Chapter 9

Decomposing Gender and Ethnic Earnings Gaps in Seven Cities in West Africa

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Women and certain ethnic groups often face unequal treatment in labor markets, in both developed and developing countries. Many studies examine ethnic and gender wage gaps in developed countries (Altonji and Blank 1999; Blau and Kahn 2000). In contrast, only 3 percent of the studies on the gender wage gap draw on African data (Weichselbaumer and Winter-Ebmer 2005). As a result, little is known about inequalities in labor market outcomes in Africa.

Enhancing the literature on the gender and ethnic gap in the poorest countries is important for several reasons. First, there are manifest shortcomings of studies on African countries, particularly because of the thinness of the data (Bennell 1996). Second, gender and ethnic inequalities are likely to be greater where markets do not function efficiently and the state lacks the resources to introduce corrective policies. Third, understanding the roots of gender and ethnic inequalities and narrowing these gaps could help policy makers design poverty-reduction policies.

Under the Poverty Reduction Strategy Paper (PRSP) initiative, which concerns more than 60 of the world's poorest countries, policies designed to counter gender discrimination are among the recommended solutions to reduce poverty.[1] Goal 3 of the Millennium Development Goals (MDGs) is specifically aimed at reducing gender inequalities. In order to put this recommendation into practice, policy makers need to understand whether differences in labor outcomes stem from differences in individual characteristics or differences in the returns to these characteristics. Different sets of policies are called for in each case.

The literature on gender gaps confirms the presence of gender inequalities for both wage-earners and self-employed workers. In Guinea, differences in individual characteristics account for only 45 percent of the gender gap in

earnings from self-employment and 25 percent of the differences in earnings from public sector employment; in the private sector, women earn more than men (Glick and Sahn 1997). Armitage and Sabot (1991) find gender inequality in the public sector of Tanzania; they find no evidence of gender discrimination in Kenya's labor market. Glewwe (1990) finds no wage discrimination against women in Ghana. On the contrary, women in the public sector seem to earn more than men.[2] Siphambe and Thokweng-Bakwena (2001) show that in the public sector of Botswana, most of the wage gap reflects differences in individual characteristics between men and women rather than discrimination. In contrast, most of the wage gap in the private sector reflects discrimination. Appleton, Hoddinott, and Krishnan (1999) find evidence that the public sector of Côte d'Ivoire and Uganda practices less wage discrimination than the private sector. Nordman and Roubaud (2009) find a similar result for Madagascar, where a gender gap in the public sector favors women.

The magnitude of gender wage gaps in the public and private sectors varies across countries. However, the main reason for this diversity may be in the heterogeneity of the data sources used by different authors (labor force or household surveys undertaken for purposes other than studying the labor market), in the period they consider, and in the methodology they implement.

Concerning the ethnic wage gap, the literature is even scarcer. Barr and Oduro (2000) find that standard observed differences in workers' characteristics explain much of the earnings differentials across ethnic groups in Ghana. The role of ethnolinguistic fractionalization in development has received much more attention. 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.

This chapter casts light on these issues by using the set of 1-2-3 surveys conducted in the capital cities of the seven French-speaking countries of the West African Economic and Monetary Union (WAEMU) (for a description of these surveys, see box O.1 in the overview). This approach is important for two reasons. First, the data used were collected using the same sampling method and virtually identical questionnaires in each city in the same period of time (2001–02), making for totally comparable results. Second, the chapter analyzes both gender and ethnic gap issues using the same methodological approach for each city.

The chapter is organized as follows. The first section discusses the data, concepts, and econometric methods used. The second section analyzes the results. The last section summarizes the main findings and draws conclusions.

Data, Concepts, and Methodology

This section presents the data and concepts used. It then discusses the methodology of earnings decompositions, an essential aspect of the investigation.

Data and Concepts

The data are taken from Phase 1 of the 1-2-3 surveys conducted in the seven French-speaking capitals of the WAEMU countries. The sample surveyed in Phase 1 included 93,213 individuals (17,841 households). All respondents were asked about their ethnic group. The nonresponse rate was very low, with just 665 respondents failing to identify their ethnic group.

When restricted to working individuals with nonzero earnings, on whom our estimations are based, the sample size is reduced to 20,878 observations (table 9.1), with a minimum of 2,294 observations in Niamey and a maximum of 3,575 observations in Dakar. This sample is still large enough to allow disaggregation of the data by sector (public sector, formal private sector, and informal sector) and gender.

The number of ethnic groups listed in the questionnaire ranged from 9 in Benin and Niger to 40 in Togo. In order to harmonize the data and the number of categories considered, we collapsed the 40 Togolese groups and 18 Ivorian groups into 6 groups.

Wage Gap Decomposition Techniques

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

$$\ln w_i = \beta \mathbf{x}_i + \varepsilon_i \tag{9.1}$$

where $\ln w_i$ is the natural logarithm of the observed hourly earnings for individual *i;* $\mathbf{x}_i$ is a vector of observed individual characteristics; β is a vector of coefficients; and ε_i is a disturbance term with an expected value of zero. Earnings

Table 9.1 Number of Working Individuals in Sample with Nonzero Earnings in Seven Cities in West Africa, by Sector and Gender

	Public sector		Formal private sector		Informal sector	
City	Men	Women	Men	Women	Men	Women
Abidjan	221	85	679	177	1,358	1,543
Bamako	336	126	389	71	1,462	1,558
Cotonou	296	115	387	142	1,389	1,881
Dakar	356	147	738	245	1,760	1,815
Lomé	238	78	250	60	1,252	1,727
Niamey	427	174	326	95	1,316	978
Ouagadougou	404	191	260	88	1,534	1,305

Sources: Based on Phase 1 of the 1-2-3 surveys of selected countries in the West African Economic and Monetary Union (WAEMU) conducted in 2001/02 by the Observatoire économique et statistique d'Afrique Subsaharienne (AFRISTAT); Développement, Institutions et Mondialisation (DIAL); and national statistics institutes.

functions are first estimated separately for men and women and for the different sectors.

There is no universally accepted set of conditioning variables that should be included in describing the causes of gender differentials, although the consensus seems to be that controls for productivity-related factors such as education, labor market experience, and marital status should be included. It is debatable whether job characteristics, occupation, and industry should be taken into account: if employers differentiate between men and women by tending to hire into certain occupations, then occupational assignment is an outcome of employer practices rather than an outcome of individual choice or productivity differences.[3]

It was not possible to account for workers' actual experience in the labor market; potential experience, which can be viewed as reflecting the "gross" time individuals have spent while in the labor force (measured as age minus years of schooling minus six, the legal age at school entry), was therefore used. Use of potential rather than actual experience represents a possible limitation of the study, because differences in labor force attachment by gender are important in explaining the size of the gender wage gap. Indeed, measures of women's work experience are particularly prone to errors given the discontinuity of women's labor market participation (women often leave the labor force to bear and raise children, for instance). Using proxy measures such as potential experience may thus overestimate experience for women; it may be a good approximation of experience for men with greater labor force attachment (Nordman and Roubaud 2009).[4]

Concerns arise over possible sample selection biases in the estimations. One source is the fact that earnings are observed only when people work, and not everyone is working. The second source is the selective decision to work in the public sector rather than the private or informal sectors.

We address both issues using Lee's two-stage approach to take account of the possible effect of endogenous paid-work participation and sector allocation on earnings (Lee 1983).[5] In the first stage, multinomial logit models of individual *i*'s participation for pay in sector *j* are used to compute the correction terms $\boldsymbol{\lambda}_{ij}$ from the predicted probabilities $\mathbf{P}_{ij}$. The sectors considered in the multinomial logit are the public sector, the formal private sector, and the informal sector. The reference category includes all other working-age individuals (inactive, unemployed, and unpaid workers).

A potential problem is that the multinomial logit may suffer from the independence of irrelevant alternatives (IIA) assumption, which in most cases is questionable. Hausman-type tests (Hausman and McFadden 1984) for each city and sector provide massive evidence that the IIA assumption is not violated, except in the informal sector of Bamako. In Lee's procedure, identification is achieved by including additional individual variables in the first-stage selection equations that are omitted in the second-stage earnings regressions: a set

of dummies indicating relationship to the household head, the dependency ratio (number of non-working-age individuals divided by the total number of individuals in the household), and the household size.[6] We assume that these variables do not influence earnings.

Oaxaca and Neumark's traditional earnings decompositions. The most common approach to identifying sources of gender wage gaps is the Oaxaca-Blinder decomposition (based on the seminal work of Oaxaca 1973 and Blinder 1973). In this approach, two separate standard Mincerian log earnings equations are estimated for men and women:

$$\overline{\ln \mathbf{w}_m} - \overline{\ln \mathbf{w}_f} = \boldsymbol{\beta}_m (\bar{\mathbf{x}}_m - \bar{\mathbf{x}}_f) + (\boldsymbol{\beta}_m - \boldsymbol{\beta}_f)\bar{\mathbf{x}}_f \tag{9.2}$$

where $\mathbf{w}_m$ and $\mathbf{w}_f$ are the means of earnings by men and by women; $\mathbf{x}_m$ and $\mathbf{x}_f$ are vectors containing the means of the independent variables for men and women; and $\boldsymbol{\beta}_m$ and $\boldsymbol{\beta}_f$ are the estimated coefficients. The first term on the right-hand side captures the earnings differential caused by differences in the individual characteristics of men and women. The second term is the earnings gap attributable to different returns to those characteristics or coefficients.

It can be argued that, under discrimination, men are paid competitive wages and women are underpaid. If this is the case, the coefficients for men should be taken as the nondiscriminatory wage structure, as in equation (9.2). Conversely, if employers pay women competitive wages but pay men more, then the women's coefficients should be used as the nondiscriminatory wage structure. The issue is thus how to determine the wage structure $\boldsymbol{\beta}^*$ that would prevail in the absence of discrimination. This choice poses the well-known index number problem. A priori neither appears preferable, but the decomposition can be quite sensitive to the selection made. The literature proposes different weighting schemes to deal with the underlying index problem (Neumark 1988). We rely on the general decomposition proposed by Neumark, which can be written as follows:

$$\overline{\ln \mathbf{w}_m} - \overline{\ln \mathbf{w}_f} = \boldsymbol{\beta}^* (\bar{\mathbf{x}}_m - \bar{\mathbf{x}}_f) + [(\boldsymbol{\beta}_m - \boldsymbol{\beta}^*)\bar{\mathbf{x}}_m + (\boldsymbol{\beta}^* - \boldsymbol{\beta}_f)\bar{\mathbf{x}}_f]. \tag{9.3}$$

This decomposition can be reduced to Oaxaca's two special cases if it is assumed that there is no discrimination in the wage structure for men (that is, $\boldsymbol{\beta}^* = \boldsymbol{\beta}_m$) or for women ($\boldsymbol{\beta}^* = \boldsymbol{\beta}_f$). Neumark shows that $\boldsymbol{\beta}^*$ can be estimated using the weighted average of the wage structures of men and women and advocates using the pooled sample to estimate $\boldsymbol{\beta}^*$. The first term is the gender wage gap attributable to differences in individual characteristics. The second and third terms capture the difference between the actual and pooled returns for men and women.

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 considers 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 the mean correction term (generalized Mills ratio) and its estimated coefficient from each regression by gender. Hence, in the full sectoral decomposition that follows, when trying to account for sample selectivity, we consider the decomposition of offered instead of actual earnings (that is, earnings net of the selection effects $\hat{\theta}\hat{\lambda}$) (see Reimers 1983).

Full sectoral decomposition. Although the improvement proposed by Neumark's decomposition is attractive, it is not immune from criticisms of decomposition methods in general. One of them is that without evidence that employers care only about the proportion of each type of labor employed, it is not clear that the pooled coefficient is a good estimator of the nondiscriminatory wage structure. The full sectoral decomposition of Appleton, Hoddinott, and Krishnan (1999) takes into account differences in sectoral structures by gender by using an approach similar to Neumark's and decomposing the gender earnings gap into three components.

Let $\overline{W}_m$ and $\overline{W}_f$ be the means of the natural logs of men's and women's earnings and $\overline{p}_{mj}$ and $\overline{p}_{fj}$ the sample proportions of men and women in sector *j*. Earnings can be written as the sum of sectoral earnings weighted by the proportion of workers in each sector:

$$\overline{W}_m = \sum_{j=1}^{3} \overline{W}_{mj}\,\overline{p}_{mj} \tag{9.4}$$

$$\overline{W}_f = \sum_{j=1}^{3} \overline{W}_{fj}\,\overline{p}_{fj} \tag{9.5}$$

One can decompose the difference in mean earnings into intrasectoral earnings differences and differences in proportions employed in the different sectors. In order to overcome the index problem, Appleton, Hoddinott, and Krishnan (1999) assume the sectoral structure that would prevail in the absence of gender differences in the impact of individual characteristics on sectoral choice.

Let $\overline{p}_j^*$ be the proportion of workers in sector *j* under this assumption. Appleton, Hoddinott, and Krishnan decompose the difference in mean earnings as follows:

$$\overline{W}_m - \overline{W}_f = \sum_{j=1}^{3} \overline{p}_j^*(\overline{W}_{mj} - \overline{W}_{fj}) + \sum_{j=1}^{3} \overline{W}_{mj}(\overline{p}_{mj} - \overline{p}_j^*) + \sum_{j=1}^{3} \overline{W}_{fj}(\overline{p}_j^* - \overline{p}_{fj}) \tag{9.6}$$

The first term can be decomposed using the Neumark decomposition presented earlier. The second and third terms can be decomposed further, in order to distinguish differences arising from differences in individual characteristics from differences arising from differences in returns to these characteristics. One can derive the average probability of being employed in a given sector for men and women from the estimation of pooled and separate multinomial logit models for each gender. These mean probabilities are denoted by $\overline{p}_{mj}^*$ and $\overline{p}_{fj}^*$.

Embedding the self-selection process in equation (9.6) allows the full decomposition to be written as follows:

$$\begin{aligned}\overline{W}_m - \overline{W}_f = &\sum_{j=1}^{3} \overline{p}^*_j (\overline{x}_{mj} - \overline{x}_{fj}) \beta^*_j + \sum_{j=1}^{3} \overline{p}^*_j \overline{x}_{mj} (\beta_{mj} - \beta^*_j) + \sum_{j=1}^{3} \overline{p}^*_j \overline{x}_{fj} (\beta^*_j - \beta_{fj}) \\ &+ \sum_{j=1}^{3} \overline{W}_{mj} (\overline{p}^*_{mj} - \overline{p}^*_j) + \sum_{j=1}^{3} \overline{W}_{fj} (\overline{p}^*_j - \overline{p}^*_{fj}) + \sum_{j=1}^{3} \overline{W}_{mj} (\overline{p}_{mj} - \overline{p}^*_{mj}) \\ &+ \sum_{j=1}^{3} \overline{W}_{fj} (\overline{p}^*_{fj} - \overline{p}_{fj}) \end{aligned} \tag{9.7}$$

The first three terms are similar to Neumark's decompositions of within-sector earnings gaps. The fourth and fifth terms measure the difference in earnings caused by differences in the distribution of men and women 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 individual characteristics.

Earnings gap decomposition for ethnic groups. Extending decomposition methods developed and traditionally used to analyze possible discrimination against women to the study of earnings differentials between ethnic groups is not straightforward. One of the main problems 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. Anglo-Saxon societies are accustomed to measuring and analyzing data on so-called racial and ethnic groups; many other countries refuse to categorize individuals using ethnic or racial criteria and, as a result, do not collect statistical data on ethnic origin.[7]

In Africa, the notion of ethnicity also raises a number of questions that social scientists have debated extensively (Bayart 1989). Anthropologists have shown that ethnic groups are not characterized by genetic homogeneity. Depending on countries and contexts, the constitution of ethnic groups appears to be more or less recent and their definition malleable. Some groups have their origin in a common myth or ancestor; others share only a language and culture. Some "ethnic groups" have been constructed by other groups, following migration, invasion, or colonization.

These various origins notwithstanding, ethnicity plays an important role in social relations in many African countries. There is, for instance, strong evidence of high levels of endogamy (marriage within a specific group, as required by custom or law), not only in rural areas, where ethnic homogeneity is often observed, but also in urban areas, where different ethnic groups cohabit. In recent years, economists have examined the importance of ethnicity to development and growth. The seminal paper is the study by Easterly and Levine (1997), who conclude that "Africa's growth tragedy" is in part related to its high level of ethnic diversity, which results in poor institutional functioning. This conclusion remains a subject of debate (see Bossuroy 2007 for a discussion).

This chapter focuses on the impact of ethnicity on labor market outcomes measured through earnings. 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 favored 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 ethnic group. However, given the diversity of national contexts, two difficulties arise. The first is related to identifying a priori a discriminated-against ethnic group. Should one consider the majority ethnic group as favored? Or should one consider instead the group to which the head of state belongs? The second difficulty arises because of our comparative framework. How does belonging to different groups compare across countries? For instance, is being a Mossi in Ouagadougou (77 percent of the population) comparable to being a Bambara in Bamako (34 percent of the population). We consider various aspects of possible ethnic discrimination on urban labor markets while keeping in mind the different national contexts.

Results

We now turn to the presentation and analysis of results obtained using the different approaches presented above.

Neumark Decomposition of Gender and Ethnic Earnings Gaps

This section analyzes gender and ethnic earnings gaps using traditional decomposition approaches. We identify the largest ethnic group in each city (table 9.2). These groups represent a majority of the population in three of seven cities (Cotonou, Lomé, and Ouagadougou; see the annex for details).

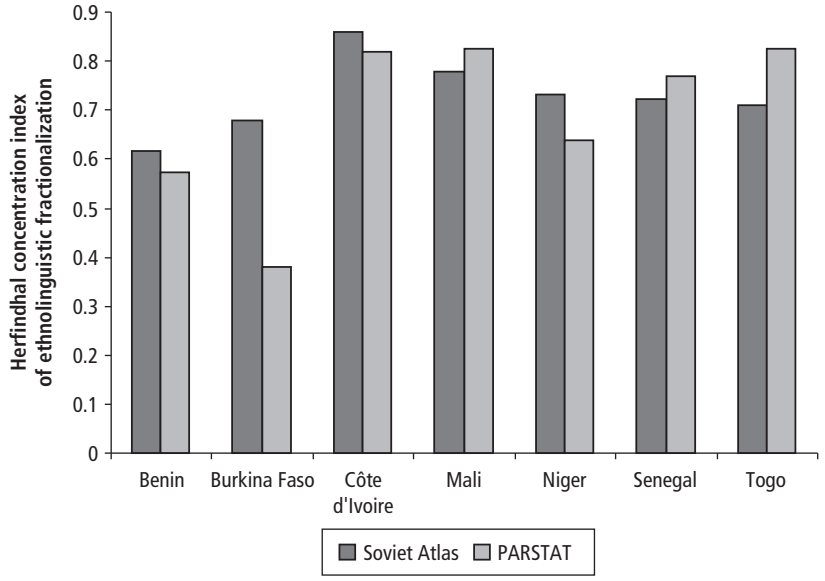
In six of the seven cities, the largest ethnic group corresponds to the majority group at the national level. The sole exception is Niamey, where the Djerma are the largest ethnic group but the Haoussa represent 54 percent of the population of Niger. Figure 9.1 reports two Herfindhal concentration indices for ethnolinguistic fractionalization (ELF) in each country.[8] The first is computed at the national

Table 9.2 Largest Ethnic Group in Seven Cities in West Africa, 2001/02

City	Ethnic group	Percentage of population
Abidjan	Akan	34.2
Bamako	Bambara	34.4
Cotonou	Fon	60.9
Dakar	Wolof	40.4
Lomé	Ewe-Mina-Wachi	74.2
Niamey	Djerma	49.5
Ouagadougou	Mossi	78.2

Sources: Based on Phase 1 of the 1-2-3 surveys of selected countries (see table 9.1 for details).

Figure 9.1 Herfindhal Concentration Indices of Ethnolinguistic Fractionalization in Seven Countries in West Africa, 2001/02



Sources: Soviet Atlas data are from Fearon 2003; survey data are from Phase 1 of the 1-2-3 surveys of selected countries (see table 9.1 for details).
Note: The ELF measure, available for 129 countries, captures the likelihood that two people chosen at random will be from different ethnic groups. It is calculated using a simple Herfindahl concentration index. The Herfindahl concentration formula is $ELF = 1 - \sum_{i=1}^{n} s_i^2$, where s_i is the share of group i ($i = 1, \ldots, n$). The Soviet Atlas data were compiled by Soviet ethnographers in the early 1960s and published in the *Atlas Narodov Mira* in 1964.
ELF = ethnolinguistic fractionalization; PARSTAT = Programme d'Appui Régional à la Statistique.

level; the second is computed for the seven cities, using the 1-2-3 survey data. Levels are similar across all countries except Burkina Faso, where the ELF index appears to be much lower in the capital than at the country level. This difference stems from the fact that the ethnic majority group (Mossi) represents 78 percent of the population in Ouagadougou and only 50 percent at the national level.

Table 9.3 reports the decomposition of earnings gaps based on Neumark's approach. A number of results are worth emphasizing. Raw gender earnings gaps are large and significant, and they range widely across cities (from 50.0 in Niamey to 79.2 in Abidjan). These figures indicate that, on average, women's earnings in Abidjan are 20.8 percent of men's earnings. Raw gender earnings gaps are positive by construction, because they are computed as the difference between a "high group" and a "low group." In the sample of countries, women always correspond to the low group. In contrast, the largest ethnic group corresponds to the high group in Abidjan, Dakar, and Niamey and to the low group in Bamako, Cotonou, Lomé, and Ouagadougou.[9]

Table 9.3 Neumark Decompositions of Gender and Ethnic Earnings Gaps in Seven Cities in West Africa, 2001/02

		Without occupation or sector dummies			With occupation dummies			With occupation and sector dummies		
Type of gap/city	Raw earnings gap	Explained	Unexplained	Unexplained (percent)	Explained	Unexplained	Unexplained (percent)	Explained	Unexplained	Unexplained (percent)
Gender earnings gaps										
Abidjan	0.792***	0.337	0.455	57.4	0.396	0.396	50.0	0.420	0.372	47.0
Bamako	0.736***	0.301	0.435	59.2	0.283	0.452	61.5	0.306	0.430	58.4
Cotonou	0.779***	0.339	0.439	56.4	0.355	0.423	54.3	0.361	0.418	53.7
Dakar	0.556***	0.194	0.361	65.0	0.203	0.353	63.5	0.246	0.309	55.7
Lomé	0.787***	0.427	0.360	45.7	0.481	0.306	38.9	0.482	0.305	38.7
Niamey	0.500***	0.196	0.304	60.9	0.197	0.303	60.6	0.195	0.305	61.0
Ouagadougou	0.754***	0.248	0.506	67.1	0.305	0.449	59.5	0.305	0.448	59.5
Ethnic earnings gaps										
Abidjan	0.279***	0.225	0.054	19.4	0.253	0.027	9.5	0.255	0.025	8.8
Bamako	–0.182***	–0.103	–0.079	43.4	–0.109	–0.073	40.1	–0.111	–0.071	39.0
Cotonou	–0.015	0.040	–0.055	369.7	0.048	–0.062	421.5	0.050	–0.065	441.1
Dakar	0.068**	–0.001	0.069	101.9	0.024	0.044	65.2	0.022	0.046	68.1
Lomé	–0.113***	–0.055	–0.059	51.7	–0.066	–0.047	41.3	–0.081	–0.032	28.3
Niamey	0.019	–0.034	0.053	278.8	–0.022	0.041	216.8	–0.024	0.043	226.7
Ouagadougou	–0.537***	–0.430	–0.107	20.0	–0.463	–0.074	13.8	–0.461	–0.076	14.2

Sources: Based on Phase 1 of the 1-2-3 surveys of selected countries (see table 9.1 for details).
* significant at the 10 percent level, ** significant at the 5 percent level, *** significant at the 1 percent level.

Gender differences in the distribution of individual characteristics related to productivity—such as education and experience—explain less than half of the raw gender gap in six of the seven cities. Lomé is an exception, with differences in individual characteristics explaining almost 55 percent of the gap. Including variables related to the type of occupation decreases somewhat the unexplained share of the raw gender gap. This decrease appears to be substantial in Abidjan, Lomé, and Ouagadougou.

Men are systematically favored over women in all cities in the sample. In contrast, the largest ethnic groups do not appear to have a systematically favorable position in the urban labor markets. Only in Abidjan and Dakar is the gap both significant and favorable for the largest ethnic group (in Abidjan, the Akan earn 28 percent more than other ethnic groups; in Dakar, the Wolof earn 7 percent more than other ethnic groups). In Bamako, Lomé, and Ouagadougou, members of the largest ethnic group earn significantly less than members of other ethnic groups. In Ouagadougou, lower average earnings by the Mossi could be related to their spatial distribution: they represent 78 percent of the population of the capital city but just 50 percent of the population of Burkina Faso. It could be that only better-performing non-Mossi migrate to the capital.

The decomposition of ethnic earnings gaps reveals markedly different results across cities. In Abidjan, differences in the distribution of individual characteristics explain more than 85 percent of the gap, leaving little room for discrimination (the unexplained share). In Bamako, the unexplained share of the gap is 43 percent (39 percent once occupational and sector dummies are included in the regressions). In Dakar, 100 percent of the gap is left unexplained until job characteristics related to occupation and sector are introduced. In Ouagadougou, where the majority ethnic group (Mossi) earns less than other groups, the gap is also in large part explained by differences in the distribution of individual characteristics, such as education and experience; just 20 percent of the differential is unexplained.

Full Decomposition of Gender Earnings Gap

There are at least four types of labor markets in most developing countries: rural (or agricultural), public, formal private, and informal. Each of these markets has its own characteristics, such as job seasonality, uncertainty of demand, the nature of contracts, and the structure of wages and earnings. As a result, gender and ethnic labor allocation across these sectors can be expected to contribute to earnings gaps.

Following Appleton, Hoddinott, and Krishnan (1999) and Nordman and Roubaud (2009), we provide comparable estimates of the size and determinants of gender earnings gaps using the full decomposition method described previously. Given that we are analyzing urban labor markets, only three types of labor markets are examined: public, formal private, and informal. The results are reported without (table 9.4) and with (table 9.5) correction for selectivity of participation and sectoral allocation.

Table 9.4 Full Decomposition of Gender Earnings Gap in Seven Cities in West Africa without Correction for Selectivity, 2001/02

Raw earnings gap	Abidjan		Bamako		Cotonou		Dakar		Lomé		Niamey		Ouagadougou	
	0.792***	Percent	0.736***	Percent	0.779***	Percent	0.556***	Percent	0.787***	Percent	0.500***	Percent	0.754***	Percent
Within-sector differences attributable to														
Characteristics	0.099	12.5	0.133	18.1	0.166	21.3	0.043	7.7	0.240	30.5	0.060	12.1	0.092	12.3
Differences in men's returns	0.192	24.3	0.199	27.0	0.238	30.6	0.143	25.8	0.191	24.2	0.110	22.1	0.210	27.9
Differences in women's returns	0.185	23.4	0.209	28.4	0.178	22.9	0.161	28.9	0.122	15.5	0.164	32.7	0.250	33.1
Subtotal	0.476	60.2	0.541	73.5	0.582	74.8	0.347	62.4	0.553	70.2	0.334	66.9	0.552	73.3
Sectoral location differences attributable to														
Characteristics	0.245	30.9	0.165	22.4	0.167	21.4	0.136	24.4	0.182	23.2	0.126	25.1	0.170	22.5
Differences in effect of characteristics on men's location	0.022	2.7	0.009	1.3	0.010	1.3	0.028	5.0	0.018	2.3	0.012	2.5	0.010	1.3
Differences in effect of characteristics on women's location	0.049	6.2	0.021	2.8	0.020	2.5	0.045	8.2	0.033	4.2	0.027	5.5	0.023	3.0
Subtotal	0.316	39.8	0.195	26.5	0.197	25.2	0.209	37.6	0.233	29.7	0.165	33.1	0.203	26.8

Sources: Based on Phase 1 of the 1-2-3 surveys of selected countries (see table 9.1 for details).
Note: The raw earnings gap is defined as log(men's earnings) – log(women's earnings).
* significant at the 10 percent level, ** significant at the 5 percent level, *** significant at the 1 percent level.

Table 9.5 Full Decomposition of Gender Earnings Gap in Seven Cities in West Africa with Correction for Selectivity, 2001/02

Raw earnings gap	Abidjan		Bamako		Cotonou		Dakar		Lomé		Niamey		Ouagadougou	
	0.970***	Percent	2.050***	Percent	1.060***	Percent	1.361***	Percent	361***	Percent	0.885***	Percent	1.237***	Percent
Within-sector differences in earnings attributable to														
Characteristics	0.107	11.1	0.198	9.7	0.205	19.3	0.053	3.9	0.250	29.2	0.074	8.4	0.144	11.7
Differences in men's returns	0.204	21.0	0.729	35.6	0.343	32.3	0.408	30.0	0.163	19.0	0.245	27.6	0.423	34.2
Differences in women's returns	0.235	24.2	0.956	46.6	0.334	31.5	0.547	40.2	0.009	1.0	0.355	40.2	0.490	39.6
Subtotal	0.546	56.3	1.883	91.9	0.882	83.1	1.008	74.1	0.422	49.2	0.674	76.2	1.057	85.5
Differences between sectoral locations attributable to														
Characteristics	0.319	32.9	0.150	7.3	0.154	14.5	0.212	15.6	0.331	38.6	0.162	18.3	0.151	12.2
Differences in effect of characteristics on men's location	0.042	4.4	0.015	0.7	0.012	1.1	0.065	4.8	0.032	3.8	0.013	1.5	0.004	0.3
Differences in effect of characteristics on women's location	0.062	6.4	0.002	0.1	0.013	1.3	0.076	5.6	0.072	8.4	0.036	4.1	0.024	2.0
Subtotal	0.423	43.7	0.167	8.1	0.179	16.9	0.353	26.0	0.435	50.8	0.211	23.9	0.179	14.5

Sources: Based on Phase 1 of the 1-2-3 surveys of selected countries (see table 9.1 for details).
Note: The earnings gap is defined as log(men's earnings) – log(women's earnings). Decomposition is based on observed earnings.
* significant at the 10 percent level, ** significant at the 5 percent level, *** significant at the 1 percent level.

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. The remaining difference can be attributed to gender differences in the proportions of workers in each sector. The positive sum of these three terms for all cities implies that the differences in sectoral locations favor men. For instance, the gender earnings gap would have been 40 percent smaller in Abidjan if men and women had been equally distributed across the three sectors, because fewer women work in the higher-paying sectors.

Differences attributable to individual characteristics account for a relatively small share of within-sector differences in earnings, ranging from 10 percent in Dakar to 41 percent in Lomé (not shown in the table). Differences attributable to individual characteristics account for a very large share of the sectoral location differences between men and women, ranging from 65 percent in Dakar to 85 percent in Bamako and Cotonou.

Differences attributable to differences in the returns of men and women are of the same order of magnitude, indicating that both "discrimination" against women and "nepotism" in favor of men contribute to the gender earnings gap. Both factors also contribute to differences in sectoral location but at a much lower level.

Taking into account selectivity leads to analyzing the decomposition not of actual earnings but of offered earnings, computed using the coefficients of the selection term in the earnings equations. The results in table 9.5 show that offered earnings gaps are much higher in Cotonou, Bamako, and Dakar and lower in the other cities. Higher earnings gaps when sectoral selectivity is accounted for are not systematically associated with a larger contribution of sectoral location differences, however; except in Niamey, within-sector earnings differences remain the main contributor to gender gaps.

Ethnic Earnings Differentials

Concerning ethnic earnings gaps, the results in table 9.6 (without correcting for selectivity) indicate that the contribution of sectoral location to explaining the gap varies markedly between cities. In Abidjan, differences in sectoral location explain 86 percent of the gap, of which 75 percent is accounted for by differences in individual characteristics. In Bamako, within-sector differences in earnings account for 77 percent of the earnings gap, of which 33 percent is attributable to differences in individual characteristics; both nepotism (16 percent) and discrimination (28 percent) significantly contribute to the gap through their contribution to within-sector differences in earnings. In Ouagadougou, the gap can be attributed almost evenly to differences in sectoral location (53 percent) and within-sector earnings (47 percent).

Sectoral location differences are almost entirely explained by differences in individual characteristics. In Lomé, in contrast to Bamako, the deviation in the effect of individual characteristics on location explains a large share of sectoral location differences. In contrast to the results obtained for gender, where

Table 9.6 Full Decomposition of Ethnic Earnings Gap in Seven Cities in West Africa without Correction for Selectivity, 2001/02

Raw earnings gap	Abidjan		Bamako		Cotonou		Dakar		Lomé		Niamey		Ouagadougou	
	0.279***	Percent	–0.182***	Percent	–0.015	Percent	0.068**	Percent	–0.113***	Percent	0.019	Percent	–0.537***	Percent
Within-sector differences in earnings attributable to														
Characteristics	0.004	1.5	–0.061	33.3	0.014	–96.0	0.021	31.6	0.009	–8.0	–0.049	–258.9	–0.156	29.0
Differences in majority group returns	0.011	3.9	–0.029	15.9	–0.039	262.9	0.034	49.9	–0.023	19.9	0.019	102.8	–0.076	14.2
Differences in minority group returns	0.024	8.5	–0.051	28.2	–0.027	179.3	0.051	75.3	–0.009	7.8	0.024	125.1	–0.019	3.5
Subtotal	0.039	13.9	–0.141	77.4	–0.052	346.2	0.106	156.8	–0.023	19.7	–0.006	–31.0	–0.251	46.7
Differences between sectoral location attributable to														
Characteristics	0.181	64.7	–0.050	27.4	0.018	–120.0	–0.009	–13.7	–0.015	13.2	–0.008	–41.8	–0.250	46.5
Differences in effect of characteristics on majority group location	0.017	5.9	0.003	–1.7	0.012	–78.1	–0.012	–17.0	–0.053	47.2	0.017	88.0	–0.028	5.2
Differences in effect of characteristics on minority group location	0.043	15.5	0.006	–3.1	0.007	–48.2	–0.018	–26.0	–0.022	19.8	0.016	84.9	–0.008	1.5
Subtotal	0.241	86.1	–0.041	22.6	0.037	–246.3	–0.039	–56.7	–0.090	80.2	0.025	131.1	–0.286	53.2

Sources: Based on Phase 1 of the 1-2-3 surveys of selected countries (see table 9.1 for details).
Note: The earnings gap is defined as log(majority group earnings) – log(minority group earnings). Decomposition is based on observed earnings.
* significant at the 10 percent level, ** significant at the 5 percent level, *** significant at the 1 percent level.

sectoral location systematically increases the gap in favor of men, in some cities sectoral location plays a compensating role in observed earnings gaps.

Taking selectivity into account changes some measures of the gaps (table 9.7). The gap decreases in Abidjan, Dakar, and Ouagadougou and increases in Bamako. In Lomé, the gap is actually reversed, possibly indicating that on average the offered earnings of the largest ethnic group are higher than they are for other ethnic groups. This puzzling result requires further investigation (for instance, in order to understand the features of earnings negotiations, one would need to know the ethnic group of the employer).

The largest number of ethnic groups is in Bamako and Ouagadougou (10), followed by Dakar (9); Lomé and Niamey (7); and Abidjan and Cotonou (6) (table 9A.2). Table 9.8 reports the coefficients of the dummies indicating each ethnic group in regressions of city-level earnings equations. In the first column, ethnic group dummies are the only regressors. A set of usual controls is introduced in the specification reported in the second column (table 9.9 reports the coefficients for these variables).

Two results are evident from these regressions. First, there is at least one significant coefficient on ethnic dummies in all cities, indicating differences in average earnings of different ethnic groups.[10] Second, most of these differences diminish—and in some cases vanish—once other individual characteristics are controlled for. Overall, dominant ethnic groups do not seem to be favored on the labor market once one controls for productivity-related individual characteristics. On the contrary, in Benin, Burkina Faso, and Mali, some nondominant groups have higher earnings than the dominant group after controlling for other factors. Moreover, none of the favored groups seems to be related to the ethnicity of the head of state at the time of the survey.[11]

Conclusion

The findings in this chapter are important for two main reasons. First, international comparisons of earnings gaps are still rare in Africa. The 1-2-3 surveys used here rely on identical methodologies and virtually identical questionnaires in each city, making for totally comparable results.

Second, we address the issue of sample selectivity associated with endogenous sector choices, because gender and ethnic labor 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 seven cities in our sample and that gender differences in the distribution of individual characteristics usually explain less than half of the raw gender gap. In contrast, dominant

Table 9.7 Full Decomposition of Ethnic Earnings Gap in Seven Cities in West Africa with Correction for Selectivity, 2001/02

Raw earnings gap	Abidjan		Bamako		Cotonou		Dakar		Lomé		Niamey		Ouagadougou	
	0.254* **	**Percent**	**–0.224*** **	**Percent**	**0.021**	**Percent**	**0.048**	**Percent**	**0.127*** **	**Percent**	**–0.003**	**Percent**	**–0.403*** **	**Percent**
Within-sector differences in earnings attributable to														
Characteristics	0.020	–7.8	–0.042	18.8	0.013	64.1	0.022	45.9	0.021	16.6	–0.043	1335.8	–0.091	22.7
Differences in majority group returns	0.016	–6.3	–0.042	18.5	–0.036	–169.6	0.020	42.5	0.110	86.9	0.000	14.2	–0.029	7.1
Differences in minority group returns	0.001	–0.4	–0.078	34.6	–0.024	–113.4	0.042	88.3	0.090	70.8	–0.012	376.7	0.021	–5.1
Subtotal	0.037	–14.5	–0.162	71.9	–0.047	–218.9	0.084	176.7	0.221	174.3	–0.055	1726.7	–0.099	24.7
Sectoral location differences attributable to														
Characteristics	0.213	84.2	–0.080	35.8	0.029	140.8	–0.009	–19.0	–0.010	–7.9	–0.016	492.6	–0.266	66.1
Differences in effect of characteristics on majority group location	0.027	10.6	0.004	–2.0	0.023	109.6	–0.007	–15.2	–0.030	–23.5	0.025	–770.0	–0.028	6.9
Differences in effect of characteristics on minority group location	0.050	19.8	0.013	–5.7	0.014	68.6	–0.020	–42.5	–0.055	–42.9	0.043	–1349.2	–0.010	2.4
Subtotal	0.290	114.6	–0.063	28.1	0.066	319.0	–0.036	–76.7	–0.095	–74.3	0.052	–1626.6	–0.304	75.4

Sources: Based on Phase 1 of the 1-2-3 surveys of selected countries (see table 9.1 for details).
Note: The earnings gap is defined as log(majority group earnings) – log(minority group earnings). Decomposition is based on observed earnings.
* significant at the 10 percent level, ** significant at the 5 percent level, *** significant at the 1 percent level.

Table 9.8 Ethnic Earnings Differentials in Seven Cities in West Africa, 2001/02

	Earnings gaps		Ordinary least squares estimate	
City/ethnic group	Raw earnings differential	Standard error	Coefficient	Standard error
Abidjan				
Akan (largest ethnic group)	Reference	n.a.	Reference	n.a.
Krou	0.020	0.061	–0.025	0.045
Mande North	–0.268***	0.054)	–0.013	0.042
Mande South	–0.112	0.090	–0.035	0.067
Native of Burkina Faso	–0.414***	0.045	–0.124***	0.037
Voltaic	–0.300***	0.069	–0.086*	0.052
Missing	–0.333	0.250	0.084	0.186
Bamako				
Arab	0.450***	0.149	0.078	0.122
Bambara (largest ethnic group)	Reference	n.a.	Reference	n.a.
Bobo	0.006	0.107	–0.069	0.087
Dogon	–0.042	0.091	0.009	0.074
Haoussa	0.303***	0.102	0.126	0.083
Malinke	0.057	0.052	0.039	0.043
Peul	0.220***	0.054	0.081*	0.044
Sarakole	0.245***	0.060	0.182***	0.049
Senoufo	0.398***	0.093	0.051	0.077
Songhai	0.436***	0.104	0.110	0.085
Missing	0.109	0.115	0.126	0.094
Cotonou				
Adja	–0.077*	0.039	0.035	0.031
Dendi	0.373***	0.135	0.467***	0.107
Fon (largest ethnic group)	Reference	n.a.	Reference	n.a.
Yoa	–0.498***	0.147	–0.213*	0.116
Yoruba	0.193***	0.051	0.102**	0.040
Other	0.033		0.009	
Dakar				
Diola	–0.088	0.068	–0.103*	0.054
Lebou	0.032	0.063	0.034	0.050
Manding	0.009	0.081	–0.020	0.064
Mandjag	–0.073	0.102	–0.005	0.081
Peul	–0.016	0.044	–0.032	0.035
Sarakole	0.117	0.101	–0.054	0.080
Serere	–0.271***	0.046	–0.190***	0.036
Wolof (largest ethnic group)	Reference	n.a.	Reference	n.a.
Other	0.075	0.065	–0.024	0.052

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Table 9.8 (continued)

City/ethnic group	Earnings gaps		Ordinary least squares estimate	
	Raw earnings differential	Standard error	Coefficient	Standard error
Lomé				
Akposso-Akebou	0.121	0.136	–0.003	0.111
Ana-Ife	0.126	0.107	0.005	0.087
Ewe-Mina-Wachi (largest ethnic group)	Reference	n.a.	Reference	n.a.
Kabye-Tem	0.058	0.055	0.001	0.045
Para-Gourma-Akan	0.068	0.092	0.028	0.075
Other Togolese	–0.042	0.191	0.062	0.156
Other non-Togolese	0.297***	0.081	0.276	0.066
Niamey				
Djerma (largest ethnic group)	Reference	n.a.	Reference	n.a.
Gourma	0.542*	0.285	0.240	0.223
Haoussa	–0.004	0.044	–0.068*	0.035
Peul	0.167**	0.083	0.041	0.065
Touareg	–0.237***	0.089	–0.102	0.070
Other	–0.143*	0.075	–0.046	0.059
Missing	–0.259	0.199	–0.075	0.156
Ouagadougou				
Bissa	0.379***	0.095	0.093	0.070
Bobo	0.561***	0.165	0.168	0.120
Dagari	0.474***	0.155	0.083	0.113
Gourmantche	0.781***	0.178	0.197	0.130
Gurunsi	0.613***	0.099	0.073***	0.099
Mossi (largest ethnic group)	Reference	n.a.	Reference	n.a.
Other Manding	0.555***	0.092	0.136**	0.068
Peul	0.552***	0.137	0.161	0.100
Senoufo	1.335***	0.203	0.370**	0.149
Other	0.498***	0.117	0.109	0.086
Missing	–0.141	0.209	–0.130	0.152

Sources: Based on Phase 1 of the 1-2-3 surveys of selected countries (see table 9.1 for details).
Note: n.a. = Not applicable.
* significant at the 10 percent level, ** significant at the 5 percent level, *** significant at the 1 percent level.

ethnic groups do not appear to have a systematically favorable position in the urban labor markets in our sample, and observed gaps are small relative to gender gaps. Moreover, "favored" minority groups do not seem to be related to the ethnicity of the head of state at the time of the survey.

Whatever the sign of the gap, the contribution of differences in the distribution of individual characteristics varies markedly across cities. Taking into

Table 9.9 Control Variables for Ethnic Earnings Differentials in Seven Cities in West Africa, 2001/02

Variable	Abidjan	Bamako	Cotonou	Dakar	Lomé	Niamey	Ouagadougou
Gender (1 = women)	–0.507	–0.464	–0.495	–0.370	–0.425	–0.314	–0.525
	(0.028)***	(0.030)***	(0.026)***	(0.025)***	(0.033)***	(0.031)***	(0.028)***
Education	0.028	0.045	0.046	0.066	0.030	0.077	0.100
	(0.008)***	(0.009)***	(0.007)***	(0.007)***	(0.010)***	(0.009)***	(0.008)***
Education squared	0.007	0.004	0.004	0.003	0.006	0.004	0.004
	(0.000)***	(0.001)***	(0.000)***	(0.000)***	(0.001)***	(0.001)***	(0.001)***
Potential experience	0.051	0.062	0.038	0.066	0.052	0.052	0.067
	(0.004)***	(0.004)***	(0.004)***	(0.003)***	(0.004)***	(0.004)***	(0.004)***
Potential experience squared	–0.049	–0.065	–0.039	–0.073	–0.057	–0.047	–0.073
	(0.007)***	(0.006)***	(0.006)***	(0.005)***	(0.007)***	(0.005)***	(0.006)***
Marital status (1 = married)	0.120	0.093	0.043	0.059	0.032	0.067	0.160
	(0.029)***	(0.031)***	(0.026)*	(0.028)**	(0.032)	(0.032)**	(0.031)***
Constant	–2.568	–3.013	–2.725	–2.769	–3.311	–3.086	–3.549
	(0.066)***	(0.063)***	(0.060)***	(0.053)***	(0.070)***	(0.069)***	(0.061)***
Number of observations	4,060	3,928	4,209	4,929	3,600	3,295	3,774
R^2	0.47	0.35	0.39	0.37	0.34	0.40	0.50

Sources: Based on Phase 1 of the 1-2-3 surveys of selected countries (see table 9.1 for details).
Note: Figures in parentheses are standard errors.
* significant at the 10 percent level, ** significant at the 5 percent level, *** significant at the 1 percent level.

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 differences in sectoral locations are always more favorable to men than to women. In contrast, full decomposition of ethnic earnings gaps indicates that sectoral location sometimes plays a "compensating" role. Looking at finer levels of ethnic disaggregation confirms that ethnic earnings differentials are systematically smaller than gender differentials.

Annex: Ethnicity in Seven West African Countries

Table 9A.1 Ethnolinguistic Fractionalization in Seven Countries in West Africa

Country	Description of largest ethnic group	Ethnolinguistic fractionalization	
		Soviet Atlas	1-2-3 surveys
Benin	The Fon are a major ethnic and linguistic group in Benin and southwest Nigeria, made up of more than 2 million people. Their language, a member of the Gbe language group, is the main language spoken in southern Benin. Closely related cultures include the Ewe, Adja, and Guin. The Fon are said to originate from Tado, a village in southeast Togo, near the border with Benin.	0.6182	0.5742
Burkina Faso	The Mossi live in central Burkina Faso, mostly in the villages of the Volta River Basin. They are the largest ethnic group in Burkina Faso, constituting 40 percent of the population (about 6.2 million people). The other 60 percent of Burkina 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 are a linguistic group in West Africa that includes the Akuapem, Akyem, Ashanti, Baoulé, Anyi, Brong, Fante, and Nzema peoples of Côte d'Ivoire and Ghana.	0.8593	0.8204
Mali	The Bambara (*Bamana* or sometimes *Banmana* in their own language) are a Mande people living in West Africa, primarily in Mali but also in Burkina Faso, Guinea, and Senegal. Among the largest Mande ethnic groups, they are the dominant Mande group in Mali, where 80 percent of the population speaks the Bambara language, regardless of ethnicity.	0.7783	0.8254
Niger	The Djerma (also spelled *Zerma, Zarma, Dyerma*, and *Zaberma*) live in western Niger and adjacent areas of Burkina Faso and Nigeria. Their 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 live in The Gambia, Mauritania, and Senegal. In Senegal, they form an ethnic plurality, with about 40 percent of the population self-identifying as Wolof. They are the majority in the region stretching from Saint-Louis in the north, Kaolack in the south, and Dakar to the west.	0.7228	0.7695

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Table 9A.1 (continued)

Country	Description of largest ethnic group	Ethnolinguistic fractionalization	
		Soviet Atlas	1-2-3 surveys
Togo	The Ewe live in southeastern Benin, Ghana, and Togo. They speak the Ewe language and are related to other speakers of Gbe languages, including the Fon and the Adja of Benin and Togo. Their original homeland is Oyo, in western Nigeria.	0.7107	0.8254

Sources: Soviet Atlas data are from Fearon 2003; survey data are from Phase 1 of the 1-2-3 surveys of selected countries (see table 9.1 for details).
Note: The ELF measure, available for 129 countries, captures the likelihood that two people chosen at random will be from different ethnic groups. It is calculated using a simple Herfindahl concentration index. The Herfindahl concentration formula is $ELF = 1 - \sum_{i=1}^{n} s_i^2$, where s_i is the share of group i ($i = 1, \ldots, n$). The Soviet Atlas data were compiled by Soviet ethnographers in the early 1960s and published in the Atlas Narodov Mira in 1964.
ELF = ethnolinguistic fractionlization.

Table 9A.2 Ethnic Composition of Sample in Seven Cities in West Africa, 2001/02

City/ethnic group	Sample size	Extrapolated percentage of total
Abidjan		
Akan	1,278	32.4
Krou	444	11.5
Mande North	631	16.3
Mande South	171	4.4
Native of Burkina Faso	1,188	26.9
Voltaic	328	8.2
Missing	20	0.5
Bamako		
Arab	57	1.0
Bambara	1,382	35.7
Bobo	115	3.5
Dogon	163	4.4
Haoussa	128	2.8
Malinke	660	16.9
Peul	602	15.6
Sarakole	445	11.1
Senoufo	155	3.7
Songhai	123	2.9
Missing	98	2.3
Cotonou		
Adja	889	21.5
Dendi	56	1.3
Fon	2,475	60.3
Yoa	47	1.1
Yoruba	447	9.9
Other	295	5.9

(continued next page)

Table 9A.2 (continued)

City/ethnic group	Sample size	Extrapolated percent of total
Dakar		
Diola	278	5.8
Lebou	337	9.1
Manding	191	3.9
Mandjag	115	2.3
Peul	822	16.0
Sarakole	118	2.4
Serere	747	16.0
Wolof	2,008	38.1
Other	313	6.3
Lomé		
Akposso-Akebou	66	1.8
Ana-Ife	109	3.1
Ewe-Mina-Wachi	2,582	71.8
Kabye-Tem	467	13.1
Para-Gourma-Akan	148	4.2
Other Togolese	33	0.8
Other non-Togolese	195	5.2
Niamey		
Djerma	1,542	46.6
Gourma	15	0.5
Haoussa	1,044	32.1
Kanouri	41	1.2
Peul	199	6.1
Touareg	170	5.4
Other	253	7.2
Missing	31	1.0
Ouagadougou		
Bissa	155	4.1
Bobo	50	1.0
Dagari	57	1.4
Gourmantche	43	1.2
Gurunsi	142	4.1
Mossi	2,921	77.2
Other Manding	168	4.2
Peul	73	1.8
Senoufo	33	0.8
Other	101	3.1
Missing	31	1.4

Sources: Based on Phase 1 of the 1-2-3 surveys of selected countries (see table 9.1 for details).

Notes

1. Poverty Reduction Strategy Papers (PRSPs) are documents required before low-income countries can receive aid from most major donors and lenders. The PRSP process encourages countries to develop more poverty-focused policies and to own their own strategies by developing the plan in close consultation with the population.
2. See Siphambe and Thokweng-Bakwena (2001) on Botswana; Lachaud (1997) on Burkina Faso and Cameroon; Appleton, Hoddinott, and Krishnan (1999) on Côte d'Ivoire, Ethiopia, and Uganda; Kolev and Suarez Robles (2007) and Temesgen (2006) on Ethiopia; Glewwe (1990) on Ghana; Glick and Sahn (1997) on Guinea; Kabubo-Mariara (2003), Milne and Neitzert (1994), and Agesa (1999) on Kenya; Armitage and Sabot (1991) on Kenya and Tanzania; Nordman and Roubaud (2009) and Nordman, Rakotomanana, and Robilliard (2010) on Madagascar; Nordman and Wolff (2009b) on Morocco; Nordman and Wolff (2009a) on the formal sectors of Madagascar and Mauritius; Isemonger and Roberts (1999) on South Africa; and Cohen and House (1993) on Sudan.
3. Conversely, one can argue that analyses that omit occupation and industry may underestimate the importance of background and choice-based characteristics on labor market outcomes (Altonji and Blank 1999).
4. 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 used to correct classical measurement error. In the absence of actual experience measures, instrumenting potential experience does not solve the model specification problem, as Regan and Oaxaca (2006) emphasize.
5. Following Tunali (1986), an alternative approach would be to employ a sequential selection rule (nested multinomial logit) rather than a combined one. Doing so would mean controlling for self-selection into the paid-work group and then different endogenous choices of the public, formal private, and informal sectors. This technique requires finding at least one variable affecting the decision to enter the paid-work group but not the sector choice in order to achieve identification through the use of exclusion restrictions. It was impossible to find variables that could be used in the first-stage selection equation and arguably excluded from a second selection equation of sector allocation.
6. In the context of a two-step sectoral selection correction, Appleton, Hoddinott, and Krishnan (1999) use the proportion of children in the household as an identifying instrument.
7. In France, the collection of data on ethnic origin is subject to authorization by a government body and is not granted systematically.
8. Easterly and Levine (1997) and Collier and Hoeffler (1998) define ethnolinguistic fractionalization (ELF) as the probability of two randomly drawn individuals from the same country belonging to different ethnic groups.
9. Nordman, Robilliard, and Roubaud (2011) explore the factors likely to explain differences in gender gaps across cities. Their findings suggest that cities with large gender earnings gaps are characterized by high levels of female labor market participation, large gender education gaps, and large shares of self-employment. Gender earnings gaps are particularly large in the informal self-employment sector. The

differences in access to capital and the low productivity of activities engaged in by self-employed women may explain this finding.

10. In some cities, the groups considered represent very small shares of the population (see annex table 9A.2). For this reason, we did not implement decomposition methods at this level of ethnic disaggregation.
11. Data on the ethnicity of the head of state at the time of the survey are provided in the data set put together by Fearon, Kasara, and Laitin (2007).

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