

# Two Approaches to Measuring Women's Work in Developing Countries: A Comparison of Survey Data from Egypt

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THE SOCIAL SCIENCE literature has long recognized that women's productive activities are poorly measured. Boserup (1970) is credited with first raising the question of whether women's work is accurately accounted for in labor force statistics. In subsequent years, scholars have noted that surveys are often designed with a male bias that fails to capture many of the jobs performed by women. Evidence indicates that women's work is underreported in official data, censuses, and labor force surveys.<sup>1</sup> Standing contends that "conceptual and statistical practices have made much of women's work 'invisible'" (1999: 586). Yet, correct information on women's (and all) work is "crucial for diagnosing the causes of poverty and inequality—and for guiding policymakers in their attempts to improve living standards" (Schaffner 2000a: 217). It is likely that unreported work makes a substantial contribution to family welfare and represents a significant source of underestimation in national accounts. Moreover, employment status, occupation, and income are recognized as "important aspects of women's status and [for] their relevance to various population, health and nutrition outcomes" (Measure DHS 2006a: 36).

Two broad issues affect measures of women's work: 1) the definition or conceptual categories used; and 2) the way in which the definition is operationalized for data collection (Dixon 1982; Papps 1992; Assaad 1997). We examine this second issue, data collection methods, using examples from a number of surveys recently conducted in Egypt. Our concern is with the measurement of women's contribution to production rather than their labor force participation. We begin by reviewing the conceptual consensus regarding what activities constitute work and past efforts to determine how best to capture work in large-scale surveys. The core of our analysis compares two

surveys of the same population of women in Egypt that share the same definition of work but that differ in their approaches to measuring it. The first survey, the 2003 Egypt Interim Demographic and Health Survey (DHS), used a keyword question,<sup>2</sup> a format used commonly in labor force surveys and in all DHS. In 2004 a subsample of the 2003 DHS respondents was reinterviewed for the Slow Fertility Transition (SFT) survey. It used an activities list.<sup>3</sup>

We supplement this core analysis by comparing female work rates found in the SFT data with those of the 1998 Egypt Labor Market Survey (ELMS), which used a multiple keyword approach, and those of the 2006 Egypt Labor Market Panel Survey (ELMPS), which used an activities list based on the 2004 SFT. These four Egyptian surveys allow us to assess the impact of three commonly used question formats on the reporting of work by women.

This article contributes to the literature on the measurement of women's work in several ways. 1) Our results support the superior effectiveness of the activities list format, but we depart from previous methods tests in claiming that multiple keyword questions are largely ineffective. 2) We quantify how much hidden work is captured by activities lists and argue that this work is not inconsequential. 3) We examine systematic biases inherent in the keyword approach by looking at the types of work activities that it obscures and the profiles of the working women excluded. 4) We make practical recommendations for improved questionnaire designs that will more accurately measure women's work. These recommendations address problems identified in several Egyptian surveys and in such international surveys as the DHS and the World Bank's Living Standards Measurement Survey (LSMS)—two major sources of data on developing countries used by researchers in many disciplines.

While this article employs Egyptian data exclusively, the measurement challenges we discuss are common to many other developing countries, as well as to certain populations and sectors in developed countries. The changes to surveys of women's work that we recommend would probably improve estimates of the work of children and the elderly, as well as work performed in the agricultural and informal sectors.<sup>4</sup>

## Current conceptualizations and measures of work

The International Labor Organization's (ILO) conceptualization of work has long served as a reference point for labor force surveys. In a resolution adopted in 1982, the International Conference of Labor Statisticians elaborated upon and clarified the definition of work used by the ILO (ILO 1982). According to this resolution, work involves activities that produce goods and services that contribute to national wealth and economic growth (Donahoe 1999); it "includes all production and processing of primary products whether for the market for barter or for own consumption, the production of all other

goods and services for the market and, in the case of households which produce such goods and services for the market, the corresponding production for own consumption" (ILO 1982: paragraph 5 «<http://www.ilo.org/public/english/bureau/stat/download/res/ecacpop.pdf>»). Although much of the literature of the 1980s lamented the market bias of existing conceptualizations of work and debated whether to include or exclude domestic work that contributes to family well-being (Beneria 1981, 1982), the ILO has consistently excluded unpaid domestic work from its definition. In a resolution adopted in January 1993 the ILO addressed the issue of informal work, that is, work in small-scale units that operate at a low level of organization, with little or no division between labor and capital, and whose business relationships are largely unregulated (ILO 1993). To avoid confusion with this term, we use the term nonformal work as a shorthand for work that is home-based, for subsistence, unpaid, part-time, casual, intermittent, or non-normative.<sup>5</sup> Over time, researchers in many disciplines have come to accept the broad definition of work including all productive activities, whether for the market or subsistence, whether remunerated or not, whether formal or informal, and no matter how temporary or intermittent the work may be, where it is performed, or how little time is devoted to it.<sup>6</sup> Although some tasks may still be difficult to classify, most surveys of female labor force activity adhere to the definitional standards described and seek to include all women who work in the broad labor force. Following Assaad (2002b) we refer to this as the "extended" work definition.

Given this conceptual consensus, what is known about how best to measure work? The standard approach to measuring women's work uses one or more keyword questions—employing such terms as "work," "job," or "main activity" (Anker 1983). While the keyword questions found in labor force surveys have changed in accordance with the acceptance of a broader definition of work, there is reason to believe that the new questions remain ineffective in capturing home-based and subsistence production, part-time work, and other casual and intermittent activities—in other words, nonformal activities.

A number of researchers have shown that keyword questions undercount women's work for a variety of reasons. For example, when an interviewer asks about "work," biases on the part of both the interviewer and the respondent may exclude from consideration unpaid family labor and even part-time tasks done to earn money<sup>7</sup> (Dixon 1982; Anker 1983). Normative views of what should be counted as work may lead interviewers not to probe into non-normative activities in spite of being trained to do so (Anker 1990). Asking about "main activity" may lead many women to report themselves as "housewives," although they produce food or other goods that are sold in the market, and may spend some of their time selling these or other goods (Anker, Khan, and Gupta 1987). This problem is aggravated when women's

work force activity is closely integrated with, and may be viewed as an extension of, their household duties. In effect, women's productive activities are hidden behind their normative economically inactive role of housewife and mother (Charmes 1998). Finally, women may be reluctant to report work they perform because it compromises their social status (Donahoe 1999). These shortcomings of the keyword format suggest the need to test and refine alternative measurement approaches.

An alternative approach for improving reports of work is the use of an activities list (Dixon 1982), in which the respondent is queried about a list of specific tasks: work in the fields; work in a factory or workshop; production of cheese or sweets to sell; selling goods in a shop, the market, or the street, to cite some examples. Pioneering work by Anker and colleagues in Egypt and India has shown that such lists substantially increase the number of women workers reported (Anker, Khan, and Gupta 1987; Anker and Anker 1989, 1995; Anker 1990). On the basis of methods tests, Anker and Anker concluded that only a "sufficiently long set of [specific] key-word questions or...the use of an activity schedule" can yield an accurate estimate of women's work rates (1989: 519).

Moreover, Anker argues that the activities list has other important advantages. First, "no *a priori* assumptions are made about what is, and what is not, a labor force activity" (Anker 1983: 517). Second, when using an activities list, "labor force participation can be defined after the survey has been completed—in different ways for different purposes and definitions" (*ibid.*). Each task in an activities list is entered in the data set as a discrete variable, and the decision to include these tasks in the definition of the labor force can be made at any time. Criteria can be imposed on each task (for example, workers may be required to work a minimum number of hours per week, or to earn a wage or make a product to sell) in order for the respondent to be considered economically active (Anker, Khan, and Gupta 1987). Anker cautions, however, that potential workers must first be identified before they can be queried about the hours they work and the payment they may or may not receive. A third advantage is that all jobs that a woman performs are identified. When several activities are performed by one individual, the activities can be added together to fully assess the woman's actual degree of participation in the economy (Anker 1983: 517).

To improve the identification of women's labor force activity, some investigators have employed time-use studies, collecting detailed information on all activities, including work, leisure, and sleep, that a woman engages in during a given time frame (Donahoe 1999). Despite the higher levels of women's work revealed by such alternative methods, time-use data are complicated, time-consuming, and rarely collected; while activities lists have been almost completely ignored or forgotten. Yet researchers continue to request that "survey instruments should be made more sensitive to women's work" (Mehra and Gammage 1999: 547; see also Muller 2002).

## Measuring women's work in Egypt

Female work rates reported over the last two decades in Egypt are indicative of the effects that changing definitions, questionnaire formats, and interviewer training approaches may have on survey estimates. In the same year that Anker (1983) critiqued the contemporary definitions of women's work and the data collection methods for measuring it, the Egyptian Labor Force Sample Survey (LFSS) made a conscious effort to improve reporting of women in the labor force. Interviewers were trained to identify unpaid family labor, particularly labor on family farms (Anker and Anker 1989). As a result the percentage of females over age 6 years reported to be in the labor force doubled from 5.8 percent in 1982 to 12.5 percent in 1983 (Anker and Anker 1989). Nonetheless, Anker and Anker argued, "further improvement in data collection [was] both possible and necessary" (1989: 515).

To test the effects of questionnaire design on reports of women's work and to demonstrate that women's labor force activity was substantially greater than indicated by existing measures, the ILO/CAPMAS Labor Force Methods Test (LFMT) was carried out in late 1984. Following this methodological work a special round of the LFSS was conducted in October 1988 (Fergany 1990). Among the main features of this survey were a careful definition of employment and a measurement approach using a direct keyword question on work, supplemented by a series of six screening questions (Fergany 1990; Assaad and El-Hamidi 2001). This improved methodology produced a substantial increase in the extended work rate for females aged 6 years and older, from 14 percent in the 1984 LFSS (Anker and Anker 1989: 513) to 32 percent in the special 1988 round (Assaad 2002b: 59).

From 1988 on, the LFSS has more commonly reported rates of work for women aged 15–64 years. In 1988 the rate was 42 percent. In 1998 the Egypt Labor Market Survey employed multiple keyword questions similar to those used in 1988, and found 46 percent of all women aged 15–64 to be working according to the extended definition (Assaad 2002b: 10). The reported level of female work dipped in the two LFSS rounds that fell between the special surveys of 1988 and 1998. This decline has been attributed in part to a "waning effort" to carefully *probe* women's work, particularly participation in subsistence agriculture (Assaad and El-Hamidi 2001: 121).

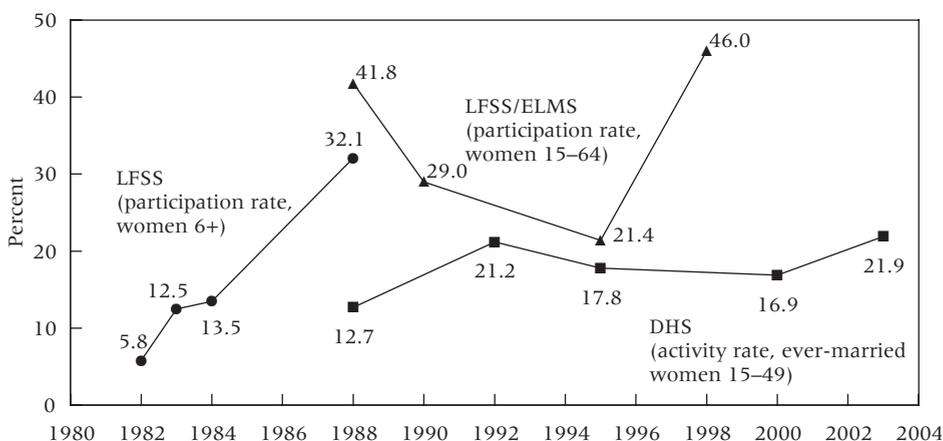
Estimates of women's work can also be computed using the Egypt DHS data from surveys carried out between 1988 and 2005. In the first Egypt DHS, in 1988, the single keyword question used implied a limited market-oriented view of women's work. It read: "Are you now doing any work for cash?" The 1992 DHS initiated the use of a broader question—"As you know, some women take up jobs for which they are paid in cash or kind. *Others* sell things, have a small business or work on the family farm or in the family business.... Are you currently doing any of these things or any other work?" (emphasis added)—reflecting the extended definition of work.<sup>8</sup>

As expected, the narrow, market-oriented question used in the 1988 DHS produced a relatively low level of women's work—13 percent. When the broader question was introduced in 1992, reported women's work increased to 21 percent, approximately the same level as reported in 2003. But reported women's work was lower in the DHS data for 1995 and 2000. It appears that, as in the LFSS, in the intermediate DHS years there also was a waning effort to probe for women's work.

These measures of women's work are summarized in Figure 1. Because we cannot access raw data for all of these surveys, we are compelled to use different age groups and different measures of work. The LFSS data for 1982–88 are participation rates for all females aged 6 years and older.<sup>9</sup> The LFSS and ELMS data for 1988–98 are also participation rates, but for women aged 15–64. This narrower age range, targeting adult females, results in a higher level of labor force participation (e.g., in 1988 the participation rate for females 6 and older is 32 percent, while the rate for women 15–64 is 42 percent).

The DHS figures are work rates for ever-married women aged 15–49. Since they exclude unemployed women, work rates are lower than participation rates, all other things equal. However, reported unemployment among Egyptian females is low: 1–2 percent of females aged 6 and older were reportedly unemployed between 1983 and 1984 (Anker and Anker 1989: 513), and about 4 percent of women 15–64 were not working, but seeking work, in the 1998 ELMS. Women aged 50–64 years are less likely than younger women to be working. Therefore, the DHS focus on ever-married women aged 15–49

**FIGURE 1 LFSS/ELMS and DHS estimates of Egyptian women's work and labor force involvement over time**



NOTE: Published LFSS results are participation rates either for: 1) all females aged 6 years and older (1982–88); or 2) all women aged 15–64 years (1988–98). DHS data only permit calculation of the work rate for ever-married women aged 15–49, thus excluding the unemployed.

SOURCES: LFSS estimates for 1982 through 1984 are from Anker and Anker 1989: 513. The LFSS 1990 estimate is from Assaad and Hamidi 2001: 121. All other LFSS/ELMS estimates are from Assaad 2002b: 10, 59. DHS estimates are computed from DHS data files.

implies higher levels of work than those computed for all women 15–64. This can be illustrated using the 1998 ELMS data, where the participation rate for women 15–64 years of age is 46 percent. If we exclude the unemployed, the work rate for such women is 42 percent. But, if we then select only ever-married women and restrict the age range to 15–49 years, the work rate increases to 49 percent. Therefore, if the single DHS keyword question were as effective at capturing working women as the multiple keyword questions used in the 1988 LFSS and the 1998 ELMS, the DHS line in Figure 1 would be generally above the 1988–98 LFSS/ELMS line. Instead, the DHS work rates are consistently lower than the LFSS/ELMS rates from the same period. This is an early indication that the DHS keyword question is ineffective.

By the early 1990s all the national surveys we consider had aligned their conceptualization of work with the extended definition used by the ILO. Although several rounds of Egypt's labor force surveys adopted multiple keyword questions in keeping with the results of methods tests in the early 1980s, the DHS retained a single keyword question. To summarize the key points illustrated by Figure 1:

1) Changes in the definition of work, and thus in the single keyword question asked, result in small increases in labor force participation/work rates as illustrated by the changes in the LFSS between 1983 and 1984, and in the DHS between 1988 and 1992.

2) Improved data collection techniques (in this case, multiple keyword questions effectively implemented) can produce a large increase in reported labor force participation levels, as illustrated by the jump in LFSS rates between 1985 and 1988, and confirmed by the high level of participation in the 1998 ELMS.

3) Keyword questions require "special probes" and "detailed prompts" (Schaffner 2000a). Should interviewers relax in their efforts to probe for activities women might not ordinarily consider to be work, reported levels of labor force participation/work will decline, as illustrated by the 1990 and 1995 LFSS rates, and by the 1995 and 2000 DHS rates.

## Methodology

The core of our analysis compares the reported work rates of a sample of ever-married women aged 15–49 years interviewed at two points in time, using two different measurement approaches. Each woman was first interviewed as part of the 2003 Egypt Interim DHS, which used a standard keyword question. Approximately ten months later, the same women were reinterviewed during the 2004 Slow Fertility Transition survey in which a newly developed activities list was administered.

The single keyword question used in the 2003 DHS read—"As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the

family business.... Are you currently doing any of these things or any other work? ... Have you done any work in the last 12 months?" Although ambiguously worded, according to the interviewer manual the DHS work question is meant to be inclusive of "*any work other than housework that the respondent herself does*" (Measure DHS 2006b: 109—emphasis added). The reference period used by the DHS is the 12 months preceding the interview. Working women were asked their occupations in a subsequent question. Those who worked in agriculture were also asked about the ownership of the land on which they worked, and all working women were asked about the regularity of their work and the form of remuneration they received. Only one job or type of work was recorded.

In contrast, the SFT activities list asked women about a number of possible economic activities. Women were requested to respond "yes" or "no" to each item. The activities were loosely grouped into agricultural work, animal husbandry, production or processing for market exchange, and sale of own labor in various settings. The conceptualization of work underlying these questions is the same as in the DHS. If more than one type of work was reported in the SFT survey, women were asked to specify which economic activity they considered to be their main work. For this activity, information on hours worked outside the house and whether the woman was paid for her work was solicited from the respondents. The reference period for economic activities, three months preceding the survey, was shorter than in the DHS. However, previous research suggests that such differences in reference period have little impact on the reported levels of women's work (Anker 1990).<sup>10</sup>

## Findings

In this section, we explain our construction of a new set of categories of work status and occupation, and present the overall work rates produced by the two surveys. We then examine the degree of correspondence between work as reported in the DHS and in the SFT surveys. Next, we investigate the types of work captured more effectively by the activities list than by the keyword questions, and analyze the background characteristics of women who made consistent reports in comparison with those whose work status changed between the two surveys. Finally we compare occupation-specific work rates for the ELMS and the SFT to show reporting differences between a survey that used multiple keyword questions and one employing an activities list.

### Women's work in the 2003 DHS and the 2004 SFT

The questions used to measure women's work have a substantial effect on the number of women identified as working and on the profile of women workers. In this section we quantify that impact. Relying on a single keyword

question, the 2003 DHS found a work rate of 21 percent in the subsample of ever-married women aged 15–49 who were included in the 2004 SFT survey. The more detailed work activities list employed by the SFT indicates that 65 percent of these same women were working. The level of work captured by the question format used in the SFT is higher in both rural and urban areas and in all regions.

Table 1 presents a cross-tabulation of reported work status found in the 2003 DHS and 2004 SFT. We have grouped women into five work categories: 1) no work; 2) professional, technical, or clerical (we call this professional for short); 3) sales (shop, *souq* [local market], or home); 4) agriculture or animal husbandry; 5) services or manual labor (skilled and unskilled). Because of the differences in the questions asked in the two sources of data, we are forced to recode the basic work variables and collapse occupational groups in both the DHS and the SFT to arrive at comparable categories.

In the SFT questionnaire, women were able to report multiple occupations. As in other developing countries, many women in Egypt do more than one type of work. For example, women who make sweets may also sell them in the *souq*. Women who raise goats may make cheese from the goat's milk and then sell the cheese from their homes. Some women work in the fields

**TABLE 1 Comparison of two independent reports of work status and occupation of Egyptian women, DHS 2003 and SFT 2004**

	DHS 2003					Total
	A. Not working	B. Professional/ technical/ clerical	C. Sales	D. Agriculture/ animal husbandry	E. Services/ manual	
<b>SFT 2004</b>						
<b>1. Not working</b>	1,106 94.8%	22 1.9%	11 0.9%	12 1.0%	16 1.4%	1,167 100.0%
<b>2. Professional/ technical/ clerical</b>	25 8.1%	274 88.7%	3 1.0%	0 0.0%	7 2.3%	309 100.0%
<b>3. Sales</b>	113 66.9%	6 3.6%	17 10.1%	20 11.8%	13 7.7%	169 100.0%
<b>4. Agriculture/ animal husbandry</b>	1,168 85.0%	15 1.1%	9 0.7%	166 12.1%	16 1.2%	1,374 100.0%
<b>5. Services/ manual</b>	184 67.6%	12 4.4%	4 1.5%	27 9.9%	45 16.5%	272 100.0%
<b>Total</b>	2,596 78.9%	329 10.0%	44 1.3%	225 6.8%	97 2.9%	3,291 100.0%

NOTE: All percentages are row percentages.

SOURCE: SFT 2004 data file with link to DHS 2003 data.

during the harvest but work in construction should an opportunity arise. More than one in every five women interviewed for the SFT survey reported performing more than one job in the reference period. In our recode of the SFT occupation variables, women who reported working at more than one job during the three months prior to the interview were assigned the occupation that they themselves said was their “main work”—the work that was “most important” to them.<sup>11</sup>

### Consistency and change in the two measures of work

Table 1 demonstrates two key conclusions. First, women who report that they are working in both surveys are generally consistent in reporting the same type of work at both points in time. Second, the main difference between the two studies is that many women classified as nonworkers in the DHS are found by the SFT activities list to be working.

If the questions asked in the DHS and SFT surveys were equally effective at eliciting women's work status, we would expect virtually all of the respondents to fall on the diagonal in Table 1. That is, most of the women found to be not working at the time of the DHS would report themselves to be not working in the SFT survey ten months later; those working as professionals in the DHS would be classified in the same category by the SFT; and so on. Indeed, Table 1 reflects a substantial degree of consistency in reported work status in the two surveys. Just under half (49 percent) of all women interviewed reported the same broad occupation at both times.

The degree of consistency can be formally assessed using the Kappa statistic, which measures agreement between survey instruments and ranges between zero and one. The overall Kappa value for the two instruments is .247, which is significant at the .001 level, thus demonstrating the essential consistency between the DHS and SFT reports of occupation. However, only the Kappa statistic for professional workers, the most normative of the work categories, is very high (.844), while the Kappa statistic for agriculture/animal husbandry—which includes a very large proportion of women engaged in subsistence agriculture or in casual or part-time work—is lowest (.102).<sup>12</sup> In sum, although the two reports of work status in the two surveys are statistically consistent, the level of consistency is modest with the exception of the professional group.

At the same time, the degree of consistency between the two surveys in the reporting of work is somewhat greater than Table 1 indicates. Some women who appear to have changed occupational categories have in fact worked at two jobs, reporting one of those jobs in the DHS and selecting the other as their main job in the SFT. For example, all 20 women in Cell 3D (agriculture/animal husbandry in DHS; sales in SFT) and all 27 women in Cell 5D (agriculture/animal husbandry in DHS; services/manual in SFT) also reported performing agriculture/animal husbandry work in the SFT. These

respondents fall off the diagonal only because they specified a main activity in the SFT other than the job reported in the DHS, although both jobs are likely to have been performed throughout.

Despite this overall consistency, 51 percent of the women studied do not fall on the diagonal. Some of this movement represents normal transitions into or out of the work force. Examination of the normative professional group in Table 1 provides an estimate of these transitions: 274 women report doing professional work in both surveys (Cell 2B), a very high degree of consistent reporting. In the ten months between the surveys 22 women left professional work to become nonworkers, while 25 previously nonworking women began professional work. Using these numbers as a proxy for transition into and out of normative employment, we estimate the level of these transitions at 7–8 percent of all workers in that occupational group, but at less than 1 percent of all women studied. We also note that among professional workers, movement out of the work force in the period between the two surveys is offset by movement into the work force of equal size.

Beyond normal transitions into and out of the work force, movements between broad job categories may result from women doing one type of work exclusively in the period before the DHS and shifting to another type of work just before the SFT. Or a woman who was engaged in two types of work at the time of the DHS might leave her main job and thus report her remaining job in the SFT. Such work transitions are probably very common, and it is difficult to estimate the level of these movements. Finally, some apparent transitions are the result of error in one survey or the other. Under any circumstances, the number of women moving from one occupational category to another is small (a total of 146, just 4 percent of all women interviewed). They are scattered across a range of cells and follow no particular pattern.

The most important transitions in Table 1, however, are the dramatic shifts from “no work” in the DHS to working in the SFT. Specifically, the 2003 DHS reported 2,596 women who had not worked in the year before the survey; in the SFT only 1,106 (43 percent) of these women said they had done no work in the three months before being interviewed. Most of the remaining women who had worked in the reference period (78 percent of the women who changed from not working to working between the two surveys) worked in agriculture/ animal husbandry, with most raising animals or birds. However, substantial numbers also reported working in sales and in services/manual jobs. In each of these three categories (sales, agriculture/animal husbandry, and services/manual) at least two-thirds of all the women reported to be doing this work in the SFT had reported not working at the time of the DHS (67 percent, 85 percent, and 68 percent, respectively). This is impressive evidence of the far greater coverage of women’s economic activities in the SFT than in the DHS. In the next section we show how these newly reported workers differ from women reported to be working in both surveys and suggest that these differences result in systematic measurement bias.

### Nature of work identified by the two measures

We expected not only that the SFT activities list would capture more working women, but that the women classified as working in the SFT who reported not working in the DHS would differ from previously identified workers. On the basis of previous research, we posited that these newly identified workers would be more likely than those workers already identified by the DHS to be involved in casual, intermittent, part-time, and home-based work (Donahoe 1999). This expectation has been confirmed. For example, we found that women doing nonformal services/manual tasks such as making butter, cheese, or ghee for sale are significantly more likely to report their work in the SFT for the first time, having said that they were not working in the DHS. On the other hand, those doing more normative services/manual jobs such as working in a factory or workshop are significantly more likely to have reported they were working in both the DHS and SFT surveys than to have been newly identified in the SFT. For a detailed discussion of this issue see Langsten and Salem 2006.

We further expected that workers newly identified by the SFT would be more likely to work part-time and without pay. Indeed, we found that the workers first identified by the SFT worked outside the home for just 19 hours per week on average, while those who reported working in both surveys worked for 33 hours. Similarly, 35 percent of women first found to be working by the SFT were unremunerated, compared to just 13 percent of workers captured by both surveys. Detailed results for each occupational group are shown in Table 2.<sup>13</sup> All the differences are in the expected direction, although in the case of pay only the newly identified services/manual workers are significantly less likely to be remunerated.

These differences support the view that work identified by the SFT is more likely to be nonformal than work found in the DHS. Although the workers newly identified by the SFT work fewer hours and are less likely to be remunerated than workers captured in both surveys, the newly identified workers (other than subsistence agriculture/animal husbandry workers, who overwhelmingly raise poultry) spend 19 hours per week working outside the home on average, and 65 percent of them earn money from the work they do. Thus many of the workers missed by the DHS make a meaningful economic contribution to their families and to the national accounts.

Workers newly identified in the SFT differ from workers recorded in both surveys not only in the types of work they do but also in their background characteristics. No clear pattern emerges when working women are disaggregated by occupational category. However, if we compare all those newly identified as working by the SFT with those who reported working in both surveys, we find that the newly identified workers are significantly less educated and younger than the women reported to be working in both

**TABLE 2** Percent of Egyptian women working without pay and mean hours worked outside the house among those who reported not working in the DHS but reported working in the SFT (designated “newly identified in SFT”), in comparison with those who reported working in both the DHS and SFT, and level of significance of differences

	Work without pay			Mean hours worked per week		
	Newly identified in SFT	Worked in both DHS and SFT	Level of signif.	Newly identified in SFT	Worked in both DHS and SFT	Level of signif.
Professional/technical/clerical	0.0% (25)	0.0% (274)	NS	33.7 (25)	37.4 (274)	<.05
Sales	35.4% (113)	29.4% (17)	NS	26.0 (113)	44.5 (17)	<.01
Agriculture/animal husbandry (excluding subsistence)	57.0% (158)	47.7% (88)	NS	23.2 (158)	27.8 (88)	<.05
Services/manual	21.1% (180)	2.3% (44)	<.01	9.6 (180)	28.8 (45)	<.01
Total	35.2% (475)	13.0% (531)	<.001	19.2 (475)	33.2 (530)	<.001

SOURCE: SFT 2004 data file with link to DHS 2003 data.

surveys. In comparison to women classified as not working in both surveys, newly identified workers are significantly less educated, poorer, and older (see Table 3).

Given the patterns of difference noted above, investigators using the DHS work variables should be aware that they are capturing only a fraction of all working women, and that those identified as working are systematically

**TABLE 3** Socio-demographic characteristics of Egyptian women who reported not working in the DHS but reported working in the SFT (designated “newly identified in SFT”), in comparison with those who reported working in both the DHS and SFT and with those who reported not working in both the DHS and SFT, and level of significance of differences

	Newly identified in SFT	Working in both DHS and SFT	Sig. newly identified vs. working in both	Not working in both DHS and SFT	Sig. newly identified vs. not working in both
No education	45.7%	31.3%	<.01	25.2%	<.01
Lowest wealth quintile	23.2%	20.2%	NS	8.5%	<.01
Age <30 years	47.8%	29.1%	<.01	52.4%	.02
N	1,489	633		1,106	

SOURCE: SFT 2004 data file with link to DHS 2003 data.

different from those in the noncaptured fraction of working women with regard to their economic roles and their demographic characteristics.

### Comparison of the SFT and ELMS 1998 work measures

We have shown that the SFT activities list is substantially more effective at identifying women workers than is the single keyword question used in the DHS. However, Anker has suggested that either a detailed activities list or several detailed keyword questions are an effective means of collecting data on women's economic activities (Anker and Anker 1989). The 1998 Egypt Labor Market Survey followed the latter approach. The employment module of the ELMS begins with a general keyword question asking about "participation in any work." If the respondent answered "no," she was asked eight additional keyword questions focusing on such issues as "producing goods that are sold," "offering paid services to others," "buying goods and reselling them," and so forth. Finally, an activity question asked about "participation in subsistence agriculture or animal husbandry." Table 4 compares women's economic activity as reported in the ELMS and the SFT.

While the multiple keyword questions used in the ELMS are more effective at identifying working women than the DHS, the SFT activity list is even more effective. The work rate for ever-married women aged 15–49 years is 31 percent higher in the SFT (65 percent working) than in the ELMS (49 percent). Despite this difference, the ELMS is as effective as the SFT at identifying women in some occupational groups, namely professional and subsistence agriculture or animal husbandry. We believe the ELMS is effective in these areas because: 1) professional jobs tend to be formal or normative, and thus reported in response even to general keyword questions; and 2) the ELMS

**TABLE 4** Percent of Egyptian women who reported working in the ELMS 1998 and SFT 2004 by broad occupational category: Ever-married women, aged 15–49 years

	ELMS-1998	SFT-2004
Professional/technical/clerical	11.9	9.4
Sales	2.6	5.1
Services/manual	1.8	8.3
Agriculture/animal husbandry		
Subsistence	30.8	33.7
Wage/market	2.1	8.1
Total working	49.2	64.5
N	3,849	3,293

SOURCE: ELMS 1998 and SFT 2004 data files.

includes an activity question asking specifically about subsistence agriculture and animal husbandry.

The additional women found to be working by the SFT are concentrated in specific market-oriented occupational groups: sales, services/manual production, and agriculture/animal husbandry for a wage or for the market. In these categories the percentages of women workers identified by the SFT are between two and more than four times greater than the percent of workers identified by the ELMS. As we saw in the comparison between the SFT and the DHS, the sales and services/manual categories include many jobs that are casual, intermittent, and integrated with household work, while at the same time these jobs are generally remunerated or produce goods that are sold. In the ELMS these jobs were intended to have been captured by the detailed keyword questions, but these questions were particularly ineffective. A total of just six women (only 0.2 percent of all ever-married women aged 15–49) gave a positive response to any of the eight supplemental keyword questions.<sup>14</sup> The underreporting of wage/market agriculture or animal husbandry in the ELMS is particularly instructive. One of the detailed keyword questions (“participate in a project—agricultural or keep poultry and livestock”) is meant to record those women who work as agricultural day laborers or who raise animals or poultry for sale. We believe, however, that this question’s emphasis on keywords such as “participate” and “project” confused respondents, and led to the substantial undercount in the wage/market primary production category in Table 4.

Of course, many differences between the ELMS and the SFT may also contribute to differential reporting of women’s work. Nevertheless, the use of the activities list was further tested in the Egyptian Labor Market Panel Survey of 2006 (ELMPS06), the follow-on survey to the 1998 ELMS. In response to preliminary results showing the benefits of the SFT activities list, the eight ineffectual detailed keyword questions in the ELMS were replaced in the ELMPS06 by activities questions modeled on the activities list used in the SFT (Assaad 2007). As a result of this “better measurement,” the female market labor force grew between 1998 and 2006 (Assaad 2007: 6). As shown in Table 4, it is precisely non-normative, but market, work that was disproportionately missed in the ELMS.

The implication of this analysis is that, in practice, additional keyword questions make only a small contribution to the level of women’s work identified. The single activity question on subsistence agriculture used in the ELMS was, however, helpful in identifying more women workers. Use of an activities list in the ELMPS06 improved reporting of market work, although the extended labor force did not grow—perhaps because many households were forced to forgo raising poultry as a result of bird flu in Egypt at the time of the survey (Assaad 2007). In sum, the SFT activities list not only outperforms a single keyword question such as the one used in the DHS, but the activities

list also is more effective in identifying women workers than are multiple detailed keyword questions such as those used in the ELMS.

### **Discussion and recommendations for future data collection**

In assessing different approaches to measuring women's work, we have followed the pioneering work of Anker and his colleagues and have focused on confirming Anker's basic finding that activities lists better capture women's work than do keyword questions. We have shown that activities lists more accurately capture women's work than either a single or multiple keyword questions. We therefore recommend using activities lists.

Two additional advantages that Anker attributed to activities lists warrant emphasis. First, activities lists make no *a priori* assumptions about what counts as work (Anker 1983: 517; see also pages 285–286 of this article). The activities list is the correct approach to measure all work no matter how one chooses to define a "worker." Detailed questions ensure coverage of hard-to-capture tasks performed in small workshops, in the street, or at home. Additional questions can include tasks such as making dung cakes for fuel, fetching water for household needs, or other household chores that might be considered subsistence work. Each item can be included or excluded from the work rate during data analysis, depending on the researcher's purpose and conceptual preferences. This brings us to Anker's second point, that activities lists allow the definition of work to be specified after fieldwork has been completed (Anker 1983: 517). As Anker made clear, the ability to accommodate any definition of work, ranging from the market labor force to use-value production, is an important strength of using activities lists.

Furthermore, to the advantages of activities lists first described by Anker we add one more: activities questions are easy to administer; keyword questions are not. The activities questions used in the SFT survey were short and easy for interviewers to ask. Although the activities list contains many items (18 activities were used in the SFT questionnaire), each question is brief and clear to the respondents, who must simply give a yes or no answer. Keyword questions, on the other hand, are often lengthy, and the terms used may be ambiguous, or even "socially loaded," for many respondents (Anker 1983). When the interviewer asks whether a respondent has a "job" or is "currently working," the time she spends caring for goats and making cheese that her husband sells in the market may not come to mind; such tasks may not be consistent with her normative view of jobs and work. Researchers have noted that long, complex questions must be supplemented by special probes and prompts to capture women's work (Schaffner 2000a: 238; Hussmanns n.d.). The activities list breaks the complex questions into simple parts, and makes the special probes and prompts explicit.

In spite of taking very little additional time to complete, the activities list requires a relatively large number of questions. In a survey such as the DHS, where women's work is not a main focus, the long list of activities may be viewed as an undue burden. In this case, researchers using the DHS to analyze women's work should be aware that most working women have not been identified, and that the identified workers have characteristics different from those workers left uncaptured by the single keyword question used. In the ELMS the very goal is to measure the working population. To improve this measure, the second round of this survey replaced the eight detailed keyword questions that clearly missed many working women with 15–18 activities questions modeled on the SFT work module. This modification improved measurement of female market workers in the ELMPS06. In the appendix we provide a list of questions concerning women's activities suggestive of those to be included in future survey questionnaires.<sup>15</sup>

For another example, consider the sample module for the Living Standards Measurement Study (LSMS) developed by the World Bank and carried out in a number of developing countries.<sup>16</sup> The LSMS model questionnaire uses just three questions to identify workers, but the standard version of the LSMS employment module asks more than 100 questions about work in the last seven days (Schaffner 2000b). Introducing an activities list in such a lengthy module would scarcely increase administration time but would substantially improve the reporting of women's work.

In the SFT activities list, some questions specified a market orientation (e.g., "production of butter, ghee, cheese to sell"), while other questions did not (e.g., "raised poultry or livestock"). This was a mistake. Having considered the SFT results and the implementation of the ELMPS06, we believe that the ideal questionnaire format would have initial "unconditional" work questions that focus solely on identifying workers irrespective of the characteristics of their work. We further recommend that questioning begin by asking about "usual" work (i.e., work in the previous three months or year), rather than beginning with "current" work as in the DHS, ELMS, ELMPS06, and LSMS. The goal is to identify all workers with as few questions as possible, thus minimizing the risk that interviewers or respondents will tire and leave some work unreported. If we begin with an activities list for usual work, then in order to measure current work we need only ask whether reported activities were also done in the past week.

Once all workers have been identified, it is possible to ask detailed questions about the nature of their work. Do they work for own account, or are they employed by someone else? Do they have a contract or insurance? How many hours do they work? Is the work regular? Are they paid? How much? Do they control their own earnings, or does someone else receive and disperse their earnings? All such questions can be asked for each activity performed.

The activities list used in the SFT was experimental and our recommendations have yet to be thoroughly assessed. Other issues also must be considered. First, surveys like the DHS may want to preserve comparability of data over time. To do this the DHS questionnaire could retain the keyword question currently used, supplementing it with an activities list to capture the many working women missed by the sole keyword question. Second, a number of the questions in the SFT activities list ask about the location of work. We used these questions because many women in Egypt speak of their work in terms of location or workplace rather than occupation. This may not be true of other countries. Third, there may be a need to improve the structure of the activities list in order to avoid asking inappropriate questions and to properly introduce potentially sensitive questions. Fourth, in-kind payment was not explicitly mentioned in the SFT but should be incorporated in future questionnaires. Finally, in almost all countries, preliminary work will be needed to determine the main jobs performed by women. At the same time, the activities list is not meant to be exhaustive of all work that women might possibly do. After asking about a number of key jobs performed by women, it should be possible to ask a general question about "other activities like the ones mentioned." We believe that respondents learn from the questions asked that they should report non-normative work.

The appendix following this text lists questions concerning women's activities. In more detailed examples available from the first author, we present concrete suggestions for how to include activities lists in questionnaires such as those used by DHS and the Living Standards Measurement Survey. We strongly recommend that our suggestions be subjected to careful evaluation, whether by means of structured methods tests such as those carried out by Anker and his colleagues, or through artificial experiments such as we have conducted using the 2003 DHS. The sensitivity of work estimates to the specific activities included in the list, the correct sequencing of questions about work performed in different reference periods, and the inclusion of sensitive and inappropriate questions must all be explored further. In addition, future tests of the activities list may try to incorporate it into time-use studies.

We believe that the activities list question format has wide applicability. While we have focused here on women's work, the activities list may be especially effective in measuring children's work. We originally developed an activities list for a questionnaire that was used with adolescent girls in rural Egypt (Brady et al. 2007). Much of the work performed by children in developing countries shares the casual, intermittent, part-time characteristics of the newly identified women workers found in the SFT survey. The activities list may also yield more accurate estimates of men's work, particularly if men perform multiple jobs or are employed informally. Applying activities lists to all respondents could improve our knowledge about the division of labor within households.

## Conclusions

We assessed two approaches to measuring women's work in Egypt, comparing two sets of responses from the same sample of ever-married women. Our assessment confirmed earlier research showing that an activities list is superior to a single keyword question, such as the work question used in the DHS. The SFT found that 65 percent of women were working, the DHS just 21 percent of the same women. Moreover, we have gone beyond previous work by presenting evidence that the activities list also outperforms multiple keyword questions such as those used in the ELMS, which found a work rate of 49 percent, with the missing women concentrated in non-normative but largely market tasks. The ELMPS06 adopted an activities list based on the one used in the SFT and found improved reporting precisely in the female market labor force that had been underreported in 1998.

In addition we have quantified the number of working women missed by keyword questions and the number of women working multiple jobs, including multiple market-oriented tasks. We have shown that keyword questions disproportionately undercount certain types of work—specifically work that is casual, intermittent, part-time, home-based, or unremunerated. We have demonstrated that the newly captured workers are: 1) less educated and younger than women *workers* identified by both surveys; and 2) less educated, poorer, and older than those women found to be *non-workers* in both surveys. Correct measures of all women's work are necessary for investigating poverty and inequality and for examining the role of women's work as an explanatory factor and as an outcome in theories related to reproductive change, child welfare, and economic development, among others. Commonly observed relationships between women's work and these various other factors may well be overturned or revised when tested using the more accurate measure of work provided by the activities list.

In conclusion, activities lists result in a better representation of the full range of economic activities performed by women in the developing world, thereby improving our knowledge and understanding of women's productive contributions and how these contributions affect and are affected by other domains of life. The exact form of the activities list remains to be determined by future research.

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## Appendix

### List of questions concerning women's activities to be included in survey questionnaires, meant to elicit the binary answer yes or no

Now I would like to ask you some questions about working. In the last 12 months have you done any of the following activities: Done anything in the fields such as

harvesting, cutting clover, or watering plants? Raised poultry or livestock? Sewing or embroidery at home? Made sweets, koshari, tamaia, feteer at home? Prepared vegetables at home? Made butter, ghee, cheese at home? Anything else at home? Worked in an office or school? Worked in a hospital or clinic? Worked in a bank? Worked in a government office or in the public sector? Worked in a restaurant or hotel? Worked in a factory or workshop? Sold something in the market or a shop? Sold something from home? Did construction work, such as carried cement, bricks, or sand? Worked in someone else's home? Did anything else similar?

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## Notes

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1 See for example Beneria 1981, 1982; Dixon 1982; Boulding 1983; Recchini de Lattes and Wainerman 1986; Papps 1992; Bajaj 1999; Chen, Sebstad, and O'Connell 1999; Donahoe 1999; Chen 2001; Salway, Rahman, and Jesmin 2003; Mehra and Gammage 1999; Carr, Chen, and Tate 2000.

2 Keyword questions include terms such as *work* or *job* to ask women about activities they perform and thereby elicit reports about labor force activity.

3 An activities list developed by Langsten and Salem for an adolescent questionnaire in rural Upper Egypt served as the model for the SFT activities list. Langsten worked closely with the SFT principal investigators to further refine the activities list used in place of DHS work questions, and assisted with other aspects of the questionnaire. Neither author had any role in interviewer training, or in data collection or data management after the activities list was finalized.

4 In recent years a great deal of research has focused on informal work, both in Egypt (Wahba 2000; Assaad 2002a; El-Mahdi 2002a, 2002b; Moktar and Wahba 2002) and elsewhere (ILO n.d.; Charmes 1998; Bajaj 1999; Chen, Sebstad, and O'Connell 1999; Standing 1999; Carr, Chen, and Tate 2000; Chen 2001; Carr and Chen 2002; Muller 2002; Chen 2004; Chen and Vanek 2005; Avirgan, Bivens, and Gammage 2005). Some authors have expressed a specific need for survey instruments that are "more sensitive to women's work in the informal" sector (Mehra and Gammage 1999: 547).

5 We use the term "normative work" for work consistent with most people's concept of what the term "work" refers to. In Egypt, this would encompass work performed in an office, shop, school, factory, or similar settings.

6 Some research does impose minimum numbers of hours worked per week.

7 For example, the DHS *Interviewer's Manual* states that the long keyword question is necessary "because it often happens that women who sell things, or work on the family farm, will not consider what they do work, especially if they do not get paid for the work" (Measure DHS 2006b: 109).

8 Although the DHS question is ambiguous, DHS training materials clearly show that the intent of the question is to capture all work included in the extended definition. See discussion on pages 289–290 below.

9 That is, they include the unemployed as long as they are actively searching for work.

10 Both the DHS and SFT measure "usual" work, although the reference period of the

DHS is longer (one year) than that of the SFT (three months). Some surveys also consider “current” work—generally having worked in the seven days prior to the survey. It is often assumed that “current” work will miss many workers involved in seasonal tasks, such as harvests and seasonal construction. Whatever the reality of seasonal fluctuations in work may be, actual reporting of “current” and “usual” work rates varies little. In the 2003 DHS, 21.9 percent of women were “currently” working, 22.9 percent had worked in the last year—just 1 percentage point difference. In the 1998 ELMS the difference between working in the past seven days and working in the last three months was 0.6 percentage points (48.6 percent vs. 49.2 percent for current and usual work, respectively); while in the ELMPS06, that same difference was a mere 0.2 percentage points (50.7 percent and 50.9 percent).

11 Of the 471 women who performed more than one job in the SFT, over half (276) were engaged in subsistence production (overwhelmingly animal husbandry) along with a market-oriented task. Still, 195 women (9 percent of all working women) performed more than one market-oriented task during the reference period.

12 The SFT survey asked respondents whether they were paid for the work reported. In the case of unpaid agriculture and animal husbandry, we refer to this as subsistence work. However, this may not be production solely intended for home consumption; for instance, the woman may have harvested crops without receiving a wage, although the

surplus was later sold on the market. We were unable to include questions to distinguish this kind of work from subsistence work in the SFT.

13 Note that this table excludes subsistence agriculture/animal husbandry workers—that is, most of the newly identified workers in this broad category—who, by definition, are not paid.

14 The 1998 ELMS supplemental keyword questions may have been more effective at identifying workers than this result suggests. According to its Principal Investigator, when a respondent answered yes to one of the detailed keyword questions, the interviewer usually modified the response to the initial, general keyword question, indicating that this individual was in fact a worker. Regardless of the discrepancy between the interviewer’s instructions and actual practices in the field, the jobs that these supplemental keyword questions are meant to identify (production of butter or cheese for sale, selling in the *souq* or in a family shop, work in a factory or workshop) are the same jobs that remain underreported in the ELMS.

15 Our recommended revision of the ELMS questions differs from the actual questions used in the ELMPS06. The revision was, however, generally consistent with our recommendation. Examples of how questionnaires can be adapted to include an activities list can be obtained by contacting langsten@aucegypt.edu

16 The LSMS homepage is «<http://www.worldbank.org/lms/index.htm>».

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