COLLECTIVE FOR
SOCIAL SCIENCE RESEARCH

The Hidden Economic Backbone – Women in Agriculture

Sidra Mazhar, Mysbah Balagamwala and Haris Gazdar

2017

The authors work with the Collective for Social Science Research, Karachi. This paper is a research output of the Leveraging Agriculture and Nutrition for women in South Asia (LANSA) consortium.

The research has been funded by the UK government's Department for International Development; however the views expressed do not necessarily reflect the UK government's official policies.

Contents

Introduction

The recognition of women's work has been a key concern of feminist politics and scholarship. It is also increasingly seen as an essential element in the attainment of wider social and development goals. In developing, industrial and post-industrial societies alike, the issue of recognition is often framed around the visibility and accounting of the largely feminized care economy (Appelbaum et al 2002, Hook 2006, Razavi 2007). In many developing countries, however, the expansion of the market economy incorporated rather than entirely displaced household-based production (Boserup 1973). While the division between productive and reproductive work underpins gendered economic inequalities, it is not always salient in economic organisation (Beneria 1979, Beneria and Sen 1981). Here, the academic, political and policy agenda cannot but pay attention to those large segments of the productive economy which draw on women's work without acknowledgment or remuneration. Agriculture is one such sector where the blurred boundary between productive and reproductive work can lead to the extraction of unpaid and underpaid labour on a large scale.

This paper uses data from the recently-completed Women's Work and Nutrition Survey (WWN) in rural areas of Sindh to provide fresh insights into women's work in general and their agricultural work in particular. The WWN is based on a representative sample of recent births in irrigated rural areas of Sindh covering over 1,000 mother-child dyads across 13 districts. It is a unique sample survey in Pakistan which combines detailed information on women's work history and time use with data on their own health and the health of their young children.

We argue that despite efforts on the part of national data collection organisations, flagship surveys such as the Labour Force Survey continue to undercount women's contribution to the economy. This undercounting is not unique to Pakistan, however, and is seen as an important

concern globally in the context of the realisation that agriculture is undergoing a process of feminization (Section 1). Fresh approaches are needed for the proper enumeration and analysis of women's work – approaches which are based on a grounded theoretical understanding of existing social norms and narratives about work (Section 2). Such approaches can yield significant new insights into the type of work women do and the possible drivers behind this work (Section 3). We conclude with observations about the way forward with respect to data collection and analysis, and policy action.

1. Missing Out the Women

Throughout the world, women play a very important role in agricultural sector – on average women in developing countries contribute to 43 per cent of the labour force - and in South-Asia and Sub-Saharan Africa, agriculture is the single most important employment source for women (FAO, 2011).

The transformation of agriculture is the last few decades has been gendered leading to what has been termed as 'feminization of agriculture'. National level statistics in developing countries show that there has been an increase in female involvement in agriculture accompanied by a steady decline in men's participation in the sector (Deere, 2005; de Schutter, 2013; Slavchevska et. al, 2016). There are several factors behind this pattern including male outmigration, increase in commercialization of agriculture, pandemic diseases that disproportionately affect more men (like HIV), conflict, climate change and technological innovations (Slavchevska et. al, 2016). However, this change could just be a statistical arising from better counting of women by labour force surveys (through recognition of subsistence work), or the shift in the role played by women from subsistence agriculture to market-based agriculture or from contributing family worker to agricultural-wage worker could also be driving this feminization of labour force statistics (Deere, 2005; de Schutter, 2013). The form that feminization of agriculture takes has its own implications

and better labour force and agricultural data can help better understand the nature of the transition.

In addition to their roles as agricultural producers, women are more likely to be caregivers within their households. As a result, they have competing claims on their time which influences the choices they make with respect to time allocation, impacts agricultural productivity as well as the quality of the care they provide, and overburdens them leaving them with very little time for leisure (Carmona, 2013; Arora and Rada, 2016). The increasing participation of women in agriculture, discussed earlier, therefore increases their time burden, affecting their own health and can have debilitating effects on the quality of care provided affecting the well-being of others (Kadiyala et al 2014).

Women have unequal access to resources and opportunities in agriculture, especially in the developing world. Research and evidence show that women are disadvantaged in terms of asset possession, which includes the highly unequal access to land, and lack access to technologies, agricultural innovations, government services, such as agricultural extension and financial services. They are also disadvantaged when using tools and equipment because even though they are meant to be gender neutral they are more suitable for men (FAO, 2011, Quisumbing et al 2014). One of the policy recommendations given by the FAO State of Food and Agriculture Report 2011 to close this ‘gender gap’ is by improving the collection and quality of the data to allow for gender differences and implications to be highlighted for more gender-aware agricultural policy.

Gender relations in agriculture are increasingly being highlighted in agricultural research and development, and being taken into consideration by agricultural development programs and policies. Developments in data collection and analytical methods in the last few years have helped researchers, program implementers, and policymakers increase their knowledge of gender issues in agriculture (Quisumbing et al 2014). This includes the collection of sex-

disaggregated data and going beyond the household to collect data on labour consumption and other indicators at the individual level to understand how time and resources are allocated (Doss, 2014; Buvinic et. al, 2014).

Undercounting of female participation in the labour force

Among non-household work (i.e. excluding work done on care and domestic activities), there are two main areas of activity where underestimation of labour work is usually observed – subsistence production and informal paid work (Beneria, 1992). Since women are mainly concentrated in these areas, there has tended to be an undercounting of their involvement in the labour force. Deere (2005) lists four main reasons behind the undercounting of women's participation in agriculture in censuses in Latin America – (1) women self-report their home as their principal occupation even when they participate in economic activities, (2) surveys tend to ask about income-generating activities thus missing out on subsistence production, (3) the definition of agricultural production often has a narrow emphasis on crop production while missing out on livestock or homestead production and (4) censuses define economic activity as engaging in an economic activity for a minimum amount of time in a reference period of one week prior to the survey which fails to capture women's seasonal work in agriculture.

Agricultural surveys also face other challenges in making sure women are represented. Surveys often assume the farmer to be a man; while interviewing the main decision-maker in the household they miss out on the fact that women often make decisions, and even when women are not decision-makers they still make a substantial contribution to agricultural production (Doss, 2014).

The under reporting of women's participation in the labour force surveys could also be due to local beliefs about women's work. For example, in Bangladesh, Mahmud and Tasneem (2013) find that official economic statistics under report women's economic work compared

to their data on women's labour force participation. They argue that despite following international definitions of labour, the surveyors' perceptions regarding women's work – which match widely held local beliefs – cause them to not consider activities done in the homestead as work.

2. The WWN Survey and Comparable Data

The Women's Work and Nutrition (WWN) survey was carried out as part of a larger study on the implications of women's work in agriculture on their own health and the health and nutrition of their children (Balagamwala & Gazdar, 2013). Women's agricultural work could have a positive impact on nutrition if it led to greater income and agency over household consumption. The work might have a negative impact through compromised care for themselves and their children. The design of WWN was based, in part, on qualitative fieldwork carried out in selected rural communities in relatively high productivity irrigated plains areas of Sindh and Punjab (Balagamwala, Gazdar, and Mallah, 2015).

Qualitative Research and Design of WWN

The qualitative research had explored the connection between women's agricultural work and nutrition through key informant interviews, group discussion, individual case studies and direct observations. There was prior knowledge on the importance of women's work in cotton-harvesting (FAO, 2015) and fieldwork site selection was guided by ensuring the presence of at least one cotton growing area in both provinces. In Sindh, the fieldwork was carried out in Shahdadpur (in the district of Sanghar) and Badin, while in Punjab we selected Bahawalpur and Jhang. Our fieldwork sites in Shahdadpur and Bahawalpur were primarily cotton-growing in the summer and wheat-growing the winter. Sites in the other two districts had some cotton, but this was not the predominant crop.

Qualitative investigations paid particular attention to groups and individuals, such as those from socially marginalised castes, seasonal, casual and bonded labourers, landless tenants and religious minorities. Interviews and group discussions were conducted across these socio-economic strata. Our way of understanding the local agricultural economy was to trace sequential stages in the cycle of a range of crops from sowing to harvest and beyond. A similar approach was adopted with respect to the rearing of livestock. This crop or livestock cycle method led to the identification of a range of tasks and activities in agriculture, as well as the identification of work arrangements for undertaking those activities. By basing our mapping of the agricultural economy on these cycles we hoped to construct, in the first instance, an itinerary of activities and tasks regardless of whether or not there were recognised as work, paid, or who undertook them.

This approach led to a number of findings about the operation of the agricultural economy (crops, orchards and livestock) which, though widely known and seen to be intuitive in the rural areas, do not receive specific attention in academic or policy discourse in Pakistan. Some salient findings are summarized here.

There is a high degree of market penetration in agricultural activities in the areas where we carried out our fieldwork. Despite considerable land ownership inequality, and hence a wide distribution of farm sizes, there is great uniformity of crops and technology within a region. Large landholders who own and operate hundreds of acres can be found in these districts, and these farmers are often seen as leaders in terms of technological innovation, changing cropping patterns, capital investment, and wage-setting. Once a technology or crop variety is introduced in a region it finds relatively quick diffusion through imitation and market channels. Despite the big difference in the scale of farming operations between large landholders and marginal farmers, who own just one or two acres of farm land, many of the

farming processes and activities are seen as being fairly standardized across different farm sizes.

Moreover, there are active markets for renting equipment (such as tractors) and hiring workers for activities or clusters of activities. Traditional tenancy arrangements in which landlords expected tenants to perform a range of tasks – many of which were not separately identified, counted or remunerated – has given way to more flexible and specialised labour arrangements. A task could be performed by the farmer, owner or tenant, by farm servants, or by temporary hired labour. For the latter, piece rate payments are more common in agriculture than time-based (daily) wages.

There is a clear sense of a gendered division of labour in most agricultural tasks, whether in farming or in livestock, and whether they are carried out by farmers, tenants, farm servants or hired labour. Women are not involved in any of our fieldwork areas in land levelling and preparation, ploughing, water management, or the application of fertilisers and pesticides. Women are also not generally involved in sowing seeds, but they do work in transplanting (mainly rice). Cotton-picking and vegetable harvesting are almost exclusively seen as women's work. Weeding is also mostly carried out by women and connected with collecting fodder for livestock. Women and men work together in family teams in grain and sugarcane harvesting. In sugarcane harvesting, peeling leaves off the cane is regarded as women's work. The leaves are used as fodder. Caring for livestock – collecting fodder, preparing it for feed, watering, cleaning the animals, and milking – are all primarily seen as women's activities.[1]

While there was a great deal of unanimity among women and men across socio-economic strata in our fieldwork sites in the identification of agricultural (as well as non-agricultural) tasks and activities, there was less clarity with respect to what constituted work. Tasks such

[1] Our findings are very similar to those of Ibraz (1993) – one of the few prior studies on the gendered division of agricultural activity in Pakistan. They are also comparable with Rao's (2012) findings in rural north India.

as cotton harvesting, for which there is an active labour market, were clearly identified as work even when they were carried out without pay on one's family farm.[2] Other tasks, such as wheat harvesting, which clearly contributed to the family's income or consumption were also seen as work, but an individual's contribution was not recognised. But the masculine appellation of the 'farmer' or 'tenant' meant that the man's work was recognised even if the product was not sold, but entirely consumed by the family itself. Livestock care and farm activities, such as weeding and peeling sugarcane, which are related to fodder were not even seen as work, even though the milk produced by farm animals was consumed or sold. Non-agricultural tasks, such as sewing and embroidery, were regarded as work when they were done for cash income, but not as work when the products were used at home or kept for a daughter's trousseau.

The qualitative findings guided in the design of the WWN survey in a number of ways. Our questionnaire followed the approach of the qualitative fieldwork in focusing on activities and tasks rather than 'work'. In the first instance, women respondents were asked if they had ever taken part in any tasks related to agriculture. The question was asked separately for farming and livestock. We added prompts about possible types of activity in both sub-sectors, based on our qualitative findings about tasks that are commonly undertaken by women. A third category was non-agricultural economic activity. This was explained through prompts with examples of activities including sewing, embroidery, government employment, managing or working in a shop, and construction labour. If a respondent said that she had ever undertaken any task in farming, livestock or non-agricultural sectors, there were further questions to identify all of the types of activity that she had ever taken part in.

Once we had established a list of activities or tasks that a woman had ever undertaken, we asked open-ended questions about the reasons given for undertaking each task. The idea

[2] Rao (2012) highlights in the comparable north Indian context, the complexity involved in advancing the recognition women's productive labour against prevailing narratives.

behind this question was to investigate, firstly, whether or to what extent women recognised undertaking an activity as a matter of deliberative choice, and if so, what they considered the main driver behind their choice to work. Our main empirical focus in the WWN survey, however, was not on activities ever undertaken, but on tasks performed in the 9-12 month period preceding the survey.[3] This recall of tasks undertaken in the more recent period is reported here as "work done in the last year".

Prevalence of Women's Work

Nearly nine-tenths of the women in the WWN sample had done some work in their lifetimes, and three-quarters reported having worked in the last year (Table 1). The WWN survey probed separately about tasks undertaken in farming, livestock and non-agricultural activities, and many of the respondents had done multiple things in the reference period. Two-thirds of the women had done some agricultural work in this sector during the last year with a higher ratio reporting having undertaken livestock-related activities than those who did farm work. A considerable proportion (around a third) reported also having undertaken non-agricultural tasks, mainly sewing and embroidery.

The proportion of women who worked in any activity in the last year was lower than those who reported having ever undertaken a particular task. This is in part, simply, a result of the fact that working in the last year will always be a subset of having ever worked. But part of the difference was due to the fact that the WWN survey purposively sampled women who were pregnant in the year before the interview. It is a fair assumption that, other things being equal, a woman is less likely to work during her pregnancy than in general – in other words

[3] Our sample consisted of women who had given birth in the period 2 to 12 weeks preceding the survey. The survey then asked women to recall their work history through their pregnancy up to the month of the survey. The shortest period of recall, therefore, was around nine and a half months and the longest was around 12 months. Further, the survey collected more detailed information on work done in the last 7 days which is not reported in this paper.

the difference between having ever undertaken an activity and doing that activity in the last year might indicate a response to her pregnant status.

Table 1: Prevalence of work (n=1151)

Type of work	% ever worked	% worked in the last year
Any work	89	75
Agricultural work	81	67
Farming	67	46
Livestock	70	60
Non-agricultural work	44	32

Source: Authors' calculations based on the WWN survey

A number of farming tasks were entirely absent from women's recollection of their experience. No woman reported having worked on land preparation and ploughing or water management. There was a negligible number who reported having taken part in fertiliser or pesticide application. This finding conforms to the reported norm that these are seen as men's tasks. The farming activities which women did report undertaking in the last year also corresponded with the findings of the qualitative research. These were cotton-picking, weeding (mostly for collecting fodder), harvesting grain, sowing/transplanting and harvesting vegetables (Table 2). Livestock related activities included caring for animals, fodder preparation, and feeding and watering them (Table 3). These too, were in line with the findings of qualitative research.

Table 2: Types of farm work undertaken in the last year (n=1151)

Tasks	% of women
Picking cotton	32
Weeding/Digging	23
Harvesting grain	22
Sowing/transplanting	15
Harvesting vegetables	11
Carrying loads	6

Source: Authors' calculations based on the WWN survey

Table 3: Types of livestock work undertaken in the last year (n=1151)

Tasks	% of women
Taking care, cleaning and giving water to animals	49
Fodder preparation	37
Collecting milk and/or eggs	28
Fodder collection	23
Grazing	11

Source: Authors' calculations based on the WWN survey

Comparison with Other Data Sources

We are able to compare our findings on women's work with those of two other representative sample surveys for which data were available: the Labour Force Survey (LFS) of the Pakistani Bureau of Statistics, and the second round of the Pakistan Rural Household Panel Survey (PRHPS) carried out by the International Food Policy Research Institute (IFPRI). Table 4 outlines the key features of the three surveys and similarities and differences in their methodologies which might have a bearing on the counting of women's work. We used data from the most recent rounds of the LFS and PRHPS for comparison with WWN.

Table 4: Comparing surveys

	LFS	PRHPS	WWN
Categories of work (as used for this paper)	Labour force participation rate for all women – standard and augmented – for all types of paid and unpaid work	Agriculture work (paid and unpaid) and non-agriculture work (paid) carried out by all women during the last year	Agriculture and non-agriculture work (paid and unpaid) carried out by women who have recently given birth – ever and that carried out specifically during pregnancy up till the date of interview (a period of 9-12 months)
Disaggregated by task (as used for this paper)	No	Yes	Yes
Time period	2014-2015	2013	2016
Sample features	Two-stage sampling of households	Two-stage sampling of households	Two-stage sampling; administrative villages, and then ALL mothers with infants aged 2-12 weeks
Respondent on questions relating to women's work	Household head, mostly male	Household head if female, spouse if male	Mother with infant aged 2-12 weeks

Source: Authors' analysis of the LFS 2014-15, PRHPS Round 2 and WWN survey

The LFS is an important survey because it is collected by the main data gathering organisation of the federal government – the Pakistan Bureau of Statistics (PBS). LFS data are used for reporting labour participation rates, unemployment rates and the sector-wise distribution of the workforce in official documents such as the Economic Survey. These data are also the most likely to be utilised for planning and policy-making purposes. PRHPS represents a valuable addition to publicly available data in Pakistan on the rural economy, agriculture, food and nutrition. IFPRI has been an influential contributor to academic learning and policy debate on these issues in Pakistan.

There are some similarities in the methodologies of the LFS and PRHPS and then between the PRHPS and the WWN.[4] The LFS and PRHPS both follow a two-stage sampling method. The first stage involves selecting Primary Sampling Units (territorial units based on administrative villages in rural areas), and then selecting Secondary Sampling Units (households) within these PSUs. Both stages involve probabilistic sampling. The WWN uses a slightly different two-stage sampling strategy. The PSUs were selected probabilistically from administrative villages, but unlike the other two surveys, the universe was restricted to perennially canal-irrigated regions of the Sindh province. Compared to the LFS and PRHPS samples in rural Sindh, the WWN sample is likely to be in somewhat more developed regions on average. This might mean that there are greater work opportunities for women in the WWN sample compared with the other two surveys, but also that there might be less need to work.

At the second stage, the WWN sample consists of ALL mothers in the selected administrative village who had an infant aged between two to 12 weeks on the date of the survey. While the LFS and PRHPS collected information about all females aged 10 years or above in their sample households, WWN data on women's work is limited to the experiences of mothers of recently-born infants. In our comparisons across surveys, therefore, we have restricted the LFS and PRHPS samples to include only females of reproductive age (15 to 49 years). Even so, if women are less likely to have worked if pregnant, the WWN sample should have a downward bias compared to the LFS and PRHPS with respect to women's work participation.

There are differences in method also with respect to data collection. Respondents are household heads in the case of the LFS, and these are more likely to be men than women.

[4] The LFS is national, while the PRHPS has a representative sample in rural areas of Punjab, Sindh and Khyber Pakhtunkhwa. Since WWN is limited to rural Sindh, most of the comparisons reported here use only the rural Sindh data for the other two surveys.

Questions about women's work are, therefore, mostly addressed to men in this survey. In the PRHPS and the WWN by contrast, questions relating to women's work are exclusively addressed to women respondents. One difference between these two surveys is that in the former the female head of the household is asked questions about herself as well as other female household members. In the WWN, the woman respondent only provides information about her own work experience.

Finally, the surveys differ in their approaches to women's work. The LFS follows the conventional route of going down the household roster and asking the respondent to identify if each of the listed household members worked, and if so what activity did they work in. Although there are prompts provided in the questionnaire for agricultural work, the examples which are given are mostly of activities which are typically considered to be men's work. The prompts for livestock-related activities are very general and do not include a number of tasks such as fodder preparation, feeding and watering animals, and caring for animals. The PRHPS, by contrast, asked direct questions about particular activities and had probes for activities not covered. The WWN, as explained above, had separate prompts for farming, livestock and non-agricultural activities. There is similarity in the methods adopted by the latter two surveys.

There are small but significant differences between the line of questioning used in the PRHPS and the WWN, however, which also need to be noted. While the PRHPS takes account of all agricultural work, paid or unpaid, for non-agricultural tasks it only records paid activity as work. By contrast, in WWN unpaid non-agricultural activities, except those related directly with household care (such as cooking, cleaning, washing and looking after children, the sick and the elderly) are included. As noted above, around a third of the sample women in the WWN survey were found to have undertaken sewing and embroidery, mostly for making things to be used by family members or gifted by them to others.

The LFS 2014-15 reports two types of labour force participation rates – a standard rate and an augmented rate. The latter is defined in the following terms: "Augmented activity rate is based on probing questions from the persons not included in the conventional measure of labour force to net-in marginal economic activities viz subsistence agriculture, own construction of one's dwelling, etc." (Pakistan Bureau of Statistics, 2015). The difference between the standard and the 'augmented' approaches is that in the former if a person's occupation is reported as 'housewife' or 'homemaker' no further questions are asked about their involvement in productive activity. In the latter, the occupation filter is dropped and work-related questions are for even those persons who would otherwise not have been included in the labour force. In principle, the 'augmented' approach is closer to the methodology of PRHPS and WWN. Table 5 shows standard and augmented labour force participation rates for Sindh and Pakistan disaggregated by location. Rural females appear to account for nearly all of the difference between the standard and 'augmented' labour force participation rates and the difference is particularly sharp in rural Sindh.

Table 5: Standard and augmented labour force participation rates (per cent) in the LFS

Reference region	Standard labour force participation rates		Augmented labour force participation rates	
	Males	Females	Males	Females
Urban Pakistan	66	10	66	12
Rural Pakistan	67	29	69	44
Urban Sindh	66	6	66	9
Rural Sindh	72	22	73	51

Source: Labour Force Survey 2014-15

Table 6 compares women's labour force participation, and the prevalence of agricultural and non-agricultural work among women in rural Sindh across the three surveys. The standard definition of a member of the labour force in the LFS is a person who is ordinarily working or looking for work. The augmented definition goes beyond this and includes people who might not be recorded as ordinarily working, but who report having undertaken subsistence

agricultural work or other unpaid productive activity. The PRHPS and WWN do not rely what people ordinarily do, or what their household head thinks they ordinarily do. Rather, in these surveys, people are asked to recall if they took part in particular activities in the last year.

Around three-quarters of the women in the WWN survey had worked in the last year (Table 6). The figure was lower for PRHPS at under 60 per cent. This was close to the 'augmented' labour force participation rate in the LFS for rural Sindh. The standard LFS labour force participation rate had a much lower figure – only 26 per cent of the women in the rural Sindh sample.[5] It is possible to examine the source of variation between different data sources. Given that rural females account for much of the difference between the standard and 'augmented' rates of labour participation, it is fair to infer that much of this is driven by better recording of agricultural work in the 'augmented' approach. The difference between the PRHPS and the WWN in the prevalence of women's work is attributable to two sources. First, many more women are reported as undertaking livestock related activities in WWN than in the PRHPS (Table 6). Second, while nearly a third of the women in the WWN sample were found to have worked in non-agricultural activities (sewing and embroidery), the prevalence of non-agricultural work in the PRHPS was negligible.

Table 6: Comparisons of labour force participation in WWN, PRHPS and LFS

Type of work	WWN	PRHPS	LFS Augmented	LFS Standard
Any work	75%	59%	60%	26%
Agricultural work	67%	59%	N/A	20% [6]
Farming	46%	45%	N/A	N/A
Livestock	60%	44%	N/A	N/A
Non-agricultural work	32%	0.5%	N/A	2% [3]

Source: Authors' calculations based on the WWN, PRHPS and LFS 2014-15

[5] The figures for the LFS rural Sindh sample differ between Tables 5 and 6 – the former is for the population aged 10 years or above, while the latter restricts the sample to females aged 15 to 45, in order to ensure comparability with WWN.

[6] For women aged 10 years and above – the publicly available reports for the LFS do not allow us to calculate this figure for women of reproductive age

To further understand the source of difference between the PRHPS and the WWN with respect to agricultural (farming and livestock) work undertaken by women, we examine the reporting for particular tasks in the two surveys. It may be recalled that in the PRHPS, women were asked, in the first instance, about specific activities, and then probed further about other activities which they might have undertaken but were not included in the initial list. The WWN, by contrast, started with asking women if they had undertaken any activities in farming and livestock, with prompts about possible types of activities which they might have undertaken. Despite differences in these two approaches, the two methods yielded very similar lists of activities for women in rural Sindh (Table 7). In farm-related activities, the PRHPS list included the 'post-harvest work' which did not come up in the list generated through prompting in the WWN.[7] The same was the case for 'making dung cakes' in livestock-related work. The other difference was in the identification of a number of distinctive activities related to livestock in WWN (preparing fodder, feeding, giving water, and caring for the animal) which were covered under the broad term 'livestock care' in the PRHPS. The identification of a broader range of livestock related activities by women respondents in the WWN led to a higher participation rate in livestock work as well as higher overall female labour force participation rates. These differences in the list of activities in the two surveys indicate the possible advantages and disadvantages of each type of approach. While the WWN missed out on post-harvest work (perhaps because it was subsumed in the minds of the respondents under harvest work), the open-ended approach of the WWN allowed the identification of a greater range of livestock related activities which might have been missed in the PRHSP.

[7] Another difference with respect to harvest work was that the WWN approach led to the identification of each crop separately (Table 2). This was an advantage in the analysis of the impact of work on nutrition, as some activities (such as cotton picking) turned out to have a particularly strong adverse impact on the health of the woman and her infant (Pradeilles et al, forthcoming).

For activities which were identified in common – such as weeding and harvesting in farming, and milking and grazing in livestock-related work – the findings are remarkably similar across the two surveys. The one farm activity for which there is a big difference between the findings of the two surveys is sowing/planting (15 per cent in WWN compared with 30 per cent in PRHPS). Qualitative research had suggested that women are involved in the sowing/transplanting of rice but not of other crops. The WWN sample excluded two of the major rice-growing districts (Thatta and Badin) and the lower reporting of this activity might be due to sampling-related differences between the two surveys.

Table 7: Prevalence of women's agricultural work by task - comparing WWN and PRHPS

Type	Task	WWN	PRHPS
Farming	Sowing and planting	15%	30%
	Weeding	23%	24%
	Harvesting	39%	41%
	Post Harvesting	-	16%
	Carrying loads	6%	-
	Other farm work	-	5%
Livestock	Fodder collection	23%	-
	Fodder preparation	37%	-
	Livestock care	19%	38%
	Giving water to livestock	45%	-
	Cleaning animals	15%	-
	Milking	26%	25%
	Grazing	11%	11%
	Making dung cakes	-	20%
	Medical care	-	2%
	Other livestock	-	8%

Source: Authors' calculations based on the WWN and PRHPS

The comparison of WWN findings with those of the LFS and the PRHPS shows that differences in the findings of these surveys with respect to women's work can be explained with reference to differences in survey design and methodology. This gives us additional confidence in the robustness of our findings, notably the relatively high rates of women's work participation compared with conventional wisdom. The comparison shows that

improvements in survey design can lead to a better understanding of women's work, and the case for mainstreaming such methodology features is inarguable.

3. Who Works, When and Why?

The WWN survey allows further insights into patterns of work, which women are more likely to have undertaken which types of activity, and the way in which women speak about their reasons for working.

Work, Pregnancy and Socio-Economic Status

In this section we compare the prevalence of women's work in various activities across two dimensions: socio-economic status and ever worked versus worked when pregnant. As noted above (Table 1) fewer women reported working when pregnant (75 per cent) compared to those who had ever worked (89 per cent). This difference is partly the result of the structure of the data. Those who have 'ever worked' would always be at least as many as those who had worked in the last year. Part of the difference is also due to the withdrawal from work as a result of the pregnancy – because a woman is less able to work, or is less willing to do so due to the additional strain on her physical health. We had noted in Table 1 that some women's work seemed to be more resilient to pregnancy in some activities (livestock) than others (farming). This issue is examined further now, also with relation to women's socio-economic status.

Tables 8 and 9 report, respectively, the prevalence of women's work by household wealth status and the woman's own educational level. A number of household characteristics such as asset ownership (including land, fixtures, vehicles and consumer durables) and housing infrastructure (including size, the durability of the structure, and the availability of facilities such as toilets) were used to construct a proxy for wealth.[8] Households were then ranked into quintiles using this wealth score. Very few women in the WWN sample were educated. For

[8] Factor analysis was used to combine the effects of these variables.

the analysis in Table 9, therefore, we use just three categories: 'no schooling', 'up to primary' and 'above primary'.

The prevalence of agricultural work, both farm and livestock related, declines up the wealth scale. Women from better off households are less likely to have ever worked in both these types of activities compared to their poorer counterparts (Table 8). The same is true for having worked last year, or while pregnant. Also, household wealth seems to influence whether a woman undertakes farm work or not. While nearly one in two (46 per cent) of women from the richest quintile had ever worked, the ratio declined to a fifth (21 per cent) during pregnancy. In the poorest quintile the proportionate decline due to pregnancy was smaller – from 88 per cent to 73 per cent. While richer women were less likely than their poorer counterparts to have worked in livestock related activities, pregnancy does not seem to have the same dramatic effect on their likelihood of working as it does in farm related activities. Women's livestock work, therefore, appears to vary less due to wealth or pregnancy, and the combination of wealth and pregnancy. The patterns for non-agricultural work are quite distinctive from agricultural activities. While pregnancy seems to be associated with a decline in non-agricultural work across wealth quintiles, the poorest and the wealthiest are less likely to be involved in this activity compared with the middle quintiles. It is likely that the poorest women have little time for non-agricultural work (mostly sewing and embroidery) while the richest have little need to do it themselves.

Table 8: Prevalence of women's work by household wealth status

SES quintiles	Any work	Ag Work	Farming	Livestock	Non-ag work	n
Ever worked						
Poorest	96%	94%	88%	75%	27%	223
Second	92%	86%	72%	75%	46%	225
Third	89%	83%	71%	75%	52%	224
Fourth	90%	80%	58%	69%	52%	225
Richest	79%	63%	46%	53%	45%	224
Worked in the last year (while pregnant)						
Poorest	87%	85%	74%	67%	22%	223
Second	80%	73%	54%	68%	36%	225
Third	75%	67%	46%	63%	37%	224
Fourth	75%	63%	32%	59%	38%	225
Richest	56%	46%	21%	43%	26%	224

Source: Authors' calculations based on the WWN survey

The relationship between work and pregnancy across educational levels (Table 9) displayed similar patterns to wealth. This is not entirely surprising, as education is known to be correlated with household wealth. Both farm and livestock related work declined for women with higher levels of education, and livestock work declined less sharply than farm work. Educated women, moreover, were more likely to work in non-agricultural activities than women who had no schooling. The effect of pregnancy was also the sharpest with respect to farming – only a tenth of the women with above primary schooling worked during pregnancy compared with over half of those who did not have any schooling. Education may have an effect independent of household wealth if more educated women also have greater knowledge and agency over safe practices during the course of their pregnancy.

Table 9: Prevalence of women's work by their own educational level

Level of education	Any work	Ag Work	Farming	Livestock	Non-ag work	n
Ever worked						
No schooling	92%	86%	73%	74%	42%	908
Up to primary	84%	71%	53%	58%	52%	106
Above primary	72%	43%	28%	41%	59%	83
Worked in the last year (while pregnant)						
No schooling	78%	72%	52%	65%	30%	908
Up to primary	69%	52%	28%	46%	42%	160
Above primary	47%	31%	10%	30%	35%	83

Source: Authors' calculations based on the WWN survey

The above analysis suggests that women's agricultural work is associated with household income or wealth constraints. Women from richer households tend to work less. In qualitative research this correlation between household need and women's work was seen as an obvious and self-evident fact. The WWN survey appears to confirm this basic feature of Pakistan's rural economy that women's agricultural work (particularly farm-related activity) is a sign of need ('majboori') and not a pathway to empowerment. The apparent relative invariance of livestock related work to wealth, education and pregnancy suggests that there might be a stronger additional element of a gendered division of labour which transcends social and economic mobility.

Reasons for Working

For each task, we asked respondents for the reason why they undertook that activity. It was an open-ended question and we did not prompt or direct the respondents in any way. Part of the reason for asking this question to gauge whether or to what extent women regarded undertaking different activities as matters of choice. In Table 10 we have clustered responses into three broad categories. First, there were responses which we have interpreted as implying that undertaking the activity was not a matter of deliberation or choice. An example of such a response is that livestock was looked after 'for the sake of the animal'. Another

example is when the reason for undertaking some farming activity was given as 'it is our land'. The implication here is that a household's ownership of land or livestock was seen as reason enough for the woman to have taken part in a particular activity. Other responses in this category are 'it is my responsibility' and 'there was no option'. Another cluster of reasons was around household need. This included things like 'poverty', 'to feed the children', for own supply of grain', and 'for income' etc. The third cluster of responses is around self-fulfilment – responses included 'I undertook the activity for myself', 'I enjoyed it', and 'I did it to spend time with family and friends'.

Table 10: Reasons for working, by activity

Activities/Reasons	Grain harvesting	Cotton picking	Livestock-related	Sewing / embroidery
Not seen as a matter of deliberative choice	15%	10%	71%	6%
Household need/income	84%	87%	27%	74%
Self-fulfilment	2%	3%	1%	20%
Total	100%	100%	100%	100%

Source: Authors' calculations based on the WWN survey

Some of the main reasons why women work is to earn income, for food, and out of responsibility. It is interesting to note, as can be seen from the table, that there is a dichotomy between the work done for income versus the work done out of responsibility. Paid activities such as grain harvesting (often paid in kind) and cotton-picking (mainly paid in cash) are undertaken for income or due to household need, while unpaid work such as livestock-related activities are done out of responsibility and are not seen as matters of choice. Sewing and embroidery, which is a combination of paid and unpaid work, is done both for enjoyment as well as to earn income. These responses support the findings above which show farm and livestock work in different lights. The former seems to be driven more by the socio-economic status (or needs) of the household, while the latter is seen as something that women must do. There is some resonance, also, between reported reasons for working in non-

agricultural activities (sewing and embroidery) and the fact that more educated and better-off women are more likely to take part in these activities. It is the only category of work where a significant number of women reported self-fulfilment as a reason for undertaking the activity.

Conclusion

This paper has shown that the insightful distinction between productive and reproductive labour proposed in feminist theory several decades ago continues to be relevant not only for the recognition of women's work, but also for a better understanding of how contemporary market economies function in many parts of the world. National data tend to undercount women's work, at least partly because their design uncritically replicates existing gendered norms around what should or should not be considered work. This undercounting continues despite efforts and reform and despite the fact that many other sources of economic value are counted even when they do not enter the domain of visible market exchange.

Women's work in agriculture is driven mostly by household need and is not, on its own, seen as a source of agency or empowerment. Poorer women tend to work more and they tend to continue working through sensitive periods in their lives and the lives of their children such as when they are pregnant and lactating. There is greater inflexibility around women's work in the livestock sub-sector of agriculture than there is for farm work. Household wealth, a woman's educational status, and her being pregnant have a smaller impact on her likelihood of engaging in livestock related activity. While all aspects of women's work – farming, livestock and non-agricultural activities – are seen as being in the domain of reproductive labour, the resilience of livestock related activity and the narratives around it suggest that it is considered to have the strongest association with (social) reproduction.

We have also shown that survey design that is attentive to how communities, families, men and women might be conditioned into recognising work, can yield dramatically different results. Taking the case of agriculture, we find that women's work participation rates are

several times higher than those reported in national data. Focusing on activities and tasks undertaken rather than relying on the reporting of 'work done' either by men of the family or, indeed, by the woman herself, accounts for the difference between difference data sources. The recognition of women's work in national data will be a significant step towards the broader recognition of their economic contribution. This recognition is important not only for the realisation of women's rights, but also for better-informed policies and programmes in sectors such as agriculture, health, and nutrition.

References

Appelbaum, E., Bailey, T., Berg, P. and Kalleberg, A. (2002). *Shared work, valued care*. Washington, D.C.: Economic Policy Institute.

Arora, D. and Rada, C. (2016). A Gendered Model of the Peasant Household: Time poverty and Farm Production in Rural Mozambique. *Feminist Economics*, pp.1-27.

Balagamwala, M., Gazdar, H., and Mallah, H.B. (2015). Women's Agricultural Work and Nutrition in Pakistan: Findings from Qualitative Research, LANSA Working Paper Series No. 2. Brighton: LANSA.

Balagamwala, M., Gazdar, H. (2013). Agriculture and Nutrition in Pakistan: Pathways and Disconnects. IDS Bulletin, 44: 66-74. May 2013.

Beneria, L. (1979). Reproduction, Production and the Sexual Division of Labour, Cambridge Journal of Economics 3(3):203-25.

Beneria, L. and Sen, G. (1981). Accumulation, Reproduction, and "Women's Role in Economic Development": Boserup Revisited, Signs 7(2): 279-298.

Benería, L. (1992). Accounting for women's work: The progress of two decades. *World development*, *20*(11), pp.1547-1560.

Boserup, E. (1973). Employment of women in developing countries. International Union for the Scientific Study of Population. International Population Conference, Vol 1. Liege, Belgium

Buvinic, M., Furst-Nichols, R. and Koolwal, G. (2014). Mapping gender data gaps. *Data2X report*, United Nations Foundation, Washington, DC.

Carmona, M. S. (2013). Report of the Special Rapporteur on Extreme Poverty and Human Rights: Unpaid Care Work and Women's Human Rights. United Nations General Assembly A/68/293.

De Schutter, O. (2013). The agrarian transition and the 'feminization' of agriculture. Conference Paper 37, Food Sovereignty: A Critical Dialogue, New Haven: Yale University.

Deere, C.D. (2005). *The feminization of agriculture? Economic restructuring in rural Latin America* (No. 1). UNRISD Occasional Paper.

Doss, C. R. (2014). Data Needs for Gender Analysis in Agriculture. In Agnes Quisumbing, Ruth Meinzen-Dick, Terri Raney, Andre Croppenstedt, Julia A. Behrman, and Amber Peterman (eds.) *Gender in Agriculture and Food Security: Closing the Knowledge Gap*. New York: Springer.

Food and Agricultural Organization (FAO). (2015). *Women in Agriculture in Pakistan*. Islamabad: FAO.

Food and Agriculture Organization (FAO). (2011). *The State of Food and Agriculture 2010–11. Women in Agriculture: Closing the Gender Gap for Development*. Rome: FAO.

Hook, J. (2006). Care in Context: Men's Unpaid Work in 20 Countries, 1965–2003. *American Sociological Review*, 71(4), pp.639-660.

Ibraz, TS. (1993). The Cultural Context of Women's Productive Invisibility: A Case Study of a Pakistani Village, Pakistan Development Review 32(1): 101-125.

Kadiyala, S., Harris, J., Headey, D., Yosef, S. and Gillespie, S. (2014). Agriculture and nutrition in India: mapping evidence to pathways. *Annals of the New York Academy of Sciences*, 1331(1), pp.43-56.

"Labour Force Survey 2014-15 (Annual Report) | Pakistan Bureau Of Statistics". *Pbs.gov.pk*. N.p., 2017. Web. 10 Jan. 2017.

Mahmud, S. and Tasneem, S. (2011). The Under Reporting of Women's Economic Activity of Bangladesh: An Examination of Official Statistics. BRAC Development Institute Working Paper 1

Quisumbing, A.R., Meinzen-Dick, R., Raney, T.L., Croppenstedt, A., Behrman, J.A. and Peterman, A. (2014). Closing the Knowledge Gap on Gender in Agriculture. In Agnes Quisumbing, Ruth Meinzen-Dick, Terri Raney, Andre Croppenstedt, Julia A. Behrman, and Amber Peterman (eds.) *Gender in Agriculture and Food Security: Closing the Knowledge Gap*. New York: Springer.

Pradeilles, R. (forthcoming). The relationship between crop-related agricultural workload and maternal and infant nutritional status in rural Pakistan: the LANSA project, ANH Nepal.

Rao, N. (2012). Male 'Providers and Female 'Housewives' – A Gendered Co-performance in Rural North India', Development and Change 43(5): 1025–1048.

Razavi, S. (2007). The Political and Social Economy of Care in a Development Context: conceptual Issues, research questions and policy options. Gender and Development, Programme Paper. Geneva, Switzerland: United Nations Research Institute for Social Development.

Samee, D., Nosheen, F., Khan, H.N., Khowaja, I.A., Jamali, K., Paracha, P.I., Akhtar, S., Batool, Z., and Khanum, Z. (2015). Women in Agriculture in Pakistan, Islamabad: Food and Agriculture Organization of the United Nations.

Slavchevska, V., Kaaria, S. and Taivalmaa, S.L. (2016). Feminization of Agriculture in the Context of Rural Transformations: What is the Evidence? The World Bank Report No. ACS20815.