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Women's Agricultural Work and Nutrition in Pakistan: Findings from Qualitative Research

Mysbah Balagamwala, Haris Gazdar and Hussain Bux Mallah
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About this paper

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Acronyms

BISP	Benazir Income Support Programme
BMI	Body Mass Index
Bt	Bacillus thuringiensis
DHS	Demographic Health Survey
LHW	Lady Health Workers
Kg	Kilogram
NNS	National Nutrition Survey

Glossary

<i>deh</i>	smallest administrative and revenue collection unit
<i>ghee</i>	vegetable fat (cooking oil)
<i>jamadars</i>	labour sub-contractors
<i>khareef</i>	cropping season in the summer
<i>majboor</i>	person in need
<i>majboori</i>	need
<i>maund</i>	weight equal to 40 kg
<i>rabi</i>	cropping season in the winter
<i>rivayat</i>	tradition
<i>shauq</i>	a concept that encompasses enjoyment and fulfillment
<i>taluka</i>	sub-districts

Identity groups in fieldwork sites

Bheel	an ethnic group: officially classified as Scheduled Caste Hindus
Khaskheli	a caste name: thought to be descendants of house-servants and serfs of the former rulers of Sindh
Khichi	a Baloch kinship group
Kolhi	an ethnic group: officially classified as Scheduled Caste Hindus
Mallah	an occupational caste (fisherfolk)
Odh	an occupational caste (earthwork construction)
Rajo	a Sindhi speaking kinship group
Rawra	a caste name: traditionally hunters and classified as Scheduled Caste Hindus
Rind	a Baloch kinship group
Samoon	a Sindhi speaking kinship group
Soomro	a Kachhi-speaking kinship group in Badin

Abstract

Does women’s work in agriculture help or hinder nutrition in Pakistan? This question has assumed great significance due to the steady feminisation, over the last decade, of the agricultural labour force, and the absence of nutritional improvement in the same period. This exploratory paper builds upon the agriculture-nutrition pathways framework to propose an approach to individual or household-level decision-making in which the provision of care (for children and women) plays an important part in determining nutrition outcomes. If nutrition is one of the factors in work, care and consumption choices, how might the terms of any trade-off be made more favourable to nutrition? The paper examines various linkages between agricultural work and care using insights gained from qualitative research in two high productivity agricultural areas of the country. These linkages are strongly mediated through gendered norms in agricultural work as well as in care provision, and the terms of the possible choices with respect to work, care and consumption vary between socio-economic groups.

I. Introduction

This paper is part of a larger exploratory study to answer the question: how might women’s work in agriculture help rather than hinder nutrition improvement in Pakistan? The question has assumed great significance due to the steady feminisation, over the last decade, of the agricultural labour force, and the absence of nutritional improvement in the same period.

Pakistan has a high prevalence of undernutrition among women and children. Forty four per cent of children less than the age of five are stunted and wasting among children stands at 15 per cent. One in two mothers is anaemic. Despite periods of economic growth and reductions in poverty levels, there have been no improvements in the state of undernutrition - in fact some indicators of nutrition have worsened over time (Table I).

Table I: Nutrition indicators in Pakistan

	NNS 2001 (%)	NNS 2011 (%)
Children under 5 years		
Stunting	42	44
Wasting	14	15
Underweight	32	32
Mothers (non-pregnant)		
Anaemia	29	50

Source: National Nutrition Survey 2011

Agricultural growth can be an important driver of nutrition improvement through a variety of pathways, and women’s work in agriculture can have positive as well as negative implications for nutrition (Gillespie et al. 2012; Pinstrup-Andersen 2012). Agricultural growth should not be assumed to be gender-neutral and it is possible that a relative increase in women’s work in

agriculture is a response to technological and intra-sectoral changes within the agriculture. There is evidence from India in the 1980s that female agricultural labour and agricultural growth increased with a rise in cash crop farming (Bennett 1992 cited in Gillespie et al. 2012). Women’s work in agriculture remains a promising but under-studied area of research and policy in Pakistan (Balagamwala and Gazdar 2013). Labour force data show that three-fourths of women in the workforce are employed in agriculture and this proportion has increased in the last 10 to 15 years. In addition to this, there has been a rise in female labour force participation (see Table 2). The proportion of all women of working age who are employed in agriculture has, therefore, been rising over time. Combined with a fall in male agricultural employment, Pakistan does show features of what has been labelled the ‘feminisation of agriculture’ (de Schutter 2013).¹

Table 2: Labour force statistics, by sex

Year	Labour force participation rate (%)		Labour force employed in agriculture (%)	
	Male	Female	Male	Female
2001 – 02	82.7	16.2	37.2	64.5
2003 – 04	82.7	18	37.0	66.6
2007 – 08	82.4	21.8	35.2	73.8
2010 – 11	81.9	24.4	34.7	74.2
2012 – 13	81.1	24.3	32.9	74.9

Source: Pakistan Employment Trends, 2013

This paper builds upon the pathways framework to propose an approach to individual or household-level decision-making in which the provision of care (for children and women) plays an important part in determining nutritional outcomes (Section 2). We then examine various linkages between agricultural work and care using insights gained from qualitative research in two high productivity agricultural areas of the country. Section 3 provides a description of agricultural work, the gendered division of labour and income, and nutrition-specific care in our fieldwork sites. Cotton-harvesting is an important vantage on women’s work in agriculture. We conclude with a discussion of the implications of women’s agricultural work on nutrition through work, care and consumption choices (Section 4).

¹ It is possible that the reported increase in women agricultural workers is due to better counting in surveys (de Schutter 2013). This needs to be examined further.

2. From Agricultural Work to Nutrition: Pathways and Trade-offs

2.1 Agriculture-nutrition pathways

The pathways framework proposed by Gillespie et al. (2012) looks at the linkages through which agricultural growth can influence nutrition outcomes. Pathways can be divided into two categories – those that relate to agricultural production and income and those that involve women’s work in agriculture. The most direct link between agriculture and nutrition is through food production which translates into consumption for the producer household. This pathway posits that the food producing households have higher levels of consumption because the implied price of self-produced food is lower than the market price. Agriculture is also a source of income either through the sale of produce or through wages earned by agricultural workers. Agricultural growth can, other things being equal, lead to an increase in private income. A household can use this income to improve its food consumption (by increasing the quantity as well as the diversity of the food consumed) leading to superior nutrition outcomes. Higher income can also be used to increase expenditure such on health products, hygiene and sanitation which can be considered nutrition-improving behaviours

The other set of pathways examine the link between a woman’s work in agriculture and nutrition outcomes for herself and her children. The first of these looks at the empowerment effects of female earnings. A woman’s work in agriculture may improve her bargaining power within the household giving her a say in decision-making and women are more likely to make pro-nutrition choices with regards to household expenditure. Evidence reported in Gillespie et al. (2012) and other studies (e.g. van den Bold et al. 2013) shows there to be an association between women’s empowerment and the nutritional status of her children.

In opposition to this positive association between women’s agricultural work and nutrition are two pathways that highlight the possibility of a negative impact. Women’s involvement in agricultural work reduces time available for childcare leading to adverse nutrition outcomes. Another pathway that looks at the negative effect of women’s work in agriculture is with respect to their own health and nutritional status. Agricultural work increases expenditure of energy and if food consumption does not adjust accordingly it leads to an unfavourable effect on her body mass. Work in agriculture may also expose women to harmful toxins present in pesticides and other chemicals used in farming. Given the ambiguity of the overall effect of these contradictory impacts, there is a role for research and policy-making to optimise the positive impact of women’s agricultural work on nutrition (Pinstrup-Andersen 2012).When you make footnotes they will automatically appear in the correct font and size. If any formatting looks wrong please don’t worry about it. It will be corrected later. Don’t alter or modify any of the styles.

2.2 Care

”Care is the provision in the household and the community of time, attention and support to meet the physical, mental and social needs of the growing child and other household members” (ICN,

1992 cited in Engle et al. 1999). Care depends not only on the availability of resources at the household level, but also on education and knowledge, and the physical and mental health of the caregiver, the time dedicated to care, and the agency of the caregiver. Resources and support at the community-level also determine the quality and level of care. Care behaviour may vary across communities as social groups or cultures might hold different priorities and beliefs concerning children's well-being. With respect to nutrition, care activities can be divided into six types (Engle et al. 1999):

- care for pregnant women including the provision of adequate food, necessary health care and rest
- breastfeeding and complementary feeding i.e. the transition from a breast-fed diet to adult food
- preparation of food
- hygiene
- health-seeking practices
- psychosocial care, that is, providing affection to a child and supporting their psychological and social development

Care, in effect, is the bringing together of resources, knowledge and time dedicated to an individual other than oneself. It is not just the quantity of care that matters for nutrition but also its quality (Glick 2002). For example, feeding practices that would lead to good nutrition outcomes would involve the time and attention of a mother (or a caregiver), but also appropriate knowledge about feeding such as what foods to give a child of a certain age, and the ability to be able to access these foods. While 'caring behaviour' is one of the inputs in the widely used nutrition production function, empirical studies of determinants of nutrition have not paid much attention to measuring care. In some studies (Garett and Ruel 1999), mother's education is used as a proxy for care but as the definition of care discussed above shows that many factors apart from education levels of the mother may determine the quantity and quality of care provided.

2.3 Existing evidence work versus care time

Care appears as an issue of concern in the pathways framework mostly through the pathways that looks at the reduced time allocated for infant and child care by women working in agriculture. The limited evidence that exists suggests that women's work in agriculture may be an important determinant of care for children. A study in Bolivia finds that women's time dedicated to agriculture is one of the main barriers to improving infant and young child feeding practices and that even when women do have the knowledge of pro-nutrition feeding practices, they do not have the time to adopt these practices (Jones et al. 2012). Women working in agriculture may often rely on other household members to provide care for their children, but the quality of this care may be poor. However, Headey et al. (2011) find that there is no difference in wasting in children who are cared for by their mothers and those cared for by others and only a moderate connection is found with respect to stunting.

Women with young children have to decide between giving up work, reducing time spent on childcare, or taking their children to work (Kent and MacRae, 2010). The latter, however, can have negative implications for a child's health and nutrition as he or she would have to spend the day in

the field. With regards to agricultural interventions, the impact of neglect of care on nutritional outcomes is mixed (van den Bold et al. 2013). In Nepal, the adoption of a cash crop that required increased hours of agricultural labour reduced the time spent by women on childcare but had no effect on the time they dedicated to leisure (Paolisso et al. 2001). In India, a study found that a mother’s participation in agricultural activities had negative effects on her child’s health (Bhalotra et al. 2010, cited in Gillespie et al. 2012) while Behrman et al. (1988) found that despite a rise in income, women’s paid employment reduced expenditure on healthcare as the opportunity cost of time used in seeking healthcare increased as income increased (cited in Gillespie et al. 2012). However, Headey et al. (2011) fail to find evidence that women employed in agriculture spent less time on childcare compared to women working in other sectors.

When testing the relationship between women’s work and childcare practices, existing literature identifies several considerations that should be taken into account. The age of a child may have an effect on the relationship between work, childcare and nutrition (Ukwuani and Suchindran 2003). A child of breastfeeding age may require more care time (from the mother) and so the link between care and nutrition for this group may be stronger than for older children. Similarly, it has been found that children of six to eight months need more attention since at that age children are making the transition from breastfeeding to consuming an adult diet which necessitates feeding them specially-prepared meals at frequent intervals (Leslie 1988).

The type of work that women are involved in may have differing effects on care and nutrition as well. While informal work is thought to be more compatible with childcare than formal employment as there is more flexibility with work and a possibility of taking the child to work, empirical evidence on this subject is mixed. The nature of informal employment may matter. For example, women working in agriculture may not want to take their child to the field as the child is exposed to the weather and to chemicals such as pesticides (Glick 2002). Similarly, the amount of work a woman does may determine the magnitude of the effect of work on nutrition outcomes. The intensity (heavy versus light loads) and the duration of work (full-time versus part-time) would have to be considered as well.

The relationship between women’s work and children’s nutrition outcomes may not be one-way – maternal employment may not necessarily be a determinant of child’s nutrition but could be an outcome of it if women seek more work because their children have a poor nutritional status (Leslie 1988). Conversely, a woman with a malnourished or ill child may choose to stay at home to take care of the child rather than go out to work (Glick 2002). There could also be unobserved effects in the form of women’s abilities that affect both nutrition of children and a woman’s work status (Glick 2002).

In Pakistan, data from the latest Demographic and Health Survey (DHS 2012-13) show that children of mothers working in agriculture were more likely to have poor nutritional outcomes (see Table 3).

Table 3: Child undernutrition by mother’s occupation

Mother’s occupation	Stunted	Wasted
Not working	42%	11%

Agriculture	52%	13%
Non-Agriculture	48%	8%
All mothers	44%	11%

Source: Authors' calculations based on the Demographic Health Survey 2012-13

2.4 Other aspects of care

While the care pathway focuses on the possible negative effects of agricultural work on care through the allocation of time from care to work, there are other ways too in which a focus on care provides insights into the impact of women's work. Women's paid work in agriculture can have a positive impact on nutrition as women earners are known to make more pro-nutrition consumption choices while there can be an impact of hard physical labour in agriculture, in the absence of consumption supplementation, on women's own health and body mass index (BMI). We argue that both these pathways too, are substantially about care and care-giving behaviour.

Empowerment of women has been measured directly through specific questions about decision-making and bargaining power of women within the household and the community. It has also been measured indirectly through proxies such as income, education, age and in relation to men through variables such as differences in female-male age at marriage, income status, education and age difference between spouses. A number of studies have empirically tested the relationship between a woman's level of empowerment and nutrition outcomes of her children using different measures of empowerment. There appears to be a strong association between the empowerment of women and nutrition (see van den Bold et al., 2013 for a review of studies). Within agriculture, a recent study using an index measuring women's empowerment in agriculture finds that women's autonomy in production and women's work in agriculture improves diet diversity and reduces the incidence of stunting (Malapit et al. 2013). However, in this study women's work includes 'productive' and 'domestic' tasks and not just agricultural labour. But women's work may not always be empowering and could have negligible effects on her decision-making role. Empowerment depends on whether she does paid work or not, and on whether she enjoys effective control over the income or the produce. Cash crop adoption, for example, may increase male control on production especially if the division of labour is such that men are responsible for all market-related activities.

A closely related issue is the effect of agricultural work on women's own health. Care is determined not only by the time dedicated to it, but also by the capacity of the caregiver (Engle et al. 1999). The connection between women's work in agriculture and the health outcomes of her children starts even before the child is born i.e. there are strong intergenerational effects of women's work on nutrition. There is evidence, reviewed in Herforth (2012), which shows a link between excess work during pregnancy and low birth weight and size, and that children born to mothers who were engaged in agricultural work during pregnancy were more likely have a lower birth weight compared to those children whose mothers did not do the same. Moreover, working in agricultural fields increases the exposure of women to harmful elements such as pesticides which can be hazardous not only for their own health and well-being but also to their children who they come in contact with. The use of hazardous chemicals in agriculture can also have an impact on the uterus and can affect its development (Harris 2014). Evidence from Pakistan has shown that women who

work as cotton pickers could suffer from pesticide poisoning (Habib 1997; Siegmann and Shaheen 2008).

Women’s work in agriculture requires high levels of energy expenditure which can affect the quality of care provided. Women’s work productivity can be adversely affected by the time and effort expended in care activities. This was found in a study in Zambia where women chose piece work over the more remunerative alternative of cultivating their own land because the latter activity was physically laborious (Kent and MacRae 2010). Data from the DHS shows that in Pakistan women employed in agriculture were almost three times more likely to be underweight compared to women who were not working. They were also considerably more likely to be ‘thin’ compared with women who were employed in work outside of agriculture (Table 4).

Table 4: Distribution of women by BMI category and occupation (per cent)

Woman's occupation	Thin	Normal	Overweight	Total
Not working	10.81	44.11	45.09	100
Agriculture	28.60	53.08	18.32	100
Non-Agriculture	16.67	46.92	36.41	100
Total	14.01	45.70	40.29	100

Source: Authors’ calculations based on the Demographic Health Survey 2012-13

2.5 Decision-making by individuals and households: work-care trade-off

The pathways framework is useful for understanding specific relationships between different features of women’s work in agriculture and nutritional outcomes. It does not claim, however, to provide a cogent account of behaviour at the household or individual levels. We need to adopt a perspective that allows observations at the level of the individual agent and her or his interactions with work, care and exogenous factors. In fact, the three pathways linking women’s agricultural work with nutrition cannot operate in isolation from one another. Our approach to understanding the work-nutrition link, therefore, must be general enough not only to see direct linear connections – say from women’s empowerment to nutrition outcomes – but also to incorporate the possibility that outcomes along different pathways might themselves be driven by other common factors.

The simplest way to illustrate such inter-connectedness is to proceed from the premise that a household (through a benevolent dictator or through negotiation) strives to improve health and nutrition outcomes for its members, subject to constraints (Behrman and Deolalikar 1988). Let us say that households believe that this requires some combination of income and care, and the income-care balance is determined by the way a household allocates its time between the labour market and care activities within the household. In these conditions, the level of income and the amount of care provided will be determined jointly as part of a solution to an optimization problem. What will appear as outcomes along two different pathways would in reality have been determined jointly.

If we take the example of the impact of introducing cash crops on nutritional outcomes, we may find (as in Paoliso et al. 2001) that the new cropping pattern leads to reduced time spent on care, as household members reallocate some of their care time to remunerative agricultural labour. This is in line with the argument that has been framed as one pathway. But in order to get a proper account of the impact on nutrition, we would have to consider the potentially positive impact of higher household earnings and also the possibility that incomes increased for women workers who are more likely to make pro-nutrition consumption choices. The reduction in care time and the increase in cash income are, therefore, outcomes of one intervention (introduction of cash crops), and we should be interested in its overall impact.

One way of approaching this problem is to think in terms of a household that maximizes well-being subject to its constraints. The focus on the household rather than the individual is necessitated by the fact that children are unable to make decisions on a wide range of matters which concern their well-being, and that such decisions are taken by adults within the household. There are, of course, many ways in which analysts have aggregated individual well-being to the household level – including bargaining, cooperation, and an altruistic dictator making decisions in the interest of each individual member (Becker 1981; Sen 1990).

There are also different interpretations of well-being. Conventional economic theory uses the concept of preferences or utility to define an individual's (or household's) objective function. This suggests an exercise in making choices over available alternative courses of action in the pursuit of maximizing the attainment of something that an individual (or household) has reason to value. We use the term 'well-being' here to draw attention to physical and mental health, cognitive and social ability, as well as relational issues such as the ability to take decisions. While all of these issues might, notionally, be covered under 'utility', this term is generally taken to convey choice-making on the part of equally empowered individuals differentiated only by their preferences and budget constraints.

Nutrition measurement – as practiced widely, using rates of child stunting and wasting – is exclusively focused on one element of the well-being (physical health, with complementary implications for cognitive ability) of one set of household members – namely children. More expansive approaches to nutrition measurement also incorporate micro-nutrient adequacy levels. The population of interest sometimes extends from children to adult females, and their BMI and micro-nutrient levels. Current consensus that chronic under-nutrition (stunting and impaired cognitive ability) is critically and irreversibly determined within the first 1,000 days of conception implies that this aspect of well-being is entirely dependent on the health and choices of other individuals in the household (Horton 2008). There are also strong inter-generational effects which are passed on through the mother's health status (Black et al. 2008; Black et al. 2013).

Many different models of household structure and the behaviour of adults have been used in the literature to justify the key assumption which is of interest to us here: households or adults within households have some reason to regard the well-being of children as an important objective. One influential approach is to think in terms of a nutrition production function (Behrman and Deolalikar 1988). This has been used widely to empirically test the relative importance of various 'inputs' such

as food consumption, household income, education, health-seeking behaviour, ecological factors, and care practices.

Care practices such as ante-natal and post-natal visits, child immunization, and breast-feeding have figured prominently in empirical studies of the determinants of nutrition outcomes. There has been relatively little attention in the literature, however, to the allocation of time allotted to care work across household members. The main area of research where intra-household allocation of time has been studied systematically is with regard to a household's supply of labour. Conventional labour supply models are based on the assumption that households optimize in the allocation of available time resources into income-earning activities (labour) and leisure. Modifications of these models to explicitly incorporate the allocation of care time are useful for our purposes.

The focus on care, in intra-household time allocations, allows for a more grounded understanding of gendered divisions of work. If care is primarily seen as women's responsibility – partly due to biological, and partly cultural reasons – we expect to see a male-dominated labour market. How do we interpret women's work participation, and particularly increasing trends as implied by the feminization of agriculture thesis? There are several possibilities. First, there is a thesis of the distress sale of labour by women (Kabeer 2012). If the household faces a decline in its income due to exogenous factors – say loss of male members, or the lowering of real wages – more adult time may need to be supplied as labour in order to maintain resources for well-being. In this case, women's appearance in the workforce would signify a household's response to adverse exogenous shock by shifting its overall time allocation away from care and leisure towards work. Second, women start to work (or work more) due to higher demand for labour (exogenous), and the availability of remunerative opportunities (Kabeer 2012). In this case, households are likely to be sacrificing care time for higher income – which may in turn lead to pro-nutrition consumption.

The optimization approach, analogous to labour supply models, not only allows the analysis of work and care as being jointly determined, it has the virtue of identifying exogenous and endogenous factors. It can be extended to allow for the differential impacts of men and women's incomes on nutrition by introducing the assumption that women care more about nutrition than men. There are several reasons why women's income might be more pro-nutrition in terms of consumption choices, than that of men. First, women may have better knowledge than men about what is required for good nutrition. This then begs the question why the knowledge is not utilised jointly by the household with respect to men's income. Second, women might be more concerned about nutritional outcomes than men, and a household's consumption choices become more pro-nutrition when the share of income accruing to the more pro-nutrition party increases. It is possible that greater concern about nutrition is combined with greater knowledge to deliver a positive effect. Third, women and men may be equally self-regarding in consumption choices from their disposable incomes, but women's consumption might have greater indirect benefits for infants and children. If a woman chooses to eat better using her own income, this will have beneficial effects on the foetus (if she is pregnant) or a child she is breast-feeding.

The types of interventions which will create synergies between women's agricultural work and nutrition, or minimize the negative fall-out of women's work on nutrition, will depend on our understanding of the factors behind women's work in agriculture. Changes in agriculture – either

those occurring spontaneously through changing technologies and market conditions, or through growth-oriented policy interventions in the sector – need to be examined for their possible impacts on nutrition, using the framework described above.

2.6 Emerging questions

We aim to further develop the household/individual decision-making approach outlined above to understand the relationship between women’s agricultural work and nutrition in Pakistan. The overarching question is: what are the linkages and mechanisms through which women’s agricultural work has a positive or negative impact on nutrition? The main linkages that we are interested in examining are those which work through the allocation of time between work and care, and the impact of women’s income on consumption choices within the household. Is there a trade-off between work and care? What are the processes which influence the terms of this trade-off? What determines whether and to what extent a woman will participate in paid work, particularly in agriculture? How are care practices understood in rural communities, and how does this understanding conform to prescribed standards? What influences consumption choices within households, particularly with respect to nutrition-specific expenditures?

In addition to probing the relationship between women’s agricultural work and nutrition functions, we are also interested in how this relationship might change in response to exogenous factors in general and policy interventions in particular. What are the main exogenous factors which have been important in changing patterns of agricultural work, care practices, and consumption choices? What have been the impacts of technological change, changes in relative prices, and external shocks relating to agriculture? How does interaction with health services alter existing norms and practices with regard to care? How might women’s own cash income, or their ownership of resources, alter consumption choices, care practices and nutritional outcomes?

2.7 Empirical approach

While statistical data sources such as the DHS suggest that there might be an association between women’s work, and their own health as well as the nutrition status of their children (Tables 3 and 4 above), there is need for a more precise understanding of the linkages through which this relationship might operate. The approach outlined in Section 2.5 highlights work, and care time and practices on the one hand, and consumption choices on the other. The labour force and household sample surveys in Pakistan can provide broad aggregates relating to work participation by sector, but are unable to offer any insights into the organisation of work in agriculture and decision-making around labour supply. We hope to fill this gap with a survey that covers all dimensions highlighted in the above framework – notably work, care and consumption choices.

In order to better understand the process issues involved in work, care and consumption choices at the household or individual levels, however, it was important to carry out preliminary qualitative fieldwork in selected agricultural communities. There are major gaps in our knowledge of the organisation of agricultural work, particularly from the point of view of gendered aspects of work and income, in Pakistan. Although less severe, there are nevertheless knowledge gaps with respect to care behaviour, practices and norms. Critically, our prior understanding of how choices with

respect to work, care and consumption are made, by whom, and even the extent to which these are choices, is limited to anecdotal accounts. Preliminary qualitative investigation was necessary, therefore, even for informing the design of a more ambitious sample survey.

From the economic and demographic viewpoints, Pakistan's agricultural terrain can be divided into two types of topography: irrigated plains of the Indus Basin, and the rest consisting of mountains, highlands, and deserts. The former – mostly the plains areas of Punjab, Sindh and Khyber-Pakhtunkhwa provinces – accounts for over nine-tenths of the rural population, and an even greater proportion of value added in crop agriculture. The irrigated plains are also at the forefront of technological innovation and agricultural growth in the country. These regions, while relatively better off compared with the rest of the country in terms of infrastructure and average incomes, nevertheless account for much of rural poverty and undernutrition. Our primary empirical focus, therefore, is on the mainstream irrigated plains where agriculture is an important source of employment and income.

Women's work in agriculture has begun to receive recognition in employment data in Pakistan. While women play an important part in virtually all agricultural sub-sectors, there are some crops and tasks in which their contribution is widely acknowledged. Cotton is one such crop, and the harvesting of cotton (or cotton-picking) is regarded as almost exclusively women's work (Siegmann and Shaheen 2008; Shafiq et al. 1991; Habib 1997). Siegmann and Shaheen (2008) find in their survey of cotton harvesters in South Punjab, that care duties are a factor which women consider while making decisions about work. Cotton is one of the largest cash crops in Pakistan and forms the basis of much industrial activity and export. Cotton is grown on almost a third of total cropped area during the *khareef* (summer) season (Agricultural Census Organization 2012) and around half of Pakistan's exports are connected to cotton e.g. yarn and textiles (Economic Survey of Pakistan 2013-14). There have been continuous technological changes in cotton farming with the introduction of more productive varieties that have increased the cost of harvesting for cotton growers (Nazli et al. 2012). Moreover, cotton and textile lobbies are influential in shaping agricultural, industrial, fiscal, and trade policies.

Cotton is grown in some of the most productive agricultural regions – irrigated plains of central and upper Sindh, and southern Punjab – which also happen to have relatively high rates of poverty and malnutrition (Balagamwala and Gazdar 2013). Comparison between cotton and non-cotton areas within the irrigated Indus plains, as well as variation within each type of area is, therefore, a promising source of insight for our study of women's agricultural work and nutrition.

We undertook preliminary qualitative fieldwork in June and August 2014 in the rural areas of two districts in the irrigated plains of Sindh province. This first round of fieldwork was conducted in June in the Shahdadpur sub-district of District Sanghar in central Sindh, which is known for cotton growing.² This was followed in August by a second round of fieldwork in the canal-irrigated parts of District Badin in the southern part of the province. Badin was selected as, unlike Shahdadpur where cotton has been growing for decades, the introduction of the cotton crop is fairly recent and

² Sanghar is the largest cotton-growing district of the Sindh province in terms of cotton acreage and output (Agricultural Statistics of Pakistan 2011, Pakistan Bureau of Statistics).

cultivation of cotton is not as extensive as in Shahdadpur. Badin was also selected because it has a high number of beneficiaries of the Sindh Lands Grant Programme which is also being studied as part of our larger research work.

The preliminary qualitative fieldwork consisted of a series of unstructured key informant interviews, group discussions and individual case studies. These interactions probed the range of issues covered by the research questions noted in Section 2.6. In particular, we sought to establish the main milestones in the annual agricultural cycle, technological changes in cotton farming, the deployment of resources such as land, irrigation water and labour through the crop cycle, the organisation of agriculture, norms and behaviour with respect to the 1,000-day period of a child's life, perceptions about the implications of women's agriculture work, particularly in cotton harvesting, for their own health and for the nutrition of their children, the impact and uses of women's cash income from cotton-harvesting as well as the official cash transfer programme. Our informants and case studies were purposively selected to reflect the perspectives of women and men, variations in household assets and occupations, and caste, religious, and ethnic heterogeneity.

3. Findings

3.1 Description of fieldwork sites

We define our fieldwork sites as those settlements in Shahdadpur and Badin where we carried out our preliminary qualitative investigations. In Shahdadpur, our fieldwork sites consisted of 7 settlements of various sizes in and around the administrative village or *deh* BKR.³ Our selection of this area was based on the fact that the Collective has conducted extensive fieldwork in this location since 2001, and we had prior knowledge of social and economic conditions in these communities. The selection of sites within the BKR area was purposive based on the need to cover settlements where cotton predominated, and to ensure the coverage of remote as well as accessible settlements, and settlements of various sizes, and the representation of economically and socially marginalised groups. In Badin our fieldwork sites were not clustered in one area but spread across various sub-districts or *taluka*. Two main criteria for site selection were the presence of the land grant scheme in the site, and to ensure the coverage of sites with different cropping patterns. Like Shahdadpur, we also made a special effort to visit settlements inhabited by economically and socially marginalised groups. Our prior knowledge of fieldwork sites and site selection was based on key informants. Our fieldwork in Badin consisted of interactions in 12 settlements of various sizes, as well as five sets of interviews with cotton-harvesters at work in various locations in the Kadhan area.

There are some common features across districts and sites, as well as some contrasts. Although there is a great deal of variation in size of settlement, infrastructure, accessibility to urban centres, and availability of non-farm work between sites, they are all primarily agricultural and rural. This was a purposive criterion for site selection. Another common feature that these sites share with other settlements in rural Sindh is with respect to social organisation. Settlements are closely associated with patrilineal kinship groups. Smaller ones consist exclusively of one extended patrilineal family or

³ *Deh*, settlement and individual names are anonymised.

clan, while larger settlements are sub-divided into fenced compounds which in turn are inhabited by close relatives.⁴

There are strong gender-based norms in our fieldwork sites, as in other parts of rural Pakistan, concerning virtually all dimensions of social and economic activity. Spatial organization or the division of public from private domains is closely associated with norms relating to the access of men and women to various spaces. In most rural settlements the private domain excludes men who are not close relatives. Women's access to public spaces, such as markets, urban centres, and government offices is usually mediated through male family members. These norms are widely understood even if they are frequently observed in the breach. They strongly influence, nevertheless, opportunities available to women for economic activity and social interaction. Asset ownership, particularly the ownership and control over land, also follows strong gender norms, with few women exercising effective property rights independently of male family members.

Land ownership is relatively unequal across survey sites and rural Sindh in general. A large proportion of rural households do not own any agricultural land, while there is a presence of big landowners who own hundreds of acres or more. The very big landlords usually reside in their own villages or divide their time between their rural and urban homes. The largest landowners who normally reside within these settlements own up to 200 acres, while there are many smaller holders who own between 1 and 20 acres. There is a close association between the ownership of agricultural land and security of tenure over residential holdings. Many of the residents in our fieldwork sites are landless tenants or labourers who are vulnerable to eviction. Others have more secure entitlements to their homestead because these are located on state-owned land with legal occupancy rights.

While agriculture dominates the economy across the fieldwork sites, there are variations across settlements in their reliance on non-agricultural incomes. Around 80 men from village Khaskheli in Shahdadpur – a village with a population of some 200 households – are migrant workers in Karachi. This is a relatively recent phenomenon. There are men as well as some women across the settlements who have public sector jobs as teachers, policemen, soldiers, and health workers. An important new source of income in the fieldwork site is a government cash transfer programme (the Benazir Income Support Programme) which provides 3,300 rupees (\$33) every three months to women in poor households.

Although there are government schools in the larger settlements, it was uniformly reported that these functioned poorly with low teacher attendance, particularly in girls' schools. None of the settlements has any public health facility, though there are small private clinics run by paramedics in two settlements in Shahdadpur. All but two of the smaller settlements in Shahdadpur, but only some of the larger settlements in Badin are covered by government Lady Health Workers (LHWs) who advise women on health issues, particularly those relating to reproductive health. None of the settlements, even the larger ones, have any public sewage infrastructure. In the larger settlements most homes have access to latrines even if in some cases these are rudimentary communally-

⁴ For details of the social and spatial organization of rural settlements, and the hierarchy of rights within these, see Gazdar and Mallah (2010).

designated spaces. Khaskheli village in Shahdadpur is relatively well-served in terms of drinking water, with a government-run water filter plant. In other settlements residents use groundwater which is brackish in some cases. In Shahdadpur, all of the settlements, including the smaller hamlets, are connected to electricity supply, while in Badin electricity is available only in the larger settlements. No settlement has a gas connection and firewood and dried dung are the main cooking fuels.

In Shahdadpur, our fieldwork covered seven settlements of various sizes – ranging from Khaskheli village which has around 200 households, to two hamlets of share-cropping tenants consisting of 4 families each. Some of the settlements like the Khaskheli village are linked to the sub-district headquarters by paved road, while access to others such as the relatively large Khichi village (with around 80 households) is only possible through an unpaved track which becomes unusable when there is heavy rainfall. Our fieldwork covered three settlements dominated by the Khaskheli kinship group.⁵ The Khaskhelis have gained a measure of upward mobility and some of them have become landowners. A majority, however, do not own land and work as share-cropping tenants or labourers. The two small hamlets of share-croppers are populated by members of the Bheel ethnic group. Bheels are officially classified as Scheduled Caste Hindus and are known to be vulnerable to extreme forms of labour exploitation such as bonded labour by virtue of their status as a religious minority and members of a historically marginalized caste. According to virtually every criterion, the Bheels are poorest and most food-insecure kinship group in our fieldwork site. We also visited one settlement which was predominantly inhabited by the Rind Baloch kinship group (Rind village) and another where the dominant group was Khichi in Khichi village. The Rinds, some of whom now own land, are mostly share-croppers and labourers but with far greater political voice and autonomy compared to the Bheels. The Khichi settlement includes a number of small and medium landowners as well as sharecroppers.

In Badin our fieldwork sites were concentrated in three clusters in different areas of the district: Kadhan, Golarchi, and Tando Bago. In Kadhan and Golarchi we visited settlements in an area where records indicated the presence of the land grand scheme. The Samoon village in Kadhan, with around 200 households, was exclusively inhabited by the Samoon kinship group. A majority of the Samoon are landless, while a handful of them own upwards of 50 acres, and the rest own a few acres each. Two of the four fieldwork sites in Golarchi Village Rajo and Chak, are relatively large with over 100 households each. The former is dominated by the Rajo kinship group. Like the Samoon, a few of the Rajo have their own land while the others work as share-cropping tenants for neighbouring landlords. The Chak is inhabited by descendants of migrants from Punjab and who were allotted lands in Badin in the 1960s. Most of the residents of this village own some land. The two smaller settlements are inhabited, respectively, by the Chang and Kolhi kinship groups. The Chang were traditionally pastoralists who acquired land and settled into farming. They are middle-sized landowners and farm their land with the help of Bheel tenants. The Chang continue to keep many heads of cattle. The village of L Kolhi is settled on land belonging to an absentee landlord for whom most of the residents work as share-cropping tenants. The Kolhis, like the Bheels in Shahdadpur, are historically marginalised Scheduled Caste Hindus who are known to be vulnerable to exploitative conditions such as bonded labour. In Tando Bago we selected a medium-size *deh* in

⁵ The Khaskhelis are thought to be descendants of house-servants and serfs of the former rulers of Sindh.

terms of population. This *deh* has three large villages – B Soomro, Z Soomro and SB – and several smaller hamlets. The two Soomro villages are similar in their kinship and class structure to the Samoon and Rajo villages described above – all residents belong to one kinship group and most are tenants of large landlords while a few have their own land. The SB village is dominated by an influential landlord and apart from his family all others are share-cropping tenants. The smaller hamlets in this *deh* are also inhabited by share-cropper tenants of the same landlord. There are two such Kolhi hamlets and one village belonging to the historically marginalised Mallah but now upwardly mobile kinship group. Finally, our fieldwork in Badin also included interviews with cotton workers engaged in harvest work in five different locations in the Kadhan area.

3.2 Crops and technology

One reason for the choice of Shahdadpur and Badin for the qualitative fieldwork was the comparability of their agricultural economies. Although the two areas are placed in different agro-climatic zones in some classifications – Shahdadpur being in the cotton-wheat zone and Badin in the rice zone – our fieldwork sites in the two areas are comparable in a number of essential ways. Our sites in both areas are in those parts of the Indus floodplains which are within the command area of perennial canals. In this sense all of our fieldwork sites were in the agricultural heartland of Pakistan. This is in contrast with the expansive semi-arid zones – some in close proximity to our fieldwork sites. Neighbouring *talukas* of Sanghar district, of which Shahdadpur is one *taluka*, include semi-arid zones. Badin district too has a number of such non-irrigated segments.

The fieldwork sites in the two areas are also similar in terms of the technical feasibility of various agricultural activities. Farming in the Shahdadpur fieldwork sites is almost exclusively organised around two crops - wheat in the winter or the *rabi* season (December to April) and cotton in the summer or *khareef* (May to November). There is a limited amount of vegetable farming and rice is sown on land of lesser quality alongside cotton in the summer. While the *rabi-khareef* calendar is similar in Badin, there is far greater variety in cropping patterns across and even within fieldwork sites. In Badin rice is a common *khareef* or summer crop and is also the main staple in contrast with Shahdadpur where wheat is the staple crop. But cotton is also grown in a number of the fieldwork sites in Badin alongside or in the place of rice. Common winter crops in Badin are sunflower (for oil), and vegetables (notably tomato). In addition, sugarcane is a popular year-round cash crop in Badin. Besides these crops, livestock rearing is common in both areas and land is set aside to the growing of fodder crops. The main focus in the livestock sub-sector is on buffaloes for dairy.

Land ownership in the fieldwork site is highly unequal, as is the case in the province generally. There are several landlords with holdings in the hundreds of acres who dominate the agrarian economy and local politics. While a majority of the households do not own land they farm as sharecropping tenants. Many other landless households are engaged in the agricultural sector as labourers. Between the large landlords and the landless there is a significant segment of self-cultivating households who own anywhere from 1 to 20 acres.

Farming is entirely dependent on surface irrigation as groundwater is brackish and unsuitable for agricultural use. Although our fieldwork sites are all in command areas of perennial canals, there is much temporal and spatial variation in the actual availability of irrigation water. There are overall

shortages of water in the system, and these tend to be distributed unevenly between upstream and downstream water-users and in response to political power. There have been conflicts, some of them violent, around the ownership and control of land and irrigation resources. The main source of irrigation water serving the lands of Khaskheli village and surrounding villages in Shahdadpur was shut off for two years (2012 and 2013) due to a tribal conflict among upstream water users. This conflict was finally resolved and irrigation supplies resumed in 2014. There are similar stories in fieldwork sites in Badin where irrigation water supplies are good in some years and poor in others – depending on both system-wide shortages as well as local factors. Besides these institutional issues in the delivery of irrigation water, both fieldwork sites in both areas suffered from a major natural disaster in the form of torrential rains in 2011 which led to widespread crop and livestock losses.

The agricultural economy in our fieldwork sites has witnessed many of the technological changes which have occurred in the country and the province as a whole. New seed varieties have led to yield increases in virtually all major crops. A salient change in the last ten years or so has been the introduction of ‘hybrid’ cotton varieties which have led to significant improvements in yield and changes in patterns of labour use. There is confusion among farmers in the fieldwork sites about whether or not these are Bt⁶ cotton seeds. While Bt cotton was ‘commercialised’ in Pakistan in 2010 many farmers believe that it is still without licence. It is claimed that seeds have been smuggled into the country since the early 2000s and spread in an unregulated manner. Others claim that the current seeds are ‘hybrid’ varieties that have some Bt characteristics but are nevertheless legally traded in the country. Other technological changes in both areas involve the progressive introduction of farm machinery – tractors, threshers and in some cases also combine harvesters. The use of modern inputs such as fertilizers and pesticides is not new, and responds to price variations.

While cotton yields are reported to have increased in the fieldwork sites in Shahdadpur, with resulting increases in the demand for labour, technological changes have not significantly altered patterns of farming in this cotton-wheat region. In Badin, however, technological change and diffusion are associated with shifts in crop choices. The arrival of cotton is dated by farmers in the mid-2000s and is generally attributed to the availability of higher yielding Bt or ‘hybrid’ varieties. Prior to the mid-2000s cotton was grown in the 1970s when it was replaced by other crops. Another relatively new arrival in the region is sunflower which was introduced, according to local farmers, in the 1990s as a viable winter crop. Some of the changes in cropping patterns in Badin are explained with reference to trends in relative prices and variations in the availability of irrigation. A farmer in Chang village who had recently started growing tomatoes, thought that if tomato prices held he could expect to make a fortune. In Samoon village we were told that sugarcane is preferable to rice because it is more resilient to water shortages. Interruption of canal water for a stretch can destroy the rice plant. Sugarcane survives albeit with a lower yield. There were similar accounts about choices between rice and cotton in other villages.

⁶ Bt cotton is a genetically modified variety of cotton producing an insecticide.

3.3 Tasks and labour

A striking feature of the organisation of agricultural work across fieldwork sites is the clear division of various tasks associated with different crops into discrete activities which could, potentially, be given out to hired help. These tasks – including land levelling and preparation, ploughing, sowing and/or transplanting, on-farm water management, weeding, application of pesticides and fertilisers, and harvesting – might be carried by family members of the farming household. It is rare, however, to find purely self-contained households – that is, those who rely exclusively on family labour, and also do not hire out family labour to others – in our fieldwork sites. It is common for tasks taken singly or bundled together to be handled by some combination of family and non-family labour. Remuneration for these singly contracted or bundled tasks is almost always in terms of a piece rate or share of produce.

Sharecropping between landowners and tenant-labourers is the most conspicuous form of labour contracting. There are many variations in our fieldwork sites in prevailing forms of sharecropping. A basic half-share arrangement was observed in a number of fieldwork sites in Shahdadpur for wheat as well as cotton. The landowner is responsible for ensuring irrigation water availability on the land tenanted out, and for a share of the cost of inputs such as seeds, pesticides and fertilisers. The tenant-labourer is supposed to supply all labour including draft power for ploughing. The cost of harvest labour, if hired in, is shared equally between landowner and tenant-labourer. The net harvest is then shared equally between the two parties. There are several variants of this basic arrangement in evidence in Badin. A common form here is a one-fourth arrangement in which the landowner is responsible for ploughing and field preparation and is entitled to three-quarters of the net harvest. A number of tasks such as on-farm water management, weeding, and the application of pesticides and fertilisers are often bundled together in share-cropping arrangements.

Harvesting of most crops is often a stand-alone task for which small and large landowners as well as sharecroppers might hire in non-family labour. The same is true to an extent of transplanting (of rice and sometimes also cotton). Some landowner and farmers who are not in share-cropping arrangements might also hire piece-rate labour for weeding and the application of pesticides and fertilisers. This is particularly the case in Badin where we observed a far greater variety in the bundling of tasks and types of labour arrangements. There appears to be less specialisation in terms of tasks and labour deployment within the livestock sub-sector in agriculture. Fodder is often available free of cost as a by-product of weeding, threshing, or the peeling of sugarcane bark (in Badin). The various tasks involved in the routine care of dairy animals are generally carried out by family members. Even in this sub-sector, though, there are share-rearing arrangements in the fieldwork sites in Shahdadpur and Badin, with an individual or a family taking on the responsibility of keeping someone else's animal in return for the milk produced and a share in eventual sale price of the animal.

While there are variations across fieldwork sites, crops and time in the organisation of agricultural work, three general observations appear to hold true throughout. First, agricultural work in these high productivity areas is specialised around well-defined tasks – individual or bundled together. While there are diverse labour arrangements around these various tasks including the use of family labour, nearly all agricultural tasks can be contracted out. For some tasks such as harvesting there

are well-organised systems of labour mobilisation around labour sub-contractors known as *jamadars* who negotiate on behalf of labourers and also discipline them.

Second, in our fieldwork sites remuneration for hired agricultural labour is on a piece-rate basis. This is true not only with respect to the various share-cropping arrangements that we found, but also with regard to hired labour in harvesting, transplanting and other tasks. These observations imply that, in principle, there can be a degree of flexibility in a household's or individual's supply of labour.

Third, there is a range of activities in the agricultural economy of our fieldwork sites that relate to management. Coordination and management are corollaries of the break-up of agricultural work into discrete and specialised tasks. Moreover, our observations about crops and technology imply that market and political engagement are key elements of managing a farm. Other market-based services such as those of *jamadars* are also related to coordination and management that are associated with specialisation. Markets play a key role in agriculture in these areas, even with respect to food crops that might be grown for own consumption. Moreover, access to irrigation entitlements is often premised on a farmer's engagement with local political negotiation.

3.4 Gendered work and income

Cotton harvesting is the most conspicuous activity in terms of women's agricultural work. But women's work is important in virtually every other aspect of the agricultural economy. There are gendered norms around certain agricultural tasks but not others. Ploughing and field preparation are activities exclusively carried out by adult males. The same is true of on-farm water management, and the application of fertilisers and pesticides to crops. While there do not appear to be strong gendered norms around weeding, collecting fodder and caring for livestock, these activities are mainly carried out by women and children rather than adult males. The sowing of wheat (in the Shahdadpur fieldwork sites) is done exclusively by men. Transplanting of rice and in some instances cotton (mostly in the Badin fieldwork sites) is done by men and women, though we did come across the case of one community that considered this strictly as men's work. Wheat and rice harvesting in Shahdadpur and Badin respectively is carried out by families – men, women and able-bodied children – and makes a major contribution to a household's annual consumption of the staple.

Cotton harvesting is almost exclusively seen as women's work, and the exceptions underline the association of this task with "lesser masculinity". Boys who might have taken part in cotton harvesting begin to distance themselves from this work, particularly in the company of older men. Non-Muslim Scheduled Caste men (Bheels in Shahdadpur and Kolhis in Badin) take part in cotton harvesting alongside women family members while the dominant Muslim men were often heard saying that it was somehow demeaning to work as cotton harvesters alongside women. Muslim women, when asked about this gendered norm, simply referred to this division as part of tradition (*rivayat*). The gendered division of labour with respect to cotton harvesting appeared to be stronger in Shahdadpur, a region where cotton was an old and well-established crop, compared with Badin where it was a recent arrival, and one among many cash crops. Another reason that was given when probed further about why it is considered women's work was that "they could do it". This implies that other work which the women were considered capable of managing on their own might also

gain the designation of “women’s work”. We observed this at play in Badin where the harvesting of vegetables such as chillies and tomatoes was also considered “women’s work”. Unlike cotton, however, there was relatively less recourse to hired non-family labour in these crops – simply because they demanded less labour.

Besides these gendered norms around farm work, there are strong underlying gendered patterns in the ownership of resources and access to markets and political spaces. Women own land only exceptionally, and even among women landowners there are rare exceptions who actually play an active role in managing resources.⁷ Managing a farm, or managing labour, which involves coordinating various tasks, and engaging with markets and local politics, is exclusively a male domain.⁸ There was a more subtle, yet powerful, sense in which women’s ownership of land, even if it were considered to be a nominal formality, might have implications for intra-household bargaining. Discussions with men in communities where women had received land grants expressed concern that a woman might, in the future, exercise her ownership right by transferring it to her natal family.

Although women are found to be involved in a range of agricultural tasks either on their own, or as part of a family unit there are only two sets of activities in our fieldwork sites - cotton harvesting and livestock rearing - for which women’s entitlement to remuneration is even nominally acknowledged. For other work the entire household is the unit of remuneration. Food crops such as wheat and rice are for the household’s own consumption. Rural households strive to maintain a stock of grain, and its ownership is generally well established in favour of a particular family unit. Income from crop sales generally accrues to the male head of the household simply by the virtue of the fact that it is he who conducts market transactions.

The ownership of dairy animals, however, can be vested in individuals including women. We found instances in our fieldwork sites – mostly in Shahdadpur – where women owned livestock and earned cash income from its sale or the sale of its produce. There is a growing market in fresh milk – a produce that was traditionally not sold but was circulated free of charge on a reciprocal basis in rural communities. In one of the fieldwork villages in Shahdadpur men used to take the milk to town to sell. The growth in the market has led to the emergence of local purchasers who buy milk in the village and transport it to the market. These milk buyers now deal directly with women who regard income from milk sales as theirs. This case suggests that the matter of who keeps the cash might simply depend on who conducts the market transaction on the behalf of the household.

Sewing and embroidery are other (home-based) activities which can earn cash income for women. Income from these activities is clearly acknowledged as belonging to the women who work, and there are distinct narratives about how this income might be spent. Rates of remuneration are relatively low and much of this work is actually done for self-consumption – that is, women sew quilts or embroider fabric which becomes part of their daughters’ trousseaux. The formal sector, in the shape of government, is the source of a significant point of departure with respect to the

⁷ Our interviews with women land grantees in Badin did not reveal a single case where the woman herself plays an active part in management of the land.

⁸ We did come across exceptional cases of women in some of our Shahdadpur sites who had worked as *jamadars* for cotton harvest labour.

women's autonomous income. A small number of women who have obtained government jobs such as health workers or teachers are acknowledged as earning income (Khan 2014).

The same is true for a smaller amount of cash but on a much bigger scale for women who are beneficiaries of the government cash transfer programme (Benazir Income Support Programme or BISP). We found variation within and across our fieldwork sites in the extent and manner in which BISP cash is understood as women's income. While most respondents in the Shahdadpur fieldwork sites – men and women – felt that BISP was a woman's income, their counterparts in Badin felt that it was income for the family for household expenditures. Men in beneficiary families managed to take most of the cash on the pretext that it was they who would make purchases of household supplies from the market.

While agricultural work is highly gendered this does not automatically translate into gendered entitlements to income. Some aspects of a woman's work gets acknowledged as her individual contribution or entitlement, and there are signs that what is, or is not, considered a woman's own income is subject to negotiation and change. This is true not only with regard to agricultural work but for other sources of income such as the government cash transfer.

3.5 Cotton and women's work

The cotton harvesting season begins in late July and goes on till mid-November in our fieldwork site in Shahdadpur and Badin. There are usually 4 to 6 rounds of cotton-picking from a single plant, with intervals of 8-12 days between each picking. There can be considerable variation in the harvesting period of neighbouring fields, depending on the precise date of sowing and application of other inputs. The cotton crop cycle is usually closely correlated with the wheat crop in the same field. Farmers have a leeway of around a month in wheat sowing, and the sooner a field is required for wheat the earlier its cotton-picking cycle will be brought to closure. The introduction of new 'hybrid' crop varieties in cotton in the last ten years or so is thought to have led to an increase not only in yield but also in the frequency of picking. The older variety, which used to be common in our fieldwork sites in Shahdadpur, required only two pickings in the entire season. In Badin, as noted above, there was no cotton cultivation before the introduction of the higher yielding varieties.

Shahdadpur

A vast majority of older girls (mostly from aged 10-12 years onwards) and adult women in our fieldwork sites in Shahdadpur take part in cotton harvesting. In addition, women from Shahdadpur city travel together every day to take part in cotton picking in this area.

There are broadly three types of arrangements through which women work in cotton picking. First, a small number work only on own family farms or on farms of close relatives. Second, women from sharecropper tenant families work not only on their own farm but also on farms of other tenants for the same landlord. Third, there are *jamadars* (or labour contractors) who organize teams of women and take prior bookings from farmers for the supply of workers. The three arrangements have some common features. The actual work is carried out in teams, as segments of fields that are ready for harvesting are marked out for harvesting on a particular day by the farmer or the *jamadar*.

Women's work, however, is accounted for individually in terms of the weight of cotton harvested. Children or younger siblings who work alongside an adult woman might be treated as contributing to that particular woman's account, but the idea of individual piece-rate work is strongly established. It was reported that even women who work on their own family farms maintain separate accounts of cotton harvested. Rates of remuneration also appear to be standardized across types of labour arrangement – it was reported that in the preceding season 300 rupees (\$ 3) were paid for every *maund* (40 kg) of cotton harvested.⁹

In Shahdadpur, where cotton has been a long-established cash crop, women in the first arrangement (harvesting on the family farm) have some amount of flexibility in the number of days worked during the season. For others, particularly those belonging to sharecropper households and those mobilized by a *jamadar*, it is expected that a full-day's work will be supplied every day. The normal work day goes from 8 in the morning to 5 in the evening with a one-hour break for lunch. For most women harvesters, therefore, the supply of labour during the cotton-picking season seems to be a binary choice between working virtually every day for around three months and not working at all. In fact, for women belonging to sharecropper households there may be limited choice even with respect to whether or not they would take part in cotton harvesting. These households are reported to be under considerable pressure from landlords to supply as much labour as possible for cotton harvesting on a priority basis to fields owned by the landlord. The landlord has additional leverage in these cases because the sharecropper household depends on him for work and food security through the annual cycle, particularly the wheat crop.

There are several reasons for the demand for continuous labour during the cotton season. As we have noted above, new cotton seed varieties are higher yielding and allow for multiple harvests from a single plant. For farmers, cotton represents ready cash income and they are keen to realize this income as quickly as possible. Delay in harvesting leads to a decline in the quality and weight of the harvest. The fear of theft was also cited by many informants as a reason why a crop of high value cannot be left standing for very long. Towards the end of the season farmers are keen to complete the harvest in order to prepare the land for the wheat crop. A number of features of the labour arrangements around cotton picking are associated with farmers' need for an assured supply of continuous labour. The farmer pays an advance to a *jamadar* to ensure that he will engage some minimum number of workers when needed. The *jamadar* uses this cash to make small advances (of around 2,000 rupees each) to women workers who are then obliged to commit their labour to him. There are also *jamadars*, mostly men but also women, who specialize in bringing women workers from nearby urban localities for cotton harvesting.

The farmers' requirement for a secure and steady supply of labour has implications for women workers. While women from sharecropper households are already under pressure to work continuously, women mobilized by *jamadars* come under similar pressure once they have taken advances and committed their labour. Non-compliance would earn a great deal of social opprobrium and foreclose future work opportunities. Women report that they can only take time

⁹ There are deductions from the women's accounts of 2 kg per *maund* – 5 per cent – to account for wastage. So, in effect, a woman has to harvest 42 kg to be paid for 40 kg.

off in cases of emergency relating to their own health or the health of their children. There is little sympathy for time off for what might be regarded as less serious contingencies.

While the pressure to supply continuous labour might be onerous at times, in general the cotton harvest is regarded as a season of economic well-being. A woman's income during this season depends on how much cotton she picks, and there can be great variation in this, depending on ability and stamina. Many women report that the amount of cotton a woman picks is a manifestation of her *majboori* or need. The more desperate she is for cash income the more hours she puts in, and the harder she works. The weight picked can range from 20kg to 60 kg a day, and we heard of women who harvest as much as 80kg in a day. Some women, therefore, can earn between 15,000 to 25,000 rupees in the season.

Although these amounts are less than what an able-bodied man might earn over a similar period (around 3 months) from manual labour, they are significant for a number of reasons. Women normally do not have access to the casual labour market and cotton harvesting is one of the few activities that can be a source of independent cash earning for them. It was reported across the board that cotton harvesting accounts are maintained for individual women (plus their children who might assist them) and that women are paid individually for their work. This is quite unlike other agricultural tasks such as wheat harvesting or weeding for which the beneficiary is the entire household.

For some sharecropping households women's earnings in the cotton harvest represent a lifeline and not additional income. Women from these households reported that they use their cotton earnings to procure basic kitchen supplies such as cooking oil, sugar and tea – their stock of the main staple is already assured from the wheat harvest. Bheel sharecropper households, among whom women and men work together on the cotton harvest, were exceptional in the sense that it was commonly reported that the income belonged to the entire household. For many of the others, however, there is a clear sense that income from cotton harvesting can be and is used by the women themselves for their personal consumption or on expenditures which they prioritise. Women buy gold or jewellery for themselves or for their daughters' trousseaux. They purchase new clothes for themselves and their children, as well as non-food household consumables such as soap and shampoo. It was also widely reported that women purchase livestock – mostly goats – as a form of saving and investment.

Women's cotton harvest income contributes to pro-nutrition consumption choices in a number of indirect ways. For sharecropping households as well as extremely poor households for whom the cotton harvest income is a lifeline, the absence of this income might result in greater food insecurity. In other households where women report using the income to add to their savings, it is possible that the final use of savings might be with respect to higher pro-health and nutrition expenditures.

There may be small but significant features of empowerment associated with women's income from cotton harvesting. The fact that an individual woman's work is recognized and counted is a departure from the convention of compounding women's work and economic contribution with that

of the household in general.¹⁰ We came across some evidence of women's bargaining power around the cotton harvest. While women from sharecropper households are vulnerable to unfair deductions from their wages, it was widely acknowledged that other women workers cannot be short changed.¹¹ Women concurred with the view expressed by farmers and *jamadars* that delays in making payments might result in the withdrawal of labour which the latter wish to avoid. We also heard about specific instances of collective action and bargaining. *Jamadars* reported that they were often upbraided and publicly humiliated by women in cases of delayed payments or suspicion of inaccurate accounting. Women of one of our fieldwork settlements (Khaskheli village) had succeeded in improving their terms of remuneration – in addition to the piece-rate they receive part of their mid-day meal as well as two servings of tea compared with just one serving of tea given to other women.¹² In the same village women had been contributing from their earnings over the last three years to a fund for a new place of worship which was predominantly used by women.

Other seemingly innocuous actions might also signal deviations from patriarchal norms. In women's conversation about their work in the cotton harvest there was frequent mention of *shauq* – a concept that encompasses enjoyment and fulfilment – in contrast to *majboori* (need). Part of *shauq* was clearly referenced to women's ability during the cotton season to work outside in groups, occasionally at some distance from home. Those who were known as particularly efficient and quick cotton-pickers took pride in their ability. There was almost heroic mention of these individuals by other women as well as men. The fact that income from cotton harvesting is used by women to visit urban markets to purchase jewellery and clothes is itself a departure from past practice when even such shopping was done for women by men. One *jamadar* reported that women working in his team pooled money on pay day (around once a fortnight) to prepare a special meal where chicken was served instead of the usual fare of vegetables and bread.¹³

Badin

In the fieldwork sites in Badin in contrast to those in Shahdadpur cotton is a recent arrival and is one among several cash crops. While Badin too has diverse labour arrangements of the type described for Shahdadpur above, there are important differences. Women from farming households – either self-cultivators or sharecropping tenants – generally have greater flexibility in the hours they work. Women mobilized by *jamadars* work long hours every day like their Shahdadpur counterparts. There is, however, far greater reliance on migrants, who mostly happen to be from the Scheduled Caste Bheel community, from the neighbouring arid Thar region here. In Shahdadpur income from cotton harvesting belongs to the individual woman who worked in the harvest, at least in nominal terms. In the cotton-growing areas of our Badin fieldwork sites by contrast, the women earn less

¹⁰ Studies of women's empowerment through formal sector paid work have shown that the official recognition of individual identity is regarded as a significant advance (Khan 2014).

¹¹ There were also complaints about delays and unfair deductions in payments on the part of women from marginalized groups such as Bheels and Odhs, some of whom were not sharecroppers.

¹² All women bring their own bread as well as chilies, salt and molasses as accompaniments. Women from Khaskheli village are supplied cooked vegetables by the *jamadar*.

¹³ A similar celebration is reported for cash transfer beneficiaries who go to Shahdadpur town to collect their money from banks and then have a picnic in a public park where they order a meal from a local restaurant. This too is in contrast with the conventional practice of exclusively male public socialization.

from cotton harvesting than their Shahdadpur counterparts, and the idea of women having autonomous income from cotton harvesting or other activities is less well-established.

3.6 Care and agricultural work

Conditions and practices with respect to care and nutrition in rural communities including those we observed in our fieldwork are at great variance from prescribed international standards. Ecological factors such as the availability of clean drinking water, general sanitary conditions, and physical access (due to remoteness) to high quality health services apply to the entire population of a community, and might be the dominant drivers of poor nutritional outcomes. Individual and household specific variables such as income, food insecurity, education and exposure to and knowledge of good practice are frequently cited as correlates of care and nutrition. There may also be group-based differences in care preferences and behaviour of various kinship groups which might be bearers of distinctive cultural patterns and practices. How women's agricultural work affects care varies not only across individuals, households and groups but also depends on cropping patterns and agricultural arrangements. It is possible, however, to describe norms and actual behaviour with respect to some of the dimensions of care which have been highlighted in existing work on nutrition and discuss how these norms vary between the sites.

The summary of the literature on care and nutrition in Section 2.2 identified six broad dimensions of care as being particularly relevant to children's nutritional outcomes including care for pregnant women, breastfeeding, complementary feeding, food preparation, hygiene and health-seeking practices and psychosocial care. As we have shown above, harvesting is time-intensive during the cotton season. Given that women are crucial to all six dimensions of care – due to biology as well as social norms – there is a strain on the availability of care within the household simply because of pressing time constraints. For two dimensions of care – care for pregnant women, and breastfeeding and complementary feeding – the effect of agricultural work, particularly cotton-picking, goes beyond the availability of time. While we probed all dimensions of care in our qualitative fieldwork, these two aspects were prominent both in our queries and in the perceptions of our informants.

Women's agricultural work encompasses a wide range of activities. Cotton-harvesting, however, emerged as a salient theme in our conversations about work and care. It stood out as an activity which involved intensive labour with strong implications for health and nutritional outcomes. Besides being intensive in the use of time, cotton-harvesting is also a physically intensive task which involves working while standing under the sun all day. Workers need to cover long distances by walking to and back from cotton fields. It is likely that this work is more energy-intensive compared with other activities carried out by women in the fieldwork sites on a regular basis. In the fieldwork sites in Shahdadpur, where most women engage in cotton-picking, there are some indications of increased food consumption during the season. Employers provide one serving of sweet tea a day to most women – though some women receive two tea servings as well as part of a mid-day meal. Women also report eating a little more at home – typically around 25 per cent more – than usual when they work in cotton-picking. It is not clear whether or to what extent the extra energy expenditure is compensated by these supplements to the normal diet.

Cotton harvest also goes on for a longer duration, both in terms of hours within a day and days within a season. The work environment has other health hazards such as hand injuries, and breathing difficulties due to the presence of dust, cotton fibre and pesticide residue in cotton fields. There are, therefore, direct implications of cotton-picking for women's own health and nutritional status – which are important in their own right, as well as contributory to children's health and nutrition.

3.7 Care for pregnant women

Fertility rates in Pakistan are among the highest in the world, and rural areas including rural Sindh have higher fertility rates than their urban counterparts.¹⁴ There is evidence, however, of fertility decline and changing family size preferences.¹⁵ We found reflections of relatively high fertility in both research sites but while there appeared to be a change in behaviour with regards to fertility in fieldwork sites in Shahdadpur, this trend was noticeably absent in Badin. Women in Shahdadpur generally stated that they wanted to stop having children after the birth of 5 or 6 children. Many reported having had tubal ligations after the sixth child, and others reported having received contraception injections from the LHW. Another conspicuous change was the increasing referral to modern medical services for delivery as well as ante-natal and post-natal care in the city – something that was facilitated by local paramedics. The exposure to modern services was associated, in the Shahdadpur fieldwork sites, with awareness about recommended reproductive health practices.

In Badin, however, the use of modern contraceptives did not appear to be widespread. The average number of children born to a woman appears to be higher and there was an absence of a narrative around actively limiting family size which stood out in interviews with the women in Shahdadpur. Infant mortality is also an issue and in many of the interviews conducted in Badin, there was always at least one case in the household or the extended family of a child dying at birth or within the first six months. There is also a difference in the way women choose to deliver a baby in a hospital as opposed to at home. While it was not uncommon for women in Badin to deliver in a hospital, it was usually a reaction to something going wrong with a home-based delivery. In the fieldwork sites in Shahdadpur, however, women prescriptively prefer to use modern health facilities out of fear of a traditional delivery via a midwife going wrong.

In both areas, actual behaviour seems to be highly correlated with the household's income as well as access to a reliable intermediary with modern health services. Public health facilities are ill-equipped or missing in many of our fieldwork sites in Badin which limits access to modern health services for many of the poor who cannot afford to pay for private healthcare. On the contrary, in Shahdadpur, government medical facilities in the city currently enjoy a good reputation – a change from the past – and are available at subsidised prices. But there are significant incidental expenses, however, such as transportation costs and informal service charges which can act as barriers to the very poor. The advice of a reliable intermediary – a local paramedic, or a well-informed woman neighbour or relative – is also seen as important for gaining effective access to public health facilities.

¹⁴ The total fertility rate in urban areas of Pakistan is 3.2 compared to 4.2 births per woman in rural areas. Sindh has a higher fertility rate compared to the average fertility rate in Pakistan (Pakistan Demographic Health Survey. 2012-13)

¹⁵ The total fertility rate declined from 5.4 births per woman in 1985-90 to 3.8 births per woman in 2010-12

While significant differences in maternal health practices which exist between the two areas might be due to availability and access of healthcare facilities – a problem of supply of infrastructure – healthcare practices are not uniform within these areas. This variation in the use of recommended practice can be illustrated using the cases of two women from the Khaskheli village in Shahdadpur who both gave birth in the last three years. Both belong to relatively poor landless households in an area close to a functioning government hospital and other community health initiatives. Laiqa has six children and all of them were delivered in the government hospital in Shahdadpur city. During her last pregnancy she had regular medical check-ups and two ultra-sound scans. She gave birth to twin daughters who received their first set of inoculations at the hospital. Laiqa returned to the hospital for post-natal check-ups. She claims that she tries to follow medical advice in terms of dietary practices. Laiqa is exceptional in that she is familiar with the medical services available in Shahdadpur city and is on first-name terms with doctors and paramedics. She frequently accompanies other pregnant women for their deliveries and helps to navigate their cases through hospital procedures. The second woman, Saleha, is the wife of a sharecropper tenant. She also has six children. Her last child, a daughter, was delivered at home by the local trained midwife. Saleha received ante-natal immunizations from a paramedic. She did not consult a doctor or a formal health facility. While she was aware of dietary recommendations for pregnant women (for example consuming fresh fruit) she claimed that she was unable to follow up on her knowledge due to resource constraints.

In general women as well as men report that pregnant women have the same diet as other adults in the household. While most informants are aware of medical advice that a pregnant woman should not undertake physical work in the last trimester, the main trigger for special treatment of any type – with respect to diet, medical attention, or rest – is the manifestation of a specific problem with the pregnancy. Women who fall ill, become particularly weak, or suffer extraordinary discomfort or pain in the course of the pregnancy are exempted from work. Regular household and agriculture work can be physically demanding, and it is only in exceptional cases that women stop carrying out these activities until just before delivery. Ideas about the resumption of normal physical work vary across fieldwork sites. A number of informants report that women should refrain from physical work for forty days after delivery and there were some who believe the rest period should be up to two months. However, the common period of complete rest is only around a week.

There is recognition of the fact that work on the cotton harvest is more arduous and hazardous for the health of the woman and foetus than ordinary household and agricultural work. Some men acknowledge that in ideal conditions a pregnant or lactating woman should not work in cotton harvesting at all. This was more common in Shahdadpur where the work on the cotton harvest was also more intensive. But there are some men who believe that women should work throughout their pregnancies as refraining from work makes them susceptible to other health issues such as indigestion. It is also widely accepted, however, that women will work at least in the first two trimesters before stopping. Cases of individuals who worked till the day before delivery are known and cited, mostly by men, as examples of strong women. Women cite these same cases as those driven by *majboori* (need).

3.8 Infant and young child feeding

Awareness in our fieldwork sites about the period of exclusive breastfeeding appears to correspond well with the exposure individuals have to modern health services. In Shahdadpur, many of the respondents stated that there needed to be exclusive breastfeeding for the first six months of the infant's life. In Badin, however, this sentiment was missing. Most informants here did not display any awareness of the exclusive breastfeeding concept. Instead we were told that babies as young as one week were given water. Water is especially given when the weather is hot. There were also cases of two month old infants being given a mixture of flour, sugar and *ghee* (vegetable fat). However, there were exceptions in both sites. In Badin, for example, an informant Haleema who had lost many of her infants before they turned six months, said she had exclusively breastfed her child (who had survived) for six months as the doctor had told her so. Even in Shahdadpur, the extent to which the knowledge of exclusive breastfeeding as recommended behaviour reflected in actual practice varied across individuals and communities. A number of Bheel women admitted to giving water to their infants who were as young as two months old.

We also heard different accounts of when complementary foods might be introduced. The willingness of an infant to accept a complementary food seemed to be a common criterion, regardless of specific age. In other words, parents were willing to try out complementary feeding even before the end of the first six months, especially in Badin, where the notion of exclusive breastfeeding, as discussed earlier, was not widespread. Breastfeeding, nevertheless, is the norm because alternatives such as infant formula are too expensive for most households. Infant formula is given to babies, in addition to breast milk, only if the child is ill and it has been prescribed by the doctor. Mothers usually breastfeed their children for two years or till their next pregnancy, whichever comes first. The exceptions to this rule are women who feel they are too weak or ill to produce sufficient breast milk.

Infant feeding practices are driven, at least in part, by parents' understanding of what the child can tolerate. It was reported, for example, that goat's milk which can be fed to older infants, is unsuitable for younger ones because it gives them indigestion. Although some women reported giving water to their infants, in the fieldwork site in Shahdadpur, it is also commonly believed that water leads to "thinning the blood" of the child. Feeding times are generally responsive to the infant's crying.

Most informants understood that there is a trade-off between a woman's work and her child's health. Some women were able to articulate this trade-off and act upon it. A woman from a landowning household in Khichi village in Shahdadpur explained that she does not go for cotton-picking because any income she might earn there would be cancelled out by extra medical expenses of her child falling ill. She felt that the probability of a breastfed child taking ill was high if the mother was not close at hand. There were other women too who felt that agricultural work, especially cotton-picking, compromised their ability to breastfeed their children. In Shahdadpur, where cotton-picking is an important source of work for women, different periods were mentioned, and this mostly depended on the economic circumstances of the household, as the time that needed to be taken off cotton-picking ranging from a week to two years.

The availability of an alternate care-giver is an important factor in a woman's ability to go to the fields for agricultural work. Several arrangements were reported in the fieldwork sites. Some women with young infants who reported working said that they only go to fields close to their homes. These women said that they returned home two to three times during the working day to breastfeed their infants. In Shahdadpur, during the cotton-harvest season, there was a sense that *jamadars* and landlords facilitated this choice of location. Some women and men said that infants are left in the care of the fathers who carry them to the mother at feeding time. In fact, there are no fixed feeding times for these infants. Men admitted that they take the child to the mother only when the child cries and cannot be otherwise placated. In Badin, it was common for these children to be given water mixed with sugar to calm the child down. Some women reported leaving their children behind with women relatives who were not going for cotton-picking, usually grandmothers. It is usually the elder woman in the household who makes the decision about which woman will stay at home to carry out care and other household duties. In Badin, one of our informants said her youngest daughter-in-law stays at home while she and her other daughters-in-law go to the fields. In Shahdadpur, where income from cotton-picking is a source of income for women, we found that in some cases, these caregivers were compensated by the working woman for taking care of her child in the form of a gift of cash or clothes. Women also take their infants to the field, along with an older child, place them under a shade, and feed them periodically. These women are usually termed as '*majboor*' as they have no alternate care-givers at home and do not have the luxury to skip work and stay at home to take care of their child. In one of our research sites in Badin, we came across one woman, who worked as an agricultural labourer, whose children would be breastfed by other women in her extended family, while she went along with her husband to the fields to work.

There are various perceptions in the fieldwork site about the effect of agricultural work, especially intensive work such as cotton-picking, on a woman's ability to properly feed her infant. A number of women claimed that the physical burden of the work reduces a woman's ability to produce enough milk, and that the milk is not as nutritious or healthy as it ought to be. Women working under the summer sun must drink a lot of water, and it is thought that this comprises the quality of breast milk. It is also commonly believed that the working mother's milk is "hot" and can cause indigestion to the child. A more tangible concern is that feeding in the fields takes place in unhealthy conditions as the mother is unable to ensure hygiene.

3.9 Proactive versus reactive care

While nutrition-specific care practices and behaviour that we observed were generally below par compared with prescribed international standards, we also found considerable variation across and within fieldwork sites. This variation is a potential source of insight with regard to our research questions. It is possible to analyse variation in care practices and behaviour by examining differences in norms and individual divergence from the norm. The introduction of norms as an analytical category is particularly useful here because firstly, the practices and behaviour of interest are usually gauged against prescribed norms, and secondly, we do find that there are clear ideas in our fieldwork sites about good practices, even if these differ from prescription. While statistical methods are appropriate for measuring individual variations, qualitative approaches are particularly useful in tapping into narratives about norms and changes in these.

Differences in care practices and behaviour between our fieldwork sites in Badin and Shahdadpur are conspicuous in our findings reported above. We find corresponding differences in norms associated with care. However, some norms are common between the two areas: the duration of breastfeeding, for example extends to two years in both sites. We find that access to and the availability of health services has played an important role in shaping norms. The Shahdadpur fieldwork sites have had easier access to superior health services, especially government facilities and initiatives, compared to fieldwork sites in Badin.¹⁶ Here norms appear to be changing with traditional care practices gradually being replaced by those prescribed by health professionals and there has been a shift towards an increased use of modern health care facilities.

There has been a move towards a more proactive approach to child and maternal care rather than a reactive one. Women in Shahdadpur fieldwork sites say that they opt to have their deliveries in hospitals or by a trained professional because they fear that home-based deliveries can be risky for the health of the mother and the child. In Badin, on the other hand, women only go to the hospital during their child's birth in response to something going wrong at home. At the level of individuals and households, the distinction between proactive and reactive health-seeking may be due to differences in wealth. In the Soomro village in Badin, for example, we find that the comparatively well-off households take their children to the doctor for regular check-ups and vaccinations. The value of modern health services is acknowledged by their neighbours from the socially marginalised Hindu Rawra parents who took their new-born daughter to the doctor after she fell ill.

The distinction between proactive versus reactive care practices and behaviour was not limited to health-seeking. Other aspects of nutrition-specific care, such as feeding practices, could be analysed in a similar way. Parents admitted that when they faced care time constraints during the cotton harvest season infants were only breastfed if they would not stop crying. This, obviously, is a major deviation from the prescribed standard of frequent and regular feeding. Similarly, when asked about the introduction of complementary foods, many parents took the view that if the child "took to" a food item he or she would be started on to that food, virtually regardless of age and the suitability of the food.

Other things being equal, it might be inferred that higher incomes and educational levels would lead individuals and households to adopt more proactive and pre-emptive care practices and behaviour. Differences observed across communities – such as those between Shahdadpur and Badin, or between the poor but well-connected Khaskhelis and the socially marginalised Bheels within Shahdadpur – might be indicative of community-wide norms. Observing or recalling the motivation for a particular care action, therefore, might provide a useful vantage point for understanding individual constraints and choices, and norms.

¹⁶ This is partly due to the fact that the Badin sites mostly happen to be located further away from urban centres. It is possible that the situation in communities in Badin that are closer to the city would be comparable to that in the Shahdadpur fieldwork sites. Our point is not about differences between Badin and Shahdadpur, but about differences between sites.

4. Conclusion: work, care and choice

We return to the central question of this exploratory study: what is the nature of the choice between women's work in agriculture and nutrition, mediated through care for themselves and their young children?

One way of addressing this question would be to establish statistical relationships between work activities and time and care time, between the work-care balance and intermediate outputs of nutrition (care practices and behaviour), and between intermediate outputs of nutrition and nutritional outcomes. Such an exercise is envisaged in the future. The present paper is based on preliminary qualitative fieldwork which cannot be used to make statistical inferences. Our fieldwork findings can throw light on the possible mechanisms and linkages through which the relationships mentioned here might work.

There are strongly gendered norms that govern the provision of care, and also to a great extent work. This, of course, is not a new finding - our fieldwork simply confirms a widely-held view. This means that provision of care to new-borns and infants is almost entirely a female responsibility within the household. A range of agricultural tasks, likewise, must be undertaken by females. Tasks that are almost exclusively seen as women's work in our fieldwork sites are cotton and vegetable harvesting. Other tasks that are done by women – such as raising and maintaining livestock, weeding, and harvesting – could also be done by men, particularly older boys. There are parallel gendered norms about how and under what circumstances women can work as hired labour in a non-family setting. Cotton-harvesting stands out as one task where it is generally acceptable for a woman to work individually on someone else's farm.

The choice between work and care which we posited in the approach outlined in Section 2.5, therefore, needs to be seen as being mediated through gendered norms. Care is almost exclusively provided by women and remunerative work – either on one's own farm or livestock or elsewhere – is also highly gendered. If individuals or households do behave as though they optimise in their choice of work and care subject to constraints, the optimisation ought to be visible in the allocation of women's time. If gendered norms are particularly strong around some activity, and it is carried out by men alone, we should not see a trade-off with care. Similarly if the activity is exclusively done by women – as is the case with cotton-harvesting – the work-care time will be entirely with respect to women's time. For activities that both males and females can undertake, men might be able to compensate for women's time in care by spending more time in some tasks that are also done by women. A household might decide, for example, to maintain livestock while not compromising on the care of infants, by allocating more male time to livestock maintenance.

While some of the recommended practices concerning care are cited as ideals, there are local norms about women's work during the first 1,000 days since conception. These norms, however, are interpreted in a fluid manner and actual behaviour is understood to be a compromise between ideals, norms and resources. It is well understood that cotton-picking adversely affects the health and nutrition of the woman and the child, but also thought that pregnant and lactating women who work, do so because of economic need which is linked to ensuring food security. Care behaviour, in

any case, is often driven not by norms but in response to specific needs of an individual. A pregnant woman might be exempt from work not because she is pregnant but if she is known to be ill. Similarly, an infant of a working mother is not likely to be fed at fixed intervals, but when the alternate care-giver is no longer able to placate the child.

Whether and to what extent women's work-care time balance is a matter of choice, and if so whose choice, is not straightforward. While we observed individual-level variation in the provision of work and care, there is also a sense that some work as well as care activities are not really a matter of choice, but are contingent on the situation in which an individual finds herself. Norms appear to govern the provision of care, and although we also observe much individual variation around those norms, general acceptance of good practice does, nevertheless act as a strong benchmark. Around work too, choice is constrained by circumstances. It is expected that women from farming families will need to provide labour inputs. The constraint is particularly strong for small landowners and share-cropping tenants who are not in a position to hire in labour, and whose viability depends on the use of family labour. To some extent the status of these families is endogenous to their labour endowments – a family with few working members will not be able to acquire a share-cropping tenancy, and a landowning family with low labour endowments might be better off leasing out their land. But transactions in the land tenancy market are likely to occur less frequently than variations in a family's demand for care time. In circumstances where there are binding demands on women's time for both work and care, extraneous pressures on the part of male household members or landlord-employers are more likely to favour work over care. Some sharecroppers, particularly those from socially marginalised groups who are dependent on their landlords for protection and food security, have the least amount of autonomy with respect to their allocation of work time. In-between groups such as small landowners, and sharecroppers and labourers who are not particularly dependent on landlords, display more heterogeneity in terms of their income-care choices.

Choice is also constrained if there are other sources of friction or inflexibility in labour arrangements. As we have reported above, the choice to work for many women in the cotton zone of Shahdadpur is limited to whether or not they take part in the cotton harvest.¹⁷ If a woman agrees to take an advance from a *jamadar* she is more or less bound to supplying labour for the entire season. Even though her payment is based on a piece-rate, she cannot opt to work for part of the season or for a few hours a day. This form of constraint is driven by the nature of the demand for labour for this particular crop.

We observed variation in our qualitative fieldwork in the acknowledgement of women's work and income, as well as in the choice they exercised in taking part in agricultural activity. For women's income to be a factor in influencing consumption choices and nutrition outcomes, there needs to be acknowledgement within the family that a particular income stream does belong to a woman. This is particularly true if actual expenditure is transacted by men because of their greater mobility and access to markets. In some of our fieldwork sites (Badin) it was common to refer to all income as belonging to a common pool from which purchases could be made for the family. In other fieldwork sites (Shahdadpur), however, there was a clearer sense that income from certain streams – cotton-

¹⁷ For women from share-cropping tenant families even this choice is very restricted – it is expected that they will work unless there are exceptional health issues.

harvesting and livestock rearing – belonged to the woman. Interestingly, the difference between these fieldwork sites with respect to income from these agricultural activities was also reflected in attitudes towards the government cash transfer: there was a much clearer sense in fieldwork sites in Shahdadpur compared to those in Badin that the cash transfer was a woman's entitlement.

Acknowledgement, in addition to actually having access to cash and markets, was a consideration in the discussion around women's ownership and control over resources. Male informants in fieldwork sites in Badin where the government land grants to women scheme had been active, stated that even though women did not have control of land, their strategic position in the family had improved. Some men expressed the apprehension that a woman can, eventually, decide to pass on her land to her natal family. The recognition by government of women's autonomous economic status – both in the administration of the land grants scheme and in the cash transfer programme – had led to some acknowledgement of their economic value to the family.

We picked up on narratives of women's empowerment, and the eventual reflection of their concerns in household-level decision-making with respect to consumption expenditure, through an acknowledgement of their economic value to the household. While our observations are limited to the present time period, reflections from the fieldwork about the past as well as current stories of change, suggest that market-based income and social protection entitlements have comparable effects in this regard. The economic status of women cotton workers in Shahdadpur seems to have been established over time and is related to the strong seasonal demand for women's labour. In Badin, by contrast, low demand coincides with the absence of an acknowledgement of women's individual income contribution or their value as autonomous economic agents. Paradoxically, the nature of labour demand for cotton workers in Shahdadpur is also associated with restricted flexibility for women with respect to their allocation of work and care time.

In the meanwhile, greater exposure to modern health services has created awareness among women and men across income groups of recommended reproductive health and nutrition practices. To some extent variation across fieldwork sites in their access to health services might be independent of women's work and empowerment. If the supply of health interventions is driven by higher level resource allocation or governance issues, it would be a coincidence that our fieldwork sites in Shahdadpur were better served than their counterparts in Badin. There is some evidence, however, of an association with paid work. Women in some of the fieldwork sites in Shahdadpur were more aware of other women – including those with whom they had no proximate kinship ties. This social interaction and awareness had been facilitated by the fact that Shahdadpur women had a long history of working in groups outside the context of their immediate family. Women workers in Badin, by contrast, cotton-harvesters and as well as others, had always worked only in the family context. Since children's health is a common topic of conversation, the stronger channels of communication among working women may have resulted in greater demand and utilisation of health services.

Summing up, there are three key findings from our preliminary qualitative fieldwork on the work, care and consumption choices and their possible impact on nutrition. First, the severity of the trade-off between work and care time allocations depends on a range of factors including existing norms around work and care, the socio-economic status of the women in question, and the nature of labour demand. Cotton stands out as a crop where there is relatively less flexibility in women's

allocation of time, and women from share-cropping tenants families particularly those from socially marginalised and dependent communities, have virtually no choice but to work long hours.

Second, women's work in agriculture can lead to pro-nutrition change but not only through their purchasing power. An acknowledgement of their economic value can lead to an improvement in their strategic position within the family and the wider community. Work, by itself, does not lead to acknowledgement and there are few agricultural activities such as cotton harvesting where women's autonomous role and income are accepted. Acknowledgment, however, might also arise from social protection entitlements that explicitly target women.

Third, nutrition inputs and outcomes also depend on norms regarding various aspects of care even if there is a great deal of variation around these norms. While norms can and do change in response to health interventions, and we found some evidence of this in our fieldwork, the outreach and effective uptake of health systems and facilities may depend on the overall level of social interaction among women. Working outside the family context can facilitate such informal social interaction, and in turn, the effectiveness of health systems.

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