**Perpetuating Poverty through Exclusion from Social Programmes: Lessons from Andhra Pradesh**

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**Abstract**

What factors underlie the exclusion of some poor households from welfare programmes? This article contributes to answering the question through a comparative examination of households’ demographic characteristics, social capital, and communities’ spatial (dis)advantage as determinants of enrolment in three social programmes in Andhra Pradesh. The main findings indicate that traditionally marginalised demographic groups do not experience programme exclusion significantly more than other groups but that households’ social-network capital and communities’ spatial advantage increase households’ programme inclusion. The importance of social capital for programme inclusion vanes, however, in spatially more advantaged communities.

**Key Words**

Social exclusion; demographic characteristics; social capital; spatial advantage; India; Andhra Pradesh

**Introduction**

India has experienced high economic growth in the past quarter century and its rate of monetary poverty declined from 46 per cent in 1994 to 22 per cent in 2012 (RBI, 2014). The country’s improvement on social indicators has been notably slower, however, with only four years of schooling completed on average by females and 38 per cent children younger than five years stunted (NFHS, 2016). An answer to this incongruity lies, at least partially, in the ‘relational’ nature of poverty. Poverty has been traditionally considered a ‘residual’ state of being temporarily left behind by the development process, assumed to eventually bring positive outcomes to all (Bernstein, Crow, and Johnson, 1992, pp. 24-5). The ‘relational’ approach has challenged this notion, however, describing poverty instead as an often-chronic state rooted in historical economic and political relations, a result of social exclusion frequently exacerbated by ‘development’ (e.g. Mosse, 2010). Whilst this view of poverty has become increasingly accepted, studies within the approach have been to date predominantly descriptive, with few investigating the causal processes that produce and reproduce poverty over time (Hickey and du Toit, 2013, p. 1).

The present study contributes to research in this area by examining factors that underlie the exclusion of poor households in southern India (Andhra Pradesh [AP][[1]](#endnote-1)) from social-assistance programmes, one aspect of broader social exclusion. In addition to contributing to poverty literature in general, this study thus engenders specific evidence vis-à-vis the targeting of several Indian public-welfare schemes. The main findings are that demographic characteristics play a smaller role in ensuring household participation in the programmes than social capital and spatial advantage, with social capital losing its significance in spatially more advantaged communities.

The article starts by briefly theorising exclusion from social programmes as an element of social exclusion, discussing its potential determinants with a focus on India and Andhra Pradesh, and formulating hypotheses. Following, I introduce the data and analytical methods used and present summary statistics. The article concludes with the presentation of results and discussion of their relevance for social programmes in India specifically and for the study of poverty more generally.

**Theorising exclusion from social programmes and its links to broader social exclusion**

Research has conventionally defined poverty as a temporary state (the above-mentioned ‘residual’ view) and, analogously, many poverty-reduction strategies have had positive effects mostly on the transitory poor (Mosse, 2010; Shepherd et al., 2014, p. 3). Nevertheless, about one third of the poor globally live in chronic poverty, which lasts from many years to a lifetime, can be passed down generations, and is often a result of persistent social exclusion[[2]](#endnote-2) (UN, 2016; Woolcock, 2005, p. 112). The study of poverty through the lens of social exclusion allows for a broader and more actionable perspective on the phenomenon, as it draws attention to poverty’s structural and causal aspects (Green and Hulme, 2005, p. 873). Further, in contrast with conventional poverty studies focused on purely monetary measures, it acknowledges the multidimensional character of deprivation (Headey, Krause, and Wagner, 2012).

Exclusion or non-participation of the eligible poor in social-assistance programmes, which is the focus of the present study, is an important facet of broader social exclusion (e.g. Hickey and du Toit, 2013; Rosengber, Andersson, and Acuna, 2004). The United Nations (UN, 2016, p. 18) have defined social exclusion as the inability of individuals ‘to participate fully in economic, social, political, and cultural life’ and identified as its three main symptoms 1. unequal access to resources, 2. unequal participation, and 3. denial of opportunities. Non-participation of poor households in social-assistance programmes encapsulates aspects of all three of these elements, as the exclusion of eligible poor from welfare schemes exacerbates their inequality in both access to resources and participation and constitutes for them a loss of opportunity. Although not a panacea for overcoming chronic poverty, social welfare schemes in developing countries have been frequently shown to help beneficiaries accumulate assets and invest more in children’s education (e.g. Dev and Rao, 2002; Debela and Holden, 2014). The eligible poor who do not participate in available social-assistance programmes thus forego potential opportunities to ‘climb out of’ poverty.

Naturally, some non-participation of those eligible to enrol in welfare programmes could be construed as voluntary and hence not an appropriate indicator of social exclusion. Nevertheless, non-participation in social assistance amongst the entitled poor in developing countries – if those programmes deliver a tangible benefit – happens most frequently ‘in response to experience of hostility and/or discrimination’ (Barry, 1998, p. 2). Consequently, even if the individual decision not to participate is voluntary, the context within which it occurs often renders it a form of social exclusion (ibid).

**Determinants of exclusion from social-assistance programmes**

Existing studies have identified three categories of variables underlying the exclusion of eligible beneficiaries from social-assistance programmes across the globe – demographic characteristics, social capital, and spatial characteristics. The most commonly examined determinant is discrimination on the basis of demographic characteristics including race, ethnicity, gender, class, and their interplay (Hickey and du Toit, 2013, p. 3; World Bank, 2000, p. 17). In Latin America and the Caribbean, race was found to be one of the most important causes of exclusion from social services (Rosengber, Andersson, and Acuna, 2004). Similarly, poverty-reduction strategies in Asian and African countries were discovered to disregard the needs of racial and ethnic minorities and indigenous people (Tomei, 2005).

The second set of factors underpinning exclusion from welfare programmes is described in the language of social capital. The Organisation for Economic Cooperation and Development (OECD, 2001, p. 103) defined social capital as ‘networks together with shared norms, values, and understandings that facilitate co-operation within or amongst groups’. Over time, researchers have come to distinguish between relational and social-network social capital, with the former reflecting people’s feelings about trust, reciprocity, and community-belonging and the latter measuring the interconnectedness of people, often through membership in networks and organisations (Chantarat and Barrett, 2012).

A growing body of literature, focusing predominantly on social-network capital, has portrayed its potential to correct for market failures, primarily in lower-income settings (e.g. Carter and Maluccio, 2002; Chantarat and Barrett, 2012; Fafchamps, 2006; Petrikova and Chadha, 2013). Chantarat and Barrett (2012, p. 299) offered a theoretical proof that social-network capital could complement or even substitute productive assets in helping people access social services and overcome chronic poverty. However, the nature of social-network formation could simultaneously galvanise ‘exclusionary mechanisms that impede[d] some poor households’ exit from poverty’ (ibid, p.1). Empirical studies confirmed the positive effect of social-network capital on inclusion in social programmes in South Africa (Garcia-Jaramillo and Miranti, 2014) whilst also demonstrating its exacerbating effects on the exclusionary nature of race and gender in the United States (McDonald, 2011).

The last prominent set of factors underlying exclusion from social programmes is labelled spatial poverty traps or spatial disadvantage (Hickey and du Toit, 2013). It is argued that spatially disadvantaged areas hinder their inhabitants in their efforts to access public welfare schemes. The reasons why some regions may be at spatial disadvantage are various, ranging from their ‘first-nature’ geographic characteristics, e.g. distance from the coast, to their ‘second-nature geography’ including infrastructure and other man-made endowments (Bird, Higgins, and Harris, 2010). Existing studies empirically demonstrated the importance of infrastructure, geographical position, and communal stability in facilitating inhabitants’ participation in social-assistance programmes in Latin America (Garcia-Jaramillo and Miranti, 2014; Maluccio, 2009).

The main omission from existing literature has been examination of the relative importance and interaction of the three sets of factors – demographic characteristics, social capital, and spatial qualities – in driving exclusion from social-assistance programmes. In a report on the importance of addressing social exclusion to tackle chronic poverty, the UN (2016, p. 25) urged empirical studies to account for demographic and social characteristics along with information about people’s communities and to

‘allow for assessment of the combined effect of these factors [considering]that the risk of exclusion … depends on the combination of … characteristics and that many people belong to more than one disadvantaged [category]’.

This study follows this recommendation, by conducting a systematic analysis of the determinants of exclusion from social-assistance programmes in southern India and their interaction. The next section contextualises the issues of chronic poverty and exclusion from social-assistance programmes as a form of broader social exclusion to India (and specifically Andhra Pradesh) and describes the social programmes examined.

**Indian context**

***Poverty and social exclusion***

As mentioned, India constitutes a suitable context for studying the drivers of social exclusion given that despite high economic growth over the past quarter century, the country has experienced slow improvement in social indicators including some education and health outcomes (e.g. Drèze and Sen, 2013). Whilst according to the national statistics, monetary poverty rate declined to 22 per cent in 2012 (RBI, 2014), the official poverty line had been widely criticised for its inadequate capture of deprivation (Ray and Lancaster, 2005). Set by the Indian Commission in 1974 at a rate to allow for the consumption of 2400 kCal in rural and 2100 kCal in urban areas and subsequentlyadjusted for inflation, by 2000 it allowed for the consumption of fewer than 2000 kCal in most Indian states (Sen, 2005). Correspondingly, multidimensional poverty indices (based on educational, health, and standard-of-living measures) found more than 41 per cent of Indian households to live in poverty (OPHI, 2018; see also Alkire and Seth, 2015).

Andhra Pradesh, where this study is situated, exhibits a similar discrepancy between official economic and social progress. Although the state experienced a growth rate higher than the national average since the 1990s and ‘only’ 9.2 per cent of the population was officially poor in 2011 (RBI, 2014), a multidimensional poverty index put the percentage at 44.5 in the same year (OPHI, 2018). The state’s Human Development Index (HDI) score (based on literacy, longevity, and income data) in 2010 was also quite poor, at 0.485 below those of countries with significantly lower per-capita incomes such as the Democratic Republic of Congo and Pakistan (Suryanarayana, Agrawal, and Prabhu, 2016, p. 162).

This difference between economic growth and social progress can be, both in India generally and in Andhra Pradesh specifically, at least partially attributed to relatively fewer benefits derived from economic growth by socially disadvantaged groups, including via their lack of access to public welfare schemes. Whilst this topic has been thus far comparatively under-researched, existing studies suggest that female-headed households and lowest social classes (scheduled castes and tribes) experienced on average lower poverty reduction than other groups (Ray and Lancaster, 2005). In Andhra Pradesh, the gap between HDI scores of scheduled castes/tribes and other castes deepened between 1990 and 2005, although the marginalisation of lower castes in access to social programmes declined – with ‘only’ 17 per cent of AP communities reporting caste discrimination in access to the Public Distribution System (PDS)[[3]](#endnote-3) (Thorat, 2007, p. 49). Regarding the other two social-exclusion determinants discussed, maternal social capital in Andhra Pradesh was found to improve children’s nutritional outcomes (De Silva and Harpham, 2007) whilst the state’s inland areas experienced overall worse coverage by social programmes and less poverty reduction than coastal regions (Chauhan et al., 2016). The relative importance and interaction of these factors in facilitating or conversely hindering access to social programmes, which can influence one’s likelihood of exiting from chronic poverty, has not been analysed to date, however, and it is here that this article makes a notable contribution.

***Social-assistance programmes examined***

This study examines factors underpinning the access of poor households in Andhra Pradesh to three public welfare schemes – the Public Distribution System, the National Rural Employment Guarantee Scheme (NREGS), and the Rajiv Aarogyasri (RA). These schemes were selected mainly due to their extensive coverage within the state. Nevertheless, the programmes support different aspects of human wellbeing - PDS mainly aims to improve recipients’ food security, NREGS boost recipients’ income and economic security, and RA facilitate recipient’ access to health care - and hence they can, at least in theory, contribute to the reduction of multiple poverty dimensions. The following paragraphs describe the programmes in more detail.

*Public Distribution System*

PDS is India’s largest and longest-standing (since 1947) social-assistance programme, aimed at maintaining sufficient national food production and ensuring households’ access to staple foods, primarily rice and wheat (Petrikova, 2018). In 1997, the national government turned the programme into a targeted pro-poor subsidy, with most benefits formally restricted to people living below the (official) poverty line (BPL)[[4]](#endnote-4). However, some Indian states, including Andhra Pradesh, retained a more inclusive PDS. Unlike the targeted PDS, which was largely found to be ineffective at improving social indicators amongst beneficiaries, not least due to high leakage of the subsidised grains (e.g. Kaushal and Muchomba, 2013), the more inclusive versions of PDS demonstrably improve recipients’ food security (Drèze and Khera, 2013).

How inclusive has been the Andhra PDS? In the 1990s, Andhra authorities distributed BPL cards to 70 per cent of the state’s population despite official estimates of poverty levels of only 20 per cent at the time (Indrakanth, 1997). In 2000, the state government decreed that households with annual incomes of 60,000 Indian rupees (IRS) or less in rural and 75,000 IRS or less in urban areas were eligible to receive BPL cards, which further increased the programme coverage[[5]](#endnote-5). Nevertheless, some poor households were still not included in the programme, due to factors ranging from inability – or unwillingness – to pay bribes occasionally required to obtain BPL cards through poor quality of local fair price shops (FPS) that sell rations to PDS beneficiaries to plain discrimination (Mooij, 2002).

*National Rural Employment Guarantee Scheme*

Established in 2005, NREGS is a national programme that guarantees 100 days of paid manual labour annually to at least one member of any rural household willing to work for the minimum wage (Jha, Gaiha, and Shankar, 2010). The programme reduced poverty amongst participants, by increasing their energy intake and facilitating asset accumulation (Liu and Deininger, 2010). Nevertheless, whilst pro-poor, in some areas the programme included households with relatively higher levels of social capital at the expense of less literate and female-headed households (ibid). Andhra Pradesh implemented a system of social audits of the programme in order to improve its targeting; unfortunately, the audits were not found to have had a significant deterring effect on the programme’s occasionally discriminatory and corrupt practices (Afridi and Iversen, 2014).

*Rajiv Aarogyasri*

Rajiv Aarogyasri (RA)[[6]](#endnote-6) was an Andhra Pradesh initiative aimed at providing free healthcare to people living below the poverty line, instituted in 2008[[7]](#endnote-7). The programme was found to have some positive effects on beneficiaries, notably on lowering their out-of-pocket health expenses and thus boosting their economic wellbeing[[8]](#endnote-8). However, an evaluation of the programme in 2011 found a relatively lower inclusion of scheduled castes and tribes in the scheme (Rao et al., 2012).

***Hypotheses***

As stated, this study examines three groups of possible determinants of exclusion from welfare programmes - demographic characteristics (race/ethnicity/class, gender, and religion), social capital, and communities’ spatial disadvantage – and their interaction. In line with existing theoretical postulations and empirical findings, I expect demographic minorities and traditionally marginalised groups (female-headed households, lower castes) to suffer disproportionately more from programme exclusion than others (Hypothesis 1). Second, I anticipate that households with access to less social-network capital are more likely excluded (Hypothesis 2). Third, I hypothesise that people residing in spatially more disadvantaged communities suffer from more programme exclusion than people in less disadvantaged communities (Hypothesis 3). Finally, I expect that the three sets of factors reinforce each other’s impact. However, the strength of the interactive effects along with the relative influence of the three different factor categories remains a matter of empirical investigation and the main contribution of this article to social-exclusion research.

**Data and methodology**

This study uses data from the Young Lives, an international longitudinal analysis of childhood poverty. The information was gathered in Andhra Pradesh in four rounds – 2002, 2006, 2010, and 2014 – on 2000 children between six and 18 months old (and their households) and 1000 children between seven and eight years old (and their households) in 2002[[9]](#endnote-9). Households were chosen at random, from the pre-specified pool in 100 communities around 20 sentinel sites. The selection of the sites was semi-purposive, with a slight oversampling of poorer sites – however, by 2014 the Young Lives households had slightly better access to services than the state average (Young Lives, 2014).

Thus, whilst not directly representative of the Andhra state, the Young Lives data constitute an appropriate instrument for analysing causal relations related to child-welfare dynamics in Andhra Pradesh specifically and in India more generally over time (ibid, p. 3). The data were not collected purposely for analysing household welfare but there is no reason to expect that the determinants of programme exclusion for households with children of the specified ages in 2002 would differ systematically from those of households with younger or older children at the time. They could possibly differ from those of childless households but only 2.5 per cent Indian households are childless (Ganguly and Unisa, 2010), which significantly reduces the possibility that the results on household social exclusion discovered in this study are not representative of households trends in Andhra Pradesh generally.

***Outcome variables***

The primary variables conceptualising programme inclusion in this study are participation of poor households in PDS, NREGS, and RA – yes/no responses to questions about programme enrolment. As the main classification of ‘poor’, I use AP regulation that households with incomes at or below 60,000 IRS in rural and 75,000 IRS in urban areas are eligible to receive below-poverty-line (BPL) benefits. 74 per cent of households from the sample between 2006 and 2014 fall under this category. Out of those, as Table 1 shows, a large and increasing majority was included in PDS and RA – from 89 per cent in 2006 to 95 per cent in 2014 in PDS and from 88 per cent in 2010 to 89 per cent in 2014 in RA. The enrolment of the poor in NREGS also rose, from 36 per cent in 2006 to 78 per cent in 2014. However, many of those excluded from one programme were excluded also from others – 6 per cent of poor households in 2014 were excluded from at least two of the programmes examined.

I use two other poverty conceptualisations to assess the robustness of results achieved with the main definition of poverty – the official Indian poverty line at the time of data collection (per-capita consumption of 26 IRS a day in rural and 32 in urban areas, at 2006 prices) and a multi-dimensional poverty index (MPI), constructed, following Dercon (2012), on the basis of health, literacy, and consumption measures[[10]](#endnote-10). Over the time observed, on average 38 per cent households surveyed fell below the national poverty line whilst 91 per cent were multi-dimensionally deprived. The participation rates in the welfare schemes amongst the poor as classified along these alternate definitions are similar to those estimated with the main poverty line, however.

To evaluate also the quality/intensity of participation in the welfare programmes, two other dependent variables are included as part of sensitivity analysis: ‘PDS quality’ (a 0-2 variable where 0 means no access to PDS, 1 access with unsatisfactory service, and 2 access with good service) and ‘work through NREGS’ (a binary variable where 1 denotes households in which at least one member actually worked through –rather than was merely enrolled in - NREGS in the past 12 months).

**Table 1. Summary statistics of outcome variables**



BPL = below poverty line, AP = Andhra Pradesh, MPI = multidimensional poverty index

The mean participation rates amongst the poor suggest a high rate of social inclusion in all three programmes by 2014. What about inclusion rates amongst the non-poor? Figure 1 displays the cumulative proportion of participants in the social schemes along the line of rising wealth, with the poorest wealth ventile (1/20th) on the left and the richest on the right. All three programme curves are to the left of the wealth-index-neutral (i.e. neither regressive nor progressive) control line, indicating that they enrolled proportionally more of the poorer than richer households. Nevertheless, PDS and RA did so only marginally, with only NREGS significantly pro-poor targeted[[11]](#endnote-11).

**Figure 1. Targeting of social programmes in Andhra Pradesh in 2014**



*Source:* author’s own work

***Determinants of social exclusion***

 The potential determinants of programme exclusion, whose summary statistics are displayed in Table 2, are divided into demographic variables, social capital, and community indicators. The main demographic variables examined are households’ caste (which partially captures ethnicity/race and partially economic class in the Indian context[[12]](#endnote-12)), religion, and whether a household is female-headed. I further control for mothers’ education level, household size, and household wealth[[13]](#endnote-13). The most frequently represented caste category is ‘other backward castes’ (BC), followed by scheduled castes (SC), upper castes (UC), and scheduled tribes (ST). 90 per cent of respondent households were Hindu, 6 per cent Muslim, and 4 per cent Christian. 8 per cent of the households surveyed were headed by women. The wealth index was constructed using principal component analysis of household data on housing quality, ownership of consumer durables, and access to services[[14]](#endnote-14). In an attempt to control for its potentially simultaneous relationship with participation in social programmes, it is used in regressions lagged by one time-period. The wealth index increased between 2002 and 2010 from 0.38 to 0.46.

**Table 2. Summary statistics of determinant variables**



 In approximating social-network capital, two variables are used. Seeking an appropriate measure, with a view to existing research (e.g. De Silva and Harpham, 2007; Galab, 2006), I conducted exploratory factor analysis of five variables: *1. talking* and *2.* *joining with other people to address communal problems,* *3.* *actively participating in awareness-raising campaigns* and *4. in demonstrations*, and *5.* *voluntary-group membership*. With the exception of group membership, the variables loaded strongly on one latent indicator, thence labelled *communal participation*. *Group membership* is utilised as an alternative measure of social-network capital, due to its frequent use in this capacity by existing studies (e.g. Putnam, 2000).

 Confirmatory factor analysis (CFA) confirmed the existence of the latent communal-participation variable and verified the existence of covariant paths (i.e. correlated standard errors) between the first and second two variables within the measure, which were suspected due to similarity of the questions from which the variables derived (see Figure 2). The communal-participation index was then calculated by summing the multiplied first and second two components. Both communal participation and group membership increased over the time observed but the rise in group membership was much more notable.

**Figure 2. Communal participation as measure of social-network capital – CFA**



Fit statistics: Chi2 = 26.286, p>0.01; CFI = 0.998, RMSEA = 0.014, SRMR = 0.010. Standardised coefficients significant at least at the 10% level are in bold.

*Source*: author’s own graphic

 The community characteristics examined focus on factors that could (dis)advantage communities with regard to their inhabitants’ inclusion in the social schemes – the state’s region, whether a community is rural, its population size, whether it is accessible by a paved road, and whether it has a problem with violence. About four fifths of the communities surveyed were rural[[15]](#endnote-15), with a roughly equal split into the three AP regions – Coastal Andhra, Rayalaseema, and Telangana. Between 2006 and 2014, population in the communities remained relatively stable, the proportion of communities accessible by paved roads increased, and communal problems with violence declined.

***Empirical model***

The basic equation of interest in this study is the following:

$$SI\_{j}^{t}= β\_{0} + β\_{1}DC\_{t}^{j} + β\_{2}SC\_{t}^{j} + β\_{3}SD\_{t}^{j} + ϑ^{j}+ ε\_{t}^{j}$$

where SI stands for social inclusion, operationalised by access to social-assistance programmes, of household j in time t, DC denotes households’ demographic characteristics, SC their social capital, and SD their communities’ spatial (dis)advantage. $ϑ^{j}$ is the time-invariant, household-specific component of the error, while $ε\_{t}^{j}$ is the time-variant part.

 Because the data used are hierarchical, i.e. individual and household-level data nested within different communities and time periods, the main analytical method utilised are multilevel hierarchical models (MLHM), specifically multilevel mixed-effects logistic regressions controlling for time. Multilevel models are used when some units of analysis are clustered, but their variance is not necessarily constant, as is the case here (Gelman and Hill, 2007). These models allow for assessment of determinants of household-level outcomes that are measured on both individual/household and community levels, by explicitly calculating separate household-level and group-level errors (Steenbergen and Jones, 2002). Comparisons of hierarchical models with models with clustered standard errors, another common approach to analysing hierarchical data, showed multilevel models to be a statistically more accurate approach (Cheah, 2009) and their utilisation in this study is further supported by interclass correlation (ICC) levels demonstrating that 10 to 45 per cent of variance in programme-access rates can be attributed to between-community differences (see Table 3).

 To assess the robustness of the main-model results, I conduct several sensitivity checks. First, to ensure that the main results are not overly biased by multicollinearity amongst the three groups of independent variables examined, I estimate the multilevel model of PDS access with each group separately.

 The second robustness test relates to potential endogeneity between households’ social capital and their access to welfare programmes – where not only social capital may influence programme inclusion but programme inclusion could also affect social capital. In the main model, I control for this by lagging the social-capital variables by one period, to ensure correct temporal order. In the sensitivity analysis, however, I also instrument for household group membership and community participation with community-level averages of the variables, as recommended in existing literature (e.g. Goryakin et al., 2013; Fiorillo and Sabatini, 2015)[[16]](#endnote-16). The F-statistics in the first stages of the 2SLS regressions with fixed effects in Table 4 are all statistically significant, confirming that the instruments are not weak and hence do not unduly bias results (e.g. Schmidheiny, 2016: 8).

 To conclude the sensitivity analysis, I test the three different categories of determinants in their effect on the quality/intensity of access to the three social programmes and on inclusion in multiple programmes simultaneously.

**Results**

***Determinants of ex/inclusion in the social programmes***

 Table 3 displays results of the main models examining how the different factors affect enrolment in social programmes amongst Andhra’s poor households (using the three different definitions of poverty described above). Looking at the effects of demographic characteristics, the results provide little support to the first hypothesis, that marginalised demographic groups are more likely to be excluded from social-assistance programmes. Female-headed households have lower inclusion rates in some programmes than male-headed households but the difference is not statistically significant. Households with less wealth and less-educated mothers are actually more likely to access the programmes – with the exception of NREGS in the second sample, where mother’s education raises the probability of enrolment. Scheduled castes and tribes, traditionally the most marginalised Indian social groups, have, interestingly, significantly greater access to PDS and NREGS – but not as much to RA - than upper castes amongst the poor. Poor Muslims are more likely to access PDS but less likely to be enrolled in NREGS than poor Hindus.

 The effects of respondents’ social-network capital align more consistently with the second hypothesis, which conjectured that households with more social capital would be less excluded. Group membership is particularly robustly correlated with access to all three programmes, suggesting that membership in voluntary associations increases the likelihood of social-programme enrolment. Communal participation is mostly positively correlated with access to social programmes as well, but the relationship is significant only for NREGS.

 The results also confirm the expectations about the impact of spatial (dis)advantage on access to social programmes (H3). Particularly living in communities reachable by paved roads positively influences poor households’ access to PDS, NREGS, and even RA under some definitions of poverty. The most likely underlying rationale is the easier access to programmes’ administration centres in better-connected communities. Further on spatial characteristics, the rural poor are more likely to be included in NREGS[[17]](#endnote-17) and RA than the urban poor. Some regional disparities are also apparent, with poor households in Telangana proportionally more excluded from PDS than in other regions. The most surprising results are on the effects of communal violence, which are positive and often significant, indicating that poor households living in more violent communities are on average more likely to participate in the social programmes.

**Table 3. Effects of demographics, social capital, and communal char. on access to welfare programmes**

\*\*\* p <0.01, \*\* p <0.05, \* p <0.10. The number next to each variable is the coefficient, underneath in italics is the corresponding robust standard error. All regressions were controlled for time effects.

 Comparing the results attained across the three programmes, the salient findings vis-à-vis social-network capital (on group membership) and spatial advantage (paved-road access) are similar. On demographic characteristics there are a few more discrepancies, the most notable that the Muslim poor are simultaneously more likely to be accessing PDS and not participating in NREGS than the Hindu poor. Overall, however, the three programmes appear to encapsulate a similar aspect of social exclusion, supported also by the fact that more than 75 per cent of the poor excluded from PDS in 2014 were excluded also from at least one of the other programmes.

***Sensitivity analysis***

The robustness tests (Table 4) largely confirm findings from the main models. When controlling for multicollinearity amongst the three groups of determinants by estimating the main model with each group separately (Models 1-3), the results are very similar to those obtained in the main models. This consistency should allay concerns that multicollinearity amongst independent variables could be significantly skewing the overall findings. Similarly, 2SLS regressions (Models 4-6) still show instrumented group membership and paved-road access as significant determinants of enrolment in the social programmes amongst poor households. Also in line with the main results, lower-caste background does not raise the likelihood of exclusion from multiple social programmes whilst both lack of social-network capital and spatial disadvantage do so (Model 9).

 Only when looking at the quality/intensity of the programmes the findings slightly alter. Group membership and paved-road access increase the likelihood of households’ satisfactory access to PDS (not just of enrolment) but being from a scheduled caste or tribe as opposed to from an upper caste no longer has that effect (Model 7). Meanwhile, demographic and community factors have comparable effects on having worked through NREGS as on enrolment in the programme but group membership as a measure of social capital, whilst still positive, is no longer statistically significant (Model 8).

**Table 4. Sensitivity analysis**

\*\*\* p <0.01, \*\* p <0.05, \* p <0.10. The number next to each variable is the coefficient, underneath in italics is the corresponding robust standard error. All regressions were controlled for time effects.

***Interactive effects of demographics, social capital, and spatial advantage***

 Before pondering the meaning of the findings in more detail, let us look at the results of the study’s final empirical analysis, which has examined the interaction of the three groups of determinants - demographic characteristics, social capital, and spatial qualities – in their effect on access to social-assistance programmes. Specifically, I analysed the interactive links between the four caste groups (as the traditionally most discriminatory household-level demographic characteristic in India), group membership as an indicator of social-network capital, and paved-road community access as an indicator of spatial advantage[[18]](#endnote-18) amongst poor households as defined by AP regulation, who are formally entitled to access all three programmes examined.

**Figure 3. Interactive effects of caste, social capital, and spatial advantage on access to PDS, NREGS, and RA**



*Source*: author’s own graphic

 Figure 3 displays the results graphically (based on results in Table 5 in the Appendix). Looking first at PDS, group membership appears to boost inclusion rates particularly amongst upper and other backward castes. However, amongst all four castes, group membership has a more significantly positive effect on access to PDS in communities inaccessible by paved roads. In contrast, in road-accessible communities the positive effect of group membership on social inclusion is lower, with the difference most notable amongst scheduled castes and tribes. This distinction in the effects of social capital on social inclusion dependent on spatial (dis)advantage is apparent also for the other two programmes. Group membership significantly increases the likelihood of other backward castes’ and scheduled tribes’ participation in NREGS only in harder-to-access communities; the same is true for upper castes and scheduled tribes in case of RA.

Is social-network capital as measured by group membership more frequent in spatially disadvantaged (i.e. without paved roads) communities then? The data examined suggest that it may indeed be so as there is a negative, borderline significant relationship between paved community access and group membership amongst the poor (Table 6 in the Appendix)*.* Furthermore, as Figure 4 in the Appendix shows - on the visualisation of the relationship between castes and paved-road access in their effect on group membership - it is primarily amongst scheduled tribes and to a lesser extent amongst upper castes that this accessibility-induced reduction in social-network capital can be observed.

**Discussion and conclusions**

 To address first the relevance of the findings for Indian (and specifically Andhra) social policy, the results suggest that social programmes in Andhra Pradesh have been quite inclusive. By 2014, only 5 per cent of poor households were not enrolled in PDS, 11 per cent in RA, and 22 per cent in NREGS, with access rates increasing over time. However, even some of the poorest households have not benefitted from the schemes (see Figure 1) and frequently this exclusion has been systematic, from more than one of the programmes analysed.

 Interestingly, marginal demographic characteristics do not appear to play a large role in the exclusion of poor households from social-assistance programmes. In fact, the more educated and wealthier households in the dataset were less likely to access the programmes, likely due to self-selection rather than marginalisation or hostility entailed by social exclusion (Barry, 1998). Even caste and religion, India’s traditionally most frequent drivers of social exclusion (e.g. Thorat and Lee, 2005), do not seem to be a major cause here. There are some exceptions – for example, Muslim households were significantly less likely to be enrolled in NREGS than Hindu households – but overall the results do not imply broad trends of programme exclusion on caste or religious basis.

 This finding is encouraging – and in line with Thorat’s (2007) discovery of diminishing caste discrimination in Andhra’s PDS enrolment – but should not be automatically assumed to extend from the narrower concept of social-programme exclusion to all social exclusion. Social exclusion manifests in many ways in addition to exclusion from social programmes – in the quality of public services received, political or labour discrimination etc. (UN, 2016) – where caste/religion may still be significant drivers. One indication that it might indeed be so are the results found vis-à-vis PDS quality, which imply that although lower-caste households access PDS more than upper-caste households, they are less satisfied with the service that they receive[[19]](#endnote-19).

 The other two sets of factors examined – social capital and spatial (dis)advantage – have emerged as more significant determinants of poor households’ exclusion from social programmes than demographic characteristics. Social-network capital, particularly when measured via group membership, consistently boosts poor households’ enrolment rates in the three programmes. From community characteristics, the most important factor is living in spatially-advantaged – i.e. paved-road-accessible – communities, which significantly increases poor households’ likelihood of accessing the programmes. The underlying pathways for the positive effect of social-network capital may lie in more information about the programmes and useful connections attained through membership in community associations; for spatial advantage, the pathways may be easier access to programmes’ administration and distribution centres on paved roads and potentially also better-functioning programmes in more spatially-advantaged communities. These explanations were inferred from respondents’ answers about the programmes’ functioning and require further investigation to properly elucidate.

 Overall, the results suggest that out of the three elements of social exclusion – unequal access to resources, unequal participation, and denial of opportunities (UN, 2016) – unequal access to resources is the key element in exclusion from social programmes as primarily poor infrastructure and lack of social networks appear to hinder eligible Andhra households in accessing the resources to which they are entitled. However, denial of opportunities is also occasionally at play, as both the finding of potential caste discrimination in PDS services and reports of bribes required for enrolment in the different programmes have indicated.

 Examining the interaction of the three sets of factors in their effects on programme inclusion further showed that in communities accessible by paved roads, social-network capital becomes a less important driver of poor households’ access to social programmes. Contrary to an initial hypothesis of synergy amongst the three sets of factors, this finding thus implies substitution at play. Although not expected, it chimes with existing research indicating social-network capital’s particular usefulness as a substitute for public-goods’ provision (e.g. Petrikova and Chadha, 2013; Schwanen et al., 2015) - and implies a decline in the relevance of social-network capital once public goods (here, roads) *are* provided[[20]](#endnote-20). The substitution finding has implications not only for social-exclusion and poverty research but also for public policy.

 Voluntary associations, the basis of social-network capital in this study, both specifically in India and elsewhere, have been shown to exclude the most marginalised members of society and thus exacerbate existing social inequalities (Levien, 2015; also Cleaver, 2005). Nevertheless, for a long time governments and development agencies, as part of the ‘inclusive neoliberal agenda’, promoted association formation as the best means for households to ‘overcome exclusions and inequalities associated with uneven development,’ positioning most blame for the persistence of poverty as well as responsibility to overcome it on the poor households themselves (Hickey, 2010, p. 1139-1141).

 This study’s finding that social-network capital loses much of its positive impact on programme enrolment in better infrastructure-endowed communities identifies a clear supply-side issue in the exclusion of eligible poor households from public welfare programmes and places the onus of action back on governments – national, state as well as local. In Andhra communities where accessing programme centres is easier thanks to paved roads and programme enrolment may be also less ridden with corruption, poor households have less need of advantageous social connections to secure access to social-assistance programmes. Consequently, group membership particularly amongst the most demographically marginalised group, scheduled tribes, has declined. The main take-away of this study thus is that if Andhra (and more broadly Indian) public bodies are genuinely interested in boosting programme-inclusion rates amongst poor households as part of the effort to reduce chronic-poverty rates, they should focus less on encouraging social-capital formation[[21]](#endnote-21) and more on investing in community infrastructure and other ways of addressing their states’ spatial inequalities.

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**Appendix**

**Table 5. Interactive effects of demographics, social capital, and communal characteristics on access to welfare programmes**



\*\*\* p <0.01, \*\* p <0.05, \* p <0.10. The number next to each variable is the coefficient, underneath in italics is the corresponding robust standard error. All regressions were controlled for time effects as well as the same control variables as regressions in Table 3 and 4.

**Table 6. The determinants of group membership**



\*\*\* p <0.01, \*\* p <0.05, \* p <0.10. The number next to each variable is the coefficient, underneath in italics is the corresponding robust standard error. All regressions were controlled for time effects

**Figure 4. Marginal effects of caste on group membership in spatially-advantaged communities**



*Source*: author’s own graphic

1. A new state - Telangana - was carved out from Andhra Pradesh in 2014. Analysis in this study relates to the yet-undivided Andhra Pradesh. [↑](#endnote-ref-1)
2. Not all socially-excluded people are poor but social exclusion is a major underlying factor in chronic poverty (UN, 2016). [↑](#endnote-ref-2)
3. In Bihar, it was 84 per cent. [↑](#endnote-ref-3)
4. The National Food Security Act, passed in 2013 and implemented by 2016, again increased PDS coverage in all Indian states substantially. [↑](#endnote-ref-4)
5. http://www.apcivilsupplies.gov.in/AnnIV-Iss-BPL.jsp [↑](#endnote-ref-5)
6. http://www.aponline.gov.in/apportal/HomePageLinks/aarogyasri.html [↑](#endnote-ref-6)
7. It was discontinued in Andhra Pradesh in 2017 whilst in Telangana the programme as of 2019 continues. [↑](#endnote-ref-7)
8. http://accessh.org/project/the-aarogyasri-evaluation/ [↑](#endnote-ref-8)
9. More information can be found at younglives.org.uk. Only data from the last three collection rounds are analysed here due to unavailability of some key indicators in the first time wave, although some time-invariant household information obtained in 2002 is utilised. [↑](#endnote-ref-9)
10. Following Dercon’s (2012) work on analysing multidimensional poverty in Young Lives data, households are considered multi-dimensionally poor if the child surveyed is stunted, was not enrolled in school at age 12, and/or the household’s per-capita consumption is below the international poverty line of 1.25 USD adjusted for purchasing power parity. [↑](#endnote-ref-10)
11. NREGS’ targeting is additionally, unlike the other two programmes’, based on self-selection. [↑](#endnote-ref-11)
12. See e.g. Kothari (1988). [↑](#endnote-ref-12)
13. Data on caste, religion, mothers’ education, and gender of household head were collected only in 2002 and hence do not vary over time. [↑](#endnote-ref-13)
14. For more information, see www.younglives.org [↑](#endnote-ref-14)
15. Theoretically, NREGS is only available to rural inhabitants. Nevertheless, some people from urban communities in the dataset also participated in NREGS, which is why all regressions control for ‘rural’. [↑](#endnote-ref-15)
16. Because a hierarchical Two-State Least-Squares (2SLS) model cannot be estimated in STATA (utilised here), the 2SLS regressions are estimated with fixed effects only and thus are used merely in sensitivity analysis rather than in the main models. [↑](#endnote-ref-16)
17. This finding was highly expected as NREGS is formally a rural welfare scheme. [↑](#endnote-ref-17)
18. utilising variables that appeared most consistently significant in the previous analysis [↑](#endnote-ref-18)
19. This could be due to caste discrimination by FPS shopkeepers. [↑](#endnote-ref-19)
20. This may have also been observed, though not explicitly acknowledged, by Putnam (2000) in the context of the United States. [↑](#endnote-ref-20)
21. Externally-driven social networks were additionally shown to be even less able to challenge existing inequalities than organic ones (Goetz and Hassim, 2003). [↑](#endnote-ref-21)