Research Note

WES

Work, Employment and Society
1–11

DOI: 10.1177/0950017018774245
journals.sagepub.com/home/wes
SAGE

Reframing the Measurement of Women's Work in the Sub-Saharan African Context

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Abstract

This research note considers how we measure women's work in the sub-Saharan African (SSA) context. Drawing on qualitative work conducted in Burundi, the note examines how existing measures of women's work do not accurately capture the intensity and type of work women in SSA undertake. Transcripts from qualitative interviews suggest that women think of work to meet their roles and responsibilities within the household. The women in the interviews do not frame work as a career or a primary activity in a time-use allocation. As a result, researchers need to nest questions regarding women's work within surveys that ask about roles and responsibilities within the household, and about how women meet these responsibilities with a financial component.

Keywords

Burundi, fertility, measurement, poverty, qualitative, sub-Saharan Africa, women's work

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Introduction

This research note is a result of qualitative interviews conducted with women in Burundi in January 2015, regarding their thoughts on work and how they managed work and raising their children.

Previously, in August 2014, we conducted a quantitative pilot study in Burundi that included questions regarding women's work that were modelled on the Demographic and Health Surveys (DHS) and the Living Standards Measurement Survey (LSMS) questions. In that pilot, all of the women interviewed indicated that they did not work, and yet in casual conversation with the enumerator following the survey, some said that they were heading to market to trade (similar to findings in the Indian National Sample Survey (Kabeer and Mahmud, 2016)). The women did not consider trading a form of work, and thus, as researchers, we knew we were approaching the quantitative questions regarding work in the wrong way.

Variation in the measured prevalence of women's work exists across surveys. For example, in the case of Ghana, the Women's Health Study (The WHSA-II Writing Team, 2011) data indicate that 77% of urban women work, the Time Use Study of Accra indicates that 85% of urban women work, Census (Minnesota Population Center, University of Minnesota, 2017) data indicate that 59% of urban women are employed and the DHS indicate that 71% of women worked in the past week. This variation can arise for many reasons, including: the dimensions of work that the particular survey intended to capture; the definition of work, field worker experience, work related to the seasons and the relative timing of each of the surveys; the time frame referenced in the survey (last week, last year); a variation in the translation for the word work; or survey instrument flow. In this article, we focus on the measurement of women's work and progressing towards a survey instrument that better reflects actual women's work.

In measuring women's work, we want to capture the dimensions of work that resonate for women: formal vs informal labour markets; paid vs unpaid; seasonal vs year-round; domestic work or caregiving (Data2X Initiative, 2014; Folbre, 2006). We want the definition to capture women's work, not only economic activity or female labour force participation (Kabeer and Mahmud, 2016). The United Nations' System of National Accounts has worked hard in recent years to develop a definition of women's work that fully reflects these dimensions of women's work (Ahmad and Koh, 2011; Lee and Mason, 2017). In doing so, they set the stage for developing effective measures that accurately reflect women's work. In this article, we focus on the measurement of women's work, building on the dimensions of women's work and the definition that the UN outlined (United Nations Statistics Division, 2015).

It is recognized that work is a gendered issue but work as a gendered concept is not yet incorporated into large-scale data collection efforts. Current systems for measuring women's work in large surveys draw focus to the male-stereotyped motivation and classification of work. The Demographic and Health Surveys (DHS) (Corsi et al., 2012) ask about the man's education, work, then the woman's education and work, and then how the money is spent. The Living Standards and Measurement Survey (LSMS) (Mehran, 1980) similarly oscillates in the questioning of work between male members of the household to female members of the household. For a (married) female respondent, one

risk to an accurate and complete measurement of women's work is that when she is asked about her work alongside that of her husband's, she thinks of work in terms of the male-stereotyped definition. This can imply that work is a career or a well-defined activity (even if in the informal sector), and that it is a regular and recurrent activity. This framing of work within the surveys may put women into the mindset that the interviewer is interested in work that is similar to what a man would do and with a similar regularity. If her true work did not fit within this frame, she would not think that her work was indeed work, and she would respond to such questionnaires that she does not work.

Second, current survey instruments do not flow in a way that reflects a woman's approach to the concept of work. We found that the framing of the questions should be such that we start with questions regarding the assignment of responsibilities within the household, and then focus on her responsibilities in particular. We then move on to how the financial component of these responsibilities are met. This then leads to the questions about work. This way, the question about work is framed within the broader base of the woman's responsibilities and how she meets the financial component of these responsibilities. The point is we want to lead the woman to be thinking already about her role and responsibilities and if any of these responsibilities have a financial component, and then for her to think about how she goes about meeting these financial responsibilities. The framing centres on the woman's responsibilities.

To know if the survey instrument and resulting data accurately reflect the prevalence of women's work effort, a well-defined set of metrics can be followed to test the effectiveness of the survey measure. The typical set of metrics that indicates whether a measure is 'effective' includes validity, sensitivity, specificity, reliability and concordance. This study is motivated by the observation in the August 2014 pilot in which the DHS measurement indicated that a woman did not work, when in fact she did work (trading at market), and thus called into question the validity of the DHS work module.

This research note does not go so far as to test the validity of the DHS measure of women's work. Rather, we propose an alternative measure of women's work that we hypothesize would more accurately reflect the true population prevalence of women's work. We base our hypothesis on: (1) the DHS measurement method revealed false negatives (given the women were working, the chance that they test negative) such that the current system of measuring work is not sufficiently valid; and (2) qualitative research in Burundi revealed that the way in which women think about work is different from the current framing of work within population-based surveys like the DHS and LSMS.

The measures of women's work from the DHS have been widely used in empirical analysis (Adeyem et al., 2016; Aguero and Marks, 2011; Barber, 2010; Darrouzet-Nardi and Masters, 2015; Khan and Rahman, 2016; Phan, 2016). However, the data from the DHS labour force module have been criticized for yielding inaccurate results (Langsten and Salem, 2008). As Langsten and Salem (2008) found, the DHS use what they call the 'keyword method' by simply asking 'Did you work last week (last year)?' Langsten and Salem found that by utilizing an activity list, that is, by being more explicit about specific tasks – such as work in fields, factories or workshops, production of cheese or sweets to sell, selling goods at a shop, the market or street – they were able to capture higher rates of women's work.

The Living Standards Measurement Survey (LSMS) is a dedicated labour force survey overseen by the World Bank. Because the LSMS is the gold-standard labour force survey, the data have been used widely (World Bank, 2018). Like the DHS, the LSMS also led into the questions regarding the woman's work by asking the woman about her husband's education and his work. Then, they ask about the woman's education and her work. As a labour force survey, they seek to apply the International Standard Classification of Occupations (ISCO) codes to specify the type of work the husband and woman conduct. While the line of questioning is inclusive of informal and unpaid work, the phrasing of many of the questions may prime the woman to think of work as a regular activity, which could imply that certain activities count as work when they are regular and payment for the activities is also regular. For example, a respondent may come to expect that what defines work is a written contract, union membership, paid holidays, sick and maternity leave, retirement pension, tax withholdings, regular location of work, training or benefits.[1] We argue that after asking questions that imply formal and regular employment, even if the answer to all the questions were 'no', the woman could easily conclude that her trading vegetables and beans at market or transactional sex is not the kind of work that the LSMS enumerator was asking about.

The qualitative research outlined in this research note takes Langsten and Salem's activity list a step further, beyond the specific wording of the 'work', 'job' or detailed task list, to frame the work module within the entire survey. Discussions with the women in Burundi indicated that women framed their work in such a way that they took seriously the role and responsibility they had within the household, understood very clearly the financial needs associated with those roles and responsibilities and then sought ways to gain sufficient financial resources to meet their responsibilities. Work is just one way of gaining those resources. Women considered work in parallel with receiving rations from their husbands, taking out a loan, borrowing money from a neighbour, trading at market, engaging in a pop-up activity in exchange for money (braid hair, wash clothes) or engaging in transactional sex.

For these women, getting the money needed to meet roles and responsibilities is the priority and mindset. In a resource-poor setting where poverty is pervasive, getting money by any means possible has a sense of immediacy. For a woman, asking, 'How do you raise the money you need to meet your role and responsibility within the household?' puts work in the context of her life and the demands she faces. They do not consider work an extension of education attainment, or similar to the male (husband) experience of work – as the framing of both the DHS and LSMS imply.

The framing of the survey module, where the work module is nested in the entire survey (with husband's work questions, with education, with formal labour market benefits) could be one of the reasons for false negative responses. Thus, in this research note, we propose an alternative way of measuring women's work that frames the module in the context of women's lives.

Methods

Study background

This research note was part of a larger study on women's empowerment in Burundi. For this specific research note, we drew from qualitative interviewing using focus group

discussions. Interviews were conducted by a locally hired research assistant, who the research team had previously worked with in 2014. The second author, a doctoral student from Harvard TH Chan School of Public Health, travelled to Bujumbura to train the local research assistant and to oversee the recruitment and data collection processes. A one-week training on qualitative research including focus group techniques was conducted, followed by data collection, in January 2015.

Participants

A total of 40 women, out of 44 approached, participated in this study. Women in the focus group discussions were recruited from three locales around the city that were easily accessible by public transport to the meeting place in Bujumbura. These locales were selected based on the location of a healthcare clinic, relatively safe for the enumerator and accessible by public transport. Women were recruited by the second author and local research assistant, who knocked at every third door along a street that was close to the healthcare clinic, easy for the researchers to traverse and looked relatively safe according to the researchers' judgement at the time. Women were eligible to take part in the focus groups if they were married, aged 18–35, lived in Bujumbura, were able to attend the focus group meeting time and location and were contactable by phone. We also recruited based on number of children a woman had: none, one or two children, three or more. Two women refused at the time of recruitment, and two women failed to show up at their designated time. Although the women were told they could leave at any time during the discussion, none did so.

Informed consent was attained at the time of recruitment by all participants. At the beginning of each focus group session, participants were reminded of informed consent and agreed to group confidentiality. All procedures were approved by the Harvard Longwood Medical Area Institutional Review Board and the Burundian National Ethics Committee.

Data collection

We conducted nine focus groups of five to seven participants. For the focus groups, women were asked open-ended questions capturing how they talk about work and how they juggle work with childcare. We also conducted two one-on-one interviews for the women with no children. Interviews were conducted in a private, quiet room accessible to participants' communities by public transportation. Following the interview, women were offered a drink and an 8000KF (about USD$5) lump-sum reimbursement for transport. They did not know at the time of recruitment exactly how much money they would receive, but they did know it would be sufficient to cover the cost of transport. The interviews were conducted in Kirundi, sometimes intermixed with French, as directed by participants.

Data analysis

Interviews were audio-recorded, and later transcribed and translated into French and English by a hired translator. The transcripts were analysed using iterative content analytic procedures

(Miles and Huberman, 1984; Tolley et al., 2016). Two coders examined the 11 transcripts to identify major themes. This analytic process involved reading through each transcript multiple times to develop a list of major, recurring themes that emerged in the discussion. The coders then examined each transcript to identify words, phrases, sentences and paragraphs that represented the themes. Quotes were extracted to highlight major themes.

Results

Women's perceptions of 'working' or not

During the focus group discussion, we asked women, 'What kinds of income-generating activities do you engage in on a regular basis?' This question opened the discussion about work, although the word 'work' was purposefully not used in the question so that we would not immediately introduce miscommunication over the concept of what 'work' means. We specifically wanted to capture *how* women gained resources to meet their financial needs.

Over half of the women we interviewed worked regularly for money in some capacity: one was a public servant, one was a teacher, one worked in a factory and others were engaged in market trading. Two respondents demonstrated that the response to 'Do you work?' cannot be answered in a clear yes/no that accurately reflects their income-generating activity. For example, one participant in a group session said:

> P1: As I've told you I do not have a job that gives me income; I told you I do housework. The activity I can say that generates profit in my household is that I am concerned about household activities.
>
> Interviewer: At the beginning, I asked you what you do each day, if someone comes and asks you if you work, how do you respond?
>
> P1: I would tell him that I work. (Participant 1, Interview 1)

This participant included housework as work, but another participant in the same group who traded at market did not consider herself to work. She said,

> P1: If you have a job, you do that, and your husband stays at home. But if I'm not doing well trading at market, my husband comes and tries to do better, and I go home.
>
> Interviewer: How would you respond if someone asked if you worked?
>
> P1: (She laughs). I would tell him that I do not work because I'm not receiving a monthly salary. (P1, I8)

A line of questioning that probes activity, rather than simply asking about work or not, will better capture the true work effort of these women, which is consistent with Langsten and Salem (2008). In asking women in the interviews and group sessions about work, their competing demands and financial strain, a major theme that emerged is the way that

women approached the concept of work – income-generating activity – to meet their role and responsibilities as mothers.

The women's roles and responsibilities as mothers

Women took prime responsibility for their children's welfare and sacrificed work-time to do so, as they did not feel comfortable relying on alternative forms of childcare or asking their husbands to look after the children:

> Normally, it is beneficial to be close to the child, because the child is educated when you're close to him. It can happen that the child becomes impossible, but he must have someone who is close to scold him. There are few fathers who educate children. When the child becomes impossible for your husband, he blames you for educating them poorly. So that's why we stay, we women, close to our children because what they say in Kirundi is that when you have bad children, you will be mocked by your sons-in-law. Therefore, we should educate our children, to be near them, the child cannot have a good education without the mother being close. (P6, I4)

Similarly, while some women could hire nannies, they knew this was at the risk of the health and education of their children. The women felt strongly that it was their duty to their family and to the children to be the primary caregiver. One women talked of the benefits of having a healthy child thanks to her presence, but for her, this meant that she was unemployed:

> When I work, I leave in the morning, I do not know if the child drank milk, ate, slept. I would have to go to the hospital often, with my child suffering from malaria. Now that I'm home, yes, I'm unemployed but I see a benefit, the child is well, I know the time it takes to give him milk and for him to rest. We have an advantage because the children are healthy. (P1, I4)

For these women, the role of motherhood was coupled with the responsibility to provide for their children, and thus working or employment was nested within this responsibility:

> We do not wish for our children to eat only once a day in the evening, but sometimes this happens. It is our role as women to find food for our children, but if we can't, we distract him without scolding. (P3, I4)

> To feed your child, it is the mother who must concern herself with this task. To achieve this, you need to look for work, or trade, or if your husband is working and gives you the ration you can feed the children. (P1, I2)

The conviction with which they spoke of their role as a mother and the primary caregiver of their children indicates the representation of the dominant element of identity to which they ascribe – mother – with their work considered as a secondary part of their identity and as more of a necessity to meet basic needs for survival.

While the mother's responsibility is to earn enough money to buy food, clothing and education, *how* she gets the money matters less. These women talked about how they

'make ends meet' and provide for their families. This woman spoke of using credit: 'To make ends meet each month, you ask for credit at the end of the month, you pay it off, but then you have to put other things on credit' (P3, I4). In addition, this woman may have been implying transactional sex, consistent with other reports in the sub-Saharan African context (Beckham et al., 2015):

> It happens that you rent out in the house in which your husband left you, it even happens that you spend the night there. If you have the chance to spend the night there, then we had something to eat. You get the money, but the wrong way. (P5, I2)

Discussion

As we interpreted the qualitative interviews, we found that the concept of what counts as 'work' for the women we interviewed in Burundi was considered a more formal activity, with one woman stating that she would only say she worked if she earned a salary in the formal sector. However, the women were very clear about the gender division of financial responsibilities within the household. They were generally responsible for providing food, clothing and education for the household. Their husbands looked after housing and rent expenses, although the women were concerned with eviction if the men did not meet these payments and, thus, the women thought about how to cover rent costs as well. Women talked about work as a means of attaining the resources to meet basic needs, not a time allocation decision, a career path or a personal extension of their own education.

We found that women conformed to their defined roles and responsibilities as a woman and mother in relation to the concepts of social role. The current modules on work, regardless of the approach (keyword, activity list, time use), assume that work is an activity that defines only one piece of a woman's individual identity. When we interviewed the women in Burundi, however, the women did not view work in this way. For them, work was a means of meeting the culturally ascribed role of a woman, and a way for her to meet her societal responsibilities.

The findings from this research note suggest the need for a new perspective on the preamble or framing of the women's work survey module in large demographic and economic quantitative surveys. Likewise, nesting the questions on work within questions about roles and responsibilities of women in the household, and how those roles and responsibilities are met, provides a more realistic setting for women to respond fully and accurately to large-scale quantitative survey questionnaires.

Given our findings, and that of others who also have seen shortcomings in surveys similar to of the DHS and the LSMS, we propose that the work module should flow in a manner similar to the following.

(1) Who is responsible for the following tasks within the household? Get children up; Buy food; Prepare food; Clean up after eating; Collect water; Clean house; Pay rent; Pay bills (water, electricity); Get children ready for school; Look after children who are not in school; Look after children who are home sick from school; Pay school fees; Pay for children's school uniform; Pay for children's school supplies.

(2) Then of each of the tasks… Who decides who does this task? Who is responsible for paying for this task? Who is responsible for the time-effort on this task?
(3) For your (the respondent's) tasks that you pay for, how do you fund it? Work (What kind of work? How much do you earn?) Trade (What kind of trade? How much do you earn?) Credit (Who do you borrow from? How much do you pay back? When? How?) Rations from husbands (How much? How did your husband get the money?) Favours (What kind of favours? How often? How much?)
(4) Do you get enough money for your responsibilities using this method? Does this method of getting money cause you distress? Which method would you like to apply to gain the money you need to meet your role and responsibility within the household?

In this research note, we take a first step towards measuring women's work as a means of meeting basic household consumption needs. In developing the qualitative study to probe women on how they viewed and talked about work, we also incorporated questions regarding fertility choices, childcare and poverty. The addition of these questions led to a deeper understanding of the goals of women to achieve a balance between childcare, the need to work to finance their families' needs and how financial responsibilities were assigned within the household. We found that women did not think of work as a job or career as they would think of their husband's work. Instead, they thought about work to meet their household role and responsibilities to provide food, clothing and education for their children. Work was just one way of achieving this, and loans, transactional sex and trading food at the local market also featured heavily in the discussion. This qualitative approach highlights a different angle in how to ask women about their work in a low-income setting.

We believe our proposed approach leads to a better understanding of why women work and how it fits into the lives of women. With a better understanding of women's work, we can then better help women in low-resource settings balance their competing demands in the face of poverty. The next step is to test formally the metrics of effective measurement and to compare our new proposed measure of women's work with that of the DHS and the LSMS.

Acknowledgements

We would like to thank Aline Gakobwa for her high-quality interviewing of the women in Bujumbura in January 2015.

Funding

This work was funded by the Harvard Center for Population and Development Studies and the William and Flora Hewlett Foundation.

Note

1. http://siteresources.worldbank.org/INTLSMS/Resources/3358986-1181743055198/3877319-1449840068257/Household_questionnaire_Part_A.pdf

References

Adeyem OE, Odusina KE and Akintoye AE (2016) Religion and labour force participation in Nigeria: is there any inequality among women? *African Journal of Reproductive Health* 20: 75–84.

Aguero JM and Marks MS (2011) Motherhood and female labor supply in the developing world: evidence from infertility shocks. *Journal of Human Resources* 46: 800–826.

Ahmad N and Koh S-H (2011) *Incorporating estimates of household production of non-market services into international comparisons of material well-being*. OECD Statistics Working Paper Series 42, October. Paris: OECD.

Barber N (2010) Explaining cross-national differences in fertility: a comparative approach to the demographic shift. *Cross-Cultural Research* 44: 3–22.

Beckham SW, Shembilu CR, Winch PJ, Beyrer C and Kerrigan DL (2015) 'If you have children, you have responsibilities': motherhood, sex work and HIV in southern Tanzania. *Culture, Health & Sexuality* 17: 165–179.

Corsi DJ, Neuman M, Finlay JE and Subramanian SV (2012) Demographic and Health Surveys: a profile. *International Journal of Epidemiology* 41: 1602–1613.

Darrouzet-Nardi AF and Masters WA (2015) Urbanization, market development and malnutrition in farm households: evidence from the Demographic and Health Surveys, 1986–2011. *Food Security* 7: 521–533.

Data2X Initiative (2014) Better data to better monitor the status of women in informal employment, unpaid work and work in rural areas and agriculture. In: *Joint ILO-Data2X roundtable discussion to review actions underway and next steps*, ILO Headquarters, Geneva, 1–2 October.

Folbre N (2006) Measuring care: gender, empowerment, and the care economy. *Journal of Human Development* 7: 183–199.

Kabeer N and Mahmud S (2016) Measuring women's work – more vexing than you might think. In: Bank TW (ed.) *Let's Talk Development*. Washington, DC: The World Bank. Available at: http://blogs.worldbank.org/developmenttalk/measuring-women-s-work-more-vexing-you-might-think (accessed 2 May 2018).

Khan HTA and Rahman T (2016) Women's participations in economic and NGO activities in Bangladesh: an empirical study on the Bangladesh Demographic and Health Survey (BDHS). *International Journal of Sociology and Social Policy* 36: 491–515.

Langsten R and Salem R (2008) Two approaches to measuring women's work in developing countries: a comparison of survey data from Egypt. *Population and Development Review* 34: 283–305.

Lee RD and Mason A (2017) Counting women's work: measuring the gendered economy in the market and at home. *National Transfer Accounts Bulletin* 11: 1–8.

Mehran F (1980) *Employment data for the measurement of living standards* (English). Living Standards Measurement Study (LSMS) Working Paper, July. Washington, DC: The World Bank.

Miles MB and Huberman AM (1984) *Qualitative Data Analysis: A Sourcebook of New Methods*. Los Angeles, CA: SAGE.

Minnesota Population Center, University of Minnesota (2017) *Integrated Public Use Microdata Series, International: Version 6.5* [dataset]. Minneapolis, MN: Minnesota Population Center, University of Minnesota. Available at: http://doi.org/10.18128/D020.V6.5 (accessed 2 May 2018).

Phan L (2016) Measuring women's empowerment at household level using DHS data of four Southeast Asian countries. *Social Indicators Research* 126: 359–378.

The WHSA-II Writing Team (2011) *The women's health study of Accra Wave II*. Technical Publication #91. Lego: Institute of Statistical, Social and Economic Research (ISSER), University of Ghana.

Tolley EE, Ulin PR, Mack N, Succop SM and Robinson ET (2016) *Qualitative Methods in Public Health: A Field Guide for Applied Research*, 2nd Edition. San Francisco, CA: Jossey-Bass, Wiley.

United Nations Statistics Division (2015) *The World's Women 2015: Trends and Statistics*. New York: United Nations, Department of Economic and Social Affairs, Statistics Division.

World Bank (2018) LSMS Publications. Available at: http://surveys.worldbank.org/lsms (accessed 2 May 2018).

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Date submitted May 2017
Date accepted March 2018