



Male Migration for Work and Female Labor Force Participation in Nepal

Michael Lokshin and Elena Glinskaya
World Bank

Work-related migration and remittances

- Increase in work-related migration and remittances
- About 1M prime age males work outside Nepal
- The majority of male migrants are husbands or son in the households left behind.
- The proportion of households receiving remittances has increased from 23 percent in 1995 to 32 percent in 2004
- Remittances grew at the rate of 30% per year, from 3% of GDP in 1995 to 15% of GDP in 2004
- Official statistics: \$1 billion comes in Nepal as remittances. Unofficial statistics: even more.

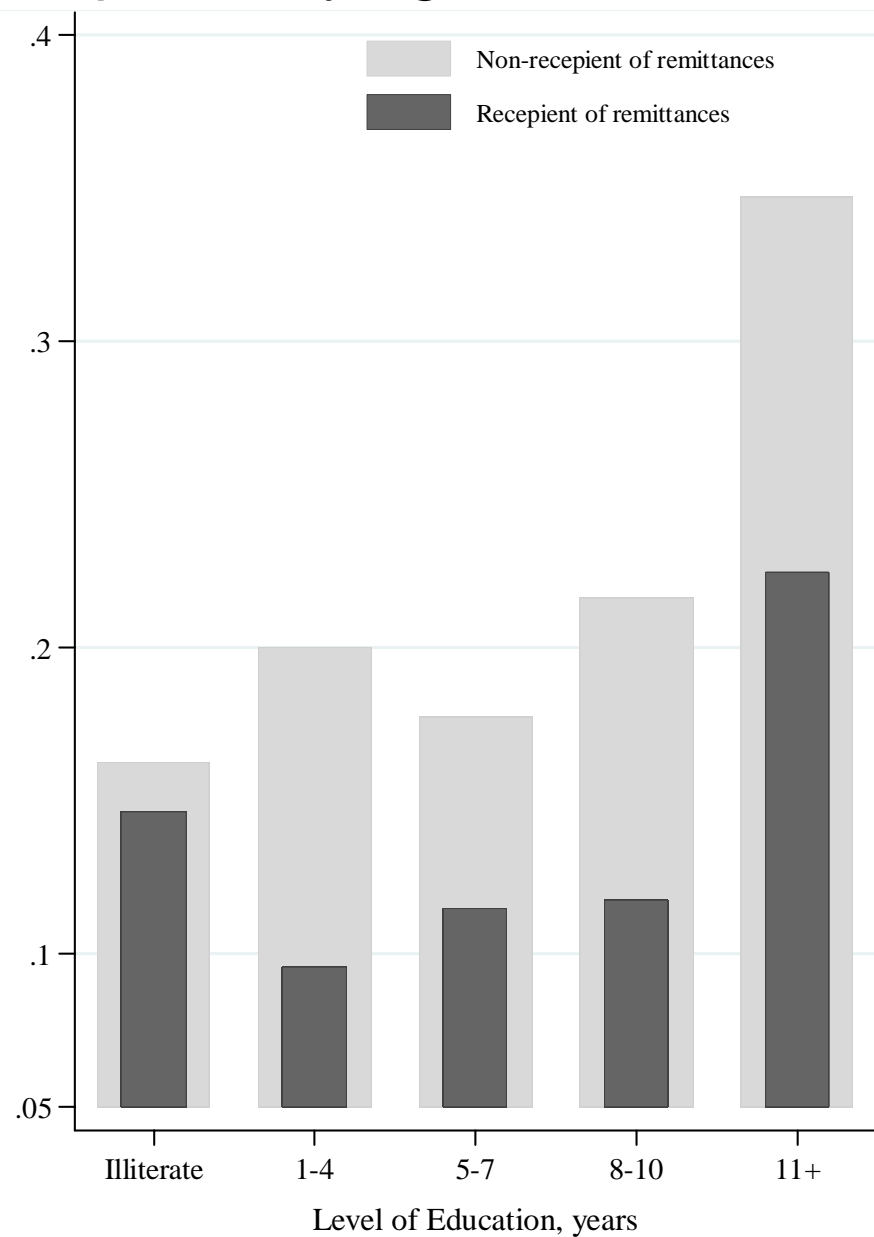
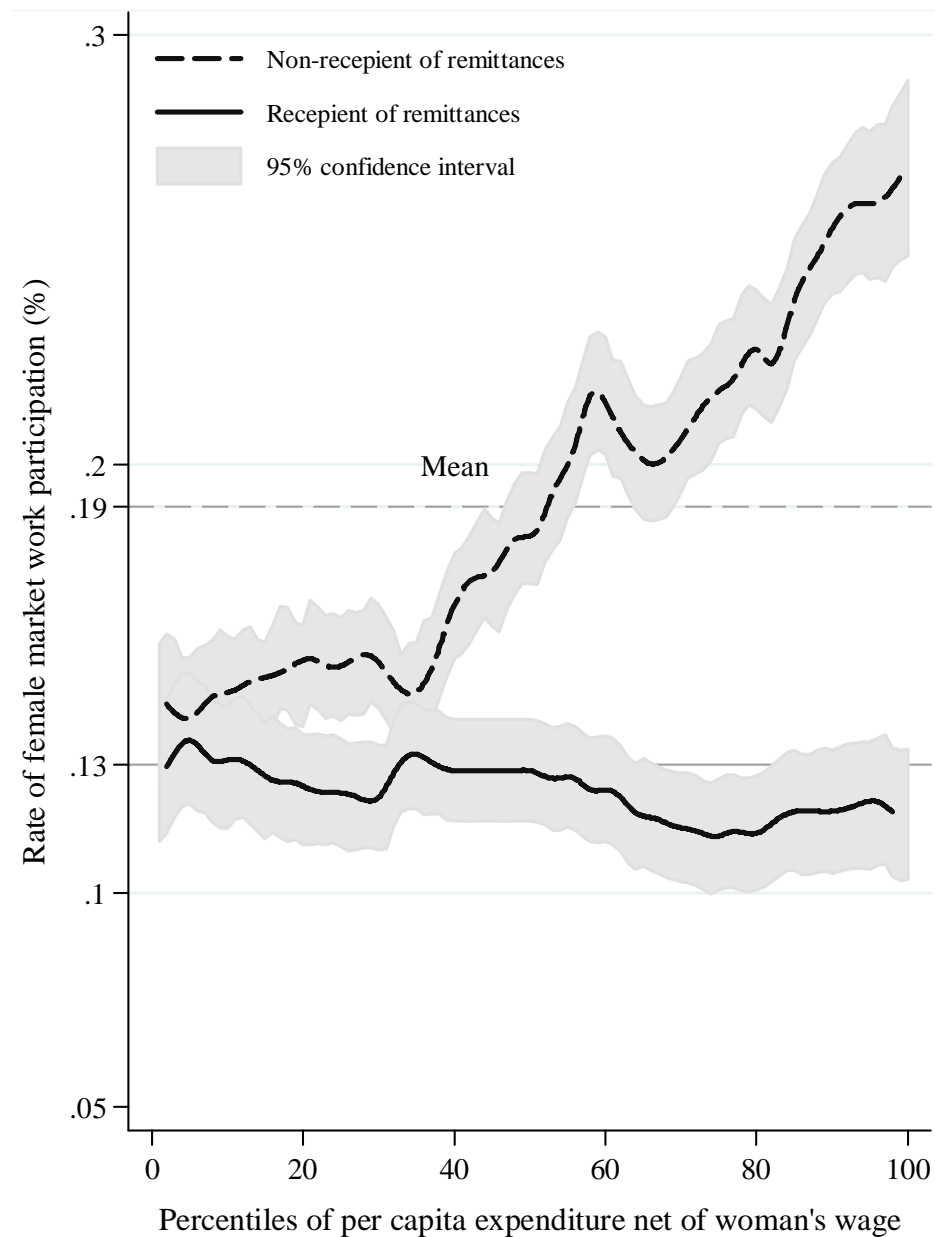
Data

- Use two rounds of Nepal Living Standard Survey (NLSS).
 - First round June 1995- June 1996; 3,373 households in 274 PSU's
 - Second round April 2003-April 2004; 3912 households in 326 cross-sectional and 95 panel PSU's.
- 2001 Nepal Census data
- Sample of 5426 women ages 15 to 60
- We assume that households with migrants are those who receive remittances



Population and Market Work Participation Pyramid

Rates of female Market Work Participation by age and education



Theoretical framework (1)

- Multiple effects of migration for work on the behavior of household members left behind:
 - Remittances contribute to household income
 - Remittances enable households to overcome credit and risk constraints on their ability to engage into the modern and more productive activities.
 - Migration changes relative productivity of members of the sending households.
 - Affects information, risk aversion, uncertainty,
 - Labor market implications for the household members

- Two period model of utility maximization
 - *Period 1*: Households compare **expected** net benefits (in period 2) in each state of migration and select the state providing highest utility.
 - *Period 2*: Households observe the realized labor market outcomes; a migrant informs his household about his wages and remittances. The household decides on the LFP of its members, investment decisions, adjusts levels of consumption.

Theoretical framework (2): Household decision in period 2

Household with no migrant

$$\text{Max} U(C, L_m, L_f, X)_{\{C, L_m, L_f, h_m^m, h_f^m, h_m^d, h_f^d\}}$$

$$\text{s.t. } C \leq w_m h_m^m + w_f h_f^m + f(h_m^d, h_f^d) + I$$

$$h_m^m + h_m^d + L_m = 1; \quad h_f^m + h_f^d + L_f = 1$$

Household with a migrant

$$\text{Max} U(C, \bar{L}_m, L_f, X)_{\{C, L_f, h_f^m, h_f^d\}}$$

$$\text{s.t. } C \leq w_m^* \bar{h}_m^m + w_f h_f^m + f(0, h_f^d) + I$$

$$h_f^m + h_f^d + L_f = 1$$

■ Predictions of the theoretical model

- Higher income from remittances would induce a woman consume more leisure
- The impact on time spent in home production depends on the properties of home production function. Two cases:
 - Husband and wife compliment each other in home production. → husband's migration reduces wife's productivity at home and hence her time spent in home production: **Total effect: Ambiguous**
 - Husband and wife substitute each other in home production. → husband's migration increases wife's productivity at home and increase wife's time spent in home production: **Total effect: Reduction in Market Work Hours**

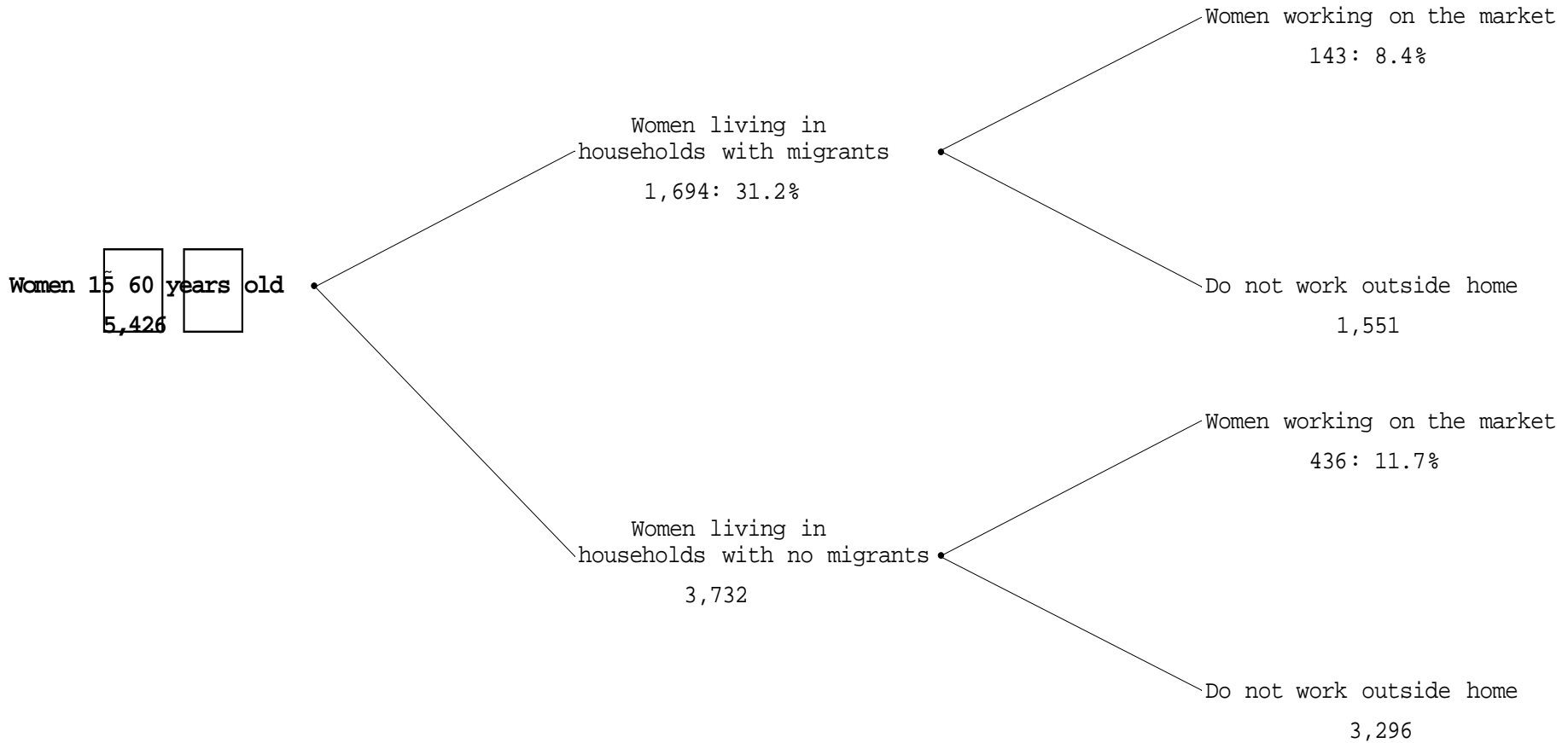
Identification strategy

- Theory → some conditions that affect male migration decision in period 1 have no effect on female labor force participation in period 2.

- Two instruments (standard in the field):
 - A proportion of abroad migrants in a ward in 2001 (based on 2001 Census). A proxy for ward-level migration networks, affects cost of abroad migration.
 - A proportion of internal migrant in a district in 1995 (NLSS 1995). Affects cost of internal migration.

- Studies of female LFP in Nepal found that the labor market in Nepal is segmented. And the market for women paid labor is affected only marginally by the labor market conditions for men. We also controls for local employment rates in our model.

Household Migration and Women Market Work Participation Diagram



Empirical Specification

- FIML estimation of the joint model of household male migration and female market work participation decision.

$$M_i = 1(D_i^* \geq 0) = 1(\gamma Z_i + \mu_i \geq 0)$$
$$W_{ij} = 1(H_{ij} \geq 0) = 1(\beta_j X_{iw} + v_{ij} \geq 0); j = 0, 1$$
$$\Sigma = \begin{pmatrix} 1 & \rho_{10} & \rho_{1M} \\ & 1 & \rho_{0M} \\ & & 1 \end{pmatrix}$$

- Impact of migration on the level of women's MWP can be interpreted as treatment. Then ATT is:

$$ATT(x) = \Pr[M = 1 | W = 1, X = x] - \Pr[M = 0, X = x, W = 1]$$
$$= \frac{\Phi_2[x\beta_1, z\gamma, \rho_{01}] - \Phi_2[x\beta_2, z\gamma, \rho_{02}]}{\Phi_2[z\gamma]}$$

Explanatory variables

Household characteristics	
Household size and size ²	
Shares demographic groups	Six variables for different age/gender groups
Non-wage income	Household income from non-wage sources (pensions, stypends, etc.)
Land Ownership	Set of dummy variables on land ownersip
Religion of household head	
Ethnicity	Set of dummy variables for different casts
Women's characteristics	
Age and Age ²	
Education categories	Set of dummy variables
Marital Status	Set of dummy variables
If currently in school	
Characteristics of the locality	
Geographical dummies	Six regional dummies
% of wage employment	Ward level
% of self-employed	Ward level
% of illiterate	Ward level
% of abroad migrants 2001	Ward level
% of domestic migrants 1994	District level

Results FIML Estimation:

- Instruments are significant in the migration selection equation. Pass weak instrument and OverID tests.
- Household and location characteristics are more important in determining the MWP of women in households with no migrant.

- Effect of selected characteristics:
 - MWP increases with age,
 - MWP is higher for better educated women.
 - Non-wage income suppresses MWP in household with migrants.
 - Women living in households owning large land plots are less likely to work on the market.
 - Regional differences

Simulations (1)

The change in the rates of MWP for women living in households with a migrant had the male would-be-migrant stayed home.

$$E_x \left[\frac{\partial E(\Delta | X = x, M = 1)}{\partial x_k} \mid M = 1 \right] \quad E_x \left[\frac{\partial E(\Delta | X = x)}{\partial x_k} \right]$$

Age category

18-25	-2.68	-0.37
25-35	-8.64	-1.33
35-45	-3.49	-0.74
45-60	-0.48	-0.01

Education category

Illiterate	-4.28	-1.01
1-4 years of schooling	-2.96	0.43
5-7 years of schooling	-3.12	-0.77
8-10 years of schooling	-3.57	-0.82
11+ years of schooling	-11.31	-2.27

Regions

Kathmandu	-15.32	-3.00
Other urban areas	-8.41	-2.02
Rural Western Hills	2.14	4.87
Rural Eastern Hills	-8.15	-1.88
Rural Western Terai	-2.12	0.88
Rural Eastern Terai	-4.03	-0.87

Ethnicity

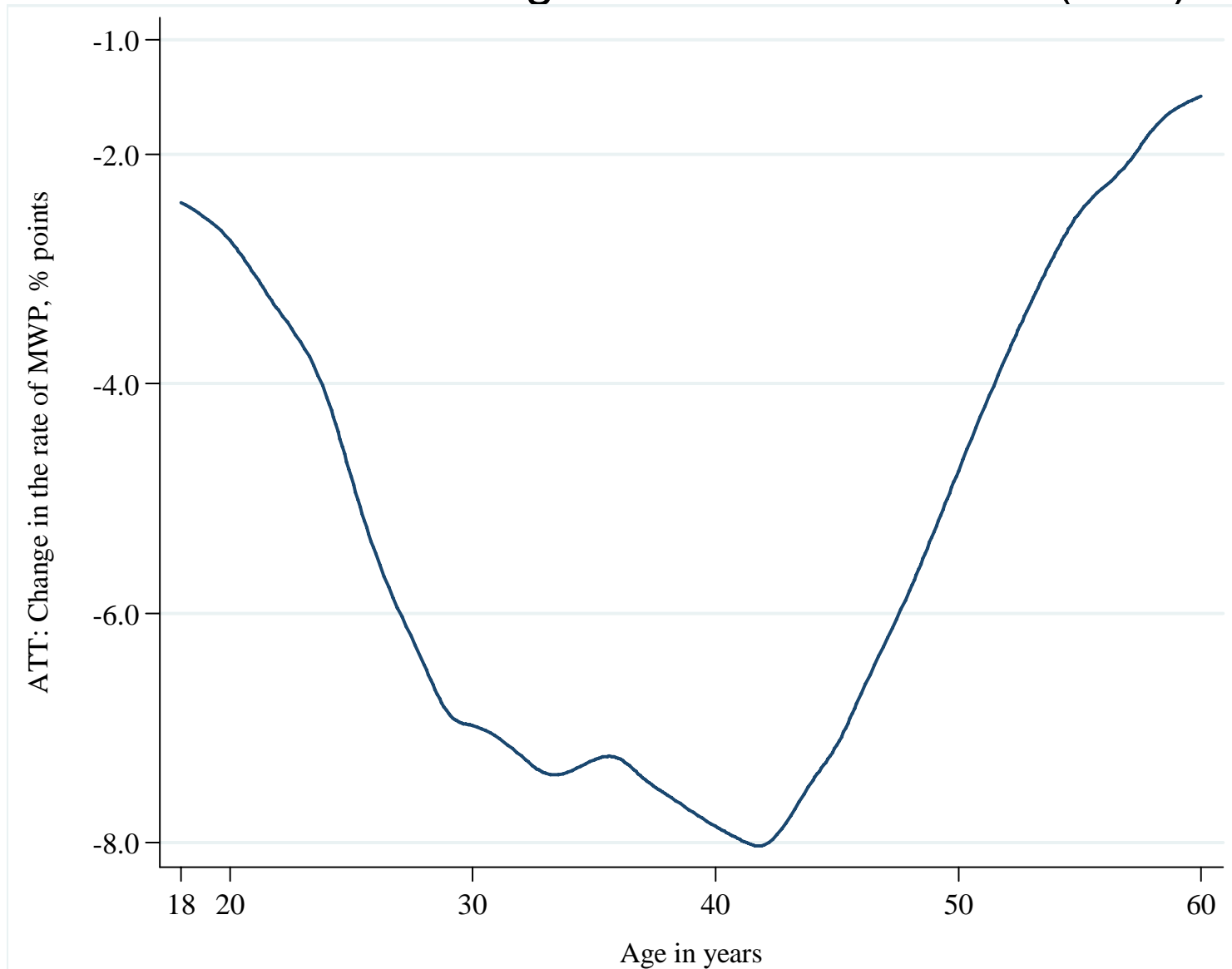
Brahman/Chhetri	-2.94	0.22
Dalits	-3.04	-0.54
Newars	1.47	3.99
TeraiMC	-9.00	-1.49
Muslims, other	-7.10	-1.20

Total

	-5.44	-1.04
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Results (2)

Simulated change in the rate of MWP (ATT)





Conclusion

- Migration of male household members reduces women rates of MWP by 5.4 percentage points (50%).
- The impact of migration is stronger for women 30 to 45 years of age.
- Women with university degree of higher
- Women residing in landless households