ALIGNING WITH ONE'S OWN:
Private Voting and Public Outcomes in Elections in Rural India[#]

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Abstract

This paper has the objective of showing that identity based voting will lead to improvements in household welfare through increased access to welfare programs. Using newly available data from rural India, we establish that identity based voting will lead to enhanced participation in welfare programs and increased consumption growth. We also show that consumption growth is retarded if households do not engage in identity based voting. Using 3 stage least squares, we are able to show that identity based voting results from the externalities derived from membership in social and information networks, and such voting by enhancing participation in welfare programs leads to significant increases in household consumption growth.

Key Words: Identity Based Voting, Panchayats, Decentralization, Devolution

JEl Classification: D7, D72, D73

Right wing academic force — particularly a group of sociologists and anthropologists — advised the Bharatiya Janata Party led National Democratic Alliance Government not to go for caste based census in 2001 as it would go against the ruling upper castes and communities. It is fallacious to argue that society will get further divided if the population of each caste is known to the policy maker and public…It is true that we cannot distribute everything based on caste. But caste census is the right basis for statistics such as literacy rates and issues like proportional representation. Once we cite the Census data there cannot be any authentic opposition to that evidence…In a democracy based on numbers, any section of the society can come to power. If the caste census in done, then Indian democracy would thrive on the firm support of the lower castes who keep hoping of getting their share based on their numbers — Kancha Ilaiah (an academic arguing for a caste based census in India).

"Socio-economic development can be planned for OBCs like for the SC/STs. Every group must get their due" (President of the Congress party in Tamil Nadu) [1]

Introduction

It has been established in the literature that parochial politics, often associated with inadequate provision of public goods, clientelism, and, kleptocracies, could result from persistently weak governance. In such circumstances, informal institutions (social networks) are often the mechanisms by which leaders are both elected and "disciplined" (Munshi and Rosenzweig, 2008). Since in parochial politics (as in India) castes (henceforth Jatis)[2] play a significant role both during and after elections, it is important to understand the drivers of participation in elections, and relate these to specific outcomes. For individual households elections are a means of ensuring that a socially appropriate candidate (i.e., of the "correct" identity) is elected. If social networks (organized along the lines of Jati) are playing a significant role in providing information, and mutual insurance, then, such networks could also play a critical role in voting decisions. Identity based voting for a candidate is then a collective decision of both households and the network and influences the outcome of public decisions, especially in the supply of local public goods, ensuring access to public goods and improvements in welfare for both individual members, households as well as for the network as a whole. In this paper, we argue that identity based voting is a mechanism by which voters

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[1] *The Sunday Express*, July 4, 2010
[2] The term caste is an aggregation. An appropriate reference to the social position of a member (and household) is Jati. In this paper we will refer to the social position by Jati. The official aggregation will be referred to as caste (such as SC/ST, or OBC).

can ensure commitment by elected representatives in delivering public goods as well as adhering to the mandates of the elections.

Why does identity based voting take place? Even though in the literature (Caillaud and Tirole, 2002; Snyder and Ting, 2002; Alesina and Spear, 1988) it has been argued that a decentralized political apparatus is adequate to ensure commitment by elected representatives, in socially fragmented societies where groups of households defined by their Jatis may be excluded from access to public goods, or where the system of governance is synonymous with clientelism, this assumption may not be valid. In such circumstances, identity based voting may be a mechanism for inclusion (a form of signaling) as well as ensuring commitment. Hence, social networks can affect not only the quality of mutual insurance (Munshi and Rosenzweig, 2006), allow access to labor markets and credit (Banerjee and Munshi 2004; Munshi and Rosenzweig, 2005), but also influence the political process and the consequent provision of local public goods: candidates elected on the basis of identity, cannot deviate from commitment. Hence, both the quantum of provision and access to public goods will increase.

Much of social policy in India has been designed to afford primacy to welfare of specific groups (defined either by their ethnicity or socio-economic well being).[3] The Indian Constitution also recognizes and provides impetus to policy for enhancing welfare of groups based on their socio economic status in the society. The Panchayati Raj Amendment (73rd) has enabling provisions for gender, and disadvantaged groups.[4] Households, therefore, will derive positive externalities from membership in groups as well as social networks. The electoral process is a means for specific groups to elect a representative with a congruent identity. Voting in elections will maximize returns to specific groups and lead to significant increases in welfare of individual households that have either aligned themselves to these

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[3] It has been shown elsewhere (Jha, Kang, and Nagarajan, 2011) that programs designed to affect group welfare are better targeted compared to those meant for enhancing individual welfare (such as the PDS).

[4] There is in fact much confusion in the formulation of the implementation of policies related to decentralization and devolution. This has to do with whether empowerment through decentralization must be of households or of household groups (referred to also by some as community). Saxena (2011) argues that one of the pathologies of the implementation has to do with a lack of focus on community (in fact, inability to focus) and the fact that the current design allows for individual households trying to corner benefits meant for the community. Given the nature of formation of communities (always defined by Jatis in rural India), it is only natural that such pathologies are observed. Focus on group welfare in the Indian context will always lead to this outcome for individuals within communities will act in a way to maximize community welfare and capture benefits meant for other communities.

groups or are natural members.[5] Under ideal typical conditions, decentralization and devolution is accompanied by a significant responsibility to raise local revenues. This process would allow households to enforce commitment. In absence of such a process, and under conditions where sufficient functions, as well as functionaries have not been devolved to local governments, and instead funds are being devolved, clientelism becomes may become the norm. Identity based voting then may become a significant and the method of enforcing commitment and for accessing funds.

The system of decentralization and devolution of powers has not favored the generation of own revenue by local governments. Instead, most resources that reach the Panchayats are grants from state and national governments. They reach the villages in two forms: A small proportion of funds devolved from state governments are untied grants, which are used mostly for minor repairs and maintenance and provision of public goods in a highly selective manner.[6] Most programs, however, provide very specific benefits to villages, village neighborhoods or individuals in areas such as drinking water, water points, digging of private wells for irrigation, subsidies for inputs, and welfare benefits in the form of access to subsidized foods or employment schemes. Programs with individual benefits all have targeting criteria that tend to favor farmers for the inputs or members of the weaker socio-economic groups. The number of such programs is large and their targeting criteria and implementation mechanisms vary widely. While the village population is often supposed to approve the targeting (through the gram sabha), the complexity of the system creates information asymmetries that favor the village and higher level officials, and give them control over targeting of benefits.

While officials of the Panchayati Raj system often have significant control over the targeting of benefits, they rarely manage the financial or physical resources that are associated with the programs. Those programs that involve construction are typically assigned to contractors by officials at higher levels in processes that are rarely transparent. Those that provide individual

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[5] During elections held in number of states in northern India, the Muslims and Yadavs would vote as a bloc with Muslims identifying themselves with Yadavs (who are Hindu but ethnically and economically backward) in order to elect a member of the Yadav community.

[6] One of the important features of "formation" of villages in India is that streets are often formed along specific line of occupation or Jati. The degree of diversification of Jati is particularly low across villages. It is often suggested that streets are a more efficient insuring unit compared to the village taken as a whole. The current dispensation of targeting and providing both untied and tied funds to households tend to reinforce these divisions. In fact the data suggest that both provision and access to public goods and welfare programs across streets within villages is extremely skewed.

benefits are usually distributed in kind, such as in the form of seeds, fertilizers, pump sets, food and the like. The lack of involvement of the Panchayat in managing these resources means that the process of acquisition and distribution of the benefits is not accountable to the Gram Sabha, further creating information asymmetries and discretionary powers for village and higher level officials. Thus the very design of the decentralized programs has favored capture leading to households having to engage in parochial politics of identity based voting.

The literature germane to voting behavior is large. Dal Bó et al. (2008) and Zhang and Laband (2005) show that the choice of institutions could dictate the nature of the electoral process and affect outcomes. Strategic voting is often a means resorted to by households to minimize elite capture. Elite capture is a likely to be a phenomenon attempted by all social groups. The question therefore is what characteristics of a system are conducive to elite capture or that keep it in check. The extant literature shows that elite capture may or may not exist in systems of decentralized governance or donor-funded community based development programs. There are several explanations for such variation. Information asymmetry and inefficiency in allocation of resources are two major reasons why it is believed elite capture takes place (Laffont and Tirole, 1991). Baron (1994), and Grossman and Helpman (1996) argue that electoral competition and the guarantee to incumbents that they will succeed in seeking re-election is another determinant of the degree of elite capture. Besley and Burgess (2002) show that the distribution of disaster relief materials is more equitable and efficient in places where there is greater circulation of information through newspapers and other forms of media as opposed to places with a poor economic base and low circulation of information. Bardhan and Mukherjee (2002) argue that the propensity of local democracy to be subjected to elite capture will depend on the location and the context in which it occurs. Elite capture therefore is not an absolute phenomenon but a relative one. The degree of elite capture will depend *inter alia* on: (a) the extent and nature of heterogeneity of the economic space and of the households (b) the efficiency of the electoral process (c) levels of awareness of issues, (d) presence of interest groups, and (e) the design of the programs which may become the subject of capture. In general absence of an enabling social, political and economic environment can encourage elite capture. But at the same time, corruption and inefficiency appear to be a concomitant part of the elite capture problem.

There are other pathologies in the system of decentralization (some of which are also outlined in Saxena (2011)) that could generate electoral competition and identity based voting.

Barenboim and Burstyn (2008), and Khemani (2008) suggest that if decentralization is an outcome of political compulsions rather than being motivated by concerns of welfare of all households, (i.e., if development process is gerrymandered to suit the political and social compulsions of the political leaders due pressures from range of social groups that wish to capture the financial gains resulting from development) then, the electoral process will reflect such pathology.[7] Governance based on such decentralization will result in elected representatives attempting to channel benefits to his/her social group. Identity based voting will be an obvious consequence. Gottlieb (2009) shows that it is not the magnitude but the structure voting that is correlated with the provision of public goods. This then implies that the basis for participation is more likely determined by factors related to capture of benefits.

Besley et al. (2005) suggest that both the identity of and changes to the identity of the dominant group alter allocation of public goods. The composition and preference of households belonging to the dominant group of a village can matter in determining electoral outcomes and subsequent performance of the elected government. Foster and Rosenzweig (2004) and Banerjee and Iyer (2007) show that electoral outcomes and performance of the local government reflects the composition of the village. Hence, for example expenditures on irrigation are more likely to take place if the elected system is represented by agricultural households.

Shu and Choudhary (2009) show that, depending on the attitude of households towards whether elected officials choose to opt for overall development as opposed to engaging in development of specific sectors or promoting the welfare of ethnically defined groups within the village, elections could lead to elite capture. If the voters prefer the former or are indifferent between these two options then capture is absent.

The maintained hypothesis of this paper is that identity based voting by households will reinforce group identities, and reveal the preferences of individual households for policies, groups, as well as for the "type" of the elected representatives. Identity based voting will therefore lead to improvements in household welfare by increasing access to welfare programs. Our paper, although related to Hoyos and Cebollos (2004) and, Munshi and Rosenzweig (2008), provides a direct test (as well as the rationale for) for the increases in

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[7] Local elections (and in fact elections to all levels of government) in developing countries are quite often conditioned on cash transfers and announcement of welfare schemes for ethnic groups as opposed to provision of public goods, and employment generation.

household welfare by measuring growth in consumption caused by increased participation in welfare programs conditioned on identity based voting

Using newly available data from rural India, we establish that identity based voting will lead to enhanced participation in welfare programs and increased consumption growth. We also show that consumption growth is retarded if households do not engage in identity based voting. The 73rd Amendment to the Indian Constitution set in motion a process of devolution of powers to local bodies (Panchayats). Our data set contains information on voting behavior of households that belong to various Panchayats, characteristics of elected representatives and their support base, development expenditures and welfare programs available to households, regime changes that have occurred at the level of these Panchayats in the form of reservations based on Jati and Gender, etc. This data allows us a unique opportunity to investigate the impact of exogenously given factors on voting behavior and test the outcomes of such behavior on welfare program participation and consumption growth.

The plan of this paper is as follows. Section II describes the data and provides a context for the problem. Section III explains the methodology. Section IV presents the results whereas section V concludes and provides implications for policy.

II   Background and, Data

Post the 73rd amendment to the Indian Constitution, political devolution has led to the empowerment of Panchayats whereby a village or a group of villages is collectively referred to as a "Panchayat". Elections to the Panchayat can be either direct or indirect. Direct elections involve the election of the "Pradhan" (head of the Panchayat) as well as ward members by individuals through voting. Pradhan is typically a resident of the largest of the Panchayat villages. Ward members represent parts of the villages that form the Panchayat. Indirect elections involve first the election of ward members who then select the Pradhan. A Panchayat period typically lasts for five years. The Panchayat Pradhan is often vested with many responsibilities and powers including the identification and selection of beneficiaries for the various centrally sponsored welfare schemes, financial administration of welfare programs sponsored by state and the federal governments, conduct of Gram Sabha meetings, identification of issues related to development needs of households and groups of households as well as those that are village wide.

The nature of powers vested with the Pradhan creates conditions for information asymmetry between the Pradhan and the households, manifested particularly in issues germane to selection and identification of beneficiaries, and administration of welfare programs as well as articulation of the development needs of the village and the Panchayat to higher levels of government.[8]

In ethnically stratified societies, such as those found in Indian villages, where the expression of identity by households is a significant feature of social relations, it is possible that the Pradhan could exploit various information asymmetries and deny access to welfare programs to particular groups or favor others.[9] Household would then have to use their Jati and express their identities not only in social relations, but also in voting; so that their own 'type' is congruent to that of elected representatives (possible at election time). Such congruence would then become a significant in the determination of access to different welfare schemes as well as participating in the process of local governance.

We use data from the NCAER ARIS/REDS database representing a consistent set of information on 241 villages in 17 states[10] representing rural India, collected over six rounds and encompassing the period 1969 to 2006.[11] The 2006 round surveyed 8659 households out of which 5885 represent the panel.[12] The merged six-round panel data set is unique because it combines detailed demographic information on households, participation in welfare schemes, governance, evaluation of governance by households, patterns of cultivation, infrastructure, availability of public goods etc with community data. The data covers a period of considerable change in India's rural economy, both in terms of structure as well as policy regimes. The data allows us to trace the impact of changes in policy on the households and therefore fixes these households within a policy space.

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[8] Saxena (2011) also points these out as some of the shortcomings of the designs of the current forms of decentralization and devolution.

[9] The electoral process can in fact reinforce the importance of the identity since a certain percentage of elected positions have been reserved based on Jati and gender.

[10] The state include Tamil Nadu, Kerala, Karnataka, Maharashtra, Gujarat, Rajasthan, Punjab, Haryana, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Orissa, Chhattisgarh, Madhya Pradesh, and, Andhra Pradesh. The state reorganization that influenced Bihar, Madhya Pradesh and Uttar Pradesh, did not affect the selection of villages that have remained intact since 1969.

[11] The first three rounds included Assam and Jammu and Kashmir. However, the 1982 round did not include Assam, while the 1999 round excluded Jammu and Kashmir (both incidents affected by the local law and order situation prevailing in these states at that time). The current round excludes both these states.

[12] The household sample has compensated for attrition through a random addition to the original sample since 1982. 10 households were randomly selected from the process of listing in each of the survey rounds. This way the sample remains representative of rural India.

The data set is in three parts viz., listing, community, and the household. In the rounds prior to 2006 the listing data identified households for the detailed survey. However with the latest (2006) round of the survey, listing represents a census of the village and forms the basis for detailed information on incomes, occupations, voting, land holdings and network formation. The community data set contains information on the structure of governance in these villages, village wide shocks, composite pattern of cultivation, infrastructure, availability of public goods etc. The household survey provides detailed information on participation in governance, welfare programs, assessment of quality of welfare programs, information on networks, voting behavior, Jati, apart from usual details of cost of cultivation, household characteristics etc.

The data for the 1999 and 2006 rounds, encompassing two Panchayat periods in most villages, are summarized in table 1. While the average number of years of schooling has increased, we find that the size of land holdings as well as household size has declined. The latter two outcomes can be attributed to household splits within the sample. Consumption expenditures have gone up during this period and poverty has declined from 31 percent to 25 percent. However, the Gini index suggests that inequality has increased significantly and has in fact gone up from 19 to 23 percent.

On average, villages have become better connected to urban centers, and per capita availability of infrastructure and public goods has improved. The provision of public goods like drinking water, public taps, street lighting and sanitation has improved. The proportion of cultivated area has remained stagnant, suggesting that agricultural income growth came primarily from productivity growth. Welfare indicators such as number of brick houses, multi storied houses and agricultural wage rates, have improved over the same time period.

Table 1 here

The profile of elected representatives across various types of Panchayats and over time periods reveals that in Panchayats where there is no political reservation for either women or Jatis female representation at the level of elected representatives has declined marginally. However, where there has been political reservation based on Jati, we find that the proportion of female elected representatives has increased. We note that the literacy rate of elective representatives in the Panchayats headed by women (including those villages with political reservations for women) has declined.

The representation of socially marginalized Jatis in villages with political reservation for women has shown a marginal increase. A majority of the elected representatives are landless or marginal farmers (owning and cultivating less than two acres). However, we note that in villages with political reservations for either gender or Jati the proportion of elected representatives owning and cultivating land (i.e. 2-10 acres) has increased significantly.

Table 2 shows that the structure of the support for elected representatives in these Panchayats is identity based (identity of the elective representatives is the most important determinant of voting). However the structure of the support from outside the Panchayat does not mirror that of internal support. In particular, a significant source of outside support is from political parties. Political interference in local elections has increased over time.

Table 2 here

Summary of the data on voting patterns and preliminary empirical evidence presented in tables 3, 4 and 5 taken together with appendix 1 is consistent with the predictions of the literature, and form the basis for our empirical test. Thus, in table 3 the data clearly shows that the proportion of households that use the identity of the candidate as the primary determinant for voting has gone up by an average of 33% in the ward and elections to the Pradhan. Honesty and the integrity of the candidate are no longer significant identifiers of voting in these elections. The data also points out that identity based voting is persistently higher during the ward and Pradhan elections compared to the corresponding magnitude for assembly and the parliamentary elections. Table 4 shows that households engage in strategic voting. The percentage of household where all members vote based on identity has gone up by more than 10%. Such a strategy will magnify the impact of identity based voting and ensure favorable electoral outcomes for specific socio economic groups.[13]

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[13] Appendix 1provides interesting preliminary insights into the structure of identity based voting. These results reinforce the summary statements contained in tables 3 and 4. For example, there is a 12% increased likelihood that an average voter will vote based on identity in elections for the position of Pradhan compared to parliamentary elections. Numerically smaller communities are 20% more likely to engage in identity based voting. Younger males vote more based on identity compared to their female counterparts. We also find that identity based voting is likely to be persistent and grow in magnitude. 13% of all voters that voted based on identity previously will continue to do so in any of the subsequent elections. Similarly, poor are more likely to vote based on identity during elections to the Pradhan. Such results are consistent with the pathologies of devolution pointed out elsewhere in this paper where it has been pointed out that financial devolution has not been accompanied by well defined rules of access.

Table 5 provides insights into the relationship between numerical size of a social group within a village, its economic well being and voting preferences. We find for example that if a particular Jati is marginal in terms of its population within a village then, its welfare status is in general low. The social ordering of these Jatis does not necessarily matter in determining of their welfare status. The magnitude of the identity based voting by such numerically inferior Jatis during local elections has consistently increased over time.

Tables 3, 4, 5 here

III   Empirical Strategy

Democratization fostered by the 73rd Amendment to the Constitution has led to significant increases in the level of participation in local elections. We find that factors that determine voting are increasingly related to dimensions that are germane to the identity (Jati, religion etc) of voter and that of the candidate. One can attribute this behavior to two factors, a) policies that are structured such that specific groups are targeted and, b) such groups are increasingly defined based on their respective ethnicity, Jati, and religion.

Our empirical strategy is to first measure growth in consumption by conditioning this on governance related variables such as regime changes in terms of who heads the Panchayat only. Participation in welfare programs is not included. Since program participation is an endogenous choice, we estimate its impact on consumption growth using a 2SLS procedure. Finally we control for the role of social networks and identity by estimating jointly, consumption growth, program participation and identity based voting. We posit that there could be contemporaneous effects of program participation and identity based voting on consumption growth.

We posit that changes in identity based voting, program participation, and household level welfare are jointly determined. A three stage estimation strategy is adopted presuming the existence of a linear system of M equations with jointly dependent and predetermined variables.

$$y_i = Y_i \gamma_i + X_i \beta_i + u_i, \qquad i=1, 2\ldots M. \qquad (1)$$

$$y_i = Z_i \delta_i + u_i, \qquad Z_i = (Y_i \quad X_i), \quad \delta_i = \binom{\gamma_i}{\beta_i} \qquad (2)$$

where the T-vector y_i contains the observations on the ith dependent variable to be explained by the ith structural equation; Y_i (T $\times$ m_i, m_i <M) less than or equal M contains observations on jointly dependent variables included as explanatory variables in the ith equation, X_i (T $\times$ l_i, l_i <A) less than or equal A is the matrix of predetermined variables included in the ith equation, γ_i and β_i are corresponding vectors of unknown parameters, u_i is a T-vector of disturbances satisfying

$$E(u_i) = 0,$$

$$E(u_i u_j') = \sigma_{ij} I_T, \qquad i, j=1, 2\dots M. \qquad (3)$$

The distribution of the disturbances is supposed to be independent of the predetermined variables in the system, the reduced form is assumed to exist and the equations are either just identified or over identified (Kapteyn and Fiebig, 1981).

i) Estimating Change in Household Wealth

We begin by estimating and predicting change in household's wealth. In a panel data framework, changes in household wealth are often a consequence of household splits. Predicted household splits adequately predict changes in wealth (Foster and Rosenzweig, 2001). We predict the change in wealth as follows.

$$\Delta W_{it} = \kappa_0 + \phi_j S_{jit} + v_{it} \qquad (4)$$

Where, i indexes households, j the variables and t is time. ΔW_{it} is the change in household's wealth. S_{jit} is the vector of variables that predict whether a household will split. It includes age of head of the household, change in variance and mean of education of members of household, number of children whose age is less than 15 years, inherited wealth at the beginning of the period (1999), dummies for whether father is co-resident at beginning and at end of the periods (1999 and 2006), dummies for whether both brothers and sisters are co-resident at the beginning and end of the period (1999 and 2006). v_{it} is the error term.

ii) Estimating Change in Per Capita Consumption

Change in household's welfare is measured by changes in per capita consumption. This is estimated as follows.

$$\Delta PC_{it} = \alpha_0 + \alpha_1 \widehat{W}_{it} + \beta_1 RC_{1it} + \beta_2 RC_{2it} + \lambda_k X_{kit} + \mu_{it} \tag{5}$$

Where, ΔPC_{it} is the change of per capita consumption expenditure, $\widehat{W}_{it}$ is predicted wealth, RC_{1it} is the regime change associated with gender of the household head or the Pradhan, RC_{2it} is the regime change associated with the Jati of the Pradhan. X_{ijt} is a vector of exogenous variables that includes the public expenditures on agricultural programs, public expenditures on welfare programs, village untied grants, village level shocks, household level shocks, education of head of the household and household size. u_{it} is the random error.

The unique identifiers for the consumption function are predicted changes in household wealth and regime changes. Change in wealth is predicted by household splits and which identify this equation. The village level regime changes will influence consumption since they affect quality of governance, service delivery, allocations across welfare programs, beneficiary selection etc.

iii) Estimating the Determinants of Identity Based Voting

Change in the magnitude of identity based voting is caused by a number of factors. Significant among these are the cost associated with a given household associating itself with information and social networks based on Jati. Identity based voting will increase if the cost of breaking any or both of these networks for a given household is high. The intensity of social networks is measured as follows[14].

$$CI_{1i} = (9 - SI_i)/9 \tag{6}$$

Where CI_{1i} is a social network index of a given household i and SI_i is the number of the households of the village identified by household i as being socially identical (i.e. those households belonging to same Jati) who can be relied upon for mutual insurance and social

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[14] Each respondent at the time of listing was asked three sets of questions. "identify 3 households in descending order of preference from this village from whom you can borrow money during times of a family medical emergency", identify 3 households from whom you can borrow vegetables in case you need them for cooking" and, identify 3 households who you wish to be your immediate neighbor". The index is constructed using 9 possible responses from each household.

support. If the CI_{1i} takes on value 1 then it is implied that the household i will rely on households that belong to own Jati only for that mutual insurance and ethnic coherence.

A second cost index (the information network) for the household is also identified. The strength of the information is measured as follows[15].

$$CI_{2i} = (34 - SJ_i)/34 \qquad (7)$$

Where CI_{2i} is the information network index and SJ_i is the number of households of the same Jati that can be relied upon to provide information on a range of issues such as healthcare, education, conflicts etc. If SJ_i takes on value 1, then it implies that the source of information for household i is originating entirely from a network based on its own Jati. Both CI_{1i} and CI_{2i} are measures of costs which would arise if a person were to choose not to use identity based voting. They uniquely identify changes in identity based voting. A weaker identifier is the numerical size of the household's own Jati within the village. We estimate change in identity based voting as follows:

$$\Delta IBV_{it} = a_0 + b_1 CI_{1it} + b_2 CI_{2it} + c_l S_{lit} + \varepsilon_{it} \qquad (8)$$

where, ΔIBV_{it} is change in the number of household who engage in identity based voting during local elections, CI_{1it} is the social network and CI_{2it} is the information network., S_{lit} is the vector of all the other explanatory variables such as proportion of members of household participating in welfare programs, proportion of households belonging to own Jati in the village who voted based on identity, proportion of households belonging to majority Jati who voted based on identity, numerical size of own Jati in the village and of the majority Jati.

The estimation of determinants of magnitude of identity based voting at the household level can reveal the role of social networks. Membership in such networks provides positive externalities to households and individual household members. The costs to a household member (or household) of not voting based identity are similar to the losses if that member (or household) chose to not be a member of this social network (such as loss of mutual insurance, etc). If households are least diversified in terms of source of information then

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[15] A total of 34 items (this includes in formation on health, education, employment, welfare programs, credit, marketing channels, prices, extension, social issues, and local and national politics) were identified on which a household member will seek information. Such information can come from members of own Jati within the village or any other household at random.

breaking with the network is "costly". Hence a household (or a household member) belonging to a specific Jati that relies exclusively on other households (or household members) belonging to the same Jati for mutual insurance, and information, is most likely to vote based on identity.

iv) Estimating Participation in Welfare Programs

Change in number of welfare programs participated is estimated as: .

$$\Delta WP_{it} = \pi_0 + \varpi_1 I_{it} + \gamma_m D_{mit} + \vartheta_{it} \tag{9}$$

where, ΔWP_{it} is change in number of welfare programs participated in by the households, I_{it} the proportion of households members that voted based on identity during local elections, D_{mit} thus is a vector of variables that includes, identity based voting interacted with poverty status, growth in agricultural programs, growth in public goods, growth in untied resources and growth in general welfare programs.

The unique identifier for this equation is the change in the number of welfare programs in the village. The proportion of households in the village where pooling of the decision to vote based on identity exists affects both individual program participation both directly as well as through the incidence of growth in various types of welfare programs. Evidence suggests that households are increasingly opting to vote strategically during local elections. Since the election of a village official who's Jati is congruent to that of the household is likely to generate significant increases in welfare of that household, it is quite logical to think that members of any given household would then "agree with other members of that household" to vote based on identity.

IV   Results and Discussion

The maintained hypothesis, empirical formulation and the data allows us to use unique identifiers such as a) local governance, b) social and information networks and c) the change in programs available in the villages to make robust and consistent predictions. Since the design of decentralization and devolution allows the elected representatives an undue leeway in allocation of funds and programs across households, it is important to examine whether certain forms of regime changes have impacted growth. The Indian villages are socially stratified along Jatis. The networks that various households belong to are often "inherited"

that is, the preference of any given household for choosing membership in village level social or information network is not fully endogenous to that household. Such networks can impose significant externalities on households where certain forms of behavior such as voting are concerned. We examine the role of this identifier on program participation, voting, and, ultimately on welfare (consumption growth). In the paragraphs below we discuss the results.

The Hansen-Sargan tests show that the system is not over identified. We are able to conclude that the joint estimation provides a more efficient estimate of consumption growth as well as identify significant pathologies that inhibit drivers of consumption growth.

Regime changes at the village level will affect per capita consumption growth[16]. Since the structure of devolution is such that the powers of incurring expenditures as well as other decisions related to household welfare are now vested with or heavily influenced by elected representatives (particularly with the Pradhan), any given regime now has powers to discriminate among beneficiaries. Therefore it is important to condition consumption on the type of the elected regime. It has significant implications for policies germane to reservations (gender or caste)

Four types of regime changes are identified. If the Jati of the elected representative is congruent to a household's own Jati then it is more likely to increase the per capita consumption growth of this household. Joint estimation of consumption with identity based voting and program participation yield several revealing results related to the role of regime changes. We also notice that the effect of regime change (in particular Jati based change) brings about sharper changes in consumption growth. If there is an "adverse" regime change (i.e., the Pradhan in the current period is of a different Jati compared to that of the household) then consumption growth declines by as much as 31%, and this is not symmetric to a favorable change in the regime where the Jati of the Pradhan and the household become congruent. If a male Pradhan is elected in the current Panchayat period given that in the previous Period a female was the Pradhan, the effect on consumption is significantly negative but not as large as a when regime change is based on Jati.

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[16] Since household splits will have significant effects on changes in the household's welfare we identify the consumption function by changes in wealth which, itself, is predicted by household splits. Thus, estimating change in consumption function without controlling for predicted change in wealth will lead to improper identification.(Both the results and the methodology are consistent with Foster and Rosenzweig (2004))

We find that the impacts of wealth and changes to household size on consumption are large and significant. The changes in household size (in particular increases) will have a negative effect on consumption if in particular participation in welfare program is limited by problems of access, and other pathologies. It is also apparent that joint estimation brings out the importance of untied village resources to household consumption in an efficient manner. We find for example that access by the village to such untied funds is a significant source of insurance for households compared to comparable access to other types of programs.

The role of membership in networks is made clear in this system of equations. Jati based social networks seem to provide significantly greater externalities to households compared to information networks based on Jati. Foster and Rosenzweig (2008) prove that breaking with social networks creates a significant disincentive in terms of loss of mutual insurance and other social benefits. Our results validate their theory. Deininger, Jin and Nagarajan (2011) have shown that Gram Sabhas are increasingly performing the role of providers of information to households. Our results indicate that the cost associated with breaking an information network is lesser compared to those associated with breaking social networks (8% compares to 35%). Even if households break with their information networks the cost of doing so will be less.

Another interesting insight into the determinants of identity based voting is that it is driven by the knowledge of what the other Jati is doing. If the majority Jati increasingly votes based on identity or even if its proportion is large, then member of the minority Jati are increasingly likely to vote based on identity. In fact it is 48% more likely that a member of the minority Jati will vote based on identity given this knowledge compared to increases in identity based voting in one's own Jati. This suggests that here are significant peer effects in operation at the time of local elections and one can posit that local elections are competitive mechanisms to access resources, and welfare programs. We also find that it is not the magnitude of Jati that matters instead the voting patterns of the various Jatis are paramount.

The estimation of determinants of program participation provides us with several insights. First, identity based voting by the poor enables them significantly greater access to welfare programs. This magnitude increases over time. One of most important findings is that pooling of voting decisions within a village (rather than the household) will significantly increase program participation. Such pooling is a significant externality for households. Such behavior

affects program participation by different household groups in various magnitudes. It increases program participation by 9% overall but the magnitude of increases for the poor is 39% and is an increase of nearly 45.5 across the Panchayat periods (i.e., over time). Identity based voting along with a concomitant growth in different types of welfare programs as well as untied funds to the village leads to increases in participation in welfare programs. Growth in untied resources accompanied by identity based voting leads to a 4% in crease in participation in welfare programs. This is indicative of the pathologies in accessing welfare programs and funds by households since we notice that a growth in untied funds in itself is not leading to growth in participation

Table 6 here

Identity based voting produces welfare effects in terms of growth in consumption of varying magnitudes to different groups of households. We document these outcomes in table 7. Regime changes produce significant changes to consumption growth. We do not wish to hypothesize here that regime changes are in any way congruent to improved quality of governance for that is not the point of this paper. There is some evidence though that certain indicators of governance indeed improve (Deininger, Jin, Nagarajan, 2011) but the effects of such improvements are not uniform across all socio-economic segments of the village. Consistent with that finding we find that the ultra poor and the poor have significant increases to their respective consumption (table 7). When we explicitly allow for program participation, we find that the consumption growth for the ultra poor and the poor households increase but the rate of increase for the ultra poor is modest (18%). The rate of increase in consumption growth for the poor households is even more modest than for the ultra-poor, viz., 11%. This perhaps indicates that there is still a missing dimension to welfare maximization. When we condition consumption growth on indicators of governance as well as jointly estimate it with program participation and identity based voting we find that the consumption growth figures for the ultra poor and poor households increase by 42% and 37% respectively. The results also indicate that identity based voting is actually a welfare retardant for the affluent. On the other hand, the non poor also participate in welfare programs and benefit by identity based voting.

Table 7 here

V   Conclusions

How do we interpret identity based voting in terms of its impact on aggregate welfare? We know that the system of decentralization in India is significantly flawed by its failure to transfer funds, and functionaries to the local governments. Instead, local politicians, and elected officials alike are confronted with a plethora of programs managed at higher levels because of which they have significant influence over the distribution of benefits. The complexity of and multiplicity of the rules associated with these programs create information asymmetries and the elected officials have an information advantage over both the Gram sabha and households alike. Such a system invites elite capture by the elected officials and other socio economic groups.

In this paper we have seen that households and citizens use identity based voting as a second best solution to overcome the pathologies associated with the system. Identity based voting in itself is not desirable. The results show that identity based voting enables households to participate in number programs and achieve higher consumption. The benefits are particularly large for the ultra poor and the poor although the better off also gain from such behavior. Such a situation is not an unmixed blessing because competition between the weaker groups could lead to a significant erosion of the benefits whenever a candidate from a competing Jati wins. The net consumption gain for the poor therefore cannot be identified from this paper.

The paper has shown that identity based voting has a significant impact on program participation by households. Ethnic identification takes place at the time of elections, and this improves chances of participating in welfare (in all types of welfare programs) programs administered through the local elected governments. The point to note in this paper is that even though the affluent groups gain, both poor and the ultra poor would have been worse off had they not engaged in such voting behavior.

Voting alike within households is beneficial. That is the basis for voting is increasingly becoming identical. Such behavior is logical considering that voting during local elections and expectation of economic gains are coterminous. Identity based voting by any given household (as well as a specific voter) is driven by peer effects. Since the numerical size of the Jati matters, in determining economic well being, households that do not belong to the

numerically large Jati will increasingly engage in identity based voting if households belonging to the numerically superior Jati increasingly vote based on identity.

Joint estimation is justified since much of the determinants of consumption have indirect effects. That is, significant indirect effects exist and ignoring them while estimating welfare growth will produce inefficient results. The joint estimation provides with consistent, efficient and robust estimates of consumption and its growth.

Such behavior as observed in here, points to the significant shortcomings of devolution of powers as mandated by the Constitutional Amendment. It suggests that the propensity to capture programs and gerrymander the mandates by the local governments is quite high. As long as policy does not identify households as beneficiaries and instead focuses on economic, social, or ethnic groups, such behavior will persist.

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Table 1: Sample, village and household characteristics: 1999-2006[17]

Variables	2006	1999
Sample Characteristics		
Number of states	17	17
Number of Districts	104	104
Number of Blocks	163	163
Number of villages	241	241
Number of households	5,885	5,885
Average number households in all villages	700.50	622.9
Village Characteristics		
Indicators of Infrastructure (km.)		
Average distance from Bus Stand (km.)	3.83	5.94
Average distance from School (km.)	1.95	1.64
Average distance from Pucca road (km.)	2.395	3.39
Average distance from Post office (km.)	2.37	3.915
Average distance from Railway station (km.)	25.14	27.015
Welfare indicators		
Average number of Public taps in a village	3.441	3.101
Average number of Drinking wells in a village	2.508	2.550
Average number of Street lights in a village	3.601	3.025
Average number of Public toilets in a village	0.668	0.399
Development Indicators		
Average number of households with brick houses	254.04	223
Average number of households with huts	53.71	55.71
Average number of households with mud houses	127.705	132.09
Average number of households with multi storey houses	59.84	37.17
Proportion of houses with electricity connection	0.50	0.46
Proportion of cultivated area irrigated	0.49	0.46
Proportion of Area irrigated by govt. Canal	0.17	0.16
Village Harvest Wage (Rs.)	68.585	38.045
Land Gini	0.553	0.562
Consumption Gini	0.225	0.191
Household Characteristics		
Household Size	5.7	6.14
Age of head	52.17	52.56
No. of Earners	1.63	1.7
Year of Schooling	6.38	4.9
Land owned	3.19	3.90
Irrigated land (in acres)	1.89	2.12
Un irrigated land (in acres)	1.30	1.78
Per capita consumption (Rs)	6568.28	5857.37
Poverty (Head Count)	24.98	30.60
Ultra-Poor: $pce < \frac{1}{2}(pl)$	3.41	1.5
Poor: $\frac{1}{2}(pl) < pce < pl$	21.57	29.1
Non-Poor: $pl < pce < 2(pl)$	52.45	50.9
Affluent: $pce > 2(pl)$	22.57	18.5

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[17] Source: Listing sheet, village and Household Schedules for 1999 and 2006 surveys

Table 2: Profile of elected representatives in current and previous Panchayats[18]

Elected local representative's Characteristics	Unreserved		Reserved for Women		Caste based reservation	
	Current Panchayat	Previous Panchayat	Current Panchayat	Previous Panchayat	Current Panchayat	Previous Panchayat
Sex						
Male	88.34	87.67	-	-	81.82	88.05
Female	11.66	12.33	-	-	18.18	11.95
Education						
Illiterate	9.68	7.37	38.41	35.00	17.22	20.63
Primary School	33.58	39.17	41.59	37.78	45.85	42.50
Secondary School	37.83	41.01	16.81	20.00	29.25	25.63
Higher	18.91	12.44	3.19	7.22	7.68	10.63
Religion						
Hindu	81.82	80.18	98.34	89.56	93.45	95.00
Muslim	7.33	7.37	0.41	5.49	5.66	1.25
Other(Sikh + Christian + Jain)	10.85	12.45	1.25	4.95	0.89	3.75
Caste						
SC/ST	11.66	11.11	33.03	32.60	-	-
OBC	37.07	43.06	46.68	46.41	-	-
OC	51.27	45.83	20.29	20.99	-	-
Within the village support received from						
Caste	84.02	82.92	88.57	85.16	86.25	82.24
Religion	33.33	25.23	16.38	20.88	30.04	28.13
Wealthy person	52.05	43.69	38.86	42.31	39.04	43.75
Identity (either caste or religion)	89.23	84.93	92.57	87.36	88.75	87.06
Outside support was received from						
Caste	31.05	28.00	35.16	30.48	33.13	32.02
Religion	10.50	9.38	5.49	6.67	14.04	10.63
Political party	51.14	44.77	48.35	36.76	45.63	35.09
Identity (either caste or religion)	34.70	30.77	37.36	33.14	35.63	33.33
Land owned						
Landless	38.36	32.07	30.27	37.36	32.44	29.38
0-2	36.07	47.52	49.56	40.11	42.36	48.13
2-4	15.98	9.04	9.03	11.54	8.26	8.75
4-10	7.31	8.75	7.96	7.69	13.64	11.88
>10	2.28	2.62	3.19	3.30	3.31	1.88

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[18] Source: Village Schedule

Table 3: Basis of voting by households in different levels of elections[19]

Major Basis for vote	Current Panchayat				Previous Panchayat			
	Ward Member	Gram Pradhan	MLA	MP	Ward Member	Gram Pradhan	MLA	MP
Vote based on identity of the candidate	29.45	36.84	20.09	10.62	23.04	25.6	28.56	22.8
Technical qualifications of the candidate	13.02	15.76	35.34	35.88	13.38	16.39	34.95	35.28
Knowledge of local problems	17.04	16.06	35.01	31.89	26.92	27.28	24.31	21.49
Knowledge of National problems	9.8	9.95	37.68	42.56	9.43	10.36	37.7	42.5
Known for honesty and fairness	12.42	11.91	33.38	42.29	22.33	23.01	27.88	26.77

Table 4: Magnitude of identity based voting in households

Identity based voting		
	Current Panchayat Period	Previous Panchayat Period
Total Households	5885	5885
Total number of members of voting age	19603	17774
Identity based Voting[20]		
Prop. Of households where all members have voted based on identity (in local elections)	64.05	60.95
Prop. Of households where all members have voted based on identity (in all elections)	57.31	55.06
Prop. Of households where all members have voted based on identity (Assembly and Parliamentary election)	44.31	43.37

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[19] Source: household schedule

[20] If a household voted based on castes or religion then it is counted as 1 else 0.

Table 5: Do marginal groups increasingly vote based on identity in the Ward and Panchayat (Pradhan) elections?[21]

Jati	State[22]	Caste group	% of village popu-lation	% of below poverty line	Within group land inequality	% change in votes based on identity			
						Ward	Pradhan	MLA	MP
Velama	AP	OBC	2.71	75.00	0.24	8.82	11.76	-0.73	-0.80
Kamma	AP	OC	1.97	14.29	0.16	0.00	3.70	-0.31	0.00
Ahir	MP	OBC	4.78	37.93	0.84	1.67	6.05	-1.41	-9.23
Kshatriya	MP	OC	2.67	7.41	0.76	18.94	7.96	-13.10	-9.46
Gond	MP	SC/ST	2.21	47.76	0.74	18.74	8.13	-9.30	-22.62
Nai	MP	OBC	1.58	54.17	0.72	1.17	4.07	-3.85	-0.85
Gounder	Kerala	OC	2.06	18.52	0.13	9.85	1.46	-0.32	-9.85
Idiga	KA	OBC	3.24	41.46	0.29	0.00	1.36	-1.30	0.00
Muslim	KA	OBC	1.5	15.79	0.34	15.23	6.59	4.13	-2.45
Teli	MH	OBC	6.14	18.63	0.44	0.00	0.00	-6.01	-12.52
Mana	MH	SC/ST	2.41	32.5	0.52	7.38	4.50	-2.77	-13.33
Gavali	MH	OBC	2.23	64.86	0.39	0.00	1.66	-2.78	-2.78
Ahir	GUJ	OBC	3.73	37.65	0.19	5.64	1.66	-3.87	-11.56
Chamar	RJ	SC/ST	10.5	43.82	0.5	2.77	1.20	0.61	-3.65
Kumhar	RJ	OBC	3.66	38.71	0.56	12.14	2.44	-10.25	-1.70
Suthar	RJ	OBC	1.85	51.06	0.65	17.42	10.00	-11.83	-17.05
Chamar	HAR	SC/ST	7.26	22.92	0.63	5.62	0.27	-1.08	-2.22
Kumhar	HAR	OBC	2.49	36.36	0.6	15.00	5.91	-2.36	-14.36
Mali	HAR	OBC	2.34	48.39	0.66	22.00	13.42	-19.91	-1.76
Raisikh	Punjab	OBC	6.83	32.89	0.67	5.00	1.54	-4.87	-15.19
Ahir	UP	OBC	12.83	43.23	0.57	5.23	6.53	-0.35	-0.19
Rajput	UP	OC	6.64	37.16	0.72	2.30	10.73	-2.37	-7.21
Jat	UP	OBC	2.77	9.89	0.49	0.09	2.47	-6.21	-6.05
Pasi	UP	SC/ST	1.43	70.21	0.68	20.11	30.21	-7.18	-0.14
Kulhaiya	Bihar	OBC	8.1	75	0.57	6.38	4.86	-1.22	-6.42
Chamar	WB	SC/ST	1.94	48	0.39	0.65	1.20	-1.77	-2.01
Teli	Orissa	OBC	2.13	25	0.52	6.30	6.30	-1.96	-3.04
Bauri	Orissa	SC/ST	1.45	94.74	0.62	0.00	7.69	-7.14	-7.14
Nadar	TN	OBC	6.48	26.42	0.22	3.93	1.57	-3.61	-5.71
Mudaliyar	TN	OBC	3.79	9.68	0.5	9.18	9.18	6.96	6.33
Krishnanvagai	TN	OBC	2.93	45.83	0.23	15.56	22.35	0.35	-9.52

Table 6: Change in per capita consumption with identity based voting (Model 3)

Variable	Coefficient	t-ratio
Change in per capita consumption		
Predicted change in wealth	0.219***	7.38
Change in public expenditures on agricultural program(A)	0.007***	3.50
Change in public expenditures on public goods(B)	0.0004	0.20
Change in village untied expenses (C)	0.023**	1.90
Change in public expenditures on welfare program	0.004**	2.00
Regime change1 (change in female Pradhan to male Pradhan)	-0.014***	-3.23
Regime change2 (change in male Pradhan to female Pradhan)	0.004	0.25
Regime change3 (change in own Jati to other Jati)	-0.312***	-2.94
Regime change4 (change in other Jati to own Jati)	0.163**	1.94
Number of village level shocks between 1999 and 2006	-0.001	-0.50
Change in number of household level shocks	-0.140**	-2.37
Change in number of household shocks*(A)	0.023**	1.94
Change in number of household shocks*(B)	0.005***	2.23
Change in number of household shocks*(C)	0.098***	8.33
Change in household size	-0.414***	-7.64
Change in years of education	0.351***	4.23
Constant	-0.046***	-4.18
Change in identity based voting		
Change in number of village welfare programs	0.115***	1.98
Cost index1 (social network)	0.379**	1.96
Cost index2 (information network)	0.081*	1.90
Change in prop. Of own Jati who voted based identity	0.086***	8.00
Change in prop. Of majority Jati who voted based identity	0.483***	11.00
Size of own Jati	-0.0001	-1.00
Size of majority Jati	0.0003*	1.70
Constant	0.306***	4.86
Change in participation in welfare programs		
Change in prop. Of household who voted based identity(pooling)[23]	0.098***	4.00
Growth in Untied Resources	0.012	0.14
Poor (2006)	0.010***	1.99
Poor (1999)	0.018**	1.94
Growth in Public Goods	0.001*	1.84
Poor (2006)* Prop. Of household who voted based identity	0.392***	10.00
Poor (1999)* Prop. Of household who voted based identity	0.221***	5.00
Growth in agricultural program* Change in prop. of household who voted based identity	0.026***	2.36
Growth in public goods* Change in prop. of household who voted based identity	0.034***	3.40
Growth in untied resources * Change in prop. of household who voted based identity	0.036***	4.00
Growth in welfare program* Change in prop. of household who voted based identity	0.017*	1.70
Growth in number of village programs	0.022**	2.20
Constant	0.061***	7.63
Hansen-Sargan over identification test (chi2)	5734.18***	
Number of observations	5885	

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[23] Growth in the proportion of households where all members have voted based on identity

Table 7: Rate of growth of Program Participation and Consumption with & without identity based voting

Household Categories	Actual growth rate of Program Participation (%)	Predicted Growth rate of Program Participation (%)		Actual consumption growth rate (%)	Predicted consumption growth rate (%)		
		without identity based voting	with Identity based voting (with household pooling)		without Identity based voting	without Identity based voting and with program participation	with Identity based voting and program participation (with household pooling)
Ultra-poor	9.08	15.48	22.44	2.01	5.19	6.06	8.65
Poor	15.57	14.87	16.62	4.66	6.40	7.15	9.81
Non-poor	12.04	9.87	8.92	6.13	6.79	6.29	6.24
Affluent				19.83	17.53	16.70	16.33

Appendix 1

Variables in Regression

Variables	Description
Wealth	Wealth includes total wealth with household as identified at 1999 plus wealth accumulated during the 1999 and 2006. Total wealth of household includes value of inherited wealth, land, live stocks, household properties, precious stones and metals.
Predicted Wealth	In order to estimate changes to household welfare (as measured by the change in per capita expenditure) it is important to control for all factors that affects such changes, one in particular that's need to be control for that household split. We use predicted value of change in wealth as a proxy for predicted household's splits.
Per capita consumption	Per member consumption expenditure (food and non-food) is measured at 1999 prices (deflator is adjusted using the actual month of the survey conducted)
Dummy for Poverty	If the per capita consumption expenditure is less that defined by the poverty line (state level poverty line) then the dummy takes the value 1 else 0.
Dummy for Ultra-Poor	If the per capita consumption expenditure is less than ½ of poverty line (state level poverty line) then the dummy takes the value 1 else 0.
Dummy for Poor	If the per capita consumption expenditure is greater than ½ of poverty line (state level poverty line) and less than poverty line (state level poverty line) then the dummy takes the value 1 else 0.
Dummy for Non-Poor	If the per capita consumption expenditure is greater than poverty line (state level poverty line) and less than 2 times of poverty line (state level poverty line) then the dummy takes the value 1 else 0.
Dummy for Affluent	If the per capita consumption expenditure is greater than 2 times of poverty line (state level poverty line) then the dummy takes the value 1 else 0.
Public expenditures on Agricultural programs	All agricultural programs that comes to the village. These include expenditures on irrigation, electrification, credit & input subsidies, and watershed development programs under DRAP and DDP etc.
Public expenditures on Public goods	All public good financing that comes to village. These include expenditures on drinking water, sanitation & sewage, roads & transportation, schools & education, health facilities, Pradhan Mantri Grameen Sadak Yojana (PMGY) etc.
Public expenses on welfare programs	All public goods ton welfare programs. These include expenses on access to local government schemes, employment schemes of food for work, social issues & ceremonies, Below Poverty Line (BPL) programs, Indira Awas Yojana (IAY), Samagra Awas Yojana, Annapurna, Mid day meal etc
Village untied resources	All revenue from grants and taxes these include revenue from state finance commission, land tax, water usage tax, stamp papers and other local taxes
Regime change1	If through the electoral process a woman is elected as the Pradhan given that a male occupied this position previously (also if this elected position is now reserved for a woman during a current period) the dummy takes a value 1 otherwise it takes 0. Similarly if changes in elected position is from woman to male then the dummy takes value -1 else 0 (no change is 0).
Regime change2	If the Jati of the elected representative is same as that of sample household while it was different in previous Panchayat period, then the dummy takes the value 1. Similarly the Jati of the elected representative becomes different from that of the sample households while being the same in the previous to previous to previous Panchayat then the dummy takes the value -1 otherwise 0.
Village level shocks	Total number of adverse shocks that is village wide shocks in nature that occurred in previous two Panchayat periods (10 years). These include droughts, cyclonic storms, floods, crop losses due to paste attacks and health events such as epidemics.
Household level shocks	Total number of adverse shocks that affected specifically the households during the previous two Panchayat periods (10 years). These include loss of earning members, thefts, rubbery, crop failures, debts and loss of irrigation sources.
Participation in welfare programs	Proportion of the households' members participating in any one of the welfare programs administers by the state and the central government
Identity based voting	Proportion of the household members that have voted based on identity during the local elections (Identity is defined as Jati and the religion of the candidate)
Cost index	The cost of not voting based on identity is measured into two ways. We posit that if both social and information networks are based on the households own Jati then the cost of breaking such networks are high (Munshi and Rosenzweig, 2008). This then implies that both members as well as entire households which such voter will increasingly participate in vote based on identity. That is voting based identity is increasingly a collective decision.
Own Jati	If the Jati of the sample household is the same as Jati of elected representative then the value takes on 1 else 0.
Majority Jati	The numerical size of any given Jati in the village matter. If it is measured in the context of the similarity between that groups of Jati and that of elected representative. The dummy for majority Jati is interactive in nature and takes a value 1 iff the preceding is true.

Table A: Determinants of Identity Based Voting[24]

Explanatory Variables	Model 1 (All household characteristics)	Model 2 (Voting Factors)	Model 3 (Religion Factors)	Model 4 (Persistence)	Model 5 (Consumption Classes)
Dependent Variable: Whether individual voted based on identity in any elections					
Household Size	-0.005 (0.004)	-0.003 (0.002)	-0.005 (0.003)	-0.004 (0.003)	-0.006 (0.034)
Square of Household Size	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)	0.0002 (0.0002)
Land Owned	0.005*** (0.002)	0.003*** (0.002)	0.005*** (0.002)	0.005*** (0.002)	0.005*** (0.002)
Square of Land Owned	-0.00004 (0.00003)	-0.00002*** (0.00003)	-0.00004 (0.00003)	-0.00004 (0.00003)	-0.00004 (0.00003)
Age	0.006*** (0.001)	0.004*** (0.001)	0.006*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
Square of Age	-0.0001*** (0.00001)	-0.00004*** (0.00001)	-0.0001*** (0.00001)	-0.00004*** (0.00001)	-0.0001*** (0.00001)
Education	-0.004 (0.002)	-0.002 (0.002)	-0.004 (0.002)	-0.001 (0.002)	-0.007*** (0.003)
Square of Education	0.0003*** (0.0001)	0.0002** (0.0001)	0.0003*** (0.0001)	0.0002** (0.0001)	0.0003*** (0.0001)
Age*Education	0.0001* (0.00004)	0.00005 (0.00003)	0.0001* (0.00004)	0.00003 (0.00004)	0.0001*** (0.00004)
Gender (male=1, female=0)	-0.002 (0.013)	-0.002 (0.011)	-0.002 (0.012)	-0.004 (0.012)	0.004 (0.013)
Age*Gender	0.001*** (0.0003)	0.001*** (0.0003)	0.001*** (0.0003)	0.001*** (0.0003)	0.001*** (0.0003)
Whether household member married	0.024*** (0.007)	0.016*** (0.006)	0.023*** (0.007)	0.016** (0.007)	0.026*** (0.008)
Voted for Pradhan		0.120*** (0.009)	-	-	-
Voted for Ward Member		0.107*** (0.008)	-	-	-
Voted for MLA		0.083*** (0.006)	-	-	-
Muslim			0.069*** (0.012)	-	-
Other Religion (Sikh, Jain & etc.)			0.195*** (0.046)	-	-
Voted based on identity previously				0.134*** (0.007)	-
Lower Consumption Class					0.013** (0.007)
Middle Consumption Class					-0.019** (0.008)
LR chi2(15)	605.05***	2379.74***	613.03***	1737.53***	612.01***
Haussmann test	194.16***	116.71***	122.33***	197.59***	190.81***
Observations	74784	74784	74784	74784	74784

[24] Source: The data is from the listing sheet of the NCAER ARIS/REDS data sets.

<u>**Appendix 2**</u>

When we estimate consumption growth conditioned only on variables related to local governance, we find the following. There is a 9% decline in consumption growth if the Jati of the elected representative is different from that of the household. However of the Jati of the elected representative is the same as that of the household there is a 4% increase in consumption growth. Gender based regime changes bring about similar outcomes. The regression results suggest that there less likelihood of discrimination by female elected representatives. Consumption growth declines by 8.5% if the regime change is such that a male is elected in the place of a female in the current Panchayat period.

Households are not insured against own shocks. However insurance takes place through access to certain welfare programs. For example when own shocks are interacted with public expenditures on agricultural programs then there is a significant positive effect on consumption growth. This suggests that fostering agricultural productivity perhaps affects labor markets within villages leading to increased employment and mutual insurance. However, similar interactions of own shocks with either expenditures on public goods or village untied grants do not produce these effects even though; by themselves they create positive effects on consumption growth. We posit that such a result is caused by access to such programs being stratified due to the mechanism of their administration being not well clarified. Other variables in the regressions have the expected sign.

Table A2.1: Estimation of Change in Wealth

Variable	Coefficient	t-ratio
Change in wealth		
Age of household head in 1999	-0.007***	-3.50
Change in mean of households' education	0.089**	1.82
Change in variance of households' education	0.044**	1.91
Change in maximum of households' education	0.079	1.34
Number of male child in 1999 (<15 years)	0.038	0.81
Number of female child in 1999 (<15 years)	-0.112***	-2.49
Number of male child in 2006 (<15 years)	0.062***	2.82
Number of female child in 2006 (<15 years)	0.031	1.35
Inherited wealth in 1999	-0.281***	-35.13
Dummy for co-resident father of household head in 2006	0.405***	2.66
Dummy for co-resident brother of household head in 2006	0.351***	3.25
Dummy for co-resident sister of household head in 2006	-0.385**	-1.98
Dummy for co-resident father of household head in 1999	-0.216	-1.51
Dummy for co-resident brother of household head in 1999	-0.536***	-5.36
Dummy for co-resident sister of household head in 1999	-0.301**	-1.95
Constant	3.931***	33.03
F-statistic	103.58***	
Number of Observations	5885	

Table A2.2: Change in per capita consumption (Model 1)

Variable	Coefficient	t-ratio
Change in per capita consumption		
Predicted change in wealth	0.002***	7.20
Change in public expenditures on agricultural program(A)	0.006***	3.00
Change in public expenditures on public goods(B)	0.005***	2.50
Change in village untied expenses(C)	0.003	1.50
Change in public expenditures on welfare program	0.003	1.50
Regime change1 (change in female Pradhan to male Pradhan)	-0.086***	-4.53
Regime change2 (change in male Pradhan to female Pradhan)	0.020	1.11
Regime change3 (change in own Jati to other Jati)	-0.091***	-2.66
Regime change4 (change in other Jati to own Jati)	0.044*	1.69
Number of village level shocks between 1999 and 2006	-0.002	-1.00
Change in number of household level shocks	-0.222***	-3.22
Change in years of education	0.054***	7.71
Change in number of Household shocks*(A)	0.082**	1.94
Change in number of Household shocks *(B)	0.001	0.15
Change in number of Household shocks *(C)	0.0005	0.23
Change in household size	-0.356***	-23.73
Constant	0.063***	2.86
F-test	134.61***	
Number of observations	5885	

Appendix 3

When consumption growth is jointly estimated with program participation the efficiency of estimates improve. Program participation is conditioned on the poverty status of households, village level welfare programs, as well as the growth in the number of programs. We find that doing so makes the impact of regime change (both gender and Jati based) on consumption growth stronger. For example an unfavorable regime change in terms of a member of different Jati becoming the Pradhan leads to a 19% decline in the consumption growth. Such a finding is consistent with the evidence from literature where it has been consistently pointed out that an increase in the number of programs does not lead to automatic increases in household welfare. One of the pathologies with the devolution and decentralization experience in India in fact is that program access is dependent to a significant extent on issues related to identity and congruence of identities. The following results are pertinent. If households are able to access the untied resources available at the village level then they are able to insure against household level shocks. In fact, the efficiency of insurance is greater compared when compared with access to any other program. Increases in both the number of programs as well as untied funds bring about greater participation in welfare programs by households. The results are in table A3

Table A3: Change in per capita consumption with program participation (Model 2)

Variable	Coefficient	t-ratio
Change in per capital consumption		
Predicted change in wealth	0.005***	2.5
Change in public expenditures on agricultural program(A)	0.007***	3.96
Change in public expenditures on public goods(B)	0.0001	0.07
Change in village untied expenses (C)	0.004	1.21
Change in public expenditures on welfare program	0.004**	2.24
Regime change1 (change in female Pradhan to male Pradhan)	-0.95***	-4.55
Regime change2 (change in male Pradhan to female Pradhan)	0.005	0.33
Regime change3 (change in own Jati to other Jati)	-0.191***	-2.94
Regime change4 (change in other Jati to own Jati)	0.185***	2.63
Number of village level shocks between 1999 and 2006	-0.001	-0.36
Change in number of household level shocks	-0.148***	-2.51
Change in number of household shocks*(A)	0.002***	1.99
Change in number of household shocks*(B)	0.021	0.79
Change in number of household shocks*(C)	0.094**	1.89
Change in years of education	0.047***	7.39
Change in household size	-0.426***	-8.19
Constant	-0.074***	-6.73
Change in participation in welfare programs		
Poor(2006)	0.038***	2.88
Poor(1999)	0.054***	4.6
Growth in public goods	0.001	0.09
Growth in untied resources	0.021*	1.79
Change in the number of programs	0.012***	2.03
Constant	0.074***	8.13
Hansen-Sargan over identification test (chi2)	279.215***	
Number of observations	5885	