



# Impact of Public Policy and Legislation on Autonomy and Empowerment of Women in India

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## Abstract

Women-centrist policies in India have led to gendered outcomes in education, financial inclusion, and governance. The data also suggests that incidence of domestic violence has reduced. Nevertheless the status of women's autonomy is sometimes threatened in the very family setting that affects all aspects of their lives. The freedom to express and participate equally in household activities and decisions is what matters most to women. The present paper seeks to evaluate such intrinsic gains in women's autonomy. Regression modelling is used to study the relationship between measures of autonomy, empowerment, and various socio-economic indicators and public policies. To examine the role of key legislative enactments, Amendment to the Hindu Inheritance Act (2005) and Protection of Women from Domestic Violence Act (2005), dummy variables were introduced in the regression. The data used for the statistical analyses is sourced from National Family Health Surveys, Ministry of Health and Family Welfare, Government of India. The results show that while literacy always supports women's participation in household decisions, language and culture are important to understand the regional differences in impact of gender interventions. The Amendment to the Hindu Inheritance Act (2005), has a consistent positive influence on all measures of women autonomy, as it redefines property rights in favour of the large numbers of Hindu women. Microcredit loans to women have a significant negative impact on women's participation within the household. Socio-cultural traditions appear to interact adversely with this financial inclusion measure, especially as it puts woman in position of relative power within the household. This is especially true for the more conservative states in the north of India. The findings in this paper are original and have significant implications for public policy making.

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## Introduction

Gender discrimination has been deeply and historically embedded in the socio-cultural fabric of India. Gender discrimination at birth, in education and in the labor market extends naturally to creating gender inequalities within the household. Gender planning is an accepted response by the government; gender focus is and has long been a part of public policy in India. Public policy efforts to reduce gender gaps have been impactful on several counts; female literacy has gone up from 55% in 2006 to 68% in 2016 (National Family Health Survey (NFHS-3) [49], 2005–06) (National Family Health Survey (NFHS-4) [50], 2015–16)<sup>1</sup>, while maternal mortality dropped from 0.254% to 0.13% during the same period (Maternal Mortality Ratio (MMR), [40]).

Going forward into the twenty-first century, the Indian government introduced fresh mechanisms to ‘engender the policy and planning process’<sup>2</sup> for overcoming the challenges of gender inequalities. (Engendering Public Policy, [22]). However, in spite of continuous policy support and economic development, women in India are relatively disadvantaged on several counts, e.g. credit access, employment, health and land rights. Beyond these areas where gender inequalities are visible, there are the deep-rooted social practices and cultural norms that limit participation by women in household and financial decisions. To make matters worse, women face the omnipresent challenges due to greater vulnerability to violence, both in and outside the home. Public policy efforts to uplift women’s socio-economic status will be strengthened when accompanied by changes in attitude and behavior at the family and community level.

Specific legislations have been implemented by the government to address key gender concerns. This paper studies the impact of two such legislative Acts: The Amendment to the Hindu Succession Act of 2005, which changed inheritance laws for the large Indian community of Hindus, and the Protection of Women from Domestic Violence [69]. Public policies for promoting financial inclusion and the participation of women in local government are also analyzed for their role in influencing women autonomy and empowerment in India. The study analyses these measures in interaction with the changes in development indicators like income, education and health.

Gender is a socially constructed ideology that is reflected in our culture and in the nature of our political, social, economic, educational, and religious institutions. Culture plays a pivotal role in affecting the gendered outcomes from policy interventions. Language can be used as a marker for distinguishing between several cultures. There are visibly different cultural patterns between the Hindi and non-Hindi speaking regions of India. To assess the influence of distinct social norms and customs, we have used language as a binary control variable in our data modeling.

<sup>1</sup> We use data of the 28 federal states, as well as the National Capital Region (a union territory), as per NFHS 3, in this study. Hence, 29 federal territories are considered.

<sup>2</sup> National Policy for the Empowerment of Women (2001)

The role of women in leadership positions in government is said to impact positively on women welfare. Two key amendments to improve political representation of women in India were enacted in 1993 and 2008: one-third of the council leader positions in local government and one third of the seats for women in the lower house of parliament at the Central government should be reserved for women. The present study considers the percentage of women in local government as an explanatory factor in women's autonomy and empowerment.

We observe that there are positive effects of literacy gains on most measures of women autonomy and empowerment, except decisions related to spending husband's money. Legislation led improvement in property rights of Hindu women has significantly enhanced their autonomy at the household level.

The incidence of domestic violence against women has declined during the ten year period, yet 27% of the women surveyed under NFHS-4 have experienced it at least once in their lifetime. Further, there still exist some gaps in autonomy at the household level, and there has been no significant improvement in women participation in spending decisions from their own money or their husband's money.

The reason for limited improvements in the status of women may have a cultural context. India is a geographically vast country with diverse cultures. Researchers have specially documented the play of culture between the Northern and Southern states of the country [75]. Gender inequalities are greater in North India; it is consistently found to have worse outcomes for girls than South India in terms of mortality, male–female ratios and fertility rates [58]

In order to include these regional differences in our analysis we use cross section state-wise data for two periods 2005–06 and 2015–16 which corresponds to NFHS-3 and NFHS-4 reports. Regression modelling has been applied to identify the key factors that impact women's autonomy within the household and the incidence of domestic violence against women.

## Review of Literature

### Gender and Empowerment

Gender “refers to the socially constructed roles and relationships, personality traits, attitudes, behaviors, values, relative power and influence that society ascribes to people based on their assigned sex.”. Gender norms are embedded in culture, but they can be influenced over time [28].

Gender indices form a part of the UNDP Human Development Index (HDI), and HDI estimates show that women lag behind men on most development outcomes. This has brought the focus of human development efforts on gender (UNDP, [72]). “The United Nations General Assembly resolution, adopted on 25 September 2015, aims to achieve gender equality through its Sustainable Development Goal (SDG) 5: all forms of discrimination against women and girls must be eliminated by 2030. This goal recognizes that gender equality is a fundamental human right. But it is also a response to the fact that gender inequality remains a global challenge,

considering that women still suffer disproportionately from discriminatory practices and violence worldwide” (United Nations Report [73]).

It has been expected that the processes of economic development will lead to improved gendered outcomes on several counts like income, education and health, and that the intrinsic status of women within the family and society will improve as a logical consequence. A woman is empowered if her voice in household decisions is recognized. The freedom to express and participate equally in household activities and decisions is what gives true respect. Until households are naturally organized in this manner, policies and legislation attempting to bring about change from outside are met by resistance from within. Social norms and customs have acted as barriers to such percolation theories in many cases, especially in societies which are more conservative. Omar and Hamzah note that discriminations against women are reinforced by various socio-cultural norms which impact attitudes towards them in the household. [53]

Empowerment measures cut across social groups and exist within families [6] and are closely defined by women’s own perception of empowerment [65]. For instance, a study in Bangladesh found that even when women were highly respected in their role as mothers, their autonomy in decision making was unclear [8]. Public policy measures that attempt to reduce the gender gap need to bring about desired behavioral changes that result in empowering women in their own perception [21, 30, 56].

## Literacy and Empowerment

Literacy is an empowering process; closing gender gaps in literacy and education have been a key agenda for policy makers for the larger part of the twentieth century [60]. Literate women are found to enjoy better status in the family. A study of women in Nepal found that they were keen on attending literacy classes as they were both accessible and built individuality through becoming literate [61] [10]. Informal education programs are popular for these reasons, and they give women a greater sense of their own identity [39], Govindasamy [26]). Literate women are better able to use family planning and also raise healthier children (Kagitcibasi et al. [33]). A woman is ‘empowered’ when she is educated and has acquired economically meaningful capabilities [38] that give her better standard of life. Higher economic growth can be associated with the social position occupied by women [36].

Jayaweera notes that a direct relationship between education and empowerment of women is not found, due to the interaction with gender ideologies and relations in the family. [29]. Even though women have visibly good educational achievements, they still have to fulfill their responsibility as a wife and mother. [53]

Kabeer finds that when education is designed such that it empowers women to question socially embedded practices and roles it becomes impactful (Kabeer [32]). There is a need to consider changes in the foundation of the system of education, perhaps those requiring long term discussions on curriculum. Existing educational systems replicate socio-cultural beliefs and thereby limit the change in attitudes that is required to support the status of women within the very basic social unit: the family.

Alam and Zulkefli note that in developing countries like Bangladesh and Malaysia socio-cultural factors are a major reason for discrimination against women. They suggest that it is necessary to change parents' ideology in order to bring equal gender opportunities. Promoting education to change parents' ideology may even build equal opportunity for men and women (Alam & Zulkefli) [4].

## Health and Empowerment

Varkey, Kureshi & Lesnick find that the empowerment of women is closely related to several health parameters, subject to the mediating effect of social attitudes and traditions (Varkey et al. [74]). The Gender Empowerment Measure (GEM) calculated as part of the UNDP Human Development Reports finds that after adjusting for GDP, the measure is associated with several health indicators like birth weight, and rates of fertility and infant mortality. Many international organizations like the World Bank and the United Nations explicitly include the impact on empowerment in programs for women's health. It is expected that improvements in health will influence empowerment of women in a positive manner.

A survey carried out in the poor neighborhoods of India's capital city, found that a girl child is more than twice as likely to suffer from fatal outcomes of diarrhea (Khanna [57]). A possible reason can be related to the attitude towards treatment of females. Women are often on low priority in obtaining health treatments, and the restrictions on their movements also reduces their access to available health system. This possibly causes visible differences in estimates of mortality between the conservative states of North India and the less orthodox South.

Inadequate intake of dietary micronutrients like riboflavin, niacin, vitamin B12, and selenium reduce haemoglobin levels and thus, capacity of blood to transport oxygen around the body falls. [67]

For the purpose of the present study we take anaemia as a measure of health and wellbeing. Complete data points were not available on more conventional measures like life expectancy and maternal mortality rate. We note that anaemia can restrict participation in household activities and possibly even in decision making. Women's empowerment is significantly and positively associated with health outcomes but the direction of causation can be in either direction [55]

## Access to Land and Credit Resources as Empowerment Enablers

Resource access is treated as an important factor for reducing gender inequities. Greater control over productive assets and property alters intra-familial dynamics and improves capabilities and rights of women. Access to resources and the ability to decide their allocation is a source of empowerment [47]. There are strong interactions between property rights, bank loans, and violence against women [5, 54]. The evidence suggests that when income or assets are controlled by women there is more spending on nutrition, health, and housing improvements [19, 20].

Rights to property are an important enabler for empowerment. It helps to improve negotiating power within the household: decisions related to one's health, important

household purchases and even decisions to go to meet one's own family. Using data from Nepal Demographic and Health Surveys for 2001 and 2011, Mishra and Sam find that ownership of property has a direct influence on empowering women [42]. Inheritance of land in Nepal was largely patrilineal, but a constitutional amendment in 1977 brought changes that improved property rights for women and had a positive impact on development [2, 66]. The present study also finds that changes in property rights of women in India due to the Amendment to the Hindu Inheritance Act [69] have exercised a positive influence on their status within the household.

Improved access for women to credit markets, and establishing of their property rights can result in favorable empowerment outcomes (Nidhiya Menon [51]). However, to ensure that women avail the benefits of such measures, creating awareness among them about their legal rights is important.

In Bangladesh, microcredit availability improved with the microcredit revolution brought about by Muhammad Yunus through the well-known Grameen Bank movement [63]. In her research of credit schemes in India, Duflo found that women are able to exercise control over these money transfers [18]. In this paper, we include microcredit loans as an enabler of autonomy and empowerment, but the regression results show that microcredit provisions have negative effect on women's autonomy within the household.

Promotion of financial inclusion has been high on the Indian government's agenda in this century. Policies and programs for improving financial inclusion by the Reserve Bank of India, included the use of branchless banking and banking correspondents. However, as these initiatives could not bring about the desired growth, the government introduced the *Pradhan Mantri Jan Dhan Yojana* and the *Pradhan Mantri Mudra Yojana* in 2014 as part of the National Mission on Financial Inclusion.

By 2015–16, 206.3 million female beneficiaries opened no-frills accounts under the *Pradhan Mantri Jan Dhan Yojana*<sup>3</sup>, representing 54% of all accounts opened under the scheme. The *Pradhan Mantri Mudra Yojana* provided credit to over 27.5 million women entrepreneurs, representing 79% of all Loan Accounts under the scheme. Clearly, women's access to banking and credit has gone up significantly with these recent initiatives. However, it is difficult to envisage their impact on status of women, especially in light of the negative influence of microcredit on women autonomy and empowerment noted in this paper. Gender interventions that change attitude towards women can mediate these associations effectively (Morgan et al. [44]).

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<sup>3</sup> Pradhan Mantri Jan-Dhan Yojana was launched in 2014 as a National Mission for Financial Inclusion, with the goal of ensuring provision of Bank Accounts, Insurance, pension, and other financial services in an affordable manner. In 2015, the Pradhan Mantri Mudra Yojana was launched for small and micro ventures to avail affordable loans.

## Political Participation, Autonomy and Empowerment

In most nations, women now have the right to vote. The next logical step is to increase women's participation in government. Political rights for women, participation and leadership in government lead to greater autonomy and empowerment of women in their community. However, by July 2011, only 26 countries had achieved the target set by the UN Economic and Social Council in 1990. Only these nations had 30 percent or more women occupying legislative seats at the central level [76]: The year in perspective, 2011).

Women are kept out of mainstream politics because of discriminatory notions such that they do not have a strong and independent voice being under the control of their husbands. The problem of 'proxy women' in political leadership, which refers to the situation when male members control decisions by female representatives, is also common [14]. Due legislation can help to counteract such discrimination [11].

To encourage the participation of women in Indian politics, reservation in politics was implemented in the 73rd Constitutional amendment (1993). It required all federal states to reserve a third of council seats in local government bodies, called 'panchayats'<sup>4</sup>, for women. Representation of women in leadership positions creates role model effects in the community, and makes other women to be interested in policy making (Chattopadhyay & Duflo [12]). In a study carried out in West Bengal, in East India, Beaman et al. found that in communities which never had a female leader, 86% of parents only aspired to get their daughters married and trained as a housewife to meet the expectations of her marital family (Beaman L [9]).

Further, in a later study Chattopadhyay and Duflo noted that women leaders favor policies that increase the negotiating position of women in the marital set up, and enhance their participation and productivity in the labor market. They also support policies to promote child health and nutrition [13, 70]. This paper includes percentage of women leaders in local government as an explanatory factor of female decision-making autonomy and empowerment.

## Measures of Autonomy and Empowerment

In order to examine changes in women's autonomy related to their participation in household decisions, we used the autonomy indicators that have been defined by the NFHS 3 and 4. This includes women's participation in household decisions related to major purchases, healthcare and visits to family or relatives, and decisions about spending their own and their husband's money. Additionally, we consider the incidence of domestic violence, measured as "percentage of women who have experienced physical violence in their lifetime", as one of our key empowerment indicators.

We set up regression models to study the relationship of each of these autonomy and empowerment measures with development indicators and specified policy

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<sup>4</sup> In India, the Panchayati Raj generally refers to the local self-government of villages in rural India as opposed to urban and suburban municipalities.

changes. Language as a marker of culture has been included in the modelling to control for social diversities across the states.

The factors influencing women's participation in household decision making are complex. They relate to socio-economic indicators and socio-cultural values [7]. Decisions range from those that deal with what to cook [35] to purchase of daily supplies [5]. These decisions may be important, but they do not reflect autonomy or empowerment as they tend to be commonly decided by women (Kabeer [31]; A.M. Basu [1]).

Feminist theory follows the argument that enhanced autonomy and power improves her position and bargaining capability in the household due to women's greater confidence, financial independence, and possibly lower tolerance of male domination and control. However, as these associations are complex there is not much supportive evidence as yet (Zegenhagen et al.[77]).

Monitoring gender equality also requires clear measures of nature of domestic violence and other discriminatory practices. Globally there are increasing concerns about violence against women, and especially domestic violence (UN. Economic and Social Council, [71]). Domestic Violence destroys the sanctity of the home as a safe haven. It has ill effects on both physical and mental health of women and children and can even adversely impact the sex ratio. Reduction in atrocities related to domestic violence is an important measure of female empowerment.

In India the Protection of Women from Domestic Violence Act<sup>5</sup>, 2005 was put in place as an important legislation to offer relief to any woman or child who is experiencing any form of domestic violence. According to Sect. 3 of this Act, “any act, omission or commission or conduct of the respondent shall constitute domestic violence in case it:

1. Harms or injures or endangers the health, safety, life, limb or well-being, whether mental or physical, of the aggrieved person or tends to do so and includes causing physical abuse, sexual abuse, verbal and emotional abuse and economic abuse; or
2. Harasses, harms, injures or endangers the aggrieved person with a view to coerce her or any other person related to her to meet any unlawful demand for any dowry or other property or valuable security
3. Has the effect of threatening the aggrieved person or any person related to her.
4. Otherwise injures or causes harm, whether physical or mental, to the aggrieved person.”

There are several advantages that are derived by women when they have high socio-economic status. These even include protection against abuse and exploitation

<sup>5</sup> “The Protection of Women from Domestic Violence Act states that if a complaint is filed to the magistrate (government office), based on the magnitude of harm inflicted, the office can provide protection to the woman or child, grant compensation, direct the woman or child to counselling, grant monetary relief, provide temporary shelter, and in more severe cases, can help the aggrieved with legal proceedings to file for a divorce”.



(Ahmed et al. [3]). Violence against women is treated as a violation of their human right and has been protected through legislation. Marital rape is also a specific form of gendered violence that has not become a part of criminal law in many countries, including India. However even without criminalization of marital rape women in India rarely resort to pressing charges. This is shown by the data: only 14% of women who had experienced physical or sexual violence have sought help as per NFHS 4, much lower than the reporting rate of 24% in NFHS 3.<sup>6</sup> Nigam states that “most marriages in India survive because women silently endure violence and abuse within such relationships” [52].

## Data and Methodology

The data used in this study is sourced from National Family Health Surveys (NFHS), conducted by the Ministry of Health and Family Welfare, Government of India. The first NFHS was conducted in India in 1992, followed by NFHS-2 in 1998, NFHS-3 in 2005 and NFHS-4 in 2015. The datasets provide state-wise information on several development indicators, but as the data on women empowerment was included only from NFHS-3, the present paper studies the changes for the ten-year period covered by NFHS-3 and NFHS-4. The design, procedures and questionnaires of the surveys were uniform in both rounds. The NFHS database presents smooth data on decision making at the household level, providing us with our measures of women autonomy. The data has been arranged in panel form, being cross sectional (29 federal territories) as well as time series.

In a study of selected states of India using the NFHS-3 data, Deb considered factors related to literacy, wealth, use of liquor, marital violence, women’s cash earning status, fertility rate, etc. to study the impact on decision making [15]. For our analysis, we have used data from NFHS 3 and NFHS 4<sup>7</sup> on literacy, anaemia, domestic violence, microcredit access, per capita income, and percentage of women working for cash. Official state language and religion have been included in the analysis as control variables. Language reflects on the interaction with culture and religion helps to study the impact of changes in inheritance laws which are religion specific. State wise representation of women in local government, ‘Panchayats’ was also used to study its impact on women empowerment.

In order to study the impact of the legislation for Protection of Women from Domestic Violence Act [69], a time dummy variable has been introduced in the regression. We observe that the incidence of domestic violence has fallen in most

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<sup>6</sup> Physical violence was defined in the NFHS Surveys as by the question “has anyone ever done the following to you : push you, shake you, or throw something at you; slap you; twist your arm or pull your hair; punch you with his fist or with something that could hurt you; kick you, drag you, or beat you up; try to choke you or burn you on purpose; or threaten or attack you with a knife, gun, or any other weapon?”

<sup>7</sup> The nationally representative sample of NFHS-3 included 109, 041 households, 124,385 women (15-49 years of age), and 74,369 men (aged 15 to 54 years). In NFHS-4, 601, 509 households were interviewed, consisting of 723,875 women and 112,122 men.

**Table 1** List of explanatory variables

Explanatory Variable	Description
$L_{it}$	Literacy rate of women in state $i$ at time $t$
$WC_{it}$	Percentage of women working for cash in state $i$ at time $t$
$Lang_i$	The official language of state $i$
$R_{it}$	Indicator of the majority religion in state $i$ with reference to the inheritance law at time $t$
$PC_{it}$	Per Capita income of state $i$ at time $t$
$MC_{it}$	Percentage of women who have taken a loan from a microcredit programme in state $i$ at time $t$
$A_{it}$	Percentage of women who are Anaemic in state $i$ at time $t$
$P_{it}$	Women representation in the Panchayats in state $i$ at time $t$
$VA_t$	Existence of the ‘Protection of Women from Domestic Violence’ act

**Table 2** Measures of women autonomy and empowerment

Dependent Variables	Description
$HP_{it}$	Percentage of women in state $i$ and time $t$ who alone or jointly make decisions on major household products
$V_{it}$	Percentage of women who alone or jointly make decisions on visits to family and relatives in state $i$ at time $t$
$HC_{it}$	Percentage of women who alone or jointly make decisions regarding their own health care in state $i$ at time $t$
$D_{it}$	Percentage of women who alone or jointly make decisions on all three – own health care, visits to family and friends, and own healthcare in state $i$ at time $t$
$OM_{it}$	Percentage of women who alone or jointly decide how to spend their own money in state $i$ at time $t$
$HM_{it}$	Percentage of women who alone or jointly decide how to spend their husband’s money in state $i$ at time $t$
$DV_{it}$	Percentage of women who have experienced domestic violence in state $i$ at time $t$

parts of the country. In 2005–06, it was reported that 34% of women had experienced physical violence at some time in their lives and in 2015–16, this percentage had fallen to 27%.

## Results

Tables 1 and 2 present a list of the dependent and explanatory variables used in the regression analysis.

To analyze the changes in the specified variables from 2005–06 to 2015–16 we ran two-sample two-tailed t-tests with 28 degrees of freedom at 1% significance level on relevant data. The t-tests were performed for the following state-wise socio-economic indicators: per capita income, female literacy rate, rate of anaemia, percentage of women who have used microcredit programs, percentage of women who work for cash and the percentage of women in local governing bodies. The results show significant improvement in this period for all states in the following indicators: per capita income, literacy rate and percentage of women who have used microcredit programs. The percentage of women in local governing bodies improved in 22 of the total 29 federal territories. A significant decline in the percentage of women who were anaemic was not observed. Anemia is widespread in India, especially in the rural areas. It hampers physical and cognitive capacity. As per the National Family Health Survey 2015–16 a quarter of the women respondents in the sample were underweight; 65% had mild anemia or worse and 39% had moderate anaemia or worse [48].

Change in the percentage of women who work for cash was also not found to be significant according to the results of the t-test. The results are supported by similar published findings, as given in the ILO's Global Employment Trends 2013 report. Their estimates reveal that India's women's labour force participation rate declined over a five-year period from just over 37 percent in 2004–5 to 29 percent in 2009–10 (Global Employment Trends [23]).

The results of the t-tests for the autonomy & empowerment measures show that there was significant improvement in the percentage of women who make decisions regarding major household purchases, their own health care and visits to family and friends, and on all three decisions in the aggregate. All of these measures changed in favor of greater autonomy across the 29 territories. The only exception was found with regard to the decision to visit family and friends. In this measure the territories of Delhi, Haryana and Himachal Pradesh exhibited a negative response. According to the social structures of the north part of India it is still prevalent for the married woman to seek permission of her husband and mother-in-law before even visiting her parents. In most cases permission is sought for any purpose that involves stepping outside the house. (Dyson [21]).

The results of the t-tests however were not significant in case of the percentage of women who alone or jointly decide how to spend their own money and those who alone or jointly decide how to spend their husband's money. Financial decisions still remain male dominated.

We noted that the incidence of domestic violence, as reported, has fallen between NFHS Rounds 3 and 4. However, the veracity of these estimates can be questionable. Victims of marital violence may not report their victimization for reasons like embarrassment, fear of reprisal, or as it is viewed as a closed-door, own family subject. They may even fail to identify it as objectionable [41]. The primary emotion underlying families is loyalty. Emotional attachment that develops due to cohabitation combined with socialization of emotions results in large underreporting of violence [16]. In patriarchal societies such as India, women are socialized into being silent about their experience of domestic violence [34].

Such observations can be a barrier to any legislation on the subject. We are for such laws but unless attitudes change, their impact can be only minimal.

Treating the six factors related to autonomy in decision making and domestic violence (Table 2) as dependent variables we used the pooled OLS regression method to understand the relationship with the socio-economic indicators and enabling factors. The Statsmodels, Scipy libraries of Python, a widely used programming language for econometrics and statistics, were used for carrying out the analysis [62]

Two dummy variables were introduced in the regression as control factors for official language of the state and religion. The dummy value of one was assigned to states with Hindi as the official language and zero to all other states. Religion has been used as a proxy for property rights of women as the inheritance laws in India are specific to religion. For 2005–06, states with a majority population of Christians were assigned the value one and those with a majority population of Hindus or Muslims were assigned zero. The implementation of the Amendment to the Hindu Succession Act in 2015–16 redefined the property rights of Hindu women and accordingly, for 2015–16, Christian and Hindu states were assigned the value one. Tables 3 and 4 contain the regression results for household decisions and financial decisions.

In order to incorporate into the study, the effect of introducing the Protection of Women from Domestic Violence Act [69], a time dummy variable was used in the regression. The dummy is assigned values of zero in 2005–06 and one in 2015–16.

## Regression Models and Results

$$HP_{it} = \beta_1 + \beta_2 L_{it} + \beta_3 R_{it} + \beta_4 Lang_i + u_{it} \quad (1)$$

The percentage of women who participate in decisions about purchases of major household products is directly dependent on literacy rates and property rights (which are legally defined according to religion). Language is significant at 10% level with a negative coefficient; it suggests that women from Hindi speaking states participate less in making decisions about purchases of major household products as compared to those from non-Hindi speaking states.

$$V_{it} = \beta_1 + \beta_2 L_{it} + \beta_3 R_{it} + \beta_4 Lang_i + \beta_5 WC_{it} + \beta_6 MC_{it} + u_{it} \quad (2)$$

The regression analysis of decision making to visit family and friends yields sensitive results. This decision factor is directly related impacted by literacy, property rights (which are legally defined according to religion) and working for cash. Language and access to microcredit are inversely related to decision making autonomy with respect to visiting family and friends.

$$HC_{it} = \beta_1 + \beta_2 L_{it} + \beta_3 R_{it} + \beta_4 MC_{it} + u_{it} \quad (3)$$

From this model, it is evident that female autonomy in making decisions regarding own healthcare is favorably affected by higher literacy and better property rights (which are legally defined according to religion). Microcredit access is again negatively influencing decision making autonomy with regard to own healthcare.

**Table 3** Regression results for household decisions

Explanatory variables	Percentage of women who make decisions on major household products	Percentage of women who make decisions on visits to family and friends	Percentage of women who make decisions regarding their own health care	Percentage of women who make all three decisions
Constant	39.1004**	38.2874***	40.9949***	19.0529
Literacy	0.2519**	0.3742***	0.4246***	0.3221**
Percentage of women who work for cash	0.1862	0.2897**	0.0956	0.1666
Majority religion	13.7957***	13.9325***	10.4180***	16.9541***
State per capita income	-0.2375	-0.1532	-0.3567	-0.1428
Official language	-5.6739*	-7.3032**	-3.8098	-7.3289**
Percentage of women in the panchayat	0.2275	0.1224	0.0997	0.2160
Percentage of women with a microcredit loan	-0.4128	-0.5246*	-0.4862*	-0.5174
Percentage of women that are anaemic	-0.1286	-0.0509	-0.0753	-0.1030
Existence of the 'Protection of Women from Domestic Violence' act	4.2802	-3.2689	0.8615	7.3660
Adjusted R <sup>2</sup>	0.689	0.632	0.641	0.739

At significance levels of 1\*\*\*, 5\*\*, and 10%\*

**Table 4** Regression Results for financial decisions

Explanatory Variables	Percentage of Women Who Alone or Jointly Decide How to Spend Their Own Money	Percentage of Women Who Alone or Jointly Decide How to Spend Their Husbands Money
Constant	77.8876***	64.2933***
Literacy	0.1864**	0.1718
Percentage of women Who work for cash	-0.0678	0.2581*
Majority religion	2.7719	11.9803***
State per capita income	-0.2235	-0.2307
Official language	-1.7582	2.3428
Percentage of women in the panchayat	0.1646	0.0440
Percentage of women who have taken a loan from a microcredit programme in state i at time t	-0.4118**	-0.4544*
Percentage of women that are anaemic	-0.1199	-0.2097*
Existence of the 'Protection of Women from Domestic Violence' act	-3.1893	-8.8602**
Adjusted r <sup>2</sup>	0.355	0.333

**Table 5** Regression Results for domestic violence

Explanatory Variables	Percentage of Women Who Experienced Domestic Violence
Constant	29.6865**
Literacy	−0.3146***
Percentage of women Who work for cash	0.5316***
Majority religion	0.8309
State per capita income	−0.2212
Official language	2.8939
Percentage of women in the panchayat	−0.1533
Percentage of women who have taken a loan from a microcredit programme in state <i>i</i> at time <i>t</i>	0.1262
Percentage of women that are anaemic	0.1827
Existence of the ‘Protection of Women From Domestic Violence’ act	−0.8988
Adjusted $r^2$	0.541

$$D_{it} = \beta_1 + \beta_2 L_{it} + \beta_3 R_{it} + \beta_4 Lang_i + u_{it} \quad (4)$$

On regressing the aggregate of the three decisions regarding purchases of major household products, visits to family and friends and own healthcare, we note that literacy, language and property rights are important explanatory factors.

$$OM_{it} = \beta_1 + \beta_2 L_{it} + \beta_3 MC_{it} + u_{it} \quad (5)$$

The percentage of women who alone or jointly decide how their own money is spent is positively impacted by female literacy, while women’s access to microcredit has an adverse effect.

$$HM_{it} = \beta_1 + \beta_2 R_{it} + \beta_3 MC_{it} + \beta_4 WC_{it} + \beta_5 A_{it} + \beta_6 VA_{it} + u_{it} \quad (6)$$

Our regression shows that the percentage of women who alone or jointly decide how their husband’s money is spent is positively related to property rights (which are legally defined according to religion) and percentage of women who work for cash. The negative relationship with anaemia may arise because chronic iron deficiency anaemia results in fatigue and decreased work capability, which can even result in instances of domestic violence due to delays in performing chores (Narayanan [48]).

This variable is negatively related to women’s access to microcredit. The time dummy variable introduced for studying the effect of the Protection of Women from Domestic Violence Act [69] is significant but negatively related. There are perceptions that this law has given undue power to women and is an attempt at role reversal. It is seen as a threat to centuries old male domination [52].

$$DV_{it} = \beta_1 + \beta_2 L_{it} + \beta_3 WC_{it} + u_{it} \quad (7)$$

The results given in Table 5 show that domestic violence decreases with increase in literacy, and increases with increase in women working for cash.

## Discussion

Literacy stands out in our analysis as a key factor in making a positive impact on participation of women in household decisions. It also supports a decline in domestic violence at the household level. Women with higher educational attainments levels are able to counter the gender inequalities that arise due to cultural and traditional norms. [17].

However, literacy gains failed to make a significant impact on increasing women participation in spending of husband's money. There appears to be great value attached to control over spending of 'husband money'. Several explanatory factors are noted to be significant in this case. There appears a need to integrate gender into the design of the interventions. There is a need to build steps to alter attitudes towards gender roles. Resultant changes in behaviour will support women's empowerment, especially if they have the support of men and other household members [68] (Morgan et al. [44]).

Per capita income growth failed to exercise significant impact on any of the measures. It is widely accepted that income gains lead to improving health outcomes. In our study we noted that anaemia, which is closely dependent on quality of nutritional intake, actually increased in 8 of the 29 states. There is said to be a direct association between economic growth and greater participation of women in the formal labour market (Mujahid & Zafar [45]) Our statistical findings however, indicate that there has been no significant improvement in the percentage of women who work for cash from 2005–06 to 2015–16, and only 25% of women were found to work for cash (National Family Health Survey (NFHS-4), 2015–16) It appears that economic growth failed both directly and to promote gains in the status of women in the household.

The Amendment to the Hindu Inheritance Act [69] has redefined property rights for the majority of women, and according to our findings it has proved to be the strongest enabler of female autonomy. To assess the impact of the Amendment to the Hindu Inheritance Act [69] we use religion as a control variable as the inheritance law in India is specific to religion. The majority religion of a state thus, becomes a good indicator of property rights. Prior to the amendment, only the inheritance law applicable to Christians treated men and women equally, giving sons and daughters an equal share in ancestral property (The Hindu Succession (Amendment) [69]). In both Hindu and Muslim laws, sons got a much larger share of ancestral property than daughters. However, the amendment to the inheritance law for Hindus stated that sons and daughters have an equal share in ancestral property. As majority of the population is Hindu in 24 states, (National Family Health Survey (NFHS-4), 2015–16), the effect of this amendment was noteworthy.

The findings indicate that women who work for cash has a significant influence only on participation in spending husband's money. This factor along with property rights can be treated as equivalent to higher economic status of women, which



meaningfully supports participation in decisions related to spending husband's money.

Providing women with access to microcredit is viewed as an important method to promote their welfare. Unfortunately, it is often noted that many women simply hand over their loans to male relatives, although they bear the responsibilities for paying it back [25]. The findings from our analysis show that there is an inverse relationship between microcredit and participation in financial decisions with regard to spending husband's money and even 'own' money. It even reduces the autonomy to visit family and friends and spending decisions on healthcare.

There is evidence to establish that there is a need for women to use her capabilities, 'agency' to transform greater access to resources into higher levels of autonomy and empowerment [64]. Self-help groups were set up to promote women's autonomy in Odisha, but in initial occurrence they were found to have a negative impact on well-being, especially where gender norms were conservative. The authors observed that in the long run, high levels of agency could transform the gender norms (Hoop et al. [27]). Other studies on microcredit self-help groups in India have reported that when women take loans for work, the men may feel insecure [16]. While microcredit loans are found to be a negative force in the present study, it is possible that over time the impact is reversed. Also the recent policy measures towards greater financial inclusion may make the economic gains override the gender attitude. From a study in Rajasthan, Moodie found that microcredit activities cause women to spend extra time away from home, this may create more checks on their freedom, such as to go out to visit family and friends [43].

The results suggest that women face more domestic violence when they work for cash. Using data from NFHS-2, Goel [24] had noted that the percentage of women who were physically mistreated since age 15 was higher for women working for cash. This reflects family attitudes, a need to suppress any aspirations that women acquire by working away from home. It can also be due to issues of suspicion and jealousy as it entails work outside the household setup [24]. A perceived threat to masculinity associated with violation of traditional role of man as the breadwinner can lead to domestic violence.

We observe in this study that the Protection of Women against Domestic Violence [69], is not a significant explanatory factor of domestic violence. In fact, literacy appears to be the only factor that can help to tackle the problem of domestic violence. In fact, this legislation has aggravated conflicts in some cases and can therefore explain why it has reduced participation in decisions related to 'spending husband's money' [52].

While legislation against violence is a significant step to promote gender equality and right to dignity of women, it will have visible impact if accompanied by systemic social and political changes, and provisions for uplifting their socio-economic status [59]

Language as a marker of culture has helped to give a regional perspective to our cross-section study of India, where 10 out of the 29 federal territories are Hindi speaking. There is a commonness of culture that can be associated with language, which may even counter cultural differences attributed to religion. It is generally noted that Muslim women are less empowered, due to traditional conservatism and

patriarchal condition [37]. However, in a study of Indian states, Visaria observes that Tamilian Muslims show greater autonomy than Hindu females from UP and Punjab [75].

In case of the decision-making autonomy to visit family and friends, only the states of Delhi, Haryana and Himachal Pradesh exhibited a decline. Here it may be relevant to note that the sex ratio in Haryana and Delhi is much lower than the national average for India<sup>8</sup>.

The aspect of gender inequality that is most resistant to change is the institution of marriage and the social and economic norms associated with it (Kabeer [31]). “Kinship patterns have a strong influence on women’s autonomy” (Dyson [21]). North Indian kinship norms are distinct from those in south of India. These norms exercise strong influences that create distinctness in culture which exists in India, despite the effects of economic development and globalization. Notably, exogamy is strictly followed in the North, while endogamy is acceptable in many of the Southern states. When the marriage is exogamous, the in-marrying female comes from another family and in some ways she is viewed as a threat. She is closely watched and is expected to adopt the customs of her new home. She is discouraged from frequent visits and interaction with her parents’ family. The systems of marriage in the southern states are in direct contrast; often the ideal marriage is between cross-cousins, or to known persons in nearby familiar households. She has greater freedom of movement and is free to go to market place or visit her family and friend.

As daughters are much more likely to be on hand to look after parents in later years a preference for sons is not dominant in the South of India [46]. The lower gender bias in the south can be seen in terms of the percentage of daughter-only families. This varies substantially across India, whereby it is higher in the southern region compared with central, northern and western regions.

Given the conservative nature of social norms in the Northern states of India, especially with respect to the institution of marriage, it appears that it is going to take much more development, public policy changes and reforms in laws to eliminate gender inequalities in the coming years. Gender efforts and studies may benefit from adopting a specific approach for the North of India, rather than a common policy for the country.

## Conclusion

Our study across the federal states of India helps to capture the regional differences in policy, outcomes and culture. It is found that for the period of study there is an overall improvement in some of the selected measures of women’s autonomy. Women’s participation in household decisions has largely improved but unfortunately, there is no significant improvement in the two key financial autonomy factors: the

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<sup>8</sup> As of 2011 (the latest national census), the sex ratio of Delhi is 868 and that of Haryana is 879 compared to the all India average of 940

percentage of women who alone or jointly decide how to spend their own money and those who alone or jointly decide how to spend their husband's money.

Our results reveal that along with growth in literacy the Amendment of the Hindu Inheritance [69] has been important in improving the status of women in the household by establishing property rights for Hindu women. However, the legislation for the Protection of women against Domestic Violence, 2005 fails to significantly impact the incidence of domestic violence. In fact, it creates perception of threat in the family and adversely impacts the participation of women in decision-making with respect to spending their husband's money.

A notable finding from our study is that availing loans through microcredit programs exerts a negative influence on the autonomy measures. Although financial inclusion is being used across the developing world to increase inclusive growth, our findings suggest that there is an important need to go into the specific processes. If these inclusion efforts are accompanied by suitable measures that influence attitudes towards women, the impact can be phenomenal. The role of culture in influencing the responses of family members to development, public policy and legislation has to be reconciled and addressed through gendered design of interventions. The concept of women's autonomy originates from the Western feminist movement and is largely based on an individualistic identity. It may not be directly applicable in traditional societies, where women's agency is more strongly embedded in family and other social networks [68]. The design of policies to provide access to resources to women may need to build in such gendered nuances; women in India are able to relate more to development inputs and outcomes that treat their upliftment as a part of the overall plan for the family.

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**Data Availability** Secondary data was used in this paper. The NFHS data is made publicly available by the Ministry of Health and Family Welfare, Government of India (<http://rchiips.org/nfhs/>).

**Code Availability** The code is not made publicly available by the authors.

**Declarations**

**Conflict of interest** The authors have no relevant financial or non-financial interests to disclose.

**Ethics Approval** This is an empirical study performed on publicly available data (<http://rchiips.org/nfhs/>). The BITS Pilani KK Birla Goa Campus Research Ethics Committee has confirmed that no ethical approval is required.

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