THE EFFECT OF FEMALE LABOUR FORCE PARTICIPATION ON COMMUNITY

PARTICIPATION OF WOMEN IN RURAL PUNJAB

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By

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Abstract

Female labour force participation rate (FLFP) is highlighted by the literature as a main determinant of women's empowerment. Despite extensive research, the concept of empowerment remains ambiguous and the definition varies across individuals and societies. Social interactions is a potential source of increasing empowerment via channels such as information sharing, lowering barriers, and improvement in collective action for social recognition, reduction in self-preoccupation and socio emotional support. Pakistan is a suitable context to study social empowerment of women as Pakistani women experience isolation and subordination due to strict rules of patriarchal culture. This study estimates the effect of FLFP on women's empowerment measured by their community participation on three different social levels (1) Family members (2) Friends and Neighbourhood (3) People of authority. A unique district level data set for the year 2017-2018 collected by the Punjab Bureau of Statistics (BOS) in collaboration with Pakistan Commission Statistics for Women (PCSW) is used for this purpose.

The problem of endogeneity existing between employment status and community participation could make the results doubtful so an instrumental variable (IV) approach is implemented. District total livestock and poultry is used as a source of exogenous variation for estimating the impact of FLFP on community participation. We assume that a marginal increase in livestock and poultry in each district will not affect a woman's community participation but can increase her chances of employment in a rural setting where livestock and poultry operations are a woman's responsibility as their mobility is lesser and also suitable for them due to flexible timings. Coinciding with this and literature, the data set used in this paper shows that majority of the women are involved in livestock and poultry operations followed by crop operations including cotton picking. Hence as additional checks on the potential relationship, district cotton production and district FLFP rate are used as additional IVs. The results show a significant positive impact of FLFP on *community engagement* and a positive relationship has been deduced between FLFP and *sense of community*. The impact enlarges as we control for a woman's access to information and community technology and district level socio economic condition. This study enforced the importance of FLFP and social empowerment and may assist the developing authorities to execute effective strategies for gendered development in rural Punjab. Women's opinions and social behaviours are worthy of consideration while determining direction of community's development. This research calls for women's development by the means of creating more economic and social

opportunities for women through focusing their education and access to ICT as these two consistently enhance the effect of employment on community participation.

Abbreviation	**Full form**
FLFP	Female Labour Force Participation
FLFPR	Female Labour Force Participation Rate
PBIT	Punjab Board of Investments and Trade
Empstatus	Employment Status
HH	Household
IV	Instrumental Variable
ICT	Information and Communication Technology
PCSW	Punjab Commission on Status of Women

Contents

1.   Introduction

Although the literature consensually concludes that the entrance of women in labour force widens the outlook of women (Abrar-ul-haq et al., 2016; Nowak, Dahal, & Hossain, 2016) as they become more aware of their potential freedom, individuality and empowerment, there exists a gap in literature for Pakistan pertaining to the various elements of women empowerment. Despite Pakistan's Sustainable Development Goal 5 calling for gender equality the country suffers from poor rankings in Global Gender Gap report of 2021 and women's abilities still remain untapped may be because engaging in labour does not always imply greater empowerment. Their roles, circumstances and occupations all come in play while determining possibilities and extent of empowerment.

Punjab has most of its female population (around 34 million) living in rural areas (district wise population census, 2017) and most of them are occupied day and night in unpaid and/or underpaid labour, contributing majorly towards agricultural sector according to the traditional arrangement of gendered agriculture (Franzel & Helen, 1992; Saito & Spurling, 1992; Sharma et al., 1997; Ahmad & Ismail, 1998; Lovenbalk et al., 2003; Oladeji, 2004; Oyesola, 2004; Luqman et. Al.,2011; Prakash, 2003; Tacio, 2003; Huss-Ashmore, 1996; Sharma et al., 1997; IFAD, 1997; Amuguni, 2001; Ishani, 2004; Flintan 2003). According to PBIT a rural woman in Punjab would spend about 59 percent of her daily routine in livestock operations. Thus women are significant for country's development but how significant has been their own development in the process? Pleasingly, this directs us to FLFP as a good enough determinant of women empowerment eventually leaving us skeptical as many ambiguities are present within the term 'empowerment'. Therefore it seemed best to not miss out an opportunity provided by an extensive data set of PCSW (2018) to zoom into the closest possibility of empowerment for women in rural Punjab.

This study considers social empowerment as an important form of women empowerment and addresses the effect of FLFP on community participation. . We pose the following questions: Is there a significant effect of FLFP on community participation? What is the direction of relationship? How does the relationship alter as we control for individual, HH characteristics, husband's characteristics, woman's financial independence along with district level percentage of women with secondary education attained. To answer these questions we employ a detailed survey data set on wellbeing of

women for the year 2018 (PCSW) while exploiting the exogenous district wise variation in the amount of livestock and poultry (2018) to estimate the effect of FLFP on community participation. We also use variation in district cotton production and variation in district FLFP rates as additional IVs to check for robustness. Involvement is livestock and cotton production is considered to be instrumental because these activities are performed within their households and the timings are somewhat flexible so they can relatively better manage them along with other household responsibilities.

We categorize responses of women pertaining to their participation along three levels of social capital including family and neighbourhood, public institutions & officials and community organization under two dimensions of community participation.

This division of women's community behaviours is done according to the nature of women's involvement. The two dimensions include **community engagement** and **sense of community**. Community engagement of a woman is her autonomy to have *interactions* with family and neighbourhood, political participation via two channels of *voting* and *meeting a public official* and participation in any community organization and/or group. The second component i.e. sense of community looks through the glass of a woman's perception about the community she lives in. Her sense of belonging measured through *trust in family and neighbourhood, sense of safety* (perceived security and chances of crime or violence in the neighbourhood) and access to institutions established by government in the community. It is worthy to note that this study does not limit the definition of the term 'community' to any geographical bounds and considers family institutions and public official as a part of community regardless of where they are situated. Thus no external data source about physical distances was relevant to this study and it is based on the responses recorded by women in terms of how they socialize within their community.

This study takes stand for the hypothesis that benefits brought about by their LFP can enhance community participation because community participation of women is a dimension of women's empowerment that Pakistan lacks due to its cultural and social barriers. This research answers the following questions:

I.   Does labour force participation of rural women in Punjab improve their community
     engagement and sense of community?

II. What factors effect women's community engagement and sense of community the most beside
     employment?

This study is expected to make a significant contribution in literature as:

a) The only study to instrument FLFP with total livestock and poultry in each district of rural Punjab for the purpose of determining the effect of employment on women's community participation, considering community participation separately as a dimension of women empowerment in Pakistan. This study also includes district level cotton production and FLFP rate as additional IVS as robustness checks.

b) The only study to use a district level data set for the year 2017-2018 collected by the Punjab Bureau of Statistics (BOS) in collaboration with The Punjab Commission on the Status of Women (PCSW) for 36 districts for this purpose. This is a unique data set covering aspects such community life, perceptions, access to institutions, household decision making and domestic violence in great detail providing us with an opportunity to test for an untouched relationship between a rural woman's employment and her social capacity in Pakistan.

The results reflect significant relationship between female employment and community engagement. Chances of a woman's community engagement increase if she is employed as we control for woman's characteristics. Education being a consistently significant determinant of community participation throughout the series of second stage regressions as it exposes them to a greater number of people and larger networks improving their chances to engage in community (Verba, Schlozman and Brady, 1995). HH size seems to negatively[1] impact woman's participation in community as she may be having more HH responsibilities and chores[2] but employment is positive and significant because the chances of working in agricultural employment are more while she lives in a bigger family eventually contributing to her being employed[3]. HH wealth index does not significantly add to her CE as it does not contribute to her freedom of mobility as the literature highlights that it is rather the women's poverty that drives her mobility outside home in search of better opportunities (Balk, 1997).. Employment status remains significant and positively impactful on a woman's community engagement when husband's characteristics are controlled for, however the coefficient slightly increases. In case of a married woman, her CE outcomes improve with her employment status as employment brings about better intra household bargaining (Fatima, 2014) and woman's participation in household decision making offers

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[1] Refer to regression results in Table A2 in Appendix 3.
[2] Involvement in chores such as house cleaning, washing, taking care of the children along with many other domestic responsibility are reported by majority lf women (refer to Table 2)
[3] As this study considers agricultural employment of women in rural areas and this can also be deduced by a positive significant relationship shown in first stage regressions, between employment status and instrument (livestock & poultry and cotton production).

protection against all sorts violence and breech of freedom (Gautam & Jeong, 2019). Financial independent rural women are likely to be employed[4] but financial independence itself is negatively and significantly impact CE as women who earn may have lesser time to participate in community activities outside home (Widiantari & Mahraeni, 2021). ICT keeps the women up to date with socio economic opportunities, and add value to their regular lives (Qutoshi et. al., 2020). Use of mobile phones provides a sense of safety[5] along with on security to women (Demombynes & Thegeya, 2012; Bairagi, Polin, and Terrence, 2011). So the use of ICT effects sense of community positively However, as mobile phone provides woman with a better social life while being at home (Bairagi et. al, 2011), their tendency to participate in community outside home reduces thus the negative direct impact on community engagement[6]. The inclusion of ICT amplifies the significant positive effect of employment on community engagement to 32.54 per cent as the use of ICT of a woman who is employed assists add more to the chances of her engaging in communities. Districts with higher percentage of women with secondary education provide greater chances of CE.

The positive and significant relationship persists between female employment and community participation when the other dimension, sense of community is taken into account[7]. This is because employment status improves intra household bargaining contributing to her sense of attachment to the community she lives in as her life within and outside home improves with exposure to economic opportunity. Living in a wealthier HH may be improving a woman's access to more resources (Mahmud, Shah & Becker, 2012) resulting in increasing sense of community[8] due greater ability to spend (Mahmud, Shah & Becker, 2012). Circumstances influencing a woman's lifestyle such as, living in a nuclear setup with smaller HH size and higher wealth index add to self-esteem and then sense of belonging and security in community (Mahmud, Shah & Becker, 2012). The second stage regressions show that there is a positive and significant relationship between employment status and community engagement throughout our regressions when cotton production and FLFPR are used as IVs. The magnitude keeps increasing as we keep adding controls and a significant increase in magnitude is seen when controlled for access to ICT and district control. Sense of community is also positively and significantly determined by employment status.

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[4] Refer to the first stage regression results in Table A1 appendix 3.
[5] A component used while constructing SOC index.
[6] Table A2 appendix 3
[7] Refer to Table 9
[8] Refer to Table A3 Appendix 3

The study reveals that FLFP can impact a woman's community participation positively and significantly while considering her own characteristics, HH controls, husband's characteristics, her financial independence, her exposure to ICT and district level socio economic development. Age, education, land owned by HH and access to ICT are some of the factors that come out to be significant determinants of community participation. The literature guides us that a combination of employment, education and ICTs can enhance a rural woman's empowerment and so a focus on these aspects can lead to improve in gender inequalities existing in Pakistan.

2. Literature Review

2.1. Empowerment

Idea of empowerment differs accross individual and community level. Individual level empowerment helps in managing one's resources and sharpens one's decision making skill. An individual is more organized and inclined to coherently work with others (Shulz et. al., 1995 and Zimmerman, 2000). Friere (2000) calls 'empowerment' as a skill to realize impediments and eventually eradicate them. On another hand, an empowered community becomes an organization on its own having the capacity to push institutions for developmental strategies that may improve   quality of their lives (Saegaert S., 2006). In such an approach the process of development is directed by citizens (Hjorth, 2003). All in all, community empowerment fortifies strength of populations to hold institutions accountable and also administer them in their favour (Benet, 2006). According to World Bank (2001), establishing social capital directly leads to empowerment. However every time an idea of empowerment comes out, it appears to be questionable by societies and individuals (Wahid et. Al., 2017). This is due to the presence of questionable data and indicators regarding levels of empowerment in diverse contexts, thus the vagueness in its definition remains (Miller and Campbell, 2006; Malhotra et al., 2002; Narayan, 2002).

2.1.1. Women's Empowerment via community participation

Singh and Gupta (2013) suggests that sense of self-worth, control over domestic life and the ability to enforce a social change are indicators of women's empowerment. Positive alterations overtime in the constituents of social capital including norms, networks and institutions lead to empowerment locally and by pushing the state institutions respond promptly towards weaker segments of the society. Institutions to work efficiently need to realize the implications of, social capital, social structures,

gender disparities and hierarchies within social networks. Trust levels exhibited by women in their community are directly linked to empowerment. Information sharing, lowering barriers to exchange and improved collective action are some of the channels through which community participation leads to women's empowerment (Freddie et. Al, 2009). The inflow of new information derives social change (Figueroa et al., 2002). Relative education model suggests that individuals with higher social status get in touch with bigger networks showing greater political participation. In contrast, people lacking education levels remain distant from recruitment networks (cf. Verba, Schlozman and Brady, 1995) not participating enough owing to a smaller range of people (e.g., Mutz, 2002; McClurg ,2003; Siegel, 2009) and smaller networks (e.g., Kotler-Berkowitz 2005). As women remain domestically bound they are mostly distant from powerful networks of reciprocity and reliability leading to lesser empowerment.

Social recognition due to community participation enhances the feeling of self-worth, reducing anxiety and self-preoccupation. External factors including political structure, community structure and legislative setting as well as internal factors including social capital, economic condition and awareness contribute to community participation (Njoh, 2002 and Tosun, 2000). Literature indicates that organizational cultures and job experiences in bigger public bureaucracies are impediments to community participation (Burgess et al., 2001; Gaventa, 2004; Bound et al., 2005; CRESR, 2005). Ethnic fragmentation is another factor effecting community participation (Alesina and La Ferrara, 2000).

2.2.   Community Participation

Social networks are a source of support systems that help combating stress causing environmental conditions is and that is known as a person's social functioning (Donald, Ware, Brook, and Davies-Avery, 1978). Knowledge about an individual's interpersonal interactions can be helpful in gauging his/her social health (Berkman & Glass, 2000).

Gusfield (1975) introduces us to the two definitions of community, in the light of sociological aspect. 1) Defined in terms of geographical boundaries and 2) Referring to the social bonds between people, without taking into account their location. While economics views community participation as "engagement in activities occurring outside the homes that are nondomestic and social" (Chang, Coster, & Helfrich, 2013). This may include any community activity including seeing family and/or friends, engagement in religious, cultural and/or or recreational matters (Theis & Furner, 2011).

Surprisingly, the determinants of social integration have been inadequately noticed (Umberson and Landis, 1988) and participation has been overlooked (Buckingham hatfield and Percy, 1999). Manzo and Perkins (2006) re-assure that driving force in an individual along with his/her emotional state are important aspects that are frequently forgotten by community planning literature leading to non-performance of institutions. This research treats social integration as an essential form of participation owing to valued life roles associated with psychological wellbeing (Wilkie et. al.,2007; G. A. Hawker and M. A. M. Gignac ,2006; P. Katz, A. Morris,S. Gregorich et al.,2009) and may be even better for older adults, who are often at risk for unintentional isolation (D. Anaby et. al.,2009; D. Sachs and N. Josman,2003; C. Christiansen and C. M. Baum, 2005) as participation reduces isolation (Brown & Tandon, 1983; Yoshihama and E. Summerson Carr 91 Guzman, 1989; Whitmore, 1991). Also, studies suggest that greater participation of women in society reciprocates lower levels of corruption (Dollar et al., 2001 and Swamy et al.,2001). This study considers community participation on three social levels i.e. family & neighbourhood, public official and community organizations.

2.2.1. *Family and neighbourhood*

Community is a person's surrounding, it can be as compact as one's neighbourhood and family, in fact this is a platform for both secondary and primary relationships (Stall and Stoecker, 1998). Gender unequal societies expose women to inadequate opportunities and rights. The disparity becomes severe for women who have to live without their families. They are highly weakened in such cricumstances (Afshar and Alikhan, 2000) and life altogether becomes challenging for them (Nega et. al., 2009). Babaei et. al. (2012) explains perceived relationship with family is "bonding social capital" and perceived relationship with neighbourhood is "bridging social capital". The study suggests that people close to each other in neighbourhood and family settings contribute to empowerment by being a source of suppor.

Research highlights "frequency of interactions" with family (Frosket, 1955 and Theis & Furner, 2011), "nearness to family" (Iwarsson et. al., 2008). Lefebvre et. al., 2010; Bowling and Stafford, 2007; Beard et al., 2009; McColl et.al., 2012; Keysor et al., 2010; Levasseur et al., 2011) and "neighbourliness" (Liu & Besser, 2003) as indicators of community participation. Additionally, "access to transportation services" (Richard, Gauvin, Gosselin, and Laforest, 2009; Richard et al., 2013) and "access to civil protection" (Therrien & Desrosiers, 2010) constituent the term. Family size and family structure along with social support are family factors playing role in one's participation as significant

amount of reliability is usually provided by "family and neighbourhood" (Perkins and Xu, 2010). A number of such outcomes, while controlling for friend/ family/neighbour support have been deduced "for high school adolescents in the United States in different contexts" (Seidman, Allen, Aber, & Mitchell, 1995). Coinciding with previous studies, Perkins et al., 1996 found association between informal neighbouring and tendency of participation in formal groups and assistance-seeking behaviour from community organizations.

2.2.2. Community Organizations

Voluntary involvement in community organizations is often used as a part of social capital (Barr et. al., 2012). Iin community co-operation arrangement aids community-development in terms of "community education, health and hygiene, finances and also improves agricultural efficiencies of women" through information dissemination (Fergusan and Kepe, 2011). Women develop a sense of independence by experiencing leadership and business expertise. Such benefits are referred to as "intangible benefits" empowering female farmers and enabling them to better cope up with the communal challenges facing limitations and economic paucity (Fergusan and Kepe, 2011). Role membership in community organizations has the tendency to also improve women's longevity (Moen et al., 1989). However, building and promoting this form of participation comes with challenges owing to "the rigidity of embedded social structures" (Oberhauser and Pratt, 2004).

2.2.3. Public officials

Babaei et. al.(2012) refers to perceived relationship of reliability with government officials as "linking social capital". Tendency to "interact with public officials or agencies can be called political trust" (Reinhardt, 2015b; Keele, 2007; Miller, 1974). This type of trust is affected the most during the circumstances that occur unexpectedly and also when people haven't expected such scenarios for themselves (Montgomery, Jordens and Little, 2008). Supportive and prompt response from government's representatives are anticipated during such hardships including any "disaster, unrest and disease". Along with this, individuals begin relying on a public official who is usually responsible for "decision making, information diffusion and undertaking activities" (Reinhardt, 2019; Montgomery, Jordens, and Little, 2008). Such sense of reliance reflects the importance of prompt responsiveness shown by the government authorities thus resulting in better outcomes for citizens, "reduction in democratic deficit and community cohesion which were in fact objectives of UK's Labour Government" (Barnes et. al., 2007). Taking us back to the "new era of devolution" when power was

delegated to local government and communities for betterment of life quality(Ray et. al., 2008). These initiatives required people's involvement in areas of budgeting and community contracts pertaining to offering services to citizens (Ray et. Al., 2008).

An institution's performance in provision to people is viewed, depending on the conduct of public officials at the times of right impediment including cases of domestic violence against women (Barnerand Carney, 2011; Horwitz et.al. , 2011; Websdale and Johnson, 1997). For instance, the conduct of a public official may influence a woman's treatment as she seeks for help and her tendency to seek help again in future (Logan et al., 2006). Hence, the attitude of a public official may be a hindrance in community cohesion and enhancement (Ray et. al., 2008). Since it is widely known that both, formal and informal governance structures determine "how things are done around" (Lowndes et al., 2006), the coherence among "public officials' views and policy implications is crucial" (Maynard-Moody and Musheno, 2003). This gap requires higher levels of public participation (Reinhardt, 2019), specifically participation of people in local governance via channels of interactions with public officials. In this way a community altogether can shape policy repercussions (Ray et. al., 2008) in their favour. Barnes et. al. (2008) refers this as "citizens centered governance" and such participation by individuals may be called as "community engagement" or "public participation" (Ray et.al, 2008). This type of community participation is important as the government solely may not be efficiently hold public officials accountable every time and efficient accountability requires the service recipient to actively give involve (World Bank, 2004).

Public officials can be reached via electoral systems, if they are clear of patronage and citizens realize the objectives ought to be achieved by the public official (Barr et. al., 2012) but "elite capture, imperfect information and institutional inefficiencies" are impediments in developing world (Barr et. al., 2012). Thus a shorter route may be better which includes a direct communication with the public official (World Bank, 2004). In this case individuals would have to incur a cost in order to reach a public official (Barr et. al., 2012) and that is "forgone time, effort and motivation to cover distance despite of emotional cost caused by, let's say, an unsupportive family or neighbourhood". This form of participation has been previously discussed and promoted by interventions in studies including Reinikka and Svensson (2004, 2005) and G Aslam et. al. (2015) concluding that people's access to public information enhances repercussions of public policy. Thus voting and interaction with a public official are called long and short routes respectively (World Bank, 2004).

I consider interaction with a public official as community participation of people under the dimension *community engagement* and there are factors determining this participation including education of citizen (Avery, 2006; Marschall and Shah, 2007; Groen and Polivka, 2010; Fussell, Sastry, and VanLandingham, 2010) and gender of the citizen (Ross, Rose, and Mobley, 2019). Literature indicates higher trust levels of women due to higher preference of employment in public sector (Christensen and Lærgrid, 2005) and adjacently lower trust levels of women due to discrimination (Alesina and La Ferrara, 2002).

2.3. Role of rural women in agriculture

A significant variation is evident across societies when female labour force participation is considered. These disparities exist owing to the "embedded norms, culture, economic strength and situation of female friendly industries in a country" (Goldin, 1995; Ross, 2008) and (Iverson and Rosenbluth, 2010). Literature has demonstrated a patterned relationship between culture as a and persisting gender roles in a society (Fortin, 2005; Fernandez, 2007; Fernandez and Fogli, 2009 and Borck, 2011). Baumann (1928) notified initially a pattern between soil cultivation and matriarchal culture by using method of hoe cultivation. After whom, Easter Boserup (1970) brought a hypothesis in light regarding cultivation methods implied in the past and gender roles persisted later. Traditional practices show women as care takers of their children and as plough cultivation was more of a physical job in addition to its time consuming nature introduction of plough cultivation method re allocated the responsibilities. It encouraged men as care takers of the work done outside homes and women to nurture domestic lives (Alesina, 2013). These beliefs takes us to the persistent culture within "institutions, policies, industrial structures and cultures" ultimately FLFP (Alesina, 2013). Alesina (2013) categorizes ethnicities by matching with their respective soil preparation method followed back in time and uses ethnographic atlas to conduct district and country level research to find the effect of variation cultivation methods on FLFP and political participation. The author concludes that plough usage in earlier times reflect lesser FLFP in later times. Gender differences also existed in the activities performed by men and women (Prakash, 2003) potentially influencing their labour divide. This provides us with the opportunity to dig into how the variation in agricultural roles can provide us differences in the gender based employment especially in the developing the countries that primarily rely on their agricultural industries.

Nancy Qian (2008) used the "value of tea as a proxy for female" wages and the "value of orchards as a proxy for male" wages based on a widely believed idea that women due to their short heights are better candidates for picking tea leaves as tea picking has to be done carefully. The author exploits the variation in tea prices after the post Mao agricultural policies in order to estimate the impact of increase in female labour demand on relative female survival in the job market. T. Paul Shultz (1985) looked into the changes in the prices of grain and animal products to deduce the shifts in labour demand and how the wages of male and female were changed having an impact on the female's fertility rate. Women's participation in labour force can be reflected by the presence of natural resources in an area and by looking at the frequency of their participation in a particular activity over the course of life as with repeated participation in an activity they gain more experience and room for opportunities arises along with wages in the area (T. Paul Shultz, 1985). Particularly in Pakistan, women are known to majorly contribute towards pre and post-harvest activities and livestock services (Begum and Yasmeen, 2011). Participation of rural women in activities including cotton picking, cotton lint cleaning, watering animals, milking animals, feeding and taking care of animals is high in southern Punjab, Pakistan (Zahoor et. al, 2013).

2.5 Livestock sector in Punjab as a source of FLFP

Agricultural sector of Pakistan consists of three main subsectors according to a report "Women in agriculture in Pakistan" by Food and Agriculture Organization of the United Nations (2015) and one of them is livestock being a significant part of farming activities playing a pivotal role for the poor and women to thrive in society. Punjab is the largest province of Pakistan in terms of human and animal population with an ever increasing GDP of $173 billion (2017) with its largest contribution of 57 per cent to the national GDP in 2017 according to the PBIT.

Around 58 per cent of the total households own livestock and poultry (appendix 2; table 1). Livestock and poultry operations are performed by 35 per cent of the women in rural areas of Punjab while 53 per cent of the employed women have reported livestock and poultry operations as their main activity in the survey of PCSW (2018) as shown in table 2 (columns 1 & 2).

2.6 Female Labour Force Participation and Societal Constraints

Reduced participation by women in labour force is not a preferable situation as FLFP is repeatedly pointed out as one of the primary signs of empowerment (Abrar-ul-haq et al., 2016) and (Nowak, Dahal, & Hossain, 2016). FLFP rate has shown a fall from 15.8 per cent in 2014-15 to 14.5 per cent

in 2017-18 (2018 Human Development Report (HDR) by UNDP). This is because women face several cultural and institutional barriers especially in the ways of a paid opportunity. Their access is restricted even more in the rural areas.

The major constraint for women while participating in agricultural activities is their household responsibility and tasks at home (Zahoor et. al, 2013). Moreover, female literacy falls behind her male counterpart's (Yasmeen & Karim, 2014) making it a struggle for women to opt for entrepreneurship in presence of social norms (Abrar ul Haq, Razani, & Gazi, 2017). Especially the rural women are at a disadvantage owing to lesser access to educational institutions, prevalence of conservative cultures and early marriage culture so they usually depend on "informal learning and traditional knowledge", that often become obsolete (Begum and Yasmeen, 2011). It is worth realizing the importance of women's access to up to date knowledge regarding crop production and related activities (Butt et al, 2010). Agency for International Development (1982) also brought to notice that information was mainly present with male farmers and women were receiving secondary knowledge.

3 Data

This is a district level study looking into the socio economic conditions of women (between the ages of 15-64 years) in rural areas of 36 districts in Punjab for the year 2017-2018. This study uses Economic Wellbeing in Pakistan (ESW) survey data, collected by the Punjab Bureau of Statistics (BOS) while collaborating with PCSW. This is a unique data set as it is rich and covers major to minor details about aspects like health, household decision making, community life, domestic violence, and education. Sections covering community participation, employment activities and household decision making of women have been the main focus of this study. The final estimates of total livestock production are acquired from the Livestock census of Punjab for the year 2018. This is the first real time (door to door) data acquired from all 25, 892 villages of Punjab. The district level cotton production (in'000' bales, 1 bale =170 Kg) for 2017 - 2018 is taken from The Crop Reporting Service in the Agriculture Department Punjab.

3.1 Data Descriptive:

The survey data in Table 1 reveals that a major chunk of the respondents belongs to rural areas and this facilitates this study very well as this paper uses district wise variation in agricultural contribution by women to estimate FLFP.

Table 1: Distribution of total respondents of survey

Residence	Frequency	Percentage
Rural	22,638	68.85
Urban	10,240	31.15

Figure 1: Community Participation of Rural Women (Employed vs. Unemployed)
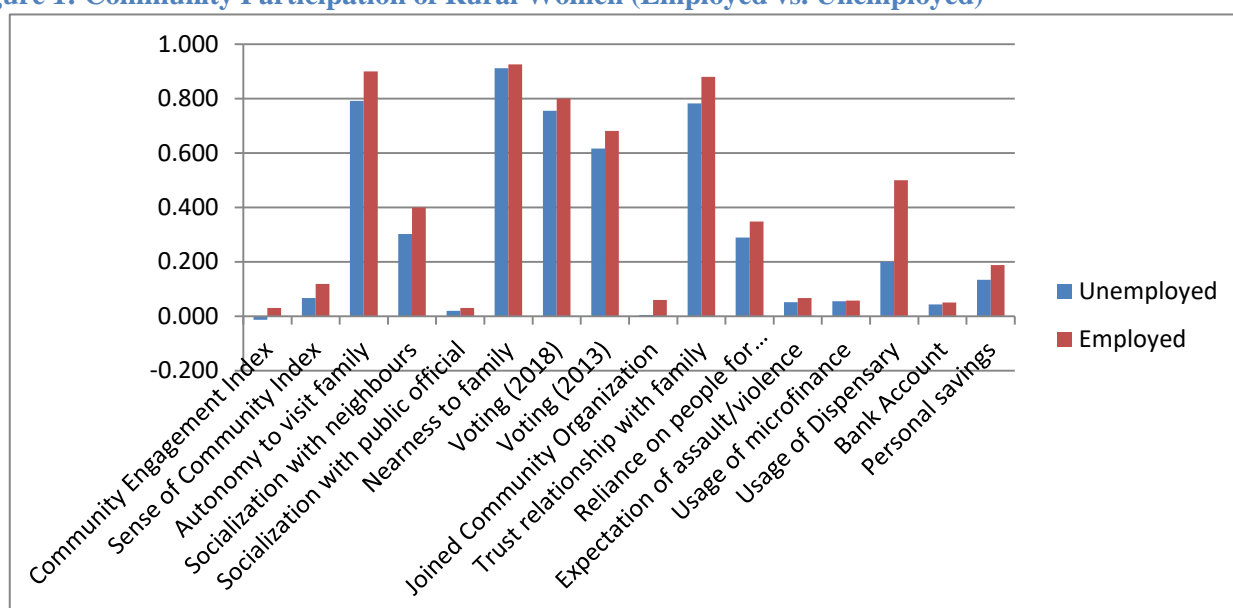
The data suggests higher community participation on average is displayed by employed women in rural Punjab (Figure 1).

Table 2: Distribution of activities performed by respondents

Activities Reported	1	2	3
Livestock and poultry operations	35	53.01	48.45
Agricultural operations	20.81	20.25	65.11
Household duties and chores	34.46	6.31	_
Textile and Leather operations	13.61	13.6	75.06
Processing food	3.7	0.73	31.65
Trading activities	1.63	2.64	83.5
Professional services (banking, call center, IT, health)	1.44	2.93	94.88
Manufacturing operations	0.21	0.28	86.21

Notes: Activities are not mutually exclusive amongst women therefore percentages do not add to a hundred percent. These percentages are calculated by using the PCSW (2018) survey data.
Column 1: Activities reported by all rural respondents
Column 2: Activities reported as main activity by employed women
Column 3: Percentage of paid employees in each sector

The data presented in table 2 shows that the respondents in rural areas mostly reported being involved in livestock and poultry operations (table 2; column 1). While majority of the employed women (53 per cent) had reported being involved in livestock and poultry activities as their main activity

followed by a noticeable involvement in crop management such as picking cotton shown by 20.25 per cent of women (table 2; column 2). However, it seems reasonable to not expect livestock and poultry sector to be a source of paid employment as less than half of the women employed in this sector reported as being paid employees (Table 2; column 3).

Socio Economic demographics of women working in livestock and poultry sector (Table 5) are worthy of a discussion to have an idea about some common characteristics along with common tendencies and circumstances they are living with. Their involvement increases as they age and the proportion of participants maximizes for 35-39 age group. The graph then gradually comes down to show that as women age beyond 40, their participation starts decreasing and minimizes for the age group 60-64. Most of the participants have attained no education and the chances of participation fall along the increasing levels of education. Women working in this sector are mostly married and belong to the lowest wealth segment. They are involved in operation of livestock and poultry that mostly belong to someone else and this evaluation is quite relatable to the literature as women are mostly severely disadvantaged as far as far as security of land tenure rights, ownership of livestock, accessibility of financial services, receipt of extension services and resources are concerned (Amin et al, 2009).

Table 3: Socio Economic Demographics of respondents involved in livestock operations

	Categories	Per cent
Age		
	15-19	9.96
	20-24	10.83
	25-29	13.58
	30-34	14.29
	35-39	17.23
	40-44	11.99
	45-49	9.07
	50-54	6.23
	55-59	4.11
	60-64	2.70
	Total	100.00
Education		
	None/Preschool	77.84
	Primary	12.60
	Middle	4.38
	Secondary	3.79
	Higher	1.40
	Total	100.00
Marital status		
	Never married	16.20
	Currently married	78.08
	Widow/divorce/separation	5.73

	Total	100.00
Wealth Index		
	Lowest	47.00
	Secondary	28.97
	Middle	15.93
	Fourth	7.00
	Highest	1.11
	Total	100.00
Livestock ownership		
	Owns herself	8.11
	Jointly with spouse	16.27
	Jointly with other family members	4.16
	Does not own at all	71.45
	Total	100.00
Migration Status		
	Always lived in the same area	85.96
	Migrated to this area	14.04
	Total	**100**

Our sample mostly includes women of ages 15 to 40. Most women are currently married belonging to the lowest, secondary and middle wealth segments. More than half of the households own livestock and poultry however less than half own any land (Table 1; Appendix 2).

4 Estimation Strategy

The research looks at "the effect of district wise variation in FLFP on Community Participation of Women". Community participation is one factor indicating about women's socio economic health and it is about time to realize its importance in determining women's empowerment. The relationship however is not so simple as it encompasses problems of endogeneity rising from simultaneous causality bias i.e. community participation effecting employment since social interactions can increase chances of economic opportunity. Also omitted variables may affect community participation via employment (multi collinearity). Poverty may increase more time in labour and lessen durations of participating in the community (Breuer and Asiedu, 2017; Terza et. al., 2008) thus endogeneity can be avoided with the usage of an instrument to measure employment for example ownership of a mobile phone (Breuer and Asiedu, 2017), traditional agricultural activities (Alesia, et. al., 2013), alterations in "procurement prices of cash crops and staple crops" (Matas et. al., 2010), varying rain fall (Attanasio et al., 2005; Bhalotra and Umana-Aponte, 2010) and rice production (Afridi et. al., 2012 & Chin, 2016).

In developing nations livestock and poultry farming is women's responsibility (Patnaik & Dutt, 2020).Since livestock and poultry operations are the main activity rural women in Punjab are involved in (table 2 and table 3), it provides an opportunity to use this variable for instrumenting employment in rural Punjab. Using an instrumental variable approach for this study allows addressing endogeneity bias. We imply fixed effects along with instrumental variable approach. This instrument is valid because the total number of livestock animals and poultry in a district does not have a direct impact on women's community participation. Number of livestock and poultry is a valid instrument as we expect it to fulfill the following required conditions:

1. Relevance: Amount of livestock and poultry in a district generated economic opportunity for women since this form of employment does not rely on literacy rate and offers flexible working hours which is convenient for women since they are usually occupied by many household responsibilities and mobility limitations. This activity is reported as a main activity by 53 per cent of the employed women (table 2).

$$Corr(Empstatus, District\ Livestock\ \&\ Poultry) \neq 0$$

2. Exogeneity: This condition implies that livestock and poultry is not likely to have any impact through omitted factors on a woman's community as there is no way that an additional livestock animal or poultry can directly effect a woman's empowerment. This is a natural process and we may call it exogenous.

$$Corr(District\ Livestock\ \&\ Poultry, \varepsilon) = 0$$

4.1 First stage of 2SLS

First stage enables us to estimate employment status for a woman in each district using number of livestock and poultry in each district. $Empstatus_{id}$ measures if the woman had been employed in the past 12 months. Current employment status is not considered as the data was collected in series and the current employment status may not show FLFP correctly as the woman may have taken a break from any work between different rounds of survey data collection.

Specification 1:

$$Empstatus_{id} = \alpha_0 + \alpha_1 District\ Livestock\ \&\ Poultry + \sum \alpha_n X_n + \varepsilon$$

4.2 Second stage of 2SLS

We use a linear regression to estimate the relationship between a woman's employment status and her community participation in the rural areas of each district in Punjab. This regression is used to test the null hypothesis that there is no relationship between a woman's labour force participation and community participation in the rural areas of districts in Punjab.

Specification 2:

$$CommunityParticipation_{id} = \beta_0 + \beta_1 \widehat{Empstatus}_{id} + \beta_2 X_{id} + \beta_3 HH_{id} + \beta_4 Husband_{id} +$$

$$\beta_5 Financialindependence_{id} + \beta_6 ICT_{id} + Z_{id}$$

$Empstatus_{id}$ measures the working status of a woman i in district d. X_{id} is a vector of woman specific controls including age, marital status, attained education, migrant status. HH_{id} is a vector of household specific controls including family size, family setup (nuclear or not), wealth index and if the family owns any land and if the HH receives any remittances[9]. $Husband^{10}_{id}$ is a vector of husband specific controls covering his employment, schooling, age and conduct with the woman. $Financialindependence_{id}$ is a vector covering financial exposure of a woman in terms of having her own bank account and having any personal savings. ICT_{id} is a vector covering a woman's access to information and communication technology by means of access to mobile[11] and computer. Z_{id} is district fixed effects.

Women's participation in community is evaluated by measuring community engagement index and sense of community index. They are the two dimensions of participation. The index is measured by applying principal component analysis using women's responses to a variety of questions converted to dummy variables were then created as we were able to distinguish the relevant subgroups required to measure the two types of community participation.

4.2.1 Community Engagement

Community engagement is simply participating in community activities that occur outside the boundaries of household (Chang, Coster, & Helfrich, 2013). $Communityengagement_{id}$ "is an index variable measuring one form of community participation of a woman i in district d. Community

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[9] Remittances are added to the equation as a robustness check to see if a connection with a foreign country of any family member/members or if an additional income to the household can imply any changes.

[10] Vector of Husband's controls including Husband restricting from friends, family, husband's possessiveness, if he is against work, takes woman's earnings, restricts decision making, husband's age, husband's employment, his schooling and his involvement in agriculture.

[11] Mobile phone is a common and widely used tool of ICT as suggested by Qutoshi et. al., 2020 and by Olatokun, 2017. Also in Pakistan women are 37 per cent less likely to own a mobile phone according to the mobile gender gap report by GSMA, Londone (2019) so "access to mobile phone" has been taken as an indicator instead of "owning a mobile phone". Our data provides enough responses by women about having a computer at home which an ICT facility is considered by Tinnio (2003).

engagement measures the autonomy to have informal relationships with friends, family and neighbourhood" (Theis & Furner, 2011), "political participation via two channels of *voting* and *meeting a public official* and finally being a part of any community organization". This is constructed by a number of questions[12] asked from participants regarding matters such as "distance to family of birth, autonomy to visit family and friends, frequency of interactions with neighbours, public official, family and friends". $Empstatus_{id}$ indicates the working status of a woman i in district d. X_{id} Is a vector of woman specific controls including age, education attainment, and marital status and if she always lived in the same area. HH_{id} is a vector of household specific controls including family size, family setup (joint/nuclear), land owned by the family, wealth index and remittances. ICT_{id} is a vector covering a woman's access to information and communication technology by means of access to mobile and computer. Z_{id} is district fixed effects.

Specification 2 (a):

$$Communityengagement_{id} = \beta_0 + \beta_1 \widehat{Empstatus}_{id} + \beta_2 X_{id} + \beta_3 HH_{id} + \beta_4 Husband_{id} +$$
$$\beta_5 Financialindependence_{id} + \beta_6 ICT_{id} + Z_{id}$$

4.2.2 Sense of Community

$Senseofcommunity_{id}$ is an index variable measuring another dimension of community participation of a woman in each district. It accounts for perception of woman i in district d about the community she is in touch with, sense of belonging, sense of shared experiences (Mabuku et. al., 2018, McMillan & Chavis, 1986 and Cattell, 2001) by looking into "trust in family and neighbourhood, sense of safety and perceived security" (Bowling & Stafford, 2007) and access to community institutions established by government in the community (Therrien & Desrosiers, 2010 and Phongsavan et al., 2006). This will be an indexed variable created out of a number of relevant questions asked in the survey[13]

Specification 2(b):

$$Senseofcommunity_{id} = \beta_0 + \beta_1 \widehat{Empstatus}_{id} + \beta_2 X_{id} + \beta_3 HH_{id} + \beta_4 Husband_{id} +$$
$$\beta_5 Financialindependence_{id} + \beta_6 Socialconnectivity_{id} Z_{id}$$

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[12] Appendix 1 shows the list of questions asked in the survey and used for this study to construct variables covering community engagement

[13] Appendix 1 shows the list of questions asked in the survey and used for this study to construct variables covering sense of community.

5 Robustness Checks

The survey data[14] reveals crop management including cotton picking as one more source of employment opportunity reported as the main activity by respondents. According to literature "cotton picking is a common source of employment for women in Punjab" (Abbas et. al, 2018) and views this as "an instrument for female employment" (Fatima, 2014). "This variation is caused exogenously by cotton production (in'000' bales, 1 bale =170 Kg) as cotton picking is a delicate work that does not require great deal of physical strength nor literacy rate and also because it is a naturally occurring phenomenon that is not affected by individual and household characteristics."

In this case the first stage will "estimate employment status for a woman using cotton production in the district".

Specification 1(with district cotton production (in'000' bales, 1 bale =170 Kg) as IV):

$$Empstatus_{id} = \delta_0 + \delta_1 DistrictCottonProduction + \sum \delta_n X_n + \varepsilon$$

This study also uses district level FLFP rate as a robustness checks for results (Fatima, 2014). It is a valid instrument for employment status of a woman because unless the woman is employed, the district FLFP rate will not affect her community participation rate (Fatima, 2014).

Specification 1 (with FLFP rate as IV):

$$Empstatus_{id} = \gamma_0 + \gamma_1 DistrictFLFPR + \sum \gamma_n X_n + \varepsilon$$

Moreover, the rural areas of Punjab where women are indulged in either livestock and poultry operations and/or cotton picking are usually associated with poorer economic conditions and more conservative culture. Thus we make use of an additional control variable i.e. district level percentage of women with secondary level of education.

6 Results

6.1   Livestock and Poultry as IV

Total amount (district level) of livestock and poultry is used to instrument women's employment status in each district. The first stage result shows that the livestock and poultry amount has a positive and significant impact on female employment.

Table 7: Livestock and Poultry as IV - First stage regressions

VARIABLES	1	2	3	4	5	6

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[14] Table 2 & 3

District Livestock & Poultry	2.94***	1.08***	8.17***	1.26***	1.03***	1.01***
	(2.78e-09)	(2.78e-09)	(2.78e-09)	(3.50e-09)	(3.49e-09)	(3.49e-09)
Constant	0.301***	0.341***	0.321***	0.290***	0.288***	0.264***
	(0.00631)	(0.0116)	(0.0135)	(0.0167)	(0.0167)	(0.0174)
Observations	29,020	29,020	29,020	18,518	18,518	18,518
R-squared	0.004	0.044	0.056	0.064	0.075	0.079

Note: Number of observations change as we add vector of husband's characteristics because there are a number of women who did not respond to questions pertaining to their husband's behavior.
Column 1: without any controls. Column 2: with woman's characteristics. Column 3: adding household's characteristics. Column 4: adding husband's characteristics. Column 5: adding woman's financial independence. Column 6: adding ICT. ICT is indicated by access to mobile and access to computer.

.Chances of a woman's community engagement increase if she is employed as we control for woman's characteristics. Education being a consistently significant determinant of community participation throughout the series of second stage regressions as it exposes them to a greater number of people and larger networks improving their chances to engage in community (Verba, Schlozman and Brady, 1995). Adding household characteristics to the equation shows that employment is still significant in improving CE and owning a land significantly decreases CE. This may be indicating us that women living in HHs that own land and live in a bigger HH experience more conservative gender norms (Dhanaraj et. al., 2017). HH size seems to negatively[15] impact woman's participation in community as she may be having more HH responsibilities and chores[16] but employment is positive and significant because the chances of working in agricultural employment are more while she lives in a bigger family eventually contributing to her being employed[17]. HH wealth index does not significantly add to her CE as it does not contribute to her freedom of mobility as the literature highlights that it is rather the women's poverty that drives her mobility outside home in search of better opportunities (Balk, 1997). Keeping in consideration the norms inherited by rural areas of Punjab, it is widely known that husband has a higher amount of decision making power and authority over not only the household's decisions but also over the woman's life decisions thus a vector of husband's specific controls was added to the equation. Employment status remains significant and positively impactful on a woman's community engagement, however the coefficient slightly increases as we add husband's vector[18]. In case of a married woman, her CE outcomes improve with her employment status as employment brings about

[15] Refer to regression results in Table A2 in Appendix 3.
[16] Involvement in chores such as house cleaning, washing, taking care of the children along with many other domestic responsibility are reported by majority of women (refer to Table 2). All indicators have been taken keeping in consideration the limitations of data and a large number of women reporting their stance. Other indicators may also be used according to the capacity of research and data.
[17] As this study considers agricultural employment of women in rural areas and this can also be deduced by a positive significant relationship shown in first stage regressions, between employment status and instrument (livestock & poultry and cotton production).
[18] Regression result in Appendix 3 Table A2.

better intra household bargaining (Fatima, 2014) and woman's participation in household decision making offers protection against all sorts violence and breech of freedom (Gautam & Jeong, 2019). This, in case of paid jobs, may also be due to improved social and income inequalities for women in families (Li li, 2015). Financial independent rural women are likely to be employed[19] due to a positive correlation between the two but financial independence itself is negatively and significantly impacting CE as women who earn may have lesser time to participate in community activities outside home (Widiantari & Mahraeni, 2021). ICT keeps the women up to date with socio economic opportunities, and add value to their regular lives (Qutoshi et. al., 2020). Use of mobile phones provides a sense of safety[20] along with on security to women (Demombynes & Thegeya, 2012; Bairagi, Polin, and Terrence, 2011). However, as mobile phone provides woman with a better social life while being at home (Bairagi et. al, 2011), their tendency to participate in community outside home reduces thus the negative direct impact on community engagement[21]. The inclusion of ICT amplifies the significant positive effect of employment on community engagement to 32.54 per cent as the use of ICT of a woman who is employed assists add more to the chances of her engaging in communities. This may be because access to ICT is found to improve opportunities for women by disseminating knowledge about markets, new employment and farming techniques (Sharma & Maheshwari, 2015) while employment also contributes to their community engagement by aiding their mobilisation and bargaining power. Hence both of them when accounted for, majorly impact a woman's CE. The magnitude increases more with significance and positive direction retained as district level control is added. Districts with higher percentage of women with secondary education provide greater chances of CE while controlling for all possible determinants including her own characteristics, financial independence, husband's characteristics and access to ICT.

Table 8: Livestock and Poultry as IV- Effect of FLFP on Community Engagement

VARIABLES	1	2	3	4	5	6
$\widehat{Empstatus}_{id}$	0.596***	1.071***	1.205***	1.631***	32.54***	45.36**
	(0.171)	(0.252)	(0.274)	(0.576)	(12.22)	(23.01)
Constant	-0.211*	-0.357**	-0.403***	-0.537**	-9.584***	-14.26*
	(0.118)	(0.144)	(0.149)	(0.222)	(3.513)	(7.520)
Observations	8,846	8,846	8,846	8,846	8,846	8,846
R-squared	0.011	0.012	0.012	0.012	0.012	0.012

Column 1: with woman's characteristics. Column 2: Adding household's characteristics. Column 3: Adding husband's characteristics. Column 4: Adding financial independence controls. Column 5: Adding ICT. Column 6: Adding district level control.

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[19] Refer to the first stage regression results in Table A1 appendix 3.
[20] A component used while constructing SOC index.
[21] Table A2 appendix 3

Note: I have taken percentage of women reporting secondary education as the highest level of education in each district. Secondary level of education is considered as it is previously used by Fatima (2014) in her paper as one of the factors that reflect the relative position of a district in terms of socio economic and cultural progress.

The positive and significant relationship still persists between female employment and community participation when the other dimension, sense of community is taken into account[22]. This is because employment status improves intra household bargaining contributing to her sense of attachment to the community she lives in as her life within and outside home improves with exposure to economic opportunity. Accounting for woman's characteristics only gives us an insignificant and negative impact of employment status on sense of community. Controlling for HH characteristics changes the direction to positive and the relation becomes significant. This is because controlling for merely woman's own characteristics such as her age, education and marital status cannot show any considerable impact of employment status on her sense of community and the magnitude is rather negative owing to other factors deteriorating her sense of community in terms of safety and belongingness. Living in a wealthier HH may be improving a woman's access to more resources (Mahmud, Shah & Becker, 2012) and she may be having more access to institutions present in the community resulting in increasing sense of community[23] due greater ability to spend (Mahmud, Shah & Becker, 2012). Women with higher wealth index are more likely to use institutions[24] such as health facilities (NIPORT 2009). Circumstances influencing a woman's lifestyle such as, living in a nuclear setup with smaller HH size and higher wealth index add to self-esteem and then sense of belonging and security in community (Mahmud, Shah & Becker, 2012). Despite a positive effect of HH wealth on a woman's material consumption, HH wealth may have a deteriorating effect on other aspects such as woman's say in HH decisions. For such reasons, owning a land[25] shows a negative impact on sense of community as decisions like purchase of land are mostly male dominant (Mahmud, Shah & Becker, 2012).

Table 9: Livestock and Poultry as IV- The Effect of FLFP on Sense of Community

VARIABLES	1	2	3	4	5	6
$\widehat{Empstatus}$	-0.0739	1.555***	1.794***	1.976***	21.12**	63.73***
	(0.153)	(0.227)	(0.250)	(0.499)	(10.44)	(19.80)
Constant	-0.0590	-0.837***	-0.914***	-0.978***	-6.675**	-22.22***

[22] Refer to Table 9
[23] Refer to Table A3 Appendix 3
[24] Usage of institutions including health facilities is a constituent of sense of community in this study.
[25] Refer to table A3 in appendix 3

	(0.101)	(0.123)	(0.128)	(0.189)	(2.999)	(6.489)
Observations	11,708	11,708	11,708	11,708	11,708	11,708
R-squared	0.161	0.179	0.179	0.181	0.184	0.184

6.2 Cotton Production as IV

"The first stage regressions show a positive and significant impact of cotton production per district on the female labour force participation rate in each district" (Abbas et. al, 2018 and Fatima, 2014).

Table 10: Cotton Production as IV- First stage regressions

VARIABLES	1	2	3	4	5	6
$DistrictCottonProduction$	0.000185***	0.000131***	0.000123***	0.000122***	0.000110***	0.000105***
	(8.52e-06)	(8.57e-06)	(8.55e-06)	(1.06e-05)	(1.06e-05)	(1.06e-05)
Constant	0.316***	0.327***	0.304***	0.279***	0.277***	0.258***
	(0.00346)	(0.0103)	(0.0124)	(0.0153)	(0.0153)	(0.0159)
Observations	29,020	29,020	29,020	18,518	18,518	18,518
R-squared	0.016	0.051	0.062	0.070	0.080	0.083

Column 1: without any controls. Column 2: with woman's characteristics. Column 3: adding household's characteristics. Column 4: adding husband's characteristics. Column 5: adding woman's financial independence. Column 6: adding ICT

Table 11: Cotton Production as IV Second stage regression- Community engagement

VARIABLES	1	2	3	4	5	6
$\widehat{Empstatus}$	0.602***	1.099***	1.265***	1.682***	3.433***	3.978**
	(0.176)	(0.262)	(0.289)	(0.622)	(1.289)	(2.018)
Constant	-0.260**	-0.452***	-0.522***	-0.686**	-1.377***	-1.958
	(0.127)	(0.160)	(0.168)	(0.279)	(0.441)	(1.320)
Observations	8,846	8,846	8,846	8,846	8,846	8,846
R-squared	0.011	0.012	0.012	0.012	0.012	0.012

Column 1: with woman's characteristics. Column 2: Adding household's characteristics. Column 3: Adding husband's characteristics. Column 4: Adding financial independence controls. Column 5:Adding ICT. Column 6: Adding district level control

The second stage regressions show that there is a positive and significant relationship between employment status and community engagement throughout our regressions. The magnitude keeps increasing as we keep adding controls and a significant increase in magnitude is seen when controlled for access to ICT and district control. Sense of community is also positively and significantly determined by employment status.

Table 12: Cotton Production as IV. The Effect of FLFP on Sense of community

VARIABLES	1	2	3	4	5	6

$\widehat{Empstatus}$	-0.158	1.494***	1.764***	1.798***	2.228**	5.589***
	(0.157)	(0.236)	(0.264)	(0.539)	(1.101)	(1.736)
Constant	-0.0152	-0.932***	-1.042***	-1.062***	-1.348***	-4.932***
	(0.110)	(0.138)	(0.146)	(0.239)	(0.374)	(1.159)
Observations	11,708	11,708	11,708	11,708	11,708	11,708
R-squared	0.161	0.178	0.179	0.181	0.184	0.184

Column 1: with woman's characteristics. Column 2: Adding household's characteristics. Column 3: Adding husband's characteristics. Column 4: Adding financial independence controls. Column 5: Adding ICT. Column 6: Adding district level control

7. District FLFP rate as IV

The first stage results of using FLFPR as an additional IV gives as a significant and positive relationship between district level FLFPR and a woman's employment status as we include all controls.

Table 13: FLFPR as IV- First stage results

VARIABLES	1	2	3	4	5	6
District FLFPR	0.0100***	0.00878***	0.00838***	0.00838***	0.00819***	0.00809***
	(0.000222)	(0.000224)	(0.000225)	(0.000282)	(0.000281)	(0.000281)
Constant	1.01e-09	0.0297**	0.0333**	-0.00441	-0.00317	-0.0149
	(0.00844)	(0.0130)	(0.0145)	(0.0182)	(0.0182)	(0.0185)
Observations	29,020	29,020	29,020	18,518	18,518	18,518
R-squared	0.066	0.092	0.098	0.106	0.115	0.118

Column 1: without any controls. Column 2: with woman's characteristics. Column 3: adding household's characteristics. Column 4: adding husband's characteristics. Column 5: adding woman's financial independence. Column 6: adding ICT

Table 14: FLFPR as IV- Effect of FLFP on community engagement

VARIABLES	1	2	3	4	5	6
$\widehat{Empstatus}$	0.739***	1.177***	1.303***	1.738**	6.128***	-11.20**
	(0.204)	(0.284)	(0.306)	(0.689)	(2.302)	(5.684)
Constant	-0.292**	-0.442***	-0.490***	-0.646**	-2.211***	10.50**
	(0.130)	(0.159)	(0.165)	(0.281)	(0.749)	(5.064)
Observations	8,846	8,846	8,846	8,846	8,846	8,846
R-squared	0.011	0.012	0.012	0.012	0.012	0.012

The second stage results also show a positive significant relationship between employment status and community participation considering only one dimension in this set of regression i.e. sense of community. However, the effect becomes negative for both dimensions of community participation as we control for percentage of women in each district having secondary level education. This may be because the districts with better socio economic conditions may experience lesser instances of women's employment in rural areas as with attainment of education rural women may have moved to urban areas in search of better economic opportunities as they no longer find a compatible activity with levels of education and hence since they are not there, they may be participating lesser in the community of that

district[26]. This may indicate us to the tendencies of migration to urban area for better economic and social life style in districts with better socio economic conditions or in such district women prefer to rely on other incomes of HH and do not get employed. They may be simply involved in HH chores and raising their kids.

Table 15: FLFPR as IV- Effect of FLFP on sense of community

VARIABLES	1	2	3	4	5	6
$\widehat{Empstatus}$	-0.119	1.579***	1.782***	1.524**	3.977**	-15.74***
	(0.183)	(0.257)	(0.280)	(0.597)	(1.966)	(4.891)
Constant	-0.0378	-0.910***	-0.985***	-0.896***	-1.890***	12.57***
	(0.112)	(0.138)	(0.144)	(0.241)	(0.638)	(4.343)
Observations	11,708	11,708	11,708	11,708	11,708	11,708
R-squared	0.161	0.178	0.179	0.180	0.184	0.184

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[26] Refer to Table B2 and B3 for negative effects of employment status of rural women on their CE and SOC.

8. Conclusion

This research has tried to shed light upon the contribution to women empowerment coming with two types of characteristics; 1) A woman's capability to independently move in society, within a unit as compact as a family enlarging to neighbourhood, community organizations and public officials. 2) A woman's perception about her sense of belonging and sense of safety. Employment status prior to this study seemed potential in effecting community participation of women positively and significantly in the light of literature, exposing them to economic opportunities, improved intra HH bargaining and bigger networks of people. Endogeneity issues were dealt by using variation in district level livestock and poultry considering that majority of women reported livestock and poultry operations as their main activity. The identification assumption was that the greater number of livestock and poultry provide more room for rural women's employment and an additional livestock animal or poultry is not likely to effect a women's community participation. Two additional IVs of district level cotton production and FLFPR were used as robustness checks for the results. The P value of less than 5 percent in the first stage regressions further encouraged us to use these as IVs.

Table 16: Effect of FLFP on Community engagement comparison across IVs

	Regressions	Livestock & Poultry	Cotton Production	FLFPR
1	Women's characteristics only	0.596***	0.602***	0.739***
		(0.171)	(0.176)	(0.204)
2	Adding HH characteristics	1.071***	1.099***	1.177***
		(0.252)	(0.262)	(0.284)
3	Adding Husband's characteristics	1.205***	1.265***	1.303***
		(0.274)	(0.289)	(0.306)
4	Adding woman's financial independence	1.631***	1.682***	1.738**
		(0.576)	(0.622)	(0.689)
5	Adding ICT	32.54***	3.433***	6.128***
		(12.22)	(1.289)	(2.302)
6	Adding district level control	45.36**	3.978**	-11.20**
		(23.01)	(2.018)	(5.684)
	Observations	8,846	8,846	8,846

Table 17: Effect of FLFP on Sense of Community comparison across IVs

	Regressions	Livestock & Poultry	Cotton Production	FLFPR

1	Women's characteristics only	-0.0739	-0.158	-0.119
		(0.153)	(0.157)	(0.183)
2	Adding HH characteristics	1.555***	1.494***	1.579***
		(0.227)	(0.236)	(0.257)
3	Adding Husband's characteristics	1.794***	1.764***	1.782***
		(0.250)	(0.264)	(0.280)
4	Adding woman's financial independence	1.976***	1.798***	1.524**
		(0.499)	(0.539)	(0.597)
5	Adding ICT	21.12**	2.228**	3.977**
		(10.44)	(1.101)	(1.966)
6	Adding district level control	63.73***	5.589***	-15.74***
		(19.80)	(1.736)	(4.891)
	Observations	11,708	11,708	11,708

A comparison of second stage results across all IVs and it is evident that a positive and significant relationship exists between employment status and community participation (both dimensions) at $\alpha = 1$ percent as we keep adding woman's HH characteristics, vector of husband's controls, financial independence, access to ICT and district level control of socio economic position. However, FLFPR shows that employment status may have a negative impact on community participation as we control for secondary education. This may indicate us to the tendencies of migration to urban area for better economic and social life style in districts with better socio economic conditions or in such district women prefer to rely on other incomes of HH and do not get employed. They may be simply involved in HH chores and raising their kids.

This study provides evidence that there is an existence of a positive and significant relationship between community participation and FLFP. Other factors like age, education, access to ICT and HH wealth may play important roles in contributing towards a woman's empowerment. The results may assist the community development authorities to look further into ways in which education and access to ICT can be enhanced simultaneously to enhance the effects of FLFP on woman's empowerment.

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Appendix 1

PCSW Economic and Social Wellbeing of women

Survey in Punjab (2017-2018).

Table 1: Questions pertaining to community engagement

Questions	Variable name	Definition
Autonomy to visit family/relatives	autonomy_visitfamily	1 if individual or joint decision, otherwise zero (no say)
Socializes with neighbours	social_neighbours	1 if meets neighbours, otherwise 0
Socializes with Public Official	social_publicofficial	1 if has seen a public official in past 12 months, otherwise zero
Nearness to family/can easily see or visit family	nearness2family	Dummy
Voting in 2013 elections	vote_2013	Dummy
Participated in March/Protest	participated_protest	Dummy
Became a member of a political party	member_politicalparty	Dummy
Office holder in political party	office_politicalparty	Dummy
Participated in elections (stood as a candidate)	participated_elections	Dummy
Elected as councilor or MPA	elected_councilorMPA	Dummy
Joined community organization	joined_communityorg	Dummy
Voting in 2018 elections	vote_2018	Dummy

Table 2: Questions pertaining to sense of community

Questions	Definition	Variables
Sharing personal problems with family/relying on family	dummy	shareingwithfamily
Trust/ reliance on neighbours	dummy	trust_neighbours
Turning to people for assistance	dummy	ppl_assistance
SOC_violence	dummy	=0 if expecting_assault=1 =1 if expecting_assault=0
Usage of Basic Health Unit	dummy	Usage_Basichealthunit
Usage of Public Transport	Dummy	Usage_publictransport
Usage of micro finance	Dummy	Usage_microfinance
Usage of police	Dummy	Usage_police
Usage of dispensary	dummy	Usage_dispensary

Appendix 2

Table 3: Socio Economic Demographics of all respondents in rural Punjab

	Categories	Per cent
Age		
	15-19	13.76
	20-24	13.09
	25-29	14.42
	30-34	14.55
	35-39	14.64
	40-44	9.72
	45-49	7.35
	50-54	5.70
	55-59	3.82
	60-64	2.95
	Total	100.00
Education		
	None/Preschool	59.77
	Primary	15.19
	Middle	8.68
	Secondary	9.40
	Higher	6.97
	Total	100.00
Employment Status		
	Employed	41.06
	Inactive	54.85
	Unemployed	832.00
	Total	100
Marital status		
	Never married	20.99
	Currently married	73.37
	Widow/divorce/separation	5.63
	Total	100.00
Wealth Index		
	Lowest	31.72
	Secondary	26.62

	Middle	20.37
	Fourth	15.04
	Highest	6.26
	Total	100
Livestock ownership		
	HH owns animals and poultry	57.82
	HH does not own	42.18
	Total	100
Land ownership		
	HH owns land	38.60
	HH does not own land	61.40
	Total	100.00
Migration status	Always lived in the same community	80.24
	Migrated	19.76
	Total	100.00
Financial awareness		
	Personal Savings	12.97
	Bank Account	4

Appendix 3

Table A1: Total Livestock and Poultry as IV: First stage regression

VARIABLES	1	2	3	4	5	6
Livestock and Poultry	2.94e-08***	1.08e-08***	8.17e-09***	1.26e-08***	1.03e-08***	1.01e-08***
	(2.78e-09)	(2.78e-09)	(2.78e-09)	(3.50e-09)	(3.49e-09)	(3.49e-09)
Age		-0.000148	-0.000386	0.00657***	0.00426**	0.00663***
		(0.00129)	(0.00132)	(0.00187)	(0.00186)	(0.00188)
Primary education		-0.118***	-0.117***	-0.126***	-0.133***	-0.133***
		(0.00823)	(0.00819)	(0.0100)	(0.00998)	(0.0102)
Secondary education		-0.224***	-0.222***	-0.204***	-0.222***	-0.215***
		(0.00922)	(0.00921)	(0.0120)	(0.0120)	(0.0124)
Middle education		-0.208***	-0.205***	-0.167***	-0.179***	-0.177***
		(0.00994)	(0.00991)	(0.0131)	(0.0130)	(0.0132)
Higher education		-0.144***	-0.139***	-0.142***	-0.196***	-0.170***
		(0.00930)	(0.00932)	(0.0121)	(0.0126)	(0.0136)
Always lived in the same area		0.0920***	0.0860***	0.0891***	0.0857***	0.0867***
		(0.00706)	(0.00702)	(0.00807)	(0.00803)	(0.00802)
Land			0.109***	0.137***	0.133***	0.135***
			(0.00595)	(0.00759)	(0.00755)	(0.00754)
Nuclear family			-0.00639	-0.00512	-0.00394	-0.00430
			(0.00718)	(0.00807)	(0.00803)	(0.00801)
HH size			-0.000427	0.000622	0.00156	0.00242*
			(0.000974)	(0.00129)	(0.00128)	(0.00128)
Remittances			-0.0517***	-0.0575***	-0.0824***	-0.0800***
			(0.0107)	(0.0140)	(0.0141)	(0.0141)
				0.0176***	0.0163***	0.0158***
				(0.00248)	(0.00247)	(0.00247)
Personal savings					0.0820***	0.0856***
					(0.00928)	(0.00934)
Bank account					0.171***	0.180***
					(0.0163)	(0.0163)
Marital status		0.00877	0.0147*	Omitted	Omitted	Omitted
		(0.00688)	(0.00789)			
Access to computer						-0.0975***
						(0.0113)
Access to Mobile						0.0263***
						(0.00781)
Constant	0.301***	0.341***	0.321***	0.290***	0.288***	0.264***
	(0.00631)	(0.0116)	(0.0135)	(0.0167)	(0.0167)	(0.0174)
Observations	29,020	29,020	29,020	18,518	18,518	18,518
R-squared	0.004	0.044	0.056	0.064	0.075	0.079

Table A2: Total livestock and poultry as IV Second stage regressions (Community Engagement)

VARIABLES	1	2	3	4	5	6
$\widehat{Empstatus}_{id}$	0.596***	1.071***	1.205***	1.631***	32.54***	45.36**
	(0.171)	(0.252)	(0.274)	(0.576)	(12.22)	(23.01)
age	0.0317***	0.0283***	0.0275***	0.0251***	-0.179**	-0.264*
	(0.00857)	(0.00881)	(0.00883)	(0.00914)	(0.0813)	(0.153)
Marital status	-	-	-	-	-	-
Primary education	0.157***	0.212***	0.229***	0.284***	4.372***	6.072**
	(0.0495)	(0.0565)	(0.0580)	(0.0863)	(1.622)	(3.051)
Secondary education	0.278***	0.362***	0.388***	0.474***	7.094***	9.846**
	(0.0672)	(0.0812)	(0.0837)	(0.135)	(2.624)	(4.939)
Middle education	0.165**	0.234***	0.255***	0.328***	5.801***	8.076**
	(0.0689)	(0.0776)	(0.0796)	(0.118)	(2.170)	(4.083)
Higher Education	0.273***	0.322***	0.338***	0.404***	5.649***	7.832**
	(0.0695)	(0.0803)	(0.0813)	(0.124)	(2.082)	(3.918)
Always lived in the same area	0.0244	-0.0147	-0.0267	-0.0621	-2.740***	-3.852*
	(0.0430)	(0.0456)	(0.0466)	(0.0631)	(1.061)	(1.996)
HH size		-0.00758	-0.00779	-0.00869	-0.0833***	-0.114**
		(0.00586)	(0.00587)	(0.00597)	(0.0302)	(0.0559)
Land owned by HH		-0.113**	-0.132***	-0.186**	-4.345***	-6.072*
		(0.0469)	(0.0493)	(0.0832)	(1.646)	(3.098)
Nuclear family setup		0.0224	0.0227	0.0256	0.158**	0.213**
		(0.0367)	(0.0367)	(0.0368)	(0.0627)	(0.104)
Wealth Index		0.0121	0.0119	0.0174	0.0118	0.0118
		(0.0166)	(0.0166)	(0.0173)	(0.0179)	(0.0179)
Remittances		0.0748	0.0827	0.116	2.586***	3.613**
		(0.0640)	(0.0643)	(0.0777)	(0.979)	(1.842)
Husband's characteristics			-0.0151	-0.0211	-0.511***	-0.714*
			(0.0120)	(0.0144)	(0.194)	(0.365)
Bank account				-0.0205	-5.581**	-7.887*
				(0.126)	(2.200)	(4.138)
Personal savings				-0.0992	-2.748***	-3.846*
				(0.0656)	(1.050)	(1.972)
Access to Mobile					-0.773**	-1.111*
					(0.327)	(0.609)
Access to Computer					3.047**	4.297*
					(1.192)	(2.244)
Women with secondary education %						0.151
						(0.142)
Constant	-0.211*	-0.357**	-0.403***	-0.537**	-9.584***	-14.26*
	(0.118)	(0.144)	(0.149)	(0.222)	(3.513)	(7.520)
Observations	8,846	8,846	8,846	8,846	8,846	8,846
R-squared	0.011	0.012	0.012	0.012	0.012	0.012

Table A3: Livestock and Poultry as IV Second stage results for Sense of Community

VARIABLES	1	2	3	4	5	6
Empstatus	-0.0739	1.555***	1.794***	1.976***	21.12**	63.73***
	(0.153)	(0.227)	(0.250)	(0.499)	(10.44)	(19.80)
age	0.0154**	0.00136	-0.000203	0.000245	-0.124*	-0.407***
	(0.00714)	(0.00737)	(0.00740)	(0.00767)	(0.0694)	(0.131)
Marital status	-	-	-	-	-	-
Primary education	0.186***	0.275***	0.304***	0.324***	2.827**	8.475***
	(0.0426)	(0.0488)	(0.0504)	(0.0744)	(1.385)	(2.625)
Secondary education	0.365***	0.474***	0.520***	0.562***	4.616**	13.76***
	(0.0594)	(0.0721)	(0.0748)	(0.118)	(2.241)	(4.250)
Middle education	0.249***	0.349***	0.389***	0.421***	3.776**	11.33***
	(0.0581)	(0.0661)	(0.0683)	(0.101)	(1.853)	(3.513)
High education	0.385***	0.311***	0.341***	0.407***	3.595**	10.85***
	(0.0633)	(0.0722)	(0.0734)	(0.109)	(1.779)	(3.371)
Always lived in the same area	0.0823**	-0.0320	-0.0546	-0.0731	-1.729*	-5.423***
	(0.0347)	(0.0372)	(0.0384)	(0.0532)	(0.905)	(1.717)
HH size		-0.00544	-0.00589	-0.00637	-0.0520**	-0.155***
		(0.00490)	(0.00491)	(0.00499)	(0.0258)	(0.0481)
Land owned by family		-0.456***	-0.489***	-0.518***	-3.090**	-8.827***
		(0.0418)	(0.0441)	(0.0721)	(1.406)	(2.666)
Nuclear family setup		0.00767	0.00872	0.00917	0.0894*	0.273***
		(0.0314)	(0.0314)	(0.0315)	(0.0542)	(0.0898)
Wealth Index		0.188***	0.187***	0.186***	0.161***	0.161***
		(0.0144)	(0.0144)	(0.0149)	(0.0154)	(0.0154)
Remittances		0.0167	0.0297	0.0546	1.570*	4.981***
		(0.0567)	(0.0570)	(0.0681)	(0.837)	(1.585)
Husband's characteristics			-0.0237**	-0.0282**	-0.331**	-1.006***
			(0.0104)	(0.0124)	(0.166)	(0.314)
Bank account				-0.284**	-3.754**	-11.41***
				(0.112)	(1.879)	(3.561)
Personal savings				0.132**	-1.524*	-5.170***
				(0.0582)	(0.896)	(1.697)
Access to Mobile					-0.320	-1.443***
					(0.280)	(0.524)
Access to Computer					2.020**	6.173***
					(1.019)	(1.931)
Women with secondary education %						0.501***
						(0.127)
Constant	-0.0590	-0.837***	-0.914***	-0.978***	-6.675**	-22.22***
	(0.101)	(0.123)	(0.128)	(0.189)	(2.999)	(6.489)
Observations	11,708	11,708	11,708	11,708	11,708	11,708
R-squared	0.161	0.179	0.179	0.181	0.184	0.184

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table B1: Cotton Production as IV First stage regressions

VARIABLES	1	2	3	4	5	6
District Cotton Production	0.000185***	0.000131***	0.000123***	0.000122***	0.000110***	0.000105***
	(8.52e-06)	(8.57e-06)	(8.55e-06)	(1.06e-05)	(1.06e-05)	(1.06e-05)
age		0.000867	0.000574	0.00728***	0.00504***	0.00719***
		(0.00129)	(0.00131)	(0.00186)	(0.00185)	(0.00187)
Marital Status				-	-	-
Primary education		-0.108***	-0.107***	-0.117***	-0.124***	-0.123***
		(0.00820)	(0.00816)	(0.0100)	(0.00997)	(0.0102)
Secondary education		-0.209***	-0.208***	-0.192***	-0.210***	-0.201***
		(0.00921)	(0.00920)	(0.0120)	(0.0120)	(0.0125)
middle education		-0.195***	-0.192***	-0.156***	-0.169***	-0.166***
		(0.00990)	(0.00988)	(0.0130)	(0.0130)	(0.0132)
Higher education		-0.128***	-0.124***	-0.130***	-0.183***	-0.156***
		(0.00929)	(0.00931)	(0.0121)	(0.0126)	(0.0136)
Always lived in the same area		0.0868***	0.0807***	0.0855***	0.0824***	0.0834***
		(0.00701)	(0.00698)	(0.00802)	(0.00798)	(0.00798)
Land owned by HH			0.107***	0.135***	0.131***	0.133***
			(0.00593)	(0.00756)	(0.00753)	(0.00752)
Nuclear Family setup			-0.00546	-0.00369	-0.00284	-0.00325
			(0.00715)	(0.00803)	(0.00799)	(0.00798)
HH size			-0.000277	0.000732	0.00162	0.00242*
			(0.000971)	(0.00128)	(0.00128)	(0.00128)
Remittances			-0.0428***	-0.0490***	-0.0737***	-0.0714***
			(0.0107)	(0.0140)	(0.0141)	(0.0141)
Husband's characteristics				0.0182***	0.0170***	0.0165***
				(0.00248)	(0.00247)	(0.00246)
Personal savings					0.0734***	0.0780***
					(0.00929)	(0.00934)
Bank account					0.169***	0.178***
					(0.0162)	(0.0163)
Access to computer						-0.0937***
						(0.0113)
Access to mobile						0.0197**
						(0.00779)
Marital status		0.00724	0.0126			
		(0.00685)	(0.00786)			
Constant	0.316***	0.327***	0.304***	0.279***	0.277***	0.258***
	(0.00346)	(0.0103)	(0.0124)	(0.0153)	(0.0153)	(0.0159)
Observations	29,020	29,020	29,020	18,518	18,518	18,518
R-squared	0.016	0.051	0.062	0.070	0.080	0.083

Table B2: Cotton Production as IV Second Stage (Community Engagement)

VARIABLES	1	2	3	4	5	6
Empstatus	0.602***	1.099***	1.265***	1.682***	3.433***	3.978**
	(0.176)	(0.262)	(0.289)	(0.622)	(1.289)	(2.018)
Age	0.0312***	0.0273***	0.0261***	0.0235**	0.0120	0.00807
	(0.00861)	(0.00886)	(0.00890)	(0.00939)	(0.0126)	(0.0168)
Marital Status	-	-	-	-	-	-
Primary education	0.153***	0.207***	0.226***	0.276***	0.481***	0.548**
	(0.0492)	(0.0560)	(0.0577)	(0.0868)	(0.166)	(0.253)
Secondary education	0.272***	0.356***	0.385***	0.465***	0.803***	0.912**
	(0.0668)	(0.0807)	(0.0835)	(0.138)	(0.268)	(0.412)
Middle education	0.160**	0.228***	0.253***	0.320***	0.600***	0.690**
	(0.0686)	(0.0772)	(0.0793)	(0.119)	(0.225)	(0.342)
Higher education	0.267***	0.313***	0.331***	0.392***	0.648***	0.733**
	(0.0692)	(0.0796)	(0.0807)	(0.124)	(0.216)	(0.325)
Always lived in the same area	0.0257	-0.0137	-0.0280	-0.0614	-0.205*	-0.251
	(0.0429)	(0.0457)	(0.0468)	(0.0647)	(0.115)	(0.173)
HH size		-0.00771	-0.00797	-0.00888	-0.0129*	-0.0142*
		(0.00587)	(0.00587)	(0.00599)	(0.00669)	(0.00761)
Land owned by HH		-0.115**	-0.137***	-0.190**	-0.420**	-0.493*
		(0.0476)	(0.0504)	(0.0879)	(0.174)	(0.270)
Nuclear family setup		0.0214	0.0216	0.0240	0.0294	0.0312
		(0.0367)	(0.0367)	(0.0368)	(0.0367)	(0.0369)
Wealth Index		0.0127	0.0125	0.0179	0.0118	0.0118
		(0.0166)	(0.0166)	(0.0174)	(0.0179)	(0.0179)
Remittances		0.0681	0.0767	0.106	0.227**	0.266*
		(0.0637)	(0.0640)	(0.0768)	(0.111)	(0.156)
Husband's characteristics			-0.0168	-0.0229	-0.0519**	-0.0608*
			(0.0122)	(0.0151)	(0.0241)	(0.0353)
Bank Account				-0.0262	-0.346	-0.443
				(0.132)	(0.244)	(0.369)
Personal savings				-0.0900	-0.232**	-0.274*
				(0.0648)	(0.112)	(0.166)
Access to mobile					0.0170	0.00628
					(0.0454)	(0.0545)
Access to computer					0.197	0.248
					(0.135)	(0.199)
Women with secondary education %						0.0607
						(0.100)
Constant	-0.260**	-0.452***	-0.522***	-0.686**	-1.377***	-1.958
	(0.127)	(0.160)	(0.168)	(0.279)	(0.441)	(1.320)
Observations	8,846	8,846	8,846	8,846	8,846	8,846
R-squared	0.011	0.012	0.012	0.012	0.012	0.012

Table B3: Cotton Production as IV Second Stage (Sense of Community)

VARIABLES	1	2	3	4	5	6
Empstatus	-0.158	1.494***	1.764***	1.798***	2.228**	5.589***
	(0.157)	(0.236)	(0.264)	(0.539)	(1.101)	(1.736)
Age	0.0164**	0.000754	-0.00122	-0.000134	-7.55e-05	-0.0242*
	(0.00718)	(0.00742)	(0.00747)	(0.00790)	(0.0106)	(0.0143)
Marital status	-	-	-	-	-	-
Primary education	0.178***	0.255***	0.286***	0.287***	0.301**	0.714***
	(0.0423)	(0.0483)	(0.0502)	(0.0748)	(0.142)	(0.217)
Secondary education	0.351***	0.445***	0.494***	0.504***	0.532**	1.208***
	(0.0590)	(0.0716)	(0.0747)	(0.120)	(0.229)	(0.354)
Middle education	0.238***	0.325***	0.367***	0.373***	0.400**	0.957***
	(0.0578)	(0.0656)	(0.0682)	(0.102)	(0.192)	(0.294)
Higher education	0.377***	0.285***	0.317***	0.354***	0.349*	0.873***
	(0.0629)	(0.0716)	(0.0729)	(0.109)	(0.185)	(0.280)
Always lived in the same area	0.0898***	-0.0214	-0.0459	-0.0521	-0.0841	-0.364**
	(0.0347)	(0.0372)	(0.0387)	(0.0546)	(0.0967)	(0.148)
HH size		-0.00554	-0.00604	-0.00614	-0.00630	-0.0144**
		(0.00491)	(0.00491)	(0.00502)	(0.00561)	(0.00644)
Land		-0.445***	-0.481***	-0.492***	-0.542***	-0.988***
		(0.0423)	(0.0452)	(0.0762)	(0.149)	(0.232)
Nuclear family setup		0.00585	0.00677	0.00618	0.00572	0.0166
		(0.0314)	(0.0314)	(0.0315)	(0.0314)	(0.0316)
Wealth index		0.188***	0.188***	0.185***	0.161***	0.161***
		(0.0144)	(0.0144)	(0.0150)	(0.0154)	(0.0154)
Remittances		0.00178	0.0147	0.0256	0.0389	0.279**
		(0.0564)	(0.0567)	(0.0674)	(0.0954)	(0.135)
Husband's characteristics			-0.0241**	-0.0265**	-0.0334	-0.0888***
			(0.0106)	(0.0130)	(0.0206)	(0.0303)
Bank account				-0.250**	-0.355*	-0.954***
				(0.117)	(0.210)	(0.318)
Personal savings				0.162***	0.109	-0.153
				(0.0575)	(0.0965)	(0.143)
Access to mobile					0.192***	0.126***
					(0.0390)	(0.0470)
Access to Computer					0.170	0.485***
					(0.116)	(0.172)
Women with secondary education %						0.374***
						(0.0908)
Constant	-0.0152	-0.932***	-1.042***	-1.062***	-1.348***	-4.932***
	(0.110)	(0.138)	(0.146)	(0.239)	(0.374)	(1.159)
Observations	11,708	11,708	11,708	11,708	11,708	11,708
R-squared	0.161	0.178	0.179	0.181	0.184	0.184

Table C1: FLFP as IV- First stage regressions

VARIABLES	1	2	3	4	5	6
FLFP rate	0.0100***	0.00878***	0.00838***	0.00838***	0.00819***	0.00809***
	(0.000222)	(0.000224)	(0.000225)	(0.000282)	(0.000281)	(0.000281)
Age		0.00285**	0.00211*	0.00945***	0.00735***	0.00930***
		(0.00126)	(0.00128)	(0.00182)	(0.00182)	(0.00183)
Marital status				-	-	-
Primary education		-0.0901***	-0.0906***	-0.100***	-0.106***	-0.103***
		(0.00802)	(0.00800)	(0.00980)	(0.00976)	(0.00997)
Secondary education		-0.176***	-0.176***	-0.159***	-0.176***	-0.166***
		(0.00902)	(0.00904)	(0.0118)	(0.0118)	(0.0123)
middle education		-0.164***	-0.163***	-0.131***	-0.142***	-0.137***
		(0.00970)	(0.00970)	(0.0128)	(0.0127)	(0.0130)
Higher education		-0.0966***	-0.0946***	-0.0995***	-0.149***	-0.122***
		(0.00909)	(0.00913)	(0.0119)	(0.0124)	(0.0134)
Always lived in the same area		0.0802***	0.0756***	0.0804***	0.0770***	0.0775***
		(0.00685)	(0.00684)	(0.00785)	(0.00782)	(0.00782)
Land owned by HH			0.0835***	0.110***	0.107***	0.108***
			(0.00585)	(0.00747)	(0.00743)	(0.00743)
Nuclear family setup			0.00367	0.00476	0.00538	0.00484
			(0.00702)	(0.00788)	(0.00784)	(0.00783)
HH size			-0.00136	-0.000164	0.000715	0.00146
			(0.000952)	(0.00126)	(0.00125)	(0.00125)
Remittances			-0.0314***	-0.0345**	-0.0577***	-0.0549***
			(0.0105)	(0.0137)	(0.0138)	(0.0138)
husband's characteristics				0.0149***	0.0137***	0.0133***
				(0.00243)	(0.00242)	(0.00242)
personal savings					0.0719***	0.0765***
					(0.00907)	(0.00912)
Bank account					0.160***	0.169***
					(0.0159)	(0.0160)
Access to computer						-0.0875***
						(0.0111)
Access to mobile						0.0125
						(0.00764)
married		0.00362	0.00330			
		(0.00671)	(0.00771)			
Constant	1.01e-09	0.0297**	0.0333**	-0.00441	-0.00317	-0.0149
	(0.00844)	(0.0130)	(0.0145)	(0.0182)	(0.0182)	(0.0185)
Observations	29,020	29,020	29,020	18,518	18,518	18,518
R-squared	0.066	0.092	0.098	0.106	0.115	0.118

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table C2: FLFP rate as IV – Second stage regression (Community Engagement)

VARIABLES	1	2	3	4	5	6
Empstatus	0.739***	1.177***	1.303***	1.738**	6.128***	-11.20**
	(0.204)	(0.284)	(0.306)	(0.689)	(2.302)	(5.684)
Age	0.0282***	0.0240***	0.0229**	0.0191*	-0.0203	0.141***
	(0.00879)	(0.00906)	(0.00912)	(0.0103)	(0.0230)	(0.0538)
Marital status	-	-	-	-	-	-
Primary education	0.156***	0.195***	0.207***	0.252***	0.694***	-1.100*
	(0.0491)	(0.0547)	(0.0558)	(0.0832)	(0.244)	(0.589)
Secondary education	0.274***	0.331***	0.349***	0.418***	1.127***	-1.743*
	(0.0663)	(0.0775)	(0.0792)	(0.129)	(0.388)	(0.942)
Middle education	0.162**	0.208***	0.224***	0.282**	0.872***	-1.507*
	(0.0683)	(0.0751)	(0.0764)	(0.112)	(0.324)	(0.782)
Higher education	0.261***	0.286***	0.296***	0.344***	0.859***	-1.254*
	(0.0685)	(0.0774)	(0.0779)	(0.115)	(0.291)	(0.696)
Always lived in the same area	0.0180	-0.0137	-0.0239	-0.0563	-0.394**	0.949**
	(0.0434)	(0.0458)	(0.0467)	(0.0660)	(0.183)	(0.442)
HH size		-0.00680	-0.00690	-0.00743	-0.0135**	0.0117
		(0.00586)	(0.00586)	(0.00591)	(0.00680)	(0.0102)
Land owned by family		-0.0966**	-0.111**	-0.155*	-0.628**	1.248**
		(0.0447)	(0.0465)	(0.0806)	(0.251)	(0.616)
Nuclear family setup		0.0120	0.0112	0.0101	-0.0114	0.0724
		(0.0367)	(0.0367)	(0.0368)	(0.0388)	(0.0447)
Wealth index		0.0129	0.0127	0.0180	0.0118	0.0118
		(0.0166)	(0.0166)	(0.0175)	(0.0179)	(0.0179)
Remittances		0.0542	0.0588	0.0819	0.318**	-0.633**
		(0.0631)	(0.0632)	(0.0733)	(0.140)	(0.319)
Husband's characteristics			-0.0133	-0.0184	-0.0770**	0.154**
			(0.0119)	(0.0144)	(0.0328)	(0.0764)
Bank account				-0.0194	-0.770*	2.161**
				(0.136)	(0.399)	(0.963)
Personal savings				-0.0908	-0.433**	0.892**
				(0.0676)	(0.184)	(0.434)
Access to mobile					0.00813	0.224***
					(0.0476)	(0.0779)
Access to computer					0.411**	-1.105**
					(0.210)	(0.502)
Women with secondary education (%)						-1.081**
						(0.493)
Constant	-0.292**	-0.442***	-0.490***	-0.646**	-2.211***	10.50**
	(0.130)	(0.159)	(0.165)	(0.281)	(0.749)	(5.064)
Observations	8,846	8,846	8,846	8,846	8,846	8,846
R-squared	0.011	0.012	0.012	0.012	0.012	0.012

Table C3: FLFP rate as IV Second stage regression- Sense of Community

VARIABLES	1	2	3	4	5	6
Empstatus	-0.119	1.579***	1.782***	1.524**	3.977**	-15.74***
	(0.183)	(0.257)	(0.280)	(0.597)	(1.966)	(4.891)
Age	0.0162**	-0.00341	-0.00534	-0.00202	-0.0211	0.162***
	(0.00736)	(0.00763)	(0.00770)	(0.00875)	(0.0195)	(0.0462)
Marital status	-	-	-	-	-	-
Primary education	0.184***	0.237***	0.256***	0.227***	0.440**	-1.601***
	(0.0422)	(0.0471)	(0.0483)	(0.0717)	(0.208)	(0.507)
Secondary education	0.361***	0.408***	0.438***	0.399***	0.742**	-2.522***
	(0.0586)	(0.0687)	(0.0707)	(0.112)	(0.331)	(0.811)
Middle education	0.246***	0.296***	0.323***	0.288***	0.576**	-2.129***
	(0.0575)	(0.0637)	(0.0653)	(0.0964)	(0.276)	(0.673)
Higher education	0.384***	0.247***	0.264***	0.261***	0.486*	-1.919***
	(0.0624)	(0.0695)	(0.0702)	(0.101)	(0.250)	(0.599)
Always lived in the same area	0.0854**	-0.0197	-0.0370	-0.0206	-0.206	1.321***
	(0.0351)	(0.0373)	(0.0385)	(0.0557)	(0.155)	(0.380)
HH size		-0.00433	-0.00455	-0.00425	-0.00670	0.0220**
		(0.00490)	(0.00490)	(0.00495)	(0.00571)	(0.00867)
Land owned by HH		-0.418***	-0.441***	-0.419***	-0.677***	1.458***
		(0.0398)	(0.0417)	(0.0699)	(0.215)	(0.530)
Nuclear family setup		-0.00671	-0.00767	-0.00754	-0.0208	0.0746*
		(0.0314)	(0.0314)	(0.0314)	(0.0329)	(0.0386)
Wealth index		0.188***	0.188***	0.183***	0.161***	0.161***
		(0.0144)	(0.0144)	(0.0151)	(0.0154)	(0.0154)
Remittances		-0.0181	-0.0115	-0.0187	0.0980	-0.984***
		(0.0558)	(0.0559)	(0.0645)	(0.120)	(0.275)
husband			-0.0187*	-0.0171	-0.0498*	0.213***
			(0.0103)	(0.0124)	(0.0280)	(0.0658)
Bank account				-0.187	-0.631*	2.704***
				(0.120)	(0.342)	(0.829)
Personal savings				0.186***	-0.0216	1.486***
				(0.0600)	(0.158)	(0.374)
Access to Mobile					0.186***	0.432***
					(0.0408)	(0.0666)
Access to Computer					0.309*	-1.416***
					(0.180)	(0.431)
Women with secondary education %						-1.230***
						(0.422)
Constant	-0.0378	-0.910***	-0.985***	-0.896***	-1.890***	12.57***
	(0.112)	(0.138)	(0.144)	(0.241)	(0.638)	(4.343)
Observations	11,708	11,708	11,708	11,708	11,708	11,708
R-squared	0.161	0.178	0.179	0.180	0.184	0.184