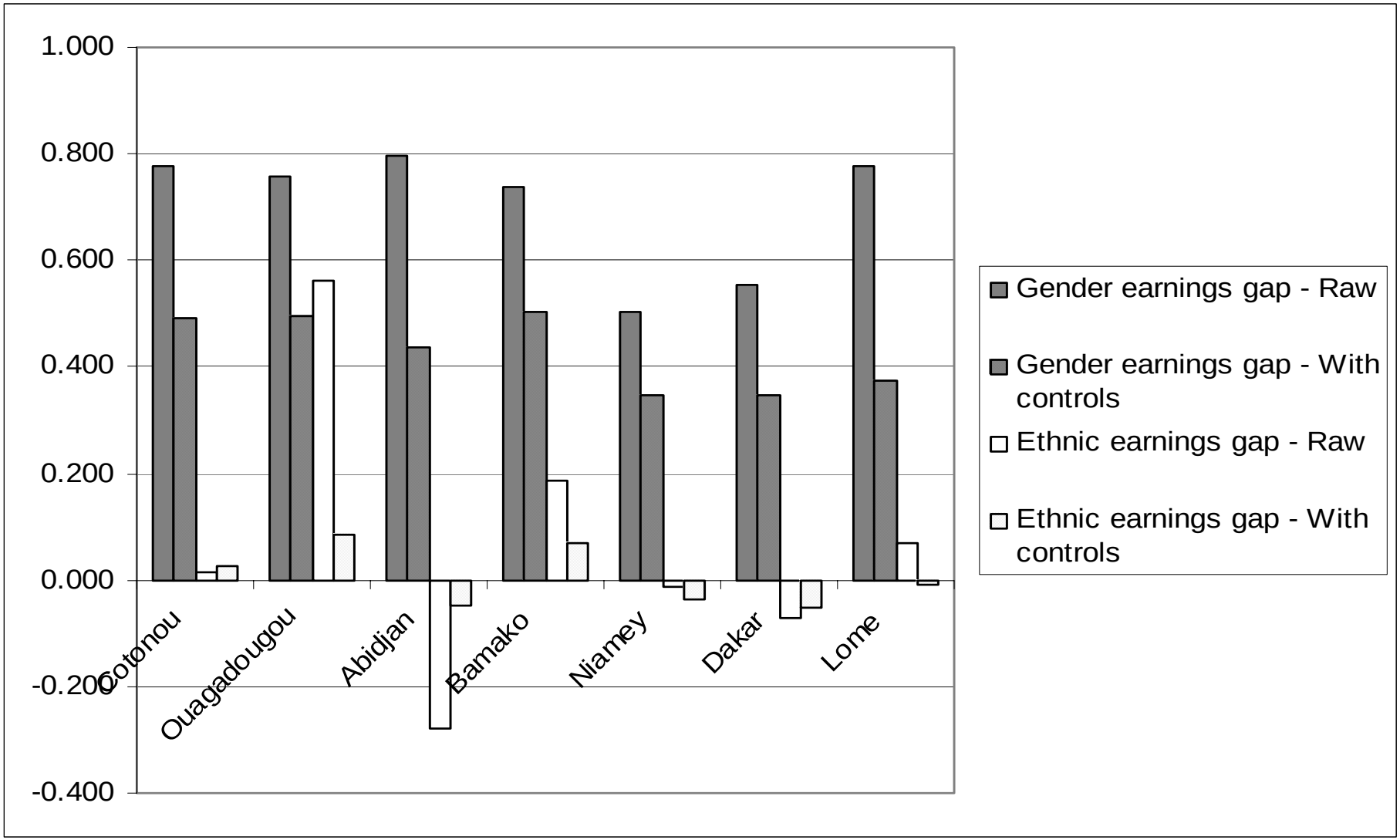
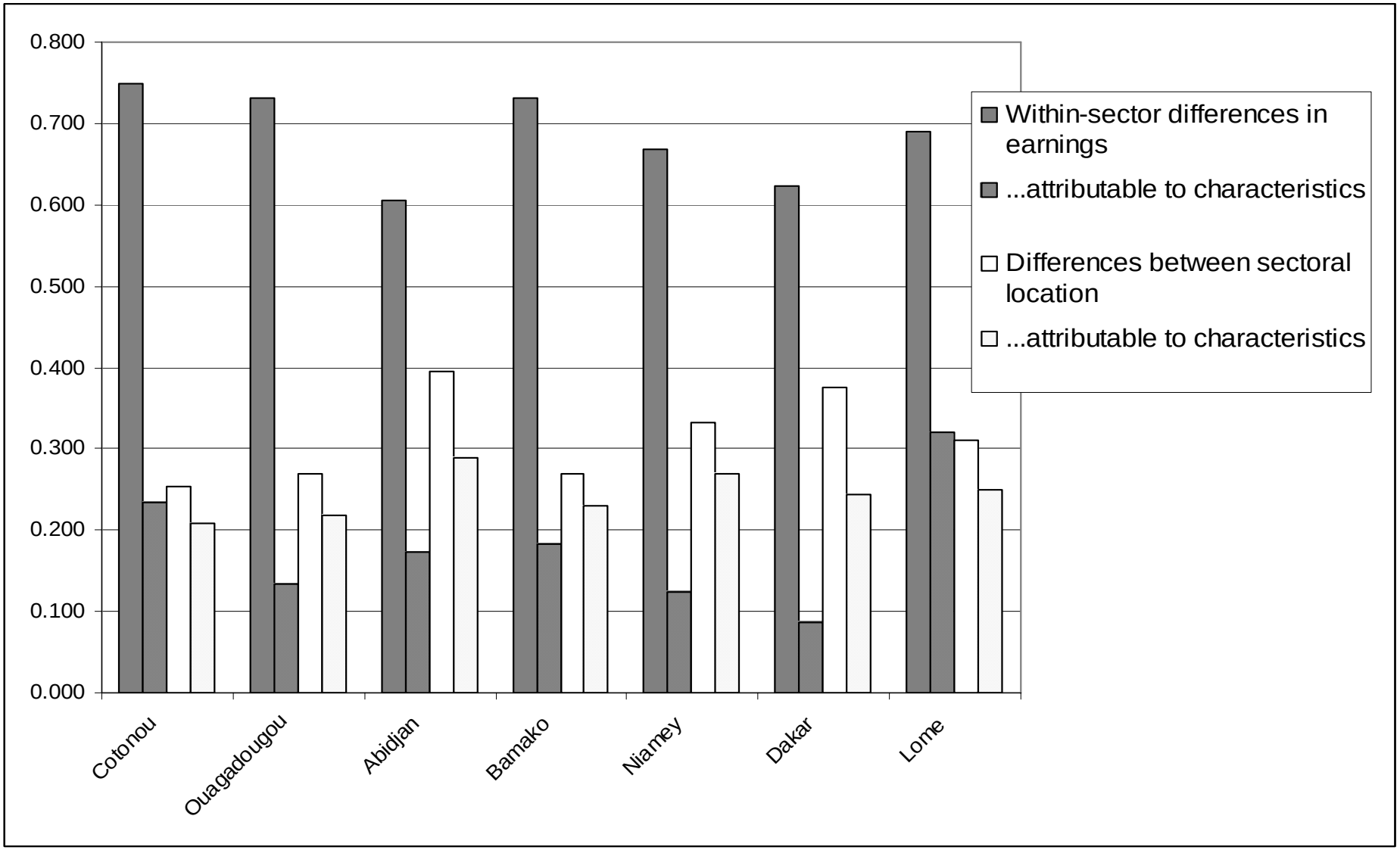
Figure 1: Gender and ethnic earnings gaps



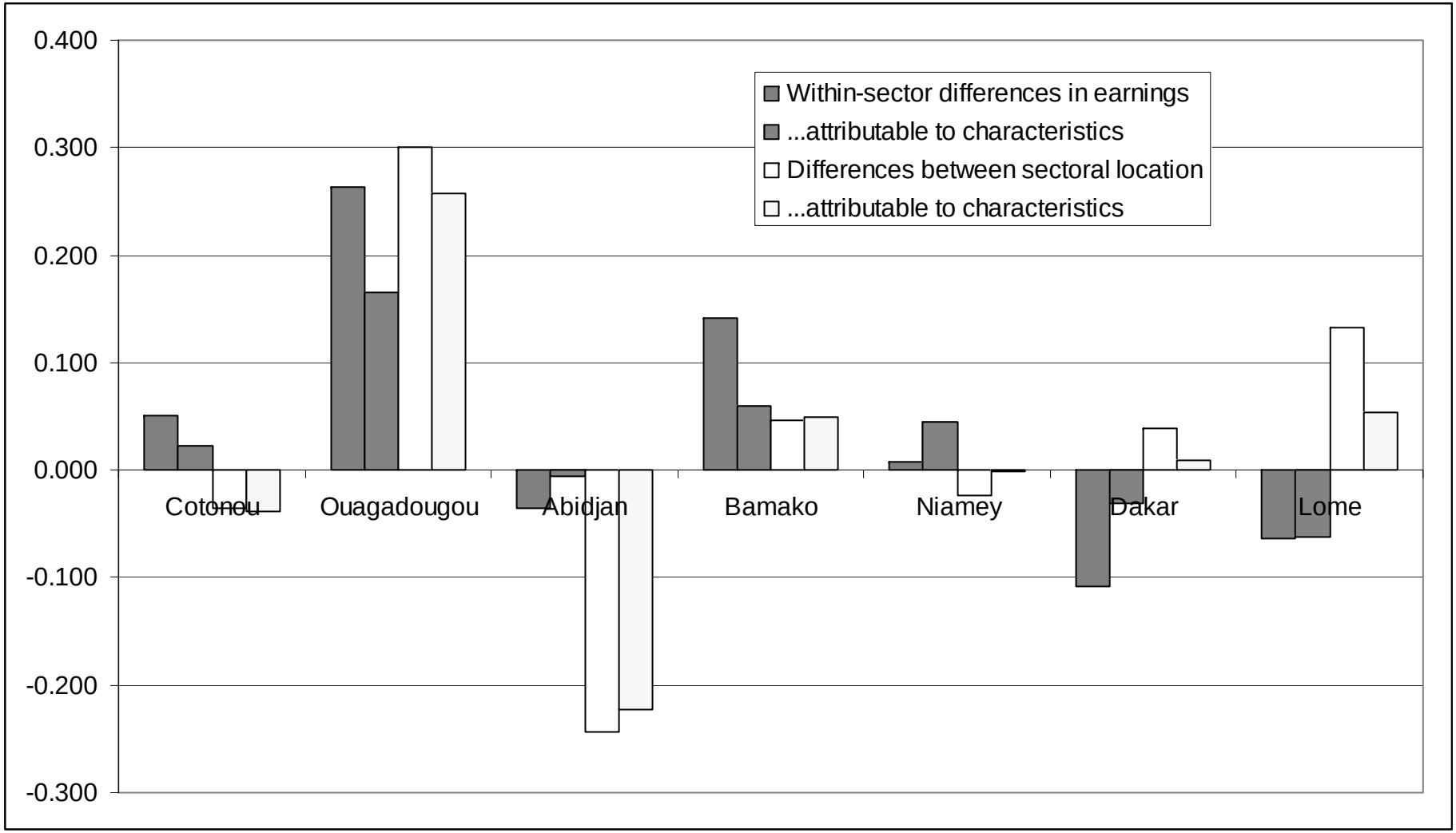
Source: PARSTAT *1-2-3 Surveys,* authors' calculations.

Figure 2: Full decompositions of gender earnings gap (without correcting for selectivity)



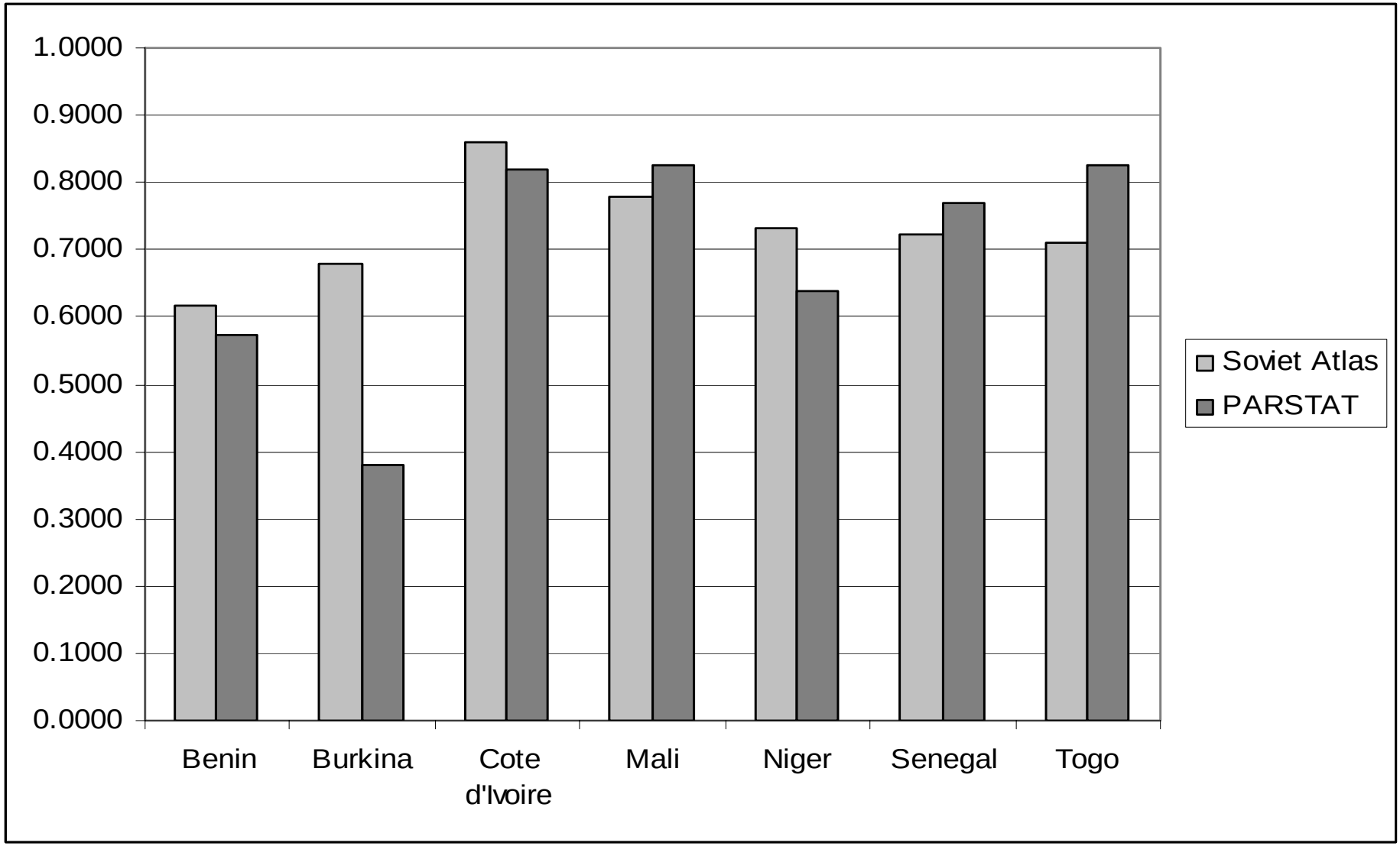
Source: PARSTAT *1-2-3 Surveys,* authors' calculations.

Figure 3: Full decompositions of ethnic earnings gap (without correcting for selectivity)



Source: PARSTAT *1-2-3 Surveys*, authors' calculations.

Figure 3: Herfindhal concentration indices of ethnolinguistic fractionalization (ELF)



Source: Fearon (XXXX) and PARSTAT *1-2-3 Surveys*, authors' calculations.

Table 1: Neumark decompositions of gender and ethnic earnings gaps

		Without occupation or sector dummies			With occupation dummies			With occupation and sector dummies		
	Raw earnings gap	**Explained**	**Unexpl.**	**Unexpl. (%)**	**Explained**	**Unexpl.**	**Unexpl. (%)**	**Explained**	**Unexpl.**	**Unexpl. (%)**
Gender earnings gaps										
Cotonou	**0.779*** **	0.353	0.426	54.7	0.370	0.409	52.5	0.376	0.403	51.7
Ouagadougou	**0.756*** **	0.258	0.498	65.9	0.318	0.438	58.0	0.317	0.439	58.1
Abidjan	**0.795*** **	0.362	0.433	54.4	0.434	0.361	45.4	0.456	0.338	42.6
Bamako	**0.736*** **	0.301	0.435	59.1	0.287	0.450	61.1	0.308	0.428	58.2
Niamey	**0.502*** **	0.197	0.305	60.8	0.195	0.307	61.1	0.193	0.310	61.6
Dakar	**0.556*** **	0.195	0.361	65.0	0.203	0.353	63.6	0.247	0.309	55.5
Lome	**0.777*** **	0.445	0.332	42.7	0.500	0.277	35.7	0.501	0.276	35.5
Ethnic earnings gaps										
Cotonou	**0.015**	-0.007	0.021	145.1	-0.009	0.024	160.5	-0.008	0.022	151.5
Ouagadougou	**0.563*** **	0.458	0.105	18.6	0.490	0.073	12.9	0.488	0.075	13.3
Abidjan	**-0.279*** **	-0.240	-0.039	13.8	-0.250	-0.028	10.2	-0.250	-0.029	10.5
Bamako	**0.186*** **	0.106	0.080	43.0	0.114	0.073	39.0	0.118	0.068	36.7
Niamey	**-0.015**	0.027	-0.042	286.9	0.014	-0.029	197.2	0.019	-0.034	232.6
Dakar	**-0.071***	-0.007	-0.064	89.8	-0.027	-0.044	61.3	-0.024	-0.047	66.0
Lome	**0.070**	0.043	0.026	37.8	0.061	0.009	12.8	0.076	-0.007	-9.7

Source: PARSTAT *1-2-3 Surveys*, authors' calculations.

Note: * significant at 10%; ** significant at 5%; *** significant at 1%.

Raw earnings gaps are computed as follows:

- for gender : Raw earnings gap = Log(Male earnings) – Log(Female earnings)
- for ethnic groups: Raw earnings gap = Log(Minority groups earnings) – Log(Majority group earnings)

As a result, a negative gap - for instance in the case of Abidjan – indicates that the majority ethnic group has higher average earnings.

Table 2: Full decomposition of the gender earnings gap without correcting for selectivity

	Cotonou		Ouagadougou		Abidjan		Bamako		Niamey		Dakar		Lomé	
Actual earnings gap	**0.779**	%	**0.756**	%	**0.795**	%	**0.737**	%	**0.502**	%	**0.556**	%	**0.777**	%
= Log(Male earn.) – Log(Female earn.)	***		***		***		***		***		***		***	
Difference due to within-sector differences in earnings attributable to:														
Characteristics	0.182	23.3	0.101	13.4	0.138	17.3	0.135	18.3	0.062	12.4	0.048	8.6	0.248	32.0
Deviation in male returns	0.229	29.5	0.206	27.3	0.173	21.8	0.197	26.8	0.111	22.1	0.141	25.3	0.180	23.1
Deviation in female returns	0.171	22.0	0.245	32.4	0.170	21.4	0.206	28.0	0.163	32.4	0.158	28.4	0.107	13.8
Sub-total	**0.582**	**74.8**	**0.552**	**73.1**	**0.481**	**60.5**	**0.538**	**73.1**	**0.336**	**66.9**	**0.347**	**62.3**	**0.535**	**68.9**
Difference due to differences between sectoral location attributable to:														
Characteristics	0.162	20.8	0.165	21.9	0.230	28.9	0.169	22.9	0.135	26.9	0.136	24.4	0.194	24.9
Deviation in effect of characteristics on male location	0.012	1.5	0.011	1.5	0.026	3.3	0.009	1.3	0.010	2.0	0.028	5.0	0.017	2.2
Deviation in effect of characteristics on female location	0.023	3.0	0.027	3.5	0.059	7.4	0.021	2.8	0.021	4.3	0.046	8.2	0.031	4.0
Sub-total	**0.197**	**25.3**	**0.203**	**26.9**	**0.315**	**39.6**	**0.199**	**27.0**	**0.166**	**33.2**	**0.210**	**37.6**	**0.242**	**31.1**

Source: PARSTAT *1-2-3 Surveys*, authors' calculations.

Table 3: Full decomposition of the gender earnings gap accounting for selectivity

	Cotonou		Ouagadougou		Abidjan		Bamako		Niamey		Dakar		Lomé	
Offered earnings gap	**1.047**	%	**0.723**	%	**0.683**	%	**0.960**	%	**0.433**	%	**0.816**	%	**0.763**	%
= Log(Male earn.) – Log(Female earn.)	***		***		***		***		***		***		***	
Difference due to within-sector differences in earnings attributable to:														
Characteristics	0.252	24.1	0.076	10.6	0.109	16.0	0.180	18.7	0.054	12.3	0.069	8.5	0.302	39.7
Deviation in male returns	0.266	25.4	0.185	25.5	0.146	21.3	0.175	18.2	0.044	10.2	0.262	32.1	0.213	28.0
Deviation in female returns	0.247	23.6	0.208	28.8	0.162	23.8	0.411	42.8	0.092	21.3	0.251	30.8	0.153	20.1
Sub-total	**0.765**	**73.1**	**0.469**	**64.9**	**0.417**	**61.1**	**0.766**	**79.7**	**0.190**	**43.8**	**0.582**	**71.4**	**0.668**	**87.8**
Difference due to differences between sectoral location attributable to:														
Characteristics	0.235	22.4	0.207	28.6	0.193	28.3	0.166	17.2	0.201	46.4	0.144	17.6	0.079	10.4
Deviation in effect of characteristics on male location	0.021	2.0	0.015	2.0	0.024	3.6	0.034	3.6	0.017	3.9	0.020	2.4	0.002	0.3
Deviation in effect of characteristics on female location	0.026	2.5	0.033	4.5	0.048	7.0	-0.006	-0.6	0.026	5.9	0.069	8.5	0.012	1.6
Sub-total	**0.282**	**26.9**	**0.255**	**35.1**	**0.265**	**38.9**	**0.194**	**20.2**	**0.244**	**56.2**	**0.233**	**28.5**	**0.093**	**12.3**

Source: PARSTAT *1-2-3 Surveys*, authors' calculations.

Table 4: Full decomposition of the ethnic earnings gap without correcting for selectivity

	Cotonou		Ouagadougou		Abidjan		Bamako		Niamey		Dakar		Lomé	
Actual earnings gap	**0.015**	%	**0.563**	%	**-0.279**	%	**0.187**	%	**-0.015**	%	**-0.071**	%	**0.070**	%
= Log(Min. groups earn.) – Log(Maj. group earn.)			***		***		***				**			
Difference due to within-sector differences in earnings attributable to:														
Characteristics	0.023	156.2	0.165	29.3	-0.005	2.0	0.060	32.1	0.045	-310.5	-0.031	43.0	-0.062	-88.5
Deviation in male returns	0.017	113.8	0.079	14.0	-0.010	3.5	0.030	16.0	-0.017	116.2	-0.031	44.2	-0.001	-1.5
Deviation in female returns	0.011	76.2	0.019	3.3	-0.021	7.6	0.051	27.4	-0.020	138.6	-0.047	66.6	0.000	-0.3
Sub-total	**0.051**	**346.2**	**0.263**	**46.6**	**-0.036**	**13.1**	**0.141**	**75.5**	**0.008**	**-55.7**	**-0.109**	**153.8**	**-0.063**	**-90.3**
Difference due to differences between sectoral location attributable to:														
Characteristics	-0.038	-259.3	0.257	45.8	-0.222	79.6	0.049	26.2	-0.002	16.1	0.009	-12.4	0.053	75.8
Deviation in effect of characteristics on male location	0.001	6.2	0.034	6.0	-0.006	2.0	-0.001	-0.6	-0.011	72.4	0.012	-16.5	0.060	86.1
Deviation in effect of characteristics on female location	0.001	6.9	0.010	1.7	-0.015	5.3	-0.002	-1.1	-0.010	67.1	0.018	-24.9	0.020	28.4
Sub-total	**-0.036**	**-246.2**	**0.301**	**53.5**	**-0.243**	**86.9**	**0.046**	**24.5**	**-0.023**	**155.6**	**0.039**	**-53.8**	**0.133**	**190.3**

Source: PARSTAT *1-2-3 Surveys*, authors' calculations.

Table 5: Full decomposition of the ethnic earnings gap accounting for selectivity

	Cotonou		Ouagadougou		Abidjan		Bamako		Niamey		Dakar		Lomé	
Offered earnings gap	**0.079**	%	**0.645**	%	**-0.218**	%	**0.077**	%	**0.114**	%	**-0.265**	%	**-0.190**	%
= Log(Min. groups earn.) – Log(Maj. group earn.)	**		***		***		*		**		***		***	
Difference due to within-sector differences in earnings attributable to:														
Characteristics	0.026	33.1	0.126	19.6	0.009	-4.3	0.034	44.8	0.062	54.7	-0.043	16.0	-0.133	70.1
Deviation in male returns	0.060	76.3	0.182	28.2	0.010	-4.6	-0.011	-14.9	0.030	26.4	-0.109	41.0	-0.104	54.6
Deviation in female returns	0.041	51.1	0.024	3.7	-0.004	1.8	-0.025	-32.5	0.055	48.1	-0.147	55.3	-0.063	33.4
Sub-total	**0.127**	**160.5**	**0.332**	**51.5**	**0.015**	**-7.1**	**-0.002**	**-2.6**	**0.147**	**129.2**	**-0.299**	**112.3**	**-0.300**	**158.1**
Difference due to differences between sectoral location attributable to:														
Characteristics	-0.048	-60.5	0.263	40.8	-0.211	96.9	0.082	106.9	0.000	-0.2	0.009	-3.5	0.042	-22.2
Deviation in effect of characteristics on male location	0.001	1.0	0.036	5.7	-0.006	2.8	0.000	0.4	0.002	1.6	0.012	-4.6	0.032	-16.9
Deviation in effect of characteristics on female location	-0.001	-1.1	0.013	2.0	-0.016	7.4	-0.004	-4.7	-0.035	-30.5	0.011	-4.2	0.036	-19.0
Sub-total	**-0.048**	**-60.6**	**0.312**	**48.5**	**-0.233**	**107.1**	**0.078**	**102.6**	**-0.033**	**-29.1**	**0.032**	**-12.3**	**0.110**	**-58.1**

Source: PARSTAT *1-2-3 Surveys*, authors' calculations.

Table 6a: Ethnic Earnings Differentials

Cotonou	**Raw**	**OLS**
Adja (Ref.)		
Bariba	0.807	0.108
	(0.221)***	(0.177)
Dendi	0.435	0.297
	(0.136)***	(0.116)**
Fon	0.077	-0.043
	(0.039)*	(0.031)
Yoa	-0.421	-0.315
	(0.150)***	(0.120)***
Betamaribe	0.479	0.089
	(0.269)*	(0.211)
Peul	-0.378	-0.395
	(0.245)	(0.195)**
Yoruba	0.270	-0.008
	(0.058)***	(0.052)
Autre	0.062	-0.093
	(0.072)	(0.061)
	4210	4203
	0.01	0.40

Ouagadougou	**Raw**	**OLS**
Bissa (Ref.)		
Bobo	0.198	0.072
	(0.188)	(0.136)
Autres mand.	0.192	0.035
	(0.129)	(0.093)
Dagari	0.111	-0.031
	(0.179)	(0.129)
Gourmantche	0.418	0.135
	(0.199)**	(0.144)
Gourounsi	0.250	-0.017
	(0.134)*	(0.097)
Mossi	-0.364	-0.094
	(0.095)***	(0.069)
Senoufo	0.972	0.291
	(0.222)***	(0.160)*
Peul	0.190	0.083
	(0.164)	(0.119)
Autre	0.135	-0.017
	(0.148)	(0.109)
	3751	3695
	0.04	0.51

Abidjan	**Raw**	**OLS**
Akan (Ref.)		
Krou	0.020	-0.012
	(0.061)	(0.045)
Mande N	-0.270	-0.079
	(0.054)***	(0.055)
Mande S	-0.112	0.005
	(0.090)	(0.069)
Volta	-0.303	-0.138
	(0.069)***	(0.058)**
XB	-0.414	-0.162
	(0.045)***	(0.058)***
	4043	4032
	0.03	0.48

Bamako	**Raw**	**OLS**
Bambara (Ref)		
Malinke	0.056	0.029
	(0.052)	(0.042)
Peul	0.215	0.087
	(0.054)***	(0.044)**
Sarakole	0.249	0.179
	(0.060)***	(0.049)***
Songhai	0.420	0.118
	(0.103)***	(0.085)
Dogon	-0.055	0.042
	(0.091)	(0.074)
Bobo	0.005	0.010
	(0.107)	(0.096)
Senoufo	0.397	0.067
	(0.093)***	(0.076)
Touareg	0.513	0.402
	(0.350)	(0.283)
Arabe	0.459	0.037
	(0.148)***	(0.122)
Haoussa	0.324	0.105
	(0.101)***	(0.085)
	3854	3817
	0.02	0.36

Niamey	**Raw**	**OLS**
Haoussa (Ref.)		
Djerma	-0.003	0.062
	(0.044)	(0.035)*
Peul	0.164	0.154
	(0.085)*	(0.067)**
Touareg	-0.247	-0.077
	(0.090)***	(0.071)
Kanouri	0.339	-0.089
	(0.175)*	(0.137)
Toubou	0.217	-0.033
	(0.550)	(0.414)
Gourma	0.539	0.431
	(0.285)*	(0.217)**
Arabe	1.033	1.185
	(0.550)*	(0.414)***
Autre	-0.163	0.065
	(0.078)**	(0.079)
	3285	3081
	0.01	0.43

Dakar	**Raw**	**OLS**
Wolof (Ref.)		
Lebou	0.036	0.026
	(0.062)	(0.052)
Serere	-0.276	-0.157
	(0.045)***	(0.039)***
Diola	-0.090	-0.067
	(0.067)	(0.060)
Mandingue	0.013	-0.040
	(0.080)	(0.068)
Sarakole	0.091	-0.085
	(0.100)	(0.082)
Mandjag	-0.073	0.009
	(0.101)	(0.093)
Peul	-0.013	-0.027
	(0.044)	(0.037)
Autre	0.054	-0.046
	(0.065)	(0.058)
	5041	4403
	0.01	0.39

Lome	**Raw**	**OLS**
Ewe-Mina -Wachi (Ref.)		
Akposso	0.119	0.035
-Akebou	(0.135)	(0.113)
Ana-Ife	0.124	0.011
	(0.106)	(0.088)
Kabye-Tem	0.060	0.037
	(0.055)	(0.050)
Para-Gourna	0.067	0.050
& Akan	(0.092)	(0.081)
Autre	-0.044	0.102
	(0.190)	(0.157)
	3410	3353
	0.00	0.36

Source: PARSTAT *1-2-3 Surveys*, authors' calculations.

Note: The dependent variable: is the log hourly earnings.Standard errors are in parentheses.

* significant at 10%;
** significant at 5%;
*** significant at 1%

Table 6b: Ethnic Earnings Differentials – Control Variables
(dependent variable: log hourly earnings)

	Cotonou	Ouagadougou	Abidjan	Bamako	Niamey	Dakar	Lomé
Women = 1	-0.483	-0.484	-0.493	-0.435	-0.286	-0.363	-0.386
	(0.026)***	(0.029)***	(0.028)***	(0.030)***	(0.032)***	(0.026)***	(0.034)***
Education	0.045	0.092	0.020	0.031	0.069	0.061	0.026
	(0.007)***	(0.008)***	(0.008)**	(0.009)***	(0.009)***	(0.008)***	(0.010)***
Education^2	0.003	0.004	0.007	0.005	0.004	0.003	0.006
	(0.000)***	(0.001)***	(0.000)***	(0.001)***	(0.001)***	(0.000)***	(0.001)***
Potential Experience	0.029	0.058	0.042	0.053	0.041	0.056	0.041
	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***	(0.004)***
Potential Experience^2	-0.031	-0.070	-0.044	-0.060	-0.044	-0.065	-0.050
	(0.006)***	(0.006)***	(0.007)***	(0.006)***	(0.006)***	(0.006)***	(0.007)***
Tenure	0.025	0.031	0.037	0.030	0.039	0.029	0.038
	(0.004)***	(0.005)***	(0.006)***	(0.005)***	(0.005)***	(0.005)***	(0.006)***
Tenure^2	-0.037	-0.037	-0.081	-0.049	-0.065	-0.041	-0.062
	(0.014)***	(0.016)**	(0.021)***	(0.017)***	(0.016)***	(0.015)***	(0.019)***
Urban migrant = 1	-0.011	0.047	-0.078	-0.077	0.032	-0.040	-0.046
	(0.031)	(0.033)	(0.033)**	(0.036)**	(0.040)	(0.032)	(0.036)
Rural migrant = 1	-0.034	-0.055	-0.232	-0.157	-0.033	-0.146	-0.026
	(0.034)	(0.046)	(0.056)***	(0.044)***	(0.043)	(0.046)***	(0.050)
Foreign migrant = 1	0.036	0.020	-0.079	-0.009	-0.082	0.140	-0.033
	(0.044)	(0.050)	(0.051)	(0.061)	(0.069)	(0.077)*	(0.054)
Other migrant = 1	0.000	-0.058	0.000	-0.085	0.351	-0.095	0.000
	(0.000)	(0.118)	(0.000)	(0.150)	(0.414)	(0.090)	(0.000)
Maried = 1	0.041	0.142	0.112	0.093	0.073	0.036	0.030
	(0.026)	(0.031)***	(0.029)***	(0.031)***	(0.032)**	(0.029)	(0.032)
Christian = 1	0.025	-0.182	0.029	-0.331	-0.193	-0.605	0.034
	(0.045)	(0.160)	(0.045)	(0.219)	(0.277)	(0.486)	(0.033)
Muslim = 1	0.174	-0.199	0.069	-0.194	-0.182	-0.644	-0.015
	(0.063)***	(0.159)	(0.055)	(0.195)	(0.263)	(0.484)	(0.066)
Constant	-2.661	-3.232	-2.504	-2.740	-2.947	-2.138	-3.269
	(0.073)***	(0.180)***	(0.076)***	(0.203)***	(0.274)***	(0.490)***	(0.075)***
Observations	4203	3695	4032	3817	3081	4403	3353
R-squared	0.40	0.51	0.48	0.36	0.43	0.39	0.36

Standard errors are in parentheses.
* significant at 10%; ** significant at 5%; *** significant at 1%.

Annex 1: Ethnicity in West African countries (*1-2-3 Surveys*)

Country	Majority Ethnic Group in the PARSTAT sample	Soviet Atlas ELF	PARSTAT ELF
Benin	**Fon** is a major West African ethnic and linguistic group in the country of Benin or Dahomey, and southwest Nigeria, made up of more than 2,000,000 people. The Fon language is the main language spoken in Southern Benin, and is a member of the Gbe language group. Closely related cultures include the Ewe, Adja and Guin peoples. The Fon are said to originate from Tado, a village in south east Togo, near the border with Benin.	**0.6182**	**0.5742**
Burkina	**Mossi** (sing. Moaaga) are a people in central Burkina Faso, living mostly in the villages of the Volta River Basin. The Mossi are the largest ethnic group in Burkina Faso, constituting 40% of the population, or about 6.2 million people. The other 60% of Burkino Faso's population is composed of more than 60 ethnic groups, mainly the Gurunsi, Senufo, Lobi, Bobo, and Fulani. The Mossi speak the More language.	**0.6783**	**0.3814**
Côte d'Ivoire	The **Akan** people are a linguistic group of West Africa. This group includes the Akuapem, the Akyem, the Ashanti, the Baoulé, the Anyi, the Brong, the Fante and the Nzema peoples of both Ghana and Côte d'Ivoire.	**0.8593**	**0.8204**
Mali	The **Bambara** (Bamana in their own language, or sometimes Banmana) are a Mande people living in west Africa, primarily in Mali but also in Guinea, Burkina Faso and Senegal. They are considered to be amongst the largest Mande ethnic groups, and are the dominant Mande group in Mali, with 80% of the population speaking the Bambara language, regardless of ethnicity.	**0.7783**	**0.8254**
Niger	The **Djerma**, also spelled Zerma, Zarma, Dyerma, or Zaberma, are a people of westernmost Niger and adjacent areas of Burkina Faso and Nigeria. The Djerma language is one of the Songhai languages, a branch of the Nilo-Saharan language family. The Djerma are considered to be a branch of the Songhai people.	**0.7326**	**0.6401**
Senegal	The **Wolof** are an ethnic group found in Senegal, The Gambia, and Mauritania. In Senegal, the Wolof form an ethnic plurality with about 40% of the population self-identifying as Wolof. They are also the majority in the region stretching from Saint-Louis in the north, Kaolack in the south, and Dakar to the west. However, there are few Wolof who reside in Casamance.	**0.7228**	**0.7695**
Togo	The **Ewe** people are a people of southeastern Ghana, Togo and Benin. They speak the Ewe language and are related to other speakers of Gbe languages as the Fon and the Adja of Togo and Benin. They have come to their present territory from the east; their original homeland is traced to Oyo in western Nigeria.	**0.7107**	**0.8254**