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Are female employment statistics more sensitive than male ones to questionnaire design? Evidence from Cameroon, Mali and Senegal

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Are female employment rates really more sensitive than male ones to questionnaire design?
Evidence from Cameroon, Mali and Senegal

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Abstract

This paper investigates the effect of several survey questionnaire characteristics on employment statistics. It also assess the differences in sensitivity to survey design across gender and living area. Indeed, as suggested in the literature, women, especially those living in rural areas, are expected to be more sensitive than men to survey design, due to both the nature of the work (seasonal, occasional, temporary, informal, unpaid family work) and social norms. In many African countries, labor force surveys are not available on a regular basis and the way existing household surveys and census measure employment differs greatly, both over time and between countries. This makes it difficult to properly study labor market dynamics and to draw meaningful policy recommendations. Using about fifty surveys and censuses collected in Cameroon, Mali and Senegal between 1976 and 2012, we first review the diversity of survey instruments used and highlight the key questionnaire characteristics that are likely to affect employment statistics. Exploiting within-survey variations of the wording of questions, the detail of the labor module and the length of the reference period, we then assess the effect of these features on labor statistics. Empirical results shows significant effects of each questionnaire feature and suggest that women are not systematically more sensitive than men to survey design, nor is it the case for rural individuals compared to urban ones.

JEL Classification : C81, C83, J21, J71, O55

Keywords : Employment statistics, Survey design, Gender, Data comparability, Sub-Saharan Africa

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1 Introduction

Labor market data provide key information for analyzing labor market dynamics and drawing meaningful policy recommendations. Ideally, labor market statistics should be produced on a quarterly basis to monitor economic activity.[1] Unfortunately, this is very seldom the case in Sub-Saharan African countries, where, instead, labor market statistics are generally computed from household survey and census data. While many household surveys and censuses collecting information on individuals' labor market status have been conducted since the 1970s in Sub-Saharan African countries, the way employment is measured differs greatly across surveys. Labor market statistics are therefore calculated from surveys using different definitions, concepts, and methodologies that compromise their comparability, over time and between countries. The objective of this paper is to assess to what extent the survey questionnaire characteristics influence the resulting employment statistics, and how sensitivity to survey design differs across gender and living area.

The existing literature suggests that the measurement of women's work in developing countries would be more sensitive to survey design than men's one. According to Langsten and Salem (2008), two problems are likely to affect the measurement of female employment. The first relates to the definitions and concepts used : the measurement of women's employment has been subject to many conceptual debates, especially in developing countries, because of the specific characteristics of women's work (the importance of domestic and family work, the seasonal, casual, temporary, unpaid nature of work, etc.). The second concerns the way these concepts are operationalized in the survey design and data collection process. Indeed, surveys use a wide range of different methodologies likely to affect the statistics produced. In this paper, we focus on this latter aspect and examine the influence of specific dimensions of survey design on the resulting employment statistics. Indeed, many aspects of the survey design such as the reference period, the form and detail of questions, the type of respondent differ from one survey to another. Along with actual variations in employment, they may contribute to the differences observed between the estimates produced by surveys. Yet, there is few evidence on the size and the direction of the effect of these characteristics on the resulting labor statistics. Moreover,

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[1]For instance, since 1998, the European Union Labour Force Surveys (EU-LFS) collect data each quarter on households in all Member States.

little is known about how individual characteristics (i.e. gender and area of residence) can account for the sensitivity (if any) to survey design.

From a sample of about fifty surveys collected over three decades in Cameroon, Mali and Senegal, we first present the diversity of survey questionnaires used to measure employment and identify key characteristics likely to influence labor statistics : the wording of questions, the length of employment module, the reference period and the data collection period. Exploiting within-survey variations we find that these features significantly affect resulting statistics. We investigate heterogeneous effects across gender and results suggest that women are not systematically more sensitive to survey design than men. Finally, on the basis of these findings, we provide some recommendations on the preferred surveys instruments to measure employment.

The structure of the paper is as follows. The literature is reviewed in Section 2, while section 3 presents the diversity of labor modules in survey questionnaires. Section 4 presents the impact of several key questionnaire characteristics on the resulting employment statistics. Section 5 draws recommendations and concludes.

2 Literature Review

This paper relates to two strands of literature. The first one discusses the issue of the measurement of women's work in statistics that does not reflect reality in developing countries. The second one examines more specifically to what extent the survey design affects the resulting statistics.

2.1 Women's work in statistics: conceptual and measurement issues

There is a broad consensus in the literature that women's work is poorly measured in employment statistics, notably in developing countries. Following the seminal work of Boserup (1970), many studies have subsequently highlighted the systematic underestimation of women's work, whether in population censuses or labor force surveys (Beneria, 1981; Anker, 1983; Anker and Anker, 1989; Donahoe, 1999; Mata-Greenwood, 2000). In the 1980s, a series of debates have emerged on the restrictiveness of traditionally used definitions of labor force status (employed[2],

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[2]The "employed" comprise all persons above a specific age who during a specified brief period, either one week or one day, were in paid employment or in self-employment (ILO -Thirteenth International Conference of Labour Statisticians (Geneva, 1982)).

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unemployed[3] or not in labor force[4]). A first issue concerns the inclusion of domestic work and unpaid family work that contribute to the wellbeing of the family but are not considered as work by national statistics. According to Beneria (1981), the underestimation of women's contribution to production is both due to an ideological bias linked to the prevailing norms in the society on gender roles (women's work being usually considered as secondary and less important than men's one) and a more practical aspect, related to the way employment statistics are produced. Notably, Beneria (1981) criticizes survey questions on "main occupation" that tend to underestimate women's economic contribution. Indeed, many women see themselves primarily as housewives who mainly perform domestic work, even though they also perform economic activities. She argues that conventional definitions should be expanded to take into account all workers involved in the production, if it has either a use value (non-market) or an exchange value (market), including activities such as domestic production and all types of subsistence production that contribute to the family welfare.[5] In order to overcome some of these conceptual and operational limits, several improvements have been made over time. The ILO has extended its definition of the labor force[6] in 1982, in order to include those engaged in *"the production and processing of primary products, whether for the market, for barter or for own consumption, the production of all other goods and services for the market and, in the case of households which produce such goods and services for the market, the corresponding production for own consumption"*, notably to take into account the production for household consumption.

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[3] "The "unemployed" comprise all persons above a specified age who during the reference period were without work, currently available for work and seeking work" (Resolution adopted by the Thirteenth International Conference of Labour Statisticians (Geneva, 1982)).

[4] The "labor force" (or economically active population) includes employed and unemployed individuals, in other words, those who are available for the production of goods and services in accordance with the System of National Accounts."

[5] Likewise, Donahoe (1999) suggests to broaden the traditionally accepted definition of work by incorporating all activities, including those which only have a use value. She proposes a typology of work that is closer to the reality of women's labor in developing countries, identifying different forms of work (housework, subsistence production, income generation activities, and non-family employment) that goes beyond simple formal employment. She recommends the use of questionnaires on time use. This approach is a good way to capture women's work since it provides detailed information on all activities performed by women and imposes no *a priori* restrictive definition of work. It is however costly and cannot be collected over very long periods of time. It is however costly and cannot be collected over very long periods of time.

[6] The United Nations Statistics Commission definition of 1966 defined the economically active as *"all persons of either sex who furnish the supply of labour for the production of economic goods and services"*

Conceptually, the notion of "contributing family worker[7]" (formerly "unpaid family worker"[8]) was progressively introduced in the measure of the "economically active population" in order to take into account workers who perform subsistence activities or help in the family business even if they are not paid with a salary. However, domestic work is still excluded from the definition and the border between economic work and domestic work remains often blurred, some activities performed at home (e.g. prepare food, carry water, take care of children, etc.) are still not taken into account even though they could be considered as economic activities.

Another issue with the measurement of women's work in developing countries is related to the importance of the agricultural sector and the specificities of agricultural work. Beyond the already discussed question of subsistence agriculture and family labor, Dixon (1982) highlights that the concepts and methods used in developed countries (including those of the ILO) are not suitable for developing countries insofar as individuals are more likely to work seasonally rather than throughout the year and to perform several activities. Notably, since agricultural work is highly seasonal, temporary or occasional, the choice of the length of the reference period[9] is crucial. This can lead to a large misestimation of employment and introduce huge variations, affecting the comparability of data from one survey to another. In the presence of seasonal activities or when a significant proportion of the labor force population consists of casual and temporary workers, the use of a short reference period may not reflect seasonal work depending on when the survey is conducted (Mata-Greenwood, 2000). Indeed, even if a short reference period (a day or a week) is more likely to produce updated and accurate data, it can also lead to an underestimation or an overestimation of the economic activity if the chosen period is unusual for the respondents. Some authors, such as Freedman et al. (1977), therefore recommend using a longer period, e.g. one year, in the case of agricultural labor.

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[7] " "Contributing family workers" are those workers who hold a "self-employment" job in a market-oriented establishment operated by a related person living in the same household, who cannot be regarded as a partner, because their degree of commitment to the operation of the establishment, in terms of working time or other factors to be determined by national circumstances, is not at a level comparable to that of the head of the establishment." (Resolution concerning the international classification of status in employment, adopted by the 15th International Conference of Labour Statisticians (Geneva, 1993).

[8] "Unpaid family workers at work should be considered as in self-employment irrespective of the number of hours worked during the reference period. Countries which prefer for special reasons to set a minimum time criterion for the inclusion of unpaid family workers among the employed should identify and separately classify those who worked less than the prescribed time." (Resolution concerning statistics of the economically active population, employment, unemployment and underemployment, adopted by the Thirteenth International Conference of Labour Statisticians (Geneva, 1982)).

[9] The reference period is the period over which employment is measured (e.g. last week, last month, last year).

Langsten and Salem (2008) consider that questions which refer to "usual" work (past three months or past year) are preferable than questions about "current" work to capture women's work more effectively. Besides, if the reference period is long, statistics are more likely to reflect economic activity throughout the year, but some authors argue that the information given by the respondent is less precise. According to Kalton and Schuman (1982), the length of the period can have two kinds of effect on the respondents : it can introduce a bias called "recall loss"[10] and a "telescoping effect" [11]. A long reference period will then result in a greater effect of "recall loss" but a lower "telescoping effect". Thus, Grosh and Glewwe (2000) advocates the use of two reference periods, the last year and the last week, with less detailed questions following the last 12 months question since it is more difficult for respondents to accurately recall the characteristics of their activity over a long period of time. ILO standards follows these recommendations and defines two concepts of labor force participation: the "currently active population" which is measured over a day or a week and "the usually active population" calculated over a long reference period, such as one year.

Additionally, while informal employment[12] is the main form of employment in developing countries, it is often badly apprehended in statistics (Charmes, 1998; Chen, 2001; Roubaud, 2009). Informal activities are often underestimated because survey instruments are generally designed for developed countries where wage employment is the norm. Chen (2001) notes that since women are more involved in informal activities than men, their economic contribution is likely to be even more underestimated in the data. Hence, beyond their unpaid work, a large part of women's paid work remains "invisible", such as economic activities they perform at home or in the street (e.g. make, sell products or prepare food for sale; washed, do laundry, do the cleaning for another household for pay, animal husbandry, etc.). Informal sector and informal employment were respectively included in the international standards in 1993[13] and

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[10]The recall loss is linked to the memory of the respondent and depends on the length of the recall period and the ability of the respondent to remember information from his past.

[11]The telescoping error corresponds to the fact of *"remembering an event as having occurred more recently than in fact the case"* (Kalton and Schuman, 1982).

[12] *"Employment in the informal sector includes all jobs in informal sector enterprises or all persons who, during a given reference period, were employed in at least one informal sector enterprise, irrespective of their status in employment and whether it was their main or a secondary job"* (Seventeenth International Conference of Labour Statisticians, Geneva, 2003).

[13]ILO, Resolution on the measurement of employment in the informal sector, adopted by the Fifteenth International Conference of Labour Statisticians (ICLS), Geneva, 1993.

2003[14]. However it remains difficult to retain an harmonized definition, adapted to different contexts. Besides, although conceptual aspects are essential, operationalization of these concepts in surveys is key in the production of labor statistics (Roubaud, 2009).

2.2 The impact of survey and questionnaire design on statistics

The way concepts are operationalized in surveys is an essential dimension of the question of women's work measurement. In particular, the survey and questionnaire design can have a significant impact on the resulting statistics.[15] Survey instruments and questionnaire methodology have historically been designed to measure employment in developed countries and mainly capture paid employment whereas a large part of the population in developing countries is more likely to be self-employed, employed in domestic production, a family business, to perform perform seasonal, casual, informal or unpaid labor, etc. Conventional methods of data collection generally used to measure women's work rely on keyword questions with terms such as "work", "job", "main activity". Anker (1983) points out the limitations of such an approach that lead to a recurrent misunderstanding from the respondents of the concepts used in questions. He advocates the alternative use of an exhaustive list of economic activities in order to better capture women's work. Using a study carried out in India in 1981 and comparing the "list of activities" with the "keyword" questions, he shows that the list question leads to higher estimates of women's work. This superiority of "list of activities" relative to "keyword" questions is confirmed by another study conducted in Egypt (Anker and Anker, 1989). Likewise, Langsten and Salem (2008) find that the format "list of activities" is more effective than a single (or several) keyword question(s) to capture women's work, especially that of casual, intermittent, part-time, home-based or unpaid workers, i.e. less formal jobs. Bardasi et al. (2011) analyze the impact of the detail of labor modules on several employment statistics (participation rates,

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[14]ILO, Guidelines concerning a statistical definition of informal employment, adopted by the Seventeenth International Conference of Labour Statisticians, Geneva, 2003.

[15]Several authors have investigated the effects of the wording, position, length of questions in a questionnaire on survey responses (Kalton and Schuman, 1982; Kasprzyk, 2005). Beyond the bias introduced by respondents related to their understanding of the concepts used in the questions, they emphasize the importance of how questions are phrased. Kalton and Schuman (1982) note that compared to open questions, closed questions (which include a list of possible answers from which the respondent must choose) have the advantage of standardized treatment, but they have the disadvantage that the available choices are not necessarily adapted to the respondents and influence the answers given. Moreover, responses to closed questions may be affected by the order of answers. Some authors find a slight tendency to get a higher share of responses in favor of the first alternative in writing, while the last alternative seem to be more favored orally. However, other authors find that the order has no effect (Kalton and Schuman, 1982).

hours of work, main activity, type of work) for adults through a randomized experiment conducted in Tanzania. Surprisingly, employment rates are found to be higher with the short labor module for both men and women than with the detailed one[16]. It suggests that a simple general question lead to an overestimation of employment rate, a possibility rarely envisaged in the literature. After a reclassification of those who declared domestic duties as their main occupation into "no work" in both modules, the employment rate turns out to be lower for women with the short module than with the detailed one. This suggests that the short questionnaire captures a larger share of women who declared themselves as "employed" but who are actually engaged in domestic duties.[17] Guarcello et al. (2010) investigate the impact of the type of survey, the type of questions, the period of field work on child labor estimates. Overall, observable survey characteristics account for 8% to 48% of the variations in children's economic activity across survey. They identify three broad categories of questions used to measure child labor: simple questions[18], complex questions [19], questions determining the status in the main occupation [20], and finally the other cases [21]. The authors shows that the complex questions and the simple questions lead respectively to 13 percentage points and 10 ppts (thereafter ppts) higher estimates than questions on main occupation.

Another survey feature that matters is the type of respondents (self-reporting or proxy informants). Survey designers provides rules about who is eligible to answer the questions. In most surveys that measure employment, responsible adults at home at the time of the survey are generally those eligible to answer for themselves and for other members of the household (Hendershot, 2004) and the head of household is generally chosen to provide information about children's activities (Dammert and Galdo, 2013). The impact of the type of respondent on the estimates is not clear. Indeed, on the one hand, the information given by the respondents themselves can be seen as more accurate since proxy informants are likely to have incomplete information on the activities of other household members. Presumably, proxy respondents'

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[16]The detailed module comprises several specific questions about the type of work done by the respondent in the last 7 days.

[17]However, this reclassification based on a "main occupation" question implies that some employed women may have been reclassify as "not employed" even if they perform at the same time an economic activity alongside their domestic work (see Beneria (1981)).

[18]Such as *"Did [Name] work in the past 7 days?"*

[19]Chain questions that include lists of activities.

[20]E.g. employed, unemployed , housewife, student, retired, etc.

[21]E.g. when the economic activity is determined only by the number of weekly working hours.

responses may also be biased by their opinion of the other members of the household.[22] On the other hand, one might instead consider that proxy respondents have better information and they are more objective than individual respondents themselves. Anker and Anker (1989) show that the type of respondent has no significant effect on the estimation of unpaid work of women in Egypt, but the use of proxy respondents does underestimate employment. In the same vein, Bardasi et al. (2011) show that the use of proxy respondents has a large and significant impact on several employment outcomes, either an underestimation for labor market participation and the number of weekly hours worked, either an overestimation for the daily remuneration and the share of unpaid family workers. They explain the differences between self and proxy respondents by information problems in the household, the age difference between the respondent and the person for whom information is collected, whereas gender and educational differences seem to be less influential factors. Besides, Dillon et al. (2012) find that the type of respondent does not affect the child labor estimates in Tanzania, whereas Dammert and Galdo (2013) find a significant underestimation for the proxy respondents in Peru.

The timing of the survey is also crucial, especially in contexts of seasonal activity. In developing countries, economic activity is highly subject to seasonal fluctuations related to climate (seasons and rainfall), institutional aspects (e.g. holiday periods), religious (e.g. Ramadan, pilgrimage), cultural (e.g. baptism, marriage, funeral), and the nature of jobs performed (e.g. casual, temporary, seasonal). Therefore, employment statistics may be affected by the time surveys are conducted, especially if the reference period used is short[23]. For instance, Guarcello et al. (2010) find that even if the effects of field work periods[24] on child labor estimates are no longer individually significant when the type of survey is controlled for, they remain jointly significant. Since surveys are not always carried out at the same time, this gives rise to problems of data comparability between surveys due to seasonal effects. The level of employment may either be over-estimated during periods of high activity, or conversely underestimated during periods of low economic activity. Individuals considered as unemployed during a given observation period may actually occupy seasonal or casual jobs that are not properly taken into account by the surveys. Some additional questions adapted can be used to capture these individuals

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[22]For instance, child labor could be misreported because of social desirability : if child labor is seen as socially "bad", proxy respondents are more likely to under report the children's work (Dammert and Galdo, 2013).

[23]See the discussion about the length of the reference period in Section 2.1..

[24]Field work periods considered : in school (reference category), partially outside school term, outside school term, missing

(i.e. specific questions about seasonal activities, reasons for inactivity during a short reference period, livelihoods for those who are not employed, etc.).

In this paper, we contribute to the existing literature in several ways. First, we make a diagnosis of the variety of survey instruments used in three Sub-Saharan countries over three decades. Second, we take advantage of within-survey variations of questionnaire characteristics to accurately assess the effect of the wording, the length of labor module and the reference period. Finally, we provide recommendations for labor data users and analysts.

3 Overview of data comparability issues in three Sub-Saharan African countries

The analysis is carried out on data from 53 surveys and censuses collected in Cameroon, Mali and Senegal between 1976 and 2012 (see the list of surveys and acronyms that will be used in the remaining of the paper in Tables A1, A2 and A3).[25]

3.1 Employment rates evolution in Cameroon, Mali and Senegal from 1976 to 2012)

Cameroon, Mali and Senegal are three Sub-Saharan African countries of comparable size with a populations respectively estimated at 22, 17 and 15 million inhabitants (World Bank, 2015). They differ somewhat however on a number of dimensions. Cameroon displays higher GNI per capita (Atlas method), higher educational attainment and lower poverty rates (measured by the poverty headcount ratio at national poverty lines) than the two other countries. However, Senegal enjoys larger life expectancy and lower child mortality. While the agricultural sector contributes to 40% of GDP in Mali, its contribution is around 20% in Cameroon and Senegal. In those three countries, however, the agricultural sector employs more than half of the working age population.

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[25]These datasets were gathered as part of the MIMADEM project (see Kuépié and Robilliard (2015) for more details).

Figures [1], [2] and [3] display employment rates[26,27] calculated from nationally representative surveys[28] between 1976 to 2012, on the population aged 15-49 years[29] and provide a first overview of data comparability issues in Cameroon, Mali and Senegal over time.[30] These figures show some surprising and unexplainable variations in employment rates both for men and women over the reporting period. For the same year or over a short period of time in the same country, two surveys can produce very different employment rates, both for men and women. For instance in 2001 in Mali, two surveys interviewed the same individuals, and they produced quite different female employment rates : it is equal to 78.1 % in EMEP survey and to 54.4% in the QUID[31] (Figure [2]). The same observation can be made for the male employment rate in 1987 in Mali: it reaches 96.3% according to DHS whereas the RGPH estimates it at 87.1%. In Senegal, female employment rate goes from 22.7% in RGPH 1988 to 52.2% in ESP 1991, which corresponds to a rise of about 30 percentage points (thereafter ppts) in three years (Figure [3]). As regards men, we observe an increase in their mean employment rate of about 17 ppts between 2009 (MRHS) and 2010 (EDS). In Cameroon, female employment rates goes from 60.4% in 2005 (EESI) to 42.6% 2006 (MICS), and then to 70.1% in 2007 (ECAM3).

The magnitude of these gaps questions the comparability of these statistics and casts serious doubts on the reliability of these data to run rigorous temporal and spatial analysis and to draw meaningful policy recommendations. These variations could be explained (1) by sampling errors[32] and design effect[33] (2) by non-sampling errors that relate to data collection and processing procedures. This second category is broad and refers to several very different aspects :

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[26]Employment rate is the proportion of the country's working-age population (here aged 15 to 49 years old) that is employed. Here, the 'employed' are defined as all persons above a specific age who worked during a specified reference period.

[27]Employment rate is our preferred labor market indicator here since we can calculate it for all the surveys. This is not the case for other indicators such as labor force participation, unemployment rates, number of working hours, earnings, etc.

[28]In order to ensure the comparability of the surveyed population, we excluded from our initial sample of survey: surveys conducted only in urban areas; men in CM DHS 1991 because the subsample is only composed of married men, hence not representative of the whole population.

[29]DHS samples only interview 15-49 years old women, so we calculate employment rates on this age group in order to ensure comparability between surveys.

[30]Note that we systematically use the question with the shorter reference period (usually "1 week or Currently") to calculate employment rates. Surveys for which employment rates are not calculated on the "1 week" or "Currently" reference periods are indicated below figures.

[31]A Unified Questionnaire on Development Indicators designed by the World Bank.

[32]Errors induced by differences in characteristics between the subsample on which employment rate is estimated and the whole population

[33]The design effect is "the ratio of the actual variance of a sample to the variance of a simple random sample of the same elements" (Kish, 1965). In other words, it represents the impact of the sampling strategy (clustering, stratification) on the sampling error.

the quality of interviewers, errors from the respondents (e.g. misunderstanding), inappropriate methods of interview, data entry or coding errors, etc. In this paper, we focus on errors arising from the questionnaire design. Indeed, we suspect that differences in those characteristics across surveys can explain a substantial part of these variations.

3.2 The diversity of labor modules in questionnaires

This section shows the diversity of labor modules through three key questionnaire characteristics that are most likely to influence employment statistics : (1) the wording and type of questions, (2) the length of labor modules and (3) the reference period used. We discuss the possible role of differences in these questionnaire characteristics in influencing employment statistics. The details about the characteristics of each survey questionnaires are given in appendix in Tables A4, A5, A6.

3.2.1 Type of questions and wording

As mentioned in the literature review, the wording, the length, the detail and the form of questions are likely to influence answers given by the respondents (Kalton and Schuman, 1982; Kasprzyk, 2005; Guarcello et al., 2010; Bardasi et al., 2011).

First, questions can expect different types of answers according to their formulation. Two main forms of questions can be distinguished in our sample of survey questionnaires : closed questions and questions with a list of possible answers (see Table 1 for examples). Closed questions expect a "yes/no" answer and are the most widespread type of questions. The other form expects one or several answers among different alternatives proposed by the interviewer. These lists can be about economic activities or occupational status. Second, as suggested in the literature the wording and the keywords used are essential (Anker, 1983). Several keywords related to employment appear in questionnaires : *"work"* , *"economic activity"*, *"job"*,*"occupation"*, *"type of activity"* (see Table 2 for examples). Let's consider some examples to highlight the importance of the wording of questions : individuals may perform an actual *"economic activity"* (e.g. prepare food for selling) but not consider it as a *"job"* or *"work"*, women may consider themselves as *"mainly occupied"* as a housewife but still perform in addition an economic activity, individuals may have not worked during the past week but however have a job, etc. Third,

the detail of the question may also matter and influence the respondents' answers, questions can be more or less precise. The details given can be about the amount of time spent working, remuneration (work for cash or payment in kind), type of economic activity or several types of detail at the same time (see Table 3 for examples). Additionally, it is worth noting that some surveys, i.e. DHS surveys, do not ask the same questions to men and women[34], which makes them non-comparable.

In our sample, 75 % of the surveys contain questions on "work" or "economic activity" (Table 4) and about 40% contains questions on "occupation".[35,36] Table 5 shows that questions on "occupation" were more frequent during the period 1976-1990, and that questions about "work" became more and more widespread from the 1990s onwards, at the expense of questions on "occupation". Questions on "economic activities", "job" and "other wording" generally refer to questions in long labor modules which more frequent in the last decade (see Example 7).

Overall, we expect that questions on occupation to underestimate female employment rate compared to work question as suggested by Beneria (1981) since they tend to declare themselves as main occupied as housewives even if they work. Since questions on "economic activities" and "job" are generally questions belonging to long labor modules that aim at better capturing economic activity for those who would have not declared work in the initial question, we expect them to produce higher employment rates.

3.2.2 Length and detail of labor modules

The length and level of detail of labor modules vary greatly across surveys and are likely to play a key role in influencing employment statistics (Bardasi et al., 2011). While some surveys and census only ask one single question to determine the labor force status of respondents, others present longer labor modules with a wide range of questions.[37] Table 6 shows the distribution

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[34]For instance, women are asked "*As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business. In the last seven days, have you done any of these things or any other work?*", and men "*Have you done any work in the last 12 months?* (CM DHS 1998) ".

[35]One survey can contain several questions related to employment, and thus they may have both types of wording. For this reason, the two types of questions wording do not sum up to 100%.

[36]Note that this classification only considers questions that enable to determine whether an individual should be considered as employed or not. Thus, some labor modules may contains more questions related to employment that are not considered here.

[37]Note that this classification only consider questions that enable to determine whether an individual should be considered as employed or not. Thus, some labor modules will be considered as having only one single question with our typology if other questions in the labor modules do not allow to determine the labor force status of the respondent (e.g. additional questions about the type of job, remuneration, etc.).

of the types of labor module: 64.2% of surveys in our sample rest on several questions (long modules) to determine individuals' labor status, the remaining of the surveys only use one single question (short modules). Among long labor modules, additional questions can refer to: (i) another reference period than in the initial question[38], (ii) another question on "work" if the first question was about occupational status [39], and vice versa (iii) a list of economic activities that may not have been considered as "work" by the respondent in the first place, (iv) having a job despite not working during the reference period or absence at work during the reference period even if the respondent actually has a job[40]. Long labor modules can contain one or several of the four types of additional questions we identified.

Long labor modules are expected to provide higher employment rates since they ask additional question that aim at catching up workers who would have not declared themselves as employed with a unique question on work.

3.2.3 Reference period and Seasonality

As discussed in the literature review, the reference period is also likely to have an impact on the measurement of employment. There are five different reference periods in our sample of survey questionnaires: "*1 week/7days*", "*Currently*", "*1 month/4 weeks*", "*1 year/12 months*" and "*No reference period specified*" (see Tables A4, A5, A6). [41] Basically, the standard question asked is *"Did you work during [the reference period]?"* or *"What was your occupation during [the reference period] ?"* for the first four reference periods and *"Even if you did not work during the [reference period], do you have a job?"* for the "No reference period specified". The share of surveys using each of the mentioned reference periods over the reporting period is described in Table 7. The most frequent reference period is "1 week"[42] present in about half of the surveys,

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[38]E.g. *"Did you work during the last 12 months?"*, *"Did you work during the last 7 days?"* (CM ECAM1 1996)

[39]E.g. *"What is your current occupation regarding employment?"*, *"During the last week, did you however work at least an hour for an occasional or unusual ?"* (CM EDM 2000)

[40]An example of a detailed module is displayed in Example 7.

[41]Actually, there is one survey with a 6 months reference period (SN RGPH 1976) that we reclassify in the "1 year" reference period.

[42]This reference period corresponds to the "currently active population" measuring the economically active population in relation to a short reference period such as one week or one day.

and "1 year"[43] in about 40% of surveys.[44]

The reference period is crucial in the context of our three countries of Sub-Sahara Africa insofar as economic activity is particularly prone to seasonality. So, we pair up our analysis of the effect of the reference period with a parallel study of the period of data collection(see Tables A1, A2, A3 for details on the field work period). The effect could go both ways (underestimation or overestimation) depending on the field work period. The variations of activity all over the year depends on the agricultural calendar determined by seasons. Linking this to the reference period used, we assume that using a long reference period would enable to overcome seasonality issues likely to influence employment statistics.

4   The sensitivity of employment rates to survey and question- naire design

In order to assess the sensitivity[45] of employment rates to survey and questionnaire design, our analysis focuses on three features we believe play a role in influencing employment rates: (1) the wording, i.e. the use of questions on "occupation" versus questions on "work", (2) the length of the labor module and (3) of the reference period, studied along with the period of data collection. Our objectives are first to estimate the magnitude of the effect of each characteristic on the resulting employment rates and, second, to identify who is more sensitive to questionnaire design (i.e. women or men, rural or urban).

4.1   Methodology

We first assess the effect of the survey design on labor statistics exploiting within-survey varia- tions of questionnaire characteristics. Notably, we use subsamples of surveys in our total sample that present a characteristic that varies within the same survey, in particular, that include si- multaneously several modalities of a characteristic. More precisely, some surveys ask questions both on "occupation" and "work"; some others ask questions on two (or more) different refer-

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[43]This reference period corresponds to the "usually active population" measuring the economically active population in relation to a long reference period such as a year, was introduced as an international standard at the 1982 Thirteenth International Conference of Labor Statisticians.

[44]Note that "No reference period specified" mostly refers to the question *"Even if you did not work during the [reference period], do you have a job?"* and thus is complementary to a question on another reference period.

[45]The sensitivity is defined here as the degree of response of employment rates to a variation in survey characteristics.

ence periods to the same respondents. Concerning, the effect of the length of the labor module, we use the same strategy exploiting variation in individuals' responses between the first question asked in the labor module and the following ones in order to assess how many responses these additional questions rectify.

Basically, we evaluate the magnitude of the effect of the questionnaire design by comparing employment rates produced by different modalities k of a given characteristic C (alternatively wording, type of question in a long labor module and reference period). Specifically, we compare for the same respondents employment rates produced by "occupation" and "work" questions, by the first and following questions of a long labor module, and by questions on two different reference periods, to respectively assess the effect of the wording, the length of the labor module, and the reference period. Note that this strategy implies that, by construction, the difference will always go the same way due to the sequence and the presence of screening questions. Hence, "work" questions, long labor modules, long reference periods will systematically produce higher employment rates than respectively "occupation" questions, the first simple question of the long labor modules, and short reference periods. Our purpose here is to assess the magnitude of the effect of using a certain survey instrument compared to another, in other words, how many workers are survey missing if they use only one single question on occupation, only one general question and only a short reference period? Besides, we investigate differences in sensitivity across gender and living area.

Formally, an individual i will declare to be employed (or not) according to a given question with a characteristic C (which can alternatively refers to the wording, the length of the labor module, or the length of the reference period[46]) taking the modality m[47] :

$$\begin{cases} y_i^m = 1 \text{ if employed,} \\ y_i^m = 0 \text{ else.} \end{cases}$$

Hence, for the same respondent, y_i^0 can be different from y_i^1 when measured with a of charac-

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[46]Note that our strategy does not allow to test simultaneously for all characteristics since all surveys do not present systematically all varying characteristics, so we investigate separately the effect of each characteristic.

[47] In particular : $m = 0$ if the question is about "occupation", and $m = 1$ if the question is about "work" for the characteristic "wording" ; $m = 0$ for the first question of the labor module, and $m = 1$ for the second question of the labor module, $m = 2$ for the third question of the labor module for the characteristic "length of the labor module" ; $m = 0$ if the question refers to a short reference period, and $m = 1$ if the question refers to a long reference period for the characteristic "length of the reference period" ;

teristic C and modality 0 or of modality 1.[48]

The overall effect of each questionnaire characteristic can be measured by regressing a categorical variable C_m on the employment status (which is equivalent to performing a t-test). Since the employment status y_i of individual i is also determined by a set of individual and household covariates X_i, we additionally control for these characteristics. For our purpose, we then estimate the following linear probability model on samples expanded m times[49] :

$$y_i^m = \beta C_m + \delta X_i + \theta S + \epsilon_i^m \tag{1}$$

where y_i^m if a dummy equal to 1 if the individual i work according to the question of characteristic C and modality m, X_i are individual, household and survey characteristics : gender, living area, age, education, marital status, household size, geographical fixed effect, month of interview (depending on the availability of these variables). We also include survey fixed effects to control for unobservable characteristics of surveys.[50] Since we have multiple observations (m) of each respondent, we account for serial correlation in the error terms by clustering standard errors at the individual level.

Second, another interesting question relates to the characteristics of the respondents who would have been misclassified if they were only asked a single question with the characteristic C of modality $m = 0$ instead of another question with the same characteristic of modality $m = 1$ (or $m = 2$). In particular, we are interested in whether the sensitivity to survey design differs across gender and living area. We add interaction terms between the variable of interest, gender and living area to assess the difference in sensitivity between men and women, rural and urban respondents :

$$y_i^m = \beta C_m * \gamma_F * \delta_r + \delta X_i + \theta S + \epsilon_i^m \tag{2}$$

where γ_F and δ_r are respectively female and rural dummies.

We run our estimations separately for each characteristic (insofar as not all characteristics vary within surveys) and separately for Cameroon, Mali and Senegal since sensitivity to survey

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[48]Due to the structure of the questionnaires used for the analysis, we can have : $y_i^0 = y_i^1$ (equal to 0 or 1) or $y_i^0 = 0$ and $y_i^1 = 1$, but we cannot have $y_i^0 = 1$ and $y_i^1 = 0$.

[49]This allows us to have several measures of the work status for the same individual within the same survey

[50]When the analysis is run out on more than one survey.

design may differ across countries.

4.2   The wording effect : "Occupation" versus "Work"

We first explore the effect of the wording used in questions on employment rates and respondents' answers. In particular, we ask: how many workers do surveys miss if they only use one question on "occupation" with occupational status as alternatives for answers instead of adding an additional question on "work" ? And who is more sensitive to the wording of questions?

Our analysis relies on surveys asking both types of questions on "occupation" and "work" to the same respondents. This implies focusing on a restricted sample of surveys with different wordings within surveys. This strategy allows us to compare the responses of the same respondents to both wordings controlling for surveys' unobservable characteristics. We use three surveys to assess the magnitude of the effect of the wording within-survey and identify who is more sensitive to the wording: CM EDM 2000, ML EMEP 2001 and SN EDMC 1996 (see details of these surveys in Annex A1 to A6). These surveys have comparable labor modules and all ask the two following questions in the same order :

1. *"What is your current occupation, your situation regarding employment?" a.Work b.Look for a job c.Student d.Retired e.Annuitant f.Housewife g.Other inactive*

2. *During the last seven days did you however work, at least one hour, for an occasional or exceptional work?*[51,52]

Table 8 displays for these surveys the employment rates generated by both wordings, broken up by country, sex and living area (only for ML EMEP 2001 because the two other surveys are only urban, so we can only observe differences between the two wordings for urban area). Statistics descriptive suggest that the overall effect at the aggregate level is variable depending in the context of study : the gap is very small in urban Senegal, a little higher in urban Cameroon, and the largest gaps are observed in Mali, especially for women in rural areas. Indeed, the

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[51]Note already that details in bracket are given about what is to consider as work ["*(Consider also working for own account or as an employee, helping a family member, paid or unpaid apprentice)*"] in the first question for CM EDM 2000 and SN EDMC 1996 but in the second question in ML EMEP 2001's labor module. We will get back later to this point in the paper.

[52]Thus, employment rates produced by the "work" question will be systematically higher that those computed from the "occupation" question insofar as it is only asked to those who did not defined themselves as "Employed" in the occupational question.

"work" question adds about 22 ppts to the initial female employment rate produced by the only question on "occupation" in urban area, and the rate more than doubles in rural areas. It rectifies to a much smaller extent Malian male employment rate in both areas. In Cameroon and Senegal, urban male employment rates varies more with the "work" question than female one, but the effects appear quite small, especially in Senegal.

How many workers adds the "work" question compared to a single question on "occupation"? Table 9 reports the results of specifications (1) and (2) for the wording characteristic. Controlling for individual characteristic, results are consistent with the descriptive statistics: the question on work adds 23.4 ppts, 2.7ppts, and less than 1 ppt respectively in Mali (as a whole), urban Mali and urban Senegal (columns (1), (2) and (3)).

Malian respondents seem more affected by the wording (even when considering only urban area), while the effect is small in Cameroon and negligible in Senegal. A straightforward interpretation of this result could be that surveys using "occupation" questions are most likely to underestimate employment rate for Malian women, and studies and recommendations derived from these estimates might be biased. Nevertheless, the smaller effects observed in Cameroon and Senegal compared to Mali may also be due to another difference in the design of the labor module, implying that results are not strictly comparable. Indeed, details about what is to be considered as work ("working for own account or as an employee, helping a family member, paid or unpaid apprentice") are given in bracket as an instruction in the first question about "occupation" in the surveys of Cameroon and Senegal, while this indication only comes along with the second question on "work" in the Malian survey. This highlights another important aspect of the wording, the detail given in the question, also likely to affect respondent's answers. For this reason, we will interpret separately results for Mali on the one hand, and for Cameroon and Senegal on the other hand.

Which individuals are more sensitive to the wording? As regards gender differences in sensitivity to the wording, Malian women appear significantly more sensitive to the wording than men. The probability of declaring themselves employed is 14.9 ppts higher if they live in urban area and 29.2 ppts higher in rural area compared to men (column (4)). Men tend to slightly more declare themselves as employed with the "work" question in urban area than in rural one

(2.1 ppts more added compared to urban), while female employment rate in rural area is largely more sensitive than that of urban area. On the contrary, the "work" adds significantly more men than women in Cameroon. There is no difference in sensitivity across gender in Senegal, but the overall effect is very small.

Why is female employment rate more sensitive than male's one in Mali? Who are those who are not currently occupied as employed but who worked last week? Table 10 provides more details about the structure of the Malian population by occupational status (1), the share within each occupational status who worked during the last seven days (2) and the contribution of each occupational status to the difference in employment rates observed between the "occupation" and the work question (3). Men are less sensitive to the wording first because their employment rate is much more higher than female one, so the possibility for correction is more limited. While about half of the women are housewives, men are mostly employed, all the more in rural area (90.5 %). Second, an interesting feature is that many women who declare themselves as housewives actually perform economic activities on top of their domestic work, 43.3% of them did work during the past week in urban area and 84.7% of them actually worked in rural area. This aspect largely explains why female employment rate is more sensitive than male one to the wording : women are mainly housewives, and the latter are the more likely to work at the same time compared to other occupational status. Thus, they contribute up to 87.9% to the gap in employment rates between the two wordings in urban area, and up to 96.7% in rural area. This supports Beneria's criticism towards "main occupation" questions that would tend to underestimate women's real economic contribution. Besides, men who look for a job are more likely than women with the same occupational status to have worked last week among those who are not employed. As regards other occupational status, women are systematically more likely than men to have worked last week if they did not declare themselves employed. It could mean that unemployed men can nevertheless perform temporary work to make money, waiting to find what they could consider to be a "real" job. Students' share is higher in urban area but in proportion they work more along with their studies in rural area (35.8%). Rural students are plausibly helping in the family farm or business and studying at the same time.

Turning now to the comparison between the two other countries, we first seek to explain

why wording has such a negligible effect in Senegal compared to Cameroon. It does not seem to be explained by differences in terms of repartition of the population by occupational status, but rather by the fact that the share of workers among non employed is much more smaller in Senegal than in Cameroon (Table 10). Indeed, even if the structure by occupational status somewhat differs, the main explanation lies in the fact that non employed systematically work more in Cameroon than in Senegal. In particular, even if housewives' share in the total population is higher in Senegal (42% of women in urban area) than in Cameroon (18%), they do not work more. Several elements gleaned from the data in CM EDM 2000 and SN EDMC 1996 can also shed some light on this aspect. According to Table 11, the proportion of those who are not employed and are not searching for a job is high, especially in Senegal (94.8% for women and 89.2% for men). One of the main reason given is that these individuals want to finish their studies : 75.7 % and 46.1% respectively for men and for women in Cameroon and reciprocally 58.9 % and 21.8% in Senegal. It is consistent with the previous table which suggests that students do not work at the same time. We assume however that more students would have worked at the same time in rural area, but unfortunately we have no data to confirm our intuition. A significant share of women who did not search a job claim that they have to help with household duties, especially in Senegal (35.6% against 18% in Cameroon). A striking figure is that 34.4% of non-working women in Senegal actually do not want to work[53]. It is not the case in Cameroon, where 65% of women who did not search for work would like to work.[54] In Senegal, not working appears to be a choice made by women who choose to be housewives and not to work. It underlies the fact that in Senegal, women value their role in the family as a wife and a mother and prefer not to work, family needs being fulfilled by men (Adjamagbo et al., 2006). As regards Cameroonian women, they rather face lack of work opportunities and constraints due to their household duties and qualification which prevent them from working even if they want to.

Another question is why, contrary to our expectations, male employment rates are more affected than female ones in these two countries? Within the same occupational status (except housewives), more men than women worked last week. Our interpretation is that this result may be due the small overall number of individuals added of both sexes.

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[53]Note however that since multiple answers are not allowed, it is possible that women do not want to work for one of the others reasons mentioned.

[54]According to EDM 2000, this result is not display in a table.

To summarize our findings, the wording effect differs a lot across contexts of study. Results from the Malian survey shows large effects and female employment rate appears more sensitive than male one to the wording. In particular, women tend to combine both their role of housewife and work at the same time for the majority of them. Rural statistics for women are also more sensitive to the wording than urban ones. In Cameroon and Senegal, the effects are smaller, which can be partly explained by another wording aspect : the detail given in the question is likely to play a non negligible role in influencing employment rates, along with the sheer effect of the keywords used. As regards differences between those two countries, within the same occupational status Senegalese individuals (men and women) systematically work less than Cameroonian ones if they are not employed in urban area. A similar study in rural area would be necessary to draw a conclusion for the whole country and would eventually provide very different effects judging by the differences observed in Mali across living areas. Following the idea that details given in questionnaires affect respondents' answers, we now turn to an analysis of the contribution of long labor modules compared to single questions.

4.3 The contribution of long labor modules

In this section, we analyze the contribution of long labor modules composed of several questions compared to labor modules with only one single question. Long labor modules are usually designed with the intention to better capture employment since one single general question might miss some workers. We are interested in surveys with detailed modules including : (1) a question on whether the individual worked during the previous week, (2) a question with a list of economic activities and (3) a question on having a job despite not working during the reference period or a question on absence at work during the reference period[55] (see questions EA1. EA2. EA3. in Figure 7). The first additional question (2) provides details about economic activities that may have not been considered as "work" by respondents in the first question. The goal of the second additional question (3) on having a job or being absent from work is to check if the respondent has actually a job even if he declared he did not work during the previous week. In order to explore this question, we use a subsample of eight surveys with comparable labor modules: CM

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[55]This question basically boils down to the same idea of having a job but not having worked during the reference period

ECAM3 2007, CM EESI 2005, CM EESI 2010, ML ELIM 2006, ML EPAM 2004, ML EPAM 2007, ML EPAM 2010, SN ENTE 2005[56]. Our strategy, as previously, consists in analyzing within-surveys variations to estimate the effect of additional questions on employment variables.

We seek to answer the following questions : How much the employment rate is underestimated in surveys that do not use a detailed labor module? Are female employment rates more sensitive to the length of the module than men? Table 12 reports descriptive statistics on employment rates generated by additional questions, broken up by country, sex and living area at the aggregate level. In proportion of the initial employment rate, long labor modules adds between 3.4 ppts (for women in urban Senegal) and 7.9 ppts (for women in urban Cameroon) to initial employment rates produced with one single question. They systematically contribute to capture more women than men whatever the country or the living area in proportion of the initial employment rate. As regards the respective contribution of (2)list of economic activities questions and (3)those on having a job despite not working during the reference period, the latter captures on average more workers except in urban Mali.

Table 13 reports the estimates of the magnitude of the contribution of detailed modules, controlling for individuals' characteristics and surveys' unobservables characteristics. The questions on economic activities adds on average, other things being unchanged, 3.3 ppts to the employment rate in Cameroon, 1.8 ppts in Mali and the effect is close to zero in Senegal. There is no significant difference across gender (except in Cameroon but the difference is close to zero) neither across living area. Overall, the long modules (the combined contribution of both additional questions) significantly increase the probability of declaring oneself employed by 6.8 ppts in Cameroon, 3 ppts in Mali and 4.5 ppts in Senegal. The probability of declaring oneself employed with a long labor module is 1.7 ppts higher for women than for men in urban Cameroon and 2.8 ppts in rural Senegal(columns (2) and (6)) . In Senegal, rural workers are significantly more likely to declare themselves employed than in urban area, while this is not the case in the two other countries (column(6)).

As suggested in the literature, a "list of activities" question is supposed to be more effective

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[56]Note that this survey is not strictly comparable to the other surveys, but remains quite similar. For this reason, and since there is no other nationally representative survey with this type of labor module in Senegal, we still include it in our analysis in order to have an idea of the effect of the length of labor module in Senegal. This point however must be borne in mind for interpretation of differences in the effect between countries

than a single (or several) keyword questions in capturing women's work (Langsten and Salem, 2008; Anker, 1983). Our descriptive statistics confirm that more women than men are included in proportion of the initial employment rate, however the effect is rather small and differences between men and women is only significant in urban Cameroon. Besides, the overall effect of a long module instead of a short one is non negligible (between 3 and 6 ppts). The introduction of the question on having a job seems particularly relevant to include the employed workers that have been missed by the simple question on work during the reference period. Women are significantly more sensitive than men to this questionnaire feature in urban Cameroon and rural Senegal.

Which individuals are more likely to be captured thanks to those additional questions? We then further explore the characteristics of the workers initially considered as not employed by a simple question but regarded as employed thanks to the question with a list of economic activities (Tables 14 and 15). Note that the list of activities given in the Senegalese survey (ENTE 2005) is not strictly comparable to those in Cameroon and Mali, so we analyze it separately. It appears that workers who are included thanks to this additional question are mainly helping in the family business (especially in rural area), apprentices or work in a personal business in Cameroon. In Mali, about half of the women who declared they did not work last week actually either made products for sale or did something at home for pay. As regards men, they are more likely to have worked in a personal business. In rural Mali, 21.6% of women and 33% of men declared they helped in the family business even if they did not work during the past week. In rural Senegal, most of those who have been captured by the first additional question are cultivating, harvesting agricultural products or fishing (64.% of the women and 92.6% of the men). In urban areas, discrepancies between activities performed by men and women are more pronounced. About half of the women are selling products, food or agricultural products and 31.5% of them are preparing food, clothes or handicrafts for selling. As regards men they are mainly taking care of domestic animals (45.4%) or cultivating or harvesting agricultural products (38.1%).

To summarize, long labor modules (with a question on economic activities and a question on having a job) contribute to add between 3 and 6 ppts to the employment rate depending

on the country. The largest effect is observed in Cameroon and female employment rates are significantly more sensitive than men ones to this feature in urban Cameroon and rural Senegal. Sensitivity to detail of labor module vary significantly across living areas only in Senegal.

4.4 Short and Long reference periods and seasonality issues

Finally, we explore the role played by the reference period used in questions in influencing employment rates. In order to simplify the analysis, we aggregate the "1 week" and "Currently" reference periods representing "short reference periods" and compare it to the "1 year" reference period representing a "long reference period". We leave aside the "1 month" reference period which is neither purely a short reference period nor a long one and the "No reference period specified" insofar as it is not a strictly speaking reference period, and is most of the time an additional question in detailed modules such as those presented in the previous subsection.

As previously, we exploit intra-survey variations of the reference period to assess its influence on employment rates. In other words, we look at average differences in employment rates computed from questions using two distinct reference periods ask to the same respondents within the same survey.

Table 16 describes average differences observed within surveys which have a short and a long reference periods, disaggregated by country, living area and sex. Overall, the long reference period adds between 2.7 ppts (female employment rate in urban Mali) and 17.9 ppts (female employment rate in rural Senegal). The most striking fact is the high difference observed between the two reference periods in rural area in Senegal both for men (15.5 ppts) and women (17.9 ppts). The gap is smaller but remains non negligible for urban employment rate in Senegal (6.1 ppts for female employment rate and 7.6 ppts for men's one). On average the magnitude of the differences between reference periods is larger in Senegal than in the two other countries, suggesting that employment rates are more sensitive to the reference period in Senegal. The differences in employment rates are higher in rural area than in urban ones in Mali and Senegal, but it is the contrary in Cameroon. There is no systematic patterns as regards gender differences, mean gaps between the reference periods are sometimes higher for male employment rates sometimes for female.

Table 17 shows that, the long reference period yields to significantly higher estimates than

the short one : 6 ppts, 2.9 ppts and 9.7 ppts respectively in Cameroon, Mali and Senegal. Malian respondents are on average less sensitive to the reference period than Senegalese and Cameroonian ones. Results show that female employment rates are not more sensitive than male ones to the length of the reference period in the three countries, they are even less sensitive in Mali (in particular in rural area). This is contradictory with expectations derived from the literature. Indeed, as suggested by Dixon (1982) , we would have expected women to be more likely to "be missed" with a shorter reference period because their work is supposed to be more occasional, irregular, seasonal, etc..

The long reference period question effect on male employment rates in rural area is 3 ppts and by 7.2 ppts higher than in urban area respectively in Mali and Senegal. Surprisingly, a longer reference period captures more workers in urban area than in rural one in Cameroon. We expected rural employment to be more seasonal and thus more sensitive to the length of the reference period.

Additional information provided by DHS surveys confirms that women in those three countries are more likely to have a seasonal or occasional jobs than permanent ones compared to men (Table 18). Nevertheless, even if occasional and seasonal workers are more likely to be captured by the longer reference period, more men than women are captured. As regards differences across living area, while urban workers are more sensitive to the reference period than rural ones in Cameroon, we observe the contrary in Mali and Senegal where the longer reference period helps to include more rural workers into the labor force. Employment tends to be more seasonal in rural area, nevertheless, in proportion, more workers are captured with a longer reference period in urban area (except for Senegalese women judging by Table 18).

Finally, we explore into more details the relationship between the reference period and another survey feature : the period of data collection. Indeed, the effect of the month of interview can go both ways (underestimation or overestimation) depending on the time of the survey. More specifically the agricultural calendar is likely to be determinant in the level of activity all over the year. In order to explore this issue, we look at variations in employment rates across months of interview. We use the DHS surveys conducted over several months and for which we have information on the day respondents where interviewed and that use both long and short reference periods. We examine seasonality separately for the three countries as they are not sub-

ject to the same seasonal variations. As mentioned in the literature, the data collection period is likely to influence respondent's answers to employment questions, however seasonal variations of employment are expected to disappear with a "1 year" reference period. Figures 5, 5 and 6 display large variations in average employment rates according to the month of interview. We find that seasonal variations in employment rates persists for both short and long reference periods. This suggests that the use of a longer reference period does not solve the problem of seasonality. Indeed, recall bias is important, respondents may not remember correctly episodes of employment if they are far in the past (Kalton and Schuman, 1982). It is also likely that their current labor force status influence their perception of their labor force status over the past year.

5 Conclusion

Given that employment statistics are widely used both for academic research and to guide employment policies, we first assess to what extent labor data produced by surveys conducted in countries of Sub-Saharan Africa are reliable to conduct comparisons over time and between countries and to draw meaningful recommendations. Using data from about fifty household surveys and census carried out in Cameroon, Mali and Senegal from 1976 to 2012, we first came to the conclusion that even if similarities are observed within the same type of surveys, the rule seems to be that every new survey uses a newly designed labor module.[57] As a result, statistics are not comparable over time and space and implications in terms of credibility and reliability of analysis are of concern. Therefore, we investigate the sensitivity of employment statistics to questionnaire design in order to evaluate to what extent this diversity in questionnaires affect labor statistics. More specifically, we analyze the influence of three questionnaire features : the wording, the length of the labor module, and the length of the reference period (in parallel with the period of data collection). For each of these characteristics we assess the gap induced by a change in one of these questionnaire characteristic and explore if women are more sensitive than men to survey design.

Instead of comparing different surveys with different characteristics as Guarcello et al. (2010) did in order to study child labor variations with survey design, we exploit within-survey vari-

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[57]DHS Surveys seem to have quite similar labor modules over time, with only few exceptions, and only add new questions without removing traditional questions which allow for data comparability.

ations of our characteristics of interest. It allows us to compare work status declared by the same respondents across different survey instruments and control for surveys' specificities. Additionally we run a heterogeneity analysis with the the purpose of investigating differences in sensitivity to questionnaire characteristics across gender and living area.

Our results confirm that employment statistics are sensitive to the design of the survey questionnaire. A summary of results is displayed in Table 19. However, there is no clear and simple answer to the following questions : What is the size of the effect of each characteristics? What is the more "effective" questionnaire characteristic to capture workers in developing countries? The magnitude of the effect of each characteristic under study on employment rates is very context-dependent. As regards sensitivity across countries, the wording has a large effect in Mali (23.4 ppts), a small one in Cameroon (2.7 ppts) and no effect on employment rate in Senegal. As regard the detail of the labor module, long labor modules add between 3 ppts and 6.8 ppts to the employment rate, we can thus infer the magnitude of the missed workers by surveys with a single question. Employment rate is more sensitive to the reference period in Senegal (more than 12.2 ppts on average). Our findings do not enable to conclude on the superiority of one survey instrument to capture employment since our strategy does not allow to assess the comparative effect of all the characteristics simultaneously. Nevertheless, our results enable to draw analysts' attention on the fact that using surveys with one single question on occupation (such as census surveys, e.g.: RGPHs), or one single general question on "work" (e.g. CM CAVIE 2002, SN ESAM1 1994, SN DHS 1992) instead of a detailed labor module, or a short reference period (e.g. ML EESI, ML ELIM 2003, SN ESPS 2005) without asking the same question on a long reference period are likely to significantly underestimate employment.

Who is more sensitive to the survey design, i.e. are (rural) female more sensitive to survey features? Another informative conclusion of our analysis is that, contrary to our expectations derived from the existing literature, women are not systematically more sensitive than men to survey design. Moreover, rural individuals are not systematically more sensitive than urban ones to survey design either. The effects of each characteristic differ across country, gender, and living area. A summary of results is displayed in Table 20.

On the basis of this analysis, several recommendations can be drawn. As an *ex ante* strategy for future surveys, a first best would be to carry out harmonized a repeated labor force surveys with several waves over the year. A second best would be to harmonize employment modules across surveys or include systematically a standardized module in all surveys (e.g. QUID questionnaires). Another implication of our study concerns the contents of the labor module. Questions on marginal economics activities are not as "effective" as expected to include workers into the labor force, whereas the questions on having a job or being absent from work seem more able to capture workers who did not work during the reference period. Further information on the nature, type and remuneration of work has also to be included to provide a clear picture of employment (see for instance 1-2-3 Surveys). As suggested earlier, time use surveys listing all activities performed over the day/week can be an alternative enabling to define *ex post* what is defined as an economic activity. However, there is always a trade-off between accuracy and cost in time and money, such that implementers are not always able to follow recommendations. As regards *ex post* strategy with already collected data, harmonizing data is difficult given the high variability of surveys characteristics. At the aggregate level, the strategy presented by Guarcello et al. (2010) could be implemented. Another alternative is to use only comparable surveys for trend analysis, i.e. the more recent DHS surveys in our sample whose labor modules vary little over time and space compared to other surveys.

Further efforts remain to be done on the basis of this sensitivity analysis to survey characteristics. Other questionnaire characteristics have to be explored (e.g. proxy versus self-respondent), as well as other dimensions of heterogeneity in sensitivity to survey design. Variations in employment rates based on data quality also need further investigation. Indeed it is likely that interviewers' training plays a key role in the data collection process. Moreover, rigorous methods to correct data and improve *ex post* temporal and spatial comparability have to be developed.

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Figure 1: Female and male employment rates in Cameroon from 1976 to 2011
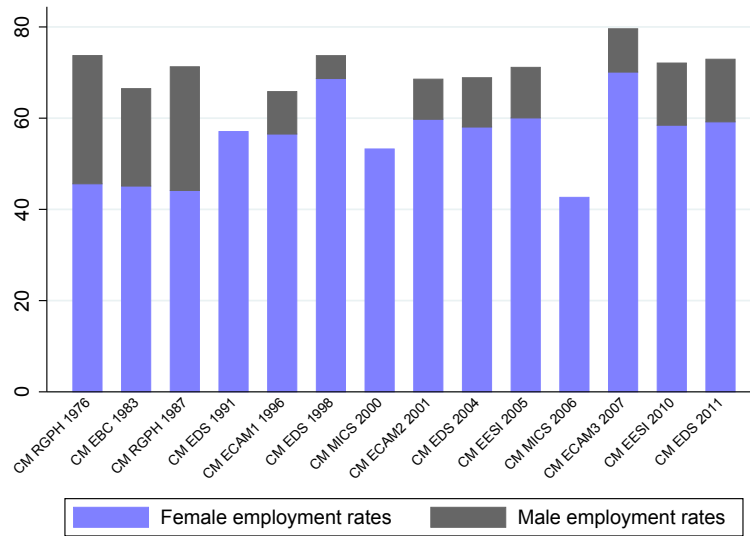
Notes:
(1) Only nationally representative surveys and census are represented here in view of comparability.
(2) Employment rates are weighted and calculated for 15-49 years old individuals, for "1 week or currently" reference period when it exists. For MICS 2000 and 2006, DHS 1991 for men they are computed with "No reference period" and for ECAM2 2001 with a "1 month" reference period.
(3) MICS surveys in 2000 and 2006 did not interview men.

Figure 2: Female and male employment rates in Mali from 1976 to 2012
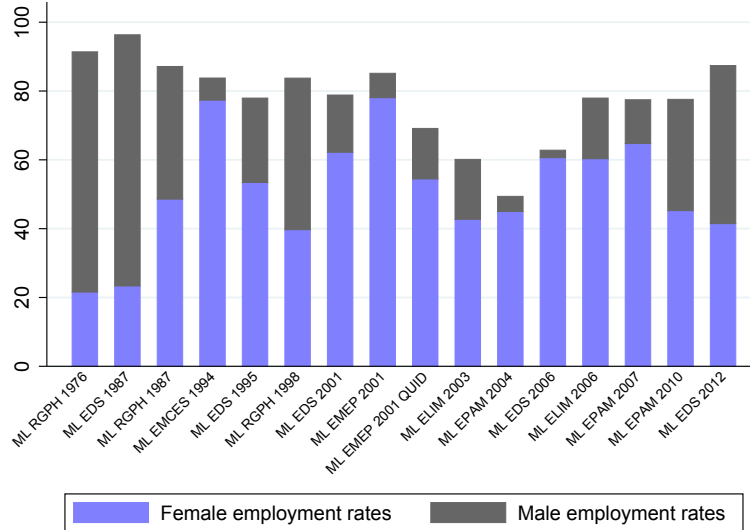
Notes:
(1) Only nationally representative surveys and census are represented here in view of comparability.
(2) Employment rates are weighted and calculated for 15-49 years old individuals, for "1 week or currently" reference period when it exists. For DHS 1987 they are computed with "No reference period" and for RGPH 1987 and 1998 with a "1 month" reference period.

34

Figure 3: Female and male employment rates in Senegal from 1976 to 2010
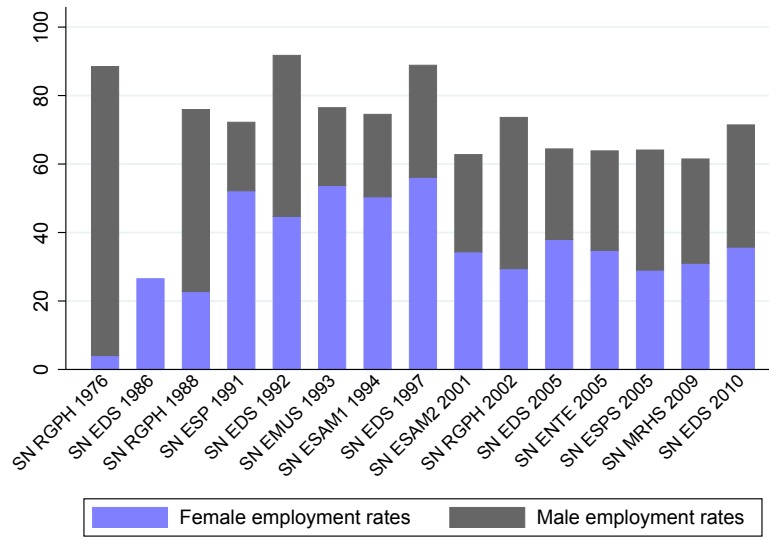
Notes:
(1) Only nationally representative surveys and census are represented here in view of comparability.
(2) Employment rates are weighted and calculated for 15-49 years old individuals, for "1 week or currently" reference period when it exists. For RGPH 1976, 1988, 2002 and ESAM1 1994 they are computed with a "1 year" reference period, and with "No reference period" for DHS 1997 and DHS 1992 for men.
(3) DHS 1986 did not interview men.

Table 1: Type of questions

Type of questions	Question	Survey
Closed questions	*"Did you work last week, at least one hour?"*	ML ELIM 2006
	"Did you do any economic activity in the last 12 months?"	CM ECAM1 1996
List questions	**Example of a list of economic activities**	E123 Surveys
	"Even though you did not do any (paid) work last week, did you do any of the following activities, inside or outside your home ?	
	1. Work in a personal business 2. Make a product for sale	
	3. Do something at home for pay	
	4. Render a service for money or a benefit in kind	
	5. Help in the family business 6. Apprenticeship with/without pay	
	7. As a working student 8. Working for another family	
	9. Build own house 10. Any other paid activity"	
	Example of a list of occupational status	ML EMEP 2001
	"What is your current occupation, your situation regarding employment?"	
	1.Employed 2.Look for a job 3.Student	
	4.Retired 5.Annuitant 6.Housewife 7.Other inactive	

Source: MIMADEM Database, 53 surveys conducted in Cameroon, Mali and Senegal from 1976 to 2012

Table 2: Wording in questions

Wording	Question	Survey
Work	*"Did you work during the last week, at least one hour?"*	SN E123 1993
Economic activity	*"Did (Name) perform an economic activity in the last 12 months?"*	CM ECAM2 2001
Job	*"Although you did not work last week, do you have a job ?"*	ML EPAM 2004
Occupation	*"What is your current occupation, your situation regarding employment?"*	SN EDMC 1996
	1.Work 2.Doesn't work 2a.Look for a job 2b.Student	
	2c.Retired 2d.Annuitant 2e.Housewife 2f.Other inactive	
Type of activity	*"Type of activity"*	ML RGPH 1987
	1.Employed 2.Unemployed 3.Not in labour force	

Source: MIMADEM Database, 53 surveys conducted in Cameroon, Mali and Senegal from 1976 to 2012

Table 3: Detail of questions

Detail of questions	Question	Survey
Simple question	*"Are you currently working?"*	CM EDS 1998 (for men)
	"During the past month from (...) to (...) what [Name] was doing most of the time ?"	ML RGPH 1998
Detailed questions	*"Since last (day of the week) did you do any work for :* *1.Payment in cash 2.In-kind payment* *3.Your own account 4.Your own business* *5.A family member without payment 6.No "*	SN ENTE 2005
	"During the past four weeks, did (Name) work at least one hour, for his/her own account, as wage-earning worker or not, apprentice or unpaid family worker ?"	CM ECAM 2007
	"Apart from your domestic work, are you currently working? As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business. Are you currently doing any of these things or any other work? "	CM EDS 1998 (for women)

Source: MIMADEM Database, 53 surveys conducted in Cameroon, Mali and Senegal from 1976 to 2012

Table 4: Wording used in questionnaire

Wording	Number of surveys	Frequency (%)
Work*	40	75.0
Occupation**	21	39.6
Economic activities (list)***	12	22.6
Job****	12	22.6
Other wording	4	7.5
Number of surveys	53	

* Refer to "Yes/no" questions with the keywords "work" or "economic activity" ** Refer to List questions with the keywords "occupation" or "type of activity" *** Refer to questions with a list of economic activities **** Refer to questions with "job"
Note that one survey can contain several questions, and thus several wordings.
Source: MIMADEM Database, 53 surveys conducted in Cameroon, Mali and Senegal from 1976 to 2012. For more details, see Tables A4, A5 and A6 in Appendix.

Table 5: Evolution in wording over time

Wording % of surveys	Number of surveys Frequency (%)			
	[1976-1990[	] 1990-2000[	[2000-2012]	Total Questions
"Work"*	2	13	25	40
%	22.22	81.25	89.28	75.47
"Occupation"**	7	9	5	21
%	77.77	56.25	17.86	9.43
Economic activities (list)***	0	2	10	12
%	0.0	12.5	35.71	22.64
Job****	0	2	10	12
%	0.0	12.5	35.71	22.64
Other wording	0	1	3	4
%	0.0	6.25	10.71	7.55
Number of surveys	9	16	28	53

* Refer to "Yes/no" questions with the keywords "work" or "economic activity" ** Refer to List questions with the keywords "occupation" or "type of activity" *** Refer to questions with a list of economic activities **** Refer to questions with "job"
% represents the share of surveys using this wording during a specific decade.
Note that one survey can contain several questions, and thus several wordings.
Source: MIMADEM Database, 53 surveys conducted in Cameroon, Mali and Senegal from 1976 to 2012. For more details, see Tables A4, A5 and A6 in Appendix.

Table 6: Labor Modules in questionnaires

	Number of surveys	Frequency (%)
Length of labor modules:		
- Short : Single question	19	35.8
- Long : Several questions	34	64.2
Number of surveys	53	100.0
Type of long labor modules :		
- Several reference periods	21	61.8
- Occupation and work	7	20.6
- Detailed Module*	20	58.9
Number of surveys	34	

* "Detailed modules" refers to modules with complementary questions on economic activities and/or having a job and/or ask if the individual was absent from work during reference period if he declared he did not work during the reference period.
Source: MIMADEM Database, 53 surveys conducted in Cameroon, Mali and Senegal from 1976 to 2012. For more details, see Tables A4, A5 and A6 in Appendix.

Table 7: Reference periods used in surveys

Reference periods	Number of surveys	Frequency (%)
1 week	29	52.83
1 month	10	18.9
1 year	21	39.62
Currently	13	24.52
No reference period specified	23	43.40
Number of surveys	53	

Note that a survey can use several reference periods.

Source: MIMADEM Database, 53 surveys conducted in Cameroon, Mali and Senegal from 1976 to 2012. For more details, see Tables A4, A5 and A6 in Appendix.

Table 8: Within-survey comparison of employment rates produced by "Occupation" and "Work" questions by country, sex and living area

	Cameroon		Mali				Senegal	
	CM EDM 2000		ML EMEP 2001				SN EDMC 1996	
	Urban		Urban		Rural		Urban	
	Female	Male	Female	Male	Female	Male	Female	Male
Employment rates at the macro level								
Occupation (1)	34.9	54.8	30.6	60.7	41.3	90.5	38.2	65.8
Occupation + Work (2)	36.7	58.3	52.5	67.0	89.4	94.6	38.5	66.3
Difference (2) - (1)	1.8	3.5	21.9	6.3	48.1	4.1	0.3	0.5
Difference in % of (1)	*5.4*	*6.6*	*71.5*	*10.4*	*116.5*	*4.5*	*0.0*	*0.0*

Employment rates are calculated for the population aged 15-49 years.

For each survey the two following questions are asked :

1. *"What is your current occupation, your situation regarding employment?" a.Work (Consider also working for own account or as an employee, helping a family member, paid or unpaid apprentice) b.Look for a job c.Student d.Retired e.Annuitant f.Housewife g.Other inactive*

2. *During the last seven days did you however work, at least one hour, for an occasional or exceptional work?* . Note that details in bracket about what is to consider as work the first question is indicated in the second question in EDM's labor module.

Source: CM EDM 2000,ML EMEP 2001, SN EDMC 1996. Authors' calculation.

Note that CM EDM 2000 and SN EDMC 1996 are urban surveys, so we decompose by living area only for ML EMEP 2001.

Table 9: The effect of the wording on work status - A within-survey analysis by country - Linear probability model results

Dependent variable :	Cameroon		Mali		Senegal	
Dummy=1 if employed	(1)	(2)	(3)	(4)	(5)	(6)
Work (Ref. Occupation)	0.027***	0.035***	0.234***	0.062***	0.004***	0.005***
	(0.002)	(0.004)	(0.004)	(0.006)	(0.001)	(0.002)
Work* Female		-0.017***		0.149***		-0.003
		(0.005)		(0.010)		(0.002)
Work * Rural				-0.021***		
				(0.007)		
Work* Female * Rural				0.292***		
				(0.013)		
Female	-0.202***	-0.193***	-0.288***	-0.345***	-0.292***	-0.290***
	(0.012)	(0.012)	(0.006)	(0.014)	(0.014)	(0.014)
Rural			0.089***	0.113***		
			(0.008)	(0.011)		
Female * Rural				-0.172***		
				(0.016)		
25-34 (Ref. 15-24)	0.137***	0.137***	0.075***	0.075***	0.201***	0.201***
	(0.017)	(0.017)	(0.008)	(0.008)	(0.017)	(0.017)
35-44	0.301***	0.301***	0.110***	0.110***	0.354***	0.354***
	(0.022)	(0.022)	(0.009)	(0.009)	(0.019)	(0.019)
45 and more	0.344***	0.344***	0.100***	0.100***	0.435***	0.435***
	(0.030)	(0.030)	(0.013)	(0.013)	(0.029)	(0.029)
Primary education (Ref. No education)	0.343***	0.343***	-0.111***	-0.111***	-0.020	-0.020
	(0.018)	(0.018)	(0.011)	(0.011)	(0.018)	(0.018)
Secondary education	0.349***	0.349***	-0.248***	-0.246***	-0.188***	-0.188***
	(0.016)	(0.016)	(0.011)	(0.011)	(0.018)	(0.018)
Tertiary education	0.372***	0.372***	-0.127***	-0.122***	-0.272***	-0.272***
	(0.029)	(0.029)	(0.038)	(0.038)	(0.033)	(0.033)
Married polygamous (Ref. monogamous)	-0.013	-0.013	-0.022***	-0.022***		
	(0.032)	(0.032)	(0.007)	(0.007)		
Single	-0.031*	-0.031*	-0.045***	-0.046***		
	(0.016)	(0.016)	(0.008)	(0.008)		
Other	0.091***	0.091***	0.015	0.014		
	(0.035)	(0.035)	(0.020)	(0.020)		
Household size	-0.013***	-0.013***	-0.000**	-0.000**		
	(0.002)	(0.002)	(0.000)	(0.000)		
Constant	0.694***	0.689***	0.666***	0.742***	0.582***	0.582***
	(0.025)	(0.025)	(0.094)	(0.093)	(0.021)	(0.021)
Observations	10,950	10,950	73,190	73,190	8,689	8,689
R-squared	0.315	0.315	0.304	0.351	0.206	0.206
Months of interview dummies	Yes	Yes	Yes	Yes	Yes	Yes
Departments dummies	Yes	Yes	Yes	Yes	Yes	Yes

The dependent variable is a dummy equal to 1 if the individual is employed. Observations have been expanded to estimate the effect of the wording, i.e. the effect of a "work question", compared to the "occupation" question (the reference category).
The population considered is aged 15-49 years.
(1), (3), (5) estimate the model (1) without interaction effects and (2), (4), (6) the model (2) with interaction effects. All regressions are weighted.
Standard errors are clustered at the individual level. Significance levels : * 0.10 ** 0.05 *** 0.01
Source: CM EDM 2000, ML EMEP 2001, SN EDMC 1996

Table 10: Incidence of work during the last week (WLW) by occupational status and contribution to the gap in employment rates between "occupation" and "work" questions

Mali

	Urban						Rural					
	Female			Male			Female			Male		
	Structure	% WLW	Contribution to the gap (%)	Structure	% WLW	Contribution to the gap (%)	Structure	% WLW	Contribution to the gap (%)	Structure	% WLW	Contribution to the gap (%)
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Employed	30.6			60.7			41.3			90.5		
Look for a job	8.9	10.1	4.1	14.3	24.1	54.7	0.6	31.7	0.4	1.8	36.3	15.9
Student	13.1	10.1	6.0	21.5	8.6	29.3	1.6	48.7	1.6	5.2	35.8	45.3
Housewife	44.5	43.3	87.9	0.9	40.1	5.7	54.9	84.7	96.7	1.3	82.4	26.0
Other inactive	3.0	14.5	2.0	2.6	24.8	10.2	1.5	42.8	1.3	1.3	40.6	12.8
Total	100.0		100.0	100.0		100.0	100.0		100.0	100.0		100.0

	Cameroon						Senegal					
	Female			Male			Female			Male		
	Structure	% WLW	Contribution to the gap (%)	Structure	% WLW	Contribution to the gap (%)	Structure	% WLW	Contribution to the gap (%)	Structure	% WLW	Contribution to the gap (%)
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Employed	34.9			54.8			38.2			65.8		
Look for a job	15.9	3.1	0.4	17.0	14.8	72.2	7.0	1.1	29.8	15.8	3.0	88.7
Student	24.4	1.6	21.4	23.8	2.6	17.7	12.4	0.0	0.0	15.1	0.4	11.3
Housewife	17.9	3.5	34.4	0.0	0.0	0.0	41.7	0.2	32.3	1.6	0.0	0.0
Other inactive	6.9	4.5	17	4.6	7.7	10.2	0.6	16.3	37.9	1.7	0.0	0.0
Total	100.0		100.0	100.0		100.0	100.0		100.0	100.0		100.0

The population considered is aged 15-49 years.

"Other inactive" category is composed of retired, annuitants and other inactive individuals.

(1) represents the composition by occupational status of the population which is not currently occupied.

(2) represents the percentage of individuals who nevertheless worked during the past seven days by occupational status.

(3) represents the contribution to the difference in employment rates observed between the "occupation" and the work question.

Source: ML EMEP 2001, CM EDM 2000 and SN EDMC 1996. Authors' calculation.

Table 11: Reasons for not searching a job in Cameroon and Senegal for those who are not in the labor force

	Cameroon		Senegal	
	Female	Male	Female	Male
	Structure	Structure	Structure	Structure
Did not look for a job (%)*	79.8	69.3	94.8	89.2
Reasons for not searching				
No jobs available	4.8	3.4	2.6	6.7
Not qualified	10.8	5.4	2.7	8.9
Does not know how to search	5.3	3.3	0.9	1.8
Ill /disabled	3.9	2.5	1.1	2.8
Houseworks	18.0	0.1	35.6	1.0
Waiting for an answer	3.0	4.3	3.0	12.3
Do not want to work	1.1	1.9	34.4	8.0
Finish studies	46.1	75.7	21.8	58.9
Other	4.1	3.2		

* "Did not look for a job" represents the share of those who did not look for a job within the last 30 days among those who defined themselves as not Employed (who declared another occupational status) and did not work last week.

The population considered is the non employed population aged 15-49 years.

Source: CM EDM 2000 and SN EDMC 1996. Authors' calculation.

Table 12: Within-survey comparison of employment rates produced by simple questions and detailed labor modules by country, sex and living area

	Cameroon		Mali		Senegal	
	Female	Male	Female	Male	Female	Male
Urban Area						
Work last week (1)	46.3	65.8	41.0	58.2	36.4	58.1
List of economic activities (2) - (1)	3.5	2.8	2.7	2.2	0.8	1.0
(2) in % of (1)	*7.6*	*4.3*	*6.6*	*3.8*	*2.2*	*1.7*
Has a job (3) - (2)	4.4	3.2	0.9	1.4	2.6	3.1
(3) in % of (1)	*9.5*	*4.9*	*2.2*	*2.4*	*7.1*	*5.3*
Detailed module (1)+(2)+(3) =(4)	54.2	72.0	44.6	61.9	39.8	62.1
Overall difference (4) - (1)	7.9	6.2	3.6	3.7	3.4	4.0
(4) in % of (1)	*17.1*	*9.4*	*8.8*	*6.4*	*9.3*	*6.9*
Rural Area						
Work last week (1)	75.8	81.9	58.7	76.0	33.5	69.2
List of economic activities (2) - (1)	3.1	2.9	1.9	2.0	0.3	0.7
(2) in % of (1)	*4.1*	*3.5*	*3.2*	*2.6*	*0.9*	*0.6*
Has a job (3) - (2)	4.1	3.1	2.0	1.7	6.9	4.3
(3) in % of (1)	*5.4*	*3.8*	*3.4*	*2.2*	*20.6*	*6.2*
Detailed module (1)+(2)+(3) =(4)	83.0	87.9	62.6	79.7	40.7	74.3
Overall difference (4) - (1)	7.2	6	3.9	3.7	7.2	5.1
(4) in % of (1)	*9.5*	*7.3*	*6.6*	*4.9*	*21.5*	*8.2*
Number of surveys	3	3	4	4	1	1

Employment rates are calculated for the population aged 15-49 years .

Source: MIMADEM. Authors' calculation.

10 nationally representative surveys, we exclude only urban surveys and surveys that interview only women: CM ECAM3 2007, CM EESI 2005 , CM EESI 2010 , ML ELIM 2006 , ML EPAM 2004, ML EPAM 2007, ML EPAM 2010, SN ENTE 2005

Table 13: The contribution of Long labor modules on work status - A within-survey analysis by country - Linear probability model results

Dependent variable :	Cameroon		Mali		Senegal	
Dummy=1 if employed	(1)	(2)	(3)	(4)	(5)	(6)
Economic activities	0.033***	0.031***	0.018***	0.018***	0.002***	0.001
	(0.001)	(0.002)	(0.001)	(0.002)	(0.000)	(0.001)
Economic activities* Female		0.006**		0.003		0.001
		(0.002)		(0.004)		(0.001)
Economic activities* Rural		-0.000		-0.001		0.002
		(0.003)		(0.003)		(0.001)
Economic activities * Female * Rural		-0.003		-0.005		-0.002
		(0.005)		(0.004)		(0.002)
Has a job	0.068***	0.060***	0.030***	0.029***	0.045***	0.035***
	(0.002)	(0.002)	(0.001)	(0.003)	(0.002)	(0.004)
Has a job* Female		0.017***		0.004		-0.007
		(0.003)		(0.004)		(0.005)
Has a job* Rural		0.003		-0.003		0.011*
		(0.005)		(0.004)		(0.006)
Has a job* Female * Rural		-0.008		0.004		0.028***
		(0.006)		(0.005)		(0.008)
Female	-0.131***	-0.194***	-0.239***	-0.253***	-0.291***	-0.231***
	(0.005)	(0.006)	(0.007)	(0.012)	(0.009)	(0.014)
Rural	0.145***	0.088***	0.148***	0.138***	0.004	0.070***
	(0.006)	(0.008)	(0.009)	(0.011)	(0.010)	(0.014)
Female * Rural		0.121***		0.022		-0.130***
		(0.010)		(0.014)		(0.018)
25-34 (Ref. 15-24)	0.240***	0.241***	0.131***	0.131***	0.174***	0.174***
	(0.006)	(0.006)	(0.009)	(0.009)	(0.012)	(0.012)
35-44	0.296***	0.300***	0.215***	0.214***	0.247***	0.244***
	(0.007)	(0.007)	(0.009)	(0.009)	(0.014)	(0.014)
45 and more	0.285***	0.289***	0.193***	0.193***	0.282***	0.276***
	(0.010)	(0.010)	(0.013)	(0.013)	(0.020)	(0.020)
Primary education (Ref. No education)	0.060***	0.069***	-0.051***	-0.050***	-0.004	-0.006
	(0.008)	(0.008)	(0.011)	(0.011)	(0.012)	(0.012)
Secondary education	-0.052***	-0.040***	-0.222***	-0.222***	-0.185***	-0.186***
	(0.008)	(0.008)	(0.011)	(0.011)	(0.015)	(0.015)
Tertiary education	-0.110***	-0.105***	-0.226***	-0.229***	-0.195***	-0.189***
	(0.012)	(0.011)	(0.023)	(0.023)	(0.020)	(0.020)
Married polygamous (Ref. Monogamous)	0.056***	0.054***	-0.016**	-0.016**	-0.009	-0.002
	(0.006)	(0.006)	(0.008)	(0.008)	(0.014)	(0.014)
Single	0.038***	0.028***	-0.046***	-0.046***	0.014	0.012
	(0.010)	(0.010)	(0.009)	(0.009)	(0.012)	(0.012)
Other	0.064***	0.058***	-0.020	-0.019	0.054	0.049
	(0.010)	(0.010)	(0.025)	(0.025)	(0.036)	(0.036)
Household size	-0.007***	-0.007***	-0.003***	-0.003***	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Constant	0.446***	0.466***	0.662***	0.669***	0.654***	0.581***
	(0.014)	(0.014)	(0.014)	(0.015)	(0.027)	(0.030)
Observations	168,087	168,087	90,495	90,495	37,749	37,749
R-squared	0.244	0.249	0.265	0.265	0.140	0.144
Months of interview dummies	Yes	Yes	Yes	Yes	Yes	Yes
Departments dummies	Yes	Yes	Yes	Yes	Yes	Yes
Survey fixed effects	Yes	Yes	Yes	Yes		

The dependent variable is a dummy equal to 1 if the individual is employed. Observations have been expanded to estimate the effect of the wording, i.e. the effect of a "work question", compared to the "occupation" question (the reference category).

The population considered is aged 15-49 years.

(1), (3), (5) estimate the model (1) without interaction effects and (2), (4), (6) the model (2) with interaction effects.

All regressions are weighted so that each survey contribute in the same way to the estimations whatever the initial sample interviewed (except (5) and (6) since there is only one survey in Senegal.

Standard errors are clustered at the individual level. Significance levels : * 0.10 ** 0.05 *** 0.01

Surveys: CM ECAM3 2007, CM EESI 2005 , CM EESI 2010 , ML ELIM 2006 , ML EPAM 2004, ML EPAM 2007, ML EPAM 2010, SN ENTE 2005

Table 14: Economic activities performed despite not working during last week in Cameroon and Mali

| | Cameroon | | | | Mali | | | |
| | Urban | | Rural | | Urban | | Rural | |
	Female	Male	Female	Male	Female	Male	Female	Male
Work in a personal business	14.8	8.4	5.8	7.4	17.0	29.1	12.5	27.9
Make a product for sale	7.5	2.2	2.9	0.6	30.8	11.7	29.2	5.2
Do something at home for pay	4.9	0.7	1.0	0.1	28.3	15.1	16.0	4.4
Render a service for money or a benefit in kind	4.2	10.7	0.4	3.7	3.3	7.1	1.1	4.7
Help in the family business	39.9	29.0	69.2	66.1	6.1	1.7	21.6	33.0
Apprenticeship with/without pay	23.0	32.2	15.5	13.2	1.0	8.9	1.7	2.5
As a working student	0.1	5.1	1.7	1.2	0.0	4.6	1.1	1.1
Working for another family	2.5	5.0	1.1	2.9	4.0	0.0	2.0	7.9
Any other paid activity	3.0	6.8	2.5	4.9	9.4	21.8	14.8	13.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.

The population considered is the non employed population during the past week aged 15-49 years.

We don't have the repartition by activities for CM ECAM3 2007, we only know is the respondent perform one activity but we don't know which one

Source: CM EESI 2005 CM EESI 2010 , ML ELIM 2006, ML EPAM 2004, ML EPAM 2007, ML EPAM 2010

Table 15: Economic activities performed despite not working during last week in Senegal

| | Urban | | Rural | |
	Female	Male	Female	Male
Cultivate or harvest agricultural products, fish,etc.	0.0	38.1	64.6	92.6
Prepare food, clothes or handicraft for selling	31.5	0.0	26.0	0.0
Sell products, newspapers,food or agricultural products	49.1	0.0	0.0	0.0
Wash, iron,clean, repair tools or equipments for other with pay in kind or in cash	9.7	0.0	0.0	0.0
Wash cars, polish shoes	0.0	0.0	0.0	0.0
Take care of domestic animals	0.0	45.4	0.0	7.4
Transport goods to market or other related activities	0.0	0.0	0.0	0.0
Construction and maintenance of buildings, house, cars	0.0	0.0	0.0	0.0
Other similar activity	9.7	16.5	9.4	0.0
Total	100.0	100.0	100.0	100.0

The population considered is the non employed population during the past week aged 15-49 years.

Results for Senegal are presented apart from those for Cameroon and Mali because the questionnaire differs in the list of activities

Source: SN ENTE 2005

Table 16: Within-survey comparison of employment rates produced by long and short reference periods by country, sex and living area

	Cameroon		Mali		Senegal	
	Female	Male	Female	Male	Female	Male
Urban Area						
Short reference period (1)	48.0	64.2	49.3	69.7	41.3	65.2
Long reference period (2)	54.2	71.6	52.0	74.9	47.3	72.8
Difference (2) - (1)	6.3	7.4	2.7	5.2	6.0	7.6
Difference in % of (1)	*13.1*	*11.5*	*5.5*	*7.5*	*14.5*	*11.7*
Rural Area						
Short reference period	74.7	80.8	59.2	81.0	33.8	72.6
Long reference period	79.0	86.5	62.3	90.0	51.7	88.2
Difference (2) - (1)	4.2	5.7	3.2	9.0	17.9	15.5
Difference in % of (1)	*5.6*	*7.1*	*5.4*	*11.1*	*53.0*	*21.3*
Number of surveys	5	5	5	5	3	3

Short reference period refers to "1 week" or "Currently" reference period and Long reference period refers to "1 year" reference period.

Employment rates are calculated for the population aged 15-49 years .

Source: MIMADEM. Authors' calculation.

Surveys : CM ECAM1 1996 , CM ECAM3 2007 , CM EDS 1998 , CM EDS 2004 , CM EDS 2011 ,ML EDS 1995 , ML EDS 2001 , ML EDS 2006 , ML EDS 2012 , ML ELIM 2006 , SN EDS 2005 , SN EDS 2010 , SN ENTE 2005

Table 17: The effect of a long reference period - A within-survey analysis by country - Linear probability model results

Dependent variable :	Cameroon		Mali		Senegal	
Dummy=1 if employed	(1)	(2)	(3)	(4)	(5)	(6)
Long reference period (Ref. Short reference period)	0.060***	0.076***	0.029***	0.024***	0.097***	0.068***
	(0.001)	(0.003)	(0.001)	(0.003)	(0.002)	(0.005)
Long reference period * Female		-0.003		-0.006*		-0.006
		(0.004)		(0.004)		(0.006)
Long reference period * Rural		-0.026***		0.033***		0.072***
		(0.004)		(0.005)		(0.008)
Long reference period * Female * Rural		-0.002		-0.028***		-0.010
		(0.005)		(0.005)		(0.010)
Female	-0.119***	-0.189***	-0.293***	-0.305***	-0.340***	-0.277***
	(0.004)	(0.007)	(0.006)	(0.009)	(0.007)	(0.011)
Rural	0.130***	0.069***	0.054***	0.022**	0.016***	0.050***
	(0.005)	(0.006)	(0.006)	(0.008)	(0.006)	(0.011)
Female* Rural		0.133***		0.040***		-0.121***
		(0.008)		(0.010)		(0.013)
25-34	0.177***	0.178***	0.107***	0.107***	0.181***	0.179***
	(0.005)	(0.005)	(0.006)	(0.006)	(0.008)	(0.008)
35-44	0.227***	0.228***	0.135***	0.134***	0.263***	0.261***
	(0.005)	(0.005)	(0.007)	(0.007)	(0.009)	(0.009)
45 and more	0.232***	0.232***	0.140***	0.139***	0.284***	0.278***
	(0.007)	(0.006)	(0.009)	(0.009)	(0.011)	(0.011)
Primary education	0.098***	0.105***	0.000	0.001	0.062***	0.057***
	(0.005)	(0.005)	(0.007)	(0.007)	(0.008)	(0.008)
Secondary education	0.046***	0.053***	-0.082***	-0.083***	-0.038***	-0.039***
	(0.006)	(0.006)	(0.008)	(0.008)	(0.010)	(0.010)
Tertiary education	0.025**	0.021**	-0.067***	-0.071***	-0.064***	-0.059***
	(0.010)	(0.010)	(0.021)	(0.021)	(0.016)	(0.016)
Married polygamous	0.028***	0.029***	0.124***	0.125***	0.024	0.019
	(0.006)	(0.006)	(0.010)	(0.010)	(0.023)	(0.023)
Single	0.005	0.007	0.092***	0.092***	-0.050***	-0.050***
	(0.006)	(0.006)	(0.011)	(0.011)	(0.013)	(0.013)
Other	0.056***	0.057***	0.166***	0.168***	0.110**	0.100**
	(0.011)	(0.011)	(0.029)	(0.029)	(0.045)	(0.044)
Household size	-0.005***	-0.005***	0.002***	0.002***	-0.001	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.112***	0.096***	0.699***	0.713***	0.541***	0.530***
	(0.027)	(0.027)	(0.011)	(0.012)	(0.017)	(0.018)
Observations	95,926	95,926	123,032	123,032	60,614	60,614
R-squared	0.185	0.192	0.164	0.164	0.253	0.258
Months of interview dummies	Yes	Yes	Yes	Yes	Yes	Yes
Departments dummies	Yes	Yes	Yes	Yes	Yes	Yes
Survey fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

The dependent variable is a dummy equal to 1 if the individual is employed. Observations have been expanded to estimate the effect of the wording, i.e. the effect of a "work question", compared to the "occupation" question (the reference category).

The population considered is aged 15-49 years.

(1), (3), (5) estimate the model (1) without interaction effects and (2), (4), (6) the model (2) with interaction effects.

All regressions are weighted so that each survey contribute in the same way to the estimations whatever the initial sample interviewed.

Standard errors are clustered at the individual level. Significance levels : * 0.10 ** 0.05 *** 0.01

Surveys : CM ECAM1 1996 , CM ECAM3 2007 , CM EDS 1998 , CM EDS 2004 , CM EDS 2011 ,ML EDS 1995 , ML EDS 2001 , ML EDS 2006 , ML EDS 2012 , ML ELIM 2006 , SN EDS 2005 , SN EDS 2010 , SN ENTE 2005

Table 18: All year, seasonal or occasional economic activity by country and percentage of those who worked during last year but not during last week (YNW)(15-49 years old)

| | Cameroon | | | | Mali | | | | Senegal | | | |
| | Female | | Male | | Female | | Male | | Female | | Male | |
	Structure	%YNW	Structure	%YNW	Structure	%YNW	Structure	%YNW	Structure	%YNW	Structure	%YNW
Urban Area												
All year	62.1	3.7	67.5	2.2	67.0	2.9	76.0	3.5	69.8	4.1	73.8	2.0
Seasonal	17.2	18.5	12.3	38.1	16.3	5.9	17.0	20.0	15.1	20.5	15.6	40.1
Occasional	20.8	17.1	20.2	22.5	16.6	9.4	6.9	28.2	15.1	20.7	10.6	28.0
Total	100.0		100.0		100.0		100.0		100.0		100.0	
Rural Area												
All year	42.7	1.9	58.7	2.0	30.6	3.1	39.1	1.5	38.3	6.3	47.0	1.1
Seasonal	40.8	6.3	30.9	15.7	57.7	3.9	57.9	12.5	51.2	34.6	46.0	21.8
Occasional	16.5	9.9	10.3	20.7	11.7	5.9	3.0	11.4	10.5	15.8	7.1	16.0
Total	100.0		100.0		100.0		100.0		100.0		100.0	

Source: CM EDS 1998, CM EDS 2004, CM EDS 2011,ML EDS 1995, ML EDS 2001, ML EDS 2006, ML EDS 2012, SN EDS 2005, SN EDS 2010

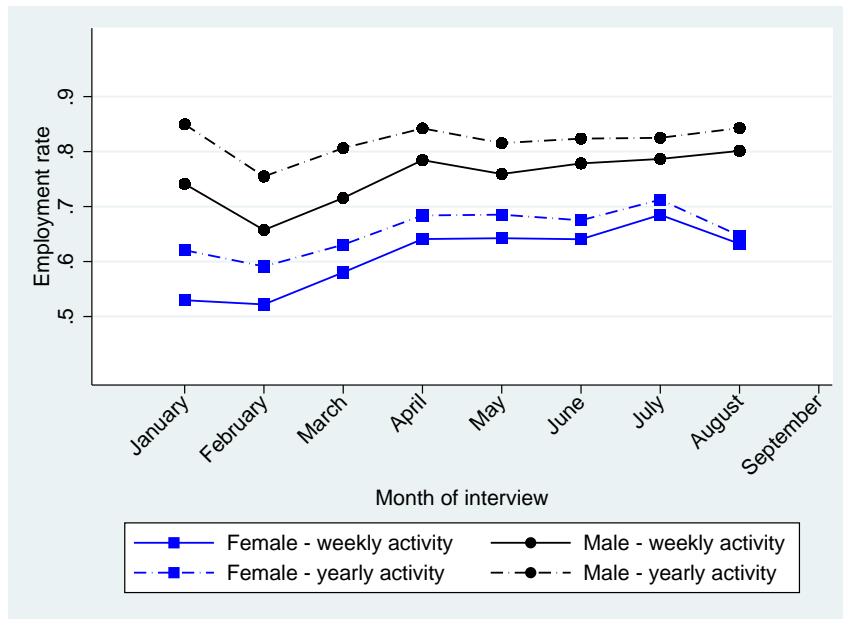Figure 4: Employment rates by month of interview in Cameroon

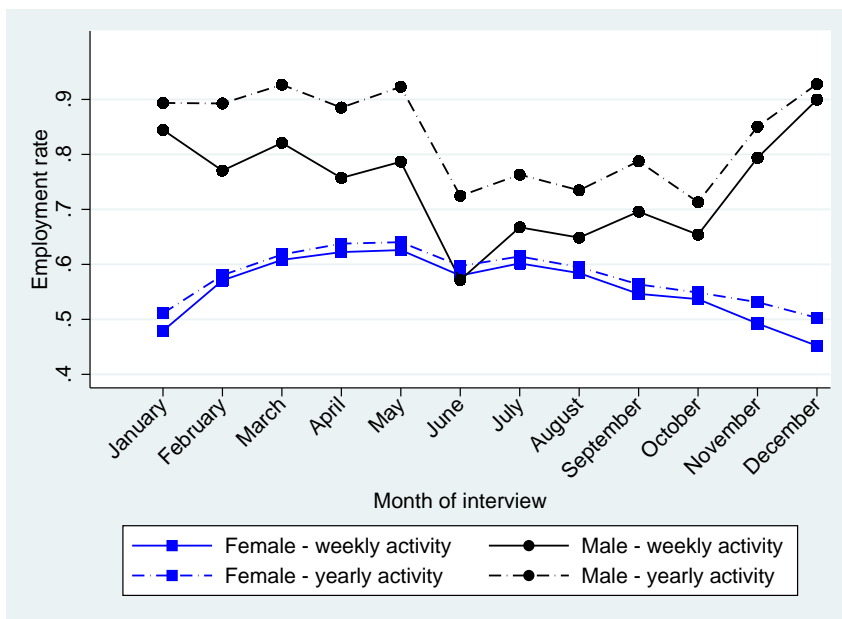Figure 5: Employment rates by month of interview in Mali

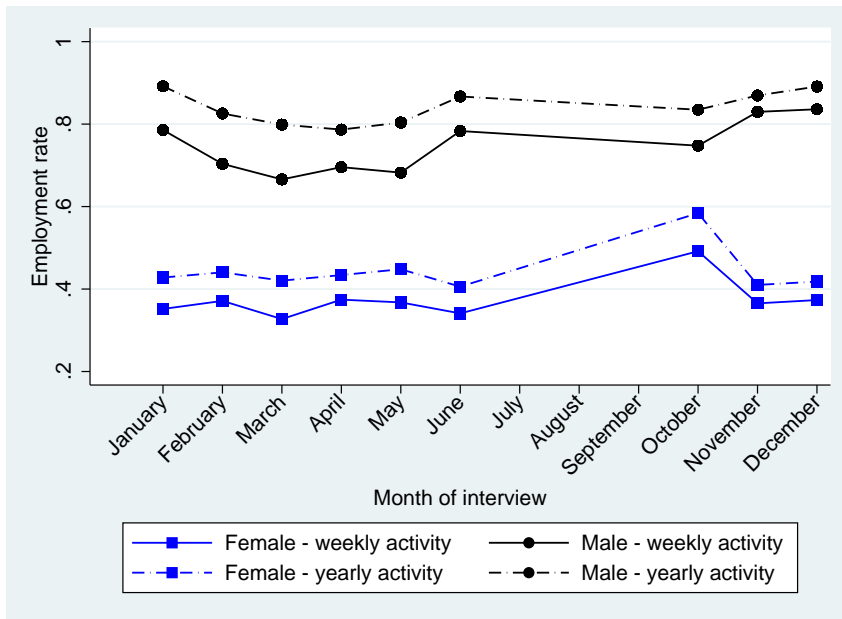Figure 6: Employment rates by month of interview in Senegal

Table 19: Summary of the effects of questionnaire characteristics on employment rates - Within-surveys results

Average effect (in ppts)	Cameroon	Mali	Senegal
Wording (Work vs Occupation)	2.7***	23.4***	0.4***
	(urban)		(urban)
Long labor module			
Economic activities	3.3***	1.8***	0.2***
+ Has a job (whole module)	6.8***	3.0***	4.5***
Reference period (Long vs Short)	6.0***	2.9***	9.7***

Source: Authors' calculation.

Table 20: Summary of the differences in sensitivity across gender and living area - Within-surveys results

	Women + Urban sensitivity Compared to urban men			Female + Rural sensitivity Compared to rural men		
	Cameroon	Mali	Senegal	Cameroon	Mali	Senegal
Wording (Work vs Occupation)	Less	More	Equal	-	More	-
Long labor module						
Economic activities	More (small)	Equal	Equal	Equal	Equal	Equal
+ Has a job (whole module)	*More*	Equal	Equal	Equal	Equal	More
Reference period (Long vs Short)	Equal	Less (small)	Equal	Equal	Less	Equal

Source: Authors' calculation.

Appendices

Table A1: Surveys characteristics in Cameroon

Year	Survey Acronym	Survey	Sample size	Country (C) / Urban (U)	Field work period
1976	RGPH	General Census of Population and Housing	7 385 858	C	04/1976
1983	EBC	Budget Consumption Survey	31 047	C	09/1983-09/1984
1987	RGPH	General Census of Population and Housing	8 883 609	C	04/1987
1991	DHS	Demographic and Health Survey	4 685	C	03/1991-10/1991
1993	E123	1 2 3 Survey	11 172	U	01/1993-02-1993 (phase1)
1994	E123	1 2 3 Survey	12 235	U	
1996	ECAM1	Cameroon Household Survey	10 325	C	02/1996-04/1996
1998	DHS	Demographic and Health Survey	8 063	C	01/1998-07/1998
2000	EDM	Yaoundé and Douala Household Expenditure Survey	6 210	U	10/2000-12/2000
2000	MICS	Multiple Indicator Cluster Survey	5 069*	C	07/2000-08/2000
2001	ECAM2	Cameroon Household Survey	56 443	C	09-2001-12/2001
2002	CAVIE	Yaoundé and Douala Living Conditions survey	68 446	U	10/2002-12/2002
2004	DHS	Demographic and Health Survey	15 936	C	02/2004-08/2004
2005	EESI	Survey on Employment and Informal Sector	38 599	C	05/2005-07/2005
2006	MICS	Multiple Indicator Cluster Survey	9 408*	C	05/2006-06/2006
2007	ECAM3	Cameroon Household Survey	51 836	C	09/2007-12/2007
2010	EESI	Survey on Employment and Informal Sector	13 002	C	05/2010-07/2010
2011	DHS	Demographic and Health Survey	22 617	C	01/2011-08/2011

* Employment data are only available for women.
Source: MIMADEM Database, 17 surveys in Cameroon

Table A2: Surveys characteristics in Mali

Year	Survey Acronym	Survey	Sample size	Country (C) / Urban (U)	Field work period
1976	RGPH	General Census of Population and Housing	6 338 217	C	12/1976
1987	RGPH	General Census of Population and Housing	7 871 842	C	04/1987
1987	DHS	Demographic and Health Survey	4 191	C	03/1987-08/1987
1994	EMCES	Survey of the economic and social situation in Mali	83 046	C	
1995	DHS	Demographic and Health Survey	12 178	C	11/1995-05/1996
1998	RGPH	General Census of Population and Housing	9 810 637	C	04/1998
2001	EESI	Survey on Employment and Informal Sector	13 002	U	08/2001-10/2001
2001	DHS	Demographic and Health Survey	16 254	C	01/2001-05/2001
2001	EMEP	Poverty Evaluation Survey of Mali	86 086	C	01/2001-12/2001
2001	EMEP-QUID	Poverty Evaluation Survey of Mali	86 764	C	01/2001-01-2002
2003	ELIM	Integrated Limited Household Survey	41 480	C	12/2003-02/2004
2004	EPAM	Permanent Household Survey	24 759	C	
2006	ELIM	Integrated Limited Household Survey	40 810	C	06/2006-11/2006
2006	DHS	Demographic and Health Survey	18 790	C	04/2006-12/2006
2007	EPAM	Permanent Household Survey	17 439	C	
2008	EDMB	Household expenditure survey of the Capital City	5 151	U	03/2008-05/2008
2010	EPAM	Permanent Household Survey	18 637	C	08/2010 -10/2010
2012-2013	DHS	Demographic and Health Survey	14 823	C	11/2012-02/2013

Source: MIMADEM Database, 17 surveys in Mali

Table A3: Surveys characteristics in Senegal

Year	Survey Acronym	Survey	Sample size	Country (C) / Urban (U)	Field work period
1976	RGPH	General Census of Population and Housing	504 651	C	04/1976
1988	RGPH	General Census of Population and Housing	719 421	C	05-1988-06/1988
1986	DHS	Demographic and Health Survey	4 415*	C	04/1986-09/1986
1991	ESP	Priority Survey	85 249	C	10/1991-01/1992
1992	DHS	Demographic and Health Survey	7 746	C	11/1992-08/1993
1993	EMUS	Survey on Migration and Urbanization in Senegal	65 602	C	05/1993-10/1993
1994	ESAM1	Senegalese Household Survey	32 544	C	
1996	EDMC	Household expenditure survey of the Capital City	8 661	U	03/1996-06/1996
1997	DHS	Demographic and Health Survey	12 899	C	01/1997-05/1997
2001	ESAM2	Senegalese Household Survey	64 531	C	2 rounds
2002	E123	1 2 3 Survey	19 065	U	07/2001-09/2003
2002	RGPH	General Census of Population and Housing	1 000 708	C	12/2002-12/2002
2005	DHS	Demographic and Health Survey	18 363	C	01/2005-06/2005
2005	ENTE	National Child Labour Survey	35 024	C	04/2005-06-2005
2005	ESPS	Priority Survey	123 543	C	12/2005-04-2006
2009	MRHS	Migration and Remittances Household Survey	17 878	C	10/2009-11/2009
2010	DHS	Demographic and Health Survey	20 617	C	10/2010-04/2011

* Employment data are only available for women.
Source: MIMADEM Database, 17 surveys in Senegal

Table A4: Questionnaire Characteristics of surveys in Cameroon

Year	Survey Acronym	Wording* : W=Work, O=Occupation	Type of Labor Module**: L=Long, S=Short	Reference periods*** C=Currently, W=Week, M=Month, Y=Year, N= No reference period
1976	RGPH	O	S	W
1983	EBC	O	S	W
1987	RGPH	O	S	W
1991	DHS	W	S	C^{2a},N^{2b}
1993	E123	W	L: d	W, N
1994	E123	W	L: d	W, N
1996	ECAM1	W	L: d, r	W,Y
1998	DHS	W	L: r	C,Y
2000	EDM	O,W	L: w, r	C,W
2000	MICS	O	L : o	N
2001	ECAM2	W	L: d, r	M,Y
2002	CAVIE	W	S	Y
2004	DHS	W	L: r	C,Y
2005	EESI	W	L: d	W,N
2006	MICS	0	L : o	N
2007	ECAM3	W	L: d, r	W,M,Y
2010	EESI	W	L: d	W,M,N
2011	DHS	W	L: d, r	W,Y,N

* Work questions (W) refer to yes/no questions about work or economic activity (e.g. "Did you work last week?"). Occupation questions (O) are questions which expect occupational status as answers (e.g. "What is your main occupation?" or "What is your type of activity?", those questions implying responses such as "in employment, unemployed, retired, pupil or student, housewife, etc.").
** Short labor modules have only one question to determine labor force status of respondents.Long labor modules contain a series of additional questions aiming at identifying active individuals. d=modules with questions (i) on whether the individual worked during the past week (ii) on a list of economic activities and (iii) on reasons from being absent from work or questions on having a job despite not working during the reference week ; w= labor module with at least one question on occupation and one question on work; r=labor module with at least two questions with two different reference periods ; o=other type of labor module
*** Reference period design the period over which employment is measured.
^{1a} for the non agricultural sector, ^{1b} for the agricultural sector
^{2a} for women and ^{2b} for men
Source: MIMADEM Database, 17 surveys in Cameroon

Table A5: Questionnaire Characteristics of surveys in Mali

Year	Survey Acronym	Wording* : W=Work, O=Occupation	Type of Labor Module**: L=Long, S=Short	Reference periods*** C=Currently, W=Week, M=Month, Y=Year, N= No reference period
1976	RGPH	O	S	Y
1987	RGPH	O	S	M^{1a},Y^{1b}
1987	DHS	W ^{a}	S	N
1994	EMCES	O	L: w, r	C,W,Y
1995	DHS	W	L: r	C,Y
1998	RGPH	O	S	M^{1a},Y^{1b}
2001	EESI	W	L: d	W,N
2001	DHS	W	L: r	C,Y
2001	EMEP	O	L: w	C,W
2001	EMEP-QUID	W	L: d	C,N
2003	ELIM	W	L: d	W
2004	EPAM	W	L: d, r	W,M,N
2006	ELIM	W	L: d	W,N,Y
2006	DHS	W	L: r	C,Y
2007	EPAM	W	L: d, r	M,W,N
2008	EDMB	W	L: d, r	M,W,N
2010	EPAM	W	L: d, r	M,W,N
2012-2013	DHS	W	L: d, r	W,N,Y

^{a} : The question asks about work out of field and not work in general.

* Work questions (W) refer to yes/no questions about work or economic activity (e.g. "Did you work last week?"). Occupation questions (O) are questions which expect occupational status as answers (e.g. "What is your main occupation?" or "What is your type of activity?", those questions implying responses such as "in employment, unemployed, retired, pupil or student, housewife, etc.").

** Short labor modules have only one question to determine labor force status of respondents.Long labor modules contain a series of additional questions aiming at identifying active individuals. d=modules with questions (i) on whether the individual worked during the past week (ii) on a list of economic activities and (iii) on reasons from being absent from work or questions on having a job despite not working during the reference week ; w= labor module with at least one question on occupation and one question on work; r=labor module with at least two questions with two different reference periods ; o=other type of labor module

*** Reference period design the period over which employment is measured.

^{1a} for the non agricultural sector, ^{1b} for the agricultural sector

^{2a} for women and ^{2b} for men

Source: MIMADEM Database, 17 surveys in Mali

Table A6: Questionnaire Characteristics of surveys in Senegal

Year	Survey Acronym	Wording* : W=Work, O=Occupation	Type of Labor Module**: L=Long, S=Short	Reference periods*** C=Currently, W=Week, M=Month, Y=Year, N= No reference period
1976	RGPH	O	S	Y^3
1988	RGPH	O	S	Y
1986	DHS	W^a	S	C
1991	ESP	W	L: w1, r	W,Y
1992	DHS	W	S	C^{2a}, Y^{2b}
1993	EMUS	O	S	N
1994	ESAM1	W	S	Y
1996	EDMC	O	L: w, r	C,W
1997	DHS	O	S	N
2001	ESAM2	W,O	L: w, r	W,Y
2002	E123	W	L: d	W,Y,N
2002	RGPH	O	S	Y
2005	DHS	W	L: r	C,Y
2005	ENTE	W	L: d, r	W,Y
2005	ESPS	W	S	W
2009	MRHS	O	S	C
2010	DHS	W	L: d, r	W,Y,N

[a] : The question asks about work out of field and not work in general.

* Work questions (W) refer to yes/no questions about work or economic activity (e.g. "Did you work last week?"). Occupation questions (O) are questions which expect occupational status as answers (e.g. "What is your main occupation?" or "What is your type of activity?", those questions implying responses such as "in employment, unemployed, retired, pupil or student, housewife, etc.").

** Short labor modules have only one question to determine labor force status of respondents. Long labor modules contain a series of additional questions aiming at identifying active individuals. d=modules with questions (i) on whether the individual worked during the past week (ii) on a list of economic activities and (iii) on reasons from being absent from work or questions on having a job despite not working during the reference week ; w= labor module with at least one question on occupation and one question on work; r=labor module with at least two questions with two different reference periods ; o=other type of labor module

*** Reference period design the period over which employment is measured.

[1a] for the non agricultural sector, [1b] for the agricultural sector

[2a] for women and [2b] for men

Source: MIMADEM Database, 17 surveys in Senegal

Figure 7: Example of a detailed labor module : 123 Surveys

CURRENT EMPLOYMENT (EA)

EA2. During the previous week, did you work, even if only one hour ?

1. Yes ----------------------------- Go to Q AP1
2. No

|__|

EA3. Even though you did not do any (paid) work last week, did you do any of the following activities, inside or outside your home ?

1. Work in a personal business
2. Make a product for sale
3. Do something at home for pay
4. Render a service for money or a benefit in kind ------- Go to Q AP1
5. Help in the family business
6. Apprenticeship with/without pay
7. As a working student
8. Working for another family
9. Build own house
10. Any other paid activity

11. None of the above

|__|__|

EA4. Although you did not work last week, do you have a job ?

1. Yes
2. No --------------------- Go to Q Ea7a

|__|

EA5. Why did not you work last week ?

1. Vacation or day off
2. Sickness
3. Maternity leave   Go to Q AP1
5. Temporary leave

6. Laid off or end of contract
7. Others : _____

|__|

EA6. When will you go back to work ?

1. Less than 4 weeks ------------ Go to Q AP1
2. More than 4 weeks
3. Does not know

|__|

EA7a. Did you look for a job last week ?

1. Yes ----------------------------- Go to Q EA7b1
2. No

|__|

EA7b. Did you look for a job in the 4 previous weeks ?

1. Yes ----------------------------- Go to Q EA7b1
2. No

|__|

EA7b1. What were your means of looking for a job ?

1. Relationship (relatives, friends) (go to Q EA7c)
2. Directly from employer (go to Q EA7c)
3. Ads, commercials, media (go to Q EA7c)
4. Employment office, temporary work agency (go to Q EA7c)
5. Competitive entry examination (go to Q EA7c)
6. Administrative procedures for enterprise creation (go to Q EA7c)
7. No means of looking for a job (go to Q EA7b2)

|__|

EA7b2. Why did not you do something to look for a job ?
1. Waiting for result about competitive entry examination (go to Q EA7c)
2. Waiting for result about an interview for a job (go to Q EA7c)
3. Waiting for result about administrative procedures for enterprise creation (go to Q EA7c)
4. Have a job which begins after the reference period t (>1 week) (go to Q EA7c)
5. Do not look for a job a this moment, due to sickness, accident) (go to Q EA8a)
6. None of the above (go to Q EA8a)

|__|

EA7c. When will you be free to work ?
1. Right away
2. In 2 weeks ------   Go to Q C1
3. Between 15 days and one month
4. In more than one month
5. Does not know

|__|

EA8a. You don't work because you are :

1. Disabled or extended sickness leave
2. Schooling or student
3. Retired
4. Pregnancy or maternity leave
5. Housewife
6. Have rent revenues
7. Have a job which begins after the reference period
8. Other : _____
            (specify)

|__|

EA8b. Why did not you look for a job (or did not want to work) ?

Non volunteer (go to Q à EA8b1)
1. There is no job
2. Not possible to obtain a job in relation with qualification
3. Don't know how to look for a job
4. Has to stay at home to look for one's child(ren)
5. Other non volunteer

Volunteer (go to Q EA8c)
6. Waiting for an answer to application
7. Waiting for an job which begins after the reference period
8. Not needed for living / did not want to work
9. Not of working age
10. Other non volunteer

|__|__|

EA8b1. Although you have not looked for a job during the 4 previous weeks, will you be free to work now if you had an offer ?
1. Yes (go to Q C1)   2. No

|__|

EA8c. How do you manage to live in terms of income ?
1. Receive a pension from work
2. Receive a pension (widow, orphan, divorce)
3. Receive revenues from lands, others private income
4. Savings income
5. Grant-holder
6. Supported by family or another person
7. Other

What is your average income in a month ?
|__|__|__| (Yuan)

|__|

|__|__|__|

GO TO "TRAJECTORY AND PROSPECTS" (TP).