

# Employment Data in Household Surveys

## Taking Stock, Looking Ahead

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## Abstract

Individual-level employment data have a wide range of applications. They are used to monitor labor markets and the Sustainable Development Goals, contribute to understanding and explaining socioeconomic conditions, and may help to design and inform labor market policies. This paper is relevant for academics and policy makers who want to understand the main survey design issues behind the collection of individual-level employment data in nationally representative household surveys and the implications for data quality, particularly for women and young people. The paper reviews four survey programs (Living Standards Measurement Study, Living Standards Measurement Study–Integrated Surveys on Agriculture, Labor Force Surveys, and Demographic and Health Surveys) in 14 developing countries. First, the paper reviews the Sustainable Development Goals to identify a core set of labor market indicators

and briefly discusses the International Labour Organization’s definitions of key concepts that shape these indicators. Second, it assesses whether the Sustainable Development Goals labor market indicators are captured in the reviewed surveys. Third, it takes stock of current approaches to collect employment data and discusses critical survey design features, such as the structure of the labor module and the wording of the questions. Fourth, the paper examines whether these survey design features are gender and age neutral. Data from the Living Standards Measurement Study–Integrated Surveys on Agriculture are used to illustrate these issues. The paper concludes by proposing short- and medium-term objectives to improve the data quality in the Living Standards Measurement Study–Integrated Surveys on Agriculture.

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# Employment Data in Household Surveys: Taking Stock, Looking Ahead<sup>1</sup>

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## 1. Introduction

This paper focuses on methodological challenges related to collecting high-quality individual-level employment data through household surveys in rural as well as urban areas of developing countries, paying close attention to issues that disproportionately affect women and young people. Employment data are key to studying a host of issues (Grosh & Glewwe, 2000; IFAD, 2016; World Bank, 2013, 2019). At the macro-level, the structure of employment defines societies. Relatively slow but far-reaching evolutions such as the structural transformation, the youth bulge, the demographic dividend and international competitiveness can only be monitored with aggregated labor market statistics that are consistent across countries and over time (Bick et al., 2018). At the micro-level, employment determines one's living conditions, as an extensive literature about livelihoods illustrates (Ellis, 1998; Haggblade et al., 2007).

In developing countries, individual-level employment data are relatively scarce, especially in Sub-Saharan Africa (SSA) (Headey et al., 2010; Szirmai et al., 2013; World Bank, 2013, p. 34). The ILO, for instance, reports that 37% of all year-country observations of labor force participation in the period 1990-2017 are based on actual data such as Labor Force Surveys (LFS), censuses or – in some cases – official government estimates (ILO, 2017). In SSA, the share of real observations to the total number of potential observations drops to 8.4%. Similarly, an ILO review showed that 160 of the 236 countries and territories worldwide (and 36 of 60 African countries) implemented an LFS or a household survey with a labor module from 2000 to 2010 (ILO, 2013b). At the same time, multi-topic household surveys, such as the LSMS(-ISA)<sup>4</sup> surveys supported by the World Bank, focus primarily on 'final' outcomes such as poverty and food consumption, and focus less on 'intermediate' outcomes such as employment (Oya, 2013).

Even when household or labor force surveys are readily available, the quality of the employment data remains a concern. Seemingly minor differences in survey features - questionnaire design, the wording of a question, sampling, coverage, the structure and length of the labor module and its implementation in the field – can have substantial effects on labor market statistics. Fox and Pimhidzai (2013), for instance, show how the absence of screening questions in the labor module affects the employment rate in Uganda. Our analyses for Ethiopia and Malawi reveal that the employment rate can vary substantially depending on the survey instruments used to capture this indicator (Figure A in the Appendix).

Academics and statistical agencies alike have expressed concerns that the accuracy of labor market statistics of women and – although less often emphasized - youth are more sensitive to survey design than labor market statistics of adult men (Gaddis & Palacios-Lopez, 2018; Verick, 2018; Walsh, 2018). Compelling theoretical arguments support these concerns. First, women and young people engage more frequently in atypical employment (Barrientos et al., 2004). They are more likely to combine a job with other activities such as domestic work or

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<sup>4</sup>Living Standards Measurement Study-Integrated Surveys on Agriculture.

attending school, to engage in temporary or seasonal work or to engage in informal activities. Atypical work is likely to be underreported in household surveys. Second, proxy reporting is common in household surveys and as the proxy respondent is often the male household head, data on youth and women may disproportionately suffer from ‘proxy response’ bias. The respondent, in fact, may accurately report his own activities, but under- or overreport activities of other household members, especially of household members who primarily engage in atypical work (Bardasi et al., 2011; Dillon et al, 2012). Third, many household surveys rely on the notion of the main and second activity and do not use appropriate screening questions to define ‘activity’ (Benes & Walsh, 2018c; Fox & Pimhidzai, 2013), which might again be problematic for household members engaging in atypical work such as contributing family members. Fourth, the sampling framework is more likely to miss individuals who (temporarily) migrate to other regions to find a job (Mueller & Chan, 2015).

Few empirical studies have examined the sensitivity of women’s employment to survey design and, as far as we know, not a single study has focused on young people (Koolwal, 2019). One robust finding in this literature is nevertheless that women, when responding to simple keyword question such as ‘*Did you work in the last seven days?*’, tend to report domestic work as employment, which upwards biases the female employment rate (Bardasi et al., 2011; Benes & Walsh, 2018d). Studies evaluating the sensitivity of women’s employment to other survey design features provide mixed results. Comparing self-reporting versus proxy reporting in Tanzania, Bardasi et al. (2011) conclude that proxy reporting has no effect on the female employment rate, but substantially lowers the male employment rate. Exploiting variation within surveys, Comblon and Robilliard (2015) compare the effect of several survey design issues, including the wording of questions, on labor market statistics. Although the effects are substantial, they do not differ by sex. Interviewing the same population of women in the Arab Republic of Egypt, Langsten and Salen (2008) show that the female employment rate is substantially higher when an activity list is used rather than identifying workers with a single keyword question about their ‘main’ occupation. Finally, Gaddis et al. (2018) study recall error in labor input at the plot level in agriculture. Recall error substantially affects measurement of labor input for both male and female workers, but – contrary to their expectations - the authors do not find larger recall bias for women.

This background paper aims to take stock of current approaches used in nationally representative household surveys to collect individual-level employment data and attempts to evaluate how survey design features affect women’s and youth labor market statistics. It is structured along four questions: (1) what should we measure, (2) what do we measure, (3) how do we measure and, to conclude, (4) how and what will we measure in a changing labor market?

## **2. What should we measure?**

Before delving into the specifics of household surveys, we need to agree on a common set of labor market indicators that are indispensable to study labor markets. While there are many

relevant labor market indicators<sup>5</sup>, we decided to focus on the Sustainable Development Goals (SDGs) labor market indicators. We do so for four reasons: the SDGs emphasize the importance of productive employment and decent work (e.g. goal 8); monitoring the SDGs is one of the objectives of some of the survey programs we reviewed; the SDG labor market indicators offer the potential to study many topics that go beyond the SDGs; and the SDGs emphasize the need to disaggregate indicators by sex and age.

SDG labor market indicators are composed of a set of concepts that determine the indicators. Table A in the Appendix presents the SDG labor market indicators, while Table B in the Appendix identifies and defines the concepts underlying these indicators. An in-depth review of the SDG labor market indicators goes beyond the scope of this paper.<sup>6</sup> In this section we only briefly highlight key concepts that have recently been revised.

A major innovation of the 19<sup>th</sup> International Conference of Labour Statisticians (ICLS) in 2013 was the introduction of a definition of work (Benes & Walsh, 2018b). Work is now defined as ‘any activity performed by persons of any sex and age to produce goods or to provide services for use by others or for own use’ (19<sup>th</sup> ICLS, §6). It consists of five mutually exclusive forms of work: (1) own-use production work, (2) employment work, (3) unpaid trainee work, (4) volunteer work and (5) other unpaid work activities (not defined in the resolution). While these five forms of work are mutually exclusive, persons can be engaged in several forms of work in a short reference period. The 20<sup>th</sup> ICLS in 2018 revised the International Classification of Status in Employment (ICSE-18) aligning this classification with the narrowed definition of employment. Workers are classified in 10 categories. These 10 categories can be aggregated according to the authority the worker can exercise (*independent workers vis-à-vis dependent workers*) and the type of economic risk the worker is exposed to (*workers employed for profit vis-à-vis workers employed for pay*). The new International Classification of Status at Work (ICSaW) extends ICSE-18 by including all types of work activities such as own-use production, volunteer work or unpaid traineeships and, thus, aligns with the new definition of work (ILO, 2018a).

The establishment of a definition of work has implications for the trichotomy of *employment*, *unemployment* and *persons out of the labor force* (also called inactivity), concepts that were - and still are - at the heart of labor market statistics. While greatly expanding the scope of labor market statistics by defining work, the 19<sup>th</sup> ICLS narrowed at the same time the definition of employment to *work for pay or profit* (19<sup>th</sup> ICLS, §27). In contrast to the previous definition, individuals engaging exclusively in producing goods for own final use, such as subsistence farmers, are no longer classified as ‘employed’.<sup>7</sup>

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<sup>5</sup> ILO’s decent work indicators are another set of relevant labor market indicators (ILO, 2013a). The 71 decent work indicators, including 21 legal framework indicators, cover the four pillars of decent work (full and productive employment; rights at work; social protection; promotion of social rights). We do not review these indicators here.

<sup>6</sup> See ILO’s recent guidebook for a detailed overview (ILO, 2018c).

<sup>7</sup> In practice, the definition of employment used by national statistical offices already varied before the 2013 revision of the definition of employment. An ILO paper, reviewing all LFS conducted between 2000 and 2010, shows that all countries include wage employment and self-employment in market units within the concept of employment. Variation exists, however, with

This change substantially alters key labor market indicators such as the employment and unemployment rates, particularly in countries with high levels of subsistence farming (Global Strategy, 2018). In Rwanda, for instance, according to the 2018 LFS, the 'new' employment rate equals 44.8%, while the employment rate equals 75.5% if the 'old' definition of employment is used (NISR, 2018, p. 34). The LSMS-ISA surveys in Malawi (2016/17) and Nigeria (2014/15) - the only LSMS-ISA surveys which allow distinguishing own-use producers from market-producers - also reveal a large effect of the new definition on the employment rate. In Nigeria, for instance, the employment rate of the working-age population (15 to 65 years old) changes from 65% to 40% if own-use producers are not classified as employed. Young people are even more affected (from 39% to 18%). The overall effect is mainly driven by the reclassification of subsistence farmers. While 43% of Nigeria's working-age population engages in household farming, only 20% produces primarily for the market (see Figure B in the Appendix for detailed results, broken down by sex and age). The new definition may disproportionately affect the female employment rate, as women are more likely to engage in own-use production (Gaddis & Palacios-Lopez, 2018; Walsh, 2018). However, analyses for Malawi (Figure B in the Appendix) and Nigeria (Koolwal, 2019) do not confirm this hypothesis. In Malawi and Nigeria, women are only slightly more likely to be own-use producers than men.

In practice, not all national statistical offices have already implemented the new definition of employment and continue to classify 'persons exclusively engaged in own-use production' as employed. One reason is that distinguishing agricultural households that *mainly produce for own final use* from agricultural household that *mainly produce for the market* is difficult (Global Strategy, 2018). This requires at least one additional question in household surveys about the intended destination of the produced goods (Benes & Walsh, 2018d).

The resolutions of the 19<sup>th</sup> ICLS do not affect the definition of unemployment. Person are unemployed if they i) are not currently employed; ii) are seeking employment (desire to work for pay or profit) or to start a business; and iii) are available to start a new job in a specified time period (19<sup>th</sup> ICLS, §47). This requires at least two additional questions: one evaluating whether the person was actively seeking a job (during the last four weeks), often operationalized by asking about job search strategies, and a second question evaluating whether the person is available to work (in the next two weeks). These questions should also be asked to subsistence farmers since they are not considered employed but may be looking for employment. While keeping the definition of unemployment unaltered, the 19<sup>th</sup> ICLS complemented the unemployment rate<sup>8</sup>, the traditional indicator of labor slack, with the time-related underemployment indicators that measures the desire and availability to work additional hours (19<sup>th</sup> ICLS, §40). These new indicators address the growing demand for

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regard to own-use producers. 40% of the national statistical offices include at least some own-use producers in the definition of employment. This approach is particularly prevalent for persons producing agricultural products for own use, whereas only a few statistical offices include persons constructing their own dwelling or fetching water in their definition of employment (ILO, 2013b). A recent update of this study shows that 35 out of 119 countries currently include all own-use producers of foodstuff in employment (ILO, 2018d).

<sup>8</sup> The unemployment rate was indirectly affected by the ICLS resolutions as the definition of the labor force (i.e. the denominator of the unemployment rate) was revised.

measures of labor underutilization, especially for women and youth who are more likely to work part-time or engage in temporal and seasonal jobs (Baah-Boateng, 2015).

The employed, unemployed and persons out of the labor force can also engage in unpaid domestic and care work, which is defined as work since the 19<sup>th</sup> ICLS but is not included in the concept of employment. Domestic and care work can be a time-consuming daily activity, particularly for women (Budlender, 2008). To account for these activities and promote gender equality, SDG indicator 5.1 measures the proportion of time spent on unpaid domestic and care activities. This can be operationalized in several ways such as asking respondents to report the number of hours spent in specific activities such as preparing meals, childcare and cleaning, including time diaries in household surveys or conducting specialized time-use surveys (ILO, 2018e).

Finally, capturing informal employment in developing-country contexts, such as street vendors and waste pickers, is essential because it constitutes 87% of the labor force in emerging and developing countries (ILO, 2018f). Measuring informal employment requires a definition of informal enterprises and informal jobs (ILO, 2018f, p. 7, Box 2). While operational definitions differ to some extent across countries, the definition of an informal enterprise is often based on its size (number of employees), legal status (whether or not the enterprise is registered), operations (whether or not the enterprise keeps a complete balance sheet of assets, expenditures, and income), incorporations (whether or not the enterprise is owned by multiple people inside and outside the household) and product destination (whether or not the products are for market and/or own consumption).<sup>9</sup> Informal jobs are often defined as jobs for which the employer does not pay social security contributions, jobs without benefits such as paid or sick leave or jobs without a written contract (Ruppert Bulmer, 2018). These definitions are currently being revised by the ILO to align them with the narrowed definition of employment and the revised classification of status in employment (ICSE-18) and the new classification of status at work (ICSaW-18).<sup>10</sup>

### 3. What do we measure?

While the previous section highlights *what should be measured*, this section evaluates *what current survey programs do measure*, allowing us to compare how current survey programs collect data on women and youth employment and related SDGs.

To do so, we reviewed the questionnaires of four nationally representative household survey programs: LSMS-ISA surveys, LSMS-type surveys, Labor Force Surveys (LFS) and Demographic and Health Surveys (DHS). More specifically, we reviewed the questionnaires of the latest wave of all eight LSMS-ISA surveys (Burkina Faso, Ethiopia, Malawi, Mali, Niger, Nigeria, Tanzania and Uganda) and complemented this set with four LSMS surveys conducted in Guatemala, Nepal,

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<sup>9</sup> ILO, *Measuring informality: A statistical manual*, [http://mospi.nic.in/sites/default/files/publication\\_reports/wcms\\_182300.pdf](http://mospi.nic.in/sites/default/files/publication_reports/wcms_182300.pdf)

<sup>10</sup> One key question is how own-use producers should be classified within the framework of informal employment. The current definition classifies own-use producers in 'informal employment'. But, given the narrowed definition of employment, own-use producers are currently not classified as employed.

Nicaragua, and Tajikistan, and two LSMS-type surveys from Indonesia and South Africa (Table C in the Appendix). For those 14 countries, we also reviewed the DHS questionnaire as well as the LFS questionnaires. The LFS questionnaire was, however, not publicly available for 3 of the 14 countries. Although these four types of surveys have common elements, they differ considerably with regard to their objectives, structure, sample size, data collection method and data management plan. Table 1 highlights key differences.

**Table 1: Main characteristics of LSMS-type surveys, LSMS-ISA surveys, LFS and DHS**

Survey	Objectives	Multi-topic	Population	Type of data	Cross-country comparability	Data availability
<b>LSMS-type<sup>1</sup></b>	(a) Fostering evidence-based policy formulation on agriculture, assets ownership, health, education, income and employment; (b) Monitoring the SDGs and the living condition dynamics of rural and urban households; (c) Facilitating randomized impact evaluations; and (d) Assessing women and youth employment and child activities	yes	5 years old and above	cross-sectional	±	public
<b>LSMS-ISA</b>	(a) Improving the availability and the quality of smallholder agriculture data within a multi-topic framework; (b) Fostering innovation and efficiency in empirical research on the links between agriculture and welfare outcomes in the region	yes	5 years old and above	panel	±	public
<b>LFS</b>	(a) Implementing policies for decent work, employment creation and poverty reduction, income support as well as other social programs, (b) Monitoring the SDGs and the living condition dynamics of rural and urban households	no	10/15 years old and above	cross-sectional	yes	on country base
<b>DHS</b>	(a) Monitoring changes in population, health, and nutrition, (b) Providing an international database that can be used by researchers investigating topics related to population, health, nutrition	yes	15-49 years old	cross-sectional	yes	public

Source: Based on LSMS-ISA, LFS and DHS surveys. Table C in Appendix gives an overview of the reviewed surveys.

Note: <sup>1</sup> The 2016 South Africa General Household Survey (GHS) and the 2010 Indonesia National Social Economic Survey (Susenas) are LSMS-type surveys: they have similar objectives, cover similar topics and follow a similar approach as LSMS surveys.

LSMS-ISA and LSMS surveys monitor most SDG labor market indicators, with time spent on unpaid domestic and care work being a notable exception (see Table 2 below and Table D in the Appendix). LFS also capture most of the SDGs but they cannot be used to monitor indicators that link employment to (household) income or poverty such as monitoring the working poor (SDG indicator 1.1.1.) or income of small-scale food producers (SDG indicator 2.3.2). DHS, instead, only collect data on employment and occupation and can be used to monitor a few SDG indicators. All surveys allow disaggregation by age and sex.

A starting point of monitoring the SDGs and, more generally, studying labor markets is the classification of persons as either employed or unemployment/out of the labor force. Most of the reviewed surveys allow such a classification. There are a few exceptions such as the 2015/16 Ethiopia LSMS-ISA survey that lacks a question on formal attachment to a job, which is required to correctly classify persons temporarily absent from their job. By contrast, fewer surveys allow distinguishing the unemployed from persons out of the labor force. This requires questions on job search and the availability to start working within the next (two) weeks. Whereas all 11 LFS include all required questions, 2 of the 8 LSMS-ISA surveys and 3 of 6 LSMS-type surveys lack at least one of these two questions.

**Table 2: Which surveys can be used to monitor the SDG labor market indicators?**

	LSMS-ISA	LSMS-type surveys	LFS	DHS
<b>Number of surveys reviewed</b>	8	6	11	1 (harmonized across countries)
<b>Disaggregation by:</b>				
Age	100%	100%	100%	100% (population aged 15 to 49)
Sex	100%	100%	100%	100% (questions differ by sex)
<b>Employment (previous definition)<sup>1</sup></b>	88%	100%	100%	100%
<b>Unemployment</b>	75%	50%	100%	0%
<b>Inactivity</b>	75%	50%	100%	0%
<b>Domestic and care work (hours)</b>	13%	50%	36%	0%
<b>Sector</b>	100%	83%	100%	0%
<b>Occupation</b>	100%	67%	100%	100%
<b>Formal/Informal employment</b>	75%	67%	82%	0%
<b>Hours worked by occupation</b>	100%	67%	100%	0%
<b>Hourly earnings of employees</b>	88%	100%	82%	0%
<b>Income by occupation<sup>2</sup></b>	±	±	0%	0%
<b>NEET<sup>3</sup></b>	75%	57%	92%	0%

Source: Based on LSMS-ISA, LFS and DHS data. Table B in Appendix links each indicator to the SDG labor market indicators; Table D in Appendix shows the coverage of the SDG labor market indicators by type of survey.

Note: <sup>1</sup> The 19<sup>th</sup> ICLS narrowed the definition of employment to work for pay or profit, thereby no longer classifying subsistence farmers as employed. This new definition requires an additional question about the intended destination of the produced goods. Since most of the surveys reviewed were designed and/or conducted before the 2013 revision of this definition, they did not yet include these questions. We therefore verified whether the surveys enabled classifying the population according to the previous definition of employment.

<sup>2</sup> Most LSMS-ISA and LSMS-type surveys measure (household) income. Accurately measuring income is, however, notoriously difficult. It is even more complicated to estimate income by occupation.

<sup>3</sup> NEET: Not in Education, Employment or Training.

Goal 1 and Goal 2 of the SDGs contain respectively one and two indicators related to employment that refer to poverty, labor productivity and income of small-scale farmers, which are topics that are covered by LSMS and LSMS-ISA surveys but not by LFS and DHS.

Goal 5 contains two indicators related to employment. The first indicator is the proportion of time spent on unpaid domestic and care work which is, remarkably, only collected in four LSMS(-ISA) surveys. While most LSMS(-ISA) surveys include questions on time spent on collecting water and wood, very few surveys include questions on (child and elderly) care or domestic work such as preparing meals. LFS do not do better: 4 of the 11 LFS include questions on domestic and care work. The second indicator related to employment in goal 5 is the proportion of women in managerial positions. One way to define a 'managerial position' is the female share of employment in senior and middle management as defined by ISCO-08<sup>11</sup> (ILO, 2018c). This indicator can be monitored by most surveys. The DHS as well as most LSMS(-ISA) and LFS record the occupation of employees using the ISCO-classification.

Goal 8 contains four labor market indicators that can in principle be measured with LFS and LSMS-ISA surveys, but not with DHS. In practice, some surveys do not include all the questions required to calculate specific indicators. Indicator 8.3.1, for instance, tracks informal employment, but two LSMS-ISA surveys (Burkina Faso and Ethiopia) and three LFS (Ethiopia, Indonesia and Nicaragua) do not include a sufficient number of questions to distinguish formal from informal employment. The 2015/16 Ethiopia LSMS-ISA survey lacks questions such as

<sup>11</sup> International Standard Classification of Occupations.

'Does your employer pay contributions to a pension fund/health/unemployment insurance?', 'Do you get paid annual leave', 'Would you get paid sick leave in case of illness?', whereas the survey in Burkina Faso only records whether the employee has a regular contract. Similarly, most surveys can be used to measure the unemployment rate (indicator 8.5.2) or NEET-rate (indicator 8.5.2), but a few surveys lack the relevant questions to do so.

Goal 9 includes the indicator manufacturing employment as a proportion of total employment, which requires information on the sector of employees. Three LSMS surveys and a single LFS do not collect this information.

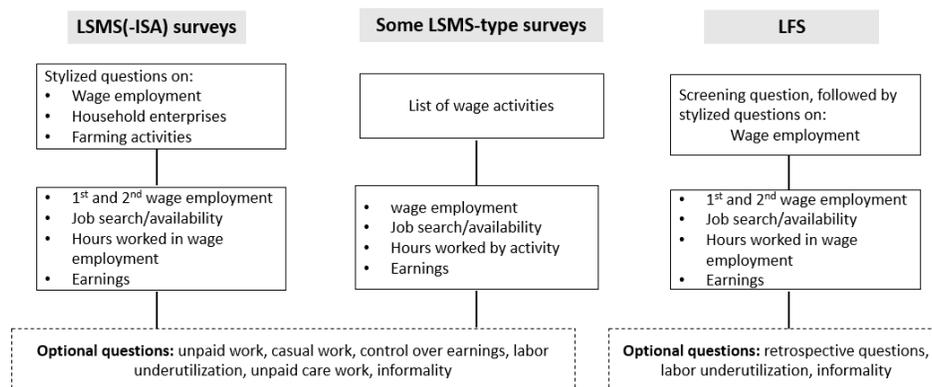
#### 4. How do we measure?

This section focuses on the labor module in household surveys. While some surveys also collect employment data in other modules, the labor module is critical to compile accurate labor market statistics. Thus, a first critical survey design feature is the structure of the labor module. This will be discussed next. We then focus on more specific survey design issues, namely identifying paid and unpaid activities, dealing with seasonality, self-reports vis-à-vis proxy reporting, new questions to measure time-related underemployment, identifying informal wage jobs and the role of retrospective questions.

##### 4.1. The labor module across LSMS(-ISA) surveys and LFS

With the exception of DHS that contains only a few employment questions, all the reviewed surveys include a complete labor module. While these modules measure the same concepts and tend to follow ILO-conventions and definitions, they are structured differently. We identified three approaches (Figure 1).

Figure 1: The different structures of the labor module



Source: An elaboration of LFS and LSMS(-ISA) Labor Module

Note: Farming activities include livestock and fishery activities.

The first approach – typically followed by LSMS(-ISA) surveys and the 2016 GHS South Africa – starts with general stylized questions to identify whether the household member engaged in wage employment, worked on the family farm or is self-employed in a (non-farm) household enterprise. If the household member engaged in wage employment, a battery of follow-up questions is asked about the employer and the working conditions. Household members who did not engage in economic activities during a reference period are asked to report on their

job search strategies and work availability. Some LSMS(-ISA) surveys contain a few additional questions on underemployment (i.e. desire and/or availability to work additional hours).

The second approach, followed by most LFS, starts with a general screening question to determine whether an individual engages in wage employment, followed by more detailed questions about the number of hours worked in the main and second wage job (Benes & Walsh, 2018b). Follow-up questions are asked to the employed and unemployed/inactive. In addition, information on underemployment is collected.

The third approach, followed by for instance the 2010 Nepal LSMS survey, asks respondents to list all productive activities in which they engaged in the last 12 months and to report the number of months/weeks/hours worked by activity in the last 12 months and in the last 7 days. These questions are followed by questions on underemployment for those employed fewer than 40 hours a week, while the unemployed/inactive are asked to report on job search strategies and work availability. Finally, some additional questions are asked to employees.

A common feature of the three approaches is the focus on wage employment. For instance, the labor module of the 2015/16 Nigeria LSMS-ISA survey counts 53 questions of which 32 concern wage employment. Of the 44 questions about employment in the 2013 Ethiopia LFS, 14 questions focus exclusively on wage employment. This observation holds more generally. Three elements explain this observation. First, surveys aim to distinguish formal from informal wage employment and this distinction requires several questions about the contractual arrangement and the employer. Second, LSMS(-ISA) surveys include questions on the first as well as the second wage job in order to capture multiple job holdings. Third, multi-topic household surveys, such as LSMS-ISA surveys, often include other modules such as the agricultural module (AG) and the non-farm household enterprise (NFE) module which capture specific activities of the self-employed (Box 1). This implies that collecting detailed information on self-employment in agriculture and non-farm household enterprises is not the main objective of the LSMS-ISA labor module, as this information is already collected in other, dedicated modules.

### **Box 1: How consistent are the labor module, the AG module and the household enterprise module in LSMS-ISA surveys?**

This paper focuses on the labor module. But LSMS-ISA surveys also collect employment data in the agricultural (AG) and household enterprise module.

- Relying on end-of-season recall, the AG module captures labor input per person and plot and, in some cases, by activity (land preparation, planting, harvesting) (see Gaddis and Palacios-Lopez (2018) and Arthi et al. (2016) for a discussion of this approach and an assessment of recall error);
- The household enterprise module lists all household enterprises and records all household members involved as manager, owner or worker in the enterprise during the last month of operation in the past 12 months.

Using this information, we can verify the internal consistency of the labor, AG and household enterprise modules. Household members who worked on a plot – as captured in the AG module – should also have reported working in ‘HH farming in the last 12 months’ in the labor module. Similarly, household members listed in the enterprise module should also have reported being engaged in ‘running or helping in a non-farm household enterprise’ in the labor module. We illustrate this approach for the 2016/17 Malawi LSMS-ISA survey.

Table E in the Appendix compares responses in the labor and AG modules. Of 25,919 household members who worked on a plot in the rainy season, 2,034 (7.85%) were missing in the labor module. To explain this finding, we examined whether the share of ‘missing individuals’ differs by (1) the number of plots cultivated, (2) the type of activities carried out, (3) number of hours worked on all plots, (4) sex and (5) age of the individual. A clear pattern emerges. The share of individuals ‘missing’ in the labor module clearly decreases with increasing work intensity. It decreases with the number of plots cultivated, the number of different activities and the number of hours worked. We do not observe differences between men and women. There are, however, some differences by age group. One out of five children (5-14 years old) who worked on a plot is not identified as such in the labor module, compared to 6.92% of the young people (15-24 years old) and 3.62% of the workers aged 25 to 65.

Table F in the Appendix compares the responses in the labor and household enterprise modules. Of the 5,010 household members listed as owner, manager or worker in the enterprise module, 1,219 (24.3%) do not appear in the labor module. The share of ‘missing’ household members in the labor module is again correlated with work intensity. Household members who are the owner and manager as well as a worker in the enterprise are less likely to be missed in the labor module (17.3%) than household members who do not combine these three different roles. The share of missing observations also decreases with the number of hours worked in the enterprise (from 34% missing observations if less than 200 hours worked per year to 11% missing observations if more than 1,584 hours worked). Again, we do not observe differences between men and women. Young people reporting to be involved in the household enterprise are more often missing in the labor module than household members aged 25 to 65.

#### **4.2. Paid and unpaid economic activities**

A key difference between labor modules is related to the approach used to measure unpaid and paid work. We have identified four approaches. Two approaches, the single keyword question and the activity list, identify whether the person is employed in general or in specific activities. The two other approaches, the stylized questions followed by questions about the main and second wage job and time diaries, measure hours worked in the last 7-days/12-months or at specific moments during the day. Recently, some surveys, like the survey

developed within the framework of the Women's Empowerment in Agriculture Index (WEAI), have explored combinations of these approaches. They argue that stylized questions are more suited for activities that tend to follow a fixed schedule, whereas time diaries are more appropriate for activities that are not exceptionally salient nor follow a fixed schedule (e.g. agricultural labor) (Seymour et al., 2017).

#### 4.2.1. Keyword questions

The first approach to determine whether a person is employed is a (single) keyword question. This approach is often used in short surveys such as population and housing censuses<sup>12</sup> and in surveys that do not aim to collect detailed labor market data such as the DHS (Fox & Pimhidzai, 2013). The defining characteristic of keyword questions is that they include a single keyword such as activity, work or occupation, and are not preceded or followed by probing and/or screening questions that define the keyword. The risk is that the keyword is not interpreted consistently by respondents, enumerators and data users. The best-known example of this approach is the DHS questionnaire that includes a different keyword question for men and women. Since 2013 the question for men reads as *'Have you done any work in the last seven days?'* The women's questionnaire includes the questions *'Aside from your own housework, have you done any work in the last seven days?'* as well as *'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?'*

#### 4.2.2. An activity list

The second approach uses an activity list, which consists of a complete list of jobs/activities that are common in the region. Some surveys, such as the Nepal LSMS survey, ask respondents to list all productive activities of the last 12 months. Other LSMS(-ISA) surveys include a pre-specified list of activities. Such a list is not necessarily limited to strictly defined 'productive' activities but can also include activities such as domestic and care work or collecting water and firewood. Given the pre-specified activity list, respondents report whether they engaged in any of these activities and, in some surveys, the time dedicated to these activities in a reference period (ILO, 2018e). Several authors have argued that a carefully prepared activity list is easily understood and allows capturing multiple job holdings as well as atypical employment (Langsten & Salen, 2008; Oya, 2013).

In practice, the use of a detailed activity list in the labor module is exceptional. Of all surveys reviewed, only a few (i.e. the 2014 Guatemala LSMS, the 2010 Nepal LSMS, the 2007 Nepal LFS and the 2013 Mali LFS) include a pre-specified activity list. Moreover, this list is typically limited to unpaid domestic and care work, while work for pay and profit is measured with stylized questions. For instance, the 2014 Guatemala LSMS includes a list of questions such as *'Yesterday, did you take care of animals?; Yesterday, did you make repairs to your dwelling of any type: electrical, plumbing, bricklaying, etc.?; Yesterday, did you clean the house?;*

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<sup>12</sup> For instance, the 2008 Malawi population and housing census included 7 questions about employment. The keyword question reads as *'Aside from his/her own housework, did [name] work during the last 7 days?'*

*Yesterday, did you cook or prepare breakfast, lunch, or dinner?* The 2010 Nepal LSMS uses questions such as *'How many hours has [name] spent doing the following activities: C. Processing preserved food (pickle, jam, wine, etc.) and milling?; I. Cooking/ serving food for household?; J. Cleaning house, laundry, dishes?; K. Shopping for household?'*

#### 4.2.3. Stylized questions

Most LFS as well as LSMS(-ISA) surveys rely on stylized questions. LSMS-ISA surveys typically include (a variant of<sup>13</sup>) the following five stylized questions: *'In the last [reference period] did you (1) work on household farming activities, (2) run a non-farm business, (3) help in any kind of non-farm business, (4) work as an employee for a wage, salary, commission or any payment in kind, (5) engage in an unpaid apprenticeship'*. Nearly all LSMS-ISA surveys use a 7-day reference period<sup>14</sup>, sometimes complemented by a 12-month reference period, such as in the 2016/17 Malawi, the 2014/15 Tanzania and the 2013/14 Uganda LSMS-ISA survey. The LSMS reference book – a book edited by Grosh and Glewwe and published in 2000 which discusses all LSMS modules - emphasizes that questions 2 and 3 should include examples to 'cover the wide range of potential self-employment activities' and stresses that 'careful preliminary research should be carried out to determine which phrases best capture all self-employment activities' (Grosh & Glewwe, 2000, chapter 9). In practice, most LSMS-ISA surveys do not systematically clarify the concept non-farm business, although the question sometimes includes examples of non-farm businesses. The question in the 2015/16 Nigeria LSMS-ISA survey, for instance, reads as *'During the past 7 days, has [name] worked on his/her own account or in a business enterprise belonging to [name] or someone in this household, for example, as a trader, shop-keeper, barber, dressmaker, carpenter or taxi driver?'*

Stylized questions are also used in LSMS-ISA surveys to measure unpaid work and collect time use data on domestic activities, such as collecting water and firewood. For instance, the LSMS-ISA surveys in Malawi, Tanzania and Uganda include the questions *'How many hours did you spend collecting water? (hours)'* and *'How many hours did you spend collecting firewood (or other fuel materials)? (hours)'*. The 2015/16 Ethiopia LSMS-ISA survey starts with a yes-no question to screen whether the respondent participated in the activity and then records time spent by activity in hours and minutes, whereas the 2015/16 Nigeria LSMS-ISA survey only records minutes. LSMS-ISA surveys do not collect data on domestic activities (or service provision), such as preparing meals or taking care of children/elderly. The 2013/14 Uganda LSMS-ISA survey is the only exception and includes a single question on domestic activities (*'How many hours did [name] spend on domestic activities? (hours)'*).

Stylized questions may contain keywords that are not always clearly defined. The measurement of 'casual labor' in LSMS-ISA surveys is, for instance, problematic. Most labor

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<sup>13</sup> One variant, common in LSMS-ISA surveys, is open questions (*'How many hours in the [reference period] did you spend on [activity]?'*) rather than closed, binary questions (*'Did you work on [activity] in [reference period]?'*). Open questions aim to capture the employment status and time use in a single question.

<sup>14</sup> Questions related to the reference period are worded slightly differently across surveys. Surveys either refer to the *'last 7 days'* or *'the last week'*. Whether respondents wrongly interpret *'last week'* as the last full week ranging from Monday to Sunday and whether this affects the employment data is unclear.

modules in LSMS-ISA surveys include a variant of the question *'In the last [reference period], did you work as an employee for a wage, salary, commission, or any payment in kind, including doing paid apprenticeship, domestic work or paid farm work, even if only for one hour?'* This question is a critical first step to capture wage employment, including casual labor. The complexity becomes, however, evident in those surveys that aim to distinguish casual labor from other types of wage employment. The 2015/16 Ethiopia LSMS-ISA survey, for instance, includes the questions *'How many hours in the last seven days did [name] do any work for a wage, salary, commission, or any payment in kind, excluding temporary?'* and *'How many hours in the last seven days did [name] engage in casual, part-time, or temporary labor?'* The difference between both questions is unclear and is not further clarified in the enumerator manual. A similar approach is used in Malawi, where the first question is the same as in Ethiopia but excludes 'ganyu' labor<sup>15</sup>, while the second question asks the respondents to report on casual, part-time or *ganyu* labor. In Tanzania, a different approach is followed. Rather than distinguishing casual labor from other types of wage employment using stylized questions, persons engaged in wage employment are asked whether they have a 'permanent', a 'specific task', a 'fixed time' or a 'casual contract'. In the Swahili questionnaire, the term casual contract is translated as 'kibarua'. According to Oya (2013) and Mueller (2015), *kibarua* is used for most forms of manual casual labor, and often has a negative connotation in Tanzania.

#### 4.2.4. Time diaries

The fourth approach to measure hours worked in paid and unpaid economic activities is a time diary, an approach that was initially developed to measure time use within a reference period (typically the last 24 hours) but can also be used to identify productive activities. Time diaries have several advantages. First, time diaries are more accurate and suffer less from recall bias than stylized questions (Bonke, 2005; Kan & Pudney, 2008). Second, they provide an exhaustive list of all activities undertaken in the last 24 hours (Seymour et al., 2017). Third, given the format of a time diary, enumerators can easily verify that the sum of all activities equals 24 hours, which may reduce measurement error. Fourth, they offer the potential to capture simultaneous activities (for example, women caring for children and working on an agricultural plot at the same time) (Grosh & Glewwe, 2000; ILO, 2018e).

Time diaries increase, however, the complexity and duration on the interview, have high operational costs, and might yield inaccurate response due to respondents' memory loss and illiteracy. The United Nations Statistics Division (UNSD) Time Use Data Portal<sup>16</sup> identified several methodological issues regarding collecting accurate time use data that are not yet settled such as (1) whether a time diary should be administered to all household member or only to (randomly) selected household members; (2) whether proxy-reporting of time use is acceptable; (3) how to deal with variation in time use across the week (e.g. interviews on Tuesdays versus on Sundays) and (4) whether the definition of time is context and cultural

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<sup>15</sup> The enumerator manual defines *ganyu* labor as "short term labour hired on a daily or other short-term basis. Most commonly, piecework weeding or ridging on the fields of other smallholders or on agricultural estates. However, *ganyu* labour can also be used for non-agricultural tasks, such as construction and gardening."

<sup>16</sup> <https://unstats.un.org/unsd/gender/timeuse/> (last updated in May 2016)

specific. When time diaries are used, one can choose between the leave-behind/self-reporting method, that is a paper-based diary filled by the respondent, or recall, that is a time diary where the enumerators record the time spent in each activity (especially used in contexts when illiteracy is a concern).

### 4.3. Seasonality

Economic activities are subject to seasonal fluctuations related to climate, institutional aspects (e.g. holiday periods), religious and cultural events and the nature of jobs performed (e.g. casual, temporary, seasonal, full-time or part-time) (Comblon & Robilliard, 2015). Labor market participation is therefore volatile and will depend on the timing of the interview. This is even more the case for vulnerable groups, such as women, youth and rural households, that are more likely to engage in seasonal, temporary and part-time employment.

There are basically three approaches to capture seasonality: (1) continuous surveys, which interview different households in different weeks over a 12-month period; (2) surveys that visit the same households multiple times within the same (agricultural) year; and (3) complementing the standard 7-day reference period with a 12-month reference period. These approaches allow, to a varying extent, to estimate the average annual employment rate and may help to study seasonality and its impact on socioeconomic and labor market outcomes.

#### 4.3.1. Continuous surveys

The LSMS reference work recommends continuous surveys and states that *‘the costs of using a 7-day reference period can be minimized if random samples of households are interviewed in each month or season of the year, as has been done in many past LSMS-type surveys. It is recommended that survey organizers maintain this feature’* (Grosh & Glewwe, 2000, chapter 9). Continuous surveys can be used to estimate the average, annual employment rate, as seasonal variations are averaged out. They do not capture (the effects of) seasonality at the individual-level.

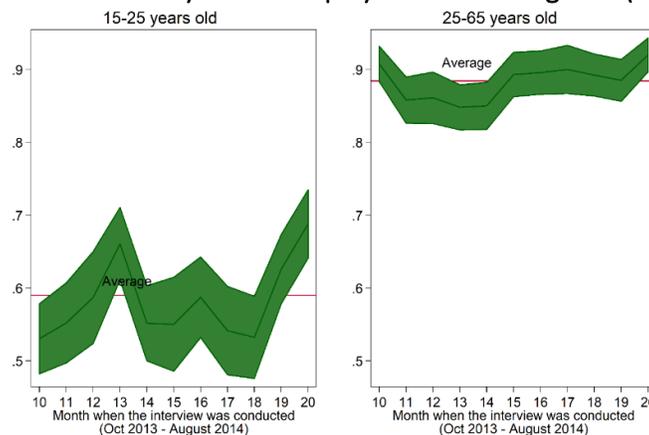
Contrary to this recommendation, of the 8 LSMS-ISA surveys, only the 2013/14 Uganda LSMS-ISA survey is designed as a continuous survey. Other LSMS-ISA surveys are often implemented over a relatively long period due to logistical constraints but are not designed as continuous surveys. In Malawi, for instance, the fieldwork lasted from April 2016 to April 2017. As a result, respondents are interviewed in different months. Some LSMS-type surveys (e.g. Nepal) are continuous surveys. DHS are generally not designed as continuous surveys and recommend completing the fieldwork within 3 to 5 months (ICF International, 2012). LFS are often continuous surveys in developed countries, but continuous LFS remain exceptional in developing countries. For instance, according to the ILO review of national plans to implement the 19<sup>th</sup> ICLS standards (August 2018), out of 119 countries 57 implemented a continuous LFS. However, while all 30 European countries report implementing continuous LFS, only 1 of 27 African countries and 5 of 19 Asian and Pacific countries conduct continuous LFS.<sup>17</sup>

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<sup>17</sup> ILO Presentation available on [www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms\\_646789.pdf](http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/meetingdocument/wcms_646789.pdf)

The 2013/14 Uganda LSMS-ISA survey is a continuous survey and this feature can be exploited to illustrate the effect of seasonality on the employment rate. Using logistic regression to control for the composition of the interviewed population (region, urban/rural, sex), Figure 2 shows the predicted share of the population that engaged in wage employment, household farming, self-employment in a non-farm household business or was temporarily absent from their job in the last 7 days, in function of the month of the interview.<sup>18</sup> Seasonality affects the employment rate of persons aged 15 to 25, but not of persons aged 25 to 65. While the average annual employment rate of the respondents aged 25 to 65 is 88% and does not fluctuate much with the timing of the interview, the average employment rate of young people is 57%, but increases to 69% in August. A more in-depth analysis, not reported here, reveals that the results are driven by volatility in employment in agriculture, which peaks in August/September. Similar analyses do not reveal a different impact of seasonality on women compared to men.

**Figure 2: The effect of seasonality on the employment rate in Uganda (2013) by age group**



Source: Based on 2013/14 Uganda LSMS-ISA data, predicted share from a logistic regression controlling for region, urban/rural household and sex. Shaded area indicates the 95% confidence interval.

Note: Fieldwork lasted from September 2013 to October 2014. We discarded households interviewed in September 2013 and September and October 2014, because few households were interviewed in these months. The number of individuals interviewed each month varies. In the age group 15 to 25 years, the minimum and maximum number of observations was respectively 219 (December 2013) and 391 (October 2013); in the age group 25 to 65 years, the minimum and maximum number of observations was respectively 327 (May 2014) and 550 (August 2014).

#### 4.3.2. Multiple visits

The second approach to capture seasonality is visiting the same household multiple times in the same year. Like continuous surveys, multiple visits allow to estimate an average annual employment rate as seasonal fluctuations wash out when calculating the average employment rate over the visits and, subsequently, over households. In addition - and in contrast to continuous surveys- multiple visits also capture seasonality at the individual and household level.

<sup>18</sup> Another interesting finding, not reported here, is that the effect of seasonality does not disappear when using a 12-month rather than a 7-day reference period. This suggests that a 12-month reference period does not help to capture seasonality. This issue deserves more research.

While LFS, DHS and LSMS surveys typically visit each household only once, some LSMS-ISA surveys visit each household twice administering the post-planting questionnaire during the first and the post-harvest questionnaire during the second visit. However, the labor module is generally only administered once. The exception is the 2015/16 Nigeria LSMS-ISA survey that administers the labor module during both visits and, thus, allows to estimate the employment rate at two moments in the agricultural year.

The Malawi General Household Panel survey adopted a variant of this approach. Like other LSMS-ISA surveys, each household is visited twice, and the labor module is only administered once. In contrast to other LSMS-ISA surveys, the sample is randomly divided in two groups. The labor module is administered to the first group during the first visit and to the second group during the second visit. Hence, the employment rate can be estimated at two moments in time, while the labor module has only been administered once to each household. In this sense, this approach resembles a continuous survey. Results, not reported here, but available upon request, show that the employment rate is nearly the same in the post-planting and post-harvest period, suggesting that seasonality is either not a major issue in Malawi or plays only a role in-between the planting and harvesting period.

#### **4.3.3. The reference period**

The drawback of continuous surveys or surveys with multiple visits are the costs and the logistics required to implement them. For this reason, these types of surveys are often not feasible. An alternative approach is complementing the standard 7-day reference period with a 12-month reference period. While this strategy does not allow estimating the annual average employment rate – which relies on a 7-day reference period -, it does provide some insights in the seasonality of labor demand and the occurrence of engaging in multiple economic activities throughout the year.

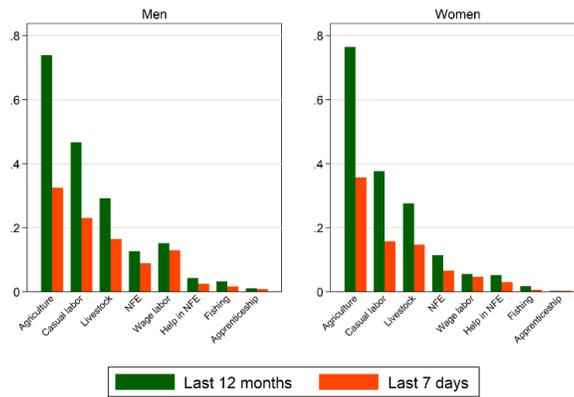
Since the 1980s and 1990s, several authors have supported the use of a 12-month reference period (Freedman et al., 1977). Thus, the LSMS reference work suggested complementing the 7-day reference period with a 12-month reference period in order to capture seasonality and multiple jobs (Grosh & Glewwe, 2000, chapter 9). Follow-up questions are then included for activities carried out in the last 7 days, but not for those carried out during the last 12 months. The idea is that respondents can accurately recall details about the activities of the last 7 days, but not of the last 12 months. Using two reference periods is now a standard practice, that has been adopted by DHS and by most LSMS(-ISA) surveys. ILO, for instance, defines the *currently* active population, which is measured over a day or a week, and the *usually* active population, which is measured over a long reference period, such as one year (ILO, 2013c).

The main concern of the 12-month reference period is recall error (Kalton & Schuman, 1982). Beegle et al. (2012) show that recall errors did not lead to an underestimation of hired farm labor in Kenya, Malawi, and Rwanda. Arthi et al. (2016) find, however, strong evidence of recall bias in agricultural labor input per person-plot in Tanzania, but also show that labor input aggregated at household level yields correct results because respondents overreport labor-

input at plot level but underreport the number of plots and people working on each plot. A similar study in Ghana confirms these findings (Gaddis et al., 2019).

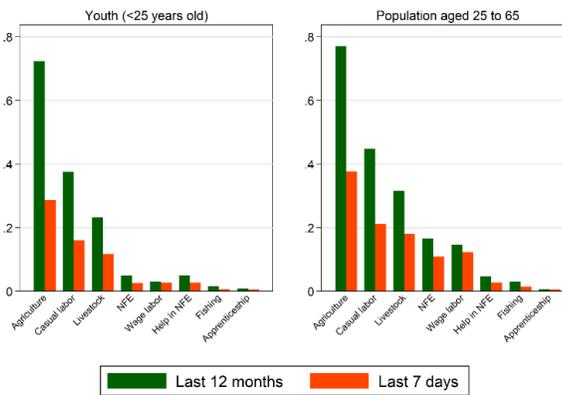
As already discussed, one of the reasons to use a 7-day as well as a 12-month reference period, is capturing seasonality and multiple economic activities throughout the year. Women and youth are believed to engage more frequently in seasonal and temporary work. A long reference period is thus expected to have a more pronounced effect on women’s and youth employment. As far as we know, only Fox and Pimhidzai (2013) have examined how the reference period affects the classification of individuals by activity, but they did not disaggregate their results by sex or age. In order to illustrate this issue, we examine the share of the working-age population engaged in a specific activity by reference period, sex (Figure 3) and age (Figure 4) in Malawi.

**Figure 3: The share of Malawi’s working-age population (15-64 years old) engaging in a specific activity by reference period and sex in 2016**



Source: Based on 2016/17 Malawi LSMS-ISA data.

**Figure 4: The share of Malawi’s population engaging in a specific activity by reference period and age in 2016**



Source: Based on 2016/17 Malawi LSMS-ISA data.

The results show that a long reference period substantially increases the number of people reporting having carried out a specific activity compared to the short reference period. The

effect is especially pronounced for agricultural activities and, to a lesser extent, for casual labor. More than 75% of the population worked in agriculture in the past 12 months, but less than 40% did so in the last seven days. These results are similar for women and men. However, labor market statistics of young people are more sensitive to the choice of the reference period. Considering someone employed if he engaged in at least one activity, the employment rate of the population aged 15 to 24 increases from 50% to 82% if a long rather than a short reference period is used, compared to an increase from 74% to 95% for the population aged 25 to 64. The share of young people in agriculture is particularly sensitive to the reference period. Like in Uganda, this finding suggests that seasonality affects young people more than the rest of the population.

#### **4.4. Self-reports or response by proxy**

Questions about employment can be asked directly to each household member or to a single informed household member, often the household head, who reports for all household members. Both approaches are common. The literature often recommends self-reporting as best practice (Benes & Walsh, 2018a), mainly because self-reports are believed to be more accurate. Indeed, proxy respondents may not be aware of all activities carried out by all family members, particularly in extended families, or may have an incentive to under- or overreport specific activities of certain household members (Blair et al., 2004). At the same time, interviewing each household member rather than a single respondent is burdensome for the enumerators and respondents, and may increase non-response (Thomsen & Villund, 2011). In order to facilitate fieldwork, many surveys therefore aim to minimize the level of proxy reporting, but do not prohibit it. A comprehensive ILO review of LFS shows that in half of the LFS 30% to 50% of the responses are provided by proxy informants (ILO, 2018d). The DHS is in that sense an exception because it administers a separate men's and women's questionnaire and interviews each household member aged 15 to 49. Interestingly, men's employment status and main occupation is self-reported (in the men's questionnaire), but also reported by their wife in the women's questionnaires.

The LSMS reference work and enumerator manuals recommend self-reporting, but do not require it (Grosh & Glewwe, 2000, chapter 9). The enumerator records by whom the questions are answered. Although self-reporting is preferred, proxy reporting is common in practice (Table 3). The rate of proxy respondents for the age group 15 to 64 ranges from 24% in Nigeria and Tanzania to 85% in Mali. Although there are some exceptions (such as Mali and Niger), the results indicate that the proxy respondent is usually a male household member, especially for youth.

The findings raise the question whether and how proxy reporting affects labor market statistics and whether the effect of proxy reporting differs by age and sex of the subject and respondent.<sup>19</sup> Using a survey experiment in Tanzania, Bardasi et al. (2011) show that proxy

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<sup>19</sup> A distinct question is whether household members who self-report their employment status differ systematically from household members whose status is reported by proxy respondents. In Malawi, for instance, the self-reported (fe)male employment rate was 79% (65%), whereas the (fe)male employment of individuals who did not self-report was 63% (50%)

reporting has no effect on the female employment rate, but decreases the male employment rate compared to self-reporting, mainly because agricultural activities are underreported by proxy respondents. They do not find evidence that the proxy respondent's sex affects measurement error. In other words, men or women do not systematically under- or overreport the employment status of household members of the opposite sex. Although the data are available, it was not reported whether the youth employment rate is sensitive to proxy reporting.<sup>20</sup>

**Table 3: Rate of proxy respondent use by LSMS-ISA survey**

Country	Age Group: 15-24			Age Group: 15-64		
	Overall	Male	Female	Overall	Male	Female
Malawi (2017)	64.1	72.2	56.7	45.0	55.1	36.1
Niger (2014)	44.8	43.1	46.5	42.0	37.8	45.6
Nigeria (2016)	34.1	35.3	32.7	24.2	27.9	20.9
Tanzania (2013)	35.3	42.9	28.1	24.1	30.3	18.3
Mali (2014)	99.0	98.2	99.8	84.9	70.5	98.1
Uganda (2014)	76.8	83.6	70.0	55.8	65.6	46.6

Source: Based on the latest LSMS-ISA round in each country. The only exception is Tanzania where the authors used the previous wave (2013) because the last wave (2015) did not include the proxy respondent question.

Note: The gender difference in the rate of proxy respondent use in each country and age group is statistically significant at 1%, with the exception of Nigeria Age Group 15-24 (5% significance), Mali Age Group 15-24 (5% significance), Niger Age Group 15-24 (10% significance).

Expanding Bardasi's work to Nigeria, we explored the potential effects of proxy reporting on employment rate by sex and age. Using the previous and new definitions of employment, we observe striking differences between the self-reported employment rate and the employment rate based on proxy reporting. Table 4 suggests that proxy respondents may underestimate the male and female employment rates in both age groups. Results are consistent regardless the definition of employment.

**Table 4: The employment rate in Nigeria (2014) by sex and age, self-reporting vis-à-vis proxy reporting**

	Youth Employment Rate (%)				Adult Employment Rate (%)			
	Self-respondent	Proxy-respondent	Diff	Number of observations	Self-respondent	Proxy-respondent	Diff	Number of observations
<b>Old definition</b>								
<i>Women</i>	43.96	26.21	17.75***	2,532	68	42.26	25.74***	7,703
<i>Men</i>	57.79	29.58	28.21***	2,919	74.6	50.8	23.8***	6,915
<b>Previous definition</b>								
<i>Women</i>	20.36	12.68	7.68***	2,532	41.78	27.28	14.5***	7,703
<i>Men</i>	22.67	14.26	8.41***	2,919	45.55	33.94	11.61***	6,915

Source: Based on 2013/14 Nigeria LSMS-ISA data.

Note: \*\*\*, \*\*, \* indicate statistical significance at the 1%, 5% and 10% level.

(own calculations). Hence, individuals who did not self-report are less likely to be employed than individuals who self-reported their activities. This is counterintuitive. One candidate explanation is underreporting by proxy respondents, as observed by Bardasi et al. (2011). An alternative explanation is that socioeconomic characteristics differ between the two groups.

<sup>20</sup> The authors did test the sensitivity of child labor statistics to proxy reporting relative to self-reports (Dillon et al., 2012). They did not observe significant differences.

#### 4.5. Desire, availability and constraints to work additional hours

Hours worked in paid and unpaid activities support the measurement of time-related underemployment defined by the 19<sup>th</sup> ICLS as a situation “*when the working time of persons in employment is insufficient in relation to alternative employment situations in which they are willing and available to engage*” (ILO, 2013, §40a). In addition to hours worked, time-related underemployment requires questions on both desire and availability to work more (Benes and Walsh, 2018b). The Guatemala and South Africa LFS are the only reviewed LFS that include questions on both desire and availability to work.<sup>21</sup> The majority of LFS either focus on availability or desire to work. For instance, the 2014 Nicaragua and 2014 Tanzania LFS only include questions on availability,<sup>22</sup> while the 2013 Malawi and 2009 Uganda LFS only ask questions related to the desire to work additional hours.<sup>23</sup>

Like LFS, LSMS-ISA surveys do not include questions on both desire and availability. The 2016/17 Malawi and 2013/14 Uganda LSMS-ISA survey exclusively collect data on the desire to work more. The Malawi LSMS-ISA survey asks ‘*If you were offered a wage job, would you be willing to accept it?*’, while the Uganda LSMS-ISA survey asks ‘*Would [name] have liked to work more hours than [name] actually worked, provided the extra hours had been paid?*’.<sup>24</sup> Figure 5 shows that in both countries almost 50% of the employed population aged 15 to 65 would be willing to work more, especially men in Uganda (51% versus 47%) and women in Malawi (49% versus 44%). Because questions on ‘availability to work more hours’ are missing, we do not know whether the respondents could indeed work more when offered the opportunity.

The LSMS-ISA surveys in Burkina Faso, Nigeria, Niger and Mali, instead, only capture the availability to work more hours, but use different reference periods or response options (next month, immediately, yes/no). Figure 5 shows that few respondents in Burkina Faso, Nigeria, Niger and Mali are available to start a new job. Thus, just including questions on ‘desire to work’ without considering who is actually available to work more is not informative. For this reason, Benes and Walsh (2018b) recommend asking a question about availability only if the respondent wants to work more hours. This would facilitate measuring time-related underemployment.

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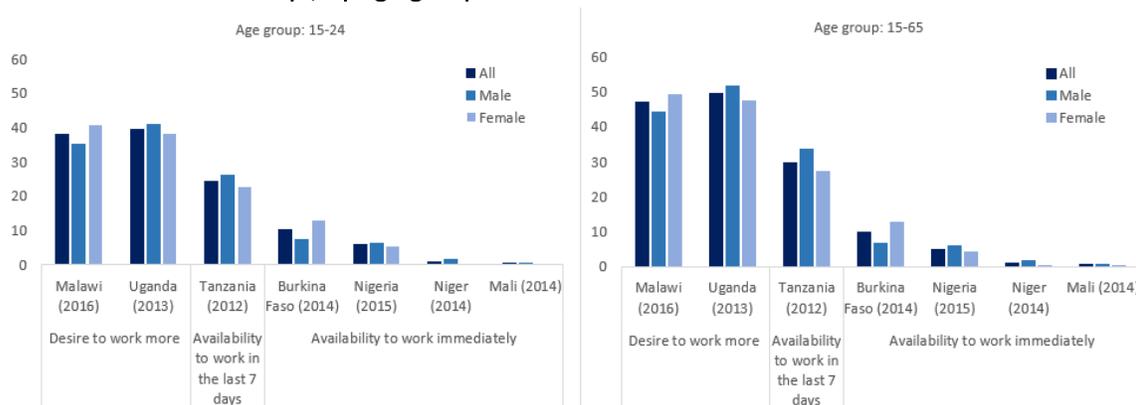
<sup>21</sup> The Guatemala LFS starts with the question ‘*In addition to the number of hours that you actually work in all your activities, would you like to work more hours per week?*’, followed by ‘*If you were offered an additional job or to work additional hours in your actual employment: 1. Would you be available immediately?; 2. Would you prefer starting in a month?*’ (original version in Spanish). Similarly, the South Africa LFS first asks ‘*Do you want to work more hours at your current rate of pay?*’ and then ‘*If extra work became available, would you be able to start such work in the next four weeks?*’.

<sup>22</sup> The Guatemala and South Africa LFS include the question ‘*Are you usually available to work more hours?*’. In addition, the Nicaragua LFS includes the question ‘*If extra work became available, would you be able to start such work in the next 15 days?*’ The Ethiopia LFS only asks ‘*If opportunities to work exist in the coming one month, are you willing and ready to work for income/earning?*’.

<sup>23</sup> The Malawi LFS includes the questions ‘*In the last week, would you have liked to work more hours than you actually worked provided the extra hours had been paid?*’, while the Uganda LFS asks ‘*Do you want to work 20 hours or more per week at this job?*’.

<sup>24</sup> Response options: *Yes, in the current job; Yes, in taking an additional job; Yes, in a different job with more hours; No; Don’t know.*

Figure 5: Time-related underemployment: ‘desire to work more’ versus the ‘availability to work more hours’ in LSMS-ISA surveys, by age group and sex



Source: Based on LSMS-ISA data.

Note: The surveys in Burkina Faso, Nigeria, Niger and Mali only include questions on ‘availability to work more’; the surveys in Malawi and Uganda only include questions on ‘desire to work more’.

Constraints to work additional hours should also be captured to inform the implementation of targeted policies on underemployment.<sup>25</sup> Most LFS and LSMS(-ISA) surveys do not include questions on the reason for not being available or not seeking additional work. The only exceptions are the 2010 Nepal LSMS-ISA survey which includes the question ‘*Why was [name] not available/ did [name] not look for more work?*’ and the 2007 Nepal LFS which includes a similar question.

Other LFS do not generically refer to ‘*more hours*’ but use the expression ‘*more than 40 or 20 hours*’ as reference period. For instance, the 2014 Tanzania LFS includes the question ‘*What was the main reason you worked less than 40 hours during the last week?*’. The 2009 Uganda LFS uses two separate questions, first asking the main reason for working less than 20 hours a week and then the main reason for not willing to work 20 hours or more at the current job. Both questions have the same response options, such as business conditions, seasonal work, childcare problems, family/personal obligations, health/medical limitations, school/training, nature of the job, and preferring spending time at another job. Finally, the 2005 Nicaragua LFS asks the main reason for working part-time, giving two categorical options, ‘*inadequate or too expensive childcare services*’ and ‘*inadequate or too expensive services for elderly and/or disabled care*’.

#### 4.6. Informal jobs

Informality is a multi-dimensional concept, which is hard to capture. With the exception of the LSMS(-ISA) surveys in Indonesia, Ethiopia and Burkina Faso, the LSMS-ISA labor module collects data on informal wage jobs. Questions on contracts, social security contributions, paid annual leave, paid sick leave, and pension contributions are generally included (Ruppert Bulmer, 2018). Questions on informal jobs in LSMS-ISA surveys are, however, not standardized across

<sup>25</sup> Questions on constraints to start a business are often included in the LSMS-ISA non-farm enterprise module. They are not reviewed here.

surveys. For instance, the Niger, Tanzania and Uganda LSMS-ISA surveys include questions about paid annual leave, paid sick leave and pensions, but use different wording.<sup>26</sup> Other LSMS(-ISA) surveys, instead, have just one question either for capturing pension contributions (i.e. Malawi) or for recording social security insurance (i.e. Mali and Guatemala). Furthermore, the question on the type of contract is always included but worded differently across surveys. For instance, the 2015/16 Nigeria LSMS-ISA asks *'Do you have a written contract, agreement or letter of appointment for this job?'*, while the 2014/15 Tanzania LSMS-ISA survey includes the question *'Have you a contract?'*

In contrast to LSMS-ISA surveys, questions on informal jobs in LFS vary less across countries. The majority uses the following three questions: *'Are you employed on the basis of: 1. A written contract?; 2. A verbal agreement?'*<sup>27</sup>, *'Are you entitled to any paid leave?'*, and *'Are you entitled to medical aid benefits from your employer?'*. However, there are some exceptions. Nepal and Nicaragua include a single question (*'Is [name] receiving any pay (in cash or kind) or other returns from a job or business while not at work?'*), while Guatemala includes several questions on the type of contract (*'Do you have a contract? Is this contract for temporary employment or permanent?'*) and the insurance scheme (*'Do you have a medical insurance? If yes, who pays for it?'*). Finally, the 2013 Malawi LFS includes a detailed list of more than 10 questions to capture informal jobs.

#### **4.7. Retrospective questions**

Labor market dynamics are a central topic in labor economics and of interest to policy makers. Labor market phenomena such as school to work transitions, transitions from unemployment or inactivity to employment, the impact of policy changes on the distribution of workers across sectors or rapid transformation in labor markets are dynamic in nature. Analyzing these dynamic processes requires repeated cross-sectional data or panel data. DHS and most LSMS surveys do not include a panel component and are implemented every three to ten years or on an ad-hoc basis, whereas most LSMS-ISA surveys include a (rotating) panel and are implemented every two to three years. The frequency of LFS is country specific. A growing number of countries are introducing sample rotation in LFS (ILO, 2013b).

An alternative to repeated cross-sectional or panel data are retrospective questions. Respondents are asked to report their previous employment status by, for instance, listing all their jobs in the last five to ten years. Retrospective questions have two advantages. First, information can be collected from periods during which no surveys were implemented. Studying certain changes in the labor market (i.e. the impact of international trade, job polarization, ...) requires longer time horizons which even repeated cross-sectional surveys, like LSMS, do not offer. Second, retrospective data tend to contain fewer spurious changes over time than panel data. Measurement error frequently induces spurious changes in panel

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<sup>26</sup> For instance, the Tanzania LSMS-ISA includes *'Does this job offer paternity/maternity leave?'*, *'Does this job offer health insurance?'*, and *'Does this job withhold taxes from your wages?'*. Uganda's LSMS-ISA survey uses *'Is [name] entitled to any paid leave from this employer?'*, *'Is [name] entitled to medical benefits from this employer?'*, and *'Does this employer contribute to any pension/ retirement fund (e.g. NSSF) for [name]?''*

<sup>27</sup> Niger and Mali disentangle the first response option into 'written temporal contract' and 'written permanent contract'.

data, implying that the labor market looks more dynamic than it really is. Even a simple classification of workers by industry suffers from non-random measurement error (Bassi et al., 2008). Retrospective data suffer, on the other hand, from recall error as respondents may not accurately remember the details of previous employment spells. For this reason, scholars have argued that retrospective questions can be used to gather qualitative data on labor market outcomes in previous periods, such as the occupation and the sector, but not for quantitative data such as earnings or hours worked (Grosch & Glewwe, 2000, chapter 9).

Although the LSMS reference work retrospective questions, they seem to have fallen out of favor. DHS, LSMS-ISA surveys and most LSMS surveys do not include retrospective questions, while LFS cover them. For instance, the 2014 Guatemala LFS includes the question *'What was your last employment?'*. The 2012 Indonesia LFS, instead, includes several retrospective questions, such as *'Did (name) ever have a job/business before?'*, *'Did (name) quit or moved out into another job during the last one year?'*, *'What was (name's) previous job main industry before quit or moved into the last job?'*, *'What is employment status of the previous job of (name) before quit or moved into the last job?'*. The 2007 Nepal and 2013 Malawi LFS include the same questions for the previous job as for the current job. Finally, the 2014 Tanzania LFS includes the following questions: *'In which year did you start working in economic activities for wage job or self-employment to support your life for the first time?'*, *'What type of work/activity were you doing at your first employment?'*, *'Have you ever worked or having any economic activity?'*, *'What type of work did you do in your last job?'*.

## **5. How and what will we measure in a changing labor market? Recommendations and concluding remarks**

Demand for employment data as well as the type of data required to monitor and explain labor markets is changing. One reason is the SDGs, which put more emphasis on labor markets than its predecessor, the Millennium Development Goals (MDGs), and the new ILO-resolutions concerning (unpaid) work and employment.

In this final section, we attempt to set an agenda to improve the collection of individual-level employment data in LSMS-ISA surveys in the short and medium term. The first part deals with short-term objectives, i.e. actions that can be implemented in the near future and do not require (much) additional research. The second part, medium-term objectives, discusses how to measure unpaid domestic and care work, and informality. These issues are part of the SDGs and methodological work is currently ongoing to develop (standardized) tools to capture those concepts.

We refrain from discussing long-term objectives, such as the skills agenda, the issue of capturing (international) migration and its implications for local labor markets, the use of technology to collect individual-level employment data or the integration of survey data with administrative data sets. These discussions are of foremost importance but go beyond the scope of this paper.

### 5.1. Short-term objectives

The review of LSMS-ISA surveys has demonstrated variation across LSMS-ISA surveys and has revealed areas where new questions are needed to explain and monitor labor market outcomes and the SDGs, to adhere to ILO-resolutions and to ensure gender and age neutral surveys. This section highlights suggestions that could be considered and implemented in upcoming LSMS-ISA surveys in order to harmonize the country surveys and for scaling up individual-level data collection.

**Use existing (LSMS-ISA) data sets to learn about critical survey design issues.** While previous LSMS-ISA surveys have not been set up to experiment with and learn about survey design, the existing data sets can nevertheless be leveraged to identify critical survey design issues (Fox & Pimhidzai, 2013) and to identify areas where ‘real’ experiments would pay off most. This would contribute to filling a gap in the literature about the sensitivity of labor market statistics to survey design features, particularly for women and youth. Throughout the paper, we have illustrated how current data sets can be exploited to examine, for instance, the effect on labor market statistics of a 7-day or 12-month reference period, to detect patterns in the use of proxy respondent, or to verify the consistency between the labor data collected in the AG, labor and household enterprise module. A more systematic and careful analyses exploiting the currently available data sets is feasible, relatively cheap and would help to pinpoint which survey design choices really matter and which do not.

**Revise the labor module in LSMS-ISA surveys using Table B in the Appendix as a checklist.** Table A and Table B in the Appendix list respectively the SDG labor market indicators and the questions required to monitor these indicators. By carefully revising the questionnaires, we can ensure that each LSMS-ISA survey can serve as an instrument to monitor the SDGs. This requires, for instance, that a question is added to the 2015/16 Ethiopia LSMS-ISA survey on ‘job attachment for those that are temporarily absent from work’ in order to correctly identify the employed population; that a question is added to the 2014 Mali LSMS-ISA survey to capture the NEET-rate; and that questions are added to the LSMS-ISA surveys in Burkina Faso and Ethiopia to distinguish formal from informal employment. Aligning the surveys with the SDG indicators not only increases the value of the surveys for data users and policy makers interested in monitoring SDGs, but also for users that leverage the multi-topic nature of LSMS-ISA surveys to explain labor markets. It will, for instance, facilitate cross-country comparisons.

**Adapt the questionnaires to the new ILO standards and definition of work and employment using the new module tested by the ILO.** The 19<sup>th</sup> ICLS defined worked and narrowed the definition of employment to work for pay or profit. This requires distinguishing own-use producers from market producers. In practice, this distinction is hard to make in most developing countries as the boundary between production mainly intended for own-use or mainly intended for the market is blurred. This definition is therefore likely to remain subject to debate. LSMS-ISA surveys collect detailed data on crops sold on the market and consumed by the household, which could be used to determine whether the household mainly produces for own consumption or for the market. Such a calculation is, however, cumbersome, requires multiple

assumptions and is prone to errors. In addition, only LSMS-ISA surveys collect this type of data, so that a different approach is needed for most LSMS and LFS. For these reasons, we propose adding a ‘market block’ – recently proposed and tested by the ILO (Benes & Walsh, 2018d)– that allows distinguishing own-use production from production for the market and can be included in all types of surveys. Figure 6 is one example of a market block. Similar questions have already been introduced in the LSMS-ISA survey of Nigeria and Malawi and in the upcoming surveys in Tanzania and Ethiopia.

**Figure 6: ILO's market block**

Wording <i>after</i> the CI tests
D01a. Was this work that you mentioned in...
<i>READ</i>
01 farming or rearing animals
02 fishing
03 other type of activity
:::
D02. Thinking about the products (NAME) worked on, are they mainly intended for sale or for family use?
01 ONLY FOR SALE
02 MAINLY FOR SALE
03 MAINLY FOR FAMILY USE
04 ONLY FOR FAMILY USE

Source: Benes and Walsh (2018d).

**Consider aligning the questions on (wage) employment with the resolution of the revised International Classification of Status in Employment (ICSE-18) and with the International Classification of the Status at Work (ICSaW) as set by the 20<sup>th</sup> ICLS in October 2018.** The ‘conceptual framework for statistics on work relationships’ and the ‘data collection guidelines for ICSE-18’, prepared by ILO’s Department of Statistics for the 20<sup>th</sup> ICLS, define four cross-cutting variables (duration of work agreement, type of employment contract, contractual hours of work, forms of remuneration) that are required to compile statistics on the detailed ICSE-18 categories (ILO, 2018a, §172; 2018b). In addition, it defines 13 essential cross-cutting variables, which are not strictly required to compile the statistics but contribute to understanding work relationships, and three recommended cross-cutting variables. When revising and/or simplifying the labor module, particularly the questions related to wage employment, the list of cross-cutting variables could be used to decide which questions to keep and remove from the questionnaire.

**Consider adding retrospective questions about the labor market history.** Retrospective questions might be helpful for recalling salient events like school to work transition, migration and unemployment spells. However, in order to understand the pathways leading to these salient events, we might also need to reconstruct the history of other life-changing events. This requires, for instance, collecting data on the age of marriage, the school-leaving age, periods of training, employment, unemployment and (temporary) migration. The LSMS reference work proposed an additional module with retrospective questions about the labor market history. It

appears that this module was never implemented in LSMS surveys. Yet labor market dynamics are central to labor economics. Depending on the need of data users, one could reconsider to experiment with retrospective questions.

## 5.2. Medium-term objectives

**Develop and refine methods to capture time use in unpaid domestic and care work and time-related underemployment.** Improving time use data collection is of paramount importance. First, collecting time use data are needed in order to refine measurement of work and employment. For instance, looking at time use helps to capture atypical employment, such as casual employment, that are likely to be underreported (Mueller & Chan, 2015). Second, studying how time is allocated to unpaid work is important for understanding whether unpaid work prevents women in moving into paid work. Third, studying women's agency over their time use requires time use data.

However, of the 8 LSMS-ISA surveys, only the survey in Uganda includes a question on time spent on domestic work. Even in this survey, unpaid domestic and care work is arguably poorly measured. The other LSMS-ISA surveys only include questions on time spent fetching water and collecting wood. To capture domestic and care work, LSMS-ISA surveys may benefit from introducing a time diary. One example, that could be adapted and integrated in LSMS-ISA surveys, is the module developed for the Women's Empowerment in Agriculture Index (WEAI) (Figure 7). Women are asked to report all activities undertaken in the last 24 hours in time intervals of 15 minutes. The activities include farming and wage employment, but also sleeping, domestic work and cooking. By including a time diary, LSMS-ISA surveys would also contribute to filling data gaps on time use, particularly in SSA (ILO, 2018e). If including a time diary is considered too onerous a new stylized question (e.g. *In the last 7 days, how many hours did you spend on unpaid domestic and care work such as cooking, cleaning, preparing meals, caring for children or the elderly, ...?*) could be added to the labor module of all LSMS(-ISA) surveys.

In accordance with the 19<sup>th</sup> ICLS Resolution, we highlight the need for testing time diary modular approaches that are suitable for LSMS-ISA surveys, are cost-effective and minimize potential sources of measurement error.

Another approach that might be considered is smartphone-augmented Time Use Surveys (TUS). The use of photos can help in capturing time use, but does not necessarily help to capture simultaneous activities, especially with respect to secondary care activities (Lentz et al., 2018).



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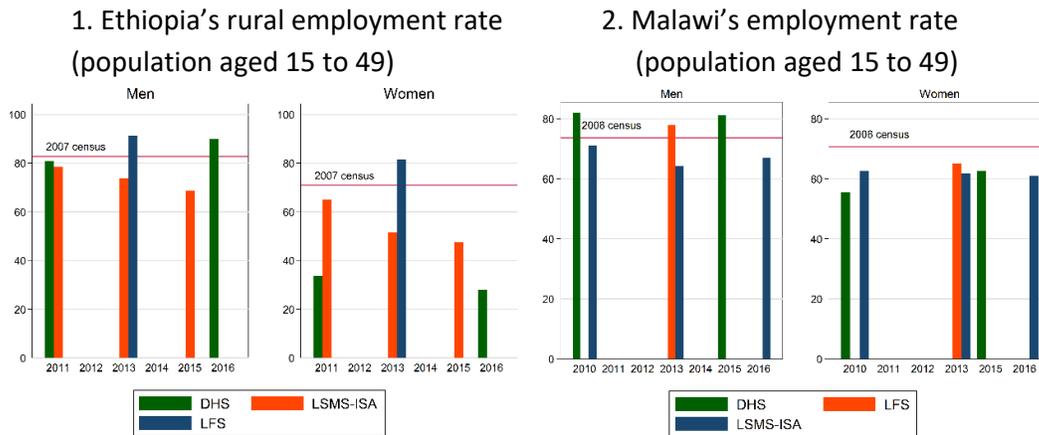
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## 7. Appendix

Figure A shows the (rural) employment rate, disaggregated by sex, in Ethiopia and Malawi according to three types of household surveys reviewed in this paper (DHS, LSMS-ISA, LFS) as well as the most recent census. It illustrates that survey design matters. The rural employment rate in Ethiopia (panel 1) differs considerably depending on the type of survey used to estimate it, whereas the employment rate in Malawi is relatively similar across surveys (panel 2). Besides differences in levels, trends also diverge across surveys. The Ethiopia LSMS-ISA surveys, for instance, suggest a decreasing rural employment rate, whereas DHS points to the other direction. What explains the differences across surveys is hard to tell, but candidate explanations include differences in (1) the definition of employment, (2) questionnaire design including the structure of the questionnaire and the phrasing of questions, and (3) implementation in the field such as the number and timing of visits and the training of enumerators.

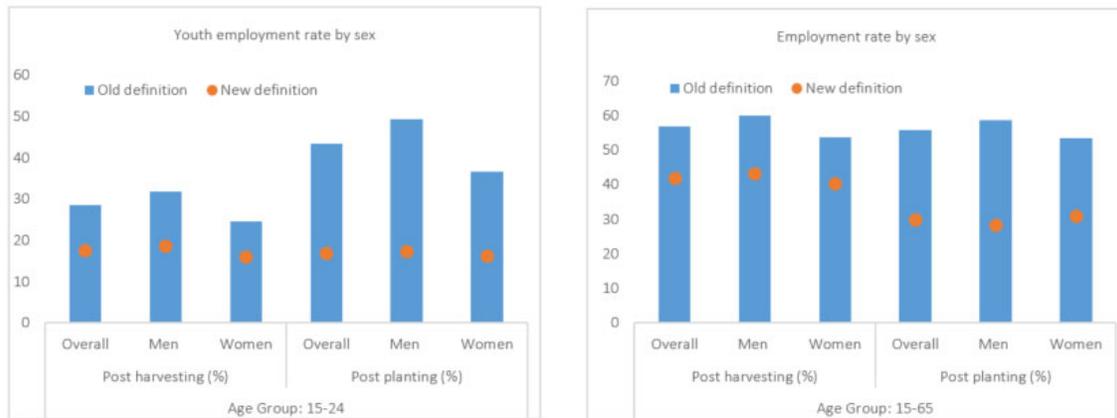
**Figure A: Different surveys, different results?**



Source: Based on 2015/16 Ethiopia and 2016/17 Malawi LSMS-ISA surveys complemented with aggregated statistics from DHS, LFS and census data. More detailed results are available upon request.

Note: We attempted to make the population as comparable as possible across surveys. We calculated the 'rural' employment rate in Ethiopia (rather than the 'total' employment rate as in Malawi) because the first wave of the Ethiopia LSMS-ISA survey did not cover large towns. For both Ethiopia and Malawi, the employment rate was estimated for the population aged 15 to 49 because the DHS do not interview household members over 50 years of age.

Figure B: The employment rate in Nigeria (2015) by age and sex according to the 'old' and 'new' definition of employment



Source: Based on 2015/14 Nigeria LSMS-ISA data.

Note: Combination of post-harvesting and post-planting questionnaires. Survey weights were not used. The gender difference in the employment rate (old and new definition) in each age group is statistically significant at the 1 percent level, employment (new) at Age Group 15-24 and 15-65 (10 percent significance). Work (old definition) includes all types of employment (whether it is for pay/profit or not), while Employment (new definition) only considers employment for pay and profit (excluding own-use producers).

**Table A: SDG labor market Indicators**

Target	Indicator
<b>Goal 1. End poverty in all its forms everywhere</b>	
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day	1.1.1 Proportion of population below the international poverty line, by sex, age, <u>employment</u> status and geographical location (urban/rural)
<b>Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture</b>	
2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment	2.3.1 <u>Volume of production per labour unit</u> by classes of farming/pastoral/forestry enterprise size  2.3.2 Average <u>income of small-scale food producers</u> , by sex and indigenous status
<b>Goal 5. Achieve gender equality and empower all women and girls</b>	
5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate	5.4.1 Proportion of time spent on unpaid <u>domestic and care work</u> , by sex, age and location
5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	5.5.2 Proportion of women in <u>managerial positions</u>
<b>Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</b>	
8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	8.3.1 Proportion of <u>informal employment</u> in non-agriculture employment, by sex
8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	8.5.1 Average <u>hourly earnings</u> of female and male employees, by <u>occupation</u> , age and persons with disabilities  8.5.2 <u>Unemployment</u> rate, by sex, age and persons with disabilities
8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training	8.6.1 Proportion of youth (aged 15-24 years) <u>not in education, employment or training</u>
8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms	8.7.1 Proportion and number of children aged 5-17 years engaged in <u>child labour</u> <sup>1</sup> by sex and age
<b>Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</b>	
9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries	9.2.2 <u>Manufacturing employment</u> as a proportion of total employment

Source: Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (E/CN.3/2016/2/Rev.1), Annex IV, Final list of proposed Sustainable Development Goal indicators.

Note: The 'building blocks' are underlined for each SDG indicator.

<sup>1</sup>Measurement of child labor goes beyond the scope of this paper. An extensive literature discusses the definition and measurement of child labor (Guarcello et al., 2010).

**Table B: Defining the building blocks of the SDGs**

Building blocks	SDG indicator	Definition	Source	Minimum number of questions
Employment	1.1.1 8.3.1 8.6.1 8.7.1	Persons in employment are defined as all those of working age who, during a short reference period, were engaged in any activity to produce goods or provide services for pay or profit. They comprise: (a) employed persons 'at work', i.e. who worked in a job for at least one hour; (b) employed persons 'not at work' due to temporary absence from a job, or to working-time arrangements (such as shift work, flexitime and compensatory leave for overtime).	19th ICLS, §27	(1) Employed in the last seven days (2) Intended destination of production (mainly own-use production or for the market) (2) Temporary absent, but still formally attached to the job
Unemployment	8.5.2	Persons in unemployment are defined as all those of working age who were not in employment, carried out activities to seek employment in the last four weeks and were currently available to take up employment given a job opportunity.	19th ICLS, §47	(1) Not in employment (2) Seeking employment (3) Currently available
Inactivity		Not employed nor unemployed		
Domestic and care work (hours)	5.4.1	Provision of 'services' (beyond the 2008 SNA production boundary but inside the General production boundary) covers: (i) household accounting and management, purchasing and/or transporting goods; (ii) preparing and/or serving meals, household waste disposal and recycling; (iii) cleaning, decorating and maintaining one's own dwelling or premises, durables and other goods, and gardening; (iv) childcare and instruction, transporting and caring for elderly, dependent or other household members and domestic animals or pets, etc.;	19th ICLS, §47(c)	(1) Questions about time use, including on domestic and care work
Sector	2.3.2 8.3.1 9.2.2	ISIC (International Standard Industrial Classification)	<a href="https://unstats.un.org/unsd/classifications/Family/Detail/27">https://unstats.un.org/unsd/classifications/Family/Detail/27</a>	Classification based on ISIC
Occupation	5.5.2 8.5.1	ISCO-08 (International Standard Classification of Occupations)	<a href="http://www.ilo.org/pub/lic/english/bureau/stat/isco/isco08/index.htm">http://www.ilo.org/pub/lic/english/bureau/stat/isco/isco08/index.htm</a>	Classification based on ISCO
Formal/informal employment in non-agricultural sector	8.3.1	Informal employment comprises: (1) Own-account workers and employers employed in their own informal sector enterprises (2) Contributing family workers (3) Employees holding informal jobs, whether employed by formal sector enterprises, informal sector enterprises, or as paid domestic workers by households (4) Members of informal producers' cooperatives (5) Own-account workers engaged in the production of goods exclusively for own final use by their household	Defining and measuring informal employment, endorsed by the 17th ICLS	(1) Questions about enterprises (enterprise's size, registered/unregistered firm, type of employer)  (2) Questions about informal employment (contract, paid leave, sick leave, social security contributions)
Hours worked	2.3.1 (indirectly)	Hours actually worked is the time spent in a job for the performance of activities that contribute to the production of goods and/or services during a specified short or long reference period. Hours actually worked applies to all types of jobs (within and beyond the SNA production boundary) and is not linked to administrative or legal concepts.	18th ICLS, §11 & §15	(1) Questions about hours worked (last seven days or usual) by occupation
Hourly earnings of employees	8.5.1	The concept of earnings, as applied in wages statistics, relates to remuneration in cash and in kind paid to employees, as a rule at regular intervals, for time worked or work done together with remuneration for time not worked, such as for annual vacation, other paid leave or holidays.	12th ICLS, §8	Remuneration: (1) In cash(2) In kind
Average income of small-scale food producers	2.3.1 (indirectly) 2.3.2	Income related to self-employment is defined as the income which is received, over a given reference period, by individuals, for themselves or in respect of their family members, as a result of their current or former involvement in self-employment jobs.	16th ICLS, §16	Requires question on (1) crop production, (2) the costs of intermediate inputs and (3) investment
NEET (not in employment, education or training)	8.6.1	The percentage of the population of a given age group and sex who is not employed and not involved in further education or training.	ILO & Eurostat	(1) Questions to define the employment status (employed, unemployed, inactive) (2) Follow-up question for the unemployed and inactive about education/training in the last 4 weeks

Source: Based on relevant ICLS resolutions.

**Table C: Reviewed surveys**

Country	LSMS-ISA	LSMS	LFS	DHS	LSMS-type survey
<b>Burkina Faso</b>	2014		n.a.	2014	
<b>Ethiopia</b>	2015/16		2013	2016	
<b>Malawi</b>	2016/17		2013	2015/16	
<b>Mali</b>	2014		2013	2015	
<b>Niger</b>	2014		2014	2012	
<b>Nigeria</b>	2015/16		n.a.	2013	
<b>Tanzania</b>	2014/15		2014	2009/10	
<b>Uganda</b>	2013/14		2009	2016	
<b>Guatemala</b>		2000	2014	2014/15	
<b>Nepal</b>		2010/11	2007/08	2016	
<b>Nicaragua</b>		2014	2005	2001	
<b>Tajikistan</b>		2009	n.a.	2012	
<b>Indonesia</b>			2012	2012	2010
<b>South Africa</b>			2017	1998	2016

Source: Based on LSMS(-ISA), LFS and DHS surveys.

Note: n.a.: questionnaire is not publicly available.

**Table D: The coverage of the SDG labor market indicators by type of survey**

Target	Indicator	LSMS-ISA	LSMS	LFS	DHS
<b>Goal 1. End poverty in all its forms everywhere</b>					
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day	1.1.1 Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural)	88%	100%	0%	0%
<b>Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture</b>					
2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment	2.3.1 Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size	100%	100%	0%	0%
	2.3.2 Average income of small-scale food producers, by sex and indigenous status	100%	100%	0%	0%
<b>Goal 5. Achieve gender equality and empower all women and girls</b>					
5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location	13%	50%	36%	0%
5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	5.5.2 Proportion of women in managerial positions	100%	67%	100%	100%
<b>Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</b>					
8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	8.3.1 Proportion of informal employment in non-agriculture employment, by sex	75%	67%	82%	0%
8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities	88%	67%	82%	0%
	8.5.2 Unemployment rate, by sex, age and persons with disabilities	75%	50%	100%	0%
8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training	8.6.1 Proportion of youth (aged 15-24 years) not in education, employment or training	75%	67%	100%	0%
8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms	8.7.1 Proportion and number of children aged 5-17 years engaged in child labour, by sex and age				
<b>Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</b>					
9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries	9.2.2 Manufacturing employment as a proportion of total employment	100%	83%	100%	0%

Source: Report of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators (E/CN.3/2016/2/Rev.1), Annex IV, Final list of proposed Sustainable Development Goal indicators.

**Table E: The consistency between the AG and the labor module in Malawi**

	<b>Inconsistent responses</b> (Share of household members that worked on a plot, but did not report in the labor module having engaged in HH farming in the last 12 months)	<b>Observations</b>
<b>Average</b>	7,85%	25,919
<b>Number of plots</b>		
1	9,71%	14,670
2	5,93%	8,317
3	4,13%	2,155
4	3,30%	575
5	5,59%	143
6	0,00%	36
7	0,00%	19
8	0,00%	4
<b>Activities</b>		
Land preparation and planting (1)	25,77%	617
Weeding/fertilizing (2)	30,24%	377
Harvesting (3)	36,70%	1,395
(1) and (2)	8,00%	1,925
(1) and (3)	12,79%	876
(2) and (3)	13,63%	851
(1), (2) and (3)	4,36%	19,878
<b>Total hours worked on all plots<sup>1</sup></b>		
<50	18,37%	6,365
50 - 119	6,02%	6,557
119 - 226	4,37%	6,482
>226	2,87%	6,514
<b>Sex</b>		
Men	7,89%	12,045
Women	7,81%	13,872
<b>Age</b>		
5-14	20,74%	4,892
15-25	6,92%	7,104
25-65	3,62%	12,248
>65	4,96%	1,671

Source: Based on 2016/17 Malawi LSMS-ISA data.

Note: <sup>1</sup>Thresholds are set so that the four groups have a similar number of workers.

Table F: The consistency between the household enterprise and the labor module in Malawi

	Inconsistent responses (Share of household members that worked on a plot, but did not report having engaged in HH farming in the last 12 months)	Observations
<b>Average</b>	24.3%	5,010
<b>Average (excluding owners and managers)</b>	21.3%	4,497
<b>Responsibility within the enterprise</b>		
Manager	84.7%	59
Owner	82.5%	120
Worker	33.5%	334
Manager & owner	37.0%	871
Manager & worker	19.8%	116
Owner & worker	21.4%	112
Manager, owner & worker	17.3%	3,398
<b>Hours worked (hours/year)<sup>1</sup></b>		
0-200	34.0%	1,108
200-630	22.7%	1,139
630-1584	17.7%	1,123
>1584	10.9%	1,126
<b>Gender</b>		
Men	23.9%	2,367
Women	24.7%	2,643
<b>Age</b>		
5-14	47.1%	280
15-25	28.5%	942
25-65	21.4%	3,580
>65	26.0%	208

Source: Based on 2016/17 Malawi LSMS-ISA data.

Note: <sup>1</sup>Calculated as the product of the number of hours/day, number of days in the last month, and number of months in the last year. Thresholds are set so that the four groups have a similar number of workers.