*The impact of microfinance on factors empowering women: Differences in regional and delivery mechanisms in India's SHG programme*

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We examine how the impact on women empowerment varies with respect to the location and type of group linkage of the respondent. Using household survey data from five states in India, we correct for selection bias to estimate a structural equation model. Our results reveal that in the southern states of India empowerment of women takes place through economic factors. For the other states, we find a significant correlation between women empowerment and autonomy in women's decision-making and network, communication and political participation respectively. We do not however find any differential causal impact of different delivery methods (linkage models).

**Keywords:** microfinance, women empowerment, structural equation model, self-help groups.

**JEL classifications:** G21, J16, C31.

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## 1. Introduction

The Self Help Group Bank Linkage programme (SBLP) has been the core strategy for women empowerment in the Ninth Plan (1997-2002)[i] and Tenth Plan (2002-2007) for the Government of India. Initiated in early 1990s as a pilot program by the National Bank for Agriculture and Rural Development (NABARD), it has expanded to cover over 97 million households, by March 2010. The SBLP is a microfinance programme that links the Self Help Group (SHG) of 10 to 20 members (predominantly women) to a bank for savings and/or credit. The SHGs are supported in their formation, nurtured and linked to banks through the Self Help Promoting Institutions (SHPIs) like non-governmental organisations (NGOs), banks or government organisations etc. About 75 per cent of the groups were formed by NGOs and financed directly by banks (NABARD, 2006). Typically, given their orientation towards development goals, NGOs tend to provide longer support and additional training and services to their mostly women clients. The development of the SBLP has also been regionally imbalanced with the southern states of Andhra Pradesh, Tamil Nadu and Karnataka accounting for 54 per cent of the SHGs and 75 per cent of the bank credit (Sinha et al., 2009). Amongst other factors, support by government programs, like the Development of Women and Children in Rural Areas (DWCRA) in Andhra Pradesh and large NGOs with focus on women contributed substantially (Write, 2000). The potential impact of the linkage model and this lopsided growth on women empowerment of SBLP members has not been researched.

Our main objective is to investigate if the regionally imbalanced SBLP development and the type of delivery mechanisms (linkage models) have resulted in significant differences in the process of empowering women through SBLP. In particular we examine if it is the economic or non-economic factors that are leading to empowerment in the south and other states. We estimate Structural Equation Model (SEM) by analysing data from the Self Help Group Impact Assessment Survey (SIAS) that the author collected from five states in India for the year 2003.

We define women empowerment the process in which women improve their wellbeing by challenging the existing norms and culture of the society in which they live. Bali Swain (2007) and Bali Swain and Wallentin (2009) argue that greater efficiency in women's household chores or their performance within the existing social norms (as caregivers and

household managers), do not lead to empowerment. Similarly, community development initiatives that are undertaken by the SHGs, lead to household's welfare but are not directly empowering women. In fact, they may help maintain the existing gender roles within a given society. Women empowerment takes place when women improve the quality of their lives by resisting the gender-based traditions and norms that reinforce gender inequality. [ii] Furthermore, women empowerment is multi-locational, exists in multiple domains and is a multi-dimensional process[iii] – for instance, economic decision-making does not necessarily imply that the woman can decide contraception use or contribute to non-financial decisions (Malhotra and Mather, 1997; Johnson, 2005; Kabeer, 1999). This makes alternative development initiatives, such as political quotas, awareness generation and property rights, important interventions for empowering women. (Armendáriz and Morduch, 2005; Kabeer, 2005; Deshmukh-Ranadive, 2003).

Our results show that the economic factors have a significant impact in empowering women in the southern states of India. For other states, autonomy in women's decision-making and network, communication and political participation shows significant correlation with women empowerment. There is no significant impact on women empowerment by the type of linkage model in the delivery of microfinance.

The paper contributes to the research literature on several levels. First,it provides insights difference in the empowerment of women members by investigating the impact by the type of linkage and the historical regional development. This is largely uncharted territory as there is no scientific research literature on this. Second, using we use rigorous approach through SEM to estimate impact on a unobservable latent variable like women empowerment. Third, our unique survey data enables us to implement this sophisticated analysis and provides us with detailed information on respondents from 10 geographically spread and representative districts in India. Even though the data is not recent, the dominance of linkage model 2 and the southern states continue till present and make the results and inferences as relevant. Fourth, given SBLP's critical role in promoting women's empowerment, our results provide the Indian financial inclusion policy with clear evidence on areas that require strategic focus.

In the following section we discuss the SBLP programme and its role in women's empowerment. Section 3, explains the model specification and estimation. The data and the

observed indicators are discussed in Section 4. The results are presented in Section 5. The final section concludes.

## 2. The Self Help Group Bank Linkage Programme and women's empowerment

The All India Debt Investment Survey (1983) concluded that the rural financial system in India had failed to reach its objective to provide credit to the unbanked rural clients. Discussions between the Reserve Bank of India and NABARD in 1991-1992 resulted in a pilot project that ultimately developed into SBLP, which has become one of the largest and fastest growing microfinance programmes in the world (Bali Swain, 2012a; Garikipati, 2008). By 31 March 2010, SBLP had savings-linked seven million SHGs and credit-linked more than 4.9 million SHGs. At its core SBLP is a village banking model where the group members save and lend amongst themselves for the initial six months. After the group demonstrates stability and financial discipline, the group is credit linked to a bank through a SHPI and receives a loan of up to four times the amount it has saved. As savings increase through the group's life, the group accesses a greater amount of loan. The programme is characterised by small loan size, regular meetings, frequent repayment instalments, regular savings and might also include training facilitated by the SHPIs. Typical training programmes may include training related to SHG, primary healthcare, basic literacy, family planning, marketing, and occupational skills (Bali Swain and Varghese, 2010).

A substantial body of literature concludes that SBLP has a significant economic impact on its clients (Banerjee et al., 2013; Bali Swain and Varghese, 2009; EDA, 2006; Puhazhendi, 2000; Puhazhendi & Badatya, 2002; Puhazhendi & Satyassi, 2000). SBLP access leads to a reduction in the household's vulnerability (Bali Swain and Floro, 2012; Guérin et al., 2009), especially for villages with better infrastructure and for SHGs that are formed by NGOs and credit linked by banks (Bali Swain, 2012b). Bali Swain and Varghese (2013) also find for training in SBLP.

Bali Swain and Wallentin (2009, 2012) find that SBLP participation leads to women empowerment, predominantly through economic factors. Autonomy of the member in decision-making and social attitudes are other significant factors. These results are strongly supported by the wider household bargaining literature that attributes women's empowerment to the economic factors through changes in household choices, and bargaining

power, by increasing overall resources, affecting the returns on human capital and influencing the attributes and norms (Armendáriz and Morduch, 2005; Browning and Chiappori, 1998; Ashraf, Karlan, and Yin, 2006). The increase in the relative value of female time and her monetary income, raises the woman's bargaining power to allocate resources within the household and leads to greater investment in education, housing and nutrition for children (Browning and Chiappori, 1998; Duflo, 2003). Microfinance also empowers women through loans that enable greater autonomy and decision-making by women (Anderson and Eswaran, 2005; Goetz and Gupta, 1996); and creating awareness and political and social inclusion (Armendáriz and Morduch, 2010; Dijkstra, 2002; Beteta, 2006; Bardhan and Klasen, 1999).

Improved networking, better communication and greater mobility also empower women (Bali Swain and Wallentin, 2009). Social pressure from SHPIs and other group members can induce changes in attitudes within the household, and may lead to greater empowerment. Browning and Chiappori (1998) suggest that social pressure may also alter the woman's power within household decision-making. SHPIs and SHG interaction encourages the women members to participate in the community, thereby making them more active in the society and the local politics (Bali Swain, 2007; Tesoriero, 2005). Increased female representation in local governments, voting, and involvement in politics, as well as in informal organisations to solve community problems, are factors that lead to further empowerment of women (Bardhan and Klasen, 1999; Dijkstra, 2002; Beteta, 2006).

An important feature of the SBLP is the frequent group meetings. These group meetings provide female member an opportunity to break out of her daily routine and discuss her common problems (Bali Swain and Wallentin, 2009; Townsend, 1999). This interaction with the women of her SHGs and members of the other SHGs leads to an increase in the exposure and confidence to articulate and pursue her interests (Purushottaman, 1998; Summer-Effler, 2002).

In contrast, there are a few studies that find little evidence for women's empowerment. Investigating 291 married couples from two villages in Mabubnagar district (Andhra Pradesh) in 2001-2003, Garikipati (2008) finds that lending to women helps households to diversify livelihoods and reduce their vulnerability to shocks, but fails to empower women. Banerjee et al. (2013) also find no impact of microfinance institutions (MFIs) on women's

decision-making, using data from slums in the capital city of Hyderabad in Andhra Pradesh, in 2005-2007.


## 3. Estimation Method


Estimating women empowerment is a challenge task as it is an unobservable latent variable. This is further complicated by latent factors (like economic, social etc.) that have a causal effect on women empowerment but cannot be observed. Moreover, lack of disaggregated data and limited information on household dynamics leads to further difficulties (Moghadam and Senftova, 2005). To scientifically quantify women empowerment some studies have used the index approach (Hashemi, Schuler, and Riley, 1996; Goetz and Gupta, 1996) and the factor analysis methodology (Pitt, Khandker, and Cartwright, 2006). The index/indicator approach assigns numerical values (or arbitrary weights) to the ordinal measures that are generally qualitative responses and thus categorical in nature. Assigning these values or weights is inappropriate (Bali Swain and Wallentin, 2009; 2012) and may also lead to loss of information and misleading conclusions. Instead, we employ Structural Equation Modelling to estimate the impact of latent factors where ordinal variables are treated appropriately, without assignment of arbitrary values or weights.


*3.1 Structural equation model*


Structural Equation Modelling (SEM) is a statistical methodology which is intensively used by researchers across disciplines in the social and behavioural sciences to study the causal relationships of a set of latent constructs (Scholtens et. al., 2013; Biblarz and Raftery, 1993). SEM enables us to estimate the impact of latent factors (measured by observed indicators) on a latent variable like women's empowerment. Our three-fold objective is to first measure the latent factors that have an impact on women empowerment. Second, while using the ordinal indicators to measure these latent factors we do not artificially assign values/weights to the ordinal categories. Third, we want to know which of these latent factors have a significant impact on empowering women. The estimated model is presented by the path diagram in Figure 1. The path diagram in Figure 1 consists of measurement models and a structural model. The measurement models use the observed indicators (in rectangles) to measures the latent women empowerment variables and other related latent variables (in the ellipses). The

latent economic and non-economic factors of women's empowerment are measured by the observed indicators (in rectangles) on the left-hand side of Figure 1.

< Figure 1 about here >

The structural model is indicated by the middle part of Figure 1 and represents the causal relation of the latent economic and non-economic factors with the latent women's empowerment variable. The path diagram in Figure 1 corresponds to the following simultaneous equations system (see Jöreskog and Sörbom 1999).

$$\eta = \Gamma\xi + \zeta \qquad (1)$$
$$\mathbf{x} = \Lambda_{\mathbf{x}}\xi + \delta \qquad (2)$$
$$\mathbf{y} = \Lambda_{\mathbf{y}}\eta + \varepsilon \qquad (3)$$

The structural equation model is represented by equation (1), which indicates that the latent women empowerment ($\boldsymbol{\eta}$) depends on the vector of latent component ($\xi$), where $\Gamma$ is the vector of latent regression coefficients and $\zeta$ is the error term. The measurement models are represented by equation (2) and (3). Equation (2) is the measurement model for the latent components (economic and non-economic) of women empowerment ($\xi$), where $\mathbf{x}$ is the vector of measures for the latent component of women empowerment, $\Lambda_{\mathbf{x}}$ is the vector of factor loadings and $\boldsymbol{\delta}$ is the vector of measurement errors associated with the respective indicators. Equation (3) is the measurement model of the latent women's empowerment ($\boldsymbol{\eta}$), which is measured by the indicator vector $\mathbf{y}$ and $\Lambda_{\mathbf{y}}$ is the vector of factor loadings. $\boldsymbol{\varepsilon}$ is the vector of measurement errors associated with $\mathbf{y}$.

*3.2 Treatment of ordinal variables*

Several of the indicators used to measure women's empowerment are ordinal in nature. Ordinal variables represent responses to a set of ordered categories. It is inappropriate to specify numerical values to categorical questions. For instance, if the respondent is asked about how confident she is, she might respond by choosing one of the following categories:

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very confident; somewhat confident; not confident; and not at all confident. Specifying a numerical value to these choices, as has been done in earlier studies is not appropriate because of the following reasons. First, we do not know the magnitude of difference between any of these two categories. Second, even if two different respondents choose the same category, we cannot say that they have the same level of self-confidence. It is the underlying latent self-confidence that we are interested in. Following Jöreskog (2002) we assume that the unobserved univariate continuous distribution generates an observed ordinal distribution as a latent response distribution. This means that for each ordinal variable y, we assume that there is an underlying continuous variable y* that represents the attitude of the ordinal responses to y and is assumed to have a range from-∞ to ∞. It is this underlying variable y* that is used in our model, and not the observed ordinal variable y. Details about this are included in the Appendix.

### 3.3 Estimation method

The ordinality of the observed variables imply that the assumption of multi-normal distribution which maximum likelihood estimation method requires is violated. Therefore, the standard errors and chi-square estimates will be biased. In order to correct for this we adopt Robust Maximum Likelihood (RML) method (see Jöreskog et al. 2001) using an asymptotic covariance matrix to estimate the correct standard errors and chi-squares under the non-normality (caused by ordinality).The model is estimated using the following function:

$$F(\theta) = \log \|\Sigma\| + tr(S\Sigma^{-1}) - \log(S) - k - (\bar{z} - \mu)' \Sigma^{-1} (\bar{z} - \mu)$$

where **z** is the vector of the observed responses (containing both **y** and **x**). $\Sigma$ is the population matrix of polychoric correlation and **S** is the corresponding sample polychoric correlation matrix.

## 4. Data

The estimation of women empowerment requires information on a wide range of questions with high demand on the data quality and sample size. Data constraints have been a major challenge for several scientific studies on women's empowerment. For the analysis in this

paper we use the Self Help Group Impact Assessment Survey (SIAS), collected by one of the authors, which is a part of a larger study that investigates the SBLP. The household survey uses a quasi-experimental design, with a pre-coded questionnaire to collect data for two representative districts each, from five states in India, in 2003.[iv] These are Andhra Pradesh and Tamil Nadu in the south; and Uttar Pradesh, Orissa (recently renamed Odisha) and Maharashtra in the north, east and west respectively. We use a sample of 689 SHG households. Of these 32 observations have missing values and are dropped. We thus end with a sample 659 SBLP participants respondents.

*4.1 Regional variations in SBLP*

Since its initiation the regional imbalance in SBLP has shown a special preference for the southern states (Sinha et al., 2009; Reddy and Malik, 2011; Kumar and Golait, 2009). The state of Andhra Pradesh alone accounts for 40 per cent of all SHGs (Bansal, 2003). Estimating two separate indices to estimate the extent of outreach of SBLP, Srinivasan (2010) confirms this southern bias. The microfinance penetration index (MPI), which computes the ratio of microfinance clients with the share of the population, shows that three of the top five states are in the south: Andhra Pradesh (3.64), Tamil Nadu (2.77) and Karnataka (1.57). Another measure, the intensity of microfinance among poor index (MPPI) is the ratio of the share of the state in microfinance clients to the share of the state in population of poor. Again of the top five states, four were from the south: Andhra Pradesh (6.35), Tamil Nadu (2.77), Kerala (2.49) and Karnataka (1.74).

This outstanding performance of the SBLP in the south (especially Andhra Pradesh) was attributed to multiple factors by Write (2000). State supported government programs, like the Development of Women and Children in Rural Areas (DWCRA) in Andhra Pradesh, credit linked a significant number (about 40 per cent) of the SHGs.[v] A large number of SHGs (about 3000 groups) were promoted under the South Asian Poverty Alleviation Program, sponsored under the United Nations Development Program. The community based development finance showed a strong evolution in the south, with the SHGs being promoted by NGOs and district rural development agencies. The able support of the government officials, NABARD district development managers and the lead bank managers also played an important role. Presence of the forefront microfinance NGOs like Mysore Resettlement and Development Agency (MYRADA), Society for Helping Awakening Rural Poor through

Education (SHARE) and Bharatiya Samruddhi Investments Consulting Services Limited (BASIX), contributed substantially to the success of the SBLP in the southern states. In Tamil Nadu, the Tamil Nadu Corporation for the Development of Women (TNCDW) were the driving force in the formation of SHGs, their capacity building and linkage to banks (Bali Swain, 2012a).

Mahajan and Gupta (2003) note that the central, eastern and north-eastern states in India have been left behind in the SBLP, resulting in a low demand for credit, especially amongst the subsistence poor. Lack of good NGOs and the heavy reliance on delivering subsidised programmes (for instance SYSG) to individuals rather than SHGs have corrupted the SBLP in these states. Reddy and Malik (2011) further argue that banks in the northern states lacked motivation, effort and the ability to identify NGOs.[vi] This was partially aggravated by the lack of large sized NGOs that had the experience of working with SHGs [vii] and the unsuitability of the SBLP approach to the region. Institutional factors like lack of awareness and gender inequality have also been critical factors (NCAER, 2008).

Maharashtra and the Orissa state government engaged more actively with the SBLP, as compared to Uttar Pradesh in the north. The Orissa state government formed a separate directorate 'Mission Shakti' in 2001 under the Women and Child Development (W&CD) Department. Almost all the government programmes were linked to the SBLP, for instance Swarnjayanti Gram Swarozgar Yojana (SGSY), Integrated Tribal Development Programme and Orissa State Financial Development Corporation Programmes etc. Orissa saw a quick formation of SHG federations and substantial progress in the tribal dominated districts of Orissa.

Based on the marked difference in level of development of the SBLP in the south and other regions of India, we divide our sample of SHG participants into the better performing southern states (Andhra Pradesh and Tamil Nadu) and other states (Maharastra, Orissa and Uttar Pradesh) of India. Table 1 shows the characteristics of the SHG members in the south and other states. In general, SHG members in the south are younger and have higher education as compared to the SHG members in the other states. The households of the SHG members in the southern states on average own more land and have slightly higher assets. In terms of their location the SHG members are on average closer to the banks as compared to

the SHG members in other states. However, in other states SHG members have better infrastructural access in terms of average distance to a paved road or bus-stop.

< Table 1 about here >

*4.2 Linkage model*

The SHGs are credit linked to the banks through three different models during the time of the survey.[viii] In the first linkage model, the banks help in the formation and financing of the SHGs. The groups linked by the second model are formed and nurtured by the NGOs but directly financed by the banks. In linkage model 3, NGOs form the SHGs but banks finance the SHGs through the NGOs. Of these three linkages types, model 2 is the most popular, accounting for roughly three-fourths of all SHG linkages (NABARD 2006).[ix] About 20 per cent of SHGs are formed and linked by banks (model 1) and only 5 per cent are linked by banks through NGOs (model 3).

Ghate et al. (2007) suggests that the groups promoted by the field level government officials have low capacity to support the SHGs. In addition, these officials are further burdened with targets number of SHGs to be created. Many NGOs usually have strong empowerment and development objectives and thus engage more actively with the SHGs. In our data 72 per cent of the SHG respondents were credit linked by linkage model 2 while 12 (15) per cent were linked by model 1(3). See Table 1, (column 3) for the characteristics of the respondent linked by dominant linkage model 2.

*4.3 Women empowerment variables*

To estimate latent women's empowerment, we need to rely on observed indicators that capture the increment in empowerment. Bali Swain (2007) and Bali Swain and Wallentin (2009) explain that women are empowered when their well-being increases through participation in non-traditional domains.[x] In South Asia, decisions such as buying and selling of land and property, family planning and use of contraception, decision to educate a girl child and marriage of an off-spring, remain outside the domain of women's decision-making (Kabeer, 1999; Bali Swain and Wallentin, 2009). Based on these considerations our selected observed indicators reflect this definition of women's empowerment.

The discussion in Section 2 suggests the observed indicators for the latent economic and non-economic causal factors for women's empowerment, that are presented with definition and response proportions in Table 2. For instance, the latent economic factor is measured by the following observed indicators for the respondent: her participation in economic activity; investment by respondent in home improvement; confidence to meet financial crisis; and arranging capital and other inputs.


< Table 2 about here >


## 5.        Results and discussion


Our first objective is to investigate if SBLP programme has differential impact on women's empowerment of its SHG members depending on whether they belong to the more actively engaged states in the south or not. Second, we also examine if the type of linkage impacts the women's empowerment process differently. The underlying assumption is that NGO driven linkage model 2 might be more effective in empowering women as compared to the other linkage types due to their active engagement in the social-development space. Before proceeding to estimate the causal relationships among the latent variables in structural equation model specified in the middle part of Figure 1, we need to test whether the measurement model is valid. In other words, we need to test that the indicators are measuring what they supposed to measure.  If the measurement is not valid the whole model become invalid and there no meaning to test the latent relationships.  The results evidenced that all except one) of the factor loadings of $\Lambda_x$ and $\Lambda_y$, are statistically significant. The measurement model fits the data relatively well indicating both the measurements and model are valid.


Table 3 presents the parameter estimates and some of the fit indices for the SHG members in the south, other states and linkage model 2. These coefficients are standardised and may thus be interpreted on both significance and magnitude.


< Table 3 about here >


The model fit is assessed by examining the Satorra-Bentler scaled chi-square goodness of fit index, the Root Mean Square Error of Approximation (RMSEA) and the Normed Fit Index

(NFI). The RMSEA considers the error of approximation in the population and finds how well the model, with unknown but optimally chosen parameter values, fits the population covariance matrix. The NFI is a measure that rescales chi-square to compare a restricted model with a full model using an arbitrary baseline null model. The model fit indicators reveal that the model has a good approximate fit, which implies that our estimates are reliable.

While comparing the states in south with the other states, our results show that the southern states have a clear advantage in empowering women. In the south, the economic factor has the most significant impact on empowering SHG members. This resonates well with the economic theory and earlier results (Bali Swain and Wallentin, 2012). Women participating in SBLP get access to loans that are used for generating livelihoods and accumulating assets. This leads to greater bargaining power within the household and a greater say and decision-making within the household, thereby leading to greater women's empowerment.

Greater autonomy in terms of independent planning, management and decision-making at work and intolerance towards emotional and psychological abuse at home, is expected to contribute incrementally towards empowerment. However, this does not seem to be the case for the SHG members in the south. From the negative coefficient for autonomy we infer that even though women in the south have greater autonomy in work related decisions, they do not have control or ownership of their assets or/and loans. This is supported by evidence from Garikipati (2008). Using data from rural Andhra Pradesh in India, she argues that diversion of women's loan into enhancing household assets and incomes may not lead to women's empowerment as women do not have co-ownership of property and assets. Garikipati (2012) further argues that microcredit leads to enhancing male ownership of the household's productive assets, thus helping husbands to move away from wage work (associated with low wages and status) to self- employment. She finds little impact on women's time use. Thus, loan access and autonomy in making work related decisions have to be supported by women's control over loan-created assets to have an impact on empowering women. Some researchers find that loans taken by women are often controlled by their husbands, resulting in their dependence for loan repayment and domestic discord (Goetz and Gupta, 2006; Rahman, 1999).

Social attitudes, network, communication and political participation and education do not contribute significantly to women's empowerment. Statistical non-significance of these factors in this study should not be interpreted as non-significance of these factors in empowering women. Women's empowerment is a long term process and it is possible that these crucial factors will have a positive impact in the long run scenario.

In addition to the estimated parameters of the SEM we also look at the underlying covariance coefficients of the economic and non-economic factors with women empowerment (Table 4). Although for the structural model, none of the parameter estimates are significant in the case of other states, the covariance matrix reveals significant correlations between the factors and women's empowerment. Based on the covariance structure of these latent variables we notice that the relation between autonomy; network, communication and political participation and social attitudes is significant in the case of other states. Although this significance does not imply causality it does provide evidence for positive correlation for autonomy and network, communication and political participation, with women empowerment in other states. Social attitude is significantly negatively correlated with empowerment of women in the other states, suggesting a negative bias against women due to various cultural, traditional and behavioural factors.

< Table 4 about here >

The SEM was estimated for different linkage types and the results for the linkage model 2 are presented in Table 3 (column 3). There is no evidence for any significant empowerment causing factor for linkage model 2. Part of the problem here is the small sample size. This suspicion is confirmed when we experiment by assuming a larger sample size of over 1000, for linkage model 2. With an increase in sample size both economic and autonomy factors become significant in causal relation to women empowerment. Note that the results for the control groups for the two state sub-samples and linkage models could also not be estimated due to the very small sub-sample size for the control group.[xi]

## 6. Concluding Remarks

An increasing concern for greater outreach of SBLP has been the entry of the government agencies and the contracted staff that may lack the possibility to invest time and resources

required to nurture the SHGs, are driven by government targets and/or focused on reaching numbers rather than creating quality SHGs. An added challenge has been the SBLP expansion to the slower growing states in the central and eastern parts of India. The reliance on the relatively weak government promoted groups and the lack of NGOs at the grassroots has led to a decline in the SHG quality, in these states. Thus, with SBLP as one of the core women empowerment strategy in India, it becomes imperative to investigate the differential in the process of women empowerment with respect to the regional location and the delivery mechanisms.

In this paper we investigate the variation in the factors that lead to women empowerment for the SBLP members in the south and other states. We also examine the empowerment of SBLP members that are formed by NGOs and financed by banks. The analyses are based on the SIAS data that contains in-depth information on observed indicators for women empowerment from ten districts in five states in India. To extricate the selection bias, we employ PSM. We then estimate the Structural Equation Model (SEM) for different geographical regions (southern and other states) and linkages. The SEM model estimates the impact of the SBLP to find whether it is the economic or the non-economic factors that lead to the process of women empowerment. Results show that for the southern states, it is the economic factor that is the strongest cause for empowerment. We also find that for the states in the south, greater autonomy in decision-making leads to a decline in women empowerment.

While there is evidence for significant direct impact of economic factors in women empowerment, it is also clear that autonomy in decision-making may not always lead to empowerment without women's ownership of loan created property and assets. The underlying covariance matrix reveals that the social attitudes and political participation also play a crucial role. The impact of SBLP critically depends on the quality of SHGs and it is important to identify how the SHGs are promoted. Creating and maintaining SHGs is a time-consuming process that requires nurturing and as such is more suitable to the social-development perspectives of NGOs. Banks on the other hand are more interested in ensuring safety of their loans.

If women's empowerment has to be pursued as a serious objective, the expansion of SBLP to the other states has to remain focused on the effective economic empowerment of women

through livelihood creation. Greater emphasis also needs to be placed on training, education and creating awareness about empowerment related issues with increased investment in social intermediation. Otherwise, SBLP will result in positive outcomes but the process of women's empowerment will remain incomplete.

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# TABLES

## TABLE 1

*Descriptive statistics for SHG members*

|  | *South* Mean (S.D.) (1) | *Other states* Mean (S.D.) (2) | *Linkage model 2* Mean (S.D.) (3) |
|---|---|---|---|
| N | 279 | 380 | 475 |
| Average Age of Respondent | 34 (8.4) | 35.9 (8.3) | 35 (8.4) |
| Proportion with some (in %) |  |  |  |
| Primary education | 14.3 | 20.3 | 16.4 |
| Secondary education | 27.2 | 11.3 | 20.4 |
| Post-Secondary education | 4.3 | 2.6 | 3.4 |
| Dependency ratio | 0.6 (0.3) | 0.7 (0.2) | 0.7 (0.2) |
| Average number of workers in the household | 2.4 (1.2) | 2.6 (1.3) | 2.5 (1.2) |
| Average number of workers engaged in primary activity | 2.1 (1.2) | 2.8 (1.4) | 2.4 (1.3) |
| Mean size of owned land in 2003(in acres) | 1.04 (2.5) | 0.81 (1.41) | 0.93 (2.12) |
| Total assets (in Rupees.) | 111,156 (133,294) | 110,318 (147,746) | 104,492 (136,475) |
| Distance to Bank (kms.) | 7.3 (6.9) | 6.4 (4.3) | 5.4 (4.0) |
| Distance to Health Care (kms?) | 3.6 (2.8) | 3.6 (2.5) | 3.6 (2.7) |
| Distance to Market | 5.4 (4.0) | 5.3(3.7) | 5.2 (4.1) |
| Distance to Paved Road | 3.1 (3.3) | 2.3 (2) | 2.8 (2.6) |
| Distance to Bus Stop | 3.8 (3.6) | 2.8 (2.3) | 3.5 (3.1) |
| Lack of cash/food in 2000 (%) | 43.7 | 43.7 | 43.2 |

TABLE 2

*Description of observed indicators to measure latent variables for SHG members*

| *(1)* <br> *Observed indicators* | *(2)* <br> *Questions asked to the SHG respondent* | *(3)* <br> *Coding (Proportion)* |
|---|---|---|
| **1.Women Empowerment** | | |
| Family Planning Decision | As compared to July 2000, has your involvement in the decision making of on family planning increased? | 1.Yes (0.24) <br> 0. No (0.76) |
| Buying & selling of property | As compared to July 2000, has your involvement in the decision making on buying and selling of property increased? | 1. Yes (0.18) <br> 0. No (0.82) |
| Sending daughter to school | As compared to July 2000, has your involvement in the decision making on sending your daughter to school increased? | 1.Yes (0.30) <br> 0. No (0.70) |
| Children's marriage decision | As compared to July 2000, has your involvement in the decision making of your children's marriage increased? | 1.Yes (0.14) <br> 0.No (0.86) |
| Use of birth control | Have you used birth control? | 1.Yes (0.31) <br> 0. No (0.69) |
| **2. Economic** | | |
| Primary activity | Primary activity of the respondent in 2003 | 1.Don't work (0.13) <br> 2.Farm activity (0.33) <br> 3.Self-employment in non-farm activity (0.08) <br> 4.Agri. wage labourer (0.26) <br> 5.Non-farm employment(0.06) <br> 6.Others (0.09) <br> 7. No response (0.04) |
| Investment to improve home | Has the respondent made any repairs, improvements or additions in their home that cost more than Rs 5000? | 1.Yes (0.17) <br> 2.No (0.32) <br> 3.Don't know (0.51) |
| Confidence to meet financial crisis | Are you more confident of meeting financial crisis in the family after joining the group? | 1.Yes (0.88) <br> 0.No (0.12) |

| Arranging credit and other input | Are you able to arrange the credit and other inputs in time? | 1.Yes (0.62) 0. No (0.38) | |
|---|---|---|---|
| *3. Autonomy* | | | |
| Purchase of raw material | Do you take crucial decisions in purchase of raw materials, pricing of the product of your activity? | 1.Yes (0.60) 0.No (0.40) | |
| Plan work | Do you plan your (work related) activities and get things done by others? | 1.Yes (0.49) 0. No (0.51) | |
| Reaction to emotional abuse | What would you do in the following situation in your family – psychological and emotional abuse? | 1.submit yourself (0.24) 2.Do nothing (0.07) 3.Resist (0.13) 4.Give warning (0.04) 5.Complain to relatives (0.11) 6.Lodge complaint with SHG or take their help (0.41) | |
| *Observed indicators (1)* | *Questions asked to the SHG respondent (2)* | *Coding/ (prop.) (3)* | |
| *4. Network, communication, awareness and political participation* | | | |
| Officials you have met | How many officials (from bank, government etc.) have you met and spoken to? | mean (standard deviation) 1.22 (1.5) | |
| Communication | How does the respondent communicate in the meetings? | 1.Talks freely (0.41) 2.Sometimes talks (0.32) 3.Hesitates to talk and hence does not talk (0.05) 4.Talks if asked (0.22) | |
| Know about reservation | Do/did you know that women have reservations in panchayats and jobs? | 1.Yes (0.57) 0.No (0.43) | |
| Involvement in village politics | Do/did you get involved in village level politics? | 1.Yes (0.38) 0.No (0.62) | |
| Verbal abuse | What would you do in the following situation in your family – verbal abuse? | 1.submit yourself (0.37) 2.Do nothing (0.18) 3.Resist (0.20) 4.Give warning (0.02) | |

| | | 5.Complain to relatives (0.06) |
| | | 6.Lodge complaint with SHG or take their help (0.17) |
| Change in family violence | Is there any change in the family violence since July 2000? | 1.Increased (0.64) |
| | | 3.No Change (0.10) |
| | | 2.Decreased (0.21) |
| | | 4.Never had any family violence (0.05) |

*5. Social Attitude*

| | | |
|---|---|---|
| Treatment by spouse | As compared to July 2000 how is the treatment of your spouse towards you? | 1.Less respectful (0.52) |
| | | 2.Usual (0.46) |
| | | 3.More respectful (0.02) |
| Reaction to physical abuse | What would you do in the following situation in your family – beating /physical violence? | 1.submit yourself (0.24) |
| | | 2.Do nothing (0.09) |
| | | 3.Resist (0.17) |
| | | 4.Give warning (0.03) |
| | | 5.Complain to relatives (0.09) |
| | | 6.Lodge complaint with SHG or take their help (0.38) |
| Reaction to emotional abuse | Refer above | |
| Involvement in family decisions | As compared to July 2000, has your involvement in the all decisions of the family increased? | 1.Yes (0.43) |
| | | 0.No (0.57) |
| Increase in self confidence | As compared to July 2000, has your self confidence | 1.Increased (0.90) |
| | | 2.Decreased (0.03) |
| | | 3.Same as before (0.07) |
| Verbal abuse | Refer above | |

*6.Education*

| | | |
|---|---|---|
| Education level | Education level in 2003 | 1.Cannot read or write (0.24) |
| | | 2. No schooling but can sign my name (0.04) |
| | | 3. No schooling but can read a letter (0.01) |
| | | 4. No schooling but can read and write a letter (0.12) |
| | | 5.Primary (0.18) |
| | | 6. Secondary (0.03) |
| | | 7. College (0.29) |

*Source: SIAS survey.*

TABLE 3

*Estimated parameters of the women empowerment structural model for the SHG members*

| Latent Factors of women empowerment | South (1) | Other states (2) | Linkage model 2 (3) |
|---|---|---|---|
| | *Coefficients (standard errors)* | *Coefficients (standard errors)* | *Coefficients (standard errors)* |
| Economic | 0.70(0.32)*** | 0.74 (0.85) | 0.50 (0.38) |
| Autonomy | -0.22(0.13)* | 0.047 (0.05) | -0.095 (0.075) |
| Network, Communication and Political participation | -0.14 (0.13) | 0.031(0.085) | -0.017(0.048) |
| Social Attitudes | -0.83 (0.51) | -1.16 (0.75) | -2 (2.34) |
| Education | 0.044(0.04) | 0.032 (0.027) | 0.021(0.026) |
| *Model Fit* | | | |
| Satorra-Bentler scaled Chi-Square | 579.57 | 590.64 | 499.64 |
| RMSEA | 0.081 | 0.069 | 0.058 |
| NFI | 0.73 | 0.70 | 0.75 |
| Sample size | 279 | 380 | 475 |

Notes: ***, ** and * implies significant at the 1%, 5% and 10% level respectively

TABLE 4

*Covariance matrix of independent variables and women empowerment
for the SHG members*

| Latent Factors of women empowerment | South | Other states | Linkage model 2 |
|---|---|---|---|
| | *Coefficients (standard errors)* | *Coefficients (standard errors)* | *Coefficients (standard errors)* |
| Economic | 0.04(0.02)** | 0 (0) | 0 (0.01) |
| Autonomy | -0.06(0.02)*** | 0.04 (0.02)* | -0.01 (0.02) |
| Network, Communication and Political participation | -0.10 (0.04)*** | 0.04 (0.02)* | -0.01(0.02) |
| Social Attitudes | 0 (0.01) | -0.01 (0.01)* | 0 (0) |
| Education | -0.05 (0.04) | -0.01 (0.03) | -0.02 (0.03) |

Notes: ***, ** and * implies significant at the 1%, 5% and 10% level respectively .

FIGURE 1

Path diagram for the general women's empowerment model
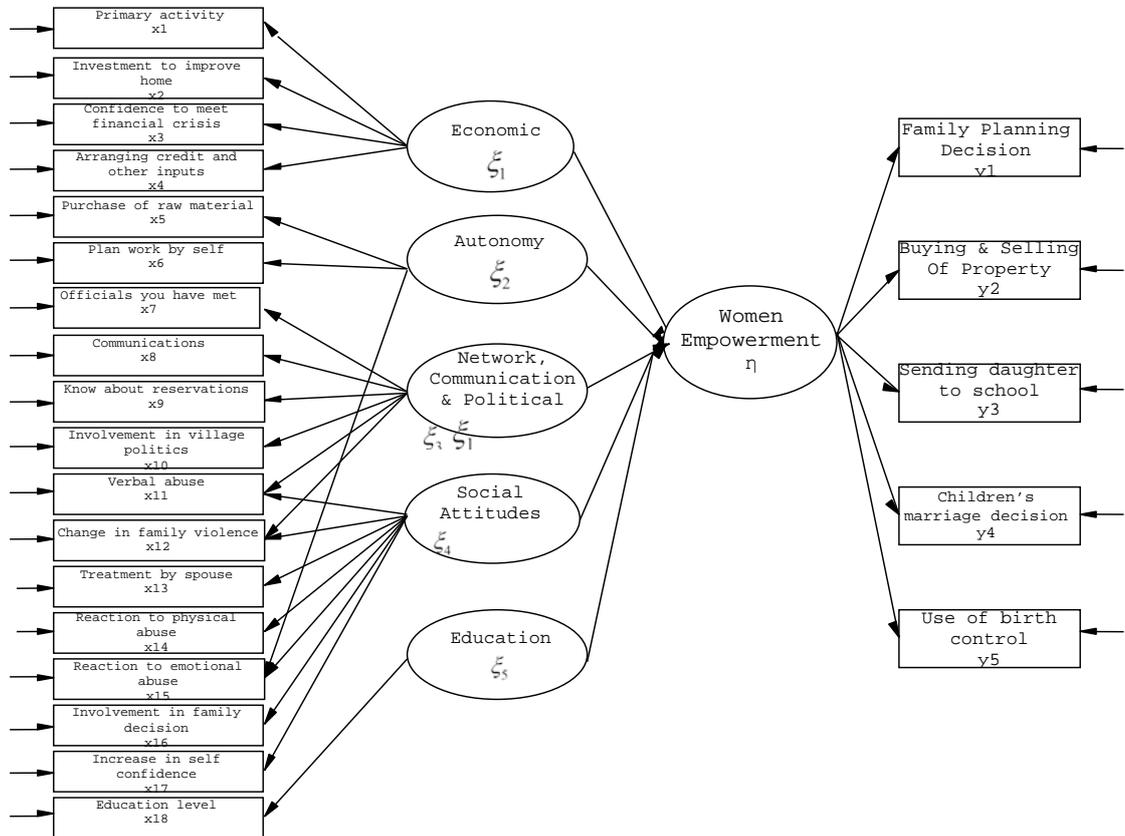
APPENDIX

For an ordinal variable y with $m_i$ categories, the connection between the ordinal variable $y_i$ and the underlying variable y* is the following for $x_i = C$ $\tau_{c-1}^{(i)} < y_i^* < \tau_c^{(i)}$, $c = 1, 2, \ldots, m_i$,

Where $\tau_0^{(i)} = -\infty$, $\tau_1^{(i)} < \tau_2^{(i)} < \ldots < \tau_{m_i-1}^{(i)}$, $\tau_{m_i}^{(i)} = +\infty$, are threshold parameters. For variable $y_i$ with $m_i$ categories, there are $m_i - 1$ strictly increasing threshold parameters _ $\tau_1^{(i)}$, $\tau_2^{(i)}$, $\ldots$, $\tau_{m_i-1}^{(i)}$. Because only ordinal information is available about $y_i$, the distribution of y* is determined only up to a monotonic transformation. It is convenient to set $y_i$* have the standard normal distribution.

[i] Source: Planning Commission (2002). Chidambaram (2004), India's then Finance Minister recognised the SBLP as one of the most popular strategy for empowering women.

[ii] For example, if a woman offers greater resistance to any form of abuse from her husband or family, we consider her more empowered as she is trying to improve her well-being by asserting herself.

[iii] See Kabeer (2001) and Johnson (2005) for a discussion on microfinance and women empowerment in terms of viewing empowerment as outcomes for women associated with access to loans, or as processes of loan use.

[iv] The following districts were selected why? for the survey: Medak and Warrangal from Andhra Pradesh; Koraput and Rayagada from Orissa; Gadchiroli and Chandrapur from Maharastra; Dharmapuri and Villupuram in Tamil Nadu; and Allahabad and Rae Bareli in Uttar Pradesh. For further details on the survey design, sampling and data, refer to Bali Swain (2012a).

[v] The Andhra Pradesh government actively promoted SHGs. Members of the SHGs selected a person (Gram Deepika) who was appointed by the state government to maintain SHG records, coordinate with banks/government agencies and facilitate the SHGs. On average a Gram Deepika was responsible for 20 SHGs with part of their salary paid by the SHGs. The government rewarded them with priority status in state government schemes that involved a subsidy component. By 2003, with the formation of SHG federations and Mutually Aided Cooperative Societies (MACS), the scale of lending and saving had increased. The SHGs were usually engaged in activities like dairy, animal husbandry, vegetable cultivation and processing and marketing of spices.

[vi] Some officials blamed this on the lack of an active interest by the state government (Bali Swain, 2012a). Much of SBLP activity in Uttar Pradesh was linked to the SGSY poverty alleviation programme that had a subsidy component and was facilitated by the government officials. During the time of the survey Maharashtra was ranked seventh in terms of its SBLP, by predominantly targeting rural women who had no previous link to the banks.

[vii] In addition to the NGOs, SGSY relies on banks and government-owned District Development Agencies that are primary implementing agencies. Nair (2005) notes that such agencies lack the required administrative capacity to implement SBLP and make the situation much worse by increasing the pressure on the village and block level administrators to achieve targets on creation of SHGs.

[viii] Alternative delivery mechanisms have been introduced since 2003. In January 2006, the Reserve Bank of India specified the inclusion of the Business Facilitator Model (BFM) and Business Correspondent Model (BCM) for providing intermediary services like identifying borrowers, promoting savings, processing and submission of loan and monitoring of repayment. The BFM also provide additional services like disbursal of small loans, recovery of principal, collection of interest, sale of micro insurance and mutual fund products. The BFM include NGOs, cooperatives, post offices, insurance agents and community-based organisations. The BCM include NGOs and Microfinance Institutions (MFIs) that are registered under the Trusts Act, not-for-profit companies (Section 25 companies in India) and post offices. A fee may be charged to the bank for these services (Allen et al., 2007).

[ix] By 2007 the share of SHGs linked by NGOs dropped to less than one-third with nearly half of them being promoted by the government (Allen et al., 2007).

[x] This has been discussed earlier in the paper, but for a literature survey and discussion on this refer to Bali Swain (2007) and Bali Swain and Wallentin (2009; 2012).

[xi] Bali Swain and Wallentin (2009) used the SIAS data, to find that women are empowered by SBLP as compared to the control group. Our control group is just two observations short of this control group, but dividing it into further sub-sample (regionally or linkage model types) reduces the sample further making SEM estimations difficult.

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