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Who Forms Local Institutions? Levels of Household Participation in India's Joint Forest Management Program

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Abstract

Participatory approaches aim at achieving representation of a broad segment of local communities, including poor and marginalized groups in natural resource management. Focusing on the case of Joint Forest Management (JFM) in India, this paper analyzes three levels of participation (attendance of decisive meetings, membership in executive committees, and influence on decisions taken) and their determinants. A conceptual model of the different levels of participation and their linkages is presented and tested through econometric analysis of data from 660 households within 55 JFM communities in Andhra Pradesh. Results indicate that participatory approaches have been somewhat successful in achieving representation of marginalized groups in executive committees and their attendance of meetings. Actual decision-making processes continue, however, to be dominated by community elites as well as forest department officials.

Kurzfassung

Partizipative Ansätze haben zum Ziel, die Interessensvertretung lokaler Gemeinden, insbesondere auch armer und marginalisierter Gruppen, im Management von natürlichen Ressourcen zu fördern. Dieser Artikel analysiert drei Ebenen der Partizipation (Anwesenheit in maßgebenden Treffen, Mitgliedschaft in Vorstandsgremien und Einfluss auf getroffene Entscheidungen). Der Schwerpunkt des Artikels liegt dabei auf Joint Forest Management (JFM) in Indien. Ein konzeptionelles Modell der verschiedenen Partizipationsebenen mit ihren Verknüpfungen wird vorgestellt und durch eine ökonometrische Analyse mit Daten aus 660 Haushalten aus 55 JFM Gemeinden in Andhra Pradesh überprüft. Die Ergebnisse deuten darauf hin, dass die partizipativen Ansätze recht erfolgreich darin waren, die Vertretung marginalisierter Gruppen in Vorständen und ihre Teilnahme an Treffen zu erreichen. Eigentliche Entscheidungsprozesse werden jedoch weiterhin von Gemeindeeliten und Beamten des Forstamtes dominiert.

1 Introduction

The past two decades have seen a worldwide trend towards participatory approaches in natural resource management. India has been at the forefront with its Joint Forest Management (JFM) program, in which the state forest department and local forest protection committees (FPCs) share rights and responsibilities over forest use and management. Its stated objectives are: (1) empowerment of poor and marginalized forest-dependent tribal and other vulnerable and weaker sections of the rural society by providing them opportunities to participate in the decision-making processes of forest use and management and gain benefits from it, and (2) regeneration and improvements of vast areas of degraded forests (GoI, 1990). Some Indian states, like Andhra Pradesh, which is the concern of this paper, have claimed to have devolved nearly all forest use and management rights to FPCs, turning the role of the state into merely that of a facilitator (GoAP, 2002).

The success of the JFM program is largely dependent on the active participation of local forest users. However, after more than a decade of implementation, it is still unclear to what extent the program has been successful in securing local forest users' participation in the management and protection of forests. Under the JFM agreements local users hold several important decision making powers which empower them to formulate and enforce rules that will most suit their interests. The fundamental question, therefore, arises as to who attends meetings where crucial decisions are taken and, more importantly, who influences decisions in the meetings?

Although several studies on people's participation in the JFM program exist, these are based either on a single or on few case studies (Agarwal, 2001; Sarin, 2001, 1996) or on a comparative study between JFM institutions and other similar local forest institutions initiated by NGOs or local communities (Lise, 2000). However, not a single study exists to our knowledge that compares different levels of participation across a large sample of households and that identifies the key determinants of these different levels of household participation under the JFM program based on both quantitative and qualitative analysis. Moreover, existing studies largely focus on attendance of meetings or membership in organizations as indicators of participation. But mere attendance of meetings does not automatically assure having an influence on decisions taken. If marginalized segments of the population merely attended meetings, but did not influence the decisions taken, the success of JFM in empowering the poor would remain questionable. Finally, the crucial role of the forest department in achieving participation in a co-management system like JFM has received very little attention.

The objective of this paper is to identify the determinants of different levels of household participation in the JFM meetings. The paper is based on an in-depth study conducted in 55 FPCs in the Indian state of Andhra Pradesh. Both qualitative and quantitative approaches were used to elicit information. Qualitative methods include focus group discussions among different groups of FPC members such as women, poor and lower caste groups, and peer group discussions. Quantitative information was collected through community-level and household-level structured questionnaires.

We contribute to the existing literature on the determinants of household participation by distinguishing various levels of user participation in JFM institutions and analyzing the determinants of participation at each level on the basis of a large cross-sectional data set. In particular, the levels considered here include attendance of JFM meetings, membership in executive committees, and influence on decisions taken at the meetings. We develop a conceptual model linking the various levels of participation and apply it in an econometric analysis of the data collected. This allows us to analyze the barriers to participation of the poor in more detail. Variables to capture the role of the forest department are explicitly included.

The remainder of the paper is organized as follows. Section 2 provides some further background on the results of previous studies. Section 3 presents a conceptual framework and theoretical model to analyze the possible factors that are likely to influence household participation in the JFM program. Details of data and variables used in the econometric models and associated hypotheses are described in section 4. Section 5 presents and discusses the econometric results on determinants of household participation at various levels. Section 6 concludes and discusses policy implications.

2 Background

Like most devolution and decentralized development programs, JFM has implicitly assumed that participatory and transparent processes in decision-making are automatically ensured with devolution of power. However, several studies have highlighted the fact that this is not necessarily so (Platteau and Gaspart, 2003; Engel, 2004). Several empirical studies have shown that households within a community differ widely in their actual use of natural resources and their participation in collective management activities and decision-making processes (Baland and Platteau, 1996; Sarin, 1999, 1996; Agarwal, 2001; Shackleton et al., 2002; Engel et al., 2005). Most of the recent empirical studies have found that household socio-economic indicators are the main determinants of participation (Lise, 2000; Weinberger and Juetting, 2002; Maskey et al., 2003; Engel et al., 2005; Agrawal and Gupta, 2005). Social hierarchies, e.g., in the form of religion and caste are among the strong factors which recent studies have found to be critical in household participation in local participatory institutions (Shackleton et al., 2002; Deshingkar et al., 2005). For instance, Indian society is characterized by highly unequal distribution of wealth and largely divided in the line of age-old caste systems (Borooah, 2002). Hence, empowering poor, lower caste and other weaker section people in a largely divided society becomes a challenge to both policy makers and donor agencies.

In a study on factors influencing people's participation in forest management in the Indian states of Bihar, Hariyana and Uttar Pradesh, Lise (2000) found that the social and economic indicators are, respectively, first and second most important in affecting people's participation in forest management. The study also notes that a high dependency on forests and presence of good quality of forests induces people to participate in forest management and protection activities. Maskey et al. (2003) also reported similar findings in a study on Nepal's community forest management, suggesting that the level of participation in community forest management is based on the socio-economic profiles of individual users and the benefits obtained from the forests. In particular, they argue that even though the devolution of forest management in Nepal has been successful in managing forests, it has failed to achieve equal participation from all sections of the community, with poor, lower caste and other vulnerable groups systematically excluded from the decision-making and benefits of the devolved forests. Agrawal (2000) also finds that poor households do not benefit from community forests as much as rich households.

In another recent study on a protected area in Nepal's Terai region, using econometric models, Agrawal and Gupta (2005) found that the likelihood of participation in community level user groups is greater for those who are economically and socially better off. They also found

that individuals who have greater access to and who more frequently visit government offices related to decentralization policy are also more likely to participate in user groups created by the state officials. Their measure of participation is, however, based on a combination of different levels of participation into one single index. Moreover, their econometric analysis suffers from the weakness of using endogenous variables such as firewood and fodder collection as independent variables in the models. By contrast, the analysis in this paper explicitly distinguishes different levels of participation and accounts for endogeneities.

One of the reasons for lack of poor people's participation is that poor households have a high opportunity cost of participation. Behera and Engel (2004) point out that high transaction costs may discourage the participation of poorer segments of forest communities in the decision-making of forest protection committees, thereby freeing the way for richer segments to adopt rules that are biased towards their own interests. In another study, Weinberger and Juetting (2002) have analyzed the determinants of participation in local development groups in Chad and Pakistan. Their results suggest that middle-income group households are more likely to participate than poorer and richer segments of the community. The exclusion of the majority of the poor is explained by the high opportunity costs of joining the group. They also find that an existing social network and bargaining power are important determinants for people's participation.

Again, all of these studies have focused on attendance of meetings or membership in organizations as the indicator of participation. As we will show in this paper, mere attendance does not automatically assure that a given household actually influences the outcomes of community decision making. Moreover, it is important to note that household participation under a co-management system not only depends on the socio-economic and political attributes of the households but also, crucially, on how the government agency implementing the co-management program deals with local people, as both the state and the local people need to cooperate in collective management of forests and benefit sharing (Arora, 1994; Vira, 1999). With the exception of Agrawal and Gupta's (2005) study, the issue has been neglected in studies on participation, while main emphasis has been put on household and community characteristics.

State-supplied institutions are different from self-initiated local institutions, especially in the case of forest management. JFM is a co-management system, where the government agency (here the forest department, henceforthFD), which owns the forest resources, seeks the cooperation of local people living in and around the forests for forest regeneration and protection. It is important to note that the relationship between the FD and local people in India has historically been one of mistrust and plagued with conflicts (Kumar and Kant, 2005). As a consequence, the role of the FD in influencing people's participation in the JFM program cannot be ignored. Although the 1988 forest policy and subsequent JFM guidelines recognized the importance of people's participation in the success of JFM (GoI, 1990), very little has been mentioned about the change in behavior of the forest bureaucrats. While the perception of the

devolution concept is observed to differ between higher and lower level forest bureaucrats[1], the role of field level forest bureaucrats in implementing participatory forest management has been ignored in much of the recent literature.

A famous and widely cited success story within India's JFM program is the Arabari experience in the state of West Bengal. The idea of JFM is believed to have been originated here due to a FD's effort to unofficially engage people in forest protection (for more details see Joshi, 1999; Ballabh et al., 2002; Kumar, 2002; and Balooni, 2002). In Arabari, it was the FD who first took the initiative to invite local people to cooperate in the protection of forests. In return the FD would share benefits with local people. Hence, the Arabari experience highlights the importance of state-community interactions as a key to attaining local participation in the management and protection of forests. In a recent study on foresters' perceptions in four Indian states (Andhra Pradesh, Haryana, Himachal Pradesh, and West Bengal), Kumar and Kant (2005) highlight the need for a massive change in the organizational structure, support system and culture of FD bureaucracy to match the paradigm of community based forest management systems. They strongly argue that without the required organizational changes in the FD it is unlikely that the present participatory forest management systems will be successful.

1 During discussions with both higher and lower level forest officials that we had during our field work, we noticed that lower level forest officials below the rank of Range Officer had no clear idea about their duties and responsibilities underlined in the JFM guidelines.

3 Conceptual Framework and Model for Analyzing Household Participation in JFM

3.1. Conceptual Model

Figure 1 presents a schematic framework of household participation in JFM in which factors that are likely to determine the household decisions to participate are elaborated. We assume that a household's decision to attend a JFM meeting depends on the expected net present value of such participation. This in turn depends on two factors: (1) the costs of participation (in particular, the opportunity cost of attendance), and (2) the expected returns on participating in the meeting.

(a) Costs of participation

The opportunity costs of participation will differ across households and are influenced by the following two factors: (1) employment opportunities in agricultural activities, and (2) off-farm opportunities. When the opportunity costs of a household increase due to availability of both agricultural and non-agricultural non-forest activities in the region, the household is likely to show less interest in JFM. Richer households having more land and livestock may not participate in the meetings unless they have a specific interest in village funds and forests. The probability of people being engaged in off-farm employment depends on the skills that they acquire through education. For instance, a primary level education can encourage people to engage in different off-farm activities in the region or may encourage them to migrate to nearby towns for job opportunities.

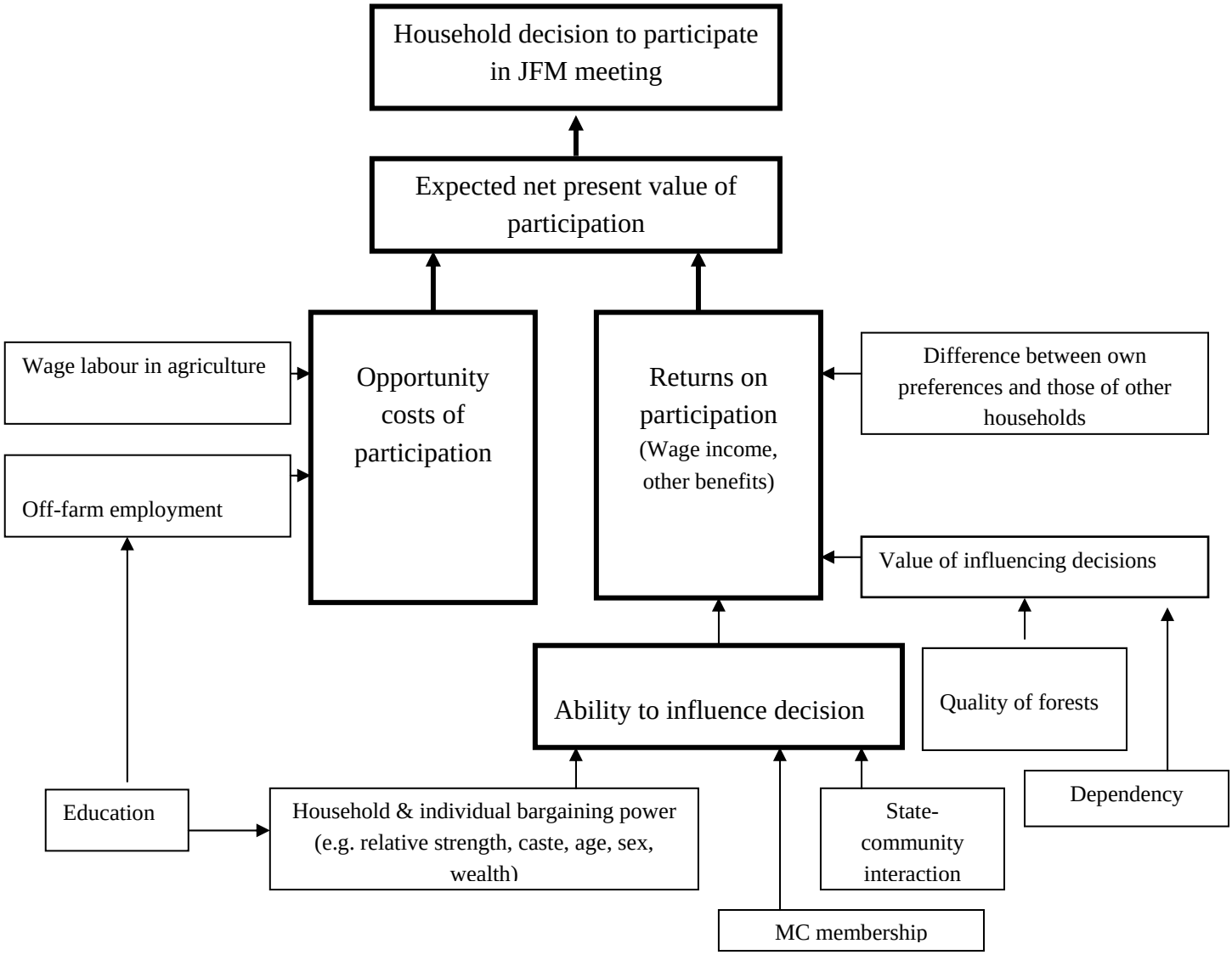
(b) Returns on participation

Returns on participation in principle are of three types: (1) expected present and future forest value, (2) wage income by engaging in forest activities such as plantations, coppicing, singling, etc., and (3) other direct benefits from the program such as improvement of infrastructure conditions in the community and individual benefits.

As landless laborers and marginal and small scale farmers in rural India depend mostly on common property resources for their fuel and fodder supplies, they have a personal interest in the regeneration of degraded forests under the JFM program. Furthermore, forest products from commons are an important source of employment and income for the rural poor, especially where other opportunities are non-existent (Jodha, 1997). Given this context, one of the objectives of the JFM program is to create employment for underprivileged sections of society, with more than 60 percent of the expenditure incurred in JFM being paid as wages (Balooni, 2002). People in JFM communities expect availability of forest work at least in the lean period

when there is no work available in the farm sector. People attend meetings in order to acquire information about the wage rate for forest work. Another important incentive for people to participate in the JFM program is the provision of public goods and services to JFM communities. Community development supports small improvements in village infrastructure and helps communities explore opportunities for income generation using both forests and other options such as agriculture and animal husbandry (World Bank, 2003). Interaction with local communities during our field work revealed that money has often been spent on development activities without prioritizing community needs.[2]

Figure 1: Schematic Framework for Analyzing Household Decisions to Participate in JFM



[2] Many communities interviewed in our fieldwork complained that their immediate needs are drinking and irrigation water facilities and health services whereas the FD has spent the funds on construction of community halls or roads. In some communities the FD has purchased television sets, but as there is no electricity in the village they cannot be used.

As illustrated in figure 1, a household's expected returns on participating in JFM meetings can be decomposed into three important factors: (i) the household's benefits from influencing decisions in its favor, (ii) the household's ability to influence decisions when attending the meeting, and (iii) the probability that a decision favorable to the household would have been taken anyhow, which in turn depends on the difference between the household's own preferences and those of other households in the community. We now proceed to explain each of these factors.

The household's benefits from influencing decisions (factor (i)) depends on forest quality and on the extent to which the household depends on the forest for its livelihood. Dependency on the forests for daily livelihood is one of the most important factors for a household to participate in the JFM program and generally depends on households' socio-economic characteristics (e.g., land holding size, caste background). Landless, poor and lower-caste households are more likely to depend on forests in their daily lives. Where forests are of good quality and substantially contribute to household income households are expected to be more likely to participate in the program.

A household's ability to influence decisions taken at the meeting is likely to be another important factor determining the household's expected returns on participating in the meeting (factor (ii)). Household ability to influence decisions is likely to depend on the household's bargaining power, the state-community interaction, and on the household's membership in executive committees. While the 1988 forest policy mentions equal participation of all stakeholders in the JFM program, the emphasis has been given to weaker groups in the society such as the landless labor force, marginal and small scale farmers, schedule castes, tribes and women. The government is specifically targeting these underprivileged sections of society inhabiting forests and adjoining areas under the JFM program. To what degree this is represented in actual membership in executive committees remains an empirical question. Bargaining power is likely to depend on the relative strength of the household's social group in the community and other household characteristics such as education, wealth, age, and gender. The attitude of the FD indirectly influences the household's ability to influence decision-making in the community by setting the scope to which decision making powers are devolved to households.

The benefits from participating in a meeting do not only depend on the value of influencing a decision and the individual ability to influence the decision, but also depends on whether the household's interests would already be represented by others from the same socio-economic strata (factor (iii)). In a heterogeneous community, the preferences of people with respect to the JFM activities will vary according to their basic socio-economic and cultural needs and strategic interests in the forests. The different groups or individuals that can potentially have different preferences in the JFM activities owing to their socio-economic background can be classified on the basis of caste, landholding, education, etc. For instance lower caste groups of households are generally engaged in the collection of firewood and other NTFPs, while higher

caste households may show more interest in longer-run timber benefits. Similarly, labor class poor people have more interests in wage labor employment under JFM than richer people with larger landholdings.

3.2. Theoretical Model of Household Participation

The above conceptual considerations can be summarized in terms of the following theoretical model. A household *i* will participate in JFM meetings if the expected utility from attending the meetings EU_i^a is greater than the expected utility from not attending meetings EU_i^{na}, i.e, if

$$EU_i^a > EU_i^{na} \quad (1)$$

Further, the expected utility from the attendance of meetings EU_i^a is determined by the household's ability to influence decisions in the meetings (I_i) and other household characteristics (Z_i), as well as community characteristics (G) and outside factors like the role of the forest department (F):

$$EU_i^a = f\,(I_i, Z_i, G, F). \quad (2)$$

The households' probability of influencing decisions depends on whether the household is a member of an executive committee (E_i) as well as on household socio-economic characteristics (e.g., the relative strength of households in the community, their caste backgrounds, land holding size, education, gender and age of the household head), as well as outside factors such as the attitude of the forest department. Membership in executive committees itself will also depend on household characteristics, community characteristics, and outside factors. Thus, we specify the following equations:

$$I_i = g\,(E_i, Z_i, G, F), \quad (3)$$

$$E_i = h\,(Z_i, G, F). \quad (4)$$

The expected utility from not attending the meetings is essentially the household's opportunity cost, which also depends on household, community, and possibly outside characteristics:

$$EU_i^{na} = k\,(Z_i, G, F). \quad (5)$$

Using (1) to (5), the probability that a household participates in a JFM meeting can be written as

$$Prob\{ EU_i^a > EU_i^{na} \} = Prob\{f(I_i, Z_i, G, F) - k(Z_i, G, F) > 0\} = \tilde{f}(I_i, Z_i, G, F) \quad (6a)$$

$$With\ I_i = \tilde{g}(Z_i, G, F) \quad (6b)$$

or, in reduced form, as

$$Prob\{ EU_i^a > EU_i^{na} \} = \tilde{\tilde{f}}(Z_i, G, F) \quad (7)$$

Below, we will estimate both the more explicit relationship in (6a) and (6b) as well as the reduced form relationship in (7) econometrically. While the explicit forms in (3) and (4) could not be estimated directly due to data limitations and lack of instruments, the determinants of membership in executive committees (equation (4)) will be estimated and reported in addition to the reduced forms, which will allow some inferences on direct and indirect effects.

3.3. Econometric Model Specification

We use two levels of household participation in the JFM meetings for the estimation. They are: (1) attendance of meetings (ATTEND), a dummy variable which takes the value 1 if a household has attended meetings and 0 otherwise, and (2) influencing decisions in the meetings (INFLUENCE), a dummy variable which takes the value 1 if the household feels to have influenced the decision and 0 otherwise. Since both of these dependent variables are binary, we assume the following logit specification corresponding to equation (6b):

$$Ln\frac{p_I}{1-p_I} = \alpha_1 + \alpha_2 Z_i + \alpha_3 G + \alpha_4 F \quad (8)$$

where p_I = Probability of household *i* influencing decisions = Prob {INFLUENCE=1}. Similarly, equation (6a) can be specified as another logit model as follows:

$$Ln\frac{p_A}{1-p_A} = \beta_1 + \beta_2 \hat{p}_I + \beta_3 Z_i + \beta_4 G + \beta_5 F \quad (9)$$

where p_A = Probability of household *i* attending meetings = Prob {ATTEND=1}, and $\hat{p}_I$ is the predicted value of p_I resulting from the estimation of equation (8).

Thus, in a first stage we estimate the determinants of households' ability to influence decisions using household and individual characteristics, and FD-community interaction variables. In the second stage we estimate the determinants of attendance of meetings, assumed to be dependent on household characteristics, community characteristics (in which households' relative strength in the community and dependency on the forests are important components), as well as the FD-community interaction. Moreover, we hypothesize that a household's expected ability to influence decisions in the meetings is one of the important factors determining household attendance of meetings. A consequence of our formulation is that we can distinguish between direct effects of household, community, and outside characteristics (β_3, β_4, β_5) on participation in meetings and the indirect effects of these variables (α_2, α_3, α_4 in combination with β_2).

In addition, we will also estimate the reduced form in (7) as

$$Ln\frac{p_A}{1-p_A} = \gamma_1 + \gamma_2 Z_i + \gamma_3 G + \gamma_4 F \qquad (10)$$

in order to conclude on total effects.

4 Data and Variable Description and Hypotheses

Detailed data on different levels of household participation in the forest management activities were collected from 660 households of 55 JFM communities. Out of the 55 communities, 8 had no meetings conducted in the village, and were thus removed from the data set. We have collected detailed information on household participation in those JFM meetings where important issues are discussed and final decisions are taken. The issues on which the decisions are taken include: fixation of wage rate for forest works, use of village common funds, selection of tree species for plantation, construction of soil and moisture conservation structures in the forests such as trenches, stone bundings, tanks, and other issues related to forest protection (i.e. patrolling of forests, employment of watchmen, etc.) and management (formulation of rules for access and use of forests).

Based on Agarwal (2001), household participation in the meetings was classified into four categories (1) nominal, (2) passive, (3) active, and (4) interactive. Nominal participation means that the participant was a member in the GB (General Body) while the decision was made. Passive participation indicates that a household has attended decisive meetings.[3] Active participation means the participants expressed opinions in the meetings, whether or not the expressed opinion was solicited. Interactive participation indicates that a participant feels that he or she has influenced the decisions taken at the meetings.

Table 1: Household Responses on the Levels of Participation in the Decision Making Process at JFM Meetings

Level of participation	Recent forest management plan (Yes)
No. of households that attended meetings	463 (82%)
Of these:	
• No. of households that expressed opinions	188 (41%)
• No. of households that feel they influenced outcomes	82 (18%)

Source: Own fieldwork.

[3] Agarwal (2001) in her typology of participation distinguishes two types of passive participation: getting informed without attending meetings (passive I) and attending meetings (passive II). Here we focus on the latter.

Table 1 presents the responses of the households concerning the status of their levels of participation in the JFM meetings. While all interviewed households were members of the FPC, 463 households (82%) attended the most recent forest management plan meeting. Among the households who had attended meetings, around 41 percent of households expressed their opinions in these meetings. However, the percentage of households that have reported influencing the decision is only 18 percent.

For the purpose of regression analysis we focus on two levels of participation: passive (attendance of meetings on most recent forest management plan) and interactive (influencing decisions on most recent forest management plan). We now turn to explain in detail the variables that are included in the regression models and the associated hypotheses. Tables 2 and 3 present the detailed explanations of variables used in the two stages and their hypothesized relationships.

4.1. Determinants of Influencing Decisions

As discussed in section 3.1., we hypothesize that a household's ability to influence decisions in the meetings will mainly depend on three factors: the household's bargaining power; the state (forest department)-community interaction; and household membership in executive committees.

Table 2: Variables Included in Econometric Analysis of Determinants of Influencing Decision in Most Recent Forest Management Plan Preparation

Variable	**Definition**	**Expected effect**
Influencing decisions in the meetings	Dummy variable, = 1 if household feels that it influenced decision in most recent forest management plan preparation, =0 otherwise	Dependent variable
Years of education of household head	Years of schooling of household head (Years)	+
Household caste	Dummy variable, = 1 if household belongs to Schedule Tribe (ST), 0 = otherwise	_
Ownership of television	Dummy variable, =1 if household owns a TV, 0 otherwise	+
Land holding size	Square root of land owned by household (acres)	+
Age of household head	Log of household head's age (years)	+
Sex of household head	Dummy variable, = 1 if household head is male, = 0 otherwise	+
Female male ratio of the household	Female male ratio (number of female household members divided by male ones)	+
Democratic village	Dummy variable, =1 if household belongs to a democratic village (benevolent leadership provided by either NGOs or locals), 0 otherwise	+
Relative strength of household	Total number of households in a household's caste group as proportion of total households in the community	+
State-community interaction	Proportion of households in a community that expressed FD attitude as dominant	_

Bargaining power

The literature on the determinants of household participation in local level institutions suggests that people participate in meetings in the expectation that they can influence decisions in their favor and that households are not equally endowed with the ability to influence decisions (Weinberger and Juetting, 2002). The relative bargaining power among the participant households largely depends on their socio-economic characteristics, institutional and community characteristics (Engel et al., 2005). We hypothesize that more educated members in the

community have greater bargaining power and thus are more likely to influence decisions, as they are expected to have better information regarding the JFM program and be better equipped to speak up in public compared to illiterate members. Household caste plays an important role in socio-economic and political life of rural India in general and Andhra Pradesh in particular (Deshingkar et al., 2005). We hypothesize that higher caste members in the community dominate rural life and therefore have more influence in meetings compared to lower caste groups.

Wealth of a household determines its social status and political power in the community. Normally the status of wealth of a household can be proxied by the assets that it owns. We have used ownership of a television as a proxy for wealth in the model. There are two advantages of using this proxy. First, it has the potential to capture households that receive remittances from household members working in cities and that do not own any land and livestock, which are normally considered as indicators of wealth in the rural setting. Second, ownership of other assets such as land and livestock is often underreported by households, whereas a television is easily noticed. Nevertheless, we also include land ownership as a further proxy for household wealth.[4] The JFM program was initiated with a particular emphasis on empowering the poor or landless and small and marginal farmers. We hypothesize, however, that traditional power structures dominate community decision-making, and thus that large farmers and wealthier households in the community are more likely to influence decisions compared to landless, small and marginal farmers.

The Indian rural society is typically characterized by a high degree of respect towards elders. Hence we hypothesize that older household heads are more likely to influence decisions than younger household heads. The issue of gender in participatory development has long been debated. In the case of forest management, it has always been argued that women are disadvantaged in the participatory decision making processes in a male dominated society such as India (Agarwal, 2001, Sarin, 2001). We hypothesize that households with female heads have less bargaining power than male-headed households. We also include the female-male ratio of the household to shed further light on gender dynamics. In Uttar Pradesh, Lise (2000) found that a higher number of women in the family was positively and significantly linked to the level of participation. However, the author did not provide a convincing explanation for this phenomenon.

Moreover, we hypothesize that in a more democratic working environment, decisions are taken on a consensus basis and are less likely to be dictated by top-down influences. In those communities even the poor may feel that they have influenced decisions. A democratic working environment could be due to benevolent leadership, provided by a local NGO or could result from within the community (both traditional and modern leaders). Thus we include a variable

[4] The literature also suggests other proxies for household wealth, such as the types of roof on the house (Engel et al., 2005; Gyasi, 2004). However, in our setting this proxy could not be applied because many poor people have received government grants to build houses with cement and concrete roofs.

'democratic village' and hypothesize that people belonging to these villages are more likely to influence decisions in the meetings.[5]

Relative strength of the participant household's social group in the community is another important factor that is expected to influence a household's bargaining power. To measure the relative strength of households in the community we divided all households into four caste groups: Schedule Tribe (ST), Schedule Caste (SC), Backward Caste (BC), and Upper Caste (UC). A variable was created measuring the proportion of the household's caste group in all households in the community. We hypothesize a positive relationship between the relative strength of the household and its likelihood of influencing decisions.

State-community interaction

We hypothesize that people's ability to influence decisions in the meetings will depend on the attitude of the FD toward the entire process of JFM implementation. In particular, when the FDs takes a dominant role by deciding and imposing final decisions on the people without consulting them, people have very limited scope to put forward their views in a bid to influence decisions. We include a variable to account for the FD's attitude towards the community by calculating the proportion of households within a community that stated that the FD attitude was dominant. We hypothesize that the more cooperative the FD is the higher is the likelihood that people can influence decisions.

Membership in managing committees

One of the important aims of the JFM program was to attract poor people's active participation in forest management and protection by electing them into the decision making body of JFM, i.e. the managing committee (MC). However, the selection of MC members is highly endogenous in terms of our analysis and is likely to depend on the same variables included in the analysis of influencing decisions. Therefore, below we run a reduced-form analysis of the determinants of influencing decisions. In section 5.2, we then present an analysis of determinants of membership in the MC. Comparing the results will allow us to draw some conclusions on the success of JFM in including poor and marginalized segments of the community in executive positions and, if so, whether this translates into real decision-making powers by these segments.

[5] Democratic village was classified on the basis of perceived understanding of the FPC functioning after having intensive group and individual discussion of various groups of members such as poor, women, lower and upper caste people and managing committee members. A village was assigned as democratic when we found out from all the group and individual discussion that there was accountability and transpernacy in the decision making process and everybody in the community were part of the whole process of decision making.

4.2. Determinants of Attendance of Meetings

As explained in section 3.1., the factors hypothesized to determine households' attendance of meetings can be classified into four categories: the household's probability of influencing decisions; the difference between own preferences and those of other households in the community; the household's expected benefits from influencing decisions; and the cost of attending meetings. Detailed explanations of variables under each category are presented below.

Table 3: Variables Included in Econometric Analysis of Determinants of Attendance of Meetings on Most Recent Forest Management Plan Preparation/Micro Plan Preparation

Variable	**Definition**	**Expected effect**
Attendance of meetings	Dummy variable, = 1 if household attended meetings on most recent forest management/micro plan, =0 otherwise	Dependent variable
Predicted probability of influencing decisions	Predicted probability of influencing the decisions in the most recent forest management	+
Relative strength of households	Total number of households in a household's caste group as proportion of total households in the community	_
Forest quality	Dummy variable, =1 if FPC forest cover class and height class is more than 75% and 5 meters respectively, = 0 otherwise	+
Household caste	Dummy variable, = 1 if household belongs to Schedule Tribe (ST), 0 = otherwise	+/-
Years of education of the household head	Years of schooling of household head (Years)	-
Land holding size	Square root of Land owned by household (acre)	-
Sex of household head	Dummy variable, = 1 if household head is male, = 0 otherwise	+/-
Age of household head	Log of household head age (years)	-/+
Female male ratio of the household	Number of female household members divided by male ones	+
State-community interaction	Proportion of households expressing FD attitude as dominant	-
Road	Dummy variable, = 1 if village is connected with motorable road, =0 otherwise	-
Distance to market	Distance to the nearest market (in kms)	+

Probability of influencing decisions

We assume that an individual's willingness to attend meetings will invariably depend on his/her ability to influence decisions. Unless there is a strong feeling among the participants that she or he can influence decisions the participants are not likely to spend their time attending meetings. To capture the probability of an individual's ability to influence decisions we include the predicted probability of influencing decisions from the first stage regression. Hence we hypothesize that the higher the probability that an individual is likely to influence decisions in the meetings, the higher is the likelihood that he or she will attend JFM meetings.

Differences between own preferences and those of other households

In the Indian setting, the households' interests in JFM forests and community developments can largely be classified on the line of caste background. We hypothesize that a household belonging to a large caste group is less likely to attend meetings because the household would expect that other households in the group would attend the meetings and represent similar interests. Therefore, the marginal benefit from attending a meeting would be relatively small for a household belonging to a large caste group.[6] We thus use the ratio of the total number of households in a household's caste group to the total number of households in the community again as an explanatory variable in our regression.

Expected benefits from influencing decisions

We hypothesize that the value of attendance of meetings increases with the quality of forests that the FPC is protecting and with the degree of household dependency on the forests. Forest dependency in turn is likely to be endogenous and depend on socio-economic characteristics of the household. We expect that lower caste households and those with lower levels of education and smaller landholdings as well as female-headed households and those with high female-male ratios are more dependent on forests for their livelihood than are higher caste, more educated, land-rich, and male-headed households. Dependency on forests may also be higher in communities located far from markets and without access to a motorable road. Finally, the returns from participation may also be dependent on the forest department's role. The most favorable community rules may not provide real benefits to households if the FD dominates actual management activities or fails to take on important roles such as rule enforcement.

Costs of attending meetings

As stated earlier, the main cost of attending meetings is the opportunity cost of time spent in the meetings. These depend on agricultural and off-farm employment opportunities and differ across groups in the community. For people with greater land holdings, the opportunity costs of attending meetings may be higher compared to land-poor people. On the other hand, very poor and lower caste people may struggle to survive, thereby facing very high opportunity costs in real terms. The opportunity costs of attendance of meetings are likely to be higher if there are availabilities of better opportunities to work in off-farm activities in the region and in

[6] Of course, if all households think the same way, a problem of freeriding may result.

communities located closer to markets and with road access. The potential of a person to work off-farm and thereby its opportunity cost is likely to be affected by her level of education, gender and age. We therefore hypothesize that households with greater land holdings, higher levels of education, those located closer to markets and roads, male-headed households, and those of lower caste have higher opportunity costs and, ceteris paribus, are less likely to attend JFM meetings.

Note that several of the socio-economic variables enter into the participation decision through more than one channel, e.g., by affecting opportunity costs, the benefits from influencing decisions, and the probability of influencing decisions. Often effects move in the same direction; where they do not, the overall effect can only be determined through empirical analysis.

5 Results and Discussion

5.1. Determinants of Influencing Decisions

Table 4 presents the results on the determinants of influencing decisions in most recent forest management plan preparation (equation (8)). The results are quite robust and generally consistent with theoretical expectations.

The level of education of the household heads is positively related to influencing decisions and is highly significant, which indicates that the higher the level of education of the household head, the higher the likelihood that he or she will influence the decisions. As explained earlier, this is likely to be due to the fact that educated household heads can acquire information easily compared to uneducated household heads and are able to present themselves and their point of views effectively in meetings. Hence level of education is likely to play a very important role in promoting people's participation in the decentralized development program in general and JFM in particular.

The relation between caste and influencing decisions is negative as expected, although it is highly insignificant. The variable ownership of television shows a positive and highly significant effect, indicating that richer section people in the community are more likely to dominate and influence decisions. This finding corroborates with some of the recent literature on decentralization and devolution of natural resources, which argues that local elites at the community level are likely to capture benefits intended for poorer groups. (Platteau and Gaspart 2003; Shackleton et al., 2002; Kumar 2002). Similarly, land holding size also showed a positive effect, but was not significant. As expected, age of the household head is positive and significant at the 10% level, implying that older people tend to influence decisions more compared to younger people.

The issue of gender in JFM has been debated widely ever since the JFM program was introduced in India (Sarin, 2001: Agarwal, 2001). As expected in a male dominated society like India, the positive sign of the variable sex of the household head indicates that male headed households are more likely to influence decisions in the meetings. The effect is, however, not significant. The female-male ratio is, however, positive and significant at the 5% level, which indicates households with more female members are more likely to influence the decisions.

One possible explanation of this phenomenon, which was also found in a similar fashion by Lise (2000), may be that women are very closely associated with the forests, as they tend to be more involved in the collection of firewood, fodder and other NTFPs for their daily

livelihoods in comparison to their male counterparts. Being highly dependent on forests for their livelihoods and having detailed information about the forests, these women members can make a difference in the meetings by motivating their household head to influence and support the decisions that suit their interests.

The results also suggest that households belonging to democratic villages, irrespective of their socio-economic status, are significantly more likely to feel that they have influenced decisions in the meetings. This is consistent with our impression from fieldwork where we found that a truly democratic village owing to benevolent leadership and high accountability can create an atmosphere in which all sections of people in the communities can participate and be able to influence decisions. In democratic villages, the poor were allowed and encouraged to speak in meetings and participate in discussions, and important decisions were taken on the basis of mutual consensus. However, due to the somewhat subjective and possibly endogenous nature of the democratic village variable, we ran a separate regression excluding this variable to ensure that the overall results are robust without this variable. The results are found to be very robust as the signs and significance levels of all the variables remain unchanged (Appendix Table 1A).

The relation between influencing decisions and relative strength of the household is also as expected. The effect is positive and significant at the 5% level, which indicates that households belonging to a larger caste group are more likely to influence decisions. This result suggests that it is important to understand the group dynamics in the community before designing any institutions that can ensure equal participation from all sections of local community. Interestingly, our results thus indicate that it is not the caste status as such that affects bargaining power, but rather the relative prevalence of a caste group in the community. The state-community interaction variable displayed the expected negative relationship, indicating that a more dominant attitude of the FD reduces the ability of any household to influence decisions. The effect is, however, not significant.

Table 4: Determinants of Influencing Decisions in Most Recent Forest Management Plan Meetings

Variable	Coef.	Robust Std. Err.	t-value	P-value
Years of education of household head	1.008	0.297	3.400	0.001
Household caste	-0.009	0.434	-0.020	0.983
Ownership of television	1.522	0.364	4.190	0.000
Landholding size	0.017	0.132	0.130	0.897
Age of household head	0.835	0.462	1.810	0.071
Sex of household head	0.667	0.678	0.980	0.325
Female male ratio of household	0.320	0.139	2.300	0.021
Democratic village	0.765	0.324	2.360	0.018
Relative strength of household	1.406	0.712	1.970	0.048
State-community interaction	-0.316	1.119	-0.280	0.778
_cons	-7.786	1.981	-3.930	0.000
Number of obs		462		
Wald chi2(10)		38.92		
Prob > chi2		0.0000		
Pseudo R2		0.1348		
Log pseudo-likelihood		-183.205		
Cases correctly predicted		82.90%		

5.2. Membership in Management Committee

One of the important aspects of the JFM program was to attract poor people's active participation in the forest management and protection by electing them into the decision making body of JFM, i.e. the managing committee (MC). Since the selection of MC members is endogenously determined and depends on the same variables as does the influencing of decisions, we estimate the determinants of the selection of MC members and compare the individual variables with the regression results from the previous section. Here the dependent variable is a dummy variable which takes the value 1 if a household has a member in the MC and 0 otherwise. Table 5 presents the results of determinants of the selection of managing committee (MC) members.

Table 5: Determinants of Selection of Candidates for Managing Committees (MC)

Variable	Coef.	Robust Std. Err.	t-value	P-value
Household caste	0.434	0.321	1.35	0.18
Years of education of household head	0.624	0.258	2.42	0.02
Sex of household head	-0.445	0.400	-1.11	0.27
Ownership of television	0.350	0.337	1.04	0.30
Land holding size	-0.350	0.143	-2.45	0.01
Age of household head	-0.098	0.385	-0.26	0.80
Relative strength of household	-0.509	0.497	-1.02	0.31
Female-male ratio	0.034	0.141	0.24	0.81
_cons	0.442	1.464	0.3	0.76
Number of obs		545		
Wald chi2(8)		16.28		
Prob > chi2		0.0386		
Log pseudo-likelihood		-348.036		

Two variables show significant effects. Education of household head is positive and significant at the 2% level, implying that educated persons are more likely to become MC members. Size of household land holding shows a negative effect, which is significant at the 1% level, implying that landless and marginal farmers are also selected as MC members. The results also indicate that lower caste and female-headed households tend to be somewhat more likely to be selected into the MC, but the effects are only significant at the 18% and 27% levels, respectively. In summary, our results thus imply that the efforts of implementing agencies to include members from weaker sections into the MC have been somewhat successful. However, as we saw from the results of determinants of influencing decisions in Table 4, decisions are still largely influenced by richer section people. This indicates that, while policy to accommodate weaker section people in the program is implemented, in actual practice these groups fail to influence decisions for themselves. It clearly shows that there is still room for the elite groups in the community to capture power and formulate and manipulate rules that will suit their interests.

5.3. Determinants of Attendance of Meetings

Table 6 presents the results for the parameter estimates of determinants of meeting attendance (equation (9)). As expected, the predicted probability of influencing decisions shows a positive and highly significant effect on meeting attendance. Thus, households that are more likely to influence decisions (characterized as in our analysis in section 5.1) are also more likely to attend the meetings.

Table 6: Determinants of Attendance of Meetings in Most Recent Forest Management Plan

Variable	Coef.	Robust Std. Err.	t-value	P-value
Predicted probability of influencing decisions	8.637	2.947	2.930	0.003
Relative strength of household	-1.818	0.828	-2.200	0.028
Forest quality	0.275	0.280	0.980	0.325
Household caste	0.293	0.322	0.910	0.363
Years of education of household head	-0.513	0.441	-1.160	0.245
Land holding size	-0.231	0.141	-1.640	0.101
Sex of household head	-0.719	0.506	-1.420	0.156
Age of household head	-1.368	0.516	-2.650	0.008
Ownership of television	-2.198	0.698	-3.150	0.002
Female male ratio of household	-0.348	0.197	-1.770	0.077
State-community interaction	-2.933	0.691	-4.240	0.000
Road	-0.212	0.358	-0.590	0.553
Distance to Market	0.049	0.027	1.800	0.073
_cons	8.435	2.386	3.540	0.000
Number of obs		563		
Wald chi2(13)		45.11		
Prob > chi2		0.0000		
Pseudo R2		0.1082		
Log pseudo-likelihood		-246.013		
Cases correctly predicted		81.88%		

As expected, the variable ‘relative strength of the household in the community’ shows a negative and significant effect on the attendance of meetings. This supports our hypothesis that households belonging to larger groups in the community may not attend meetings, for they would expect that other members of their group would represent and lobby for their interests anyhow. This is in contrast to the indirect effect that households from larger groups are more likely to influence decisions, providing them with an incentive to attend meetings. To examine which of the effects (direct or indirect through the influence on decision-making) dominates we also estimated the reduced form in equation (10). The results are presented in table 7. The results indicate that the direct ‘free-riding’ effect dominates to some degree.

As expected, household participation in JFM meetings is enhanced when people perceive their forest resources as being of good quality. Lise (2000) has also reported a similar result in her study on three types of community forest management in India which includes JFM. The effect is, however, insignificant.

In addition, the positive sign of the caste variable implies that *ceteris paribus* households belonging to lower caste (Schedule Tribe) groups are more likely to attend meetings. Again, it should be noted that this is the direct effect of caste, as opposed to the indirect effect through household bargaining power and MC membership, both of which affect a household's ability to influence decisions and thereby attendance of meetings indirectly. The direct effect could be due to the fact that lower caste households have more to benefit from JFM and also have less off-farm opportunities. To test if this interpretation is valid we ran separate regressions for household dependence and off-farm opportunities (see tables 2A and 3A in the appendix). These results confirm our interpretation. The direct effect of caste here is, however, insignificant. The total effect of caste on meeting attendance is positive, indicating that the direct effect dominates somewhat. The total effect is, however, insignificant.

Table 7: Determinants of Attendance of Meetings in Most Recent Forest Management Plan (Reduced form)

Variable	Coef.	Robust Std. Err.	t-value	P-value
Relative strength of household	-0.660	0.644	-1.020	0.305
Forest quality	0.088	0.279	0.310	0.753
Household caste	0.162	0.317	0.510	0.609
Years of education of household head	0.004	0.043	0.080	0.934
Land holding size	-0.019	0.039	-0.490	0.621
Sex of household head	-0.238	0.464	-0.510	0.607
Age of household head	-0.759	0.425	-1.780	0.074
Ownership of television	-0.466	0.356	-1.310	0.191
Female male ratio	-0.023	0.143	-0.160	0.873
State-community interaction	-2.967	0.687	-4.320	0.000
Democratic village	1.868	0.598	3.120	0.002
Road	-0.438	0.373	-1.170	0.240
Distance to Market	0.052	0.030	1.770	0.076
_cons	5.041	1.800	2.800	0.005
Number of obs	563			
Wald chi2(13)	36.3			
Prob > chi2	0.0005			
Pseudo R2	0.1005			
Log pseudo-likelihood	-248.123			
Cases correctly predicted	82.24%			

Similarly, the level of education of the household head is negatively related to the attendance of meetings when only the direct effect is considered (table 6). This indicates that less educated people are somewhat more likely to attend meetings than the more educated, which is

consistent with our hypothesis that less educated people are more dependent on the forest and tend to have less off-farm opportunities. This interpretation is again supported by the results in tables 1A and 2A, although the effects are not significant. A look at the total effect of education on meeting attendance in table 7, however, shows that the direct effect is entirely offset by the indirect effect resulting from the fact that less educated households are less likely to influence decisions, which discourages these households from attending meetings. Thus, the total effect of education on meeting attendance is highly insignificant.

Similarly, land holding size has a negative and significant direct effect on the attendance of meetings, indicating that landless and land-poor households are more likely to attend meetings. This is again consistent with our expectation that households with less land are more dependent on the forest (which is confirmed by a significant negative effect of land holding size on household dependency on the forest; see table 1A). In particular, a main attraction of the JFM program is wage labor benefits for poor landless people. In order to avail these benefits of employment in the forest activities, these people may show more interest in attending meetings in an attempt to lobby for employment and enhance the wage rate. The total effect, while still negative, is, however, no longer significant (table 7).

Another interesting result is that of gender participation. The econometric results indicate that *ceteris paribus* women are more likely to attend meetings. This is consistent with our expectation that women are more dependent on the forest and thus have higher benefits from attending a meeting. Moreover, as table 3A indicates, women tend to have less off-farm opportunities. Both the effect of gender on forest dependence and the effect of gender on meeting attendance are, however, not significant. The same holds for the total effect. The female-male ratio, however, shows a puzzling negative and significant effect on meeting attendance, although the combined effect is again highly insignificant.

Furthermore, the results indicate that younger people are significantly more likely to attend meetings. This can be due to the fact that young people are more interested in employment and other issues concerning forests. A similar finding is also reported in another study on community forest management in Nepal (Maskey et al, 2003). The interpretation is to some extent supported by our results in table 1A, which show a negative, but insignificant effect of age on forest dependence. On the other hand, younger households appear to have better off-farm opportunities (table 3A), which should work in the opposite direction. Again, it should be noted that, in addition, there is an indirect effect that discourages attendance by younger people, namely the greater likelihood of older people to influence decisions. The results in table 7 indicate that the former effect dominates. Overall, younger people are thus significantly more likely to attend meetings.

Ownership of television also has a negative and significant direct effect on the attendance of meetings, which further confirms our arguments. Moreover, this effect appears to outweigh the direct effect (wealthier households being more likely to influence decisions). The results in

table 7 indicate that overall, poorer households are more likely to attend meetings, although the effect is significant only at the 19% level.

The attitude of the forest department, which represents the state-community interaction variable, has negative effects on the attendance of meetings and it is significant at the 1% level. This indicates that when the attitude of the forest department is dominant or indifferent[7] people are less likely to participate in the meetings. This confirms the idea that people feel that they have less to gain from JFM when the FD fails to take on important roles, such as rule enforcement, or dominates forest management to its own benefit. The effect is reinforced by the indirect effect that a dominant FD reduces households' expected probabilities of influencing decisions in the meetings.

Distance to market has a positive and significant effect on the attendance of meetings, indicating that households in more remote communities are more likely to participate in the meetings. This finding confirms the hypothesis that communities located in remote areas have lower opportunity costs and may also be more dependent on forest resources. It also supports the idea that such communities are more likely to be successful in overcoming collective action problems (Ostrom, 1990). Similarly, the presence of a road has a negative effect on attendance of meetings, although this effect is not significant.

As expected, household participation in JFM meetings is enhanced when people perceive their forest resources as being of good quality. Lise (2000) has also reported a similar result in her study on three types of community forest management in India which includes JFM. The effect is, however, insignificant.

[7] The case of indifferent attitude on the part of the FD is widespread in Andhra Pradesh. For instance, in Kolamguda FPC in Adilabad district the FPC members' story is noteworthy here. Knowing their rights and responsibilities over forests under the JFM agreements, the members enthusiastically got involved in forest protection. Within a few days they caught a timber smuggler in their forests and they brought the smuggler along with the timber to the FD office at Adilabad. When they arrived in the FD, nobody was willing to attend them and they had to spend the whole night at the FD without food and sleep pleading to initiate a suite against the timber smuggler. When nobody from the FD showed an interest the smuggler went to the police station and registered a case against the villagers. The police arrested the villagers, and other villagers had to sell their assets to free their fellow men from the police station. That was the end of JFM for this village.

6 Conclusions and Policy Implications

In this paper we have analyzed the factors that influence household participation in forest management plan preparation under JFM in the Indian state of Andhra Pradesh. Contrary to previous studies, we have explicitly distinguished between different levels of participation. In particular, we have analyzed not only household participation in meetings (the focus of most of the existing literature), but also household participation in actual decision making processes at these meetings. Specifically, we have used a two-stage logistic regression model in order to estimate the relative importance of the factors of household participation in JFM meetings. In the first stage we analyzed the determinants of influencing decisions and in the second stage we estimated the determinants of attendance of meetings. This approach allows us to distinguish direct and indirect effects of various factors on meeting attendance.

As hypothesized, household participation in the decision making process of the JFM program is affected by household characteristics, community characteristics and outside factors including state-community interactions and resource characteristics. In particular, our results indicate that, despite concerted effort by policy makers to empower poor and weaker section people in the JFM program, richer and more educated people in the community still are significantly more likely to influence the decisions taken. Older people and households belonging to larger caste groups are also more likely to influence decisions. The dominance of richer and more educated segments of the community in the decision-making process exists despite the fact that policies to include poorer, more marginalized groups in forest management committees have been somewhat successful. Our results indicate that being land-poor and from a lower caste increases the likelihood of a household being selected into the MC. Less educated people are, however, also less likely to become MC members. The implication of our finding is that minority groups in the communities, although they may be formally given some authority in the JFM process, are still *de facto* kept out of the decision making process, which is likely to have serious repercussions on the distribution of benefits from the JFM forests. Moreover, it was shown that the state-community interaction is an important variable which shapes the outcomes in the meetings. It was found that where the FD is dominant, households tend to feel left out from the decision-making process, regardless of their socio-economic characteristics.

In the second stage we have estimated the determinants of attendance of meetings. As hypothesized, the ability of a household to influence decision-making is a crucial determinant of the household's decision on whether to attend the meeting. In this sense, our earlier results imply that poorer and less educated households are discouraged from attending because they have a low ability to affect decision-making. This is to some degree offset, however, by the fact that marginalized households have more of a stake in the forest and less outside options. We found a

significant direct effect of wealth on meeting attendance, indicating that *ceteris paribus* poorer households are more likely to attend JFM meetings. Forest quality also plays an important role in the household decision to participate or not in meetings. It is shown that good quality forests tend to attract households to participate in the meetings. While this may be rational from the household point of view, it is important to note that the main objective of the JFM was to regenerate degraded forests and that most of the JFM villages were initiated on degraded forest land. Hence one can infer from the fact that good forest quality promotes participation that households fail to see long term benefits of forest regeneration, which may have serious implications for the long term sustainability of the JFM program.

Distance to market was also found to have a significant positive effect on participation in meetings as households located in more remote areas tend to be more dependent on the forest and have lower opportunity costs of time. We also find a certain 'free rider effect' in participation, in the sense that households from larger groups within the community tend to participate less in the meetings. This direct effect is only partially counteracted by the result that members from larger groups are more likely to influence decisions.

A dominant attitude of the FD not only reduces a household's chances of influencing decisions, but it also discourages attendance of meetings directly as households expect less benefits from JFM in a FD-dominated management regime. Therefore, an important message of this paper is that, if the JFM program is to succeed in terms of bringing genuine participation from the community, the FD must change its attitude by devolving more power and rights to local communities. One suggestion in this regard to the FD could be that it can hand the responsibilities for program implementation to other agencies such as reputed NGOs and other civil organizations and become an outside observer and facilitator.

There has been a concerted effort made by policy makers to promote female participation in the decision making process by making reservations in the executive committee, and compulsory membership in the general body committee. Our results indicate that there has been some success in that female-headed households are somewhat more likely to be MC members and also show a positive direct effect on meeting attendance. Nevertheless, our first-stage results indicate that the policy is thwarted by the existing structure of male dominated society, as the results show male members as being more likely to influence decisions. This result confirms the findings of several other studies which argue that women were systematically excluded from the main decision making process, resulting in inefficient management of forests and local institutions (Agarwal, 2001 and Sarin, 2002).

A primary aim of participatory approaches like JFM lies in attracting the most vulnerable segments of society. The most striking finding of this study is that while these approaches seem to be relatively successful in achieving formal representation of marginalized groups in executive committees and in encouraging meeting attendance, they are much less so in achieving

an actual influence by these groups on the decisions taken in the meetings. This lack of influence discourages poor and marginalized groups from participating in meetings despite their having a high stake in the forest. Moreover, even if these groups participate in JFM meetings, community elites continue to dominate actual decision-making processes putting in question how participatory the programs really are. Hence the principal message of this study is that the major obstacle in the process of empowering the poor is the perseverance of traditional hierarchies and elite capture within the community. This, according to our field experience, happens in two ways: either the elite forcibly captures the decision making power from the poor when they see the potential benefits from the project, or the decision making power goes naturally to the elite because of lack of proper institutional arrangements and support to keep the poor in powerful positions. Our results also point to the difficulty of imposing democratic structures on traditional societies characterized by strong hierarchies. In a traditional Indian community setting, poor households often depend on wealthier households for their daily livelihoods and as a safety net during periods of crises (Deshingkar et al, 2005). Due to this dependency relationship, poor people often first hesitate to accept positions in executive committees. Even if they eventually do accept the post they are unlikely to take decisions that will hurt the rich, or they may act at the suggestions of wealthier people.[8]

Two important policy implications can be drawn from our empirical results. First, a meaningful participation by forest users in JFM requires a change in the attitude of the FD. There is a need for a rigorous training of FD officials dealing with local people in forest management. NGOs and other civil organizations could be given more and important responsibilities for institution-building as well as forest management. Second, the FD needs to find ways to tackle the problems of elite influences in the decision making processes and ensure that poor and marginalized groups' concerns find place in the final decisions. An important result of our study is that education is a crucial determinant of a household's ability to influence decisions. This points to strong synergies between general policies aimed at improving access to education for poor and marginalized groups and the success of participatory approaches like JFM.

[8] A typical situation we witnessed during our field work is that in few instances when our team visited a community the president took us to a well-off person's house instead of his own house for conversation.

References

Agarwal, B. (2001): Participatory Exclusions, Community Forestry, and Gender: An Analysis for South Asia and a Conceptual Framework. World Development 29(10): 1623-1648.

Agrawal, A and Gupta, K. (2005): Decentralization and Participation: The Governance of Common Pool Resources in Nepal's Terai, World Development 33(7): 1101-1114.

Agrawal, A. (2000): Small is Beautiful, But is Larger Better? Forest Management Institution in the Kumaon Himalaya, India, in Clark C. Margaret A. Mckean, and Elinor Ostrom: People and Forest, Communities, Institutions, and Governance, The MIT Press: Cambridge, Massachusets, London/GB.

Arora, D. (1994): From State Regulation to People's Participation: Case of Forest Management in India, Economic and Political Weekly: 691-698.

Ballabh, V., Balooni, K., and S. Dave (2002): Why Local Resources Management Institutions Decline: A Comparative Analysis of Van (Forest) Panchayats and Forest Protection Committees in India. World Development 30(12): 2153-2167.

Baland, J-M., and J.P. Platteau (1996): Halting Degradation of Natural Resources: Is there a Role for Rural Communities? Clarendon Press: Oxford.

Balooni, K. (2002): Participatory Forest Management in India: An Analysis of Policy Trends amid Management Change, *Policy Trend Report*, accessed from http://www.iges.or.jp/en/fc/pdf/report5/PTR0207.pdf

Behera, B and Engel, S. (2004): The Four Levels of Institutional Analysis of Evolution of Joint Forest Management (JFM) in India: A New Institutional Economics (NIE) Approach, paper presented at the Annual Meetings of the International Association for the Study of Common Property (IASCP), Oaxaca, Mexico.

Borooah, V. (2002): The Political Economy of Caste in India, paper presented at the annual meetings of the European Public Choice Society, Belgirate, April 4-7.

Deshingkar, P., Johnson, C., and Farrington, J. (2005): State Transfers to the Poor and Back: The Case of the Food-for-Work Program in India, World Development 33(4): 575-591.

Engel, S., Iskandarani, M., and M.d.P. Useche. (2005): Improved Water Supply in the Ghanaian Volta Basin: Who Uses it and Who Participates in Community Decision Making. EPT Discussion Paper 129. International Food Policy Research Institute (IFPRI), Washington, DC. http://www.ifpri.org/divs/eptd/dp/papers/eptdp129.pdf

Engel, S. (2004): Designing Institutions for Sustainable Resource Management and Environmental Protection. Habilitation thesis, Faculty of Agriculture, University of Bonn/Germany.

GoAP, 2002, G. O. Ms. No. 13, dated: 12th February 2002, Environment Forests Science and Technology, government of Andhra Pradesh, Hyderabad.

GoI. (1990): Involving of Village Communities and Voluntary Agencies for Regeneration of Degraded Forest Lands (Letter no. 6-21/89-PP, June 1, 1990), Government of India, Ministry of Environment and Forests, New Delhi.

Gyasi, O. (2004): Determinants of Success of Collective Action on Local Commons: An Empirical Analysis of Community Based Irrigation Management in Northern Ghana, Ph.D. dissertation, Faculty of Agriculture, University of Bonn/Germany.

Jodha, N. S. (1997): Management of Common Property Resources in Selected Dry Areas of India, in: J. M. Kerr, D. K Marothia, K. Singh, C. Ramasamy, and W.B. Bentley (eds.): *Natural resource economics – Theory and application in India*, New Delhi and Calcutta: Oxford & IBH Publishing Co: 339-361.

Joshi, A. (1999): Progressive Bureaucracy: An Oxymoron? The Case of Joint Forest Management in India. Rural Development Forestry Network, Oversea Development Institute: London.

Kumar, S. (2002): Does Participation in Common Pool Resource Management Help the Poor? A Social Cost-benefit Analysis of Joint Forest Management in Jharkhand, India, World Development 30(5): 763-782.

Kumar, S., and Kant, S. (2005): Bureaucracy and New Management Paradigms: Modeling Foresters' Perceptions Regarding Community-based Forest Management in India, Forest Policy and Economics 7(4): 651-669.

Lise, W. (2000): Factors Influencing People's Participation in Forest Management in India, Ecological Economics 34: 379-392.

Maskey, V., Gebremedhin, T. G., and Dalton, J. (2003): A Survey of Analysis of Participation in a Community Forest Management in Nepal, paper presented at the Northeastern Agricultural Resource Economics Association, Portsmounth, New Hampshire, June 8-10.

Ostrom, E. (1990): Governing the Commons: The Evolution of Institutions for Collective Action. Cambridge University Press: Cambridge.

Platteau, J-P., and Gaspart, F. (2003): The Risk of Resource Misappropriation in Community-driven Development, World Development 31(10): 1687-1703.

Sarin, M. (2002): Devolution as a Threat to Democratic Decision-Making in Forestry? Findings from Three States in India, Chapter of Book, CIFOR, Indonesia.

Sarin, M. (2001): Disempowering in the Name of Participatory Forestry? Village Forests Joint Management in Uttarakhand. Forests, Trees, and People Newsletter 44, Rome.

Sarin, M. (1999): Policy Goals and JFM Practice: An Analysis of Institutional Arrangements and Outcomes, Policy and Joint Forest management Series-3, World Wide Fund for Nature-India.

Sarin, M. (1996): "From Conflict to Collaboration: Institutional Issues in Community Management", in: Poffenberger and Betsy McGean (eds): Village Voices, Forest Choices: Joint Forest Management, Oxford University Press: Calcutta.

Shackleton, S., Campbell, B., Wollenberg, E., and D. Edmunds (2002): Devolution and Community-based Natural Resource Management: Creating Space for Local People to Participate and Benefit. Natural Resource Perspectives 76. Oversea Development Institute: London.

Vira, B. (1999): A chapter in Jeffery and Sundar book new moral economy.

Weinberger, K., and Jutting, J. (2001): Women's Participation in Local Organizations: Conditions and Constraints, World Development 29(8): 1391-1404.

World Bank (2003): "World Bank to Help Community to Take over Forest Management in Andhra Pradesh: Project Aims to Reduce Rural Poverty Through Community Empowerment", News Release No. 2003/022/MNA, South Asia Region, The World Bank: Washington DC.

World Bank (1994): The World Bank and Participation, Operations Policy Development, The World Bank: Washington DC.

Appendix

Table 1A: Determinants of Influencing Decision in Most Recent Forest Management Plan (Without democratic village variable)

Variable	Coef.	Robust Std. Err.	t-value	P-value
Household caste	0.168	0.419	0.4	0.69
Years of education of household head	1.029	0.297	3.47	0.00
Sex of household heads	0.574	0.631	0.91	0.36
Female-male ratio	0.334	0.148	2.26	0.02
Age of household head	0.908	0.459	1.98	0.05
Relative strength of household	1.572	0.721	2.18	0.03
State-community interaction	-0.236	1.061	-0.22	0.82
Ownership of television	1.615	0.353	4.57	0.00
Land holding size	-0.087	0.136	-0.64	0.52
_cons	-7.952	1.972	-4.03	0.00
Number of obs		462		
Wald chi2(9)		37.95		
Prob > chi2		0.00000		
Log pseudo-likelihood		-186.124		

Table 2A: Determinants of Households' Dependency on the Forests

Variable	Coef.	Robust Std. Err.	t-value	P-value
Household caste	1.153	0.273	4.22	0.00
Household size	0.145	0.066	2.2	0.03
Years of education of household head	-0.035	0.246	-0.14	0.89
Sex of household head	-0.062	0.352	-0.17	0.86
Age of household head	-0.197	0.379	-0.52	0.60
Land holding size	-0.644	0.144	-4.47	0.00
_cons	-1.331	1.381	-0.96	0.34
Number of obs	=	564		
Wald chi2(6)	=	33.23		
Prob > chi2	=	0.00000		
Log pseudo-likelihood	=	-266.067		

Dependent variable: Households in the JFM community that are highly dependent on JFM forests (dummy variable at the community level)

Table 3A: Determinants of Off-farm Opportunities

Variable	Coef.	Robust Std. Err.	t-value	P-value
Household caste	-20.866	4.945	-4.22	0.00
Household size	0.934	1.205	0.78	0.44
Years of education of household head	6.145	4.468	1.38	0.17
Sex of household head	9.491	3.656	2.6	0.01
Age of household head	-10.847	6.617	-1.64	0.10
Land holding size	-2.081	1.990	-1.05	0.30
_cons	90.454	27.401	3.3	0.00
Number of obs		307		
F(6, 300)		5.6		
Prob > F		0.0000		
R-squared		0.1608		
Root MSE		28.388		

Dependent variable: Wage rate in off-farm work of the household head.

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