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Using 2009-10 National Sample Survey data, this paper describes patterns of job-seeking, rationing, and participation in the Mahatma Gandhi National Rural Employment Guarantee Scheme. At the national level, it finds that the self-targeting design of MGNREGS leads to greater rates of self-selection into the programme by poorer and scheduled tribe or scheduled caste households. However, the administrative rationing of MGNREGS jobs is not pro-poor but exhibits a sort of middle-class bias. At the state level, roughly half of 27 states exhibit rationing and participation profiles that signal effective pro-poor targeting; the other half struggle to avoid high rates and regressive patterns of administrative rationing of jobs to which the poor have a legal right.

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1 Introduction

India's Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), which began in 2006 is the largest public works employment project in the world.[1] In the 2010-11 fiscal year, the MGNREGS employed 55 million households who put in 2.5 billion work days on 5.1 million projects, financed by a budget of Rs 394 billion (roughly $7 billion) (http://nrega.nic.in/). The 2005 Act that created the MGNREGS grants each rural household a legal right to employment of up to 100 days per year in public works projects at a state-specific minimum wage rate. The programme is administered by state and local governments, which also contribute a small share of the variable costs of employment.

Rural poverty reduction is an explicit objective of the MGNREGS. While there are multiple hypothesised mechanisms through which guaranteed employment in public works schemes at a minimum wage might reduce poverty (for example, by boosting labour demand at the minimum wage so as to induce market-based informal enforcement of the gender-equitable minimum wage on private employers, by investing in productivity-enhancing public goods such as roads, water supply, and by providing a safety net that might encourage increased investment in higher-risk, higher-return livelihoods), the MGNREGS' most direct poverty reduction pathway is through boosting employment and income for the poor. How effectively this direct transfer mechanism reduces poverty turns fundamentally on the degree to which the MGNREGS targets its resources towards otherwise poor households.

In this paper we explore the degree to which the MGNREGS targeting is pro-poor, both at the national level and at the level of individual states.[2] Using nationally-representative data from the National Sample Survey (NSS), we study which households seek MGNREGS work, which of those households are denied MGNREGS employment (that is, administratively "rationed") despite their legal right to work under the 2005 Act, and the resulting participation profile across the household per capita expenditure distribution, which is the joint product of households' self-selection into MGNREGS job-seeking and administrators' rationing of work. We find that while, overall, the MGNREGS does seem to target the rural poor reasonably effectively, there is striking heterogeneity across states, not just in rates of rationing and participation, as Dutta et al (2012) have already demonstrated, but also in the progressivity or regressivity of the rationing and participation profiles. The interstate differences highlight the potential to improve performance by

extracting lessons from states with exemplary pro-poor targeting performance, of which there are several, and applying those findings to states where targeting towards the poor could improve.

The basic economic logic of self-targeting employment guarantee schemes is that the households that are most likely to seek MGNREGS employment are those otherwise unemployed, or whose self-employment or market wage options would yield less than the programme's minimum wage, that is, the poor. The demand-driven nature of the MGNREGS is one of its many appeals as this self-selection is expected to generate a pro-poor (that is, "progressive") participation profile.

The self-targeting feature can break down for multiple reasons, however, and the track record of self-targeting employment guarantee schemes is mixed (Barrett and Clay 2003; Coady et al 2004). First, poorer households might not self-select into the scheme at appreciably higher rates. This might occur due to structural factors associated with multiple rural factor market failures that break down the usual strong positive correlation between the opportunity cost of labour time and household per capita expenditure level. Or it might be due to sociocultural mechanisms that lead to social isolation (for example, of scheduled castes or tribes, religious minorities, or women), or to the poor's lower awareness of the programme, low willingness, or low ability to assert their rights under the MGNREGS.

Moreover, not all those who seek MGNREGS employment receive a job, despite the official right to work. One can only speculate as to the various mechanisms behind administrative rationing of MGNREGS employment – elite capture, spatial mismatch, political will, administrative capacity, and so on – but if rationing is high among the poor, and especially if it regressively favours better-off job applicants over the poor, then programme implementation would seem to run counter to the expressed intent of the MGNREGS.[3] Of course, given the decentralised administration of the MGNREGS, one would expect heterogeneity of performance across jurisdictions and varied reasons for underperformance where that takes place.

The MGNREGS has been quite controversial in both policy and research circles. Directly pertinent to our analysis are widespread allegations, corroborated by some social audits, that MGNREGS jobs are too often allocated on the basis of social status, personal connections, nepotism, political or religious affiliations, or corruption, thereby undercutting the programme's self-targeting design and its capacity to reduce poverty (Niehaus and Sukhtankar 2011). While some local programmes are cited for quite effective targeting, others are called out for serious flaws in implementation, suggesting considerable heterogeneity in performance across jurisdictions (Bhatia and Drèze 2006). Several analyses of data from a few districts and states find significant benefits accruing to women (Jandu 2008; Khera and Nayak 2009; Pankaj and Tankha 2010; Azam 2011), or to scheduled caste (SC) and scheduled tribe (ST) households (Drèze and Khera 2009), mainly from increased labour market participation due to the MGNREGS. But as summarised by Sjoblom and Farrington (2008), overall assessments of MGNREGS targeting "present a mixed picture". Dutta et al (2012) provide the first nationwide evidence on MGNREGS performance. This paper picks up where they leave off, probing more deeply into the progressivity of rationing and participation in the MGNREGS, and the interstate heterogeneity in pro-poor targeting.

2 National MGNREGS Targeting Performance

The data we analyse come from the 66th round of the NSS (http://164.100.34.58/index.php/catalog/18), conducted from July 2009 to June 2010. It interviewed 59,129 rural households from 35 states and is statistically representative at the

Table 1: Summary Statistics by State

State	Median Monthly Expenditure PC (Rs)	Median Land Holdings PC (0.000 Ha)	If Worked under MGNREGS	If Sought MGNREGS Job	If Sought But Not Offered MGNREGS Job	Average Number of EGS Days If Worked under MGNREGS	Sample Size	Rural Population from 2011 Census (0,000)	Share of Total MGNREGS Employment 2009-10
Andhra Pradesh	964	6	0.35	0.47	0.25	46.5	3,926	5,631	0.143
Arunachal Pradesh	939	333	0.18	0.43	0.58	53.9	1,042	107	0.001
Assam	812	134	0.18	0.4	0.56	31.5	2,616	2,678	0.026
Bihar	646	10	0.1	0.44	0.79	24.5	3,300	9,208	0.040
Chhattisgarh	576	101	0.48	0.69	0.31	35.2	1,495	1,960	0.037
Gujarat	940	54	0.18	0.32	0.44	24.6	1,721	3,467	0.021
Haryana	1,272	6	0.05	0.2	0.74	38.7	1,440	1,653	0.002
Himachal Pradesh	1,210	80	0.33	0.42	0.2	47.5	1,660	617	0.010
Jammu & Kashmir	1,039	75	0.08	0.28	0.71	33.5	1,448	913	0.005
Jharkhand	670	58	0.16	0.44	0.63	22.9	1,759	2,504	0.030
Karnataka	815	11	0.08	0.23	0.65	29.7	2,038	3,755	0.071
Kerala	1,364	15	0.11	0.23	0.52	26.2	2,606	1,746	0.012
Madhya Pradesh	683	143	0.36	0.58	0.37	29.3	2,735	5,254	0.093
Maharashtra	920	68	0.04	0.28	0.84	33.8	4,017	6,155	0.010
Manipur	871	108	0.74	0.77	0.05	56.8	1,376	190	0.011
Meghalaya	926	40	0.42	0.56	0.25	49.7	864	237	0.005
Mizoram	1,026	123	0.89	0.92	0.04	76.4	632	53	0.006
Nagaland	1,246	260	0.59	0.75	0.21	39.6	704	141	0.010
Odisha	652	74	0.22	0.51	0.57	26.5	2,976	3,495	0.020
Punjab	1,281	4	0.05	0.31	0.83	30.3	1,560	1,732	0.003
Rajasthan	951	177	0.59	0.70	0.16	71.0	2,582	5,154	0.159
Sikkim	1,045	60	0.44	0.46	0.04	59.0	608	46	0.002
Tamil Nadu	882	4	0.34	0.41	0.19	42.8	3,319	3,719	0.084
Tripura	916	30	0.77	0.85	0.09	61.0	1,312	271	0.016
Uttar Pradesh	765	49	0.16	0.35	0.54	31.4	5,903	15,511	0.126
Uttarakhand	1,154	38	0.27	0.38	0.28	23.0	1,048	703	0.006
West Bengal	753	7	0.43	0.66	0.34	16.8	3,576	6,221	0.055
All India	826	29	0.24	0.44	0.44	37.4	58,263	83,309	1

state level.[4] It provides self-reported information on MGNREGS participation for each rural household during the past 12 months. We construct three dummy variables based on this information – participation (if the household worked in the MGNREGS); job-seeking (if it sought MGNREGS work); and rationing (if it sought employment but did not work in the MGNREGS). Our focus is on the extensive margin of participation (that is, whether or not a household had a member working in the MGNREGS in the previous 12 months), rather than the intensive margin (that is, days worked on the MGNREGS) for the simple reason that we can identify rationing at the extensive margin, but not at the intensive margin in the NSS data. For the purpose of this study, we dropped eight states with fewer than 300 sampled rural households, which results in a sample of 58,263 rural households from 27 states.

Table 1 (p 47) presents median per capita monthly household expenditures and per capita landholdings by state, along with the means of the three MGNREGS-related dummy variables, providing state-level estimates of the proportions of rural households who sought MGNREGS jobs, were employed by the MGNREGS, or were out of MGNREGS work. The overall participation rate is 24%, but 44% of the households had sought MGNREGS work, of whom nearly half (44%) were rationed (that is, not offered MGNREGS work). As Dutta et al (2012) show, there is considerable variation in MGNREGS participation across states, ranging from just 4%-5% in Haryana, Maharashtra, and Punjab to 89% in Mizoram.

Interstate variation in participation can be partly attributed to differences in self-selection, as households are not equally interested in participating and one might reasonably expect greater demand for MGNREGS work in poorer states. For example, only 20% of the rural households in Haryana sought MGNREGS employment. As Dutta et al (2012) and Table 1 both show, demand for MGNREGS work is higher in poorer states, reflecting the self-targeting feature of a low-wage employment guarantee scheme.

But a larger part of the variation reflects rationing among those who sought MGNREGS work. The state-level rationing rate varies from just 4% in Mizoram and Sikkim to a high of 83%-84% in Maharashtra and Punjab. Given the limited budgetary resources of the MGNREGS, the requirements on local and state governments to contribute skilled labour in project design and supervision, and the relatively high MGNREGS wage rate compared to prevailing market wages for casual labour in some locations and times of the year, rationing is perhaps to be expected. But the high nationwide rate of rationing and the considerable variation across states is perhaps surprising.

While the state-level aggregates and averages reported in Table 1 and Dutta et al (2012) are informative, these necessarily mask the distributional implications of MGNREGS participation. To explore that targeting and rationing of the MGNREGS at higher resolution, we use non-parametric, kernel-weighted, local polynomial smoothing to estimate and plot the probability of MGNREGS job-seeking, participation, and rationing conditional on per capita expenditure.[5] Because the NSS expenditure data we use cover the same period as do the NSS MGNREGS participation data, these expenditures necessarily reflect earnings from MGNREGS participation. Assuming that poorer households work more under the MGNREGS than richer households, we will underestimate targeting effectiveness because participants move up the per capita expenditure distribution relative to the unobserved counterfactual. With that important caveat, the resulting regressions offer a clear visual depiction of the targeting performance of the MGNREGS. We also explore whether targeting and rationing differ across different social groups by estimating the conditional probabilities for households differentiated on the basis of whether they are ST or SC and on the gender of the household head.

The ideal would be that participation rates are high for the poor, declining to zero among the non-poor. A more realistic pattern of pro-poor targeting would exhibit a clear negative relation between participation and a household's per capita expenditure level. In contrast, a scheme that fails to target the poor effectively would exhibit an upward-sloping participation profile, indicating lower participation by poorer households relative to better-off ones.

Since participation rates are jointly determined by households' self-selection into the programme, reflected in MGNREGS job-seeking, and by rationing among those seeking MGNREGS employment, it is essential to decompose participation into those two components as well to understand the participation profile. Participation may be low among the poor for any of a host of reasons – because few poor households know of their new right to MGNREGS employment, because they are discouraged by officials or neighbours from applying, or because the opportunity cost of their time is too high in spite of their poverty (Barrett and Clay 2003, Dutta et al 2012). The job-seeking profile reflects self-selection into the MGNREGS. Much of the job-seeking profile necessarily falls beyond the control of the state in its administration of the MGNREGS.

Rationing Profile

The rationing profile is of greater interest because the progressivity of rationing of MGNREGS jobs reflects strongly on programme administration, in particular its orientation towards using the scheme to fight rural poverty. Since participation is determined locally, there may be considerable variation among states in rationing profiles and thus in the progressivity of the MGNREGS as implemented. Progressively-rationed MGNREGS employment would exhibit a pattern wherein rationing is low (ideally, zero) among the poor, but rises to a high at some point beyond the poverty line, perhaps even to 100% if the programme is intended only to benefit the poor and near-poor. Conversely, regressive patterns of MGNREGS administration will be reflected in a downward-sloping relationship between rationing and per capita household expenditures, with the poor more likely than their better-off neighbours to be denied employment.

Four main findings emerge from the pooled national data. First, the self-targeting design of the MGNREGS leads to greater rates of self-selection into the programme by poorer and disadvantaged (ST/SC) households. Second, rationing of MGNREGS jobs is not pro-poor but, rather, exhibits a sort of middle-class

Figure 1: All-India Probability of MGNREGS Job-seeking, Rationing and Participation

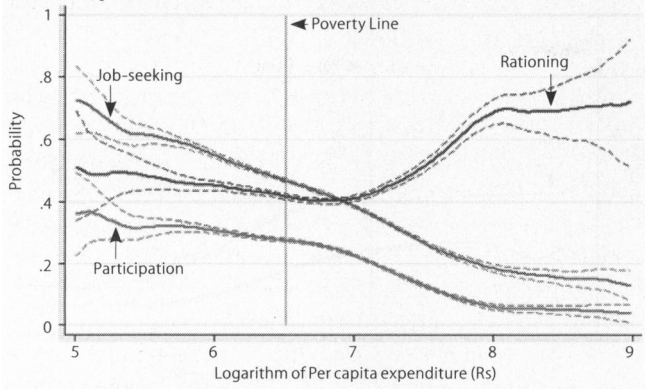


Figure 2: All-India Probability of MGNREGS Job-seeking, by Gender of Household Head

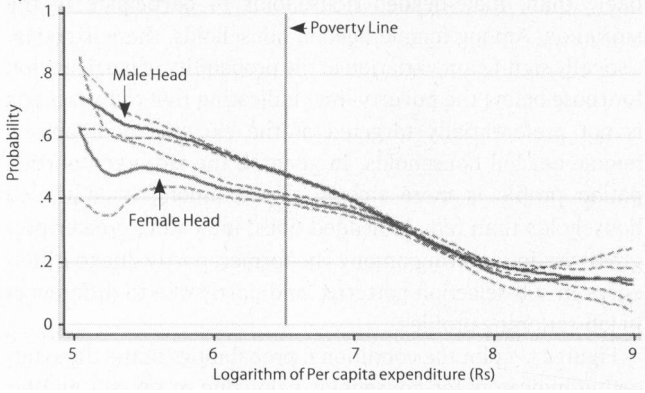


Figure 3: All-India Probability of MGNREGS Job Rationing, by Gender of Household Head

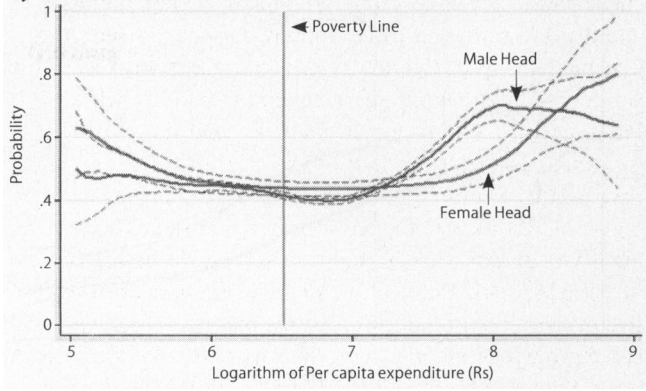
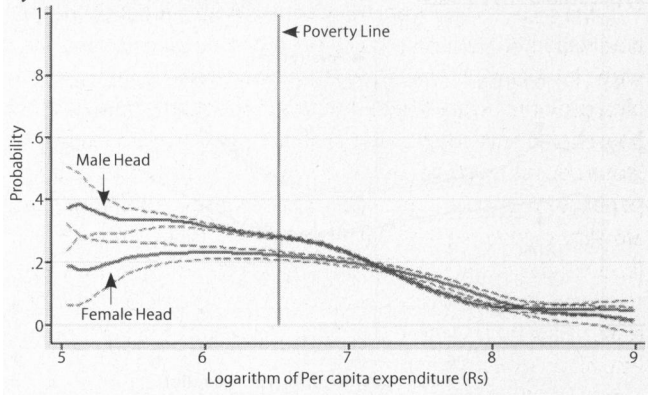


Figure 4: All-India Probability of MGNREGS Participation, by Gender of Household Head



bias as households near the poverty line are more likely to receive the jobs they seek than are poorer households and, especially, relative to the upper range of the expenditure distribution. Third, because the self-selection effects dominate the rationing effects, the net result is that MGNREGS targeting is noticeably pro-poor and it especially favours ST/SC households. Fourth, the MGNREGS fares less well in reaching poor female-headed households, due both to self-selection and rationing effects.

Figure 1 depicts the estimated probability of the three targeting indicators (participation, job-seeking, and rationing), conditional on log per capita expenditures. We plot the point estimates with solid lines and the 95% confidence intervals with dotted lines as the corresponding point estimates in all figures hereafter. Throughout, we exclude households with per capita monthly expenditure lower than Rs 150 or higher than Rs 8,000 (which together account for the extreme 0.25% of the whole sample), yielding a trimmed sample size of 58,590 households. The elimination of these outliers allows us to focus on the data with enough density where the conditional probability can be precisely estimated and where the likelihood of measurement error is perhaps less.

Although it is far from perfect targeting, the participation profile in Figure 1 is distinctly downward sloping, indicating clearly pro-poor MGNREGS targeting at the national level. The job-seeking curve runs almost parallel to the participation curve, consistent with the self-selection mechanism that is intended to guide the progressivity of MGNREGS participation – poorer households were substantially more likely to seek MGNREGS work.

The rationing rate was rather high, however, decreasing slightly – but statistically significantly – for poorer households before becoming more sharply upward sloping after per capita monthly expenditures of around Rs 1,100, which is about 60% higher than the all-India rural poverty line.[6] This indicates that, at the national level, administrative rationing undoes part of the MGNREGS' progressivity that arises from its self-targeting design. The best-off households are actively rationed out of the programme, but the poorest households are also relatively more likely to be denied employment when they request it than are those in the middle of the per capita expenditure distribution. There thus appears a decided middle-class bias in MGNREGS job rationing, on average, across India. Although the law requires that the state pay an unemployment allowance to job seekers who fail to obtain the requested work, the allowance has been hardly ever actually been paid, which reduces the cost to state governments of administrative rationing relative to the designed arrangement wherein the state pays regardless of whether it offers work under the MGNREGS.

Figures 2-4 plot the conditional probabilities of MGNREGS job-seeking, participation, and rationing on per capita household expenditures for female-headed and male-headed households separately. The MGNREGS offers equal wage rates to women and men for the same work and makes payment directly to individual workers. In principle, this should lead to greater gender equity, especially because women face lower

Figure 5: All-India Probability of MGNREGS Job-seeking, by Household ST/SC Status

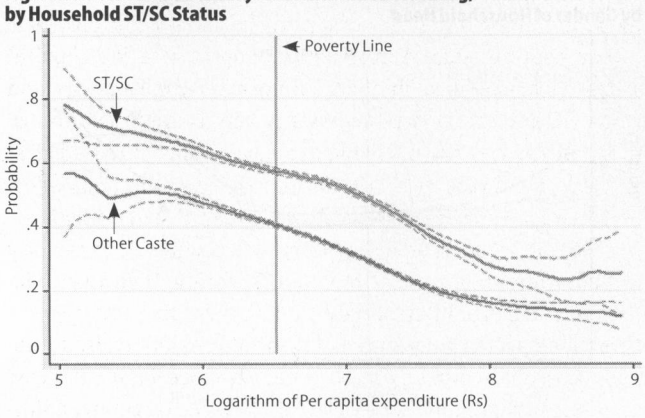


Figure 6: All-India Probability of MGNREGS Job Rationing, by Household ST/SC Status

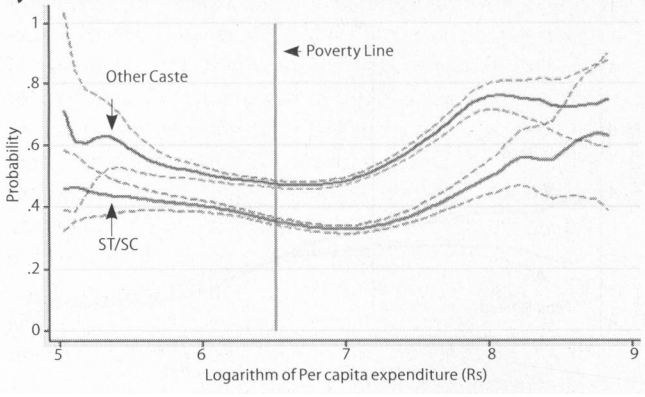
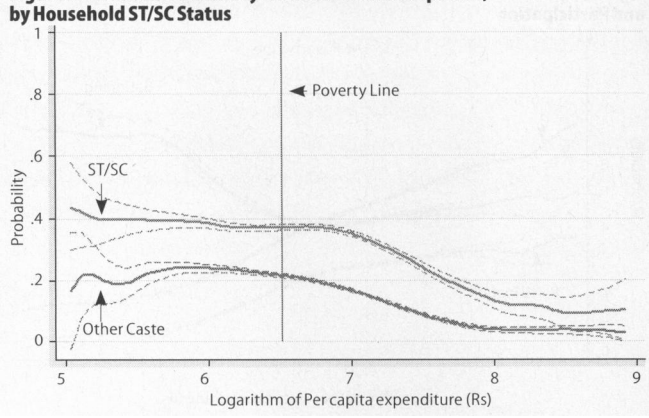


Figure 7: All-India Probability of MGNREGS Participation, by Household ST/SC Status



wages and worse employment prospects in the private labour market in India. But as shown in Figure 2, although both curves are downward sloping (in line with the self-selection mechanism of the MGNREGS), male-headed households are much more likely than female-headed households to seek MGNREGS employment, regardless of expenditure level. The difference is statistically significant over much of the range, especially among households below the poverty line. This is consistent both with the notion that female-headed households, especially poor ones, may be more labour-constrained than male-headed households (Barrett and Clay 2003) and that there may be socio-cultural pressures that discourage female-headed households from seeking MGNREGS employment at the same rate as otherwise-identical male-headed households (Khera and Nayak 2009).[7]

As Figure 3 shows, MGNREGS job rationing is more common among poor female-headed households than poor male-headed ones, while that ordering reverses for better-off households. Among the latter rationing is more common among those with male heads. The U-shaped rationing profile – suggestive of a middle-class bias in awarding employment – is decidedly more pronounced among female-headed households than among male-headed households.

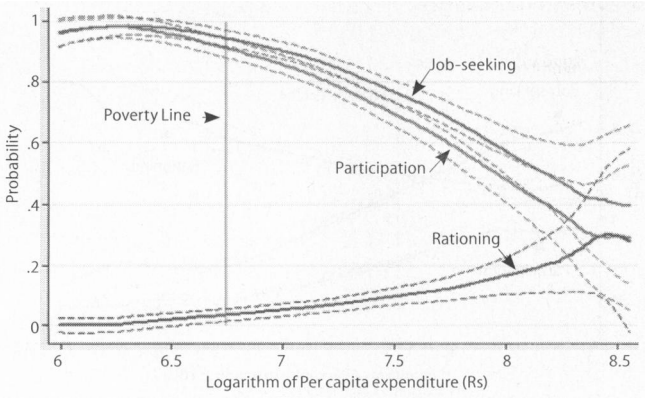
The net result, shown in Figure 4, is that poor male-headed households are statistically significantly more likely to participate in the MGNREGS than are poor female-headed households. That ordering reverses, however, as one moves beyond the median and into the upper quantiles of the expenditure distribution, where female-headed households are as likely as, or more likely than, male-headed households to participate in the MGNREGS. Among female-headed households, there is no statistically significant variation in the probability of participation for those below the poverty line, indicating that the MGNREGS is not preferentially targeted at the extreme poor among female-headed households. In general, the MGNREGS participation profile is more steeply sloped among male-headed households than female-headed ones, indicating greater progressivity in targeting among the former, partly due to differences in self-selection patterns, and partly due to differences in job-rationing profiles.

Figures 5-7 plot the conditional probabilities of the three targeting indicators for households belonging to STs/SCs and for those belonging to other castes, replicating the preceding gender-differentiated analysis for ST/SC status. A first interesting observation is that, compared to other households, ST/SC households are statistically significantly more likely to seek and participate in MGNREGS work and significantly less likely to be rationed out of desired MGNREGS employment. The higher likelihood of job-seeking may reflect fewer and less desirable alternative employment opportunities for ST/SC households. As implemented by state and local governments, the MGNREGS clearly delivers on its promise to ST/SC households by helping to overcome caste-related labour market disadvantages, and rationing them out of MGNREGS jobs with far lower frequency, thereby leading to a much higher participation rate among ST/SC households, almost twice that of their non-ST/SC counterparts.

3 Interstate Variation

The national-level patterns are interesting and important. But since rationing of MGNREGS employment appears to undermine some of the pro-poor self-targeting features of the programme's design, it is especially useful to disaggregate further to look at variations in these patterns across states. The results are especially illuminating in that they identify a large number of states where the MGNREGS appears to serve the poor very effectively, as manifest in sharply progressive rationing and participation profiles. At the same time, the data also reveal a number of states that exhibit rather poor MGNREGS targeting performance. More intensive case studies of differences in MGNREGS implementation among some of these states could

Figure 8: MGNREGS Job-seeking, Rationing and Participation in Mizoram



usefully inform programme refinements, although such analysis lies beyond the scope of this paper.

To explore interstate variation in MGNREGS targeting performance, we replicated the exercise in Section 2 for each of the 27 states listed in Table 1, estimating the expenditure-conditional probabilities of MGNREGS job-seeking, rationing, and participation, overall as well as disaggregated by ST/SC status and gender of the household head. The results (Figures 8-12) reveal that the all-India aggregates mask huge interstate variations in targeting patterns.[8] This interstate variation speaks both to various concerns about implementation expressed by critics of the MGNREGS as well as to the successes noted by proponents.

We organise the large mass of state-specific results by grouping states along three dimensions of pro-poor MGNREGS targeting performance. The desired pattern is high and pro-poor (progressive) participation with little rationing among the poor. Deviations from this desirable standard can occur in any of three directions – (i) participation rates are low for the poor, ii) the participation and rationing profiles are flat or regressive (upward-sloping), or (iii) rationing is high among the poor. This method of categorisation shows roughly half (13 of 27) the states do a very credible job in pro-poor targeting, and the other half (14 of 27) fall short in one or more dimensions.

Each direction of deviation from the desired pattern carries different implications for policy correctives. Limited participation by the poor due to low rates of MGNREGS job-seeking could reflect any of a variety of problems. For example, limited awareness of the right to work and of corresponding MGNREGS job opportunities, sociocultural pressures that discourage the poor from applying for jobs to which they know they are entitled, administrative impediments (such as physical access) to applying for MGNREGS employment, job requirements (such as the intensity, location or timing of physical labour) that effectively ration out some of the poor, or labour supply constraints (such as due to disability or illness) that make an employment guarantee an inappropriate instrument for addressing particular households' poverty status. It is also possible that the existence of other work-based, anti-poverty programmes (such as the pre-existing and similar Maharashtra Employment Guarantee Scheme) has made the MGNREGS less attractive.[9] High rates of rationing among the poor – and especially regressive rationing that favours better-off MGNREGS job applicants over poorer ones – clearly reflect administrative failures to use the employment guarantee to relieve rural poverty. The specific problems – elite capture, spatial mismatch, inappropriate job requirements, lack of political interest, administrative incapability, and so on (Khera 2011) – will necessarily vary from district to district and are thus not amenable to analysis using only statistical surveys. But survey evidence of the sort we present can effectively target states for more in-depth, qualitative investigation.

Based on these criteria, we identify five states as exemplary pro-poor targeting states – Manipur, Mizoram, Rajasthan, Sikkim, and Tripura. Interestingly, four of these five states are in the north-east. As an example of the profile exhibited by a state with pro-poor MGNREGS targeting performance, Figure 8 shows the estimated probabilities of each of the three targeting indicators conditional on expenditure for Mizoram. The poor overwhelmingly seek to participate in the MGNREGS – over the lower half of the expenditure distribution, more than 80% of households indicated they sought MGNREGS jobs. The percentage of households rationed out of MGNREGS jobs was close to zero for poor households and statistically significantly increasing in household per capita expenditures. The joint product of high rates of self-selection into the programme by the poor and low rates of administrative rationing, the MGNREGS participation profile is exemplary – more than 80% for households with a monthly per capita expenditure lower than Rs 1,200 and significantly decreasing with higher per capita expenditure, pointing to quite effective pro-poor targeting. The patterns for the other four states in this category were very similar.[10]

We then identify eight states – Andhra Pradesh, Chhattisgarh, Himachal Pradesh, Madhya Pradesh, Meghalaya, Nagaland, Tamil Nadu, and West Bengal – that deviate from exemplary pro-poor targeting only by having lower participation rates among the poor due to relatively high rates of self-selection out of the MGNREGS. In these states, rationing of MGNREGS jobs is low among the poor and steeply progressive, indicating that the administrative implementation is pro-poor even if the effects on the poor are somewhat limited by lower rates of job-seeking by poorer households.

Figure 9: MGNREGS Job-seeking, Rationing and Participation in AP

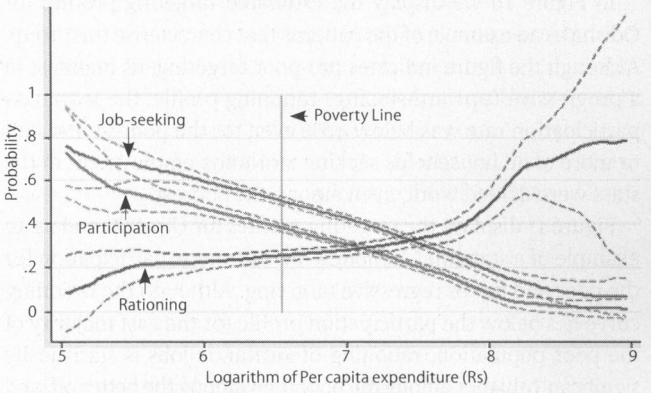


Figure 9 shows the targeting performance of Andhra Pradesh as an example. The participation curve shows clear pro-poor targeting and low and progressive rationing of MGNREGS jobs. However, the participation rate was lower than that in the first

group of states because a far lower share of poor households seeks MGNREGS employment. While in Mizoram the estimated probability of a household seeking MGNREGS employment is at least 80% through the 70th percentile of the state expenditure distribution, in Andhra Pradesh, not even the poorest households exhibit a 75% likelihood of seeking MGNREGS jobs and far fewer than half do at the poverty line. As a result, participation among the poor is far lower in this group of eight states than in the first group of five states. For example, the participation rate for households with monthly per capita expenditure lower than the 2009-10 state-specific rural poverty line was 48% in Andhra Pradesh, compared with 98% in Mizoram.[11]

We emphasise again that self-selection can reflect any of a host of factors, some of which could perhaps be adjusted by improved programme implementation. That is why we distinguish this group of states from the smaller group with exemplary pro-poor MGNREGS targeting performance. But without any capacity to identify why poor households self-select out of MGNREGS participation, we can only judge targeting performance by the level and progressivity of MGNREGS job rationing and the broader participation profiles, all of which point to solid performances among this set of states.

Table 2: Summary of Deviations from Pro-Poor Targeting

State	Low Participation	Flat or Regressive Targeting	High Rationing
Arunachal Pradesh	X	X	X
Assam	X		X
Bihar	X		X
Gujarat	X		X
Haryana	X		X
Jammu & Kashmir	X	X	X
Jharkhand	X		X
Karnataka	X		X
Kerala	X		X
Maharashtra	X		X
Odisha	X		X
Punjab	X		X
Uttar Pradesh	X		X
Uttarakhand	X	X	

The remaining 14 states have more than one deviation from the desired pro-poor targeting characteristics, as summarised in Table 2. Among them, 11 states had low participation rates accompanied with high rationing among the poor (Assam, Bihar, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Maharashtra, Odisha, Punjab, and Uttar Pradesh).

In Figure 10 we display the estimated targeting profiles for Odisha as an example of the patterns that characterise this group. Although the figure indicates pro-poor targeting, as manifest in a progressive (upward-sloping) rationing profile, the MGNREGS participation rate was below 40% even for the poorest and half or more of all households seeking MGNREGS employment in the state were denied work, even among the poorest.

Figure 11 displays the targeting profiles for Uttarakhand as an example of a state that exhibited low MGNREGS participation for the poor and flat or regressive targeting. Although the rationing curve lies below the participation profile for the vast majority of the poor population, rationing of MGNREGS jobs is statistically significantly higher among the poor than among the better off, and the participation rate was below 50% for all expenditure levels.

The final two states, Arunachal Pradesh and Jammu and Kashmir, deviated from pro-poor targeting in all the three directions.[12] Figure 12 shows the case of Jammu and Kashmir. The participation rate was below 20% and below the rationing rate across the whole population. The participation curve is almost flat and slightly upward sloping for the poor component of the population, pointing to a non-pro-poor targeting. The rationing curve is downward sloping for the poor with the rate higher than 60% for the poorest. Even the self-targeting feature of the MGNREGS seems to fail in these two states, as there is no statistically significant variation in the likelihood of MGNREGS job-seeking across the expenditure distribution. In these states, the MGNREGS is clearly not performing as intended.

Figure 10: MGNREGS Job-seeking, Rationing and Participation in Odisha

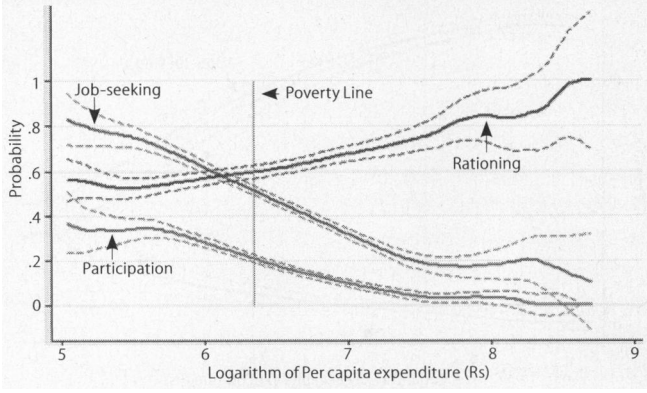


Figure 11: MGNREGS Job-seeking, Rationing and Participation in Uttarakhand

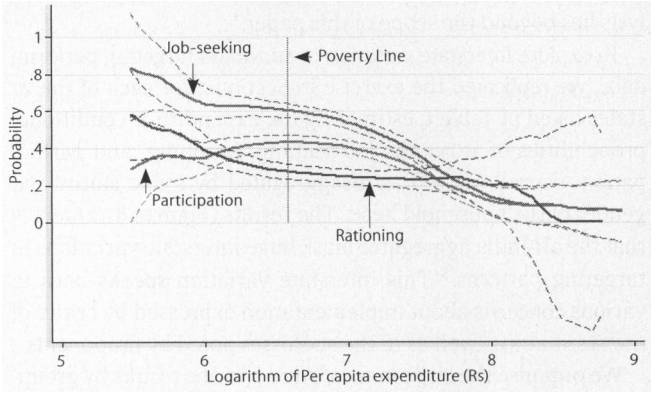
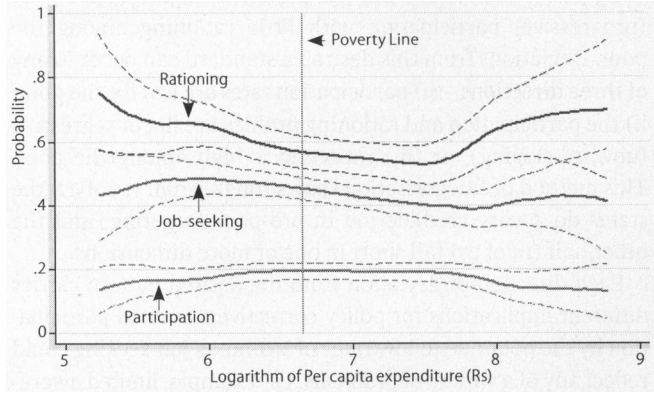


Figure 12: MGNREGS Job-seeking, Rationing and Participation in Jammu & Kashmir



Conclusions

The sheer scale of the MGNREGS programme naturally attracts considerable national and international attention to its track record in targeting the rural poor. To date, studies of the

MGNREGS have largely focused on individual state-level experiences. We use the 2009-10 NSS data to describe patterns of MGNREGS job-seeking, rationing, and participation at the national level and at the level of 27 states.

Six major findings emerge from this analysis. First, the self-targeting design of the MGNREGS leads to greater rates of self-selection into the programme by poorer and disadvantaged (ST/SC) households, as reflected in statistically significant negative associations between MGNREGS job-seeking and household per capita expenditures nationally and in virtually every state. Second, at the national level, the administrative rationing of MGNREGS jobs is not pro-poor but, rather, exhibits a sort of middle-class bias as households near the poverty line are more likely to receive the jobs they seek than are poorer households, although those in the upper reaches of the expenditure distribution are least likely to secure MGNREGS jobs. Third, this rationing pattern varies markedly across states, as MGNREGS job rationing among the poor is negligible and highly progressive in some states, but statistically significantly regressive and widespread in others. Fourth, because the self-selection effects generally dominate the rationing effects, the net result is that MGNREGS targeting is noticeably pro-poor and it especially favours ST/SC households. Fifth, the MGNREGS fares less well in reaching poor female-headed households, due both to self-selection and rationing effects. Male-headed households are more likely to seek and receive MGNREGS jobs over most of the per capita expenditure distribution.

Finally, roughly half the states exhibit rationing and participation profiles that signal effective pro-poor targeting. At least five states' performance is truly exemplary, clearly signalling that the MGNREGS can be effectively deployed to attract, employ, and improve the well being of poor rural households. But half of India's states struggle to avoid high rates and regressive patterns of administrative rationing of MGNREGS jobs to which the poor have a legal right. Clearly, there is room for improvement and perhaps much to be learned from an in-depth comparative analysis of MGNREGS programme implementation across states that have demonstrated greater or lesser success in targeting the poor with job opportunities.

NOTES

1 The MGNREGS was initially called the National Rural Employment Guarantee Scheme (NREGS).

2 As the MGNREGS confers a universal right to work, it is not intended to focus exclusively on the poor. Our analysis does not imply that participation by non-poor households is problematic. It merely reflects the intended distributional progressivity of the MGNREGS, that the poor will be the primary beneficiaries.

3 We note that participation of the non-poor in the MGNREGS is not a problem as all rural households are legally entitled to work through the programme.

4 Indeed, the NSS is statistically representative at the below-state, regional level (that is, groupings of multiple districts within a state).

5 The procedure we use is the "lpoly" in Stata 12 SE with default optimal bandwidth. We also consider the relationship with landholdings, as an alternative indicator of rural households' well being. We plot kernel densities of the logarithm of per capita monthly expenditure and per capita landholdings, respectively, in Appendix Figures A1a and A1b in the working paper version of this paper (http://dyson.cornell.edu/faculty_sites/cbb2/Papers/NREGS%20Targeting%20paper%20-final-with%20abstract.pdf). Per capita expenditure exhibits a single mode at Rs 906 while landholdings were bimodally distributed with the modes being 0.004 hectares (ha) and 0.170 ha. Landholdings here refers to the total amount of land owned, rented, or obtained through other channels reduced by the amount of land rented out. Landholdings are highly correlated with the amount of land owned (correlation coefficient = 0.93). Appendix Figure A2 in the working paper version shows the relationship between landholding and land owned using kernel-weighted smoothing. Landholding (versus land owned) has a slightly flatter slope than the 45 degree line, reflecting that households that own less land tend to rent in and those that own more land tend to rent out. The plot of expenditure versus landholdings in Appendix Figure A3 in the working paper exhibits a statistically significant upward-sloping curve, suggesting a strong positive correlation between expenditures and landholdings. Hence our focus on per capita household expenditures hereafter.

6 We use the state-specific rural poverty lines released by the Planning Commission online at http://pib.nic.in/archieve/others/2012/mar/d2012031902.pdf.

7 So far, studies of the gender effects of the MGNREGS have focused on other aspects than those in this study. For instance, Azam (2011) and Imbert and Papp (2011), using earlier NSS rounds and different methods, find that it has a sharper impact on female labour force participation than that of males.

8 Due to limitations of space, we do not include the Appendix Figures A4-A25 here. Interested readers can download those in the working paper version of this paper from http://dyson.cornell.edu/faculty_sites/cbb2/Papers/NREGS%20Targeting%20paper%20-final-with%20abstract.pdf.

9 In Maharashtra, the pre-existing EGS generated more man-days of work than the MGNREGS for each fiscal year from 2006-2007 to 2010-2011 (Vijapurkar 2011).

10 Appendix Figures A4-A25 in the working paper version display estimated targeting profiles for states not mentioned in the text, ordered alphabetically.

11 The 2009-10 rural poverty line, which adjusts for spatial differences in prices, was Rs 693.8 monthly per capita in Andhra Pradesh and Rs 850 in Mizoram.

12 These two states are also border states that have disputes with Pakistan and China and for which data verification is routinely difficult. So one should be cautious about inferences made on the apparent shortcomings of MGNREGS implementation there.

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