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SPECIAL ISSUE ON GENDER AND DEVELOPMENT

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Un-layering Agency: Foregrounding Invisible Structures to Reimagine Policy for Transformative Change

Nilanjana Bhattacharjee*

This paper, based on a study of 206 women sanitation workers across the cities of Jhansi, Ajmer and Muzaffarpur un-layers the concept of 'agency' in social development and economic growth. It builds on the lived experiences of these women through a phenomenological lens and problematizes the mainstream definition of agency by World Bank and similar versions in the development sector. Through the experience sets and subject positionality of these women, the blanketed presumption of economic growth and liberalisation enabling agentic and inclusive development is challenged. It does so by looking into a) external constraints (education, nature of employment and awareness of policies and programs) and b) internal constraints (adaptive loyalty, mental/emotional occupational health) that influence the agency of the women on a daily basis. It highlights how the essentialisation of agency in the context of policies, schemes and developmental interventions such as SBM can be more detrimental than ameliorative for marginalised communities by normalising caste based vocation and submerging voices of resistance. The paper argues that for policies to have transformative capacity, it must look into multiple structures underlining agency which do not necessarily contribute to development but certainly limit it.

Keywords: Gender, Sanitation, Caste, Patriarchy, Violence, Policy

I. INTRODUCTION AND OBJECTIVE

This paper emerges out of a study conducted by the author at Participatory Research in Asia (PRIA) on women sanitation workers of India. Conducted across the 3 cities of Jhansi, Ajmer and Muzaffarpur, the study aimed to discover understated discourses of caste and sanitation with reference to women, by exploring their lives and the associated problems (Bhattacharjee, 2018). The findings of this study exhibit a nuanced understanding of why policies made to enable vulnerable communities fail. An underlying factor influencing all the findings was a lack of agency among these women and the inability of policy to address that, thus limiting their benefits.

The term 'Woman Sanitation Worker' (WSW) is an exhibition in itself of the hierarchies of gender, caste and labour in India. Not only does it exhibit the most vulnerable group of people in India, i.e., Dalit WSWs but also encapsulates hierarchies within sanitation work itself, of which women belong to the lowest rung (Bhattacharjee, 2018).

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Indian cities are marked with national policies and programs that intend to bridge such gaps of maltreatment. Swachh Bharat Mission (SBM) is one such program which represents a moment in Indian development that requires inquiry along its bridges and fractures of inclusion and exclusion. It poses an excellent exhibition of the dynamics of caste, gender and labour in a country where at least 49.8 per cent Indians still do not have access to toilets and defecate in the open (BBC, 2012). It exemplifies the danger in targeting infrastructure over people to change mind-sets, but most importantly how the infrastructural spectacle of a pan-national program can submerge voices of the marginalised (Gatade, 2015). This reflects in the absent conversation about the sanitation workers who actually *do* the work in the flagship program.

These voices of the marginalised have been historically stifled through the appropriation of the caste system within the multiple institutions running the country (ibid). Certain schools of political thought have historically and repeatedly implied that those still doing sanitation work, continue it with choice. Especially through the restructuring and enabling of flexible capitalistic markets post liberalisation, many leaders and consequently common people believed that if Dalit communities wished to switch to other work and businesses, they certainly could and the fact that they have not speaks for an active agentic choice and ownership of profession (Gatade, 2015).

This presumption about an ever-present agency among the marginalised to transform their situation needs to be investigated, especially because the development discourse suffers from the danger of underestimating power structures of caste and patriarchy (Kabeer, 2016) in its approach to human agency.

The objective of this paper is to address the gap in the understanding of agency in the development discourse, which focusses on economic opportunities as the enabler of agency and does not address socio-political structures that deter it in the lives of the vulnerable. It does so by exhibiting findings of the study on WSWs which point towards the complex factors that influence access to economic opportunities and life in general, which policies and programs are unable to address.

Broken into four sub-sections, the first section reviews the notion of 'agency' in development followed by un-layering the limitations of its definition and the structures, its approach, fails to address. The second section substantiates the challenges to the mainstream definition of agency through the narratives and lived experiences of the WSWs who highlight external and internal limitations to agency. The third section focusses on how policy and programs such as SBM can address such limitations underlining agency in marginalised communities better to be transformative. The fourth section concludes the paper.

II. RESEARCH METHODOLOGY

As mentioned above, the study on WSWs aimed to explore different aspects of their daily lives around work and home. Through their lived experiences, the study

attempted to articulate their voices, conditions, overlapping identities and the socio-economic influences around them that deterred their agency and advocated for better policies (Bhattacharjee, 2018). Thus, the methodology supported a phenomenological approach to understanding the lived experiences of WSWs.

Phenomenology is both, a philosophical approach and a research method (Shikha, 2018). As a research method, phenomenology is “the rigorous and unbiased study of things as they appear so that one might come to an essential understanding of human consciousness and experience” (Valle & Halling, 1989: 6 in Shikha, 2018). It is a research method that employs the observation and analysis lens of ‘the things themselves’ (Husserl, 1962 in Shikha, 2018) in a way that it effects researchers “see” something in a manner that enriches our understanding of daily life experiences (Van Manen, 1997). The researcher analyses and interprets lived experiences to discover essential themes and all themes taken together allow the meaning of the experience to emerge as a whole (Van Manen, 1990).

While the study employed a phenomenological lens, all methods used and analysis processes followed the principles of participatory research (PR), which focusses on co-building knowledge in a non-extractive, conversational manner. PR acknowledges and values local, indigenous and oral knowledge. PR is not research on or for the people, but it is research with the people (Hall and Tandon, 2017).

Sample Size and Methods Used

The study conducted comprised of 71 personal interviews held with WSWs across Jhansi, Ajmer and Muzaffarpur. Out of the 71, 15 were permanent municipality workers, 45 were contractual workers, 8 were outsourced and 3 were self-employed. The findings do not comprise of responses from self-employed women, who were interviewed to ensure a holistic understanding of the sanitation system. 14 focus group discussions (FGDs) were conducted with groups of 5-18 women in all 3 cities. In total, 110 women participated in the FGDs. Some FGDs comprised of a single type of workers (for example contractual WSWs) while others were a mix. The women came from various stages of life – some were daughters, mothers, daughter-in-laws, mother-in-laws or widows. 10 women were trailed, through the method of ‘shadowing’, around their work places and work routes. 15 women were personally interviewed to create ‘daily logs’ to understand the division of their time and chores; at work and home. A total of 206 WSWs participated in the study. Personal interviews were also conducted with *jamadars*, supervisors, sanitation inspectors, Chief Sanitation Inspectors and Mayors across the cities.

Sample sites

FGDs were held in the settlements of the respective women in clusters while personal interviews were either held in women’s homes or place of work during their breaks.

Most sanitation workers across these secondary cities live in the city's slum *bastis*. Majority of these workers hail from the Schedule Caste (SC) communities, and thus live in clusters, which are sometimes even named after their castes. A study undertaken by Praxis and Nidan in Patna – “The Legacy of Stench”, 2011 confirmed that even in 2011, nearly all sanitation workers came from SC communities. The study also confirmed that a large portion of slums are inhabited by SC groups. Their disadvantaged socio-economic conditions also lead to poor access to basic rights, entitlements and services (Shikha, 2018). The settlements of sanitation workers in which the study was conducted is given below:

Table 1
Settlements of Sanitation workers where the study was conducted

<i>Jhansi</i>	Schoolpura, Talpura, Banglaghat, Nai Basti, Laxmi Gate, Talpura 8, Isai Tola, Gudri, Sadar Bazar, Haddi Ghar, Hansari
<i>Ajmer</i>	Kesharganj, Trilok Nagar (Harijan Basti), Durga Colony, Johnsganj, Ramhanj (Harijan Basti), VIT Colony, Bhawanganj, Labana Basti, Shamshan Road (Harijan Basti), Bhopo Ka Bada (Kacchi Basti), Ambedkar Colony (Telipada), Longiya, Diggi Bazar
<i>Muzaffarpur</i>	Mestar Tola (Saraiyaganj), Harijan Basti, Dalit/Malik Basti, Ambedkar Nagar, Lakdidhahi Pul, Mestar Tola (Malgodam), Brahampura Dalit Basti, Dhunkar Toli, Maharaji Pokhar, Dusadh Toli, Pakki Sarai (campus)

As a general overview of the sample sites across the three cities, these informal settlements or ‘*bastis*’ are usually scattered in the periphery of the cities. In the few mentioned colonies where sanitation workers live, they live in the peripheries of the colony and stay out of the way of most other residents. Visually, the slums comprise of shanty lanes, have limited access to water, sanitation, liveable housing and other civic services (Nagpal et al, 2019). Some slums are situated in government land or are non-notified, and thus do not have the permission or resources to build better houses and toilets. Most of these informal settlements have dirty drains and dumping grounds as boundaries and are not provided the service of regular waste collection or proper drainage. Since PRIA ran a larger project in the three cities, the project team had physically identified all informal settlements in the city. They discovered that many informal settlements, due to their non-notified status, were missing from the official Urban Local Body (ULB) lists, which deterred the ULBs from extending basic services and accountability to those settlements. For example, the total number of informal settlements reported by municipal records in Ajmer were 83; however, the mapping process physically identified 125 informal settlements (Nagpal et al, 2019). Due to lack of notification, they remain unconsidered with poor physical and social infrastructure.

III. UN-LAYERING AGENCY IN DEVELOPMENT

In this section, the author presents popular definitions of agency while discussing the limitations of a few. These definitions were chosen on the basis of their ability to capture the multiplicity of factors influencing agency. The author elaborates upon World Bank's definition of agency because it informs how development interventions, programs and policies are implemented internationally. The author also problematizes this dominant approach to agency as the findings of the study on WSWs point towards complex socio-economic nuances that govern women's agency, which development interventions, programs and policies are unable to address due to their narrow approach towards agency.

Agency has been defined in many ways. It has been defined as the "key indicator of a group's ability to respond and identify cohesive solutions to sustainable development challenges" (Newman and Dale, 2005: 10). Harvey defines it as "the capacity of persons to transform existing states of affairs" (Harvey, 2002). Other definitions include "the capacity of the individual to plan and initiate action" (Onyx and Bullen, 2000), and the ability to respond to events beyond one's immediate sphere of influence to produce a desired effect. It is the intentional causality and process that brings about a novel state of affairs which would not have occurred otherwise (Bhaskar, 1994).

Unlike most definitions, a pathway of enabling agency of the marginalised for transformative action was put forth by Freire (1970) as the concept of critical consciousness or 'conscientization'. Conscientization is the idea that for the marginalised, to better assess their own development priorities and pursue them, they must nurture their critical consciousness and agency. This approach was nuanced in the sense that it iterates the value of collective critical thinking and reflection about the state of development around them. However, this approach and the ones mentioned above put the onus of transformation upon the marginalised individuals themselves. It does not address how to respond to the power dynamics that structure constraints (such as caste and gender) on human agency (Poveda and Roberts, 2017). Nevertheless, this approach's strength over others is the acknowledgement that the marginalised as well as powerful are influenced by external factors in their behaviour and conditions.

The dominant definition and parameters of agency, however, in the development sector stems from leading institutions that set the standard for overall international development. One of the leading institutions is World Bank which influences nearly all developing countries as an arbitrator of 'best practices' and through over 26,000 projects (Masters and Chatzky, 2019). World Bank defines agency as "... the process through which women and men use their endowments and take advantage of economic opportunities to achieve desired outcomes" (World Bank, 2011: 150). In the case of women, World Bank looks at a set of outcomes (such as control over resources,

ability to move freely, freedom from violence, influencing society, etc.) associated with one's agency/ the lack thereof exercising choices.

What is problematic in this internationally practiced approach above, is that it also puts the onus on the individual to enable agency without addressing the multi-layered power structures that enable/disable it, much like Freire's approach. It stresses on the economic and not the socio-political. Furthermore, the outcomes it associates with women's agency are not only outcomes but are also sources that influence the extent of an individual's agency. The relationship between these reported outcomes and agency is not linear and is dialogical – thus making agency a phenomenon far more complicated than currently assumed by developmental interventions. This has been confirmed by the study on WSWs, as will be elaborated in the sections below. The findings point towards a complex set of social factors which disable the access and scope of economic opportunities.

The focus on the individual's endowments vis-à-vis economic opportunities also reflect in contemporary politics and chosen growth strategies of India, influenced by its political history. Historically, certain powerful schools of political thought influencing contemporary development have implied the correlation of human agency with economic growth. Especially in terms of marginalised communities such as the Dalit community¹, many leaders and social narratives have hinted towards the associated work of sanitation as their 'spiritual calling' (Gatade, 2015) – as their duty to work for the happiness of the entire society and the Gods. These narratives have suggested that it is implausible to believe that the members of this community did not/ do not have a choice of switching to other vocations. Such suggestions came based on the opportunities extended through flexible markets in our capitalist economy, which enables social mobility and the dissociation of caste and vocation. The approach of such narratives towards agency lacked the acknowledgement that the community distribution of economic opportunities is moulded through uneven patterns of growth, the role of the state and the local power structures of caste and patriarchy (Kabeer, 2016).

It has been established that

“individuals make choices and exercise agency within the limits imposed by their personal circumstances, but they also draw attention to the constraints posed by structural distribution of rules, norms, resources, and identities between different groups; along lines of gender, class, race, caste, and so on; and the inequalities of power and privilege these generate” (Kabeer, 2016: 4).

In India, the Hindu caste system which is based on the ritual avoidance of excreta is reinforced by keeping defecation away from home and relegating its cleaning to the Dalit community (Ramaswamy, 2005). Furthermore, the traditional values, gendered

norms and practices associated to the domestic of familial domain (for women) are replicated in the public domains of states and markets in the favour of men (Kabeer, 2016). Thus, these two structures of caste and patriarchy create the social geography of choice for individuals. Therefore, the notion of agency and the developmental policies that intend to enable agency must address such asymmetries. This would require interrogating into the quantity and quality of economic opportunities associated with our chosen growth strategies, and the gender and caste distribution of such opportunities (Kabeer, 2016). It would also require interrogation into the capacity of state to enable the marginalised to benefit from opportunities.

Such questions especially include expanding the mainstream but limited developmental definition of agency and comprehend it as something that is governed through structural factors. These structural factors, also influence the broader policy regime and structures of economy and society. The fact that the execution of agentic behaviour – in the case of those who frame policies and those who are its recipients – has repeatedly failed development objectives suggests that the agents of development act on a broader spectrum of agency than the current definition. This especially holds true in the case of WSWs, whose agency is governed by psycho-cultural mind-sets and practices (Bhattacharjee, 2018). Furthermore, some powerful development agents perceive demolishing caste to be at odds with deeply ingrained beliefs and values of one's culture (Asah, 2015). Human rationality, or the assumption that people do the 'right' things to achieve development goals of inclusion has been proven wrong repetitively (Ariely, 2010). For example, according to Rice Institute's survey of Indian rural households, despite toilet ownership, 21% households in Bihar, 40% in Rajasthan and 21% in Uttar Pradesh still defecated in the open in 2018 (Alexander, 2019). If human rationality was a precondition to utilising benefits, such as the SBM toilet subsidy, such resistance to use toilets despite ownership would not exist. The limitation here is the program is unable to address the traditional factors influencing human decision making (Asah, 2015).

Thus, a complex interplay of contextual attributes as well as mind-sets inform human agency. All development agents are cultural agents who embody psych-cultural characteristics. These characteristics include cultural values, strongly held beliefs, personal and collective experiences, and mental capabilities which shape individual and collective thought and actions (Asah, 2015). Thus, World Bank's correlation of agency with economic accomplishment diverts attention away from understanding the behavioural context of the (marginalised) individual and collective agency. Consequently, it also diverts policy and programs away from effectively harnessing these layers of agency to meet developmental goals.

The following chapters of findings from the WSW study simultaneously analyse the intricate deterrents to agency of the marginalised through the narratives of the

WSWs – thus adding aspects that the World Bank and mainstream developmental narratives could consider while designing programs meant to enhance human agency.

IV. NARRATIVES OF THE MISSING AGENCY

The narratives in this section are from the interviews conducted with WSWs by the author across Jhansi, Ajmer and Muzaffarpur². A WSW is defined as one hired as a permanent or contractual worker under the municipality or works as outsourced worker under private contractors. Their work entails sweeping, collecting, carrying and depositing garbage, cleaning public and community toilets and small drains.

This section aims to highlight the kind of structures that could be considered when defining agency in designing interventions for the marginalised, by leading institutions and programs like the World Bank and SBM respectively. It does so by breaking down the women's narratives into a) external and b) internal constraints and structures shaping their agency. There are a number of factors that determine human behaviour and agency. These determinants can be classified as either internal factors, such as knowledge, attitudes, beliefs and core values (ABCs), social and life adaptation skills, psychological disposition; and external factors such as social support, media, socio-cultural, economic and political factors, healthcare system, environmental stressors, societal laws and regulations (Cole et al.).

The external and internal constraints in this paper have been chosen due to the response received from the pilot interviews and discussions held by the author on field with WSWs to explore the main deterrents to their agency (Bhattacharjee, 2018). Thus, while there may be other external and internal factors in theory, the ones chosen here emerged from conducting FGDs and semi-structured personal interviews, and were therefore prioritised.

External Constraints

Multiple external factors and structures mould a WSW's agency. External factors are those that are products or institutions of the wider society (Cole et al, n.d). The production of these constraints are not authentic to the community of sanitation workers unlike the internal constraints. The paper is limited to study of three external factors which the WSWs felt most affected by and were mostly related to access to economic opportunities – education, nature of employment and awareness about policies and programs:

Does Education Ensure Agency?

“Jaati ke alava aur bahut kuch hai jiske wajah se humein dusri naukri nahi milti...hum anpad hai isiliye bhi nahi milti” (Caste is not the only reason that we don't get other jobs, it's also due to our lack of education) – WSW, Jhansi.

“Maa Baap shadi karana chahte the, mujhe padhna tha nurse banna tha” (My parents wanted me to marry. I wanted to study and become a nurse) – WSW, Ajmer

Even if one goes by the dominant assumption of education being the answer to empowerment and agency, over 70% WSWs across the three cities were illiterate. The access and therefore, agency to education based on caste complicates an already prevalent gender gap in the country (Chaudhuri and Roy, 2006), which increases as girls age. There prevails an intra-household gender discrimination, especially in the Indian informal settlements, against female children in the distribution of healthcare and education (Kingdon, 2002). This stems from a ‘perfect capitalist’ parental behaviour that especially grips marginalised communities, wherein the child that promises maximum returns is better invested in. This practice exhibits the imposition of patriarchy on women’s agencies from an early age by treating them as “property of another home” while boys are presumed as natural familial heirs (Glick and Sahn, 2000). While the trend is slowly changing, many WSWs still end up marrying their daughters away quite early and prepare them to undertake sanitation work. Thus, the relationship between education and agency does not figure easily. Most women do not actively choose to be less educated than men; “this was a choice made by their parents, reflecting either discrimination or a rational response to gender inequalities in returns on educational investment” (Kabeer, 2016). How a Dalit woman exercises her agency depends on how those above her exercise theirs. Therefore, education does not guarantee agency as barriers of gender and caste limit its very access to girls.

Furthermore, even if one were to go by the ideal type education enabling agency, most developmental interventions do not address that education is not a standard skill set. Its perception, sources and derivatives are not universal (Shikha, 2018). Therefore, the normalisation of education as the path to an agentic better life by the mainstream developmental discourse fails to define ‘how much is enough’ and for how long do the marginalised have to be ‘catching up’ (Rostow, 1950 in Esteva 2010: 17).

“Ei toh anher hai ki BA karke bhi mera Bhagna Deepak, sab jagah interview dekar aaya, 3-4 desh ghoom kar aaya. Ab yahin khoj raha hai ki 5000 rupya ka bhi kaam mile toh karle. Padh likh ke bhi koi fayda nahin ho raha hai. Balki padh likh ke kuch hone wala nahin hai. Hamko Zamane par vishwas nahin hai. Mera pati 10^{vin} paas hai. Devar bhi 10^{vin} pass hai. Idhar udhar baua kar aaye ab goonh geej rahe hain”

(We live in darkness, my nephew who has studied till BA, he went to give interviews for job, in 3-4 states. Now he is trying to find a job which will fetch him atleast rs 5000. There is no benefit of studying. Infact there is no use of studying. I feel cheated from this time that we are living in. My husband is 10th pass. My brother-in-law is also 10th pass. He roamed here and there in search if job, now he is cleaning the shit.) – WSW, Muzaffarpur

“Sabse bada dukh yeh hai ki padhai mein achcha hoke bhi, jhaaroo ke saath hi phas gaye (My biggest grievance is that in spite of having been good at academics I’m stuck with a broom)” – WSW, Jhansi

The narratives above highlight another limitation in the view that education enables agency. Across the three cities, even outlying cases of children of sanitation workers who managed to study up till Bachelors could not break the caste-vocation barrier. For many, higher education was still ‘not enough’ to switch to other vocations due to the strong bias against their vocational agency. Thus, and reiteratively, putting the onus on the individual to display agentic behaviour without considering the stronger structures of limitations is a narrow approach to understanding agency.

ii. Is nature of employment empowering or enables collectivisation?

“Mera aadmi khatam ho gaya teen saal pehele...6000 mein ghar ke chaar pet paalti hun, ek ko school bhejti hu, aspatal ka kharcha deti hu...aapka ghar chalta 6000 mahine mein?” (My husband died three years ago... In Rs 6000, I feed four people, send one child to school, pay hospital bills...can your house be run on Rs 6000 a month?) – WSW FGD, Jhansi

“Aurat yahin toh dab jaati hai, bacchan ke vajah se” (This is where women get stuck, with kids) – WSW, Jhansi

WSWs, along with unpaid reproductive labour are also expected to share or take over breadwinning responsibilities with or without men. ‘Maternal altruism’ – the social construction of motherhood which assigns primal responsibility of children to mothers, irrespective of working jobs, adds to the gendered structures that limit agency (Whitehead, 1981). It must be noted here that this (positive) association between women’s access to economic resources with their children’s nurturing is in conformity with socially normative behaviour and thus, still renders women’s agency as a ‘compliant’ form of agency (Kabeer, 2016) and not fully her own.

The unstable working conditions, especially for contractual and outsourced WSWs makes their agency brittle. Despite toiling away on daily duty for 8 hours, 7 days a week, contractual and outsourced women do not complain. The fear of losing one’s job is rampant and the women are constantly reminded of how easy it is to “hire and fire” in a contractual system.

WSWs are not given any payslips for their salaries, nor do they receive any safety equipment to do their work safely. The lack of payslips disables their knowledge regarding salary structures and ability to challenge authority in (multiple) cases where salaries are arbitrarily deducted. The extent of their agency is tearing a part of their own saree to cover their noses and mouths while sweeping dust.

“Koi kit ya jhadoo nahi milta, kapda-tukda kat kar khud hi bana lete hai” (We do not get any kit or brooms, we cut our own clothes and make gears)” – WSW, Jhansi

“Bhai bola ki ye kaam accha nahin hai. Shikayat wala kaam hai. Lekin ham bole ki hamko posa raha hai” (My brother said that this is not a good work. This work calls for lot of complaints. But I said that it helps me survive). – WSW, Muzaffarpur

“Naye ko hum lelete hai. Samaye sab sikhata hai, gaali padti, kaam commentbaaji lekin samaye sambhal leta. Koi nai sikhata” (When anybody is new, all want to take charge of them. The time teaches us to do everything, we faced rebuke, bad words and also comments on our profession, but time is the best healer. Nobody teach us to work.) – WSW, Ajmer

“Pet-se hoke pura kaam kiya maine” (I worked through my pregnancy) – Contractual WSW, Jhansi

With little employment security, no medical support, low wages and no formal complaint redressal system, the focus of all women is on daily survival. The concept of critically engaging with one’s situation to transform their life conditions is impossible and the quality of economic opportunities remain poor.

Along with unpaid family labour, women in developing countries such as India are far more likely to be in vulnerable jobs than men (Htun and Weldon, 2010). The contract system enables such vulnerable employment by taking advantage of loopholes in the law and escapes making the nature of work and thus, the economic opportunities, an agentic force for women.

“Ek din nahi jaye to sochna padta hai, kaha se khayenge” (if we skip work even for a day, we have to think where will we eat from) – WSW FGD, Ajmer

The women not only lack the will, but also the social capital to make any change. Unions bring social capital due to their strength in numbers and protect labour rights. The worker’s union dominantly consist of male permanent workers and not women. Women are only called to gather crowds during particularly important announcements or strikes. The WSWs do not have any formal mechanism of redressal, and the structures meant to cater to their rights do not accommodate them. The lack of unionisation limits collectivisation, and thus maintains their invisibility. Therefore, inadequate thought into the different ways social capital plays in a system and limited attention to the structure of networks and its accessibility to its members, misses the power dynamics of a system. Government policies, programs and employing institutions must understand these dynamics as their practice can facilitate as well as hinder collectivisation and (individual/collective) agency (Newman and Dale, 2005).

iii. What policy? Which law? Whose Act?

“SBM hai lekin karmachari ko Ganda Mission mein dhakel rahe hain” (SBM is Swacch Bharat Mission, but the workers are being pushed in the dirty mission). – WSW, Muzaffarpur

“Koi yojna nhi hai, langde ho jao to sadte raho, paisa ho to lagao, nhi to maro” (There is no program/policy/scheme for us. If you can't walk then rot, if you have money then put it all in, or else die) – WSW, Jhansi

In the light of multiple national level policies, schemes and laws implemented to empower Dalit communities, the effect on ground is limited. Such attempts include the historic Employment of Manual Scavengers and Construction of Dry Latrines (Prohibition) (EMSCDLP) Act, 1993 followed by Manual Scavengers and their Employment (PEMSR) Act 2013 and an array of Acts and policies³. Considering the gravity of these Acts to combat manual scavenging, caste system and rehabilitation, the awareness and effect of the same are limited (Bhattacharjee, 2018). Nearly 100% WSWs in the study expressed no awareness regarding the existence and access to these schemes.

“Haal toh humara yehi hai, yehi rahega. Karte aaye hai...ab bas, karte rahenge” (This is our condition, and this is how it will remain. We have been doing this and we will keep doing this) – WSW, Jhansi

There can be no agency without awareness. To respond to and transcend marginalisation and adapt to one's socio-cultural environment, agency is primal for citizens. It enables collectivisation for citizens to access rights and resources (Horvath, 1998). For agency to be the force behind social transformation, actors need to be aware that they possess agency. However, without access to critical information and awareness, there can be no agency (Dietz & Burns, 1992). This reiterates the limitation of putting the responsibility of agency linearly upon the individual. The announcement and procedures of state-led schemes, scholarships and other programs for economic opportunities and benefits take place in government websites, print news, and social media which are not accessible by all. Thus, our governance systems need “structural holes” (Chatterjee, 1992) – a diverse mix of civil society bonding and bridging ties that enable access to new information sources and create networks between various groups of seekers and providers.

“Who kuch nahi batate hume, na milte hai..humein apni jhaadoo aur thekedar pata hai bas” (They (local officers) never educate and tell us about our rights. They never met us. We know our broom, we know the contractor and nobody else) – WSW, Jhansi

The lack of attempt on behalf of local leaders and employers in raising awareness and disseminating information regarding the rights and responsibilities of the WSWs solidifies the need for bridging agents. Due to such negligence, Dalit communities tend to engage only among each other (known as Homophily), which limits the information they receive from the outer world (McPherson et al. 2001). Agency is a far cry when even the awareness of the heads under which they are deprived is missing. The extent of agency of most WSWs is merely ‘getting by’ than ‘getting ahead’, and policies and programs have not been able to address that so far (Bhattacharjee, 2018).

Not only are the women's agencies limited by the lack of information, but policies and Acts are actively exploited by the contractual system. The Industrial Disputes Act of 1947 meant to enable contract workers to become permanent employees after 240 continuous working days became pointless after the Contract Labour Act of 1970 which transferred that conditionality to establishments employing more than 20 people. The limited grasp of how agency plays out in reality disables foresight during policy, programs and Acts formulation. When people feel they can influence the process and that their voices are heard, their agencies are enhanced (Newman and Dale, 2005). However, in this case, the need for structural loopholes to support that possibility is clear.

Internal Constraints

So far, the paper discussed underlying external structures that influence agentic behaviour in utilising (economic and other) opportunities. The stories of WSWs, however, point us towards internal nuances in understanding their agency comprehensively. These internal constraints are authentic to the Dalit communities that hinder their own agency as well (Bhattacharjee, 2018). For this paper, the author discusses two internal constraints – that of 'adaptive loyalty' and of mental/emotional occupational health:

i. Adaptive Loyalty

"Hum khushi khushi karte hai, jab yahi kaam karne ke liye payda hue toh yehi karenge" (We do it happily, if this is the work we were born to do, then we will do it) – WSW, Jhansi

"Ab duty hai toh karna padhega, yehi jaat hai" (Now this our duty so we have to do it, this is our caste) – WSW, Jhansi

"Itna yeh kaam kar liya hai ki ab naak ke saamne gulaab bhi rakhoge toh tatti sukhungi" (We have done this work for so long that now even if you place a rose in front of my nose, I will still smell shit) – WSW FGD, Jhansi

Like most individuals, a WSW's agency is moulded through early socialisation into and normalisation of certain ideas about self-worth, belonging and duties. The practice of those ideas only solidify the factors limiting the agency, it is the internalisation of those values that form the core of one's identity. One's "ideas values, and beliefs are predominantly assimilated uncritically from those narratives that happen to be dominant in a given society, which they then internalize unconsciously as if it were their own reasoned knowledge" (Vygotsky, 1978 in Poveda and Roberts, 2017: 4). These internalisations may include negative ideas about one's caste, gender or class. Thus 'adaptive' in 'adaptive loyalty' is the adopting of such narratives that deter women's ability to critically engage with what kind of a life would they want,

as their own understanding and preferences come to adapt and conform to social norms. Nearly 100% WSWs internalised oppressive structures operating both, at the level of materiality and ideas; accepting their caste as a justifiable reason of their vocation and life conditions. The scope of critical agency to access economically/socially transformative policies and programs is difficult in a situation that conditions conformity internally.

Further nuances during data analysis explain the ‘loyalty’ in ‘adaptive loyalty’. Through an outlying case of a well-educated WSW who wanted to work as a computer operator, it was found that one’s own community can be a hindrance to quality economic opportunities. There exists a loyalty in suffering caste together and those attempting to transform their situations without taking others along face resistance. Thus, agency is also constrained from within one’s community and not just from externally – making an individual doubly vulnerable for self-driven change.

“Hamare jaati ka shoshan sabse zyada hamari jaati hi karti hai” (It is our own community that suppresses us the most) – WSW, Jhansi

Finally, along with the hope of breaking free of caste, the community of sanitation workers remain very protective about their jobs as something that is their own. This is because decades of exploitation suffered by their community has left little faith in the state and society to embrace them. Despite hoping for change, their reality speaks dominantly as having resigned to what their ‘destiny’ is (Bhattacharjee, 2018).

“Agar hamara vyavsay kisi aur ko de do toh humare bacche road mein aa jayenge” (If you give away our jobs to other castes, then our children will be on the streets) – WSW, Jhansi

“Yeh kaam bhi humare liye nahi chora – duniya mein baaki saare dusre kaamon jaisa, iss kaam se bhi humein bahaar dhakel rahe hai” (Even this job isn’t left for us. We are being pushed out of this job too like from most other jobs) – WSW, Jhansi

Such combinations of agentic hopes with constrained realities create adaptive loyalty and internally restricts agency towards social mobility and economic growth. It is essential for the mainstream development sector to expand its consideration of these absent aspects while targeting policies and programs.

iv. Mental/ emotional occupational health

“Baarish mein ghin aati hai, gobar ka smell aata hai, pair mein lipat jata hai, yeh sabse kahar lagta hai” (During monsoons, it is very icky, I can smell cow dung which smears over my feet, that is the worst) – WSW, Jhansi

Sanitation work is one of the most dangerous vocations which involves dealing with unsegregated wet, dry and dangerous waste. Not only do most women not

receive any proper training, kits and gears to safely carry out their work; they also suffer from multiple physical problems such as throat and eye infections, allergies, skin scrapes bruise infections, etc. The coping with and getting through work whilst dealing with such physical problems immediately puts into perspective their main motive – survival. The possibility of going beyond the basic in the midst of such suffering is meek and disables the exchange of knowledge, collectivisation, critical thinking or will to fight for one’s rights and economic opportunities.

“Kabhi haath mein tatti pakda hai? Bhook nahi lagegi kaafi time ke liye phir” (Have you ever held shit in your own hand? You will not feel hungry for a while) – WSW, Jhansi

What is especially constraining, is beyond the physical. To walk through cow dung in the absence of protective gears, suffer physical challenges and the lack of dignity creates immense mental stress and depression. What particularly reflected the degree of stunted awareness and agency is that most women saw physical problems as a fact and not a problem and mental health as unreal. What schools of mental health consider as serious conditions (anxiety, depression, etc.) were normal or at maximum mild irritants for the women; as something that comes and goes and unworthy of serious consideration. In a situation where anxiety, depression or mood swings were normalised and lose significance as a point of concern to one’s emotional health, where does one find the space to confront one’s situation in a fully aware manner towards self-driven change?

“Dukh ho ya sukh ho, sab bhagne hai, apne baccho ko padhana hai” (Happiness or sadness, we have to put up with everything, we have to educate our children) – WSW, Jhansi

It must be noted that the idea is not to downplay the agency of these women here. It is to highlight that there is a lot more going on in realising and practicing one’s agency than economic opportunities or agency as an individual endeavour. It is the internal limitations that are harder to fight than the external ones because they are far more personal. These internal complex dynamics of the mental and emotional must be investigated into, especially when implementing programs and policies that aim to change behaviours and mind-sets.

V. ARE OUR POLICIES AND PROGRAMS CAPACITATED TO BE TRANSFORMATIVE?

It is clear from the discussion above that the approach to agency, while planning for inclusive development, has to consider multiple factors. India has well intended policies and programs in place to enhance the agency access of the marginalised. Their limited effect point to the failure of governance, implementation and their inability to understand the lives of those at the periphery of development comprehensively to enhance their agency.

At the city level, municipal corporations are the primary enablers of civic access and rights, however Indian municipalities are amongst the weakest, globally, in terms of fiscal capacity and autonomy (Mohanty, 2016). Despite being placed with agency functions⁴ (under 74th Constitutional Amendment), the work/life conditions of WSWs (especially contractual/outsourced) and their families remain abysmal. There is a mismatch between Funds-Functions-Functionaries of ULBs, which is responsible for weak governance structure and inefficient performance of the functions devolved to the ULBs. Due to narrow revenue bases, they are unable to respond to even the immediate needs of sanitation workers such as higher salaries, safety gears and social security. Due to poor fiscal revenue, lack of women's collectivisation from fear of losing jobs, and lack of pressure from State for rule compliance, there is limited will at ULB level to support the demands or enhance the agency of the marginalised.

National level policies and programs show limited implementation, outcomes and poor attention to the societal reception of these policies. While The Employment of Manual Scavenging and Construction of Dry Latrines (Prohibition) Act, 2013 banned the employment of manual scavengers, it also listed tests to be conducted before sending a worker into the sewer (Shikha, 2018). This essentially meant that the government could not outlaw the job relegated to Dalit communities and enabled the association to continue. Similarly, the establishment of National Safai Karmchari Financial Development Corporation to provide financial assistance through loan schemes and skill-upgradation programs for sanitation workers/ scavengers by government was a noble attempt. However, it could not address the boycott of small entrepreneurial ventures set up by Dalit members from the wider agentic society (Bhattacharjee, 2018).

The Green Skills Mission promoted by National Skill Development Corporation (NSDC) has developed qualification packs for workers in different aspects of sanitation⁵ that recognise prior learning and provide skill training for identified job roles. However, due to lack of funds, human resources, and lack of pressure from state, skilling the sanitation workforce is not a priority for municipalities. This disables any agentic access to green jobs for WSWs, despite the provision.

There are loopholes in SBM as well, despite its good intention of cleaning India. SBM's fourfold objectives: "*to eliminate open defaecation, to eradicate manual scavenging, to bring in modern and scientific municipal solid waste management, and to effect behavioural change regarding healthy sanitation practices*" (Ghosh, 2017: 3) dominantly catered its resources towards the first objective. Targeting better solid waste management to enable the eradication of manual scavenging and rehabilitation was limited and the program has been criticised to implicitly rely on the casteist form of sanitation labour (Ghosh, 2017: 3).

SBM has failed to ameliorate the living conditions and agency of workers who

actually *do* the cleaning. The complete silence of SBM's architects regarding the caste dimension of the sanitation issue made it exclusionary from the beginning. The accelerated toilet constructions have not been complimented with proper planning of waste disposal. The rising number of septic tanks in urban areas in the absence of properly planned sewerage systems could revive manual scavenging anew (Chatterjee, 2017). Keeping in mind that the dominant population of manual scavengers are Dalit women (Karol, 2018), the flagship program has failed to account for how it could impact their socio-economic agency.

Considering the enormous funds under SBM, it could direct more money towards mechanised waste disposal systems, train workers to be the operators of these systems and make complete eradication of manual scavenging an objective. However, most governments are unwilling to even admit the problem exists, let alone admit caste as its base – proving that agentic behaviour in powerful networks can deter that of the marginalised.

SBM's rapid toilet construction was meant to trigger Community Led Total Sanitation (CLTS). Since it did not account for traditional (defecation) norms associated with caste and gender, the program instead conveyed the message of toilets being sought and not collective behaviour change. The presence of toilets become the measurable proxy for sanitation (Sanan, 2016) while its usage and cleaning become irrelevant and the Dalit community's job respectively. Such gaps normalised the association of caste and occupation. The glorification of sanitation work through the advertised language of uniforms, safety gears and 'noble work' left little space for sanitation workers to actively choose if they want to be the ones doing this work at all or resist (Gatade, 2015). Instead of enabling sanitation workers, SBM has been critiqued to resemble a business strategy for sourcing cheap Dalit labour for construction (Nigam and Dubey, 2017) and submerged resistant voices.

These lags exhibit that human lives and institutions encounter layers of agentic behaviour. There is a clear need for a better accountability mechanism vis-à-vis policy and program implementation. However, for policies and programs to be transformative, they need to confront the chaos of irrational human behaviour as the guiding principle for policy inception and implementation. They need to move beyond addressing only the immediate interests of the marginalised (to 'get by') to strategic interests (Molyneux, 1985 in Poveda and Roberts, 2017) (of 'getting ahead') which look to ending patriarchy, violence against women and marginalised castes and establishing equality. Focussing on only immediate needs as the full extent of development would maintain structural inequality against the marginalised.

Considering these wider frameworks of development would also bring forth a much richer perspective of the politics of agency and correct the misconception of

agentic behaviour as an individual's choice only. Especially in the case of Dalit women, *"the terms on which women enter the labour force and the extent to which they are able to control the proceedings of their own labour"* (Whitehead 1985 in Kabeer, 2016: 313) rather than only the economic opportunity itself determine their agency.

It is important to note here that laws, policies and programs are necessary, but not sufficient. If the law that bans untouchability fails, it is because a) the society refuses to internalise the law and b) the State fails to enforce it. If there is no law, there is no discussion. But how does one move a discussion to action? This is where the 'bridging' roles of civil society, media, educational institutions are essential to increase civic education, hold governments accountable and bring a generational change in thought and behaviour. The State cannot afford to be a spectator anymore, especially in terms of enabling ULBs to respond to the needs of its people. However, in cases where the state plays a perpetuating role of non-agentic conditions for certain communities, the civil society has to step in as an intermediary, as a partner, as a voice of the marginalised.

VI. CONCLUSION

Considering agency as a self-driven process in development neglects the underlying intersections of caste, gender and labour. These intersections not only limit but at times make it impossible to challenge exclusion and access policies, schemes and programs meant to enable them. It is important to recognise that along with external limitations such as the lack of education, insecure nature of employment and limited awareness of policies and programs, there are deeper layers of internal limitations that are harder to overcome. The early conditioning into a negative perception of one's self worth and their community's destiny are the strongest deterrents of critical agency.

In the landscape of development, for policies and programs to be transformative, it is pivotal for the ethics of inclusion and morality to take centre stage. Policy needs to move from being an objective issue to a subjective one as it caters to people and not perfect utopias. It is essential to question whether our developmental interventions are enabling exclusion by leaving grey areas that enable exploitation or worse, normalising exclusion by glorifying it as noble. It is important to ask whether our policies have the capacity to be transformative if the voices of those most in need are marginalised while formulating them. The state of development and economic growth rest on how participatory the vision of our transformative change is; does it cater to immediate needs which is just enough for survival or does it go beyond to more strategic and structural reshaping?

The lens of mainstream development needs to be shifted to understanding that the outcomes of the lack of agency are in fact the causes – that agency is not a linear individual process but one that constantly talks to wider social structures and responds to dominant narratives.

Notes

1. Dalit community is also known as Valmiki/Mehtar/Dom/Harijan community.
2. The interviews in Muzaffarpur were conducted by co-researcher Shashi Shikha (2018).
3. The Protection of Civil Rights Act, 1955 was the first law that initiated the process of conversion of dry latrines to pour-flush latrines to discourage manual handling of human waste. This act was followed by an array of policies/ schemes like the Integrated Low Cost Sanitation (1980), Total Sanitation Campaign (1999), National River Conservation Program (1995), National Urban Sanitation Policy (2008), and Jawaharlal Nehru Urban Renewal Mission (2005) (Bhattacharjee, 2018, 42).
4. Under the 74th Constitutional Amendment Act, 18 functions were devolved to municipal corporations and municipalities. Some of these functions were particularly relevant as agency functions. These include 1) safeguarding the interest of the weaker section of society; 2) slum improvement and upgradation and; 3) alleviating urban poverty.
5. The Green Skills Mission promoted by NSDC has developed qualification packs for workers in different kinds of sanitation jobs. These include Faecal Sludge and Septage Management (FSSM), septic tank technicians, Faecal Sludge and Septage Management (FSTP) operators, etc.

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Levels of Development and Female Labour Force Participation Rates in Rural India

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The paper examines factors associated with the variation in female labour force participation rates across agro-climatic regions in rural India. Our results based on the quadratic form of equation for regression analysis show that the relationship between income and females' labour force participation rate is significant and the fitted curvature is inverted U-shaped one. Also, FLPR is negatively associated with female wage rate, percentage of educated (Primary and above) and the percentage of child population below 15 years of age; positively associated with the percentage of cultivator households, sex ratio and percentage of SC/ST population in the region.

Although our results show the significance of the level of income/development in variation in females' labour force participation rates across regions, the possible substitution effect of mechanization in the development process cannot be ignored. The negative relationship with female wage rate which has prevailed in developed regions could be due to high opportunity cost with respect to women's labour force participation in the developed region given the cultural factor of low value for women in general and those engaged in manual work resulting in higher social cost for a household.

Keywords: Female labour force, Women employment, Women work

I. INTRODUCTION

During the Post-reform period, the Indian economy has witnessed a high growth but combined with the decelerating rate of growth in labour force in general, resulting in, as many scholars call it, jobless growth. Besides, the declining labour force participation rate of females particularly in rural areas raises the concern of scholars and policy makers as females' labour force participation has implications for gender equality and women empowerment. There are some studies which have shown that with the better employment opportunities for women if their labour force participation rates could have been increased further than what they are in India, the country's GDP would have increased much more than the current one. Despite such potentials, women participation rates in India have historically been low. Scholar engaged in women's studies have been emphasizing on the marginalization of women in labour force. The

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present trend is observed to further worsen the situation. A considerable portion of the deceleration in the growth of total workforce could be due to a decline in the participation rate of the females. Such a trend is observed across many states within the country and across social groups.

For the decline in the participation rate during the 1990s, an explanation emerged from some of the research studies was that the increasing demand for education in general and females in particular thereby participation in educational institutions especially among the girls. But the continuity of a discernible decline in females' labour force participation rate without much change in their male counterparts during the 2000s has been drawing the attention of the policy makers and scholars especially economists to understand and explain the phenomenon going beyond the explanation of increasing demand for education. In this respect, some scholars have hinged the decline in the labour force participation rate of rural women upon the estimations due to a non-sampling error in data collection of the survey particularly that of National Sample Survey Office (NSSO), as source of the debate has been the estimations based on their survey data. Besides, the failure of the national surveys to account for the unpaid family work (reproductive and productive) is another. Others have sought economic explanations while bringing in two important hypotheses such as the income effect of distress-driven participation and discouraged-worker hypothesis¹. Besides, there exists an argument that social-cultural factors particularly in the Indian context that interacts with the above factors leading to the decline in the participation rate and furthering the same. It is observed that due to various socio-economic and cultural factors along with security reasons females prefer to find employment opportunities in the vicinity. But the work opportunities for females were limited in rural areas with shrinking employment opportunities in agriculture and not enough employment opportunities in the non-farm sector.

Notwithstanding the above observations, the phenomenon in the Indian context still needs to be understood thoroughly and explained. In this backdrop, the main objective of the present study is to understand the possible factors resulting in a decline in the labour force participation rate of females in rural India. This study explores crucial factors such as income or development level and female wage rates along with some other economic and demographic factors that are associated with the variation in the labour force participation rate of women across agro-climatic regions in rural India as classified in NSSO surveys.

II. REVIEW: DECLINING LABOUR FORCE PARTICIPATION RATES OF RURAL FEMALES

During the last two decades that coincides with the post-reform period, there are two discernible trends emerging in the Indian economy: high economic growth and

decelerating rate of growth in the labour force (Ghose, 2013). Most important is the declining female labour participation rate particularly in rural areas (See Chowdhury, 2011; Himanshu, 2011; Reddy and Motkuri, 2013). Such a trend is observed across many states, except for a few ones (see Ghose, 2013; Kannan and Ravindran, 2012, Thomas, 2012; Saha *et al.*, 2013; Neff *et al.*, 2013) and prevalent across social groups – ST, SC, OBC and Others (see Neetha, 2014) and across economic classes including the poor (see Ghose, 2013).

In fact, the labour force participation rate, particularly of women in general, is widely varying across states (see Neff *et al.*, 2013; Ghose, 2013). A study, on the regional pattern, observed that the participation rates are the lowest among the eastern states and the highest in southern states (Lahoti and Swaminathan, 2013). The rate of decline is also varying across states (see Neff *et al.*, 2013; Ghose, 2013). On the regional pattern of decline over a long period, a steep decline was observed for eastern states while the southern states have witnessed the least decline (Lahoti and Swaminathan, 2013). Another study observes that the decline in a short period (during the second half of the 2000s) relatively smaller states experienced the largest relative decline (Neff *et al.*, 2013). Variation across states/regions and social groups in the level of labour force participation rate of women and the rate of decline during the last two decades reflects varied socio-economic conditions and diverse cultural factors.

However, when, as it has been considered, employment generation is an important objective of economic growth, the trend in India indicates a phenomenon of jobless growth (Ghose, 2013; Saha *et al.*, 2013). Virtual stagnation or decline in growth of the workforce in agriculture, as observed in case of the states, could be considered as virtuous due to eventual structural shift but the deceleration in the total workforce is a matter of great concern. But when the decline in agriculture is not equated with the corresponding increase in non-agriculture it is a matter of great concern. A considerable portion of deceleration in the growth of the overall workforce could be due to a decline in the participation rate of women. When women labour force participation has implications for gender equality and women empowerment, such a trend has far-reaching implications in this concern (Ghose, 2013; Mazumdar and Neetha, 2011).

Scholar engaged in women's studies have been emphasizing on the marginalization of women in labour force (see Mazumdar and Neetha, 2011; Hirway, 2012). There are some studies which have shown that with the better employment opportunities for women, if their labour force participation rates could have been increased further than what they are in India, the country's GDP would have increased much more than the current one indicating a heavy cost of the gender gap in employment (UNESCAP, 2007). Despite such potentials, women participation rates in India have historically been low. As the present trend is observed, it further worsens the situation.

Since late 1990s concerns have been rising over the decelerating rate of growth in the workforce in general and adult female's labour force participation rates in rural areas in particular. An explanation emerged from the research studies. The decline in participation rate was due to increasing demand for education and enrollments in the educational institutions, especially the youth. But the continuity of discernible decline in females' labour force participation rate without much change in the male counterparts during the 2000s has been drawing the attention of the policy makers and scholars especially economists to understand and explain the phenomenon (see Chowdhury, 2011; Rangarajan *et al.*, 2011; 2014; Kannan and Ravindran, 2012; Thomas, 2012; Mazumdar and Neetha, 2012; Neff *et al.*, 2012; Rustagi, 2013). The phenomenon is to be understood beyond the explanation of increasing demand for education for females (Kannan and Ravindran, 2012). As the age-group-specific participation rates over the period indicate the decline is observed across age groups particularly among those in the 25 to 59 years age-group which has the least probability of attending educational institutions (see Ghose, 2013; Ghose, 2013; Abraham, 2013).

Scholars from different disciplines and schools of thought have been making attempts to understand and explain the phenomena. As the trend observed is based on the estimates of NSSO survey, some scholars have hinged the decline in labour force participation rate of rural women upon the estimations due to a non-sampling error in data collection of the survey particularly that of NSSO (Hirway, 2012). They have argued that NSSO covers only SNA activities and ignores the extended-SNA and non-SNA activities wherein a large portion of women in India engaged. Similarly, another study indicates that national surveys are failing to account for the women engaged in unpaid family work (productive and reproductive) (Mazumdar and Neetha, 2011). However, what one has to see that the decline in the recent past cannot be explained with this because such a bias in enumerating women's work is not a new phenomenon it has been there for a long time.

Others have sought economic explanations while bringing in hypothesis such as income effect of distress-driven participation (see Ghose, 2013; Ghose, 2013; Abraham, 2013; Himanshu, 2011; Srivastava and Srivastava, 2010) and discouraged-worker hypothesis (see Ghose, 2013; Mitra, 2011; Unni and Ravindran, 2007; Bardhan, 1984). The distress-driven participation hypothesis indicates when the labour force participation is distress-driven, the increase in family income out of male wage earnings gradually reduces the women participation in the labour market. In this line of thought, it is observed that upward social mobility in Indian patriarchal society in the wake of growing incomes is probably symbolised by women's withdrawal from paid labour and their confinement to unpaid domestic activities (Abraham, 2013). The discouraged-worker hypothesis indicates that due to the lack of (suitable) employment opportunities in the economy it discourages otherwise potential labourers withdraw

from the labour force. They do not even search for employment and do not like to be unemployed. All these explanations are convincing but not sufficient to explain and understand the decline in the participation rate of women in the wake of when the Indian economy is moving to a high growth trajectory.

III. THEORY OF LABOUR SUPPLY/PARTICIPATION

In fact, economic theory particularly development models, assumes that labour supply, especially in developing countries, is unlimited and perfectly inelastic (Bardhan, 1984). But the theory of factor markets has dealt with labour market wherein wage rate as the price that determines the demand and supply of labour, and hence their equilibrium condition. Such a theory has been propounded since Classical economists, even some of the pre-Classicals, and it continued with neo-Classical economists (Douglas, 1934). But the Classical economists' main focus was the subsistence wage that gets the supply and demand equal. Since then in the economic theory of the labour market, the impact of change in wage rate on labour supply and demand has been modelled (see Douglas, 1934). With the Marginalist Economists' influence the wage rate is determined by the marginal productivity of labour (*ibid*). However, what emerged from the economic theory of labour markets particularly that of labour supply in neo-classical tradition, is that instead of linear there is a non-linear relationship between the wage rate and the supply of labour.

In this non-linear nature of the relationship, there emerged the backward bending and inverted-S shaped labour supply curves (see Douglas, 1934; Mincer, 1962; Sharif, 1991; Dessing, 2002). Given the dichotomous choice between labour and leisure with latter being normal good, increasing income/wage rate initially increases work-intensity but when the painstaking labour costs more than the gain they received from increasing wages that reduce the work-intensity with a further increase in the wage rate. Income and substitution effects influence such a path of the labour supply curve. This is how the backward-bending curve emerges. While the backward-bending represents the situation of labour supply in developed countries, the inverted-S shaped labour supply curve is suitably representing the poor developing countries. Within the inverted-S shape labour supply curve, lower and upper segments represent developing and developed countries respectively. The path of inverted-S shape labour supply curve shows that when the wage rate is below subsistence wage, the labour supply increases with a decline in wage rate and becomes perfectly inelastic at a reservation wage rate. Conversely, when the wage rate moves up from the reservation wage rate to subsistence one, the participation rates decline.

But when it comes to women labour supply there are many issues arise, especially in the family context. Most of the theoretical exposition of neo-classical economists have been on the response of hours of work supplied to variations in the wage rate.

But the choice between to participate or not to is somewhat different from the choice of the participants to choose between the intensity (hours) of work and leisure. Herein the women's participation in labour force is observed to be involved with a complex set of factors in the family context. First of all, instead of the *dichotomy* of choice (labour-leisure), there is *trichotomy* wherein for women the choice is between paid work, unpaid family/homework and leisure (Mincer, 1962). The traditional role and responsibility of women assign their involvement in home care, child care and home-based reproductive activities. In the light of Gary Becker's Home Economics, analysis of women's labour supply is further advanced while taking into account the above factors (See Mincer, 1962). Secondly, along with her own-wage rate, the family income, or wage rate of spouse (if married) or the family head influence the women's labour supply to the market. Thirdly, the availability of substitute factors of production (appliances or machines) for women works at home and market for consumptions goods/services (packaged food etc.,) that substitute home-made goods/services (*ibid*). All they are intertwined with the development path.

Women's active role in agrarian economies particularly those in the backward state and developing countries has been well observed (see Boserup, 1970). While the industrialisation process where the predominance of manufacturing undermines women's participation in the labour market, the services economy reinvigorates the same. When examined the relationship between the economic development/growth and the labour force participation rate, there emerged a U-shape curve hypothesis on women participation rate (Goldin, 1994; Mammen and Paxson, 2000). Although such a hypothesis is largely based on the experiences of developed countries, it provides some insights to understand the situation in developing countries.

Initially, due to the necessity to make subsistence in the presence of underdeveloped economic conditions, family labour including women is necessary. Those households who have productive resources such as farms or enterprise, most of the women in these households work on family farms and enterprises. For those households who do not have productive resources other than labour, they have to work for others. In the subsistence conditions, women participation is a distress-driven one. There is a social stigma attached to women participation in the labour market especially that of manual and menial labour. With the development of such agrarian economies, some of the women otherwise participating in labour force may be relieved from such manual and menial labour.

Further, as the economy gradually shifts from agriculture to industry along with increasing wage rate and thereby increase in family incomes reduces the compulsive participation of women and gradually reaches their participation rate a plateau. Also, the growth of industry especially the manufacturing sector is rather discouraging for

the women's participation in such labour force. It is so given with income effect and social stigma attached to adverse working conditions of women in such labour market. However, the gradual shift of the economy further to the services sector along with educational development is encouraging better working conditions in the services sector. Therefore, the U-shaped curvature of the labour force participation rate of women is due to structural shifts in the economy, changing income and substitution effects, educational development among women and emerging demand for female labour along with technology that substitutes women's work at home (Goldin, 1994; 2006).

There is another hypothesis of the Discouraged Worker Effect saying that when there is economic downturn situation high unemployment discourages them to be in labour force (see Dagsvik *et al.*, 2010). This hypothesis is the opposite of the Added Worker Effect that developed based on the labour market situation during the Great Economic Depression. According to the Added Worker Effect, when the main breadwinner is either unemployed or unable to earn sufficient income, the otherwise non-workers enter into labour force to supplement the family income. In other words, it is distress driven participation in the labour/workforce. The Discouraged Worker Effect on the opposite indicates that in a situation of high unemployment and under-employment, along with a lack of confidence in getting employment and the high perceived cost of job search, it discourages the otherwise potential labourers to withdraw from labour force (see Dagsvik *et al.*, 2010). For all these theoretical conjectures and hypotheses the underlying thread is an economic circumstance that is the income or development levels.

Empirical Evidence

Empirical verification of theoretical formulations or formulation of theory based on empirical evidence in respect of labour supply began in the first quarter of 20th Century. Douglas (1934) had observed the backward bending labour supply curve based on USA data related to labour supply. In the light of Gary Becker's theoretical formulation of Home Economics and Fertility, empirical studies on female labour supply have further advanced the analysis (Mincer, 1962; Goldin, 1994). There are a large number of empirical studies in this respect that have been conducted in the developed country context particularly in the USA. Empirical evidence of many studies confirm the backward-bending labour supply curve but the debate is on size of the income and substitutions effects and labour supply elasticity (see McClelland and Mok, 2012). The cross-country and time series analysis while relating the women's labour participation rate with economic development observed the U-shape labour force participation rate (Goldin, 1994).

In the developing country context, empirical studies on the form of labour supply curve with respect to wage rates or labour participation rates with respect to income in general and that of women, in particular, are very few. One study conducted in one of the developing countries observed the inverted-S shape of women's labour supply curve in respect of wage rate and income (see Sharif, 1991). Some studies have observed an inverse relationship between labour supply and wage rate at a low level of wage (Dessing, 2002; El-Hamidi, 2003). A study that investigates cyclicity in women's labour supply in response to smoothing household consumption in environments characterized by income volatility found that within-country relationship of women's employment and income is negative in Asia and Latin America but positive in Africa (Bhalotra and Umarita-Aponte, 2010).

In the India context, there are a few systematic studies that relate the labour supply with wage rate (see Dasgupta and Goldar, 2005). But there were attempts since long back to estimate labour supply functions for poor agrarian households in India (Bardhan, 1979; 1984; Rosenzweig, 1980). Bardhan study in the Indian agrarian economy context observed that wage rate on market labour supply was not significant but asset effect is strongly negative (Bardhan, 1984). With respect to women, it was observed that along with the insignificant effect of wage rate, a strong negative effect of assets and status on female labour supply. The study stated that "the dominant culture ascribes low status to women's ...manual work and upwardly mobile social groups and households often withdraw their women from labour force" (Bardhan, 1984: p. 22). But among the dispossessed groups (SC/ST) at the bottom of the social hierarchy, such a trend is not observed (*ibid*). Besides, it was also observed that demand conditions in the labour market strongly influences the labour supply behavior wherein the job search discouragement effect prevails and it can outweigh the income effect on labour supply.

A recent study observes that the forced employment or need-based (distress-driven) participation in the workforce for females from BPL families in rural areas keeps their labour force participation high (Dasgupta and Goldar, 2005). It infers that if the female wage rate earned by BPL households in rural areas goes up substantially or if male members of such households get more employment opportunities, more and more women of BPL families may withdraw from the labour force. It argues that women withdraw from the labour force because they find the returns from home-based work higher. Another study, in the Indian context, using dynamic panel models, it did not find a significant relationship between the level of economic development and women's participation rates in the labour force. It suggests that growth by itself is not sufficient to increase women's economic activity, but the dynamics of growth would matters (Lahoti and Swaminathan, 2013).

Another study (see Saha *et al.*, 2013), based on filed survey² observed that due to various socio-economic and cultural factors along with security reasons females prefer to find employment opportunities in the vicinity. But the work opportunities for females were limited in rural areas with shrinking employment opportunities in agriculture and not enough employment opportunities in the non-farm sector. As the study observed, their participation in the labour market is greatly constrained by their responsibilities in households, it restricts them from looking for jobs in areas beyond their immediate neighbourhood. Besides, the lack of conveyance facilities and adequate skills are restricting their mobility beyond their vicinity (*ibid*).

A study on the stagnation in women's labour force participation rate in urban India observed that the main supply-side factors were- rise in household incomes, husband's education, social stigmas against educated women engaging in menial work, and selectivity of highly educated women in their choice to work and of occupations. On the demand side, employment in sectors appropriate for educated women grew less than the supply of educated workers, leading many women to withdraw from the labour force (Klasen and Pieters, 2013). Another study observes that work participation decision by women depends on personal attributes, household characteristics, local economic conditions and socio-religious traditions (Mazumdar, 2012). Besides, there exists an argument that social-cultural factors particularly in the Indian context that interact with these above factors and leading to the decline (Neff *et al.*, 2013).

The above discussion indicates that there are multiple dimensions to the change (decline) in females' labour force participation rates. Along with the safety/security considerations and social prestige that is intrigued with the cultural factors, there is a crucial economic factor i.e. income/development levels that are associated with the variation and change in labour force participation of women.

IV. EVIDENCE IN THE DEVELOPING COUNTRY (INDIAN) CONTEXT

Data and Methods

In the light above review and discussion, it is to examine the relationship between the level of economic development or income (proxied with MPCE) and females' labour force participation rates (FLPR) in rural India across agro-climatic regions, based on the cross-sectional data of National Sample Survey Office (NSSO) surveys. Regions considered here are as classified by NSSO and consists of one or more districts based on their agro-climatic conditions (henceforth NSS-regions). In this exercise, the average MPCE represents its level of development of a region. Present exercise extracted regional averages for the selected variables from the unit record data of 66th (2009-10) and 68th (2011-12) round NSSO Employment and Unemployment Survey (EUS) and

the Consumer Expenditure Survey (CES). The average monthly per capita consumer expenditure (MPCE), as a proxy for the level of income or development is extracted from CES data of NSSO. Along with labour force and workforce participation rates (%), the average rural wage rate (casual/daily) for females and the other important control variables are drawn from the EUS data of NSSO. In addition to income and wage rates, we have taken into account the other factors which are significant in explaining the variation in FLPR or FWPR across agro-climatic regions. For the labour force or workforce participation rates of women in rural India, the age-group we have considered is 15-59 years. For the rural female wage rate, it is the average daily wage rate for casual labourers.

Analysis in the present exercise is based on data of two subsequent surveys of NSSO. On the one hand, it is to validate our results for the two survey periods. On the other, it is also to understand the impact of drought on the women's labour force and workforce participation rate pattern across regions distinguished by agro-climatic conditions. As it is known that the survey period (2009-10) was drought affected one. Many parts of rural India have witnessed drought condition during this period. Because of this, Planning Commission, Government of India directed NSSO to carry out another survey (i.e. in 2011-12) subsequently in the normal year.

Following the Mincer's (1964) equation we have estimated the labour force participation rate of women in relation with family/household income (MPCE) and market wage rate for female labourers. The Mincer's simplest specification of a labour-market supply function of women can be written as:

$$m = a.y + b.w + u \tag{1}$$

where m is the quantity of labour supplied to the market, y is a "potential" of family income computed at a zero rate of leisure and of home production, w is the women's full-time market wage or market earning power, and u reflects other factors or "tastes." We can rewrite the Mincerian equation with our construction of factors/variables, the specification would be

$$FLPR_i = a.AMPCE_i + b.AWRF_i + c_j.X_{ij} \tag{2}$$

The econometric form of the equation is

$$FLFPR_i = a + b_1.AMPCE_i + b_2.AWRF_i + c_j.X_{ij} + U_i \tag{3}$$

We have included the quadratic term for income variable in the equation. It is based on the theoretical inputs discussed in the previous section and distribution pattern of observations as well as our exploratory analysis of model fit. It is to establish

a non-linear relationship between income and female labour force participation rate through a linear regression model. Such an equation is written as follows:

$$FLPR_i = a + (b_1 \cdot AMPCE_i) + (b_2 \cdot AMPCE_i^2) + (b_3 \cdot AWRF_i) + c_j \cdot X_{ji} + U_i \quad (4)$$

Where FLPR – Female Labour force Participation Rate

'i' – ith region; 'j' – jth factor (controlled variables)

AMPCE – Average Monthly Per Capita Consumption Expenditure

AWRF – Average Wage Rate of Females (average of daily wages for casual labour)

X – other factors (set of controlled variables); U – Error/disturbance Term

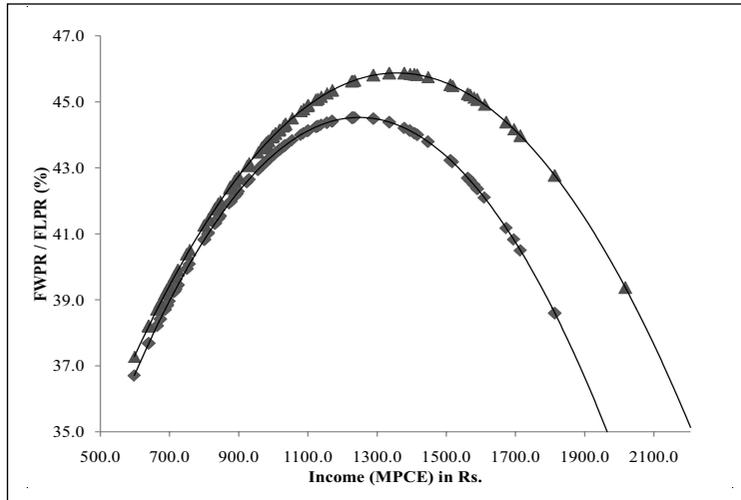
Results and Discussion

Based on the above specification, when the labour force participation rate of rural females across agro-climatic regions is regressed against only the average household income (proxy - average MPCE) in a quadratic equation form of regression, the fitted curvature observed is explicitly the inverted U-shaped parabola (see Figure 1&2). Although this estimated equation leaves unexplained most of the variation in it (FLPR), it is able to identify the significance of the family income in females' labour force participation rate (FLPR), particularly in rural areas. The signs of the estimated coefficients of regression with a quadratic functional form of the equation and the fitted curvature indicate the following. Initially, the labour force participation rate of females is low at a low-income level or backward state conditions. Such a participation rate increases with a rise in income level until a saturation (threshold) point and becomes a plateau. Thereafter such participation rate begins to decline with a continuous rise in income. The inverted U-shaped curvature continued to present when we include another variable that is the average female wage rate (FWR). FLPR across agro-climatic regions is regressed against their household income proxy (average MPCE), its quadratic term and FWR specified in a quadratic equation form of regression. Even after including other control variables, the regression results presented in Table 1 show that coefficients of both the variables (income and its quadratic term) are significant. The negative sign for quadratic term indicates inverted-U-shape curvature.

The inverted U-shaped curvature that we have observed with respect to the labour force participation rates of females in rural areas across regions against the levels of income/development in the Indian context is different from what was observed, in the context of developed countries, by Claudia Goldin (1994). Herein one has to note the context and circumstances in this regard. It is so in the context of developed countries, during their overall transformation (agriculture to industry and to services) including industrialization and urbanization along with educational development. Such a transformation took place over a long period of time. The said

curvature observed in this cross-sectional study pertains to a developing country where the rural economy/area remains predominantly agriculture-dependent. Yet, its changing rural dynamics and consequent levels of development across regions have an impact on female labour force participation rates, as is portrayed.

Figure 1
Income (MPCE – Proxy) and Females’ Workforce (FWPR)/Labour Force Participation Rate (FLPR) – across Agro-Climatic Regions in Rural India, 2009-10

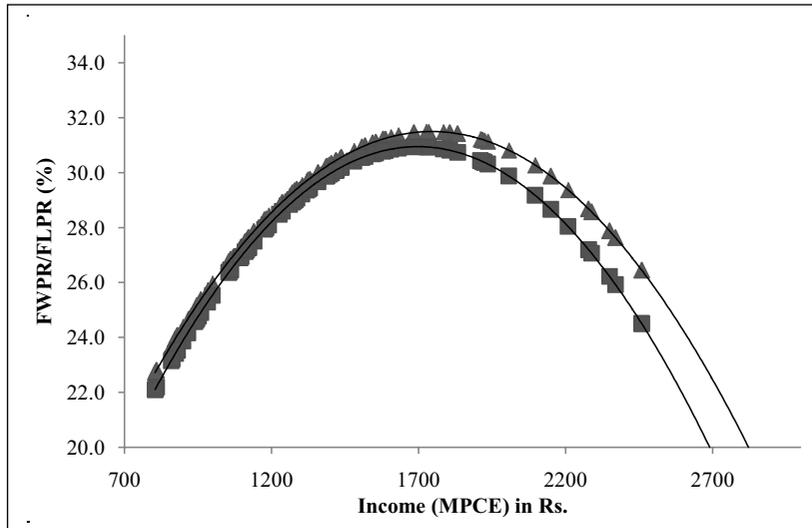


Notes: 1. Upper line represents the LFP and lower line represents the FWPR estimated for rural females;
3. The model and the coefficients are significant at 1% level.

Source: Authors' estimates using unit record data of NSSO 66th round (2009-10) Employment and Unemployment Survey and Consumer Expenditure Survey.

There are two aspects in this relationship between labour force participation rates of rural females and the level of income or development especially in the context of India. At a lower level of income, all the household members, as many as they are including women, their participation is necessary in order to meet the household's subsistence needs (distress-driven condition). Although women's participation in a labour market is inevitable in this distress driven situation, it all depends on the availability of employment opportunities. Thus, the low participation rates at lower income/development levels could be due to lack of employment opportunities in a backward state of the agrarian economy which may discourage them to be in the labour force. Working men of the households, as main breadwinners, occupy all the opportunities in the labour market. Women rather occupy in domestic duties and in activities that substitute goods and services that otherwise have to seek (buy / exchange) from the market (like fetching water, collecting firewood, gleaning on the fields). In the development or economic parlance, they are referred to as non-SNA activities.

Figure 2
Income (MPCE – proxy) and Females' Workforce (FWPR)/Labour Force Participation Rate (FLPR) – across Agro-Climatic Regions in Rural India, 2011-12



Notes: 1. Upper line represents the LFPR and lower line represents the FWPR estimated for rural females;
 3. The model and the coefficients are significant at 1% level.

Source: Authors' estimates using unit record data of NSSO 68th round (2011-12) employment and unemployment Survey and Consumer Expenditure Survey.

However, expanding the labour market along with an expanding (agrarian) economy may facilitate women working in the labour market and that may raise the demand for their labour. On the one hand, it could be increasing the opportunity for women along with the men. On the other, in an expanding economy, when men move away (prime movers in shifting/diversifying) from their traditional occupation, for instance, agriculture, the space left behind in this labour market is occupied by the women labour. Also, the increasing wage costs in the production may encourage the producers to look for cheaper labour and hence to restructure the labour market in a segmented manner (gendered) by engaging the female labour at cheaper wage rate. There may be a difference in the productivity of labour by gender. If at all, then, when the gains to employers through the difference in wage rates (between male and females) is much higher than loss accrued with the difference in labour productivity between them, it may augment the demand for cheaper female labourers. It is, however, may be limited to specific operations where men and/or women can perform. It has been observed such a *feminization* of agriculture in India. The left wing of the fitted curvature may be seen in this context (see Figure 1&2). The right wing is reflecting changing dynamics in the rural labour market since the turn of the 21st Century.

The declining participation rates of rural females at higher income levels must be due to women relieving themselves from their participation under distress driven condition or growing aspirations and leaving agriculture with an expectation of better opportunity in non-agricultural activities. But lack of opportunities in the non-agricultural sector may discourage them from being in the labour force. In the distress-driven situation, labour force participation of women is considered to be double trouble as she has to carry out household duties along with labour market work. Once the household is comfortable with the men's earnings (family income), the women of the households may wish to relieve themselves from the burden of working in the labour market to meet the household's basic needs. They may confine themselves to carrying out domestic duties. Also, there is a cultural factor that households that can do without depending on women's wage enjoy social prestige, particularly in village society. The *sankritisation* of this cultural norm with the increasing household's income and reproduction of such a culture among the households that are experiencing upward economic mobility may reduce/restrict women's entry in or encourage withdrawal from the labour force/labour market.

Notwithstanding the line of argument elicited above, one should not ignore the displacement of labour in the advent of mechanization process leading to a decline in participation rates at higher levels of development. As we know when the elasticity of substitution is higher in the production process, mechanization definitely affects the opportunities in the labour market; it substitutes and thereby dispenses the labour including that of women. It may affect especially the feminized rural labour market particularly that of agriculture; as we know most of the female workforce in rural areas are engaged in agriculture. As this mechanization process may go along with the level of development, one can find that regions at higher income levels may have higher levels of mechanization. Thus, the lower labor force participation rates of women may be a fall out of the above phenomenon. Hence, herein again, it is due to lack of opportunities affected by mechanization that is taking away opportunities of women. Therefore, one has to find whether it is the income effect or the substitution (mechanization) effect due to declining or low female labour force participation at higher income levels.

When we run a regression for females' labour force participation rate (FLPR) and their workforce participation rate (FWPR) separately regressed against income, the estimated participation rates and the fitted curvature shows that both are following the same pattern. But at lower levels of income, the difference between FLPR and FWPR is lesser and it increases with the higher levels of incomes (see Figure 1&2). As the difference between FLPR and FWPR is the unemployment rate, it means unemployment rate also increases with the level of income or development. It could

be that affordability to be unemployed for a female member in a poor household/region is very limited. Also, it could be due to the discouragement effect due to lack of opportunities even though one desperately needs or job search costs that pull out them from the labour force. As the households' income increases, their choice also expands as they look for better employment opportunity than otherwise have participated in distress-driven condition. Moreover, there is a difference such as unemployment level between two points of times which characterized one period as drought affect one (2009-10) and the other one as a normal year (2011-12). In the drought-affected year, such unemployment is higher and in a normal year, it is lower. Evidently, it is showing the impact of drought on the levels of unemployment.

Our regression results show a negative association or inverse relationship between the FLPR or FWPR and female wage rate (FWR). However, it is shown that the female wage rate is significant for the year 2009-10 (drought affected) but turned out to be insignificant for the year 2011-12 (normal year). Such insignificance nature of impact female wage rate on their participation in rural India is not a new phenomenon; it was reported in the earlier studies as well (see Bardhan, 1980). It may be due to the fact that women labour force or workforce participation rates conditioned by factors other than the female wage rate in the labour market. A considerable proportion of female labour force is being engaged in family farms or enterprises as unpaid family workers.

Although the negative sign may be surprising to see, the theory of backward-bending labour supply curve (men or women) supports it. However, in the India context, it must be due to the high opportunity cost of women's labour force participation, if not with respect to their leisure time, but may be owing to necessity of their engagement in domestic duties involving child care and other activities, or a cultural factor of loss of household's social prestige when the women of a household given their social and economic status, have to engage in menial or manual work. This opportunity cost may be higher at higher income levels. When such opportunity cost is high, even higher wages may not be able to attract women into labour force which largely engages in manual and menial works. Rather, higher wage could be due to non-availability of women in the labour market given their high opportunity cost. On the other hand, higher wages rates are associated with higher income regions, so these higher wages are reflecting the higher standard of livings of that region where a higher reservation price for labour is marked.

The main two variables (income and wage rate) regression model with a quadratic term (of income) subsequently extended to included other control factors (co-variates) X_j and regressed the FLPR and FWPR against all these selected (independent) variables (X_j) along with income (MPCE) and wage rate. The following are (X_j) variables included in the regression:

X_1 (*CultH%*) percentage of cultivators households to total rural households;

X_2 (*PERC%*) percentage of rural females who had educational levels primary and above;

X_3 (*Ch14%*) percentage of child population below 15 years of age to the total rural population;

X_4 (*Sex Ratio*) Sex Ratio in general in rural areas; and

X_5 (*SC/ST%*) percentages of SC/STs in rural population.

The results of the model based on the estimated equation that included all the variables above mentioned, presented in Table 1. It shows that most of them are statistically significant except the female wage rate for the year 2011-12. Although the estimated equation still leaves unexplained more than a half of the variation in it, the significance of these selected variables is explicitly exhibited and a considerable proportion of variation in FLFR and FWPR are explained through these variables. The result of the Model indicates that the FWPR and FLPR across NSS regions is negatively associated with the female wage rate (FWR), percentage of educated (primary and above – PERC%) and percentage of child population (C14) below 15 years of age. It is positively associated with the percentage of cultivator households (CultH%), sex ratio (SR) and the percentage of SC/ST (%SC/ST). The negative sign for the coefficient of income in the quadratic term indicates the inverted U-shaped curvature even after controlling for all these variables. When we worked out the standardized coefficients (Betas) which indicate the relative explanatory power of a variable, it shows the significance of the percentage of the child (below 15 years of age) population along with the level of income.

With respect to the inverse relationship between FLPR or FWPR and the percentage of the child population, increasing spread of the notion of childhood to lower strata of social and economic classes and increasing awareness of the value of education for their children may be increasingly exerting on the women's labour time in homework, in the child care. The substitutes for a mother in child care such as crèche or domestic help in rural areas are yet to come up or develop. Although there have been efforts under the integrated child development scheme (ICDS). *Anganwadi/Balwadis* are being opened up in most of the villages for catering the children below 6 years age, however, their functioning is erratic or not up to the mark. Even if they are functioning, their role is reduced to the distribution of the food while other roles such as playschools/daycare centres, completely get sidelined. These centres are not able to play a significant role as yet thereby not relieving mothers from childcare engagements.

Also, the school going children too need their mother's time and care. Mothers prepare them for schools and help them complete their homework. One can see

the school participation rates in India particularly in rural areas during the last two decades have increased remarkably. On the supply side, school provisions have improved during the period thanks to DPEP and SSA initiatives. On the demand side, rising demand under the emerging circumstances of the high perceived value of education complemented with affordability in the context of growing real wages and rural incomes along with supplementary welfare measures (such as direct and/or indirect cash transfers through pension, scholarships, PDS etc.,) and punitive action against child labour that might have reduced the opportunity cost of child schooling.

Table 1
Regression Results

Variables	2009-10		2011-12	
	Dep Var: FWPR	Dep Var: FLPR	Dep Var: FWPR	Dep Var: FLPR
1	2	3	4	5
MPCE	0.0717*** (0.0228)	0.0610*** (0.0225)	0.0427*** (0.0137)	0.0427*** (0.0137)
MPCE^2	-2.14e-05*** (7.27e-06)	-1.67e-05** (7.18e-06)	-9.99e-06*** (3.69e-06)	-9.99e-06*** (3.69e-06)
lnFWR	-23.63*** (6.820)	-22.12*** (6.738)	-5.146 (4.726)	-5.146 (4.726)
CultH%	0.388*** (0.128)	0.405*** (0.127)	0.280*** (0.0822)	0.280*** (0.0822)
PERC%	-0.586*** (0.153)	-0.562*** (0.151)	-0.279*** (0.0882)	-0.279*** (0.0882)
SexRatio	0.0868*** (0.0207)	0.0885*** (0.0204)	0.0420*** (0.0143)	0.0420*** (0.0143)
Ch14%	-1.360*** (0.444)	-1.454*** (0.438)	-0.784** (0.305)	-0.784** (0.305)
SCST%	0.142* (0.0786)	0.154* (0.0777)	0.134** (0.0551)	0.134** (0.0551)
Constant	59.71* (35.02)	58.75* (34.59)	-5.084 (28.83)	-5.084 (28.83)
Observations	87	87	88	88
R ²	0.451	0.439	0.430	0.430

Notes: 1. Standard Errors (SE) are in parentheses;
2. Significance levels: *** p<0.01, ** p<0.05, * p<0.1;
3. Dep. Var. – Dependent Variable; FWPR – Female Workforce Participation Rate; FLPR – Female Labour force Participation Rate; 4. MPCE –monthly per capita consumption expenditure; lnFWR – (natural) log of Average of Female Wage Rate (daily/casual wages); CultH – percentage of Cultivator households to total rural households; Ch14% – percentage of child population (below 14 years of age); PERC% – percentage of educated population (primary and above); SCST% – percentage of SC/STs;

Source: Authors' Calculations / Estimates based on Unit Record Data of NSSO 66 (2009-10) and 68 (2011-12) Rounds Employment and Unemployment Survey (EUS) and Consumer Expenditure Survey (CES).

Therefore, women's withdrawal from the labour force or labour market could be because they are engaging themselves in nurturing the human capital of the future generations in the absence of proper substitutes for child care. Even if the substitutes are available, the given the household income, it is not affordable. Again, the preferences (of the households head/husband) such as giving home-made food to children and other family members and their childcare responsibilities are also a matter of concern for the women's participation in labour force.

The positive coefficient in respect of the percentage of cultivator households could be that most of the women in cultivator households engage in their own farms as unpaid-labourer. If per capita land available for cultivation is equal across the region, the regions with a higher percentage of cultivator households have a lower average size of the land cultivated within these households when compared to those regions with a lower percentage of cultivator households. It means that there must be more number of small and marginal cultivators in a region with a high percentage of the cultivator households than that of the region with a low percentage of cultivator households. Obviously, females of small and marginal cultivator households are engaged in their own farms irrespective of the social status of such cultivators even if they are not allowed to work in the labour market, or working for others.

Such an engagement of women in family farms, sometimes, may not be reflected in their labour force participation. Also, the cultural factor related to the social stigma attached to women's involvement in manual work among the rich peasant households may restrict their entry into labour force altogether. Similarly, the educational levels, in general, may discourage them from engaging in menial and manual work, so it must be the case for women as well. The educated women may be willing to take up the better opportunity but lack of availability of such opportunities might discourage them to be in labour force³.

The positive association of FLPR with sex ratio which is included in our analysis to reflect the cultural factors – low social and economic value for females – in predominantly patriarchal societies in some parts of the country particularly in northern regions. In the south and tribal regions the sex ratios are not so adversely against the females and labour force participation rates are also fairly moderate.

The positive association of FLPR with the percentage of SC/ST indicates that for women in these economically backward and socially marginalized sections it is their economic necessity to participate in the labour force. Most of these caste households especially those belonging to SC community own none of the productive assets like land, rather they have to depend on their labour power. In tribal and hill regions in general and tribal communities anywhere in particular, women participation in labour force is higher when compared to other regions and castes.

On the whole, what one can make out from the above analysis and discussion is that the female labour force participation rate varies along with the level of income/development. Particularly in a rural and agrarian economy, lack of opportunities at lower levels of development may result in lower participation rates and it rises with the increasing opportunities in an expanding economy. If the women's participation in labour force is desperate in a distress-driven circumstance, at higher levels of development with the ease of distress conditions women withdrawal from the labour force is inevitable (income effect). The cultural factor may further augment the income effect. However, it may also be possible that if mechanization which dispenses the labour, is associated with the level of development, the declining or low female labour force participation rates at higher income levels could be partly associated with mechanization (substitution effect) that dispenses the labour. Herein one has to see whether the phenomenon of declining or the low participation rates at higher incomes/development levels are due to the income and substitution effect.

V. CONCLUDING REMARKS

The high growth of the Indian economy combined with the decelerating rate of growth in labour force resulting in jobless growth. The declining labour force participation rate of women particularly in rural areas raises concerns as women' labour force participation has implications for gender equality and women empowerment. In this backdrop, we have made an attempt to examine factors associated with the variation in female labour force participation rates in rural India across agro-climatic regions classified in NSSO surveys. Our results based on the quadratic form of the equation for regression show that the relationship between income and females' labour force participation rate is significant and the fitted curvature is inverted U-shaped one. Also, FLPR is negatively associated with female wage rate, percentage of educated (Primary education and above) and percentage of child population below 15 years of age; positively associated with the percentage of cultivator households, sex ratio and percentage of SC/ST population of the region.

Although our results show the significance of the level of income/development in variation in females' labour force participation rates across the region, the possible substitution effect of mechanization cannot be ignored. The negative relationship with female wage rate which prevails in developed regions could be due to high opportunity cost with respect to women's labour force participation in the developed region given the cultural factor of low value for women in general and those engaged in manual work resulting in the higher social cost for a household.

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Notes

1. Discouraged Workers are those who are although willing to participate in labour force or labour market, due to lack of employment opportunities, they withdraw themselves from the labour market. They do not even report themselves as unemployed. Labour market conditions discourages their participation in the labour force. It is particularly so in case of females' participation in labour force.
2. Conducted by IAMR in two states: Gujarat and Uttar Pradesh. It was conducted to understand some of the reasons behind the phenomenon, explored factors and changes in different dimensions, such as the social, demographic, economic, education and health, affecting the labour force participation rate of women in rural areas.
3. When we included the percentage of households that participated in NREGS, it is found to have a positive relationship with FLPR but not significant.

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Gender Inequality in Rural Labour Market in Odisha: Some Micro Evidence from Dhenkanal District

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Gender inequality in the rural labour market is not just a phenomenon but a deep-rooted social evil that still prevails in backward agriculture, where men and women live and work side by side but without equal pay and with unequal access to technology, assets, education and training. Discrimination has two forms: unequal pay for similar work by men and women; and restricted upward mobility for women in employment denying them better income while heaping on them the accursed of ill health and drudgery. This paper analyses gender disparity in rural labour market in Dhenkanal district of Odisha covering one irrigated and a non-irrigated backward village with a sample from each of 50 female labourers, 20 male labourers and 10 employers, where irrigation is the index of agricultural development. The paper examines various dimensions of rural labour market including days of work available, type of operations performed, wage rates and mode of wage payment of male and female agricultural labourers. The survey findings reveal that women labourers are more dependent on farm activities than male labourers. Male-female disparity in days of employment in agricultural operations is more pronounced in the non-irrigated village in comparison to the irrigated village. Even with agricultural development and technological change, gender-based wage differential persists not only in wage rates but also in mode of wage payment. Female labourers receive lower wages than male labourers for the same work and majority of them receive payment in kind rather than cash; conversely males for all the operations get remuneration in cash.

Keywords: Gender disparity, Wage differential, Rural labour market, Dhenkanal

I. INTRODUCTION

India's post-reform era, and in particular, the last two decades of privatisation, liberalisation and globalisation, has witnessed a rapid expansion of trade, capital flows and economic restructuring accompanied by significant changes in working conditions. As a result of the sluggish growth of employment in manufacturing and the low employment absorption in the service sector, the informal economy has been the major provider of employment. In the informal economy, agriculture is the

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dominant sector providing employment to nearly fifty per cent of the total workers of India. However, the quality of jobs in agriculture falls short of the standards of decent work because of low wages, segmentation in labour market, gender discrimination and outmigration. Taking cognizance of the Sustainable Development Goals (SDGs) adopted in 2015, in general, and the one as part of the goals to be attained by 2030 for full and productive employment and decent work, in particular, we are made to see that the path to improving the lot of our people might be long but not unachievable.

The reality of discriminations against women in rural labour market is widely prevalent in the form of men-vis-à-vis women power inequations and tend to persist in India (Deininger et al. 2013). Examples of women being discriminated against have taken the form of engaging them in low-paid and low-status jobs, and paying them lower wages than what their male counterparts get for similar work. Further, a few specific jobs such as transplanting, weeding, etc. are reserved for women and termed as women's jobs, while men's jobs are secured against competition from women under the pretext that these are non-competing jobs where men regularly outperform women with attendant better pay. Given that mostly tedious, boring, monotonous, repetitive, and unskilled jobs are allotted to women labourers, it also creates work fatigue and diseases. Apart from the fact that ignorance about job pay and rights to conditions of employment is widespread, there is also silence on the palpable feeling that women's jobs are not necessarily easy, like the transplantation of seedlings usually performed by women is considered a tough job. With this backdrop, and despite the emphasis put on equality of sexes in the Indian Constitution and the different legislative enactments with women beneficiaries as their prime concern, women are still subjected to various discriminatory practices in the social and economic spheres. With technological change and growing feminisation of agriculture, it is expected that gender disparity in agricultural wage will be reduced (Unni, 1992).

As to why there are discriminations against female agricultural labourers in terms of wage payments and employment is open to debate and discussion. Some appeal the human capital theory argument that women are unskilled, lacking in physical strength, little-educated, untrained and therefore unfit to undertake the jobs that men can perform. Others view segmentation of labour market and segregation of women as a tool in the hands of a capitalist institution and an instrument variable used to dilute the class solidarity of the labourer class. Also due to their role in child rearing, women are, it is generally felt, not able to provide un interrupted services to labour markets, apart from the fact that they also lack bargaining power due to immobility, low literacy level and ignorance. Participation of a woman is strongly associated with her family composition, poverty, caste and social custom, symbolised with several entries and exits linked with various events in their life cycle such as marriage, child birth and divorce. Women's participation in the labour market usually features that

low income, low caste and poor women hire out labour and work in other's fields on wage payment.

With agricultural intensification and cultivation of High Yielding Varieties (HYV) of seeds, timely completion of agricultural operations assumes utmost importance; let alone the practice of farmers growing multiple crops in different seasons, which increases the demand for labour. All available labourers are usually engaged, irrespective of sex. However, a couple of agricultural trends have put the women in the backfoot vis-à-vis the men. Firstly, the requirement for bringing in technical change in agriculture also induces mechanisation of certain operations like increased use of tractor for ploughing and use of harvester which leaves women at the short end of the balance between the need to keep up with modern technology and the debilitating status quo that keeps to old ways. Thus, it is argued that mechanisation has lowered the workload of men, whereas workload of women has not been reduced. For example, transplantation is done manually by female labourers while tractors are used to plough land. This unequal access to assets, skills and resources has worsened the position of female agricultural labourers over the period under study. Secondly, not only do men usually operate the machines, but also mechanisation may have displaced female labour. The technological changes in cultivation as more and more farmers opt for chemical herbicides, harvesters, threshers, rice mills, maize shellers etc instead of manual workers, have displaced a large number of women and reduced their employment potential. Thus, in the post-Green Revolution period, the status of female agricultural labourers has gradually deteriorated. To sum up, gender discrimination in rural labour markets exist in two ways: (i) paying less to women than men for similar work; and (ii) restricting women to low paid, unskilled jobs while denying them access to better paid jobs.

Against the above backdrop, the present study endeavours to analyse the nature of employment of women workers in rural labour market, wage differential between male and female agricultural labourers and the wage payment system in Dhenkanal district of Odisha in Eastern India. The rest of the paper is organised into five sections: section 2 deals with objectives and methodology of the study; section 3 examines the socio-economic characteristics of male and female labourers; section 4 analyses the gender discrimination in employment and labourer's wages in rural labour market; section 5 explores the causes of gender inequality; and, finally, section 6 contains some policy implications drawn from the study.

II. OBJECTIVES AND METHODOLOGY

The principal objectives of this study are:

- i. To examine the socio-economic characteristics of female agricultural labourers in comparison to that of male labourers in the study area;

- ii. To analyse the differential in employment and wages between male and female labourers in study villages;
- iii. To explore the reasons of discriminatory practices against female labourers in rural labour market regarding days and nature of employment, wage payment etc;
- iv. To propose measures for upliftment and empowerment of female labourers and to promote gender equality in rural labour market.

This study was undertaken in the Dhenkanal district, located in Central Table Land region of Odisha in eastern India. Dhenkanal was selected for the study as it is an agriculturally developed district with paddy yield rate of 4032 Kg/ha during 2013-14 which was greater than the State average yield rate (2760 Kg/ha). The percentage of Gross Cropped Area under irrigation of the district (43.8%) is also more than that of the State average (38.9%) (Odisha Agriculture Statistics, 2013-14). In the next stage from the district, one irrigated village namely Odisha and another contiguous non-irrigated village Garudabandi were chosen. Both the villages are from Bhuban block. Odisha village is under Odisha panchayat and Garudabandi village is under Balibo panchayat. The irrigated village represents advanced agriculture and the non-irrigated village is considered as backward. In the next stage from each village, 50 female labourers, 20 male labourers and 10 employers were randomly selected. Accordingly, in total the study includes 100 female labourers, 40 male labourers and 20 employers. The study is based on primary data collected from these households by direct interview method with the help of designed questionnaires. Four different types of questionnaires were prepared: one for female agricultural labourer household, one for male agricultural labourer household, one for employer household and one village schedule. Some Participatory Rural Appraisal (PRA) techniques like focused group discussion and semi-structured interview were also applied to collect relevant information.

As per the Statistical Abstract of Odisha, 2012, Work Participation Rate (WPR) of females (17.1%) was significantly lower than males (56%) in rural areas of Dhenkanal district. WPRs of both male and female were less than the State average which was estimated at 56.5 per cent and 29.7 per cent respectively.

III. SOCIO-ECONOMIC CHARACTERISTICS OF LABOURERS

Usually it is observed that in rural areas, low caste, illiterate, landless and low-income households hire out labour and do manual work in other's field. These conditions are worse for female labourer households, as only under distress female members of a family participate in labour market. Thus, the Socio-economic characteristics of households that determine the decision to participate in the labour market include caste status, education, occupation and sources of income, size of land holding, tenancy

status and indebtedness. The above characteristics of the male and female labourers have been shown in Table 1 and analysed in this section

It is observed that in the irrigated village all the male and female households belong to Scheduled Castes (SCs). In the non-irrigated village, all the male labourers are STs; whereas, 84 per cent of female labourers are Scheduled Tribes (STs) and the remaining 16 per cent belong to SCs. Thus, all the male and female labourers belong to either SC or ST category.

Table 1
Socio-Economic Profile of Male and Female labourers

<i>Characteristics</i>	<i>Irrigated</i>		<i>Non-irrigated</i>	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
Total Households	20	50	20	50
<i>Caste (in %)</i>				
General	-	-	-	-
Socially and Economically Backward Classes	-	-	-	-
Scheduled Castes	100.0	100.0	-	16.0
Scheduled Tribes	-	-	100.0	84.0
<i>Education Level (in %)</i>				
Illiterate	25.0	26.0	15.0	28.0
Below Primary	5.0	24.0	35.0	38.0
Primary and above	70.0	50.0	50.0	34.0
Higher education (+2)	0.0	0.0	0.0	0.0
<i>Land Ownership of Labourers (in %)</i>				
Landless	45.0	52.0	80.0	64.0
Marginal Farmers(0-2.5acres)	55.0	46.0	20.0	36.0
Medium Farmers (2. 5-5.0 acres)	0.0	2.0	0.0	0.0
<i>Tenancy Status (Household)</i>				
Landless Tenants	31.4	4.0	0.0	0.0
Owner cum Tenants	50.0	28.0	100.0	66.7
Owner Cultivators	18.7	68.0	0.0	33.3
<i>Annual Income (Rs. /Household)</i>	52240	50556	39400	47349
% of Income from Cultivation	25.2	15.8	4.6	5.9
% of Income from Agricultural Wages	40.6	38.3	52.0	48.7
% of Income from Non-Agricultural Wages	23.4	29.8	42.5	43.6
% of Income from Other Sources	10.8	16.1	0.9	1.8
<i>Extent of Indebtedness (Rs. /Household)</i>				
Amount Borrowed	-	9000	-	5000
Amount Outstanding	-	7395	-	2000

Source: Field Survey

As regards education level, in the irrigated village 30 per cent of the male labourers are either illiterate or below primary education, but this proportion is quite higher (50%) in the case of female labourers. Also, in the case of non-irrigated village similar

results are observed. Coming to land ownership, in the irrigated village 45 per cent of the male labourer households own no land and remaining 55% belong to marginal farmer category owning land less than one hectare. For female labourer households, the percentage of landlessness is higher than male households. By contrast in the non-irrigated village the landlessness is more pronounced for male labourer households in comparison to female labourer households.

According to land operation pattern the labourer households are categorized into three types: (i) landless tenants, (ii) owner cum tenants, (iii) owner cultivators. As the agricultural operations are seasonal in nature the agricultural labourers do not get work throughout the year. Therefore, they lease in land to grow crops to ensure food security during the lean period. In the irrigated village 81% of the male labourer households have leased in land; whereas, this ratio is only 32% for female labourer households. Similarly, in the non-irrigated village all the male labourer households have leased in land, whereas this proportion is 66.7 per cent for female households. Thus, male labourers are more enterprising and taking up cultivation on leased land to supplement their wage income. In the irrigated village, the average annual income of male labourer household is greater than that of female labourer households, this is because the male labourer households have leased in land to increase their income from cultivation. By contrast in the non-irrigated village the average annual household income of male labourer households is less than that of female labourers, this is due to the fact that the wage income of female labourers has supplemented to the total household income. An analysis of the sources of household income reveals that agricultural wages is the major source of income for all the surveyed households. The second important source of income is non-agricultural wages. The percentage of income from cultivation is higher for male labourers than female labourers in the irrigated village, but in the non-irrigated village the reverse is observed. In both the villages it is evident that female labourer households are in debt; whereas the male labourers have not borrowed.

IV. GENDER INEQUALITY IN EMPLOYMENT AND WAGES

In the rural labour markets, gender discrimination mostly takes two forms: (i) paying less wages to women for the similar work and (ii) limiting them in low paid-unskilled jobs while restricting women's access to the better paying jobs. Agricultural operations are characterised by gender specificity. For example, a few specific jobs are termed as women's jobs: transplanting, weeding, or winnowing and they are characterised by lower pay rates than the rates paid to other agricultural operations carried out by men under the pretext that male job types are non-competing. This shows in plain light that women agricultural labourers are discriminated against in terms of wage payments and employment. This section discusses the gender disparity in the rural labour market of

the study area using dimensions such as: employment pattern, differentials in wage rates and wage payment system.

Number of Days Employed in Farm/ Non-farm Activities

The intensity of work or the number of days of employment available to each labourer during the year helps to obtain a picture of employment situation. Accordingly, Table 2 presents days of employment available to male and female labourers per annum in different types of activities, viz. farm activities versus non-farm activities in the irrigated and the non-irrigated village.

Table 2
Numbers of Days Engaged in Different Type of Activities during
Agricultural Year 2016-17 (1st June 2016 to 31st May 2017)
(No. of Days/Labourer)

Type of Activities	Irrigated			Non-irrigated		
	Male	Female	Total	Male	Female	Total
Farm Activities	52.90	51.36	51.80	52.55	43.64	46.19
% of Total	63.10	91.40	80.80	55.50	63.20	60.50
Non-Farm Activities	30.95	4.82	12.29	42.1	25.36	30.14
% of Total	36.90	8.60	19.20	44.50	36.80	39.50

Source: Field Survey

It is observed that days of work of the male (52.9) and that of the female labourer (51.36) in farm activities in the irrigated village, Odisha are very similar in absolute terms; however, the proportion as a percentage of total days of employment is higher among female labourers (91.4%) than for male labourers (63.1%). This is because technology has improved the productivity of male labourers as they can complete the same work in lesser number of days while women are working at the usual pace without access to modern methods of farming. On the other hand, in the non-irrigated village, Garudabandi, the days of employment of male labourers (52.55) in non-farm activities is more than that for female labourers (43.64). This implies that technology has left more days to be spent fruitfully in non-farm work for men vis-à-vis the women who are restricted to inferior methods of workmanship and to auxiliary work. Further, where female labourers engaged in farm activities are concerned, work in number of days is greater in Odisha village as compared to Garudabandi village; whereas, as far as men engaged in farm activities is concerned, there is no significant difference in the number of days of work in both the villages. Further, for both male and female labourers, lesser dependence on farm activities is observed in the non-irrigated village, Garudabandi, as compared to the irrigated village, Odisha. The proportion of number of days of work in farm activities to total number of days of employment, for male and female labourers is 55.5 per cent and 63.2 per cent in the non-irrigated

village; and 63.1 per cent and 91.4 per cent in the irrigated village respectively. Thus, women are more dependent on farm activities, may be due to their immobility and home responsibility. Coming to the village scenario, the proportion of days spent in farm activities as a percentage of the total days of employment in the non-irrigated village is less than that for the irrigated village; as irrigated agriculture provides more employment due to multiple cropping and cultivation of short duration crop varieties. (Table 2).

Operation-wise Participation Rates of Labourers

It is seen that some landless labourers work in their own fields as owner cultivator or as tenants in leased-in land and, also hire out their labour in other's field at a specific wage rate. So, it is important to understand the pattern of participation rates of male and female in both farm types. This section thus discusses operation-wise participation rates of male and female labourers in own farm and in others farm in the Kharif Season of agricultural year 2016-17 as shown in Table 3.

Table 3
Kharif Participation of Labourers in Different Agricultural Operations
in Own Farm and Other's Farm
(No. of Days/Labourer)

Operations	Irrigated			Non-Irrigated		
	Male	Female	Total	Male	Female	Total
<i>Own Farm</i>						
Ploughing	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Sowing	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Transplanting	4.85 (27.6)	3.44 (37.6)	3.84 (33.3)	1.90 (35.5)	2.66 (42.2)	2.44 (40.5)
Weeding	1.55 (8.8)	1.30 (14.2)	1.37 (11.9)	0.45 (8.4)	0.54 (8.6)	0.51 (8.5)
Fertilizer/ Manure Application	1.55 (8.8)	0 (0.0)	0.44 (3.8)	0.30 (5.6)	0 (0.0)	0.09 (1.4)
Spraying Pesticides	1.20 (6.8)	0 (0.0)	0.34 (3.0)	0.15 (2.8)	0 (0.0)	0.04 (0.7)
Harvesting	5.85 (33.3)	3.54 (38.7)	4.20 (36.4)	2.0 (37.4)	2.56 (40.6)	2.40 (39.8)
Threshing	1.30 (7.4)	0.50 (5.5)	0.73 (6.3)	0.30 (5.6)	0.50 (7.9)	0.44 (7.3)
Winnowing	1.25 (7.1)	0.36 (3.9)	0.61 (5.3)	0.25 (4.6)	0.04 (0.6)	0.10 (1.7)
Total	17.55 (100.0)	9.14 (100.0)	11.54 (100.0)	5.35 (100.0)	6.30 (100.0)	6.03 (100.0)

<i>Other's Farm</i>						
Ploughing	0	0	0	0	0	0
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Sowing	0	0	0	0	0	0
	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Transplanting	9.95	20.22	17.29	6.90	17.82	14.70
	(18.8)	(39.4)	(33.4)	(13.1)	(40.8)	(31.8)
Weeding	4.95	6.62	6.14	6.55	6.80	6.73
	(9.4)	(12.9)	(11.9)	(12.5)	(15.6)	(14.6)
Fertilizer/ Manure Application	4.70	0	1.34	5.10	0	1.46
	(8.9)	(0.0)	(2.6)	(9.7)	(0.0)	(3.1)
Spraying Pesticides	3.45	0	0.99	4.10	0	1.17
	(6.5)	(0.0)	(1.9)	(7.8)	(0.0)	(2.5)
Harvesting	17.80	20.74	19.90	17.85	16.80	17.10
	(33.6)	(40.4)	(38.4)	(34.0)	(38.5)	(37.0)
Threshing	7.50	2.20	3.71	7.10	1.06	2.79
	(14.2)	(4.3)	(7.2)	(13.5)	(2.4)	(6.0)
Winnowing	4.55	1.58	2.43	4.95	1.16	2.24
	(8.6)	(3.1)	(4.7)	(9.4)	(2.7)	(4.9)
Total	52.90	51.36	51.80	52.55	43.64	46.19
	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

Source: Field Survey

Own Farm

It is observed that during the kharif season of the survey year 2016, in the irrigated village (Odisha) male labourers work approximately eight days more as compared to number of days worked by female labourers (Table 3). But in the non-irrigated village (Garudabandi) days of work per female labourer is slightly more than that for the male labourer; however, the difference this time is merely one day. A positive difference between male-female days of work persists in all the operations in the irrigated village; with the exception of winnowing in the non-irrigated village.

Harvesting represents the highest proportion of days spent in work followed by transplanting among male and female labourers in the irrigated village; and, a similar trend is noted for male labourers of the non-irrigated village; but female labourers in the non-irrigated village exhibit highest proportion of days spent in work for transplanting followed by harvesting. Women show a greater percentage of days spent in work to total days in farm activities in the following operations: transplanting, weeding, harvesting in both villages (Table 3).

Other's Farm

It is observed that in both the villages, males average work days is greater as compared to females; and the disparity between male-female participation is more in

the non-irrigated village, Garudabandi, as compared to the irrigated village, Odisha. Average work days of female labourers are more than that for male labourers in the irrigated village in operations such as: transplanting, weeding and harvesting; but in the non-irrigated village, no agricultural work except transplanting and weeding illustrate in any way the arriving at such results. Male-female disparity in days of work under threshing and winnowing is less in the irrigated village, Odisha, as compared that in the non-irrigated village, Garudabandi.

A major proportion of both the female and male populations are engaged in harvesting and transplanting work in the irrigated village, Odisha. Transplanting depicts the highest proportion of work among female labourers followed by harvesting; and, the two together constitute a hefty 79.3 per cent of total days of farm participation in the non-irrigated village, Garudabandi. Average work days of male labourers shows maximum concentration in harvesting (34%), then threshing (13.5%) and transplanting (13.1%) (Table 3).

Gender Disparity in Type of Wage Payment System

There are mainly three broad categories of casual labour contracts: daily wage rate (or time-rate work), piece-rate work (locally termed as 'contract work') and share rate or the harvest work. Daily wage work is a noteworthy characteristic of rural labour market as most of the marginal farmers and the petty tenants also work as casual labourers, given that the size of their landholdings requires diminutive amount of labour. The piece rate work involves the rates of those that have been discussed or bargained for; where a lump sum amount is negotiated for timely completion of given operation. Such contracts might be attractive from the point of view of the labourers as it permits them to select the level of effort and maximize earnings per day. Table 4 exhibits operation-wise type of wage payment system in the study villages.

Table 4
Types of Wage Payment Received by Labourers for Different Agricultural Operations
(No. of Labourers)

Village	Transplanting				Weeding				Fertilizer/Manure Application Wage Rate (cash)
	Wage Rate (cash)	Wage Rate (kind)	Piece Rate	Share Rate	Wage Rate (cash)	Wage Rate (kind)	Piece Rate	Share Rate	
Irrigated									
Male	20	-	-	-	20	-	-	-	20
Female	10	40	-	-	8	35	-	-	-
Total	30	40	-	-	28	35	-	-	20
Non-irrigated									
Male	9	-	-	-	20	-	-	-	20
Female	5	45	-	-	5	43	-	-	-
Total	14	45	-	-	25	43	-	-	20

Village	Spraying Pesticides Wage Rate	Harvesting				Threshing				Winnowing			
		Wage Rate (cash)	Wage Rate (kind)	Piece Rate	Share Rate	Wage Rate (cash)	Wage Rate (Kind)	Piece Rate	Share Rate	Wage Rate (cash)	Wage Rate (kind)	Piece Rate	Share Rate
		Irrigated											
Male	20	7	-	-	13	20	-	-	-	19	-	-	-
Female	-	4	38	-	8	5	20	-	-	5	20	-	-
Total	20	11	38	-	21	25	20	-	-	24	20	-	-
Non-irrigated													
Male	20	16	-	-	4	20	-	-	-	20	-	-	-
Female	-	-	38	-	12	2	9	-	-	3	11	-	-
Total	20	16	38	-	16	22	9	-	-	23	11	-	-

Source: Field Survey

It is observed that female labourers in both the irrigated (Odisha) and the non-irrigated village (Garudabandi) receive wages mostly in kind rather than in cash. The majority of male labourers get their wages in cash. The women receive ten *gouni dhana* as payment per day which equals to 12.5 kgs of paddy, which remains their wage rate in kind. Around 80 per cent of female labourers receive wages in kind in job types such as transplanting and weeding in the irrigated village; and this proportion increases to nearly 90 per cent in the non-irrigated village. For harvesting, 76 per cent of females in both villages receive wages in kind. Here, it may be noted that, wages in kind when converted to rupees, in terms of existing price of paddy, is less than wages paid in cash, like, for instance, mostly to male labourers.

Percentage of share rate in harvesting operation among female labourers (16%) is less than that for male (65%) in the irrigated village, Odisha. But in the non-irrigated village, Garudabandi, 24 per cent and 20 per cent of female and male labourers respectively come under share rate in harvesting. The proportion of female labourers is higher in the irrigated village vis-à-vis the non-irrigated village who are receiving wage payment in kind in threshing and winnowing.

Wage Differentials

The prevalence of wage differentials is often described as a customary feature of all agrarian economies. Wage differentials arise from gender-based, gender-specific farm operations. Agricultural operations, like ploughing and post-harvest operations which carry higher wage rates are generally performed by male workers. Conversely, operations like sowing, transplanting and weeding with relatively lower wage rates are predominantly performed by female workers. Table 5 presents data on operation-wise wage rate received by male and female labourers in our study villages.

Table 5
Wage Rates in Various Agricultural Operations
(In Rs. per Day)

<i>Agricultural Operations</i>	<i>Irrigated</i>		<i>Non-irrigated</i>	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
Ploughing	250	-	250	-
Sowing	250	-	250	-
Transplanting	250	200	250	200
Weeding	250	200	250	200
Fertilizer/Manure Application	250	-	250	-
Spraying pesticide	250	-	250	-
Harvesting	250	200	250	200
Threshing	250	200	250	200
Winnowing	250	200	250	200

Source: Field Survey

Male labourers work at Rs. 250 per day and female ones work at Rs 200 per day in both the study villages, which retains its fixed character throughout all activities. Thus, a female labourer receives Rs.50 less than the male labourer for everyday of work done in both the villages. Male-female wage ratio is presented in Table 6 which shows that in all the operations, the male-female wage ratio is 1.25 in both the irrigated and non-irrigated village.

Table 6
Male-Female Ratio of Wage Rates for Agricultural Operations
(In Rs. per day)

<i>Region/District</i>	<i>Transplating</i>	<i>Weeding</i>	<i>Fertilizer/Manure Application</i>	<i>Spraying Pesticides</i>	<i>Harvesting</i>	<i>Threshing</i>	<i>Winnowing</i>
Irrigated	1.25	1.25	-	-	1.25	1.25	1.25
Non-irrigated	1.25	1.25	-	-	1.25	1.25	1.25

Note: Computed from field data

V. CAUSES OF GENDER INEQUALITY

Several factors may contribute to gender-based wage differentials in the rural labour market. This section discusses the causes of gender disparity that continues to be persistent in the rural labour markets, and the consequences of it. The women labourers, when they are asked for their view concerning their mostly getting employment in transplanting and weeding, opine that it's simply because women have always done this work, so that men are non-options here and, therefore, not preferred hired hands. Men have the privilege of accepting operations like ploughing or sowing which require skill for operating the machines and seem like an interesting job for them to take up; however, they also carry out auxiliary activities such as

application of manure or fertilizer, and the spraying of pesticides, which are also male-specific in nature. Employers are of the opinion that female labourers have eternally been doing the transplanting and weeding jobs, with knowledge sharing by mothers and knowledge acquisition by daughters, so that women have acquired an expertise in it. Again, women lack knowledge and skill regarding machineries which lead to less employment opportunities in threshing and winnowing, given that in both the villages these activities are mechanized. Employers engage women labourers mostly in transplanting and weeding, considered women's rightful domain of work as they are unable – by providence or by lack of skills and qualifications - to take up work operations with greater use of machinery. Thus, from the view point of labourers and employers, allocation of labour is deeply rooted in an unequal social system which is observed to have an extensive reach in the sample villages under study; in addition to this mechanization has also led to gender-based boundaries of work, incapable of being crossed, if not incapable of being lifted.

Technological advancement in agriculture is also responsible for significant changes in labour use patterns. Operations that were traditionally performed by women are now being done by machines. For example, mechanical weeding technique is sometimes preferred by the employer which have displaced women labourers who perform in that area. Winnowing which was earlier done manually by women is also mechanized to some extent with the use of grain winnowing machine. Even though transplanting is one operation which not only requires skill and the ability to crouch long hours in water with a bent back, but is also hazardous to women's health causing a variety of parasitic infections and chronic problems of arthritic pain. As the income of women remains auxiliary in nature, their ability to speak up (comparative say) in the household remains passive in nature compared to the voice of men. With increased participation of female labourers during peak seasons of work, the burden of domestic work falls on the girl children.

The differences in wage differentials and the wage payment system are major attributes of gender discrimination in the labour market. Male labourers get wages in cash on a daily basis. But the majority of women labourers receive wages in kind. The wage rates of female labourers fall below par than what is earned by male labourers in all operations, counting even men's earnings in female dominant activities: transplanting and weeding, where women receive lower wages than men. There are other factors that contribute to gender-based differentials in rural labour market. Such factors show up in restrictions placed on mobility of women as far as movements outside the home is concerned, which limit their ability to search for higher wages. Relatively weak bargaining power among female labourers with the employer is also one cause of disparity in labour market.

Thus, the wage differentials faced by female labourers is the consequence of the nature of work in which they are engaged. Female labourers accept payment in kind for operations such as transplanting, weeding and harvesting because women labourers have traditionally been hired by their employers in the in-kind mode payment since years past. The usual response of the employers faced with female labourers demanding equal wages is to consider their demand as not justified given that they believe the wage differential to be a traditional phenomenon – something that has happened with their mothers and, who have inherited it from their mothers without raising their voices for higher wages.

VI. CONCLUSIONS AND POLICY IMPLICATIONS

From the discussion in the foregoing sections, the following conclusions emerge. In both the irrigated and non-irrigated study villages of Dhenkanal district in Odisha, all the male and female labourer households belong to either SCs or STs. In the study area, the days of employment in farm activities of female labourers remain lower vis-à-vis the male labourers. In both the villages, the days spent of non-farm work among male labourers remain greater vis-à-vis the female labourers. However, proportion of farm activities indicates that female labourers are more dependent on farm activities vis-a-vis non-farm activities; while the male labourers continue to grab significant slice of both kinds of activities in both irrigated and non-irrigated village. The auxiliary nature of female labourers' work is apparent from the fact that they work for greater number of days in operations such as transplanting, harvesting and weeding.

Male-female disparity shows up in days of employment in farm activities where there is more disparateness in the non-irrigated village as compared to the irrigated village. This might be rooted in the technology which can sometimes play the role of gender equalizer. With the use of HYV seeds, the timely completion of operations becomes mandatory which, in turn, necessitates that all available hands – both male and female are put to use (Singh and Meenakshi, 2004). In both the villages, while male labourers receive payment at a daily wage rate basis in cash, a majority of female labourers receive payment in kind, rather than in cash. Yet again the non-irrigated village depicts greater percentages of female receiving payment in-kind mode as compared to the irrigated village. Piece rate of wage payment is not practiced in the study villages. Further, the female labourers also suffer wage discrimination and receive Rs. 50 less in comparison to their male counterparts for every day of work performed in all operations giving a male-female wage rate ratio of 1.25.

Wage rates are determined on several considerations such as type of work, availability of labour, basis of payment i.e. piece rate or daily wage, and the prevailing wage rate in the area. The disparities in wages arise in part to the gender-based specialization of specific farm operations and in part to division of labour carrying

on from years past that no one has raised their voice against. In the study villages, farm operations like transplanting, or weeding which carry lower wages are largely the responsibility of female workers; while operations such as ploughing, sowing, fertilizer application, spraying pesticides and post-harvest operations with relatively higher wages are performed by male workers.

Keeping in view the above facts, it is underscored that in accordance with the Fundamental Rights, plus the Directive Principles of State Policy enshrined in the Indian constitution; and the Equal Remuneration Acts and National Policy for Women, the employer should pay equal remuneration to men and women workers for same work or work of similar nature. No discrimination should be made while recruiting men and women workers. To ensure pay parity, there should be transparency in wage payment. That is, payment should be made through employee's bank account and the employer has to maintain a register showing the details of work and payment made thereof. Apart from this, there should be awareness creation among female workers and employers on constitutional provisions, Equal Remuneration Acts, and rules and regulations regarding wage payment. Because, information, knowledge and skill are pre-requisites to empowerment, training on handling machine and encouragement towards adopting new technology should be imparted to women workers. For skill development, the various special entrepreneurship programmes for women should be organized. In conclusion, women's paid employment not only brings more income into the family but gives women more control over its productive disposal. Moreover, positive female wage income effect has proved to have led to improved child nutrition and family welfare. At the same time, research and technology development should aim at removing drudgery from the lives of girl children and women.

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Women Participation under MGNREGS: Impact on their Socio-economic Empowerment

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Indian society is a gender-stratified society wherein women have a low and subordinated position in almost every sphere of life. Social norms and customs deprive women in general, and rural women in particular, from their right to have their say in important decisions including decisions of their own life. These norms confine them into household activities and primary sector that is apparent from low Workforce Participation Rate (WPR) of women accompanied by the large gender wage-gap. Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) tries to address this anomaly by encouraging rural women to participate in productive economic activities through its flexible provisions and equal wages. This paper attempts to analyze the efficacy of MGNREGS in women participation and their empowerment level in terms of their say in decision making, financial autonomy and social boundedness with the help of India Human Development Survey data (IHDS-I and IHDS-II). To examine spatial variations in the result, 14 major states, based on HDI values, were grouped into two categories, namely, Advanced States and Backward States. The Logit regression model has been used to examine the likelihood of participation. An effort has also been made to identify the increment in empowered women due to MGNREGS. The study found that women are equally participating in the scheme although there are differences in terms of caste, religion, poverty, education and land holdings. Findings suggest that participation is higher in the Advanced States compared to the Backward States, but it does not seem to commensurate with their enhanced empowerment. Further, the study reflects better participation of women with an already existing capacity of decision making and financial autonomy.

Keywords: MGNREGS, Women empowerment, Employment, Socio-economic status

I. INTRODUCTION

The need to study women empowerment arises in India due to prevailing social structure which excludes women from economic activities and gives them subordinated place in every sphere of life with differentiated roles, obligations and rights in comparison to men (Nathan, 1987; Ray and Phukan, 1999; Gupta and Yesudian, 2006; Akerlof and Kranton, 2010). This limits their primary work to domestic and household activities.

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It further restricts their time and mobility for schooling, training and to engage in productive activities (ILO, 2010).

Women empowerment is one of the basic objectives of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS). It is being implemented with the aim of enhancing livelihood security to rural households by providing at least 100 days of guaranteed wage employment to every household whose adult member is a volunteer to take up unskilled manual work in a financial year. It has the potential to raise the status of women through their active participation in the labour market because of its flexible provisions of the work which is provided within 5 km of their residence¹, crèche facilities² for younger children, equal wages without gender bias, 33% mandate for women participation, time-bound employment guarantee, wage payment within 15 days, provision of unemployment allowance to whom the state is incapable of providing MGNREGS job-cards due to lack of work availability³. Preference has also been given to women and old people to provide work within their village. This feature is distinct from any other employment generation schemes and makes MGNREGS an empowering tool for rural women because, as also suggested by Amartya Sen, it enhances the capability of rural people and helps women directly or indirectly in getting higher position in society by changing the men-centric work ethics.

Although, many scholars have identified problems MGNREGS has been facing like lack of public awareness about the scheme and its related provisions; presence of contractor at the working place; delay in receiving wages and job-cards; unemployment allowance, corruption, etc. however, social protection programmes providing regular cash benefits especially intended for the poor people in the rural areas have a strong positive impact on the various dimensions of human development (ILO, 2015). Literature also suggests a positive impact of MGNREGS on rural women's life because the scheme provides unskilled work especially meant for the poor and vulnerable section of society who are mostly illiterate and engaged in less productive jobs (Desai et al, 2015). MGNREGS has become the only source of income to combat starving for some women. It is indispensable and a lifeline to them (Narayana, 2008). It has the potential to transform their lives through empowerment (Pankaj and Tankha, 2010; Bishnoi et al, 2015) by enhancing economic and social security as women have very little opportunity to get paid non-agricultural job. It also empowers them socially and economically by changing their dependent status into an independent one (Khera and Nayak, 2009). It is the only paid job for most of the rural women. Being a government work, there is regularity and predictability of working hours, lesser chance of working under exploitative conditions and the work is, therefore, considered socially acceptable and dignified (Khera and Nayak, 2009; Datta and Singh, 2012). This scheme has seen

significant active participation of women than any other public scheme (Mathur, 2007; Kelkar, 2011 and Azam, 2012).

Therefore, this paper attempts to examine the participation level of the rural women under the scheme and the change in their social and economic empowerment level after the scheme implementation through IHDS data. Many social and economic aspects of women's lives have been investigated under this survey and the same women have been re-interviewed after a gap of seven years. Therefore it is helpful in providing a thorough analysis of the change in the women's empowerment level. The paper has also tried to put emphasis on the impact of the level of human development of the state on the outcomes of MGNREGS.

Status of Women in Indian Society

Although India has emerged as the fastest growing major economy in the world, it is still far behind in gender equality. India ranked 108th out of 149 countries in World Economic Forum's Gender Gap Index⁴ stated under the 'The Global Gender Gap Report-2018'. While according to Gender Inequality Index (GII)⁵ India ranks 127 out of 188 countries with a value 0.524 which indicates the considerable level of gender discrimination (Human Development Report, 2017). Indian constitution has given gender equality a legal sanction but the emotional and cultural threat prevalent in society cannot be ignored which has a social sanction (Saxena, 2015). This social sanction has changed the people's behavior towards women which is responsible for gender disparities; the set of norms and rules designed in this social system also favors men and gives women a subordinated status. These social rules and norms create the barriers which influence women's work and action. They are mostly confined to do domestic works, non-professional, low rank and low paid jobs (ILO, 2012). UNDAF report titled "Women in India: How Free How Equal" has also stated that even in television most female lead actors perform feminine roles such as fulfilling household chores, taking care of husband \ children \ family etc. This specific perception of women as 'angel of the house' is disturbing and questions their productive contribution in society. Rural women are mostly illiterate or have a very low level of education; they are mostly dependent on their family and have a status that is socially and traditionally bound. This gives them a little say in important decisions including their own life-decisions like marriage.

Institution of early marriage is another major factor that deprives rural women in attaining a higher status in society. The patrilocal marriage system⁶ gives a boost to the ideological perception where women are considered as a dependent identity (Maertens, 2003) and have to depend upon the choices of either their father/husband/ or senior member of the family. There are less than 30% of married women who take part in the day to day household affairs (Pellissery and Jalan, 2011). This discrimination

is highly reflected in the Indian Labour Market leading to the economic exclusion of the women. It is visible from the fact that women WPR has been significantly low as compared to men. Overall, WPR of both men and women has been declining since 2004-05 (NSSO; IHDS). According to IHDS data, Overall WPR of women was only 47% in 2004-05 which further declined to 36% in 2011-12. WPR of men, on the other hand, was 79% in 2004-05 and 76% in 2011-12. In rural India, WPR of men was 82% which declined to 77% in 2011-12 while in urban India it declined from 71% to 73%. Women WPR is strikingly low in comparison to men. In the rural India, it has declined around 26% from 58% to 43% but in the urban India there is an increase of 5% from 20% in 2004-05 to 21% in 2011-12. Overall Declining WPR is a major concern but in relation to men, women's position is much worse. NSSO data also reveals the same but it shows wider gender disparities in work participation compared to IHDS findings (please refer to table-1).

Table 1
Workforce Participation (WPR) for Men and Women (Age: 15-59 Yrs)

Year	Rural (%)		Urban (%)		Total (%)	
	Men	Women	Men	Women	Men	Women
IHDS						
2004-05	82	58	71	20	79	47
2011-12	77	43	73	21	76	36
NSSO						
2004-05	87	51	81	24	85	44
2011-12	82	37	78	21	81	32

Source: Author's calculation from IHDS and NSSO data

Due to the social distinctions and cultural perceptions, there are huge disparities within the overall WPR which often get reflected in the Indian labour market with respect to age, sex, religion, caste, education, wealth and place of residence (see appendix A.1 and A.2). Women's WPR is far behind men in every aspect but it is noticeable that women belonging from rural areas, lower caste/class (such as Adivasis and Dalits) and from low educational level are more likely to be in the workforce (IHDS findings). The reason behind this is poverty which drags women to get engaged in casual employment where they earn to maintain their consumption pattern and to secure their livelihood. This is more common in the rural households where male members migrate to urban areas to earn a larger share (Chakraborty, 2014). While women from better-off households have restricted entry in the labor market due to the social norms and patriarchal values existing in the society (Sudarshan and Bhattacharya, 2008). Further, in India, the 'U' shaped theory works (Srivastava et al, 2010; and Desai, 2010) which decreases the WPR of women when they receive higher education. So, the overall participation gets reduced. In the declining trend of the

work participation rate of women, this paper tries to investigate if MGNREGS has the capability to increase the work participation of rural women. This also suggests that female WPR can be increased by changing social norms, work culture or flexibility in the labour laws. This makes study of the role played by MGNREGS in the socio-economic empowerment of women even more significant.

DATA SOURCE AND METHODOLOGY

In this paper, IHDS-I and IHDS-II have been used which is highly representative, informative and one of the largest surveys of India. It is a panel survey as it re-interviewed the same households after a gap of seven years (around 83% of households were successfully re-interviewed). This is a major factor behind its use in this paper because of its great help in the policy evaluation. IHDS-I was surveyed in 2004-05, just before the implementation of the MGNREGS while IHDS-II was surveyed in 2011-12. This data is of immense use in demonstrating the rural women's situation prevailing before and after the implementation of scheme.

This study is based on a sample of rural men and women aged 15-59 years of age and working for more than 240 hours annually. Further, only those people were considered for the survey who came under 40% of wealth quintile. This was done to filter out the well-off people benefitting from the scheme for getting supplementary income but not because they were bounded by poor economic conditions. Two state categories of 7 states each was formed on the basis of HDI value of 2007-08 in order to understand the difference in the outcomes due to the varying level of human development of the states. One was the Advanced State category comprising of Himachal Pradesh, North-East excluding Assam (N-E excl. Assam), Tamil Nadu, Karnataka, West Bengal, Andhra Pradesh, and Assam while the other included the Backward State category comprising of Rajasthan, Uttar Pradesh, Jharkhand, Madhya Pradesh, Bihar, Orissa and Chhattisgarh. Rest of the states could not be considered due to data limitation.

Except for the variables already present in the data source, three other variables were created in order to capture the better empowerment aspect. These include- *First*, 'Social Boundedness' which comprised of questions such as- whether these women needed permission to go to the local health center, home of relatives or friends (in the village/neighborhood), Kirana shops or to a short distance by train or bus. It has been assumed that the women who need to seek permission from their husband or from any other senior member of the household are socially bounded than the one who does not require to seek any permission. Practicing 'Ghungat' has also been considered as an important variable of traditional boundedness. The women who practiced Ghungat in front of both, their relatives and family members are believed to be more socially attached. Further, if the men took their meal first, it also explains the same. A woman

was considered as socially attached or bound if she had a 'yes' as a response in any of the above questions because these variables explain the orthodox views of the society which happen to be prevalent in a patriarchal society which is believed to be more biased towards men with lesser autonomy and empowerment for the women.

Second, the variable named 'Financial autonomy' has been constituted with three important questions such as- whether women have cash in hand to spend on household expenditures, do they have any bank account in their own name, whether their husbands discuss money spending with them etc. A woman is assumed to have a financial autonomy if she had a positive response in any of the above questions asked.

Third and the last variable included 'Say in Decision Making' in the household. It is important to look at this factor as if they did not have much say in the household affairs but were highly participating under the scheme; they were not considered as willingly employed. Rather, there may have possibility of being forced to work under such a scheme owing to financial circumstances. And forcing them to work is an imposition, not empowerment. Thus, this variable includes the questions related to women's say in household decisions viz. to buy expensive items like fridge and TV; to buy a land or property; to decide about the number of children they want to have; to spend money on social events like marriage; to decide whom her children should get marry; and finally who has the say in deciding her work. Here, a woman is assumed to have a say in the decision making if she had a positive response in any of the above questions. Logit Model has been used to understand the impact of various factors on women's participation in the scheme. The model can be represented with the following equation-

$$\begin{aligned} \text{Logit } (nreg_part240=1 \text{ or } nreg_part240 \neq 0) &= \log ((nreg_part240=1)/(nreg_part240=0)) \\ &= \beta_0 + \beta_1 (state_hdi) + \beta_2 (_caste) + \beta_3 (_religion) + \beta_4 (_edu) + \beta_5 (_wq) + \beta_6 (land_owned) + \\ &\beta_7 (_poor) + \beta_8 (soc_bound) + \beta_9 (fin_auto) + \beta_{10} (say_dec) + \beta_{11} (main_inc) \end{aligned}$$

Here, *nreg_part240* is a dichotomous dependent variable, representing participation of women aged 15-59 years under MGNREGS for at least 240 hours annually, that is coded as '1' if women were participant and '0' if they were non-participant. The independent variables include – state categories based on HDI (*state_hdi*), caste (*_caste*), religion (*_religion*), education (*_edu*), wealth quintile (*_wq*), land owned (*land_owned*), poverty (*_poor*), social boundedness in household (*soc_bound*), financial autonomy of women in household (*fin_auto*), say in deciding important matters in household (*say_dec*) and households main income source (*main_inc*). Efforts have also been made to identify the net effect of MGNREGS (or increment of empowered women via MGNREGS) on women empowerment. To nullify the effect of various other programmes and provisions implemented by the government for women empowerment (such as educational provisions, SHG model and other) this paper

analyses a panel study of women participants and non-participants, who were re-interviewed, to find out the net difference between the two. For this, the paper presumes that the effect of these programmes on women empowerment would be same on both participants and non-participants so that the net effect of MGNREGS participation on empowerment can be identified.

EMPIRICAL FINDINGS

This paper attempts to examine various aspects related to the overall work participation of women (which has already been discussed under the heading- Status of rural women in Indian Labour Market), work participation under the MGNREGS and their empowerment level through MGNREGS. This study has *four sections*, section-I examines participation of rural women in the scheme, section-II analyses the influence of socio-economic factors in their participation, section-III determines the magnitude of their influence through logit regression and last section-IV tries to capture the increment on empowered women through their participation.

In the *section-I*, the participation of women under a particular scheme has been examined where data analysis reveals the minimal gender gap in scheme participation. While there is a huge gap between the female WPR and male WPR irrespective of the particular area (i.e. rural and urban). There is a significantly lesser number of women in the workforce from both rural and urban India as compared to men. Men are equally and highly employed in both rural and urban areas but the women employment rate is significantly lower (refer table-1). Under MGNREGS, this particular distinction is not visible. Table-2 shows overall distribution or distribution within 40% of the income group under the scheme and depicts that both men and women are equally participating under the scheme, of which around 52% are women participants.

Table 2
Percentage Distribution of MGNREGS Participants of All Income Group and
Income Group below 40% of Wealth Quintile (Age: 15-59yrs)

State	Percentage Distribution of MGNREGS Participants in India			
	(All Income Group)		(Below 40% Income Group)	
	Men (%)	Women (%)	Men (%)	Women (%)
<i>Overall Participation</i>				
Advanced States	17.46	17.51	19.05	19.07
Backward States	13.53	12.98	14.62	14.33
All India	15.12	14.71	16.01	15.72
<i>Intra MGNREGS</i>				
Advanced States	49.28	50.72	49.2	50.8
Backward States	47.98	52.02	47.35	52.65
All India	48.58	51.42	48.02	51.98

Source: Author's calculation from IHDS data (2011-12)

Section II focusses on the socio-economic factors influencing women participation in the scheme. In the Advanced States, the participation rate on an average in MGNREGS is higher in comparison to the Backward States with respect to all socio-economic variables considered (see appendix table- A.3). It is likely due to a higher level of human development, low level of caste and religious gap, higher awareness level among women, more cultural acceptability of working women, higher literacy level and low level of strictly bounding norms in society in the Advanced States. The efficiency level of the state in delivering the benefits of the scheme to rural women and low connectivity gap can also be the possible reason behind increased participation of rural women under MGNREGS.

Participation on the basis of caste in the Backward States follows the caste hierarchy. SC women being considered as the deprived section are having the highest share with 20.47% on an average followed by ST women with 14.94%, OBC women with 12.79% and General women with 7.88% from the total population. This suggests that women from deprived caste are participating more and willing to do unskilled work while women from the forward caste are less likely to be indulged in such activity but as the human development index increases caste gap reduces. This can be taken from the fact that General category women are slightly participating higher than OBC women in the Advanced States, though the SC women are higher in both state category. But under the Intra MGNREGS, share of OBC women on an average (43.74%) is highest in Backward states. This may be due to higher proportion of OBC people in these states.

Religion is another factor that influences participation. Being a Hindu dominated country, India has the highest proportion of Hindu women participants within MGNREGS followed by Muslim and other religion women (i.e. Sikh, Buddhist, Tribal, Jain and others). Further, it is argued that Muslim women do not have enough freedom to work, manage household affairs, decide the number of children and financial autonomy, etc. Although, we cannot base our point on this view as some of the theories negate this aspect too like that of Jejeebhoy and Sathar (2001) who did not find this relationship significant in their study, rather found that the region influences the autonomy of the women instead of religion. The higher participation of other caste women in advanced state can be related to this.

Similarly, in terms of education, poverty, and land owning too, Advanced States are more efficient in delivering the benefits of this scheme. Both state categories follow the negative trend of participation at a higher level of education. The empirical findings through the logit model have also proved the same. The findings of the study have proved that illiterate women and women having only primary education are the highest participants of the scheme but the share is relatively higher in the Advanced States. The BPL (Poor) women participate more in the scheme. Advanced State

Category is with 16.47% of non-poor women participants compared to 22.67% of poor women participants. Though the participation share in Backward State Category is lower, it is the poor women (16.16%) who are on an average more participatory than the non-poor ones (12.88%). India Human Development Report (2011) also explains that in the poorer states, the benefits of different development programmes does not reach the targeted population especially the economically and socially deprived sections of the society.

Section III examined the major determinants or factors of women participation under MGNREGS through the logit model. Unlike the earlier section where discrepancy in participation of women in the scheme with regard to various socio-economic factors was analysed, in this section, data analysis reveals a positive or negative effect of these factors on the participation and the magnitude to which they can influence the participation with the help of the logit model (see appendix table-A.4). It has been found that rural women participation under the scheme is relatively higher in the developed states where the human development indicators are better. The coefficient -0.453 suggests that with a change in the state category from Advanced to Backward, the log odds are expected to decrease by 0.453 unit keeping all other independent variables constant. This means that in order to achieve higher benefits of any scheme, the state's social and economic positions should also be developed. Investment in education, health, and employment sector is the bedrock for achieving higher participation of women as these investments help in reducing connectivity gap between the rural and the urban areas, increases awareness level of women, creates cultural acceptance of women's work through higher education and these investments help in strengthening women's independent status.

In India, caste is endorsed like a long time tradition and culture. People are backed up by the social system wherein every caste has different norms, traditional and cultural beliefs giving different positions\status to people in society. This strengthens the inequality within and between different castes. In this study, the result is highly significant and positive for SC women, suggesting more likelihood of their participation under the scheme. There is a positive relationship between the SC women and the participation under MGNREGS. With a change in the caste category from general to SC category, the log odds of rural women participating under MGNREGS are likely to increase by the 0.42 unit.

Findings about the religion depicts that the differences in the cultural acceptability of working women might be the reason behind the differences in the participation rate in various religions. Women from 'other religions' i.e. Sikh, Buddhist, Tribal, Jain and others together are more likely to participate in the scheme followed by Hindu and Muslims. The coefficient 0.395 suggests that with a change in religion from

'Hindu' to 'Other' the log odds are expected to increase by 0.395 unit keeping all other independent variable constant. While the coefficient -0.371 depicts the change in one unit of religious category i.e. from Hindu to Muslim, the log odds of participation in MGNREGS decreases by 0.37 unit keeping all other independent variable constant. Muslim people have more sets of rules which does not allow the women to behave in an independent way (Jejeebhoy and Sathar, 2001). Hence, it could be a possible reason for its lowest position among other religions.

In terms of education, the declining level of coefficients suggests two things. Firstly, the relationship between education and women's participation under MGNREGS is negative. *Secondly*, as the level of education rises among rural women, the relative log odds of their participation goes on declining from -0.174 to -0.982 units under the scheme, with each unit increase in educational level. Thus, it can be interpreted that with the attainment of a higher level of education, women starts preferring white collar jobs over blue collar jobs. Attaining higher education enables them to acquire higher qualifications and skills suitable for professional/trained and reputed jobs. This makes women reluctant to participate under the unskilled job scheme as they have better options for getting permanent skillful employment than in casual employment with subsistence income.

According to this study, women from households possessing land are more likely to participate. The coefficient 0.306 means that there is an increase in log odds of participation of women possessing the land by 0.306 unit with a unit change in the landholding keeping other independent variables constant. The result is highly statistically significant at the 99% level of significance. This may be due to the framework of the scheme. One of the primary objectives of the scheme is to improve the productivity of the land of the households through provision of irrigation facilities including dug wells, farm ponds and other water harvesting structures which help in creating assets. Further, under the specific provisions of the scheme, the land holdings belonging to vulnerable section of society (especially of SC, ST, nomadic tribes, denotified tribes, women-headed households, families below the poverty line and others) can be used for development purpose.

Rural women belonging to poor, middle and rich wealth quintiles are more likely to participate than the poorest strata. Although, the scheme is meant especially for the most backward and deprived section, these findings suggest higher participation in poor and middle wealth quintile. It may be due to more availability of resources. Poorest wealth quintile households lack resources; non-preference to education especially to women due to patriarchal ideology and shortage of money results in low awareness level about the ongoing governmental schemes. This reduces the chance of participation by the poorest women under the scheme. The slightly better off

households have relatively more awareness and women may be allowed to participate under the scheme for subsidiary income. Further, the benefit does not reach out to the most backward\remote areas due to poor infrastructure and poor governance. This can be seen as another reason for the exclusion of women of the poorest strata from the scheme.

The economic condition of an individual also plays an important role in determining the participation of women under the scheme. The logit model suggests that the log odds of participation of poor i.e. BPL women is 0.55 units more than the non-poor women. Further, social boundedness, financial autonomy and say in household decision making also play an important role in the determination of women participation under the scheme. In the findings, the result for the variable social boundedness is not statistically significant but the women having some level of financial autonomy and say in decision making with coefficients 0.347 and 0.434 respectively are more likely to participate than the one who do not possess these, implying that for active participation by the women, they need to possess some sort of autonomy and a say in financial and decision-making matters.

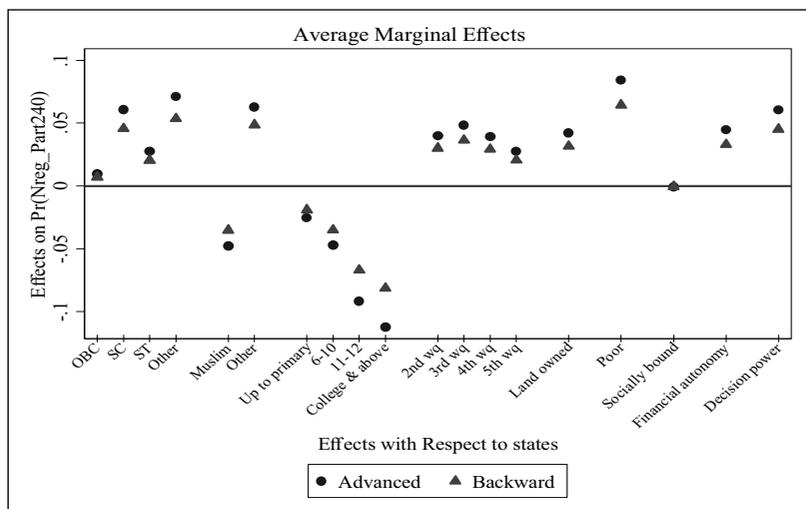
The main income source also determines the participation of women under the scheme. Keeping 'Income from cultivation' as a reference category, the major women participants are from the households whose main source of income is from allied agriculture followed by non-agricultural wage labour, agricultural wage labour having positive coefficient values 0.590, 0.315, and 0.131. Though the result is not significant for agricultural wage labour. Further, the coefficients for the households having main income through artisan/independent work, organized business, petty shop, profession, salaried, and pension\rent with are -0.849, -0.641, -0.776, and -0.703 respectively. It can be interpreted that people who work for these kind of occupations, have more economic incentives. They are more secure and safe from the clutches of poverty. So, they are less likely to participate in public work programmes such as MGNREGS.

AVERAGE MARGINAL EFFECT

The average marginal effect has been used to graphically examine the difference in the effect of participation of rural women on the basis of state categories i.e. Advanced State Category and Backward State Category. The average marginal effect shows the probability to be included in the concerned category of the dependent variable ($Y=1$) and effects are averaged after calculating for each observation in the data hence called 'Average marginal effect'. The Figure 1 justifies that the participation of women in the Advanced States, having a higher level of human development, is more in comparison to the states with a lower human development index. Here in every case,

the participation of women under the scheme is higher in the Advanced States except in the case of Muslim women and on education basis (being a negative variable to work participation).

Figure 1



The Backward States are lagging behind the Advanced States due to lack of infrastructure, poor implementation, low level of awareness among the masses, corruption, etc. The Advanced States are relatively better in these aspects. The figure explicitly shows the complete result of earlier findings and suggests that the human development index of concerned state needs to be better beforehand for active participation by women.

Section IV examines the increment of women empowered due to their participation in the scheme with regards to three variables specially created for the analysis i.e. Social Boundedness, Say in Decision Making, and Financial Autonomy (see appendix table- A.5). However, the state categories on an average have captured some interesting observations. The result depicts that women’s say in household decision making has been raised in both the state categories with or without their participation in MGNREGS since 2004-05. But, this may involve the effect of other policy measures implemented by the government. Therefore, net empowerment effect has been measured through the difference between empowerment outcome for participating and non-participating women. About 18% of the women have been able to raise their status in decision making just because they are participating in this scheme. There is an increment of 23.4% women in Backward States and 9% women in the Advanced States who have achieved a greater say in household decision making due to participation in the scheme. This also indicates greater improvement in Backward States.

In the case of financial autonomy also, Backward States performed. MGNREGS increased total women who got financial autonomy in their household during these years by 5%. They may now be considered by their husbands to discuss money matters. Though MGNREGS participants could not get financial autonomy in parity with non-participants in the Advanced States on an average, a little bit of improvement in the Backward States can be considered as a significant achievement in this regard.

Social boundedness is something that cannot be mitigated in such a short duration. It requires a long term policy to change the mentality among people regarding the equal status of women, social norms and traditions. Women are seen as a completely different identity with a completely distinctive set of rules and behavior than men. In the analysis, it has been observed that almost all women are socially bounded whether they are participants or not. In the Advanced State Category though it is slightly lower, both for the participant and non-participant but covering 90% or above of rural women under it depicts a different picture. This puts a question mark on the equal status of women in Indian society. Further, it finds that MGNREGS participants are getting more socially bounded than the non-participants throughout the time period. In the Advanced States, the 6% increment of women in becoming socially bounded if they participate under scheme suggests that MGNREGS could not help women from uplifting social customs and traditions, rather it has increased it. In the Backward States, on an average, it showed a decline of 0.24% than non-participants (Being a negative indicator, the negative value in the table will have a positive impact on women.). All this explains that Backward States performed better in empowering women than the Advanced States and hence it suggests that MGNREGS does have an influence over women empowerment.

CONCLUSION

Analysis suggests that MGNREGS actually has a great role to play in rural women's life as depicted by their equal participation in the scheme. Although there are variations in their participation in terms of religion, caste, education, landholding, and poverty, however, it has been realized that for a significant achievement of government policy to increase the active participation of women, a better human development level of the state particular is highly required. Social factors play a very significant role in women's life. For proper implementation of a policy, women should have some level of decision making, social and economic autonomy. In the case of empowering women from a social and economic perspective, Backward States showed better improvement than the Advanced States. The reason could be traced in the fact that in the Advanced States women already enjoyed a relatively better economic status, hence the change in their position did not see a stark rise. However, women from the Backward States start from zero levels of empowerment to attain a certain level, hence their empowerment

rate shows a sharp rise. One major concern showed by this study is that although women are getting better position in decision making but their financial and social status still needs improvement. Social boundedness has made the status of Indian women irreparable.

POLICY IMPLICATION

Although MGNREGS has benefitted rural women to a great extent but it should not be seen as a long term policy. The patriarchal mindset about women's education may become stronger as this would discourage them to let women become literate. Existing ideology within the rural areas that women do not require to be literate will boost up as MGNREGS gives equal wages to both men and women no matter they are literate or not. This would reduce the economic incentives and job opportunities to women leading to low empowerment. Women should better be encouraged or trained to be a part of skilled work rather than to participate in unskilled manual work. Therefore, it should be considered only as a short-term policy for those poor people, who are unable to get education due to their old age but their livelihood security is at stake. It is good for people who are either illiterate or having low educational qualification only for short duration but it may raise a serious concern in long-term because MGNREGS, being a right-based and demand driven scheme with guaranteed employment, may have a bad impact on the rural women's economic incentives. It would discourage people to get enrolled in educational institutions because livelihood security is already being given to them. This creates a moral hazard which we need to consider. Together with this, there is another problem which needs attention i.e. the problem of rising gap between skilled and unskilled women due to the Indian experience of 'U' shaped theory of education and women work participation. Although it is considered as a positive sign, this also indicates a preference towards skill-based work rather than unskilled one creating a gap between the skilled and unskilled women. It requires simultaneous efforts to raise awareness about women's education and their skillful empowerment.

Notes

1. Area backwardness is a factor that reduces participation of both rural and urban people in labour market. Work being given nearer to residence would increase the chances of women participation. (India Labour and Employment Report, 2014).
2. The Act has the provision of engaging a person to look after the children below the age of six years provided that more than 5 such children happens to be at worksite.
3. A Job Card is the basic legal document which enables the registered household to demand guaranteed employment (PIB). For more information and detailed provisions, visit MGNREGA website at <http://nrega.nic.in/>

4. The Global Gender Gap Index ranks 149 economies identifying how well they are leveraging their female talent pool based on economic, educational, health-based and political indicators.
5. GII measures gender inequality by showing the loss in human development due to disparities between the achievements of men and women in three dimensions i.e. reproductive health, empowerment and economic status (Human Development Report).
6. The patrilocal marriage system is a social system in which daughters are expected to leave their home after marriage and expected to live with their husband and his family. This implies that daughters could not give financial support to their parents in old age because her income would be a part of her husband's family.

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APPENDIX

Table: A.1
Workforce Participation (WPR) for Men and Women
(Age: 15-59yrs; Year: 2004-05)

Categories	Rural		Urban		Total	
	Men	Women	Men	Women	Men	Women
All India	82	58	71	20	79	47
<i>Age</i>						
15-19	49	34	22	8	41	27
20-29	81	50	65	16	77	40
30-39	94	72	90	26	93	59
40-59	94	68	89	27	92	56
<i>Education</i>						
None	91	69	82	33	90	63
1-4 std	88	59	84	27	87	51
5-9 std	80	47	71	16	78	37
10-11 std	76	37	66	11	72	25
12 std/some college	71	35	58	13	66	23
Graduation	75	38	76	23	76	27
<i>Place of Residence</i>						
Metro City	-	-	71	15	71	15
Other Urban	-	-	71	22	71	22
Developed Village	80	54	-	-	80	54
Less Developed Village	84	62	-	-	84	62
<i>Income</i>						
Lowest Quintile	82	64	60	30	80	61
2nd Quintile	85	63	73	25	83	57
3rd Quintile	85	60	75	25	83	52
4th Quintile	81	53	73	21	78	42
Highest Quintile	78	46	70	16	74	30
<i>Social Group</i>						
Forward Caste	81	52	70	15	77	37
OBC	83	60	72	24	80	51
Dalit	82	59	72	25	80	51
Adivasi	87	72	72	32	85	68
Muslim	79	46	71	17	76	36
Other Religion	69	39	70	18	70	30

Source: Human Development in India Report 2010

Table: A.2
Workforce Participation (WPR) for Men and Women
(Age: 15-59yrs; Year: 2011-12)

<i>Categories</i>	<i>Rural</i>		<i>Urban</i>		<i>Total</i>	
	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>	<i>Men</i>	<i>Women</i>
All India	77	43	73	21	76	36
<i>Age</i>						
15-19	34	19	24	6	31	15
20-29	76	33	68	16	74	28
30-39	92	55	91	28	91	46
40-59	89	55	88	26	89	46
<i>Education</i>						
None	89	56	87	33	89	52
1-4 std	90	51	87	30	89	45
5-9 std	77	36	78	18	78	30
10-11 std	66	24	67	12	66	19
12 std/some college	62	22	57	13	60	18
Graduation	70	28	76	27	73	27
<i>Place of Residence</i>						
Metro City	-	-	73	16	73	16
Other Urban	-	-	73	22	73	22
Developed Village	76	45	-	-	76	45
Less Developed Village	78	41	-	-	78	41
<i>Income</i>						
Lowest Quintile	80	43	76	25	79	41
2nd Quintile	78	42	79	22	78	38
3rd Quintile	76	43	76	22	76	36
4th Quintile	75	44	73	20	74	34
Highest Quintile	73	42	69	19	71	30
<i>Social Group</i>						
Forward Caste	73	34	71	17	72	27
OBC	75	45	73	23	75	39
Dalit	80	48	76	25	79	42
Adivasi	81	55	71	32	80	52
Muslim	78	27	75	15	77	22
Other Religion	68	34	72	26	70	29

Source: Author's calculation from IHDS data 2011-12

Table: A.3

**Participation of Rural Women under MGNREGS
with Respect to Socio-Economic Factors
(Wealth quintile: 40%, Age: 15-59 years)**

<i>Categories</i>	<i>Overall MGNREGS Participation (%)</i>		<i>Intra-MGNREGS Participation (%)</i>	
	<i>Advanced States</i>	<i>Backward States</i>	<i>Advanced States</i>	<i>Backward States</i>
<i>Caste</i>				
General	15.81	7.88	22.99	6.55
OBC	15.55	12.79	17.87	43.74
SC	23.98	20.47	45.55	33.55
ST	21.14	14.94	13.42	16.16
Other	1.91	NA	0.18	NA
<i>Religion</i>				
Hindu	20.46	15.10	77.62	92.02
Muslim	12.54	8.45	14.62	5.45
Other	27.30	10.80	7.75	2.53
<i>Education</i>				
Illiterate	21.48	15.02	49.13	57.82
Up to Primary(5 th)	18.03	17.64	17.7	18.18
5 th -10 th	17.40	12.39	27.92	20.44
10 th -12 th	15.05	7.99	3.78	2.51
College & above	11.89	7.53	1.25	0.91
<i>Poverty</i>				
Poor	22.67	16.16	50.18	49.93
Non-Poor	16.47	12.88	49.82	50.07
<i>Land Holding</i>				
No land	19	11	52	23
Marginal	31	17	18	33
Small	13	21	16	20
Semi-Medium	36	15	2	10
Medium	41	9	2	3
Large	18	11	10	12

Source: Author's calculation from IHDS data 2011-12

Table: A.4
Logit Model: Dependent Variable – MGNREGS Participation (Age 15-59 Yrs)

<i>Independent Variables</i>	β	<i>S.E.</i>
state_hdi		
Advanced States®	-	-
Backward States	-0.453***	0.067
_caste		
General®	-	-
OBC	0.073	0.093
SC	0.420***	0.103
ST	0.203	0.127
Other	0.483	0.261
_religion		
Hindu®	-	-
Muslim	-0.371**	0.127
Other	0.395*	0.184
_edu		
Illiterate®	-	-
Up to Primary	-0.174*	0.086
Primary- Secondary	-0.337***	0.089
Secondary-Higher Sec.	-0.745***	0.189
College and Above	-0.982***	0.281
_wq		
Poorest®	-	-
Poor	0.294*	0.131
Middle	0.349*	0.138
Rich	0.287*	0.144
Richer	0.207	0.166
land_owned		
No®	-	-
Yes	0.306***	0.078
_poor		
Non-Poor®	-	-
Poor	0.550***	0.130
soc_Bound		
No®	-	-
Yes	-0.005	0.165
fin_auto		
No®	-	-
Yes	0.347*	0.138
say_dec		
No®	-	-
Yes	0.434***	0.065
main_inc		

<i>Independent Variables</i>	β	<i>S.E.</i>
Cultivation®	-	-
Allied Agriculture	0.590*	0.300
Agri. wage labour	0.131	0.100
Non-Agri. wage labour	0.315***	0.088
Artisan/Independent	-0.849**	0.315
Petty shop	-0.641***	0.159
Organized Business	-1.179*	0.595
Salaried	-0.703***	0.131
Profession	-2.134*	1.016
Pension/Rent etc.	-0.776*	0.309
Others	-1.233***	0.273
_constant	-2.629	0.0271

Source: Author's calculation from IHDS-II data 2011-12 Note: *p < .05. **p < .01. ***p < .001

Total number of observations (women): 17914; Log Pseudo-likelihood = -48170659; Pseudo R2 = 0.0592

Table A.5
Net Empowerment Increment Due to Women Participation in MGNREGS
(Wealth Quintile: 40%, Age: 15-59 Yrs)

<i>State Category</i>	<i>Participant (%)</i>		<i>Non-Participant (%)</i>		<i>Total Change (From 2004-05 to 2011-12)</i>		<i>Increment in Empowered women via MGNREGS (%)</i>
	<i>2004-05</i>	<i>2011-12</i>	<i>2004-05</i>	<i>2011-12</i>	<i>Participant (%)</i>	<i>Non-Participant (%)</i>	
<i>Say in Decision Making*</i>							
Advanced	30.24	40.73	27.89	35.06	34.71	25.72	8.99
Backward	20.54	28.87	21.34	25.00	40.58	17.16	23.42
Total	24.05	33.17	23.18	27.82	37.90	20.05	17.85
<i>Financial Autonomy*</i>							
Advanced	92.23	95.16	81.05	91.88	3.17	13.36	-10.20
Backward	82.94	95.36	84.83	93.64	14.97	10.39	4.57
Total	86.31	95.28	83.76	93.15	10.40	11.20	-0.80
<i>Social Boundedness*</i>							
Advanced	86.34	92.06	91.26	92.12	6.63	0.94	5.69
Backward	98.81	99.17	97.94	98.53	0.37	0.60	-0.24
Total	94.29	96.60	96.07	96.73	2.44	0.69	1.75

Source: Author's calculation from IHDS panel data for eligible women (IHDS-I & II)

*The response for all three variable is 'yes'; Sample size= 7504 observations

Can Technology alone Empower Women? A Study of Impact of Mobile Phone Technology on Women in SEWA

Kimsi Sonkar*

With the extent of mobile phone penetration in India and the usage of mobile phone apps technology, its impact on women's empowerment needs a nuanced study. Can technology empower women? Can it alone empower women? These are some of the questions looked into by this article. Women called Rudiben in Self Employed Women's Association (SEWA) using a mobile phone with the software named Rudi Sandesh Vyavhar (RSV) have been interviewed in Anand and Mehsana district of Gujarat. Drawing on Naila Kabeer's conceptualisation of women's empowerment, and using Kabeer's three component 'resource', 'agency' and 'achievement' for the measurement of empowerment, this article provides the bottom-up meaning of the term. The article investigates empowerment of women through the lifeworld of the Rudiben and her association with SEWA as an alternative form of association different from the familial association. I argue that using the enabling environment which the 'alternative association' of SEWA provides, women transform the 'associational resource of SEWA membership into an 'associational asset' through which they increase their income and decision-making power in their household, market and society. It is found that mobile phone usage by Rudiben, when mediated through SEWA, led to their empowerment which they define as the 'ability to do anything they want to and become whoever they want to be', particularly when they worked in a heterogeneous setting of SEWA than simply a homogeneous or the familial one.

Keywords: *Technology, Empowerment, SEWA, Information and communication technology (ICT), Associational asset, Non-familial association*

I. INTRODUCTION

"Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women."

—Sustainable Development Goals (Goal 5)

The 2030 Agenda of the United Nations for Sustainable Development mentions seventeen Sustainable Development Goals. The goal number 5 on achieving gender equality and empowering all women and girls has this sub-goal which envisions enhancing the use of enabling technology, in particular information and communications technology, to promote the empowerment of women (Kutesa, 2015:15). Underlying this goal is an assumption that technology is the necessary and sufficient condition to empower

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women. But, can access to technology and its use necessarily empower women? And, more importantly, can it be the sufficient condition to empower women?

Among the technologies which make the dissemination of information and communication convenient, mobile phone apps technology has become one of the commonly used ones. In India, as per the Telecom Regulatory Authority of India (TRAI), mobile phone users have crossed the one billion subscribers mark (TRAI, 2017). To study the impact¹ of technology on women using the case study of women associated with the Self Employed Women's Association (SEWA), I have tried to find the answer to the questions posed above. The subjects of the study are women called RUDI Bens. They are called RUDI Bens because of their being members of SEWA's Rural-Urban Distribution Network Multi Trading Company Limited (RUDI MTCL also further referred to as RMTCL).

II. WOMEN EMPOWERMENT: CONCEPTUAL EXPLANATION

For the present study, I have interpreted the concept of empowerment in broad terms based on Naila Kabeer's work which is as follows: women's empowerment is a process of change in women's consciousness from having a sense of dependency to having the agency of belief in her own capability to take strategic decisions on her own life, and to negotiate and redistribute this capability on a democratic basis in relationship with others helping build a social identity of her own and a sense of her self-worth (Kabeer, 2010:106). Thus, women empowerment is not a status to be accorded to women but an 'ongoing process' which continues until it diminishes the power hierarchies operating in the society in which she lives and rearranges it on egalitarian terms.

The 'unit of explanation' or the root concept of 'empowerment' is 'power'. 'Power' as defined variously across disciplines, is here taken in its positive connotation. By this, I mean that the word 'power' is unlike its negative connotation inhering in 'power over'²; rather there is necessarily a positive connotation which approaches the meaning of 'power within' as explained by Rowlands (Rowlands, 1997:13). However, the above definition of women's empowerment which is philosophically relevant is of little use for empirical investigation.

Kabeer while discussing the shifts in power relation between men and women brings out the relational nature of empowerment vis-à-vis the understanding of their self (Kabeer, 2003:172). Further, Kabeer and Huq, emphasize relationships between two humans as a vital factor in efforts to support women empowerment (Kabeer and Huq, 2014:79). They studied the microcredit program in which women were brought together, and where group discussions, training, and cultural activities were held. They argue that this helped in developing 'sisterhood' which helped in achieving tangible gains like an increase in income, and intangible gains like positive shifts in

self-esteem and confidence. I have tried to look at this aspect in my empirical work on women empowerment.

III. FRAMEWORK FOR MEASUREMENT

To understand how women empowerment varies vis-à-vis development – of humans, unequal or not; of gender, unequal or not, and empowered or not – I studied the measures formulated mainly by the development aid agencies, like the United Nations Development Programme. Primarily, I mean Human Development Index, the Inequality-adjusted Human Development Index, Gender Development Index, Gender Inequality Index, and Gender Empowerment Index (Jahan, 2016) analytically and empirically grounded discussions of major development issues, trends and policies. Additional resources related to the 2016 Human Development Report can be found online at <http://hdr.undp.org>, including digital versions of the Report and translations of the overview in more than 20 languages, an interactive web version of the Report, a set of background papers and think pieces commissioned for the Report, interactive maps and databases of human development indicators, full explanations of the sources and methodologies used in the Report's composite indices, country profiles and other background materials as well as previous global, regional and national Human Development Reports. The 2016 Report and the best of Human Development Report Office content, including publications, data, HDI rankings and related information can also be accessed on Apple iOS and Android smartphones via a new and easy to use mobile app. The cover reflects the basic message that human development is for everyone in the human development journey no one can be left out. Using an abstract approach, the cover conveys three fundamental points. First, the upward moving waves in blue and whites represent the road ahead that humanity has to cover to ensure universal human development. The different curvature of the waves alerts us that some paths will be more difficult and sailing along those paths will not be easy, but multiple options are open. Second, in this journey some people will be ahead, but some will be lagging behind. Those lagging behind will need helping hands from those who are ahead. The gestures of the two hands reflect that spirit of human solidarity. Third, the two colours green and blue and the hands at the top convey that universal human development requires a balance among planet, peace and people.

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measures somewhere provide a non-circumspective, unilateral intervention as far as the empowerment of women is concerned. That is to say that the underlying argument is in favour of providing women with tools that help in trade, like technology, credit facility and the like, and these measures see them empowered. But this is a parochial and narrow interpretation of the meaning of the term, that is, where the gains include economic empowerment only. However, only economic empowerment is not what empowerment in its full-fledged meaning conveys. So, I set forth my research work with the question: what is women's empowerment, and can technology – by itself – empower women?

For this, I had to use a framework for measuring women empowerment. But the definition with which I started my research work didn't provide measurable creativity indicators. The research question is: 'Can technology empower women?', and this question required technology as a variable to be studied. Since, Kabeer provides a framework for measuring empowerment with the help of three interrelated concepts, namely 'resource', 'agency', and 'achievement' (Kabeer, 1999:437), they are explained as under:

1. Resource

According to Kabeer, a resource has a much bigger connotation than that provided by an intuitive understanding of its material use. It is the total valuables acquired through one's labour, and by way of social relationships in family, community, and market. These resources are not only 'accessible' to the subject under study, but they can make 'future ownership claims' over it. The first component 'resource' that inheres in labour is, thus, something of monetary value, whether converted into money or having the possibility of conversion into it. It is different from 'asset' as conceptualized in this study to be something of economic value which forms the basis on which the subject under study can claim certain future benefits too. For the study, based on the literature review, I have classified resources into five categories namely, associational, material, human, information and financial resources.

Under Associational Resource, the familial and community level association of women are assessed. It is well established that individual traits of behaviour, whether acquired or learned, are a result of the various associations formed by individuals participating in or congregating for various events. The socialization which has taken place because of the interaction among the individuals concerned, the association they were or are part of, and its elements hone the traits and attitude of the individual. The section would also reveal the alternative socialization other than the familial³ one (Kabeer, 2011:503). This alternative socialization is in the form of women taking membership of any organisation functioning in the society other than that founded

on familial ties. I have taken that organisation to be SEWA (Self-Employed Women's Association).

The Material Resource has tangible physical attributes and can deal with the property like land, house, jewellery, motorized two or four wheelers and animals reared, which RUDI Bens have either inherited or purchased. Human Resource deals with skills acquired through the formal and functional literacy programmes and also the health conditions measured by the absence of any disease. Informational Resource assesses the connectivity and information gathering sources. Financial Resource assesses the total income and credit available to the household of the subject under study.

2. Agency

For Kabeer, the agency is 'decision-making process'. This decision-making process is related to 'positive' and 'negative' power. Kabeer, drawing on Rowland's conceptualization of power, considers 'power within' as equivalent to individual's capacity to reach outward from the inward-looking, self-seeking persona, while 'power over' signifies the individual's control over resources and other individuals' decisions (Kabeer, 1999).

3. Achievement

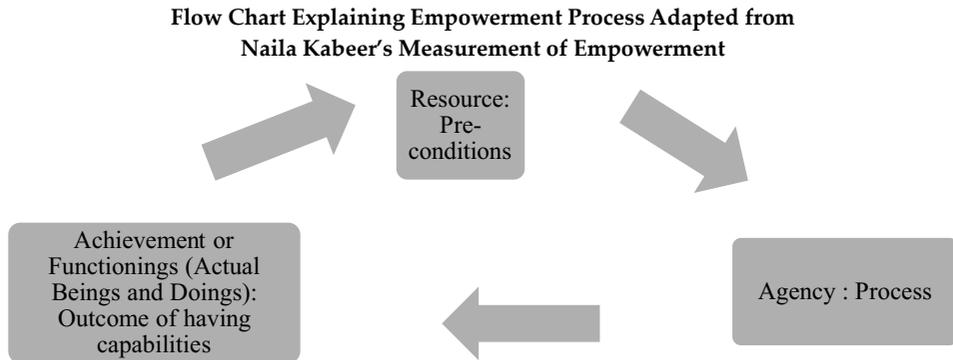
The last component of empowerment, as per Kabeer's framework, is 'achievement'. As already discussed, empowerment is not conceptualized as a 'static concept' but as 'an ongoing process', and this component assesses to what extent women exercise their ability to make choices in those areas which were previously denied to them.

I have divided the achievement component into five broad categories, and they are as follows:

- Expenditure on self and women's ownership of assets, like land and/or property
- Change in household decision making power
- Change in the perception towards their role, first as the individual, then as the participatory being at the household and community level, and their female offspring,
- Change in their perception about their leadership position

Through the above-mentioned categories, which build on the previous components of empowerment namely 'resource' and 'agency', an attempt is made to provide a direct measurement of empowerment. The achievement components of women empowerment include "well-being outcomes" of the decisions taken by women (Kabeer, 1999:437).

Figure 1



Source: Kabeer, 1999:437

Adapting Kabeer's explanation of the process of empowerment, I see the process in a continuum as explained in the figure above. Empowerment is both an end and a means to an end. By this I mean to say that empowerment is time and space specific, something which is considered as empowering in a particular spatiotemporal context will not be taken so in another or may be taken a step further in the empowerment process. So, it is a cyclical process in which an empowering state acquired in a spatiotemporal context will be a groundwork for the other empowering status to be achieved. For example, attaining education can be empowering for women in a specific time period; however, after that, getting gainful employment will be another empowering status; and, still further, control over the decisions about her life is a step further than the previous stage of empowerment. One point to be noted, however, is that it is not a sequential, step-wise process; that is, many steps can be simultaneously achieved.

IV. A BRIEF DISCUSSION OF THE CASE STUDY

Mobile Phone penetration has crossed the one billion mark in India as per the Telecom Regulatory Authority of India (TRAI, 2017), and mobile phone apps technology is one of the most commonly used communication technologies nowadays. Since the research concerned assessing the social, economic and political impact of technology on the lives of women, mobile phone apps technology was selected for study. The technology which I selected for the study was used by women working in SEWA in the state of Gujarat. They were selected for the study because they were not only using mobile phones for personal communication but also for their business activities.

Self-Employed Women's Association (SEWA) is a union of self-employed rural women. SEWA as an organization began by Ella Bhatt, a lawyer working on labour issues since 1972. It is based in Ahmedabad in Gujarat. SEWA has the goal of organizing

women to create a sense of sisterhood and make them self-reliant. Membership is for any woman who is eighteen years or above. The members are called 'Sewaben'. They have to become members compulsorily of Self-Help Groups operating under the SEWA. The representatives are elected from among the Sewabens every three years. The leadership positions are held by 'Aagewaans' and 'Pratinidhees', elected from the Sewabens.

RUDI Multi Trading Company Limited (RMTCL), a trading company, was established in 2006, and it processes, packages and markets agro-commodities in which rural women are involved. SEWA Gram Mahila Haat (SGMH) is a sister organization of SEWA to provide human resource assistance in the marketing of products of RMCTL. Rudi Sandesh Vyavhar (RSV) is an initiative of SGMH in association with Cherie Blair Foundation for Women and Vodafone Foundation. RSV is a software application pre-installed on a simple Nokia handset to manage inventory, sales, cash payment and dues from customers of Rudi products. The application is customised for and made user-friendly for semi-literate rural women.

The Rudibens, who are members of SGMH and users of RSV, are the subjects of this study. Selected from the Rudibens at the village level, they had among them some 'Aagewaan' and 'Pratinidi' as well. More than forty Rudibens were interviewed based on snowball sampling method. However, the responses of only thirty Rudibens were used for the study purpose, as these thirty Rudibens had a mobile phone and were members of RMCTL, while others were merely SEWA members or RMCTL Rudibens and non-mobile phone users.

A semi-structured interview schedule was prepared, and given sufficient scope to develop during the field work. The fieldwork was conducted in the districts of Anand and Mehsana as the Rudibens were actively working in these districts of Gujarat from March 28, 2016, till April 2, 2016.

V. VARIABLES

Empowerment to be studied here takes the independent variables as associational resource, age, educational qualification, the area of residence, family type and number of members, and occupation as the source of livelihood earning. The 'intervening variable' helps explain the relation between the independent variable and dependent variable and are defined as the monthly income of women, the ownership of land property, and ownership of the mobile phone. The dependent variable that is the phenomenon studied in this case is women's empowerment.

Hence, women's empowerment is measured through the creativity indicators having the three components namely, resource, agency, and achievement. The main component of 'agency' is in the form of a 'decision-making process', in which women

have taken part, and a decision is made based on the resource they have mentioned, where the outcome of that decision is taken to be the 'achievement'. There are certain proxies of empowerment which are the direct measure of empowerment like the women's having a restored, positive perception about their self; their improving sense of self-worth; their incremental power for taking decisions within the household, community, and market; their regaining of a positive perception about the girl child; their taking control over their income; and their initial grappling with political and leadership aspirations. The value of technology is analysed as having an impact on the women by measuring technology usage, perception about any new technology, and the impact of mobile phone application RSV on their income. Using the above-described framework of empowerment, I have studied the variables.

VI. ASSUMPTION AND CONCEPTS IN MEASUREMENT

The assumption made here is that the values of an egalitarian society form the part of the empowerment process. Hence, those egalitarian values find an outlet through the subjects' making choices and are taken to be part of the empowerment process.

There are two concepts, namely, 'autonomy' and 'affiliation', which were explored in this research. Through this study, I have explored the universal claims made by feminists on 'autonomy' being a vital part of the empowerment process. On the contrary, the 'affiliation' aspect of empowerment was researched to assess whether the subjects under study differentiate between these two as two different arms of the body of empowerment and how far do they shape the women's understanding of empowerment. The values of an egalitarian and a hierarchical society as reflected in their having made choices were studied with specific reference to both 'affiliation' and 'autonomy'. The second conceptual hurdle related to the measurement is the difference between the 'actual choice' and the 'potential choice'. Simply having access to a resource, i.e. 'potential choice' which is taken to be less empowering than the 'actual choice' which is made using their access to the resources to help achieve a particular outcome which is therefore reflected in their responses.

VII. FINDINGS AND OBSERVATIONS

In surveys conducted by Groupe Spéciale Mobile Association (GSMA) Intelligence in 23 low- and middle-income countries, it was found out that even when women own a mobile phone, they were generally less likely than men to use more transformational services thereby preventing them from reaping the full benefits of the technology (Rowntree, 2018:10). The present study shows, that contrary to the conclusions of the above study, for the Rudibens, there were benefits of using mobile phones when pre-installed with the application Rudi Sandesh Vyavhar (RSV), like ease in maintaining and accessing the sales records, catching up with the amount due from

each customers, optimizing efforts with reduction in travelling time and cost, finding opportunities of expansion of business activities and the network, finding networking opportunities by trust building among the Rudibens and their customers, and finding opportunities for skills building as digital literacy level increased among women. Since the women under the study had as their primary occupation their livelihood tied to SEWA, and they were using the RSV application only along with the mobile phone in their business activities, it could be established that this combination of events led to a positive impact on their income. On similar lines as Rowntree, I have found that the fact simply of ownership of mobile phone did not result in transformational usage by women. Rather, all these benefits accrued on account of SEWA's membership (what I call 'associational asset'- to be discussed in detail in later part of the article) having been translated into women's increased income (which is the intervening variable) which, in turn, resulted in theirs having greater financial autonomy.

1. Profile of the Interviewees

Most of the Rudibens were married at or married below the age of eighteen. Since the majority of Rudibens were in the age group of 40-50 years, and while they were members of SEWA for more than ten years, it can be said that their connection with business started only after marriage when they decided to engage themselves in economic activities. They had by then negotiated their way out of the four walls of their house to either run their family entirely on their own or complement their family income. In either case, they seem to be reclaiming their (earlier denied) ability to earn for themselves and for the person(s) related to them.

Speaking of education, most of the women received formal schooling in government schools meant for girls. During the course of the study, it was found that the average class attended by the women was class eight. The outliers in education were mainly higher secondary and graduation levels as very few had received higher secondary schooling. And, further, only two were found having a graduate degree. Mostly, Rudibens lived in the village and, barring a few, most were well connected with transportation facilities.

The membership of SEWA came to happen with the majority of the women mostly due to the information shared through familial or neighborhoods relationships. Before joining SEWA, most were agricultural labourers with a few having experience of organised work environment in a factory. After joining SEWA, the majority of the women had their main occupation related to SEWA and RUDI. The majority had received training which I have categorized into basic training, higher and technology-related trainings in SEWA.⁴ The ones who were at the managerial or leadership position, and were technology-friendly, had worked not only in the homogeneous

setting of SEWA where only women were involved in activities of the organisation, but also in the heterogeneous work settings, that is, where men and women both were involved.

2. Major Findings

The following is the discussion on the major findings of the study, conducted on the Rudibens:

Economic Visibility and Autonomy in Financial Matters

The majority of women decided to work before they thought of becoming members of SEWA, but the work that happened before SEWA was economically invisible. Without any form of accounting for their contribution, these women were mostly agricultural labourers on other people's land and, therefore, unrecognized and unvalued. The association of women with SEWA and the training they received enhanced their skills. Those women who had received training at the higher level, and the technology-related training, were members of SEWA for more than a decade, and were the main bread-earners in the family, who had diversified into other business activities and were using a mobile phone in many different ways. The Rudibens who received both higher level and technology-related training had the claim to higher monthly income as compared to the ones who had received basic-level training only.

One Rudiben who has worked in a factory before joining SEWA and is a '*Pratinidhi*' currently (Managerial Position in SEWA) says, "I was working in a tobacco factory where I used to get less and often irregular income. I was helped by SEWA in getting my outstanding wages from the factory employer. I thought when SEWA is doing such good work why not join the organisation. I realized that here in SEWA I am getting more than what I used to get in the factory with a lot of struggle. I feel SEWA is good for women and gives employment which is good for all even for the development of my village" (Interview, Anand, 02 April 2016). The responses like this show that the women who have worked in a heterogeneous work setting after being associated with SEWA, are making themselves economically visible and claiming the leadership position.

The Rudibens in the higher age group earned a higher monthly income than did the others of younger age. But the Rudibens who had educational qualification of more than higher-secondary level were on an equal footing regarding monthly income despite being in the younger age group. It is hence noted that associational resource of SEWA is positively related to the economic visibility of the women in the same way as the educational qualification is to economic visibility. One Rudiben who is a graduate and has been associated with SEWA for more than a decade says, "I am confident in using a Smartphone and going online and selling Rudi products" (Interview, Mehsana, 30 March 2016).

Further, women with higher economic visibility were usually from the nuclear family type or having their own joint family in which women formed either the head of the family or the main bread earner and/or major contributor in the family income. This assumption of a primary role in the family shows that the women were negotiating their role as head of the family through economic means.

The Rudibens noted that, after becoming SEWA members, they decided to save from their monthly income. Most of the Rudibens reported that they spent very little on themselves and mostly on household expenditures; however, this had an incremental trend with this same response being reported more as the age of the respondent increased. But the Rudibens, in general, considered their needs equal to any male member in their family. One Rudiben says, "I spent all my income on my family, whatever they need I bring for them. I don't buy much for myself other than saree" (Interview, Mehsana, 1 April 2016). This giving up of personal pleasures for the family, however, shows the importance they attached to familial affiliations.

The Rudibens invested their higher income earned by using RSV into other businesses like floriculture and its marketing, the weaving of cloth, coloring, design printing and marketing. This diversification of investments showed their financial autonomy. One Rudiben says, "I have diversified my income by using the extra income earned using a mobile phone. I use a mobile phone in my floriculture. I have a mobile phone now with which I can talk to the businessman and send my parcel to him" (Interview, Anand, 02 April 2016).

Managerial and Leadership Positions in Work Setting

The Rudibens in the higher age group who were mostly the eldest member in the Joint family type, with longer SEWA affiliation and/or higher educational qualification, were also the ones who presided in the managerial positions in SEWA like '*Aagewaan*' or '*Pratinidhis*'. Here, it was also found that those women who lacked the credentials of much higher qualification, but who were associated with SEWA for a longer time period, and had had all the three types of training, were also the ones who were working in a managerial or a leadership position. These women were the ones who had a heterogeneous work setting as they not only worked with other Sewabens but also with men in the usual managerial proceedings and business-related activities. Speaking of the rural vis-à-vis urban women's take on their career, the women belonging to rural areas were more keen in having aspirations of reaching a managerial position than were the women working in the urban areas. The city dwellers saw a managerial position as joined with increased responsibilities, while the majority of women from rural areas saw it as an opportunity to learn, earn a higher income and make their social identity and gain respect. One Rudiben, a resident of a village who did not

attend formal schooling beyond class five, says, "I have been in a leadership position in SEWA for quite a sometime and even wanted to contest elections, but the child norm didn't permit me to do so. I even went abroad to represent SEWA by airplane (said with an enormous sense of achievement)" (Interview, Mehsana, 30 March 2016). Another Rudiben says, "I feel I have gained respect in society. Earlier, I was within the confines of the four walls of my house. People used to feel I know nothing. Ever since I joined SEWA and started selling products using a mobile phone and boarded on aeroplane everyone says, you have moved ahead of us in life so much" (Interview, Mehsana, 01 April 2016). This confidence in their ownself shows that women particularly those who had been denied their ability to make strategic life choices like attending formal education, considered their affiliation with SEWA empowering and hence as a step forward in their empowerment process, with theirs even wanting to contest elections to become representatives of their local governing bodies.

Sense of Self-consciousness and Self-worth

The Rudibens reported having had greater confidence in their own self in spite of not being highly educated due to the consciousness gained from being associated with SEWA. They reported having greater confidence in spite of not being highly educated due to the consciousness gained by being associated with SEWA. They began to see the alternative ways in which a decision could be arrived keeping their interest at par with other male members in the family, community, market or larger society. One Rudiben says, "I purchase for myself whatever I need mostly cosmetic products and sarees" (Interview, Mehsana, 01 April 2016). Thus, the economic visibility gained through accountability in what they are doing, technological and communication skill acquired through mobile phone ownership and its frequent usage led to increased monthly income which in turn led to greater participation in the family decision-making process and improved comparative say vis-à-vis others in the community. The exposure to more heterogeneous work setting by holding managerial or leadership positions made them aware of their self-worth. This self-worth translated into an awareness where they questioned various relationships in the familial, community or market setting, for example, they started to question why land ownership should be in the name of men only. One Rudiben says, "Everything is after man's name namely, house, children, land if women contribute in making of all of these why these should not be named after them?" (Interview, Anand, 02 April 2016). The critical consciousness of such sort is the bedrock of women empowerment as conceptualized in the study. Such responses show that women were empowered neither because of the credit facility which they got from SHG nor even because of the technology but because of the 'alternative association' in the form of SEWA.

Participation in Household Decisions

Mostly those Rudibens, who were members of SEWA for long periods and/or were educated (more than the average class eight), whether living in rural or urban areas, with theirs having increased monthly income due to diversification of their economic activities and usage of mobile phone for building networks, has had greater participation in the household decision-making process. Almost half of them took decisions in an egalitarian manner with theirs having had active involvement in the decision-making process along-with the male members of the family. Some Rudibens even reported that after joining SEWA their word is taken as the final word. Technology like mobile phone apps running on mobile devices helped them in managing their time and increasing their income from higher sales as much from technology awareness. Technology – apps and internet – also helped in getting them the information required to get to a particular decision acceptable by male members as being rational.

Majority of the Rudibens reported the dual-burden of household work and business. However, a positive change in the perception of their family members towards them was seen as the women could count on their help. Though, in this situation also, female members were more supportive than the male members. One Rudiben says, “My husband says let me clean and cut the vegetable while you are making other preparation for cooking.” While another says, “When I am late from work, my son and husband cook the dinner” (Telephonic Interview, Mehsana, 03 June 2016).

Social Identity and Associational Affiliation

The Rudibens reported that their work with SEWA had raised their social status and contributed to strengthening their individual identity within their community. Most of the Rudibens reported that people think that they can be of some help, either financially or information-wise, to the women. Most of them report that the mobile phone has helped them in increasing their monthly income and also helped them to be more socially available and connected than before. They have experienced much confidence than before when they didn't have the mobile to now when they do due to their ability to connect with their natal family. One Rudiben says, “Earlier it took a long time to visit my natal family. Now I can talk to my mother over the phone and seek her advice” (Telephonic Interview, Mehsana, 03 June 2016). While another says, “Earlier my community people used to say how poor I am that I do not have a mobile phone. But now I own one and even have helped them in their times of need” (Interview, Anand, 02 April 2016). This affinity towards community shows that mobile phones have helped women in acquiring a positive social identity and helping maintain associational ties with their natal family. But, as shown earlier, their confidence to even

use a mobile phone on their own, were imbibed from their association with SEWA.

Empowering the Collectives

Most of the Rudibens reported that after becoming SEWA members, they saw the strength women have in 'a collective,' and they realized that they could do anything and no one can stop them from doing so. One Rudiben says, "Woman can on her own earn, spend and save. She has the capability to decide for herself. I do not need to ask anyone what I should do"(Interview, Anand 02 April 2016).

With the association of SEWA and increased income, the Rudibens of all age groups and educational qualifications reported having experienced changes in their attitude towards their female offspring as they began to have positive thoughts about educating them and making them economically independent. The average marriage age of their daughters was much higher than the average age at which they were married. They even involved their daughters in the work of SEWA from the very beginning (nearly after attaining eighteen years of age). However, those Rudibens who were in managerial or leadership positions, when they saved for their daughters, their aim was higher than only getting their daughters married.

3. Main argument

The relative economic autonomy which the Rudibens reported they had achieved through the use of the mobile phone is much dependent on the 'associational asset' of SEWA membership. As the responses of a few of the women show, the women who were users of a mobile phone but not currently members of SEWA acquired limited mobility only for the purpose of communication. But the women who were SEWA members took this enhanced mobility a step further to a higher level of their consciousness, of theirs having agency and challenging the institutionalized inequalities, which made up their present gendered realities.

The factors responsible for the financial autonomy and increased self-worth attained by the women under study was the result of increased monthly income via mobile phone app technology usage but not so much as the 'associational asset' which was the result of the women enjoying being SEWA members.

4. Empowerment: A Misnomer Term?

Now moving back to the terminology of empowerment in the development lexicon, its current usage and meaning, was also assessed through this research work. The word empowerment in its process of evolution as a concept has acquired its meaning from contributors and users in the diverse field ranging from the development thinkers, feminist thinkers to management and education experts. This confluence of minds, Batliwala argues, has depleted the concept in the sense it was originally used. It has,

according to her, robbed the term of its meaning and led to its misuse or rather an abuse. Also, the term used differs as and when its context changes. She is highly critical of mainstream development discourse which has used 'empowerment' as a "magic bullet" in its policy documents and rendered it depoliticized and mechanical (Cornwall, 2014).

This work also included how women under study articulated empowerment. The word which they use to describe the meaning of the empowerment throws light on the root concept of it: that is 'power'. As one Rudiben says, "I am powerful now, I have been *Pramukh* (Village Head) once. Earlier I used to be afraid. When I was an agricultural labourer, I could not sit on a chair in front of my employer. When I joined SEWA and received training, then I realized that women have the power of Goddess Durga. Then, I also gained power, and now I fear nothing" (Interview, Anand, 02 April 2016).

While another Rudiben says, "I have made my identity, I learn for myself. I constructed a house for myself that is why I feel I am empowered. By women empowerment, I understand that women can do anything" (Telephonic Interview, Mehsana, 03 June 2016). It's the responses like these that clearly show that empowerment has not lost its initial meaning with which it had developed from a nascent sense. It is clear that in their narrative, women describing their condition use it in the same sense of defiance of the oppression encountered and getting what was previously denied to them.

VIII. CONCLUSION

As depicted by the above discussion, it is clear that in a hierarchical society, 'absolute autonomy' in decision-making in empowerment is neither possible nor desirable. This argument stems from the findings that the Rudiben's agency not only developed in 'absolute autonomy' which Krause calls, "sovereign" (Krause, 2011:108), but evolves through associations both familial and non-familial ones, like the one within SEWA. The 'alternative association', or, the one which is other than the association one gets by his or her birth, plays an important role in raising the consciousness level of ones who are the subject of the empowerment process. As argued by some feminist thinkers like Sharon Krause, this work also "contests the old assumption that agency equals autonomy" and makes room "within the agency for forms of subjectivity and action that are 'nonsovereign' but potent" (Krause, 2011:108). As in the present case study, the Rudibens articulated empowerment as "freedom to be as they want them to be", yet they never claim that they want autonomy in an absolute sense as a feminist would argue. Their responses show the particular mixture of autonomy and relatedness which I put as 'associational asset' and which is part of their empowerment process. This asset plays a major role in empowering the women in a sense they articulate

empowerment to be, rather than its being a mere application of technology or any other tool. They use technology also to strengthen the 'associational asset' (in this case membership of SEWA). In a patriarchal society, women studied reported that being connected with their in-laws and natal families was possible with the usage of cellular phone technology and gave them a sense of 'power with'. This 'power with' helped them to raise their consciousness and paved the way for 'power to' and finally to understand their self-worth and assert it in various ways through the decisions they took in their lives to get the 'power within'. This consciousness of 'power within' is more when women have a heterogeneous alternative association than simply a homogeneous one.

Finally, coming back to the question which I posed in the beginning: 'Can technology alone empower women?', it is clear that technology, that is, mobile phone apps technology, is a necessary but not a sufficient condition for women's empowerment as most of the narratives show by its comingling with the women's involvement with the 'associational asset' of SEWA. Hence, it can be said that technology alone cannot empower women. Presence of an enabling environment in the form of an 'associational asset' is one such condition which is required other than only technology for women's empowerment.

Notes

1. The impact study terminology has not been used in the conventional impact study sense which is used for studying the impact of any law or policy implemented. Rather it is used to study the effect mobile phone apps technology usage has on the decision making by the women in SEWA.
2. According to Jo Rowland, 'power over' means the ability to influence and coerce. The 'power' in 'power over' is used to denote negative connotation. While the 'power to' meaning concerns the individual's ability to organize and bring about change in existing hierarchies; 'power with' meaning concerns the ability derived by being part of any collective or group; 'power within' meaning deals with the ability to have a consciousness about oneself and is positive in connotation.
3. The relationship which persons are involved in the family in which either they are born or in which they are married to is referred to as familial relationship.
4. For the present study I divided the whole of the training received in SEWA by Rudibens into four categories namely basic training, higher and technology-related trainings. In the basic level, there were membership related trainings; in the higher level, special task-related and managerial related training; while in technology-related training, using a mobile phone, computer and RSV were included.

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Social Identity as Determinants to Access Maternal Health Services in Uttar Pradesh, India

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Reduction in maternal mortality is one of UNDP's important Sustainable Development Goals. India alone has a share of almost one-fifth of the world's maternal deaths. Within India, Uttar Pradesh continues to be highest in maternal deaths. Despite unavailability of data on maternal deaths in India, it is evident from proxy indicators on mother's wellbeing that women belonging to lower caste are more vulnerable to maternal deaths than are women of higher caste. Several studies are available on the causes of poor accessibility to maternal health services, but there is a paucity of studies focusing on caste (social identity) as a hindrance to access to maternal health services. Keeping in view the backdrop, the present paper attempts to study the accessibility of maternal health services by different social groups controlling their education and wealth position. The study uses data from the National Family Health Survey-3. The unit of analysis is the women who had home-based child delivery. The dependent variable is the visits made by any health personnel to women who had home-based child delivery. Binary Logistic Regression analysis revealed that after controlling wealth and education, women from scheduled caste category were more than two times less likely to be visited by health workers compared to that for higher caste women. Similarly, educated women of scheduled caste had lower accessibility to health services than did the educated women of the higher caste. Findings suggest that the social identity of a woman is playing a crucial role in or rising over economic and education variables as determinants in accessing maternal health services. This may have a serious implication on the implementation of several maternal health policies in India.

Keywords: *Sustainable development goals, Maternal mortality, Home delivery, Social identity, Health care access, Health policies*

I. INTRODUCTION

As any public health-related indicators will say, the startling disparity between developed and developing countries has been noted for maternal deaths. Taking a serious note of the impact of maternal deaths on overall development, UNDP's call for a 70 per cent reduction in maternal mortality has been adopted as one of the important targets under the Sustainable Development Goals to be achieved by 2030. The recent

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estimates published by World Health Organization (2015) reveal that India alone has a share of almost one-fifth of the world's total maternal deaths of 303, 000 which highlights India's gloomy take on maternal health indicators globally. To address the issue of languishing maternal health, the prerequisite is to have direct data on maternal mortality vis-a-vis background characteristics of mothers. However, unfortunately, data on maternal mortality, as needed, is not available in India. Due to the lack of data and the corresponding absence of a regular and systematic process for monitoring, the identification of mothers for the intervention in such a populous country becomes a difficult task. But, data is available in the National Family Health Surveys on other indicators of maternal health, such as antenatal care (ANC), institutional delivery, postnatal care, anaemia, and nutrition, among others. These indirect data are continually used in predicting the likelihoods of maternal mortality incidences. If these indicators are to be considered as proxy data for maternal mortality, then available data suggest that the incidence of maternal mortality is higher among the women belonging to the Scheduled Castes (Lowest order in caste category) than it is for the women belonging to the Other Caste (Highest order in caste category). This phenomenon is reflected in all four rounds of data of the National Family Health Surveys.

Several studies have been carried out on the subject of why is it that women do not have access or have less access to maternal health services when they are in urgent need of it, that is, during the time of delivery to post-delivery period. Such studies have come out with some important determinants of accessibility to maternal health services. Some of the important determinants are the type of households (Saikia & Singh, 2009), economic status of the household (Kesterton et al., 2010; Pathak PK et al., 2010; Mohanty SK and Pathak PK, 2009; Ladusingh L and Singh CH, 2007, Das NP et al., 2001) health care programmes (Sunil et al., 2006, Navaneetham & Dharmalingam, 2002), provision of ANC services (Ram and Singh, 2006; Pallikadavath S. et al., 2004), availability of health services (Stephenson & Tsui, 2002 ; Kandel et al., 2004; Mohanty & Pathak, 2009) and physical accessibility (Gage, A. J., and Calixte, M. G., 2006; Wagle, R., et. al. 2004). Similar types of determinants have also been identified for maternal mortality.

However, how does women's social identity , her caste, in particular, which is an important feature of our caste-ridden society, affects the utilization of maternal health services has not been studied on its own merit.. The above mentioned studies, if at all caste is studied, is taken as one of the background variables which limits the scope to understand, indeed, the impact of social identity on accessibility to maternal health services. A few of the studies are available on caste and health care services which reported the issue of poor health equity (Barik D and Thorat A, 2015), greater disadvantage on maternal health indicators (Jungari S and Chauhan B Govind, 2017),

inequity in preventive health care (Balarajan et al, 2011) which were deduced as having an effect more on scheduled caste women than on the women of other caste. There is a paucity of studies which have dealt in detail the link between caste of the women and access to maternal health services. In view of the above backdrop, the present paper has made an attempt to examine whether the social identity of women determines accessibility to utilize maternal health services while controlling other socioeconomic variables.

II. DATA OF THE STUDY

The study is based on secondary level data of National Family Health Survey, (NFHS-III) 2005-06, India, which provides data on maternal and child health at national and state levels. Among all the states, Uttar Pradesh was chosen for the study, the reason being the highest maternal deaths in Uttar Pradesh and relatively poor maternal health indicators compared to other states (IIPS and Macro, 2007). The data analyzes the information of all women who had given birth in the last five years prior to the survey period.

Unit Level of Data

The analysis is based on those women who had delivered their last baby at home. It is evident from the report of NFHS-3 the percentage of deliveries assisted by health personnel was lowest in Uttar Pradesh (27.2 per cent) which means the majority of births are taking place at home without any health personnel assistance (IIPS and Macro, 2007). Therefore, the study has selected those women only who had delivery at home to analyze whether health personnel has made any visit to the mother after the post-delivery to assist to her health needs. So, a post-delivery visit by health personnel was a dependent variable. Binary logistic regression analysis was carried out for all women and separately for scheduled caste women and other caste women to examine the impact of each factor on the dependent variable. Data were analyzed in Statistical Package for the Social Sciences (SPSS) software.

Social Identity

The caste of the woman is taken up here as her social identity. In Indian society, people are categorized broadly into three categories, namely Scheduled Caste, Other Backward Class and the Others category. The hierarchy of the caste category in the order is Others caste, then, Other Backward Class and, last, Scheduled Caste, respectively.

III. RESULTS

Following are the results of this paper. It is evident from the Table 1 that the women who had given birth in the last five years, only 21 per cent of them had delivered baby

in the health facility and the remaining 79 per cent at home. The table highlights that the institutional delivery was more than two times fewer among women of Scheduled Caste (15 per cent) than it was for the women of Other caste category (32 per cent).

Table 1
Among women with a live birth in the five years preceding the survey, percentage distribution of different caste categories of women by place of delivery, Uttar Pradesh, 2005-06

<i>Caste Category of women</i>	<i>Place of delivery</i>		<i>Total Women</i>
	<i>Home Delivery</i>	<i>Institutional delivery</i>	
Scheduled caste	84.9	15.1	1961
Other backward class	80.8	19.2	3792
Others	68.4	31.6	1689
Total	79.1	20.9	7442

Table 2 reveals the percentage of women who received specific information on pregnancy complications from health providers during her antenatal care visit. It is evident from the table that for each case of pregnancy complication, women of Scheduled Caste category were less likely to receive such information than do the women of Other Caste category.

Table 2
Among women with a live birth in the five years preceding the survey who received antenatal care for the most recent live birth, percentage receiving information on specific signs of pregnancy complications, according to the caste of women, Uttar Pradesh, 2005-06

<i>Caste of Women</i>	<i>Alerted to pregnancy complication:</i>				<i>Total Women</i>
	<i>Vaginal bleeding</i>	<i>Convulsion</i>	<i>Prolonged labour</i>	<i>Told where to go for</i>	
Scheduled caste	4.0	5.5	6.8	15.9	750
Other backward classes	5.9	5.1	7.6	14.9	1693
Women from other caste	12.1	11.9	16.0	29.8	833
Total	6.9	6.9	9.5	18.9	3276

Women who had visited health dispensation centers for the antenatal care services during their most recent live birth were also asked about the specific health problems they faced during pregnancy period. It is clear from Table 3 that the reporting of having faced health problems during pregnancy was found to be higher among women of Scheduled Caste community than it is for women of Other caste category except where swelling was reported. One of the reasons for the high prevalence of difficulties during birth among Scheduled Caste women than that for the Other caste women could be that they were not adequately alerted or informed during their antenatal care visit by health providers about how to take care of themselves during problems related to pregnancy and what to do when faced with one (refer table 2).

Table 3
Women who had a live birth in the five years preceding the survey, percentage who experienced specific health problems during pregnancy for the most recent live birth, by residence, Uttar Pradesh, 2005-06

<i>Caste of Women</i>	<i>Had difficulties during pregnancy</i>				<i>Total Women</i>
	<i>Night blindness</i>	<i>Convulsion not fever</i>	<i>Swelling</i>	<i>Vaginal bleeding</i>	
Scheduled caste	15.0	11.1	25.2	2.5	1231
Other backward classes	10.4	13.4	21.5	2.7	2505
Other caste	7.5	12.5	22.6	5.9	1150
Total	10.9	12.6	22.7	3.4	4886

In continuation with difficulties faced during pregnancy, women were also asked for the problems faced in the first two months after the most recent delivery. Table 4 depicts that the reporting of having faced massive vaginal bleeding (9 per cent) and high fever (21 per cent) after the delivery was higher among Scheduled Caste women than it was for the Other caste women (7 per cent and 18 per cent respectively).

Table 4
Women who had a live birth in the five years preceding the survey, the percentage who had massive vaginal bleeding or very high fever at any time in the two months after the most recent delivery vis-à-vis the caste of women, Uttar Pradesh, 2005-06

<i>Caste of Women</i>	<i>In the first 2 months after birth: massive vaginal bleeding</i>		<i>Total Women</i>	<i>In the first 2 months after birth High fever</i>	
Scheduled caste	9.4	1231	20.7	1228	
Other backward classes	10.1	2510	17.9	2503	
Other caste	7.0	1150	17.8	1149	
Total	9.3	4891	18.6	4880	

There are several examples in the literature covered which strongly feel that the women who had delivered a baby at home were significantly more vulnerable to maternal deaths than were the women who had institutional delivery, as the chances of developing sepsis, post-partum hemorrhage, convulsions, among other ailments are high with home-based deliveries due to absence of appropriate medical help at home (Arora, Punita., 2005; Rawal, Asha., 2003). Therefore, post-delivery care becomes important for women to prevent them from maternal deaths.

It is clear from Table 1 that 79 per cent of women of Uttar Pradesh had delivered their most recent baby at home. National Family Health Survey-III had asked another question to all those women who had home-based delivery that whether any health

personnel had visited your household to check your health in the last two months after the delivery. The responses were analyzed and it was surprising to learn that only three per cent of women reported that their health was checked by health personnel within two months of delivery (Table 5).

Table 5

Women delivered a live birth in the five years preceding the survey, the percentage of women who had home delivery and received post-natal health check-up by any of health care providers for the last live birth, according to the caste of women, Uttar Pradesh, 2005-06

<i>Caste of Women</i>	<i>Delivery at home: Anyone checked respondent health</i>	<i>Total Women</i>
Scheduled caste	2.5	1661
Other backward classes	2.3	3052
Women from other caste	7.0	1154
Total	3.3	5867

More surprisingly, women belonging to the Scheduled Caste community were three times less likely to get access to post-natal services from health personnel compared to women of Other Caste category (7 per cent).

Further, the Table 6 depicts how the accessibility of post-natal services varies for women of different social categories by their education and economic status. It is evident from the Table that the receipt of post-delivery health services varies significantly between uneducated and educated women belonging to scheduled caste (2 per cent vs. 4 per cent); however the same did not vary between uneducated and educated women of Other caste category (7 per cent vs. 7 per cent) i.e. they have equal access to post-natal services.

Table 6

Women who delivered live baby in the five years preceding the survey, the percentage of women who had home delivery and received post natal health check-up by any of health care providers for the last live birth according to their education and economic status, Uttar Pradesh, 2005-06

	<i>Delivery at home: Anyone checked respondent health</i>	<i>Total</i>
<i>Educational Status of women</i>		
<i>Scheduled Caste Women</i>		
Uneducated	1.84	1304
Educated	4.19	358
<i>Women from OBC</i>		
Uneducated	1.98	2269
Educated	3.58	782
<i>Women from other caste</i>		

	<i>Delivery at home: Anyone checked respondent health</i>	<i>Total</i>
Uneducated	7.01	656
Educated	6.83	498
Economic Status of Women		
Scheduled Caste Women		
Poor	2.0	1248
Middle	2.6	234
Rich	5.0	180
Women from OBC		
Poor	1.9	1906
Middle	1.9	642
Rich	4.8	503
Women from other caste		
Poor	4.1	458
Middle	8.4	345
Rich	9.1	351
Total	3.3	5867

With regard to women's economic status as a determinant of accessibility to health services, there was almost no difference in accessing the post-natal services between the poor and the middle-class women of scheduled caste category (2 to 3 per cent respectively); however, access rises for rich women of the same community (5 per cent). However, in contrast to Scheduled Caste women, accessibility of post-natal health services does not vary between middle and rich class women (8 to 9 per cent respectively) belonging to Other Caste category while there is significant fall in access for poor women of the same community (4 per cent). In brief, the table reflects that the economic status of poor and middle class women of Scheduled Caste is almost equal that is, both are considered as poor women. Therefore, difference in accessing post-natal health services between them was not observed. While it is reverse in case of women belonging to Other Caste, the economic status of middle and rich class women of Other Caste is almost equal, that is, both are considered as rich women. These two relationships were tested through the logistic regression analyses in table 7 and 8.

Table 7 provides the logistic estimates of women giving birth at home who receive post-natal services from health providers, where access to health services is measured vis-a-vis their caste, education and economic status. It is evident from the Table that social identity of women and her economic status makes a significant difference in accessing post-natal health services from health providers. Educational status of women did not emerge as a significant variable. Table 7 highlights that women belonging to Other Caste (higher caste) were more than two times more likely to receive post-natal health checkup than are women of scheduled caste category ($p < 0.001$).

Table 7

Women who delivered live birth in the five years preceding the survey, the Logistic Estimates of receiving post-natal health check-up by any of health care providers for women who had given last live birth at home, according to caste, education and economic status of women, Uttar Pradesh, 2005-06

	<i>Exp (B)</i>	<i>95.0% C.I. for EXP(B)</i>	
		<i>Lower</i>	<i>Upper</i>
Caste of Women			
Scheduled caste [R]			
Other backward class	.937	.631	1.390
Other caste	2.392***	1.592	3.595
Educational status of women			
Uneducated [R]			
Educated	1.142	.825	1.582
Economic Status of women			
Poor [R]			
Middle	1.432**	.981	2.090
Rich	2.212***	1.522	3.214
Significance level: * p<0.1; **p<0.05; *** p<0.001			

As far as economic status is concerned, it has emerged as strong determinants for receiving post-natal health checkup. It is evident from the table above that the likelihood of receiving post-natal health checkup increases with improvement in the economic status of women. The odds ratio of receiving health checkup increased significantly from 1.4 times among women with a medium level of economic status to 2.2 times for women of rich economic status in comparison to the odds for receiving post-natal health checkup by poor women. Thus, it is evident from the table that social identity (caste) and economic status of women were strong determinants to their receiving post-natal care services.

However, to study whether education and economic status of Scheduled Caste vis-a-vis Other Caste women affects in the same way or differently their accessibility towards receiving post-natal check-up, a separate logistic regression analysis for Scheduled and Other Caste women was done and compared to establish determinants. It is clear from Table 8 that economic status of scheduled caste women has no relationship to women's receiving post-natal checkup; while, in case of women belonging to other caste, their economic status was highly significantly linked with accessibility. The table highlights that women of Other Caste who had middle and high economic status were two to three times more likely than poor women to receive post-natal health services from health providers. In other words, the likelihoods of receiving post natal health checkup among the middle and rich class women of Other Caste category was significantly two times higher in comparison to middle and rich class women of Scheduled Caste category.

With regard to education, although it is observed from the table that educated women of scheduled caste were two times more likely to receive health services than do their scheduled caste counterparts who are uneducated; but, it was found to be significant at $p < 0.1$ level, hence emerging as a poor variable for determining education as a factor of accessibility. While in the case of women belonging to other caste, education did not appear as a significant variable at all.

Table 8
Women who gave birth in five years preceding the survey, Logistic Estimates of receiving post-natal health check-up by any of health care providers for women belonging to Scheduled caste and Other caste who had given last live birth at home, according to their education and economic status, Uttar Pradesh, 2005-06

	<i>Scheduled Caste Women</i>			<i>Other caste Women</i>		
	<i>Exp(B)</i>	<i>95.0% C.I. for EXP(B)</i>		<i>Exp(B)</i>	<i>95.0% C.I. for EXP(B)</i>	
		<i>Lower</i>	<i>Upper</i>		<i>Lower</i>	<i>Upper</i>
Educational status of women						
Uneducated [R]						
Educated	1.975*	.978	3.985	.711	.431	1.171
Economic status of women						
Poor [R]						
Middle	1.083	.424	2.763	2.216**	1.214	4.047
Rich	1.990	.863	4.588	2.755***	1.471	5.158

Significance level: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.001$

IV. CONCLUSIONS

The present study has made an attempt to understand whether the women's accessibility to receive post-natal health services from health personnel, within two month after home delivery, varies by their different social identity. It was observed in the analysis that where all the required information related to pregnancy, delivery and post-delivery care, which is essential to be provided during antenatal visits, was communicated as required, still there remained a gap in communication between women from scheduled caste category who were less informed on these aspects of information compared to women of other caste category. The lack of information might be one of the reasons for low institutional delivery among scheduled caste women which further leads to high maternal mortality. A visit by any of the health personnel within two months to a household from the time of delivery at home is an important strategy to reduce the risk of maternal deaths. However, the post-natal visits by health personnel to women who had delivery at home was also found significantly low among scheduled caste women than among women of other caste category. The education and economic variable which are established as important determinants to

access health services were analyzed examining its relation with the social identity of women. It was observed that the social identity of women was more important in accessing health services than were the educational and economic status of women. The economic status of women belonging to scheduled caste did not make any difference in their receiving the post-natal services, while in case of women of other caste category, the economic condition makes a significant difference. The results highlight that rich women of other caste women were two times more likely to receive post-natal health services compared to the health services reaching to women of scheduled caste. The findings clearly suggest that more than the economic condition and education level, women's social identity determines their having access to maternal health services in Uttar Pradesh where maternal death is the highest. Thus, the result assumes to have a serious implication on the implementation of several maternal health policies in India.

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Determinants of Women Empowerment and Effect on Children's Overall Health Development

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To move towards a more prosperous society, empowering women is essential. This paper aims to find the determinants of women empowerment and its effects on child health. The study proposes a model that takes into account generational effect of women empowerment through the use of three concepts – antecedents, mediators and an outcome – and the relationships between them. The results suggest that knowledge, awareness of political and legal rights and less discrimination against daughters are the main determinants of women empowerment. Results show that freedom of mobility and decision making capability of the woman has a positive effect on child health.

Keywords: Women empowerment, Awareness of rights, Discrimination, Child health, Multiple regression

I. INTRODUCTION

Women continue to suffer from discrimination and violence in several aspects of their lives. Even today, women and girls around the globe are deprived of healthcare, education, jobs, political representation and many other rights and opportunities. This gender inequality proves to be a major hurdle encountered by women in their daily lives, thereby limiting their potential, productivity and welfare. More importantly, discrimination on the basis of gender denies women of fundamental human rights and justice.

To move towards a more equitable and prosperous society, empowerment of women is essential. Duflo (2012: 1053) defines women empowerment as “improving the ability of women to access the constituents of development—in particular health, education, earning opportunities, rights, and political participation.”. In literature,

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the concept of women empowerment has been interpreted in different ways and various researchers have used a combination of multiple dimensions to measure it. In a thorough review of the literature, Malhotra et al. (2002: 27) list three most frequently used indicators of women empowerment - domestic decision-making with respect to finances, social and child related matters, etc.; access to or control over resources such as income, assets, household budget, participation in paid employment, etc.; and mobility/freedom of movement. Besides this, they also enumerate some less frequent indicators such as economic contribution to the household, freedom from violence and couple interaction. In this paper, the first three listed indicators have been used to measure women empowerment and they have been referred to as *mediators* throughout the paper.

In recent times, women's empowerment has also been highlighted as a means of achieving overall economic development of the society. Women constitute nearly 50 percent of the world's population and hence their active participation in the labour force can lead to economic growth and development. Besides this, women's empowerment has a butterfly effect, i.e. investment on women, results in gains for the entire family, especially children, and the community thereby, benefitting the next generation. Income in the hands of women leads to more household expenditure on food, child health and human capital investments (Hoddinott and Haddad, 1995: 79). Of all the impacts found to be positively affecting empowerment of women, child health remains the focus of this paper.

To measure child health, a combination of three factors – vaccination of the child, number of visits to the doctor and the frequency of illness of the child – has been used. In this paper, child health has been referred to as the *outcome*.

Apart from using certain indicators of women empowerment and finding its effect on child health, this paper introduces a novel method that captures the generational effect of women empowerment. It does this by taking into account the antecedent factors of women empowerment, i.e. factors that capture the upbringing of the woman and the kind of environment she was given at her parent's house as well as at her new home after marriage to see how they have impacted her present state of empowerment. The factors considered include – knowledge of the woman, her awareness of legal and political rights, lack of discrimination against daughters in both her maternal and marital home and assets that she brought to marriage, more specifically land. These factors have been referred to as *antecedents* in this study. A comprehensive overview of the three concepts – antecedents, mediators and outcome – has been depicted in Table 1.

Table 1
Overview of the three concepts used – Antecedents, Mediators and Outcome

<i>Antecedent</i>	<i>Mediator</i>	<i>Outcome</i>
Knowledge	Domestic Decision Making	Vaccination
Political and Legal Rights	Access to/control over Resources	Visit to the Doctor
Lack of Discrimination against Daughters	Freedom of Movement	Frequency of Illness
Assets brought to Marriage (land)		

Source: As per authors' proposed model

The objective of this paper is twofold. Firstly, it aims to determine the factors that affect women empowerment and secondly, it aims at observing the impact of women empowerment on child health. This study suggests ways of enhancing the outcome through an understanding of the antecedents and mediators. Moreover, it helps to understand how the benefits of women empowerment propagate down the generations.

The remaining paper is organised into the following sections: Section II discusses the literature review and Section III describes the methodology. Section IV elaborates on the data and questionnaire used. Section V provides the results of the study following which Section 6 ends with the discussion and the conclusion.

II. LITERATURE REVIEW

In literature, the concept of empowerment of women has been interpreted in several ways. While Duflo (2012: 1053) refers to it as the ability of women to access developmental resources, Kabeer (1999, pp. 437) defines empowerment as the “processes by which those who have been denied the ability to make choices acquire such an ability”. More recently, Fatima (2017: 24) describes women empowerment as encouragement of women to stand for their own interest and rights. Two terms closely associated with women’s empowerment are female autonomy and women’s status and these are treated as synonymous to women empowerment in this paper. Banerjee and Roy (2015, pp. 1037) describe female autonomy as “the decision making power of women within the household relative to their husbands”. On similar lines, Smith et al. (2003: 19) define women’s status as “women’s power relative to men’s in the households, communities and nations in which they live”.

Depending on their interpretations, female autonomy has been quantified using different indicators. Gupta and Yesudian (2006: 371-372) used data from National Family Health Survey (NFHS-2) and created four indices to measure women empowerment - household autonomy index, mobility index, attitude towards gender index and attitude towards domestic violence index. According to Kishor (2000), empowerment of women is related to control over earnings and expenditures, self-reliance of supporting herself without help of others, freedom to take final decisions

on various issues and freedom of choice in choosing a marriage partner. Some studies suggest that if a woman has some say in the household expenditure, has the cash to spend and the independence to purchase jewelry and gift for her relatives, then she is said to be empowered (Jeebhoy, 1997). Malhotra et al. (2002: 27) conducted a thorough literature review to discover that domestic decision making, access to/control over resource and freedom of movement are the three most frequently used indicators of women empowerment and hence these have been employed as *mediators* in this paper.

Empowerment of women directly benefits women in infinite ways but besides this, various studies have also linked empowerment of women to overall economic development of the society. Doepke and Tertilt (2011: 38-41) found that expenditure on children increases more if transfer payments are given to women instead of men. In an experimental study, Duflo and Udry (2004: 23) showed that a rainfall shock resulting in an increase in women's relative income led to increased expenditure on food. With respect to women's ownership of assets, a study in Bangladesh concluded that wife's assets have a positive and significant effect on the share of expenditure on children's clothing and education (Quisumbing & De La Brière, 2000: 36). Findings of a study conducted by Beaman et al. (2006: 23) in West Bengal and Rajasthan shows that in villages headed by female leaders, children have higher immunization rates and there is an increase in the attendance of girls in the schools. Some other positive effects of women empowerment that benefit the society include: reduction in fertility rates, child mortality rates (Eswaran, 2002: 442) and violence against women (Rao, 1998, 96).

Among all the positive benefits of women empowerment, one of the most significant is the direct effect of female autonomy on improvement in child health. Shroff et al. (2009: 69-70) found that maternal autonomy, mainly access of money and freedom to choose to go to the market, is inversely related to child stunting. Maternal education, a common indicator of women empowerment, was found to have a significant effect on child health (Basu & Stephenson, 2015: 2015). A comprehensive analysis performed by Cunningham et al. (2015: 15) of the relationship between women's empowerment and child nutritional status suggests that there indeed exists an association between the two. Pratley (2016: 125) found that women's empowerment was significantly associated with child health outcomes such as child mortality, full vaccination and nutritional status. Based on these evidences, child health has been selected as an *outcome* of this study.

With respect to the determinants of women empowerment, i.e. the *antecedents*, there are several studies available from various countries. A study of five Asian countries conducted by Mason (1998: 115), including India, found that the social context has a significant effect on women empowerment. Based on a study of Sri Lanka, Malhotra and Mather (1997: 602) suggest that education and paid work determine domestic

decision power of women, but the impact remains subject to social context. According to Frankenberg and Thomas (2001: 35-37), the relative social status of the families of wife and husband influence decision making patterns in Indonesia. According to Dyson and Moore (1983: 54), kinship patterns have a significant impact on women's ability to pursue her self-interest and that of her children. Banerjee and Roy (2015: 1039) conclude that female autonomy is highly dependent on social factors. Another antecedent of women empowerment is ownership of land. As per Allendorf (2007: 1975), "women who own land are more likely to have the final say in household decisions". Ackerly (1995: 60), in her study on Bangladesh, and Acharya and Bennett (1981), in their study on Nepal, found that bringing women to the market influences domestic decision making and empowers women.

III. METHODOLOGY

The goal of this paper is it to identify the determinants of women empowerment and trickle-down effects of the same on child health. To accomplish this, this study proposes a new model that involves two steps. The first step considers the antecedents of women empowerment and aims to find their relationship with women empowerment mediators. The antecedents of women empowerment include – knowledge comprising of education level and ability to read and write; political and legal awareness comprising of awareness of voting and land rights, laws and schemes that support women well-being and empowerment; Lack of discrimination against daughters comprising of whether the woman was discriminated in any way in her maternal or marital home; and assets brought to marriage that includes mainly land.

To analyse the effects of these antecedents on women empowerment, the three indicators of women empowerment used include - Domestic decision making about issues of borrowing, household repairs, spending of salaries, managing household finances, child health related issues; Access to and control over resources comprising access to and control of cash/income and assets of the household; Freedom of movement with respect to asking for permission to go out or going to the market to buy things. These three indicators have been adopted from Malhotra et al. (2002: 27). All the three indicators have also been combined into a *women empowerment index* to identify the impact of antecedents on women empowerment.

To achieve the second step of the model, i.e. to identify the linkage between women empowerment mediators and the child health outcome, child health was captured in terms of three indicators - whether the child got vaccinated or not, frequency of illness of the child and number of visits to doctors. For this purpose, a *child health index* was created combining the three indicators listed above. In this step, along with the mediators, other independent variables such as mother's knowledge, father's education level, household income and mother's health awareness were considered.

IV. DATA AND QUESTIONNAIRE

For this study, a field survey was conducted across a village called Majeedpur in the Ranga Reddy district of the state of Telangana in India. Two questionnaires were designed – one for women and one for their children, if any, in the age group of 11-15 years. Overall, 273 women and 106 children (after consent from the parent) were chosen through random sampling and interviewed. A pilot test was conducted to ensure reliability and feasibility of the study following which the survey was conducted.

The first part of the women's questionnaire had questions related to the antecedents of women empowerment. To capture the knowledge of the women, their level of education and ability to read and write was captured. An educated woman has a better understanding of the world and has the skills and values that enable her to be a better citizen. With respect to political and legal rights awareness, women were asked whether they voted independent of any influence in the previous elections, whether they were aware of their land rights and other government schemes, whether they knew that there were laws against dowry and domestic violence, and if they knew that women could also contest for village posts. A woman aware of her rights has better ability to assert her decisions and stand for herself thereby, making her independent and empowered. The next antecedent taken into consideration was gender discrimination, if any, faced in woman's maternal and her in-laws home. To capture the level of discrimination, the women were asked if they and their siblings ate food together, bought toys to play when she was a child and whether their family took them out for family outings. These questions helped to understand the kind of family support and upbringing women had as it plays a major role in her empowerment. The final antecedent of women empowerment considered was the assets that a woman brings to marriage, in this case, land. They were asked if she they land in their name and if yes then the land area was compared with that owned by the male sibling. Land is one of the most productive assets, especially in agrarian economies, and it empowers women by improving their bargaining power within the household into which they are married.

Following the antecedents, questions related to mediators were asked. To capture women's decision making power, questions were asked about their income, say in issues related to borrowing money in normal circumstances as well as in urgency, decision making capacity regarding household repair, spending own salary and that of the husband, and decisions related to child health. Earned income gives the woman more power in household decision-making and hence is a sign of empowerment. To capture the women's access to or control over resources, the questionnaire inquired about implementation of issues with respect to borrowing money and household repairs (Pitt et al., 2006: 795-796), access to savings as well as access to assets like

television. Focusing particularly on implementation suggests that women were able to access household income and cash and were a part of making some transactions related to a particular decision. The final mediator, namely freedom of mobility of the women, tries to understand if the women can step outside the house as per her own wish. The questions were asked about whether she bought daily food items, utensils, candies and cookies for the household and children, if she met her female friends and if she had to take her husband's permission before leaving the house. This helped to understand if there were any restrictions on the women with regards to her stepping outside the house freely.

To capture the child health outcome, questions about the child's vaccination, number of visits to doctors and frequency of illness were asked. The first question related to vaccination was asked in the women's questionnaire whereas the latter two were asked in the children's questionnaire. Hence, a vaccinated child who falls ill less frequently and visits the doctor more often, and is therefore, more aware, can be considered as a healthy child.

Apart from these, questions about household income, husband's level of education and health awareness of the mother were also asked. To capture health awareness of the mother, they were asked about the last time they had visited a doctor, usage of birth control methods, whether they had ever got a breast check-up done and whether they had visited a doctor/hospital during their pregnancy. Details of all the questions is presented in Appendix A.

V. RESULTS

The results from the first step of the proposed model are presented in Table 2. The results include four sub-models: three with each of the mediators as the dependent variable and one with the women empowerment index as the dependent variable. In the first sub-model where domestic decision making was the dependent variable, it was found that a woman's knowledge is positively and significantly associated with domestic decision making power of the woman. As a woman gains more knowledge, her capability to make decisions about herself and her household improves, thereby empowering her. It was also found that awareness of legal and political rights as well as lack of discrimination against daughters by her family members increase a woman's decision making power. However, these results are insignificant.

In the second sub-model, it was found that with an increase in legal and political awareness, lack of discrimination against daughters in the family and ownership of land increases a woman's access to/control over resources. This result points to the importance of family upbringing along with the need for awareness. Awareness regarding her legal and political rights makes her understand the fact that she has the

same rights like her husband does and hence makes her more capable and confident of availing those rights through access of available resources. A woman who has experienced the same treatment as her male counterparts will have increased access to resources as absence of discrimination will ensure she has equal responsibilities of handling cash and of the use of resources. Ownership of land gives women a better bargaining power and thereby increases their access to resources.

In the third sub-model, it was found that freedom of movement increases significantly if the woman has experienced a lack of discrimination against daughters. In households where there is no differentiation based on gender, traditional notions and norms that prevent a woman from stepping outside the house are not present and hence she has more freedom of movement.

The final sub-model combines all three antecedents to form a women empowerment index. Here, it was found that a woman's knowledge, awareness of legal and political rights and lack of discrimination against daughters that she has experienced in the household are all positively associated with women empowerment. Hence to empower a woman, the focus should be on enhancing her knowledge and awareness and on ending practices within the household that cause women to be treated differently than men.

Table 2
Determinants of Women Empowerment

<i>Dependent variable</i>	(i)	(ii)	(iii)	(iv)
<i>Independent Variables</i>	<i>Domestic Decision Making</i>	<i>Access to/control over Resources</i>	<i>Freedom of Movement</i>	<i>Women Empowerment Index</i>
Knowledge	0.20115 ** (0.07029)	-0.02033 (0.03995)	0.002747 (0.020235)	0.18356 * (0.09293)
Legal and Political Rights	0.01633 (0.05776)	0.14305 *** (0.03282)	-0.023480 (0.016626)	0.13590 . (0.07636)
Lack of Discrimination against Daughters	0.02015 (0.26907)	0.43206 ** (0.15291)	0.201379 ** (0.077457)	0.65359 . (0.35572)
Assets brought to marriage (land)	-0.14112 (0.12661)	0.14680* (0.07195)	0.037423 (0.036448)	0.04310 (0.16739)
Intercept	5.69694 *** (0.81578)	2.22236 *** (0.46361)	3.451808 *** (0.234842)	11.37111 *** (1.07851)
R ²	0.03657	0.1122	0.03166	0.0519
Number of obs.	272	272	272	272

Note: ***p<0.001, **p<0.01, *p<0.05, . p<0.1

Source: Authors' calculations

Table 3 shows the results from the second step of the proposed model. To identify the effect of women empowerment on child health, a regression was run with the women empowerment index as the main independent variable along with other factors including health awareness of the woman, knowledge of the woman, education

level of her husband, and the household income. The results suggest that women empowerment index has a significant effect on child health. Hence, a more empowered woman, will have a healthier child and this result is aligned with several other studies as discussed in the literature review. To identify exactly which of the mediators contributed towards women empowerment index and led to a positive association with the child health, another regression test was performed. This experiment suggests that increased domestic decision making and freedom of mobility improves the child's health. No significant effect of mother's health awareness or knowledge was found in both these cases. One of the probable reasons is that women may be aware of the health issues but it may not necessarily lead to healthy practices. Most of the women were not highly educated in the sample. So, in this study, wisdom of the women becomes more important than the formal education. As seen in Table 2, knowledge leads to women empowerment which further translates into better child care (Table 3). It is not necessary that knowledge will have a direct impact on the child's health. So, taking women empowerment as a mediator becomes very crucial.

Table 3
Effect of Women Empowerment on Child Health

<i>Dependent variable</i>	(i)	(ii)
<i>Independent variables</i>	<i>Child Health Index</i>	<i>Child Health Index</i>
	<i>[robust]</i>	<i>[robust]</i>
Women Empowerment Index	0.069893 *	-
	(0.034460)	
Health Awareness	0.033166	0.035617
	(0.094441)	(0.082318)
Knowledge of Mother	0.060376	0.082914
	(0.058032)	(0.059533)
Education of Father	-0.131245 *	-0.145348 **
	(0.055078)	(0.052755)
Household Income	-0.082711	-0.056055
	(0.088638)	(0.084659)
Domestic Decision Making	-	0.091103 *
		(0.039479)
Access to/Control over Resources	-	-0.102073
		(0.068841)
Freedom of Movement	-	0.399699 *
		(0.185174)
Intercept	3.637148 ***	2.888659 ***
	(0.540137)	(0.702093)
R2	0.0763	0.1396
Number of Obs	106	106

Note: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, . $p < 0.1$

Source: Authors' calculations

VI. DISCUSSION AND CONCLUSION

The objective of this paper was to identify the determinants of woman empowerment and the trickle-down effects of the same on child health. The results of this study suggest that knowledge, awareness of political and legal rights and lack of discrimination against daughters are the three main determinants of women empowerment. Higher education and the ability to read and write goes a long way in truly empowering a woman. It plays a crucial role in helping women express their views through effective communication, provides a broader perspective of things and exposes them to things around the world, provides job opportunities and helps them to keep track of their income and expenses, amongst many others. Through these mechanisms, knowledge gives women confidence and better capability to make decisions, thereby empowering them. Political and legal awareness results in improved access to and control over resources by the women leading to their empowerment. It informs women of the existing benefits, privileges and rights that they have, improving their sense of self-worthiness, provides opportunities and provides them confidence to claim those rights through access of available resources. Lack of gender discrimination is one of the key determinants of female autonomy. Treating girls and boys equally from the beginning ensures that girls don't feel inferior at any moment in their life and they become more empowered. Practices such as buying toys only for males, taking only boys for outings and eating at separate times increases the gender gap. A fair environment at both maternal and marital homes gives women the confidence to avail all resources and to step outside the house without restrictions and thus, proves to be an extremely crucial determinant of empowerment of women.

Another major finding from the study is the trickle-down effect of women's empowerment on child health. An empowered woman with domestic decision-making capacity and the freedom to move around can take care of her children's health in a better way as she can take quick and good decisions about her child specially during urgency as well as in normal situations. Her freedom of mobility gives her the opportunity to meet other people, exchange information and be aware of good health care practices for herself and her child. In the future, we intend to extend the existing model to include many other factors so as to better capture both women empowerment and its trickle-down effects.

In conclusion, women empowerment indeed has a trickle-down effect on child health and to ensure women empowerment, more emphasis needs to be laid on education, awareness and family environment. Hence, through the generational effect, both can be ensured – empowerment of women and the health of their children.

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APPENDIX

Appendix A
Questionnaire and Encoding Methodology

<i>Variables</i>	<i>Questions</i>	<i>Code assigned to each answer</i>
Domestic Decision Making	Do you have you own income?	Yes=1, No=0
	Who decides issues of borrowing money?	Husband=1, You=2, Both=2, Others=0
	Who makes decisions related to house repair?	Husband=1, You=2, Both=2, Others=0
	Who makes the decision on how to spend your salary?	You=2, Husband=1, Others=0, Don't earn=0
	Who makes the decision on how to spend your husband's salary?	Husband=1, You=3, Both=2, Others=0
	If you needed some money urgently, would you be able to borrow it from your relatives?	Yes=1, No=0
	If your child is sick, do you take him/her to the doctor or wait for your husband to come?	Take him/her Yourself=1, Wait for Husband=0
Access to/ Control over Resources	Who implements issues related to borrowing money?	Husband=1, You=3, Both=2, Others=0
	Who implements the decisions related to house repair?	Husband=1, You=3, Both=2, Others=0
	Can you use your savings without your husband's permission?	Yes=1, No=0
	Do you watch your favourite programme on TV?	Yes=1, No=0
Freedom of Movement	Do you buy the family's daily consumable food items?	Yes=1, No=0
	Do you buy utensils for the household?	Yes=1, No=0
	Do you buy candies, cookies, ice-creams for your children?	Yes=1, No=0
	Do you meet your female friends?	Yes=1, No=0
	Do you have to ask your husband before leaving the house?	Yes=0, No=1
Knowledge	Till which class have you studied?	Illiterate=0, Class V pass=1, Class X pass=2, Class XII pass=3, Graduate and above=4
	Can you read the newspaper?	Yes=1, No=0
	Can you write?	Yes=1, No=0

<i>Variables</i>	<i>Questions</i>	<i>Code assigned to each answer</i>
Political and Legal Rights	Did you vote in the previous elections?	Yes & Yes=2, Yes & No=1, No & {Yes, No} = 0
	If yes, did you vote in the previous election without the influence of anybody?	
	Are you aware that you and your male siblings have equal right to land/property?	Yes=1, No=0
	Are you aware that the act of taking or giving dowry is prohibited?	Yes=1, No=0
	Are you aware of the Sukanya Samridhhi Yojana?	Yes=1, No=0
	Are you aware of the government policies of micro-finance to start new business?	Yes=1, No=0
	Are you aware that there is a law against domestic violence?	Yes=1, No=0
Lack of	Are you aware that women can also contest for village posts?	Yes=1, No=0
	Do you and your siblings eat food together?	Yes=1, No=0
	Did your family buy you toys to play with when you were a child?	Yes=1, No=0
Assets brought to Marriage (land)	Did your family take you out during family outings?	Yes=1, No=0
	Is there land in your name? If yes, then how much is the land area as compared to your male sibling's land area?	Yes & No sibling to share=3, Yes & More than your brothers' share=3, Yes & Equal to your brothers' share=2, Yes & Less than your brothers' share=1, No=0
	Did all your children get vaccinated?	Yes=1, No=0
Visit to the Doctor (question to child)	How often do you visit the doctor?	Once every week=4, Once a month=3, Once in 6 months=2, Once a year=1, Never=0
Frequency of Illness (question to child)	How frequently do you fall ill?	Once every week=0, Once a month=1, Once in 6 months=2, Once a year=3
Health Awareness	Did you visit a doctor/hospital during pregnancy?	Yes=1, No=0
	Did you ever get a breast check-up done?	Yes=1, No=0
	When did you last visit a doctor?	One month ago=3, Six months ago=2, One year ago=1, Never visited a doctor=0
	Do you use any birth control methods?	Yes=1, No=0

<i>Variables</i>	<i>Questions</i>	<i>Code assigned to each answer</i>
Father's Education	Husband's educational level	Illiterate=0, Class V pass=1, Class X pass=2, Class XII pass=3, Graduate and above=4
Household Income	Household monthly income level in rupees	5000-10000=0, 10000-25000=1, 25000-50000=2, Above 50000=3

Appendix B

Summary Statistics of all variables in Table 2 (Determinants of Women Empowerment)

<i>Continuous Variables</i>					
<i>Variable</i>	<i>Number of</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Min</i>	<i>Max</i>
Domestic Decision Making	273	6.278388	1.663672	3	12
Access to/control over Resources	273	4.194139	0.9865094	2	8
Freedom of Movement	273	3.934066	0.4805526	2	5
Women Empowerment Index	273	14.40659	2.22442	10	21
Knowledge	273	2.52381	1.502565	0	5
Political and Legal Rights	273	5.018315	1.819935	0	8
Lack of Discrimination Against Daughters	272	2.882353	.375619	0	3
<i>Categorical Variables</i>					
<i>Variable</i>	<i>Code</i>	<i>Label</i>	<i>Frequency</i>	<i>Percent</i>	
Assets brought to Marriage (land)	0	Does not have land in her name	204	74.73	
	1	Has land in her name but less than male sibling	25	9.16	
	2	Has land in her name but equal to male sibling	39	14.29	
	3	Has land in her name and more than male sibling (or) Has land in her name and has no sibling	5	1.83	

Appendix C

Summary Statistics of all variables in Table 3 (Effect of Women Empowerment on Child Health)

<i>Continuous Variables</i>					
<i>Variable</i>	<i>Number of Observations</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Min</i>	<i>Max</i>
Domestic Decision Making	106	6.5	1.680419	3	11
Access to/Control over Resources	106	4.349057	0.8948791	3	7
Freedom of Movement	106	3.90566	0.4885021	2	5
Women Empowerment Index	106	14.75472	2.271192	10	21
Knowledge	106	2.575472	1.413864	0	5
Health Awareness	106	3.877358	0.9123787	2	6
Child Health Index	106	4.707547	0.7555128	2	7

<i>Categorical Variables</i>				
<i>Variable</i>	<i>Code</i>	<i>Label</i>	<i>Frequency</i>	<i>Percent</i>
Education of Father	0	Illiterate	40	37.74
	1	Class V pass	17	16.04
	2	Class X pass	31	29.25
	3	Class XII pass	8	7.55
	4	Graduate and above	10	9.43
Household Income	0	5000-10000	43	40.57
	1	10000-25000	43	40.57
	2	25000-50000	16	15.09
	3	Above 50000	4	3.77

Intra-Household Gender Discrimination in Schooling and Private Tutorial Spending

Sudeshna Maitra*

Educational outcomes indicate high dropout rate and low average years of education and low enrollment rate for girls relative to boys, which persists due to the higher valuation of sons, socially and economically, and hence a difference in the investment made on girl and boy child in a patrilineal society like India. Although, pro-male bias in the intra-household allocation of education expenditure has been extensively studied, rarely has been gender discrimination analysed separately in schooling decision and private tutoring decision, the later also known as the shadow education system. This paper uses a two-part Hurdle model to identify the extent of gender bias in school enrollment and schooling expense, conditioned on being enrolled in school and similarly, in private tutorial enrollment and private tutoring expense.

The paper finds significant gender bias in favour of boys in the school enrollment of middle and secondary school children and substantially high pro-boy bias in school spending among secondary school children. Tuition enrollment chances among school going children go in favour of boys across the primary, middle and secondary school and in fact the extent of disparity increases over the levels of schooling. Conditioned on both girl and boy being enrolled in private tuition, the paper finds a significant difference in tuition spending between girls and boys of primary school and of secondary school.

Keywords: Gender discrimination, Intra-household allocation, Schooling, Private tutoring, Hurdle model

I. INTRODUCTION

Women's education is a crucial determinant of social and economic growth for developing countries. Education of women benefits not only the family but in a larger perspective, the society as well. Educated women tend to have more decision making power in the household and hence improve child and maternal health (Caldwell and Caldwell, 1990; Bhuiya & Streatfield 1991; Murthi, Guio, & Dreze 1995). With more education of women, there are higher chances of acceptance of contraception and family planning, thus reducing the fertility rate (Dreze & Murthi, 2001; Bhat, 2002). Moreover, better education to women increases female labour force participation opportunities for women and hence improves the productivity of the economy (Dollar & Gatti, 1999; Klasen, 2002; Abu-Ghaida & Klasen, 2004).

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However, households often discriminate in investment made in education of young boys and girls. Educational outcomes indicate a high dropout rate and low average years of education and a low enrollment rate for girls in India (Kingdon, 2002; Ghose, 2011). In fact, even in the reading, writing and arithmetic skill tests, boys perform better than the girls (French & Kingdon, 2010; White, Ruther & Kahn, 2016). Such a difference in educational outcomes among children can be partly attributed to the gender biased allocation of household expenditure on education (Behrman, 1988; Kingdon, 2005). In fact, gender bias in the allocation of household resources like in nutrition, healthcare, clothing of children and even child care is widely evident in India (Subramanian & Deaton, 1991; Subramaniam, 1996; Rose, 2000; Lancaster, Maitra & Ray, 2003; Pande, 2003; Barcellos, Carvalho, & Lleras-Muney, 2014). In a patrilineal society like India, such a practice can be justified due to the perceived difference in the valuation of girls and boys. Investments on boys are more favourable as they are expected to provide economic as well as psychological support to the parents in their old age, whereas girls become a liability due to the prevalence of the dowry system and exogamous marriage rules (Miller, 1981; Kishor, 1993, 1995; Dharmalingam, 1996; Arnold, Choe & Roy, 1998).

Kindgon (2005) points out that gender discrimination in the household allocation of education expenditure among children can occur at two steps, whether to enrol a girl child in a school or not and conditional on the girl being enrolled, how much to spend on her education. She suggests that a two-part hurdle model using individual-level data can most efficiently capture gender bias in the household resource allocation.

However, apart from school education (be it in a public or private school) a parallel education system of private tutoring, also referred to as “Shadow Education” by Bray (1999, 2003), widely exists in India and has been growing at an alarming scale both in urban and rural areas. A significant proportion of students avail of this supplementary guidance from private tutors to gain further proficiency in school subjects. According to the 71st NSS (2014) data, private tutoring is availed by 22 percent, 26 percent and 37 percent of primary, middle and secondary education level students, respectively. Literature suggests that private tuitions improve the academic performance of students, especially among the children enrolled in government schools where educational quality is otherwise low (Wadhwa, 2013; Dongre & Tewary, 2015). Private tuition supplements education but does not replace schooling (Mazumdar, 2012) and hence, enrolment in private tuitions should be considered as separate decision-making process from the mainstream school education system. However, private tutoring has been understudied especially in India from the standpoint of potential gender discrimination in the availability of out of school education.

This paper deals with household discrimination against girls in the allocation of education expenditure by focusing separately on schooling and private tutoring

decision. The first objective of the paper is to study the gender discrimination in school enrollment and conditional on being enrolled in school, the gender bias in the schooling expense (excluding expenditure on extra private tuitions), using the two-part hurdle model. Further, the paper focuses on children who are enrolled in a school and analyses if gender bias equivalently exists in the private tutorial enrollment decision and the amount spent, again using the two-part hurdle model.

The analysis finds significant gender bias in favour of boys in the school enrollment of middle and secondary school children and substantially high pro-boy bias in school spending among secondary school children. The extent of gender discrimination in school enrollment is higher among secondary school children than among middle school. Tuition enrollment chances among school going children go in favour of boys across the primary, middle and secondary school and in fact the extent of disparity increases over the levels of schooling. Conditional on being enrolled in private tuition, the paper finds a significant difference in tuition spending between girls and boys of primary and secondary school.

This paper is further organized as follows. Sections 2 and 3 discuss the empirical methodology and describe the data, respectively. Section 4 presents the empirical results and finally, section 5 concludes the paper.

II. EMPIRICAL METHODOLOGY

The two most commonly used measures for gender discrimination in the allocation of household expenditure are the Engel curve approach and the two-part hurdle model. Subramanian & Deaton (1991) and Lancaster, Maitra & Ray (2008) use the Engel curve method. This approach has been criticised as it has failed to capture gender discrimination in households where other outcome variables like nutrition status, health status have been able to identify gender bias. The second method, as used by Kingdon (2005) and Saha (2013), is more convincing. Unlike the Engel curve approach, this approach analyses gender discrimination for two separate decisions made while investing in a child's education. First, whether or not to enrol a girl child in a school. Second, conditional on positive spending on both boy and girl, how much is the difference in spending between a boy and a girl. This approach is based on the suggestion that the determining factors may differently establish the decision to enrol a child and the decision on how much to spend on a child. Kingdon (2013) analysed both the education budget share of the household and the individual education expenditure using the hurdle model and found that individual-level data has been able to detect gender bias more efficiently than the household-level data. So, this paper uses the second approach, i.e., the two-part hurdle model (Blundell & Meghir, 1987; Jones, 1989; Woolridge, 2010) and looks into individual-level education expenditure

data to detect gender discrimination, separately for schooling and private tutoring decisions.

Suppose, there is a continuously distributed non-negative unobserved latent variable specified as

$$w_i^* = x_i\beta + v_i \tag{1}$$

is a vector of explanatory variables. Let y_i be an observed binary variable which determines the value of y such that

$$y_i = s \cdot w_i^* \tag{2}$$

Hence, the variable of interest can be written as

$$y_i = w_i^* , \quad s = 1 \text{ if } w_i^* > 0 \\ 0; \text{ otherwise} \tag{3}$$

So, a two-tier hurdle model specification can be simplified as

$$P(y_i = 0|x) = 1 - \Phi(x\gamma) \tag{4}$$

$$E(y_i|x, w_i^* > 0) = \exp(x\beta + \sigma^2/2) \tag{5}$$

Equation [4] is the first tier of the hurdle model which specifies the likelihood that a child is not enrolled in school/tuition and hence, the probability that takes the value zero. Equation [5] specifies the expected expense on schooling/private tutoring, conditional on positive spending on the child, i.e., when $w_i^* > 0$ and follows a lognormal distribution.

γ is estimated using the probit specification for $y_i = 0$ versus $y_i = 1$. β is estimated using an OLS regression of $\log(y_i)$ on using observations for those children who have $y_i = 1$.

This paper looks at gender discrimination in a household's education expense through (1) schooling decision and (2) private tutoring decision. So, broadly there are two different parts to the estimation in this paper. The first estimation is a hurdle model with a probit on whether a child is enrolled in a school or not and a conditional OLS on schooling expense of the child which includes school fees and cost of books, uniforms and buses, if he/she is enrolled in school. The second estimation is on a sub-sample of children who are enrolled in school and uses a probit specification to investigate whether the child attends private tuition or not and subsequently an OLS on private tuition spending, conditional on being registered in private tuition. Further, in each case of schooling and private tutoring decision, separate equations are evaluated for

the three levels of schooling: for children at the primary education level (standard 1 to 5), middle education level (standard 6 to 8) and for children at the secondary education level (standard 9 to 12).

However, a problem of sample selection bias may arise in the estimation of the coefficients. There are both observed and unobserved factors influencing the enrollment of a child in a school or private tuition. Unobserved factors include demand-side factors such as motivation or willingness of parents and the ability of children, and supply-side factors like school availability and teacher quality, that cannot be captured in the hurdle model due to the lack of information. However, the variable of interest in the study, the gender of the child, *Male*, in case of schooling decision would hardly over-predict or under-predict gender discrimination, as both boy and girl child are expected to be identically affected by such selection bias. However, systematic bias may arise in the estimation of private tutorial decision, as a sub-sample of school enrolled students registered in private tuition is a non-random sample. As mentioned before, private tuitions are more common among the economically affluent and educated households (Kim & Lee, 2004; Tansel & Bircan, 2005; Gurun & Millimet, 2008; Azam, 2016) and gender disparity in household resource allocation decreases with higher household income (Pande, 2003). So, selecting a sub-sample of households that send their children to private tuitions might correspondingly select a sample with a lower chance of resource allocation bias.

III. DATA DESCRIPTION

This paper uses the India Human Development Survey (IHDS-II), 2011-12 data. This data covers all the states and the union territories of India (except Andaman & Nicobar and Lakshadweep Islands). The data provides information on 42,152 urban and rural households. The data has separately collected information on 2,04,568 individuals for specific criteria, such as health history, marital and fertility details, education and employment, gender and social relations. IHDS provides detailed information on children who are enrolled in a school, which includes the type of schooling (government or private), distance to school, the class or standard in which the child is studying along with the expenses on schooling and tuition and if or not the child is receiving any scholarship or free books and uniforms. Since the objective of this paper is to detect if there is an intra-household gender bias in the education expenditure allocation among school going children, the study selected 54,116 individuals in the age group of 5 to 18 years, which is the average age of school going children. According to the data 41,225 children were enrolled in a school at the time of the survey, out of which 10,689 children were enrolled in private tuitions. IHDS also provides age and gender of an individual child. Additionally, household information such as the education level of the most educated member, the household size, household consumption expenditure, religion,

caste and the region of residence (rural/urban) are available. This section is further divided into sub-sections, to elaborately define the dependent and the independent variables used in the hurdle models.

Dependent Variable

The IHDS-II, 2011-12 data asked the respondents of each household a few details regarding the other members of the household, including information on the education status of household members. The questionnaire asked whether each of the household members had ever attended a school or not. For members who had attended a school, IHDS-II further noted if they were currently enrolled in a school or a college. Using this information, the binary dependent variable, *School Enrollment* is framed for children of school going age, i.e., for 5 to 18 years, such that it takes value 1 for a child who is currently enrolled in a school and takes value 0 otherwise. Further, for each currently school enrolled child, IHDS-II collected information on the amount of school fees (including exam or lab fees), the amount of money spent on books, uniforms and other materials and finally the amount spent on transportation to school. Note, all the individual-level education expenses provided in IHDS-II are based on the information from the last year and are presented in terms of Indian Rupees. Hence, a non-negative continuous dependent variable, *School Expenditure* for currently school going children, is the sum of individual expenditure on school fees, uniform, books and transportation to school.

Besides, for the currently school enrolled children, IHDS-II data further collected information on the amount of private tuition fees paid in the last year and enquired the weekly time (in hours) spent in private tuitions. So, the next variable *Tuition Enrollment* takes the value 1 if a school enrolled child is reported to have been allocated an additional private tuition fee or have spent non-zero hours of time in tuitions and takes the value 0 otherwise. Lastly, *Tutoring Expenditure* is the private tuition fees in Indian Rupees, conditional on the child being enrolled in private tuition.

Figure 4 and Figure 5 in the Appendix plots the functional form of *School Expenditure* and $\ln(\text{School Expenditure})$, respectively that asserts that the variable, *School Expenditure* follows a log-normal distribution as specified by Kingdon (2005). Similarly, Figure 6 and Figure 7 (presented in the Appendix) plots the functional form of *Tutoring Expenditure* and $\ln(\text{Tutoring Expenditure})$, respectively which also follows a log-normal distribution.

Independent Variables

The independent variables can be categorised into a child's individual factors, household factors and the schooling and tuition factors if he/she is enrolled in school and private tuition respectively.

Individual Characteristics

Individual factors comprise of variables for gender and age of the child. The primary independent variable in this two-part hurdle model is the gender of the child, *Male*, which takes the value one if the child is a boy and zero if the child is a girl. In a Probit model, the coefficient on *Male* would give the probability of the boy child being enrolled in school or private tuition, over the girl child. In the conditional OLS, the coefficient on *Male* gives the extra spending on a boy child over a girl child, conditional on positive spending on both the boy and the girl child. The variable *Age*, representing the age of a child is a continuous variable ranging from 5 to 18 years, which is the average schooling age in India.

Household Characteristics

This section lists the household characteristics of the child, which includes educational level of the most educated adult member of the household. Children have been categorized into four groups. Children who have no literate adult household member is the reference category. The other categories comprises children who has at least one adult member with atleast primary education (1 to 5 years of education), secondary education (6 to 12 years of education) and higher education (higher level of education like post-secondary education or college degree or more). Child composition of the household by gender i.e. the number of girls and boys (0 to 20 years) is included in the hurdle model. However, including the household size in the hurdle model might incite a problem of endogeneity.

Jensen (2003) pointed out that due to the common practice of son preferring Differential Stopping Behaviour (DSB), girls tend to have larger household size than boys. In that case, the household resources allocated to girls, with a relatively higher average number of siblings, are in general lower than that allocated to boys, with a low average number of siblings. The low average spending on a girl child, might not be due to the intra-household gender discrimination in spending but due to an inter-household difference in household size. A remedy to the problem of endogeneity is to include household fixed effects in the hurdle model. Effectively, the hurdle model is run on a subset of families who have at least one girl and one boy of the concerned age group. This gives an additional robustness check on whether the coefficient on *Male* captures intra-household gender discrimination correctly.

Further, the hurdle model also includes the logarithm of per capita consumption expenditure of a household and to obtain the per capita consumption expenditure, the total household consumption expenditure provided by the IHDS II data has been divided by the household size. The IHDS data also provides household information on caste, religion and the region of residence of an individual (whether the individual

lives in an urban area or a rural area) and are included as control variables in the equations. Caste variable has been categorized into Others, OBC, SC and ST where *Others* category is the base category and it represents children who belong to caste groups other than the OBC, SC and ST category. The religion of children has been incorporated in the Hurdle model as *Hindu*, the reference category, *Muslim* and the *Other*. State dummies have been included to control state fixed effects.

Schooling Characteristics

Schooling characteristics include the *Distance from School* (in kilometres). If the school is far away, then parents have to spend more on transportation, especially if it is a girl child, to ensure extra security. The type of school the child is enrolled in, had been included as three dummy variables for the three categories. Dummy variable for children in a Government school, *Govt School*, is the reference category. *Govt Aided School* is a dummy variable representing children enrolled in Government aided school or schools under the Education Guarantee Scheme (EGS). The final dummy, *Pvt School* represents children studying in private schools, Madrassas, convent schools and open schools or junior colleges. The choice of schooling also determines the extent of expenditure bias since private school fees are much higher than those in government-aided schools or government schools. In fact, Kingdon (2005) asserts the presence of pro-male bias in private school enrollment. Private tuition incidence has been found to be even higher among the students in private schools (Azam, 2015; Dongre & Tewary, 2015) and hence type of schooling is an important explanatory factor.

Each of the equations (equations for children in primary, secondary and higher education) separately controls for the students standard. IHDS provides additional information on whether a school enrolled child is receiving any financial assistance in school expenses such as free books or free uniforms or scholarships or if the Government is providing school fees and hence respective dummy variables have been included as controls.

Note, that all the individual and household variables have been included in the Probit equations as well as the conditional OLS regressions, in both of the hurdle models for the school spending decision and private tutorial spending decision. However, the variables representing schooling characteristics, discussed in this Section have been included only in three equations which are conditional on the child being enrolled in a school¹ (since IHDS provides schooling characteristics only for enrolled children) such as the conditional OLS for school spending, the probit model on tutoring enrollment decision and the conditional OLS on tutorial spending.

IV. RESULTS

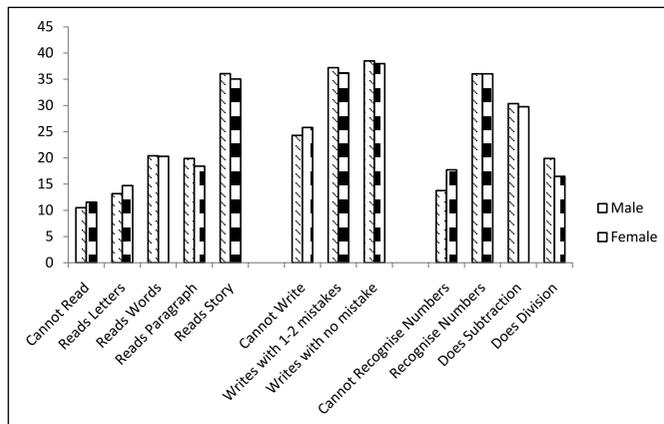
The results are presented in three sections. Section 4.1 presents a brief descriptive study. Section 4.2 presents the two main hurdle equations for school spending decision

and tutorial spending decision. The last section, Section 4.3 discussed the results for household fixed effects to check for the problem of endogeneity, which might arise due to the inclusion of household size in the hurdle model.

Descriptive Statistics

Descriptive statistics are presented in this section to get an understanding on the present scenario of education for children in India. IHDS-II (2011-12) data conducted a brief reading, writing and mathematical skill test with all the available children of households in the age group of 8 to 11 years. Figure 1 plots a bar graph for the percentage of girls and boys according to their performance in reading, writing and mathematical tests. The figure illustrates a noticeable difference in the performance level of girls and boys in all the three tests, indicating the poor educational outcome of girls relative to boys. The number of girls who cannot read, write and recognise numbers is more than the numbers of boys. Furthermore, the number of girls is less than the number of boys who can read paragraph or stories, can write without any mistake and can do difficult arithmetic like subtraction and division.

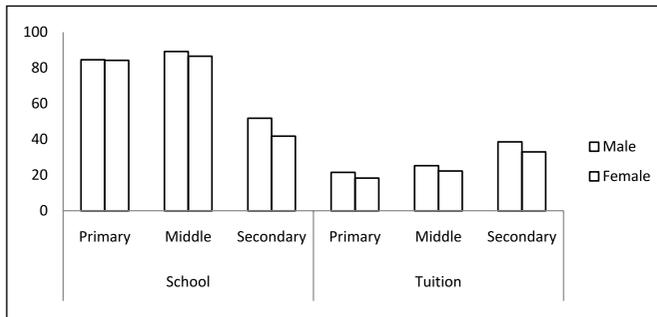
Figure 1
Performance of Girls and Boys (8 to 11 yrs) based on Language and Arithmetic Knowledge Test



Source: IHDS-II (2011-12)

Girl's low performance in reading, writing and arithmetic skills compared to boys among children aged 8 to 11 year (Figure 1) induces one to inquire about the equality of access to education between the girls and the boys. Figure 2 graphically presents the percentage of school enrolled and tuition enlisted boys and girls by the level of schooling. According to the graph, a pro-boy bias in school enrollment is marginally present at the primary education level but grows over the middle and the secondary education levels. However, a distinct pro-boy bias exists in tuition enrollment over all the three levels of schooling.

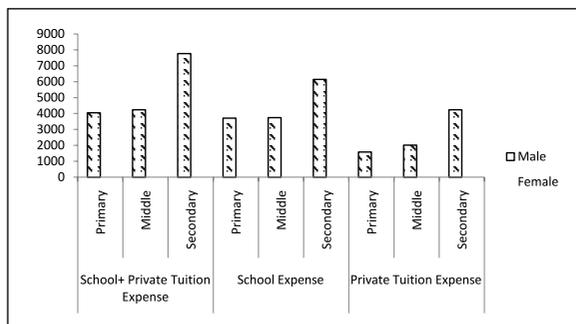
Figure 2
Boys and Girls Enrolled in School and Tuition by the Schooling Level (in %)



Source: IHD-II (2011-12)

Conditional on being enrolled in school and tuition, average school spending and tuition spending of girls and boys are plotted, in a bar graph in Figure 3 for the three levels of schooling. Note, gender gap in average education spending (school and private tuition) is apparent at all the three levels of schooling. Further, desegregating the total education spending into school spending and private tuition spending indicates higher gender gap in school spending than in private tuition spending at all the three levels of schooling. According to Figure 2 and Figure 3, gender bias in favour of boys in school enrollment is prominent only at the higher level of schooling, but gender bias in access to quality education, through higher school spending and additional private tuitions is evident across primary, middle and secondary schooling. Again note, that conditional on being enrolled in school as well as in tuition, gender disparity in private tuition spending is not very prominent. However, this is just a descriptive analysis. To draw concrete conclusion, Section 4.2 presents the results for the hurdle model.

Figure 3
Average Education (School and Private Tuition) Spending of Enrolled Boys and Girls by the Schooling Level (in Rs)



Source: IHDS-II (2011-12)

Hurdle Model

The results of the empirical analysis are presented in two sub-sections. In Section 4.2.1, hurdle model analyses gender discrimination in school enrollment and school spending, conditional on being enrolled in school. In Section 4.2.2, hurdle model analyses gender discrimination among the school going children, in private tuition enrollment and tuition spending, conditional on being enrolled in tuition.

Gender Bias in School Enrollment and School Spending

Table 1 presents the two-tier hurdle model for schooling decision. Column [1], [3] and [5] of Table 1 presents the average marginal effects of the probit models on *School Enrollment* for the three levels of schooling, primary middle and secondary school, respectively. Conditional on being enrolled in a school, Column [2], [4] and [6] present the result for the OLS on the log of *School Expenditure* for the three levels of schooling, respectively.

Table 1
Hurdle model on School Enrollment and Schooling Expenditure by Schooling Level

Variables	Primary Education		Middle Education		Secondary Education	
	Probit [1]	Conditional OLS [2]	Probit [3]	Conditional OLS [4]	Probit [5]	Conditional OLS [6]
Male	0.00004 (0.0044)	0.0131 (0.0229)	0.0229** (0.0073)	-0.0113 (0.0347)	0.0564*** (0.0074)	0.0883*** (0.0260)
Age	0.0655*** (0.0014)	0.0540*** (0.00968)	-0.0836*** (0.0045)	-0.0253 (0.0238)	-0.0992*** (0.0032)	-0.0468*** (0.0134)
No of Brothers (0-20 yrs)	-0.0105*** (0.0019)	-0.0453*** (0.0117)	-0.0197*** (0.0035)	0.0143 (0.0172)	-0.0221*** (0.0037)	-0.0177 (0.0136)
No of Sisters (0-20 yrs)	-0.0059** (0.0018)	-0.0247** (0.00969)	-0.0086** (0.0031)	-0.0192 (0.0151)	-0.0086 (0.0034)	0.0113 (0.0126)
<i>Highest Education of Adult (No Education)</i>						
Primary Education	0.0599*** (0.008)	0.0831** (0.0415)	0.0979*** (0.0129)	0.0182 (0.0607)	0.0889*** (0.0137)	-0.0337 (0.0584)
Secondary Education	0.0848*** (0.0067)	0.243*** (0.0349)	0.1599*** (0.0112)	0.0487 (0.0523)	0.2141*** (0.0112)	0.0743* (0.0434)
Higher Education	0.0965*** (0.0088)	0.542*** (0.0439)	0.1998*** (0.0141)	0.219*** (0.0661)	0.3582*** (0.0143)	0.264*** (0.0501)
Ln (Per Capita Consumption Expenditure)	0.0503*** (0.0051)	0.483*** (0.0232)	0.0569*** (0.0083)	0.469*** (0.0340)	0.1081*** (0.0077)	0.365*** (0.0243)
Distance from School (kms)		0.0481*** (0.00521)		0.0371*** (0.00725)		0.0171*** (0.00214)

Variables	Primary Education		Middle Education		Secondary Education	
	Probit	Conditional OLS	Probit	Conditional OLS	Probit	Conditional OLS
	[1]	[2]	[3]	[4]	[5]	[6]
<i>Standard</i>		0.0888*** (0.0119)		0.0624*** (0.0236)		0.178*** (0.0149)
<i>Type of School (Govt)</i>						
<i>Govt Aided</i>		0.570*** (0.0745)		0.314*** (0.0784)		0.410*** (0.0438)
<i>Private</i>		1.333*** (0.0546)		0.934*** (0.0589)		0.775*** (0.0306)
<i>Caste (Others)</i>						
<i>OBC</i>	-0.017** (0.0059)	-0.141*** (0.0288)	-0.0165* (0.0096)	-0.0721* (0.0438)	-0.0178* (0.0099)	-0.0800*** (0.0285)
<i>SC</i>	-0.0317*** (0.0073)	-0.143*** (0.0352)	-0.067*** (0.0122)	-0.0443 (0.0528)	-0.0679*** (0.0116)	-0.157*** (0.0352)
<i>ST</i>	-0.0331** (0.0096)	-0.0960** (0.0488)	-0.0802*** (0.0158)	-0.0508 (0.0740)	-0.0768*** (0.017)	0.0922* (0.0545)
<i>Religion (Hindu)</i>						
<i>Muslim</i>	-0.0428*** (0.0074)	-0.304*** (0.0373)	-0.1154*** (0.0139)	-0.202*** (0.0626)	-0.1927*** (0.012)	-0.106** (0.0508)
<i>Others</i>	-0.0292** (0.0147)	0.0886* (0.0491)	-0.0308 (0.023)	-0.0400 (0.0777)	0.0108 (0.0211)	-0.124 (0.0759)
<i>Rural</i>	-0.0142** (0.0058)	-0.0807*** (0.0282)	0.0279** (0.0092)	-0.0660 (0.0446)	-0.0244** (0.0089)	-0.0812*** (0.0302)
<i>Observation</i>	20,832	17,530	8,461	6,944	12,454	7,643
<i>R-squared</i>	0.2397	0.559	0.1935	0.4830	0.2248	0.408

Notes: Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

All the models include state fixed effects

Source: IHDS-II (2011-12)

The size and significance of the coefficient on the dummy for the gender of the child, *Male*, suggests the extent of intra-household gender discrimination. According to the probit estimates of *Male*, there is no significant gender difference in the probability of being enrolled in school at the primary education level. However, boys have a significant advantage at 2.29 percent point of being enrolled in middle school and about 5.6 percent point of being enrolled in secondary school as compared to the girls. The coefficient on *Male* in the conditional OLS regression suggests that conditional on being enrolled in a school, there is no significant gender bias in school spending among the primary and middle school children. However, among the secondary

school children, household spends about 8.83 percent point higher on boys than on girls.

Gender Bias in Tuition Enrollment and Tuition Spending

Parents motivated enough to enrol both their girls and their boys in school, might consider the quality of education for boys more seriously than that for their girls, which is partly captured by the magnitude of school spending. However, gender bias in provision of quality education can also be revealed from (1) the decision to whether enrol a child in a private tuition or not; (2) conditional on being enrolled in a tuition, the tuition spending on the child. The total tuition fees of an individual child depends on the number of private tuitions being attended by the child, for different school subjects that are covered in the tuition. A look at the demand for private tuition is crucial since the decision to enrol a child in private tuition and the spending on tuition can reflect a different gender discrimination pattern as compared to the schooling decision and schooling expense.

Table 2
Hurdle model on Tuition Enrollment and Tuition Spending by Schooling Level

Variables	Primary		Middle		Secondary	
	Probit [1]	Conditional OLS [2]	Probit 3]	Conditional OLS [4]	Probit [5]	Conditional OLS [6]
Male	0.0194*** (0.0053)	0.184** (0.0834)	0.0279** (0.0085)	-0.0075 (0.113)	0.0561*** (0.0098)	0.193* (0.0986)
Age	-0.0006 (0.0023)	-0.0221 (0.0363)	-0.0187** (0.0059)	0.0209 (0.0765)	-0.0333*** (0.0054)	-0.00771 (0.0550)
Highest Education of Adult (No Education)						
Primary Education	0.0032 (0.009)	-0.119 (0.173)	-0.0032 (0.0146)	0.228 (0.212)	0.0132 (0.0194)	-0.170 (0.200)
Secondary Education	0.051*** (0.0078)	0.116 (0.141)	0.0367** (0.0122)	0.477** (0.188)	0.0379** (0.0159)	0.0720 (0.165)
Higher Education	0.0073 (0.0101)	0.242 (0.170)	0.0364** (0.0165)	0.324 (0.242)	0.0386** (0.0191)	0.0851 (0.189)
No of Brothers (0-20 yrs)	-0.0127*** (0.0028)	-0.0300 (0.0475)	-0.0081* (0.0045)	0.00815 (0.0654)	0.0078 (0.0052)	0.0184 (0.0465)
No of Sisters (0-20 yrs)	-0.016*** (0.0025)	-0.0301 (0.0429)	-0.0092** (0.004)	-0.178*** (0.0593)	-0.0048 (0.0048)	0.0507 (0.0480)
ln(Per capita Consumption Expenditure)	0.0617*** (0.0056)	0.488*** (0.0897)	0.0865*** (0.0083)	0.232* (0.126)	0.1142*** (0.0094)	0.617*** (0.109)
Distance from School (in kms)	0.0006 (0.0008)	0.00710 (0.0108)	-0.0032** (0.0015)	0.0254 (0.0178)	-0.0015 (0.0007)	0.000516 (0.00892)

Variables	Primary		Middle		Secondary	
	Probit [1]	Conditional OLS [2]	Probit 3]	Conditional OLS [4]	Probit [5]	Conditional OLS [6]
Standard	0.0173*** (0.0029)	0.130*** (0.0448)	0.019** (0.0059)	0.0616 (0.0761)	0.0203** (0.0059)	0.128** (0.0640)
<i>Type of School (Govt)</i>						
Govt Aided	0.0429** (0.0163)	0.0243 (0.247)	0.0887*** (0.0213)	-0.253 (0.280)	0.0377** (0.0191)	0.0630 (0.197)
Private	0.0178* (0.0108)	0.233 (0.164)	.0346** (0.0147)	0.365* (0.191)	0.0299** (0.0133)	-0.246* (0.141)
<i>Caste (Others)</i>						
OBC	0.0032 (0.0072)	0.0961 (0.108)	-0.0109 (0.0112)	0.0109 (0.156)	-0.0091 (0.0126)	0.0637 (0.118)
SC	-0.01 (0.0084)	0.0511 (0.118)	-0.0281** (0.0135)	0.168 (0.161)	-0.035** (0.0147)	0.140 (0.141)
ST	-0.0724*** (0.0112)	-0.331 (0.218)	-0.1063 (0.0173)	-0.111 (0.311)	-0.1612*** (0.0216)	-0.298 (0.331)
<i>Religion (Hindu)</i>						
Muslim	-0.0315*** (0.0077)	-0.357*** (0.136)	-0.0336** (0.0131)	0.00207 (0.172)	-0.0541** (0.0163)	0.0240 (0.149)
Others	-0.0026 (0.0142)	0.0680 (0.238)	-0.0198 (0.0195)	-0.0989 (0.340)	-0.0026 (0.0246)	0.309 (0.266)
Rural	-0.0942*** (0.0061)	-0.318*** (0.0957)	-0.0719*** (0.0098)	-0.314** (0.138)	-0.0829*** (0.0114)	-0.0763 (0.114)
Observation	17,089	3,369	6,741	1,475	7,209	2,444
R-squared	0.2396	0.187	0.2846	0.190	0.2148	0.167

Notes: Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

All the models include state fixed effects. Source: IHDS-II (2011-12)

Similar to the hurdle model for school enrollment and school expense, Table 2 presents three hurdle models for three levels of schooling for tuition enrollment decision and conditional on being enrolled in private tuition, the amount spent over tuitions. Columns [1], [3] and [5] in Table 2, present the coefficients for Probit estimates on *Tuition Enrollment* decision for children in primary, middle and secondary school, respectively. Columns [2], [4] and [6], further presents the coefficient for conditional OLS on *Tuition Expenditure* for primary, middle and secondary school children, conditional on attending private tutorials. The marginal effects on *Male* in the probit estimates are positive and statistically significant across all the levels of schooling, indicating a pro-male bias in private tuition enrollment. At primary level of schooling,

the probability of a boy being enrolled in private tuition is about 1.9 percent point more than the probability of a girl being enrolled in the same. The gender difference in the probability of being in private tuition enrollment increases to 2.7 percent point in middle school, and further to 5.6 percent point in secondary school. The coefficient on *Male* in the conditional OLS is positive and statistically significant among the primary and the secondary school children. The coefficient on *Male* in case of primary school children is 1.8, which implies 1.8 percent point more tuition money spent on boys than on girls. Again at the secondary level of schooling, household tend to spend about 1.9 percent point higher on the private tuitions of boys than on girls.

Household Fixed Effects

Table 3 and Table 4 present the hurdle models with and without the household fixed effects for schooling and private tuition decisions, respectively, by choosing households which have at least one girl and one boy in the concerned age group. As specified by Jensen (2003), the problem of endogeneity might arise if the household size is included. Hence, as a solution to such endogeneity problem, the results from the two equations, with and without household fixed effects, are used to check the robustness of the model. Note, that for the ease of selection of households by concerned age group, children have been divided into two age groups, children corresponding to primary education level (5 to 14 years) and secondary education level (15 to 20 years), since IHDS provides the number of siblings of age group 0 to 14 years and 15 to 20 years.

Table 3
With and Without Household Fixed Effects in Schooling Expenditure

Variables	Primary Education				Secondary Education			
	Without Fixed Effects		Household Fixed Effects		Without Fixed Effects		Household Fixed Effects	
	Probit	Conditional OLS	Probit	Conditional OLS	Probit	Conditional OLS	Probit	Conditional OLS
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Male	-0.0058 (0.0047)	-0.0063 (0.0236)	0.0032 (0.0046)	-0.0146 (0.0223)	0.2245*** (0.0512)	.1078842 .053	0.0944*** (0.0132)	0.1041** (0.0427)
Age	0.0189*** (0.0009)	0.0289*** (0.0083)	.0178*** (0.001)	-0.0045 (0.0083)	-0.3307*** (0.0198)	-.0256592 .0227	-0.1033 (0.0057)	-0.0473** (0.023)
Observations	21,802	18,440	21,851	18,475	4,611	2,695	4,614	2,696
R-squared	0.1150	0.5313	0.0567	0.5099	0.2383	0.3963	0.1060	0.3606

Notes: Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

All the models include state fixed effects.

Source: IHDS-II (2011-12)

Table 4
With and Without Household Fixed Effects in Tutoring Expenditure

Variables	Primary Education				Secondary Education			
	Without Fixed Effects		Household Fixed Effects		Without Fixed Effects		Household Fixed Effects	
	Probit	Conditional OLS	Probit	Conditional OLS	Probit	Conditional OLS	Probit	Conditional OLS
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Male	0.0194*** (0.0055)	0.0852 (0.0862)	0.0137** (0.0052)	0.0046 (0.0793)	0.0648** (0.0198)	0.44* (0.2251)	0.0423** (0.0167)	0.2849* (0.1719)
Age	-0.0058** (0.0019)	0.0027 (0.0321)	-0.0125*** (0.0019)	-0.0401 (0.0314)	-0.0332*** (0.0087)	0.0241 (0.0939)	-0.0391*** (0.0089)	0.011 (0.0934)
Observations	17,988	3,360	18,023	3,368	2,529	821	2,530	821
R-squared	0.2480	0.1818	0.2024	0.1585	0.2162	0.2021	0.1780	0.1709

Notes: Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

All the models include state fixed effects.

Source: IHDS-II (2011-12)

In both the tables, Column [1] and [2] present the coefficient for the hurdle model without household fixed effects and Columns [3] and [4] presents the coefficient for the hurdle model with household fixed effects for the primary education age group. Similarly, Column [5], [6], [7] and [8] present the same for the secondary education age group. The probit models with household fixed effects only controls for the individual factors of children, i.e. their gender and their age, whereas the conditional OLS with household fixed effects controls for the individual factors as well as the schooling factors of children. Table 3 on school enrollment and school spending suggests robustness in both the results of probit and conditional OLS between equations, with and without household fixed effects in the primary education level as well as the secondary education level for the coefficient on *Male*, except for the probit result in the primary education level. Even Table 4 suggests robustness in models, with and without the household fixed effects, both at the primary and secondary level of education.

V. CONCLUSION

Gender bias in intra-household allocation of consumption goods has been well studied in the literature with particular attention to the appropriate methodology that efficiently captures the extent of discrimination. This paper uses the two-part hurdle model suggested by Kingdon (2005) to analyse gender discrimination in intra-household education spending. The use of the two-part hurdle model is justified by the fact that zero education spending and amount of education spending, conditional on positive spending are two separate decision-making processes. Shortcoming in earlier works is that they added up tuition spending along with the school fees and other school spending, conditional on being enrolled in school and completely ignored the zero

tuition spending decision. Literature specifies that private tuition is a supplementary education system outside the conventional schooling system and hence involves separate enrollment decisions and separate spending, conditional on enrolment (Bray, 1999). The novelty of this paper is that it diagnoses gender discrimination in education at two stages, schooling decision and private tutoring decision. First, it tests the extent of gender discrimination practised in school enrollment, then conditional on being enrolled in school and it studies gender discrimination in the provision of quality education through school spending and private tuition enrollment decision. Further, conditional on being enrolled in private tuition, it identifies if gender bias exists in private tuition spending.

This paper finds distinct gender discrimination in school enrollment and conditional on being enrolled in school, a pro-boy bias in school spending and also in private tuition enrollment. Although, there is no significant discrimination in either enrollment or spending among the primary school children, distinct school enrollment bias among middle school children and a significant pro-boy bias among secondary school children in both enrollment and school spending is evident. Note that discrimination in school enrollment and conditional school spending increases over the level of schooling. Once a girl child crosses the first hurdle of being enrolled in school, she faces considerable bias in tuition enrollment relative to boys across all grades of schooling. The gender gap in private tuition enrollment decision also intensifies with the grade of schooling. A considerable pro-boy bias in conditional tuition spending is evident at the primary and the secondary level. The findings only assert the presence of high-intensity within-household gender discrimination in education expenses among the children, especially at the secondary level.

A drawback of the study is that school availability could not be considered in households' school enrollment decision due to lack of information in the IHDS data, although it could be a prime reason for the apparent gender disparity. For instance, parents might be reluctant to send their girls in co-educational schools due to gender segregation norms common in India, and as many villages in India still do not have an all-girls school, especially that provide high school education, and hence it becomes difficult for girls to continue their education in schools. Moreover, sometimes the school is located too far for the parents to ensure the security of transportation for girls or the school premises might lack proper toilets for the girls, and hence girls drop out of the school.

The findings have important policy implications for India that may help in reducing the gender bias practice in provision of education to the girls and facilitate greater female empowerment and escalate female participation in the workforce. Since gender discrimination is evident within the household, implementation of Conditional Cash Transfer programs both from the state and the centre, such as targeting the girls

will give both the families and the girls' greater motivation to continue with higher education. Secondly, awareness programs like "Beti Bachao, Beti Padhao" should be accelerated to motivate and educate parents of the importance of a girl's education and its equivalence to that of a boy's education. Finally, the schooling system of India should give special attention to the quality of education, so that private tuition is less encouraged and hence it helps in reducing further gender discrimination in access to quality education.

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APPENDIX

Figure 4

Kernel Density of school expenditure conditioned on being enrolled in school

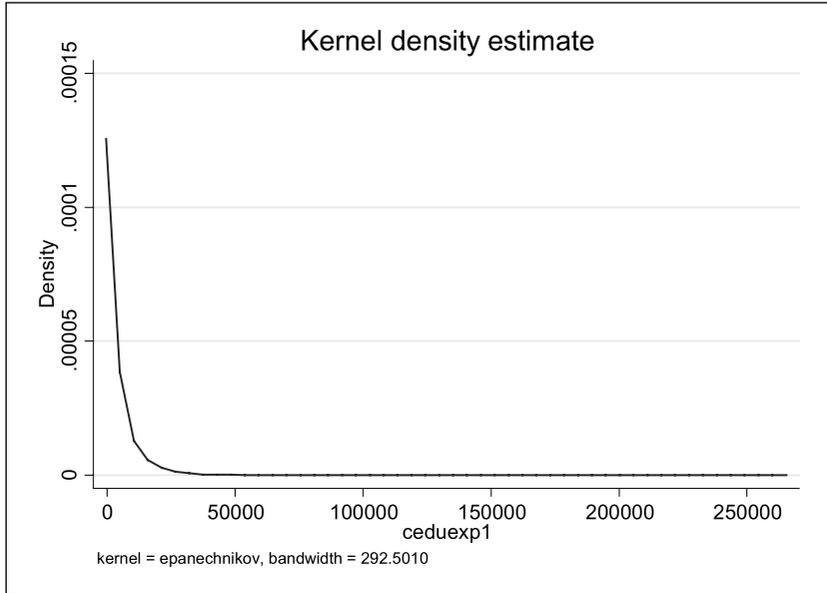


Figure 5

Kernel Density of ln(school expenditure) conditioned on being enrolled in school

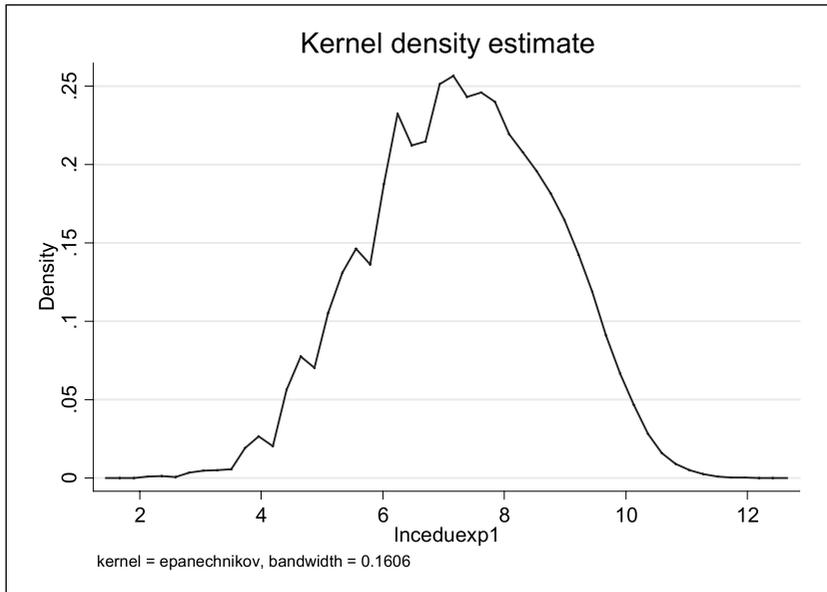


Figure 6

Kernel Density of tuition expenditure conditioned on being enrolled in private tuition

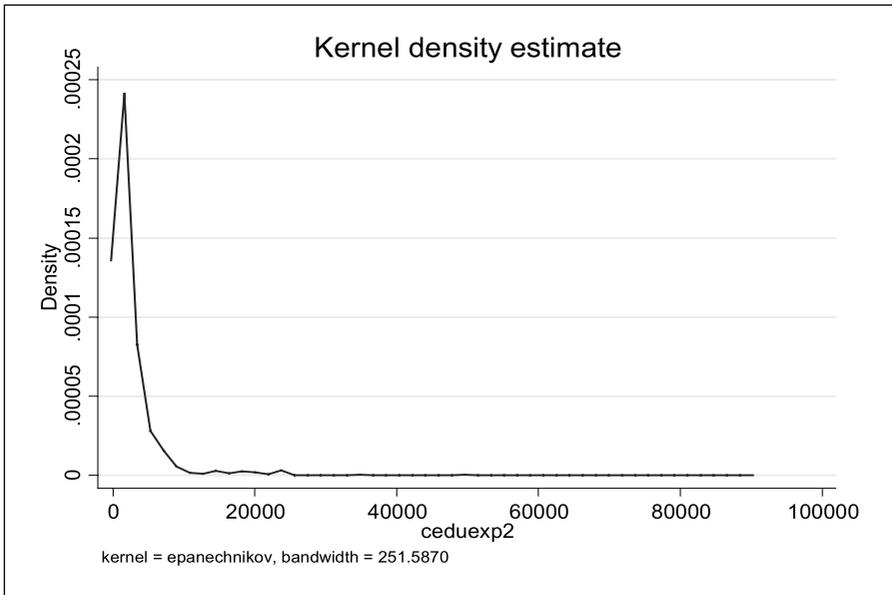
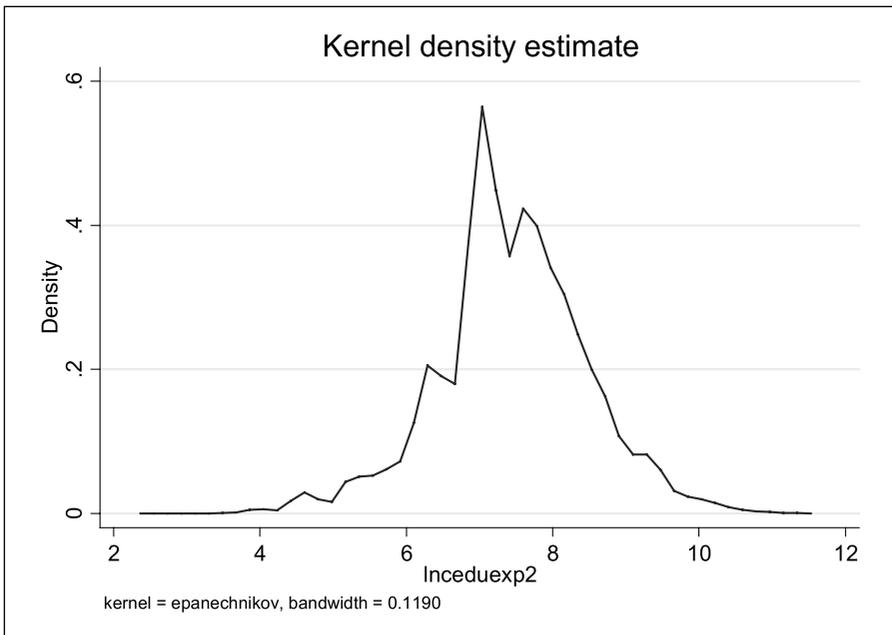


Figure 7

Kernel Density of ln(tuition expenditure) conditioned on being enrolled in private tuition



Rural Women Empowerment and its Relationship with Economic Development: A Study of Cachar District of the State Assam

Subhrabaran Das and Pushpalata Singh**

Women empowerment is one of the key dimensions for development of the countries. Although women are significant contributors in the families but in most of the cases, women especially belonging to the rural areas are neglected in the society. To accelerate the economic development, empowerment of women is crucial as empowered women can perform a substantial role in the process of development. The study focuses on status of women empowerment through the construction of Women Empowerment Index (WEI). The study also attempts to examine the relationship between women empowerment and their economic development. The study was conducted at the village level in Cachar district of state of Assam in India. This study reveals poor empowerment status of the women belonging to the rural areas and a positive and significant relationship between economic development and women empowerment at the micro level.

Keywords: *Principal component analysis, Women empowerment index, Economic development index*

I. INTRODUCTION

The status of women and their importance in any society is a mark of its civilization. But, women are the most underprivileged sections in the society due to the high gender inequality. They can't take their own decision because of male dominance. Empowerment is the process of enabling or authorizing an individual to think, behave, to take action and to control work in an autonomous way. It is the state of feeling of self-empowered to take control of one's own destiny. It includes both control over resources (physical, human, intellectual and financial) and over ideology (belief, values and attitudes) (Batliwala, 1994). Parveen (2007) describes it as a process of changing the power potential within an individual first and consequently, a change of relationship at different individuals, groups and societal levels. These changes would be permanent and thus, necessitate constant efforts by development agencies

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over a long period of time. Thus, women empowerment seems a struggle against the patriarchal social system. It is both- a process and a result of the process. Empowerment can also be viewed as a means of creating a social environment in which one can take their own decisions and make their own choice either individually or collectively for social transformation. It is a multi-dimensional social process that helps people gain control over their own lives, communities and in their society, by acting on issues that they define as important. Empowerment occurs within sociological, psychological and economic spheres at various levels, such as individual, group and community and challenges our assumptions about status-quo, asymmetrical power relationship and social dynamics (Biswas, 2007).

Women should be weighed up as equal partners in the process of development. But due to exploitation and suppression from centuries, the position of Indian women in the society has remained at the receiving end.

Male dominations and gender discrimination are customized habitually in our society. Though the Constitution of India is based on the principles of liberty, fraternity, equality and justice to all citizens but, unfortunately these affirmations remain limited to only the papers. The fruits of development are not being shared equally by men and women on any front. Women are lagging behind not because that they are incapable but because they are not getting enough opportunities to prove their determination.

It has been increasingly felt that across the country, women are facing threat to their lives, health and well-being. In spite of the various welfare related activities for women, the predicament of women in the country is not very sound. In all spheres of life, they are discriminated. They are getting less education, enjoying less health care facilities and less nutrition than men but are being over-represented among poor and powerless. So far, some progress has been made in developing women's capabilities, but women still live in an unequal world.

After 60 years of Independence, the Government of India realized the importance of women and the first step towards women empowerment was taken by passing women's reservation bill (108th Amendment) in the higher Parliamentary body, Rajya Sabha on 9th March, 2010. The bill would give women a platform to voice their opinion. It will help to realize the dreams of thousands of women still fighting discrimination every day. But, unfortunately the passing of final stage of this bill (108th Amendment) is pending in the Lower house of Parliament (Lok Sabha) till date due to lack of unanimity among the political parties. It implies that although women were neglected earlier in the society but their empowerment is very much necessary to integrate them in the country's mainstream. This shows that even of late, the Government of India has realized the fact that women need to be empowered to contribute towards economic development. So, this study remains relevant with reference to recent perspectives and development.

The need to bring women into mainstream development has been a national concern since early fifties. Women empowerment is a globally important issue. One of the Millennium Development Goals (MDG) of the United Nations is to promote gender equality and women empowerment. The women's economic empowerment is a virtual "magic potion" for development and presents a cornucopia of positive consequences at levels ranging from the woman and her family to nations and global economy. To achieve MDG, two targets viz; 'promoting gender-equality and empower women' are vital (Blumberg and Kenen, 2005).

Women empowerment facilitates autonomy and control over their lives. The empowered women become agents of their own development, they are able to exercise choices to set their own agenda and become strong enough to meet head-on and alter their subordinate position in the society. Empowerment is individual's self-governance, self-sufficiency and self-maintenance. Empowerment of women in the Indian context means development of women's capacity to make informed choices and expansion of their capacity to manage their domestic and economic environment effectively (Sinha, 2009).

The most essential thing we have within us is our capability to function effectively as rational beings. Sen (1993) suggests that freedom is both the end and the means to development and he classifies capability as a type of freedom that enables one to choose a lifestyle one wants to live with. But, one basic question that needs to be asked is – "Are the capabilities of Indian women actualized?"

In India, it is commonly noticed that women are mostly deprived. In almost all areas, they face violence, discrimination and sexual abuse. Without the actualization of their capabilities, women cannot function effectively. So, investment in women's capabilities and their empowerment to open out their choices is not only important but also a definite means to contribute to the economic growth and development of the nation.

Economic development is very much important for any contemporary society as it gives a country the potential to prosper and grow. The actual goal of economic development is the improvement of the quality of life of ordinary citizens. So, in this sense, economic development creates a completely new standard of living for people and thereby transforms a simple, low-income economy to a modern, high-income economy. In other words, economic development is the development of economic wealth of countries or regions for well-being of their inhabitants. Economic development can also be enhanced by improvement in the local quality of life. Now, without the participation of women, a nation or a society cannot achieve economic development. Without involvement of women in the development process, inclusive growth and development of the economy remains a far fetched dream. On the threshold of the

twenty-first century, we find that the condition of women folk, particularly those of rural community is still very deplorable (Kumar, 2009). Consequently, it is significant to empower the women as they form a large component of human resource of our country. Unless women are given sufficient opportunities for developing their vision, maintaining their health, respect and political socio-economic status, overall efforts may not achieve the ultimate objective of a strong, civilized and prosperous nation. Health, education and economic potential of women has to be taken care of in order to harness the rich resources of women power fully for the overall development of the society. Thus, increasing economic opportunities for women is essential not only for improving women's lives but also for accelerating economic growth and development, with potential to lift hundreds of millions of people out of poverty.

Hossain et. al. (2006) proposed an alternative approach, presumed to be suitable for the empowerment of women in Bangladesh. The study reveals that in Bangladesh, customary male dominated attitude towards women is the major encumbrance to the pathway of women empowerment. The study further concludes that a comprehensive and coordinated approach termed as 'Change Approach' comprising of three existing approaches of women empowerment viz; integrated development approach, economic development approach and consciousness is rising and organizing approach would be suitable for the empowerment of women in this challenging era of globalized world.

Warth and Kaparanova (2012) have explained the interrelationship between women empowerment and sustainable development through the lens of intra and inter-generational justice. The study found that women spend fewer hours in paid employment than men. Due to discrepancy in earnings, women accumulate less income than men over their lifetime. Their low earnings increase their vulnerability to poverty, not only during working lives but also during old age and increase their economic dependence on their male breadwinner. Particular attention needs to be paid to sex-disaggregated data of environmental indicators; and the efforts of international organizations at regional and global levels as well as of national institutions needs to be strengthened. There is a relative knowledge and awareness gap with regards to gender and environment. They suggest a gender-sensitive education which can challenge gender stereotypes and promote more equitable relations between women and men. Equal participation in decision-making and a balanced involvement of both men and women in all the policy areas and at all levels of implementation will ensure that women and men take equal responsibility for the equitable distribution of resources, over the course of people's lives and between present and future generations.

Matheswaran (2008) made a case study of Tamil Nadu for studying how Self Help Group (SHG) movement can promote women empowerment for attaining sustainable development. He found that SHGs help women-folk to participate in

organized activities apart from helping members to mobilize funds. This case study reveals that given the assistance and guidance, the SHGs are bound to help not only in empowering women but also to tap and utilise the unutilized power of women for sustainable development of the society as a whole. He concluded that education, particularly distance education is an enabling factor for women empowerment and sustainable development of the society.

Mahmud et. al. (2012) measured the empowerment of rural women in Bangladesh. They used a number of selected indicators viz; self-esteem, role in decision-making, freedom of mobility and control of resources. It was found that women are most likely to feel empowered with respect to household decision-making and self-esteem but relatively less likely to experience empowerment with respect to access to cash and least likely in terms of freedom of mobility. The study reveals that the women in the wealthiest households have lower scores on decision-making even though they are more likely to have greater access to cash. Comparing the relative importance of the covariates in predicting empowerment, it was also found that access to television has a positive and consistent relationship with three empowerment indicators ie; women who watch television are more likely to have cash to spend, to have greater freedom of mobility and less likely to justify wife-beating. Household wealth has a significant and positive association with a woman's resource control but insignificant negative association with her total decision-making score. A woman's year of schooling is significantly associated with freedom of mobility and self-esteem indicator.

Das and Singh (2012) examined the relation between gender inequality in work participation and in the literacy of rural women and the problems faced by them in the Cachar district of Assam. The study revealed that gender inequality in work participation is more than the gender inequality in literacy which ultimately leads to low value of Gender Development Index (GDI). Greater percentage of women are allowed to participate in making decisions like purchase of daily household needs, visit to relatives and son's and daughter's marriages while very few of them have the freedom to participate in making decisions like family planning, children's education and major household decisions. Very few women are also allowed to go outside the residential area alone. One of the major problem faced by the working married women is that they are not free from family obligations even though they are employed. It is also observed that women's political opinion depends mostly on their male counterparts.

Duflo (2011) has examined the relationship between women empowerment and economic development. He opines that while development itself can bring about women's empowerment, empowering women will bring about changes in decision-making, which will have a direct impact on the development. He also argues that economic development alone is insufficient to ensure significant progress in important

dimensions of women's empowerment, in particular, significant progress in decision making ability in the face of pervasive stereotypes against women's ability in one hand. On the other hand, women's empowerment leads to improvement in some aspects of children's welfare (health and nutrition, in particular), but at the expense of some others (education).

The present study focuses on the rural women of the Cachar district of Assam. Cachar district is located in the southernmost part of Assam. It is bounded on the north by Barail and Jayantia hill ranges, in the south by the state of Mizoram and in the east by the districts of Hailakandi and Karimganj. The district lies between 92°24' E and 93°15' E longitude and 24°22' N and 25°8' N latitude. The total geographical area of the district is 3,786 sq.km. which is 4.8 per cent of total geographical area in Assam. There are five revenue circles and fifteen community development blocks (CD) in the district.

II. OBJECTIVES AND METHODOLOGY

The study aims to achieve the following three objectives:

- To examine the socio-economic status of rural women compared to men of Cachar district of Assam.
- To construct village-wise Women Empowerment Index (WEI).
- To examine the relationship between women empowerment and economic development.

Research Questions

On the basis of above mentioned objectives, three research questions include the following:

- What is the present socio-economic status of rural urban women in Cachar district?
- Is there any disparity of women empowerment among the villages in Cachar district?
- How women empowerment and economic development are inter-related?

Methodology for Data Collection

The methodology of this study is divided into two parts- viz. methodology for data collection and methodology for data analysis.

For the study, the data has been collected mainly from primary sources. The primary data has been collected from the rural area of Cachar District by using three-stage stratified random sampling method. In the first stage, three blocks viz; Sonai, Udharbond and Narshingpur have been selected from the 15 blocks in Cachar District

based on large demographic size. In the second stage, five large villages have been selected according to demographic size from the each selected block. So, a total of 15 villages have been selected. In the last stage, eight households have been selected randomly from each selected villages. So, finally a total of 120 households have been selected. Moreover, the primary data have been collected by taking an interview from an adult married woman of each household through a scheduled questionnaire.

Methodology for Data Analysis

To examine the socio-economic status of the women compared to their male counterpart, the analysis was divided into two parts. In the first part, overall socio-economic status was examined by using Gender Development Index (GDI) measurement. GDI is a composite indicator of gender equality developed by United Nations (UN) and was measured by considering two dimensions viz; social dimension and economic dimension. Social dimension is reflected by education and economic dimension is reflected by work participation rate and income. Equal weights were used for calculating Equally Distributed Economic Index (average of Equally Distributed Work Participation Index and Equally Distributed Income Index). Equal weights have also been used for calculating Equally Distributed Social Index (alternatively, it is used as Equally Distributed Education Index).

GDI was calculated using the following three steps. Firstly, female and male indices in each dimension were calculated according to the given formula:

$$DimensionIndex = \frac{ActualValue - MinimumValue}{MaximumValue - MinimumValue} \tag{1(a)}$$

Secondly, the female and male indices in each dimension were combined in a way that penalizes differences in achievement between men and women. The resulting index was calculated according to the general formula:

$$EquallyDistributedIndex = \{[femalepopulationshare(femaleindex^{1-\epsilon})] + [malepopulationshare(maleindex^{1-\epsilon})]\}^{1/1-\epsilon} \tag{1(b)}$$

Here, ϵ measures the aversion to inequality. The value of ϵ is the size of the penalty for gender inequality. The larger the value, the more heavily a society is penalized for having inequalities. If $\epsilon=0$, gender inequality is not penalized. As ϵ increases towards infinity, more and more weight is given to the lesser achieving group. The value 2 was used in calculating the GDI. This value places a moderate penalty on gender inequality in achievement.

Thus, the general equation becomes:

$$EquallyDistributedIndex = \{[femalepopulationshare(femaleindex^{-\gamma})] + [malepopulationshare(maleindex^{-\gamma})]\}^{-\gamma} \tag{1(c)}$$

Equally Distributed Index gives the harmonic mean of female and male indices. Finally, the GDI was calculated by averaging of these two equally distributed indices.

The second part of the first objective was analyzed by using only primary data. To measure decision making power of women on six different aspects, coding and scaling were used. As decision making is a quality aspect, a binary option was taken to quantify it. If the women had no decision making power, then the value was considered zero otherwise it was considered as one. The six different aspects included viz; purchase of daily household needs, visit to relatives, family planning, children's education, son's and daughter's marriage and major household decisions. To take some crucial decisions like children's education, son's and daughter's marriage etc., sometimes joint decision was commonly preferable over asingle person's decision. So, it is important to check whether the women are playing a participatory role in this decision making process or not. For joint and single decisions, the value was considered one if women were playing a participatory role. For the total of six aspects, maximum value of the coding was six. To measure the degree of autonomy in the decision making process, three scalings were used; the value of the coding up to two out of six was considered as low degree of autonomy, up to four as medium degree and above four as high degree of autonomy.

To examine the village-wise status of women empowerment, a Women Empowerment Index (WEI) was constructed using Principal Component method. Before using Principal Component Analysis (PCA) a multi-variate Factor Analysis was used to address the inter-relationship among the set of observed variables. The primary purpose of factor analysis is the derivation of a set of observed variables in terms of new categories called factors. A factor explains the several observed variables. There may be one or more factors depending upon the nature of the study and the number of variables involved in it. For the present study, twelve socio-economic indicators related to gender issues were considered viz. female workers excluding tea-labourers, access to bank account, access to ATM facilities, own operation of their ATM, access to small purchases, access to large purchases, female literacy (above ten class standard), autonomy to participate in family decision making process, freedom to go outside their locality alone, physically or domestically not humiliated, involvement in socio-cultural activities and freedom to vote by own choice. These indicators were included in the factor analysis model to develop a comprehensive index. The validity of factor analysis was tested using Bartlett's test and Kaiser-Meyer-Olkin (KMO) measure. Bartlett's examines whether the correlation matrix is an identity matrix, which would test the appropriateness of the factor model. KMO measure compares the value of the partial correlation coefficients against the total correlation coefficients. The factors are then extracted using Principal Component method. The aim of Principal Component method is the construction of a given set of variables X_j 's ($j=1,2,\dots,k$) of new variables ($P_i \forall i=1,2,\dots,k$), called i th Principal Components which are linear combinations of the X_k

$$P_1 = a_{11}X_1 + a_{12}X_2 + \dots + a_{1k}X_k$$

$$P_2 = a_{21}X_1 + a_{22}X_2 + \dots + a_{2k}X_k$$

$$\dots$$

$$P_k = a_{k1}X_1 + a_{k2}X_2 + \dots + a_{kk}X_k$$

The method is being applied mostly by using the standardized variables, i.e.,

$$Z_j = \frac{(X_j - \bar{X}_j)}{\sigma_j} \tag{3(a)}$$

The a_{ij} 's are called factor loadings and are worked out in such a way that the extracted principal components satisfy two conditions: (i) principal components are uncorrelated (orthogonal) and (ii) the first principal component (P_1) has the maximum variance, the second principal component (P_2) has the next maximum variance and so on.

According to the Kaiser's criterion only the Principal Components having latent root or characteristic root greater than one are considered as essential and that should be retained. The Principal Components so extracted and retained are then rotated from their beginning position to enhance the interpretability of the factors. Communality, symbolized as h^2 , is then worked out which shows how much of each variable is accounted for by the underline factors taken together. A high communality figure means that not much of the variables are left over after whatever the factors represent is taken into consideration (Antony and Rao 2007).

So, h^2 of the i^{th} variable = (i^{th} factor loading of factor A)² + (i^{th} factor loading of factor B)² +

The amount of variance explained (sum of squared loadings) by each Principal Component factor is equal to the corresponding roots. When these roots are divided by the number of variables they show the characteristic roots as proportions of total variance explained. The variables are then regressed against each factor loading and the resulting regression co-efficient are used to generate what are known as factor scores (f_{jk}). This score measure the position of the j^{th} village in relation to the others with respect to the k^{th} factor. Here this is done using SPSS procedure. To compute a WEI, the factor scores and the corresponding weight are used. So, a composite index is developed for the j^{th} village as the weighted sum of scores for that village, the weight being the percentage of the variations explained by the factors. If the percentage of the variations of the k^{th} factor is denoted by S_k^2 , then the index for the j^{th} village can be calculated by using the formula:

$$H_j = \sum S_k^2 f_{jk} \quad j = 1, 2 \dots j \tag{3(b)}$$

This index measured the empowerment of women of one village relative to the other on a linear scale. The index value was calculated for each village and the value

of the index could be negative or positive and can measure one value relative to the other. However, for ease of comparison this index was standardized to a scale of 0 to 100. Standardized index of the jth village is

$$I_j = \frac{H_j - H_{\min}}{H_{\max} - H_{\min}}, \quad j = 1, 2, \dots$$

To examine the relationship between women empowerment and economic development, Economic Development Index (EDI) was constructed by using eight micro-level indicators viz; literacy rate, calorie surplus, toilet and sanitation facility, pucca housing condition, pure drinking water, treatment of drinking water, average income and average expenditure. EDI was also computed by using PCA using the following steps as used while calculating WEI.

To examine the impact of women empowerment on economic development, regression analysis was done using the following specification:

$$EDI_i = \alpha + \beta WEI_i + u_i,$$

for all $i = 1, 2, 3, \dots, n$

Where; WEI_i represents Women Empowerment Index which is treated as independent variables and EDI_i represents Economic Development Index of the i^{th} village which is treated as dependent variable. α and β are the parameters, u_i is stochastic error component which follows normal distribution with zero mean and common variance σ^2 .

To check the impact of economic development on women empowerment the reverse regression can be written as

$$WEI_i = \gamma + \delta EDI_i + u_i,$$

for all $i = 1, 2, 3, \dots, n$

Where, γ and δ are the parameters used in the specification and u_i are stochastic error component which follows normal distribution with zero mean and common variance σ^2 .

WEI_i and EDI_i represent Women Empowerment Index, Gender Empowerment Measurement and Economic Development Index of the i^{th} village.

III. FINDINGS

Socio-Economic Status of Women through Construction of GDI

The socio-economic status of women was first examined through GDI calculated using secondary and primary data separately. GDI was first calculated using secondary data

using the average of two component indices viz; the Equally Distributed Literacy Index (EDLI) and the Equally Distributed Work Participation Index (EDWPI). Again, EDLI is the harmonic mean of Male Literacy Index (MLI) and Female Literacy Index (FLI) while EDWPI is the harmonic mean of Male Work Participation Index (MWPI) and Female Work Participation Index (FWPI). However, for measuring GDI by using primary data, work participation was added within income indicator¹ in the economic dimension. Equal weights were assigned for calculating Equally Distributed Economic Index (average of Equally Distributed Work Participation Index and Equally Distributed Income Index). The goal post values for different indicators are given below:

Table 1
Goalposts² for calculating the GDI

<i>Indicators</i>	<i>Maximum Value</i>	<i>Minimum Value</i>
Literacy Rate	100	0
Work Participation Rate	100	0
Per capita Income (PPP US\$)	40,000	100

Source: Human Development Report, 2005

Gender Development Index (GDI) can be calculated separately for both rural and urban area of Barak Valley. Initially, GDI was first calculated for the rural area (block-wise) followed by the urban area in the same way. As per secondary data mentioned in Table 2, EDLI in Cachar District was at medium level (0.53). The gender inequality in work participation was comparatively very high whereas Equally Distributed Work Participation Index (EDWPI) is only 0.23. It clearly shows that even though the gender inequality in literacy was less but due to the high inequality in work participation, it resulted in a low value (0.38) of GDI. A closer look at Table 2 shows that in Silchar block, gender equality in literacy was with highest EDLI (0.66) but surprisingly gender equality in work participation (EDWPI) was lowest (0.13) and as a result the value of GDI remained at 0.40. Gender equality in work participation was highest (0.34) in Rajabazar block but EDLI was at a low level (0.47) and thus, the GDI for the same block was 0.41. The gender equality in literacy and work participation was 0.57 and 0.27 respectively in Lakhipur block. In Cachar district, it was observed that highest GDI (0.42) was in Lakhipur block although it was at a lower level as per the UNDP method³.

Table 2
Block-wise Gender Development Index in Cachar District

<i>Blocks</i>	<i>EDLI</i>	<i>EDWPI</i>	<i>GDI</i>
Katigorah	0.58	0.16	0.37
Salchapra	0.64	0.15	0.40
Barkhola	0.52	0.25	0.39
Kalain	0.49	0.23	0.36

<i>Blocks</i>	<i>EDLI</i>	<i>EDWPI</i>	<i>GDI</i>
Silchar	0.66	0.13	0.40
Udharbond	0.49	0.27	0.38
Tapang	0.41	0.30	0.36
Sonai	0.57	0.15	0.36
Barjalenga	0.51	0.26	0.39
Narsingpur	0.54	0.20	0.37
Palonghat	0.50	0.23	0.37
Banskandi	0.55	0.25	0.40
Rajabazar	0.47	0.34	0.41
Lakhipur	0.57	0.27	0.42
Binnakandi	0.46	0.29	0.38
Cachar District	0.53	0.23	0.38

Source: Computed from the Primary Survey, June 2012

Table 3 shows the GDI in all the three selected sample blocks in Cachar district, GDI was at the lower level of development. For sample studies, for computing composite GDI, two additional indices viz; EDII (Equally Distributed Income Index) and EDEI (Equally Distributed Economic Index) were added as they are important indicators for measuring the development index though in case of Census data the relevant data was not available for calculating the two indices. Poor GDI in rural areas was mainly due to very poor level of EDEI (Equally Distributed Economic Index) while EDLI was at the medium level of development.

Table 3
Gender Development Index for selected blocks in Cachar district

<i>Blocks</i>	<i>EDLI</i>	<i>EDWPI</i>	<i>EDII</i>	<i>EDEI</i>	<i>GDI</i>
Udharbond	0.55	0.30	0.10	0.20	0.376
Sonai	0.73	0.19	0.12	0.15	0.441
Narshingpur	0.64	0.22	-0.31	-0.04	0.300

Source: Computed from the Primary Survey, June 2012

Educational Status

Educational status is an important aspect under the social status of the women. Table 4 reveals the educational status of women and its comparison with male counterpart belonging to rural areas in Cachar district.

The table highlights that the percentage of illiterate women was higher than the illiterate men in Udharbond and Sonai blocks; however, it was the same in Narsingpur block. The percentage of women having primary education was also higher than men in all the selected rural areas of Cachar district. In case of higher education, the percentage of male was higher than the female, though the percentage of male was very small in the rural area of Cachar district (Refer to Table 4).

Table 4
Educational Status of Men and Women in selected blocks of Cachar district

<i>Sex-wise Level of Education</i>	<i>Udharbond</i>		<i>Sonai</i>		<i>Narsingpur</i>	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
Illiterate	23.81	22.22	8.86	11.39	17.24	17.24
Primary	15.87	28.57	11.39	21.52	13.79	22.41
V-VII	19.05	15.87	24.05	11.39	24.14	22.41
H.S.L.C	20.63	19.05	35.44	34.18	18.97	18.97
H.S	11.11	9.52	12.06	15.19	13.79	12.07
Graduate	6.35	4.76	7.59	6.33	8.62	5.17
Post Graduate	3.17	0	0	0	3.45	1.72

Source: Computed from the Primary Survey, June 2012

Indicators of Women Empowerment

Six different aspects were considered for the study viz; purchase of daily household needs, visit to relatives, family planning, children's education, son's and daughter's marriage and major household decisions as already mentioned in under the methodology section. One of the most important indicators of women empowerment is decision making power. There are six aspects viz; purchase of daily household needs, visit to relatives, family planning, children's education, sons and daughters' marriage and major household decision. By considering maximum six points scaling, the survey reflected that greater percentage of women living in the urban areas had high degree of autonomy for taking decisions in their family than women living in the rural areas (Table 5).

Table 5
Degree of Autonomy for taking Decisions in the Family (in per cent)

<i>Blocks</i>	<i>Low</i>	<i>Moderate</i>	<i>High</i>
Udharbond	40	30	30
Sonai	32.5	32.5	35
Narsingpur	20	47.5	32.5
Total	30.83	36.67	32.5

Source: Computed from the Primary Survey, June 2012

Degree of autonomy was divided into three categories viz; low, moderate and high. The Sonai block had the highest number of women with high degree of autonomy in decision making while the lowest was in Udharbond block (Refer to Table 5).

Table 6 reveals the percentage of women in Barak Valley who took specific households' decisions alone or jointly. In case of daily household needs, women's involvement in the decision making was very high in all the blocks of Cachar district. Regarding visit to relatives and sons' and daughters' marriage also, women's involvement was very much positive and significant in all the selected areas whereas in case of children's education, family planning and major household decisions,

women's involvement was very poor in the rural areas. The autonomy of the women to participate in the decision making regarding family planning was very poor especially in the Sonai block. During field visit, it was observed that the households in these particular three blocks belonged mainly to Muslim community despite of random selection of the households for survey.

Table 6:
Women's Household Decision Making Status (in per cent)

Blocks	<i>Purchase of daily household needs</i>	<i>Visit to relatives</i>	<i>Family Planning</i>	<i>Children's Education</i>	<i>Son's & Daughter's Marriage</i>	<i>Major household decision</i>
Udharbond	87.5	65	50	37.5	75	25
Sonai	90	95	42	42	72	32.5
Narsingpur	90	80	50	52	82.5	32.5
Total	89.17	80	47.33	43.83	76.5	30

Source: Computed from the Primary Survey, June 2012

Free mobility of women is another indicator of women empowerment. From the survey, it was found that greater percentage of women in Cachar district were allowed to go within the residential area alone while only few of them were allowed to go outside the residential area alone (Refer to Table 7).

Table 7
Freedom of Movement of Women (in per cent)

Blocks	<i>Freedom of going within the residential area alone</i>	<i>Freedom of going outside the residential area alone</i>
Udharbond	70	20
Sonai	60	30
Narsingpur	70	20
Total	66.67	23.33

Source: Computed from the Primary Survey, June 2012

Table 8
Women's Access to Money (in per cent)

Blocks	<i>Percentage of women having</i>				
	<i>Access to Money for Small Purchases</i>	<i>Access to Money for Large Purchases</i>	<i>Bank A/C</i>	<i>ATM facilities</i>	<i>Own operation of ATM</i>
Udharbond	35	0	25	7.5	5
Sonai	45	7.5	42	10	5
Narsingpur	47.5	10	17.5	10	10
Total	42.5	5.83	28.33	9.17	6.67

Source: Computed from the Primary Survey, June 2012

Regarding women's access to money, it was observed that there was a vast difference between the percentage of women having access to money for small purchases and

money for large purchases (Refer to Table 8). In Udharbond block, it was observed that 40 per cent of them had access to money for small purchases with none of them having any access to money for large purchases. Further, it was also observed that very low percentage of women in the rural areas had their own bank accounts. In Narsingpur block, 17.5 per cent of women had their own bank account, 10 per cent of them had ATM facilities and could also operate it while in the Udharbond block, 25 per cent of the women had their own bank account but only 7.5 per cent of them had their own ATM with only 5 per cent being able to operate it (Refer to Table 8).

Therefore, from the above findings it can be said that there is a very poor socio-economic empowerment of women in the selected blocks of Cachar district.

Construction of WEI

Although, there are a number of indicators available for women empowerment, but for the present study, Women Empowerment Index (WEI) was constructed using 22 micro-level socio-economic and political indicators viz; female workers, access to bank account, access to ATM facilities, own operation of ATM, access to small purchases, access to large purchases, free from family obligation, having financial autonomy, savings/investment, members of SHG, literacy, autonomy in household decision, freedom of going inside the locality, freedom of going outside the locality, exposure to media/society, physically / domestically not humiliated, Involvement in socio-cultural activities, awareness about government facilities, female within medical BMI range, vote by own choice, female contestant and female winners in election.

The results of the study are provided in Tables 9, 10 and 11. Table 9 provides information about the KMO and Bartlett's Test. It is observed that Bartlett's test provides sufficient statistical significance and KMO measure is also suitable for performing factor analysis.

Table 9
KMO and Bartlett's Test for Women Empowerment Index

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.757
Bartlett's Test of Sphericity	Approx. Chi-Square	198.609
	Degrees of Freedom	66
	Significance	.000

Source: Computed from the Primary Survey, June 2012

The result of Principal Component Analysis indicates the existence of two components for the twelve indicators, which explains 80.56 per cent of the variation in the data. The first principal component accounted for 67.59 per cent of variation and the second principal component accounted for 12.97 per cent of the variation (Refer to Table 10).

Table 10
Rotated Component Matrix for Women Empowerment Index

<i>Z score of factors studied</i>	<i>Component 1</i>	<i>Component 2</i>
Female workers excluding tea-labourers	.587	.079
Access to bank account	.810	.235
Access to ATM facilities	.358	.916
Own operation of their ATM	.314	.941
Access to small purchases	.918	.216
Access to large purchases	.212	.958
Female literacy (above ten standard)	.837	.435
Autonomy to participate in family decision making process	.889	.275
Freedom to go outside their locality alone	.831	.412
Physically or domestically not humiliated	.715	.395
Involvement in socio-cultural activities	.844	.295
Freedom to vote by own choice	.770	.357
Percentage of variance explained	67.59	12.97

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 3 iterations.

Source: Computed from the Primary Survey, June 2012

The percentage of variation explained by each factor is different and hence the importance of the factors is different. A composite index was developed as weighted sum of scores for each village, the weight being the percentage of the variation explained by the factors. The factor scores are given in the Table 11. This index measures the empowerment of women of one village relative to the other on a linear scale. The index value was calculated for each village as given in Table 11. For e.g., for the village Kumbha TE, the composite index is $0.254 \times 67.59 + (-0.546) \times 12.97 = 10.107$. Similarly, the value of the index was computed for all the 15 villages. Some of the value of the index is negative and some positive. For ease of comparison, the index was standardized to a scale of 0-100 as shown in the sixth column of Table 11. According to this index, village Durganagar-V ranks first followed by Uttar Krishnapur -I, Doyapur Grant and Sadagram village etc.

Table 11
Women Empowerment Index of the Villages of Cachar District

<i>Villages</i>	<i>Value of Factor Score 1(fjk)</i>	<i>Value of Factor Score 2(fjk)</i>	<i>Composite Index</i>	<i>Standardized Index of Women Empowerment</i>	<i>Rank</i>
Kumbha T.E	0.254	-0.546	10.107	0.52	7
Doyapur Grant	1.074	-0.916	60.685	0.72	3
Durganagar Pt-V	2.014	-0.447	130.304	1.00	1
Larsing Grant	-1.807	0.096	-120.92	0.00	14
Chandighat T.E	-1.505	0.080	-100.71	0.08	13
Dakhin Mohanpur Pt-VII	-0.773	-0.394	-57.325	0.25	12

<i>Villages</i>	<i>Value of Factor Score 1(fjk)</i>	<i>Value of Factor Score 2(fjk)</i>	<i>Composite Index</i>	<i>Standardized Index of Women Empowerment</i>	<i>Rank</i>
Uttar Krishnapur Pt-I	1.010	0.250	71.495	0.77	2
Tulargram Pt-I	0.500	1.399	51.923	0.69	5
Dhanahara Pt-II	-0.539	-0.390	-41.462	0.32	11
Uttar Krishnapur Pt-III	0.678	-0.445	40.054	0.64	6
Paloi T.E	-0.324	-0.317	-25.998	0.38	9
Derby T.E	0.097	-0.550	-0.604	0.48	8
Clever House T.E	-0.458	-0.391	-35.999	0.34	10
Alenpur T.E	-0.451	-0.484	-36.754	0.34	10
Sadagram	0.231	3.055	55.208	0.70	4

Source: Computed from the Primary Survey, June 2012

Relationship between Women Empowerment and Economic Development

To examine the relationship between women empowerment and economic development, Economic Development Index (EDI) was first constructed by using Principal Component method as used for calculating WEI. This is shown in Table 12, 13 and 14.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.732
	Approx. Chi-Square	97.350
Bartlett's Test of Sphericity	Degrees of freedom	28
	Significance	.000

Source: Computed from the Primary Survey, June 2012

Table 12 shows that Bartlett's test provides sufficient statistical significance and KMO measure is also suitable for performing Factor Analysis.

Table 13
Rotated Component Matrix^a for Economic Development Index

<i>Z score of factors studied</i>	<i>Component 1</i>	<i>Component 2</i>
Literacy Rate	.881	-.082
Calorie surplus	.880	-.014
Toilet and sanitation facility	.496	.650
Pucca housing condition	.948	.117
Pure Drinking water	.323	-.874
Treatment of drinking water	.597	.608
Average income	.888	.214
Average expenditure	.931	.202
Percentage of variance explained	62.57	18.36

Source: Computed from the Primary Survey, June 2012

Table 14
Economic Development Index (EDI) of the Villages of Cachar District

<i>Villages</i>	<i>Value of Factor Score1(ffk)</i>	<i>Value of Factor Score2(ffk)</i>	<i>Composite Index</i>	<i>Standardized Index of Economic Development</i>	<i>Rank</i>
Kumbha TE	-0.18	-0.33	-17.29	0.41	7
Doyapur Grant	0.06	-0.34	-2.35	0.48	6
Durganagar Pt-V	1.58	0.13	101.28	0.96	2
Larsing Grant	-1.17	-1.77	-105.42	0.00	14
Chandighat T.E	-0.54	-0.19	-36.99	0.32	9
Dakhin Mohanpur Pt-VII	-1.36	2.21	-44.77	0.28	11
Uttar Krishnapur Pt-I	0.90	0.65	68.43	0.81	4
Tulargram Pt-I	1.49	0.23	97.31	0.94	3
Dhanahara Pt-II	-0.80	1.67	-19.16	0.40	8
Uttar Krishnapur Pt-III	-0.10	0.46	1.92	0.50	5
Paloi T.E	-0.40	-1.21	-47.18	0.27	12
Derby T.E	0.11	-0.49	-2.15	0.48	6
Clever House T.E	-0.48	-0.57	-40.42	0.30	10
Alenpur T.E	-0.88	-0.43	-63.21	0.20	13
Sadagram	1.76	-0.01	110.01	1.00	1

Source: Computed from the Primary Survey, June 2012

The result of Principal Component Analysis indicates the existence of two components for the eight indicators, which explains 80.93 per cent of the variation in data. The first principal component accounted for 62.57 per cent of variation and the second principal component accounted for 18.36 per cent of the variation (Refer to Table 13).

The index value was calculated for each village as shown in Table 14. For ease of comparison, this index was also standardized to a scale of 0-100 as shown in the sixth column of Table 14. According to this index, village Sadagram ranks first followed by the village of Durganagar-V, Tulargram-I and so on.

The relationship between women empowerment and economic development is shown in Table 15 and Table 16. Table 15 shows the impact of women empowerment on economic development. It shows that Women Empowerment Index (WEI) has a positive and significant impact on Economic Development Index (EDI). The estimated co-efficient of WEI (0.946) is significant at less than one per cent level of significance. The value of R^2 (0.733) and Adj. R^2 (0.713) is very high which indicates the high degree of measurement of goodness of fit (Refer to Table 15).

Table 15
Impact of WEI on EDI

	<i>Co-efficient</i>	<i>t-value</i>	<i>Prob. value</i>	<i>ANOVA</i>
Intercept	0.034	0.39	0.703	R ² =0.733 Adj. R ² =0.713
WEI	0.946	5.98	0.000	F Statistics=35.788 Sig. of F=0.00

Source: Computed from the Primary Survey, June 2012

Table 16
Impact of EDI on WEI

	<i>Co-efficient</i>	<i>t-value</i>	<i>Prob. value</i>	<i>ANOVA</i>
Intercept	0.102	1.381	0.190	R ² =0.733 Adj. R ² =0.713
EDI	0.775	5.982	0.000	F Statistics=35.788 Sig. of F=0.00

Source: Computed from the Primary Survey, June 2012

Table 16 reveals the impact of EDI on WEI. It was observed that EDI also has a positive impact on WEI. The value of the co-efficient of EDI (0.775) is significant at less than one per cent level of significance. As far as the value of R² and Adj. R², this model also indicates that goodness of fit is very high.

IV. CONCLUSION

The study concludes that there is poor socio-economic empowerment of women in the selected blocks of Cachar district with very low Gender Development Index (GDI) in Cachar district. Out of the 15 selected villages, only in five villages, the level of empowerment of women was comparatively better than the other villages.

The relationship between women empowerment and economic development is positive and significant. There is a bi-casual relationship between economic development and women empowerment which indicates that they are complementary to each other. Economic development depends on women empowerment as it is one of the important indicators of economic development. Simultaneously, women empowerment depends on economic development but the marginal effect of women empowerment on economic development is more than that of economic development on women empowerment.

Notes

1. Income indicator is considered as PPP US\$. Income in terms of Rs. is converted to US\$ (1 US \$ = Rs. 70.38 as on 12th January, 2019).
2. The goal post values are given in the Human Development Report 2005.
3. UNDP has defined the ranges of HDI and it is divided into three parts viz; low (below 0.5), medium (0.5 – 0.79) and high (above 0.79).

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Book Review

Employment and Labour Market in North-East India: Interrogating Structural Changes, Editor: Xaxa, Virginus et al. 2019, pp.394, South Asia Edition, Routledge India

The book "Employment and Labour Market in North-East India: Interrogating Structural Changes" is edited by Xaxa, Saha, and Singha and has been published by Routledge (an imprint of the Taylor & Francis Group, an informal business) with offices in Oxford of England, New York of the USA and India. With special focus on North-East India, this book examines the structural changes in the labour market of North-East India. Moreover, it also analyses the temporal and spatial dimensions of rural non-farm employment and its linkages with income distribution and labour mobility. This book has 13 chapters which are organized into four parts, each part dealing with one of the four different themes: (i) "Structure and patterns of employment in North-East India"; (ii) Work, employment and labour in Industries"; (iii) "Migration and labour mobility" and (iv) "Employment diversification".

The first part of this book examines the structure and patterns of employment in North-East India. After delineating the history of the structural transformation of employment and that for the labour market in the North-East India (Xaxa), it opines that the growth of non-farm employment is not satisfactory in this part of India. However, it states that despite declining share of employment growth (Chakrabarti), the structural transformation of employment had boosted the region's economic growth. The unsatisfactory employment growth did not touch all job aspirants. Given that, the decentralization policy like 'Look East' policy has been implemented to develop and create employment opportunities in NEI, yet they have failed to deliver. In addition, Naik and Tagad discuss the structure of the labour market and the quality of employment vis-a-vis the people's activity status, level of education, social groups and religious groups. Interestingly, the authors found the Scheduled Tribes to have an increasing share in the employment in the government sector due to the ST's education which is higher as compared to other social groups here. The women, on the other hand, have an increasing share in employment in the agriculture sector due to the distress-driven factor where low income propels them into employment but where, after a certain level of income had been crossed, they decide to leave the labour market. The conclusion is that the employment opportunities should be created in the vicinity of their living for the improvement of women's employment in the North-Eastern states.

The second part of this book discusses the relationship of labour and employment vis-a-vis industries. More importantly, this part examines four industries (Tea, Cement, Handloom and Craft) in three different states (Assam, Mizoram and

Manipur) thereby making four case studies of employment growth in the North-East region of India. Given that various policies have been implemented by both the central and the state governments to solve the issues in the labour market, the facts state that little has been achieved as a way of growth in employment. This study explains how the labour market institutions have failed to create opportunities of employment growth, and what is its impact on the Assam's tea industries post their having undergone structural transformation of labour (Saha, Singha and Sharma). Moreover, as supportive evidence to above Bhowmick found discrimination in the cement industries of Assam, where discrimination in wages take place between the regular and the casual workers due to the hiring process of labour and informalisation of employment. When looking into the handloom industry in Mizoram, the third chapter of this part explains the trends and patterns of employment in this industry (Ramswami) to find the pattern of employment to have changed from domestic chores to commercial activity. The endogenous growth resuscitates the employment growth of this sector. Lastly, Kshetrimayum makes a case study of the nature of handloom industry in Manipur which has changed from traditional craft to an industry. It makes a case for creating employment opportunities for the handloom weavers and how employment has led to improvements in the social, cultural and political status of Manipur. It also enhances the skills of women in the Manipur hand-in-hand with the development of the handloom industry.

The third part of this book explains the trends and patterns of in-migration, out-migration and labour mobility in the North-Eastern states of India. The findings of Parida's study establishes the increasing trends of both in-migration and out migration in Meghalaya and, with that backdrop, explores age- and gender-delimited patterns of growth in employment. The pattern of out-migration increases from urban-to-urban, with women having a declining share in employment and the young population, a rising share. Out-migration for formal jobs is declining while out-migration for the informal jobs is increasing in NER due to poverty, inadequate employment opportunities and unavailability of higher educational benefits. With the belief is that NER's few important policy measures that would help the process of skill development, and employment generation in Meghalaya, would also reduce the informal out-migration and boost the formal out-migration. Similarly, Mitra also discusses the out-migration and labour mobility in the Assam by conducting a case study in the districts of Baksa and Nalbari. The case study finds that out-migration from the North-East India (particularly from two districts Baksa and Nalbari) exists and helps to sustain the livelihood, balance the political economy and avoid the air of conflict in Assam.

The fourth and final section of this book entitled "Employment Diversification" examines the nature and structure of the non-farm employment in the North-East

Region of India. Moreover, it explores the employment diversification across the North-Eastern states. Structural transformation of the agriculture sector makes the people of North-Eastern states more dependent on the non-farm sector for the employment as well as for the livelihood (Panda, Das and Singha). According to Panda, the share of RNFE is decreasing in the service sector and rising in the construction sector due to poverty and the developmental aspects (agricultural growth, urbanization and access to credit). Moreover, the share of male non-farm employment increases both in the construction and the manufacturing sectors while female non-farm employment increases only in the construction sector in the rural areas of Assam (Das and Singha). Evidently, it found that the pull factor (level of education and a higher level of income) and push factors (Poverty, feminization and low skill) are the determining factors of rural non-farm employment in North-East India and, especially, in Assam. The findings of Singha's paper explain that only the construction sector is the driver of the non-farm employment in Tripura. It also explores the U-shaped relationship between land cultivated and participation in the non-farm sector in rural Assam (Das). This section of this book also examines the income inequality which is found to have been increasing among non-farm worker as compared to farm workers. However, this inequality is good for the economy given that it improves the living standards of the rural people, and motivate the low skilled job aspirants to get non-farm employment.

The separate handbook of "Employment and labour market in North-East India" explores key factors which are responsible for distorting the labour market in North-East India. All the chapters of this book explore the trends, patterns and determinants of employment in North-Eastern states of India by using large data sets as well as the case studies in different states of the NE regions of India. The chapters of this books have also come out with a few important policy measures which would help in the process of skill development and growth of the non-farm sectors.

Although the chapters of this book's cover the labour market issues of all other North-Eastern states, it excludes a few important states like Nagaland, Arunachal Pradesh and Sikkim. These three states constitute a major part of the North-East India with diverse nature of the economy and its attendant complexities of employment and labour. Moreover, the inclusion of the discussion on the skill needs of the local entrepreneurs and farmers would have strengthened the policy debate of the book further.

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