# Falling Clientelism or Regime-Change Effect?
## Benefit Incidence of India's Employment Guarantee Programme:
## A Panel Data Analysis from West Bengal, India

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**Abstract:**

Our primary objective in this paper is to see, whether explicit political affiliation with the Village Council level ruling-party, helps the households to obtain additional benefits under National Rural Employment Guarantee Scheme (NREGS) of India over time. There has been much ado in the public sphere and among leading economists working on India, in favour of and against Modi's (Prime Minister of India, since 2014) sceptical position on the future of this flagship programme. On the one hand, recent cross-section studies showed how NREGS politically captured, and the ruling-party distributed the fund in a clientelistic manner, and, on the other hand, studies have also claimed that no political meddling took place and that jobs were provisioned only on demand. Weaving in this debate with the larger debate of *political clientelism* and *public good provision,* this paper examines the altering marginal benefit over time, of a household in terms of accessing NREGS jobs when it offers political support to the ruling party. Using a three-wave (2009, 2010, and 2012) household-level longitudinal data from West Bengal, we find that, during the period covered by our survey, the right populist party- Trinomool Cngress (TMC) ruled Gram Panchayats (GP) promoted more political clientelism through distributing NREGS work than did the Communist Party of India-Marxist (CPIM) or Left GPs. But we also find that political clientelism in the context of NREGS is gradually fading out over time. However, whether this result is a gradual depoliticisation of NREGS in general or one very much specific to the West Bengal political scenario is a question that is discussed carefully in the local context.

Key words: NREGS, Clientelism, West Bengal, India, Gram Panchayat

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## 3.1 Introduction

Has the world's largest public works programme, India's *Mahatma Gandhi National Rural Employment Guarantee Scheme* (henceforth NREGS) been used as a *quid pro quo* by politicians over time? This has been the moot question asked widely across India since the new Indian government, under Prime Minister Modi, came into power in May 2014. There has been much ado in the public sphere and among leading economists working on India in favour of and against Modi's sceptical position on the future of this flagship programme. On the one hand, recent cross-section studies showed how NREGS politically captured, and the ruling-party distributed the fund in a clientelistic manner (Das-2015, Mukhopadhyay 2012, Mukhopadhyay and Gupta 2014), and, on the other hand, government studies have also claimed that no political meddling took place and that jobs were provisioned only on demand (CAG, Govt. of India-2013). Weaving in this debate with the larger debate of *political clientelism* and *public good provision,* this paper examines the altering marginal benefit over time, of a household in terms of accessing NREGS jobs when it offers political support to the ruling party. Unlike the similar studies which use only cross-section information, our study uses three-wave longitudinal data. By '*ruling-party-supporter*' we refer to that household in which at least one member takes part in different election campaigns and rallies in favour of Gram Panchayat/Village Council (now onward GP) level ruling party. Using a three-wave (2009, 2010, 2012) household level longitudinal data from one of the poorest states of India, namely West Bengal, this study finds a gradual fading out of the extra dividend of being '*ruling-party-supporter*' on accessing NREGS days of work. In other words, evidence of political clientelism in the context of NREGS is gradually fading out over time. Here by "clientelism" we refer to the strategic transfer of NREGS benefits by the GP-level ruling-party to its supporting households as a means of securing votes, in an attempt to consolidate political power (page 2, Bardhan and Mookherjee-2012). However, whether this result is a gradual de-politicisation of NREGS or very much specific to the West Bengal political scene in the event of a regime change, needs special attention to interpret our results in local context. By "regime change" we refer to the change of the political regime in West Bengal from the Communist Party India (Marxist) or CPIM-led Left government to the Trinomool Congress or TMC-led government during the periods covered by our survey. We find that extent of clientelism in the distribution of NREGS benefits varies significantly between regime-changed GPs and not-regime-changed GPs.

Using our primary household-level panel data, our primary objective in this paper is to see how a household's explicit political affiliation with the GP-level ruling party matters in obtaining NREGS jobs over time. Since NREGS is a self-selected universal programme, simply looking at the participation information in addressing our research objective may entail the typical self-selection problem which we will discuss in greater detail in the methodology section (Section-3.5). We therefore use the Heckman Sample Selection Correction model with household fixed effect as our empirical strategy.

Our findings are as follows. *First*, household supporting the GP-level ruling party is more likely to become a participant in NREGS jobs after demanding for it. *Second*, those who consistently participate in the NREGS programme through the years are politically more inclined towards the GP-level ruling party. *Third*, based on our sample, households supporting the GP-level ruling party receive on average a higher number of NREGS days of work after demanding for it. Fourth, looked at closely, this additional benefit over the years, in terms of households receiving a higher number of NREGS days, diminishes over time and becomes insignificant by 2012. However, for this last finding, we obtain a heterogeneous result between regime-changed GPs and not-regime-changed GPs.

The remainder of this chapter is organised as follows. In Section 3.2, we briefly discuss NREGS and the political space of West Bengal. In Section 3.3, we present the summary of literature on the debate of political clientelism and provisioning of private benefits under a public programme. In addition, we also discuss the existing thin body of literature on NREGS in respect of this debate. In Section 3.4, we discuss the survey design, data, and descriptive results. In Section 3.5, we present the empirical strategies in line with our research objectives. In Section 3.6, we present the estimation results and discussion. Section 3.7 concludes the study.

**3.2 Implementation of NREGS and Local Politics: The West Bengal Experience**

**3.2.1 Implementation of the NREGS in West Bengal**

The National Rural Employment Guarantee Scheme or NREGS has followed from the National Rural Employment Guarantee Act (NREGA), which was passed in the Indian Parliament in September, 2005. Based on this NREGA, the programme first came into operation in February 2006 in the most backward 200 districts of India, including 10 districts from West Bengal. Our sample of households is drawn from Birbhum district (of West Bengal), which is one of the 200 first-phase districts. Subsequently, in the second phase of the programme, NREGS was scaled up to another 130 districts of India by 2007, including 7 districts from West Bengal. Finally, in its third phase, the remaining 285 districts - including the remaining 1 district from West Bengal - were brought under the purview of the act in April 2008. Theoretically, NREGS is a self-targeted universal programme, participation in which is purely voluntary. This is also known as a programme in which the government appears as the employer of last resort. This act makes it a statutory obligation for the government to provide a minimum of 100 days of unskilled employment on demand to each rural household in India. In other words, NREGA provides an opportunity for each rural household in India to get at least 100 days of unskilled employment on demand in every year.

The act also allows for the provision of an unemployment dole equivalent to the NREGS wage, in the event of the local government not being able to provide jobs on demand within 15 days from the date of demand. Moreover, the job has to be provided within the 5 km vicinity of the residence of the job demander, and providing a job located beyond 5 km from the residence, will require some reimbursement of travel costs at government expense. NREGS encompasses high community stakes, in the form of social audit, information dissemination up to village level, and extensively decentralised programme delivery mechanism. Unlike other development interventions, Gram Panchayats or the Village Councils are considered the main programme implementing agency (PIA). Wage payment of the job demanders under NREGS is fully institutionalised i.e. it is made through bank and post-office accounts. Finally, unlike other development interventions, NREGS uses the latest information technology to a great extent for its data management, expenditure tracking, and maintenance of the muster roll of the work beneficiaries.

In terms of financial allocation, NREGS is the largest ever social protection intervention by the Indian government since India gained independence. As per the India government's

official website for NREGA (i.e. www.nrega.nic.in), this programme has been spending an average 6.5 billion USD per year for the last 8 years. In terms of household coverage, at present this is the world's largest public works programme and this programme has been reaching on average around 45 million households for the last 6 years.

In Table 1 and Figure 1, we are presenting the average NREGS days of work availed by a household over the years. These averages are the ratio of '*total person days generated*' to '*total number of households provided NREGS jobs'* over the years, as derived from NREGS official website. Since this average calculation does not consider '*household demanded NREGS jobs*' but instead uses '*households provided NREGS jobs'* as the denominator. Therefore, from this average calculation, one cannot guess the extent of rationing. To estimate rationing, one has to carry out a primary survey. We will come back to this rationing aspect in respect of our own surveyed data in the next section.

In spite of its huge fiscal allocation, NREGS's uptake is by far below its statutory 100 days provision. The national average uptake of the programme in terms of the annual average days of NREGS work availed by a household over the years ranges between 40 and 50 days. For West Bengal, this figure is far below the national average except for the last few years, when West Bengal's average was close to the national average.

The lower uptake of the programme against the statutory provision of 100 days can be explained from both the demand and supply side. Studies have shown that people are not getting jobs on demand under NREGS. Rather there has been evidences of rationing of the jobs in the event of excess demand against the overall supply (Ravallion et al. 2012). On the other hand, institutional bottlenecks, payment delays, the lack of timely availability of NREGS funds from the relevant higher tiers, alternative livelihood options, minimum open market wages etc. play crucial roles in generating lesser demand for NREGS work (Chopra, 2014). The table and figures below compare the performance of NREGS in terms of average days between India, West Bengal and Birbhum District over the last 9 years.

**Table 1: Average days of NREGS work availed by a household**

|  | 2006-07 | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | 2013-14 | 2014-15 |
|---|---|---|---|---|---|---|---|---|---|
| India | 43 | 42 | 48 | 54 | 47 | 43 | 46 | 46 | 39 |
| West Bengal | 14 | 25 | 26 | 45 | 21 | 27 | 35 | 37 | 33 |
| Birbhum | 22 | 27 | 38 | 56 | 20 | 36 | 43 | 46 | 30 |

Source: Official Website of NREGA, www.nrega.nic.in (accessed on 18th June 2015), note: figures are rounded to the nearest integer

**Figure 1: Average days of NREGS work by a household - A comparison**
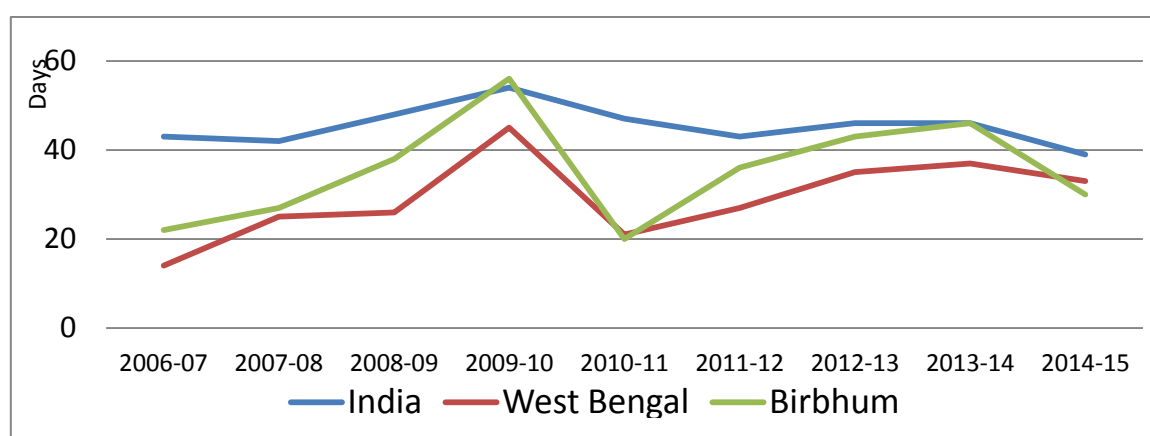


Source: Official Website of NREGA, www.nrega.nic.in (accessed on 18/06/15)

In comparison with the other states of India, in terms of per-capita state domestic product (SDP), West Bengal had been the richest state of India in 1960 but, by the end of the last millennium, the SDP per-capita rank of the state had declined to 9 (Dey 2010) and, for the last 15 years, this rank remains at 11 among 19 big comparable states in India (Appendix-1). At the time of independence (1947), the share of the state in the total industrial production (in net value added terms) of the country had been 24%. But it is evident from the recent estimates that this share has dropped to 4.6%, which places West Bengal at the bottom cluster among the 17 big states (Economic Census 2005).

In spite of registering a good performance in the past, in recent years, the agricultural growth rate has also declined, along with a sharp fall in productivity. In terms of the latest inequality-adjusted Human Development Index for Indian states (2011), West Bengal is placed 9th among 19 major states of India. Compounding this situation, for small peasants, agriculture is now becoming un-remunerative and a sizeable section of the rural workforce is being pushed

out from agriculture. At the same time, small enterprises are hardly able to absorb the surplus labour even when the wage-rate remains depressed (ibid). Although work participation in West Bengal has increased from 1991 to 2011, this is largely accounted for by an increase in the marginal workforce (Table 2), coupled with a fall in the main workforce participation rate, from 30.23 in 1991 to 28.72 in 2001 to 28.14 in 2011. This trend has been declining even more in recent times, unlike in the other big states such as Kerala, Maharashtra, Tamil Nadu etc. (Sixth Economic census 2014). So the rise in work participation with a significant fall in the main workforce percentage implies that new jobs must have been created mostly outside the organized sector of the economy, and thereby creating greater vulnerability for the workforce as a whole.

Against this background, the performance of NREGS for West Bengal was all along below the national performance (Figure 1). But our survey district Birbhum performs little better than the State. However, the overall trend of the State in terms of NREGS performance (Figure 1) and workforce participation (Table 2) is similar to that of Birbhum District.

**Table 2: Workforce participation: A comparison**

|  | Workforce Participation rate (2001) | | | Workforce Participation rate (2011) | | |
|---|---|---|---|---|---|---|
|  | Main Workers | Marginal Workers | Total Worker | Main Workers | Marginal Workers | Total Worker |
| India | 30.43 | 8.67 | 39.10 | 29.94 | 9.85 | 39.79 |
| West Bengal | 28.72 | 8.05 | 36.77 | 28.14 | 9.94 | 38.08 |
| Birbhum | 27.58 | 9.84 | 37.42 | 26.06 | 11.96 | 38.02 |

Source: India Census 2001, 2011 (http://censusindia.gov.in)

### 3.2.2 Local Politics in West Bengal

Among all the Indian states, West Bengal is the only state where a Left political coalition (the Left Front), led by the Communist Party of India (Marxist) (CPIM), had uninterruptedly been in power at both the state (i.e. provincial) and the local level of government for more than three decades, from 1977 to 2011. This has been a unique phenomenon, not only in India but in the world as a whole. In 1977, the Left Front (LF) came into power in the State Assembly by defeating the Indian National Congress (INC). A year later, for the first time, local government (i.e. the Panchayat) elections were held in West Bengal and here too, the Left Front came into power in all tiers[1] of local government across the state. In Table 3 (below),

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[1] Tiers of Local Governments: Local Government in Indian context is called Panchayat and Panchayat has 3 different tiers of governance. District Level tier of government is called District Panchayat or *ZillaParishad*, Sub-

we present State-level assembly election results in terms of the share of seats won by the LF from 1977 to 2011. It shows a clear dominance of LF till 2011.

**Table-3: Year-wise Left Front seat-share in the State Assembly Elections (1977 to 2011)**

| Year of Assembly Election | Percentage of seat won by Left front |
|---|---|
| 1977 | 60.20 |
| 1982 | 77.55 |
| 1987 | 82.31 |
| 1991 | 81.97 |
| 1996 | 69.05 |
| 2001 | 66.05 |
| 2006 | 79.93 |
| 2011 | 21.09 |

Source: Official website of West Bengal State Assembly: http://wbassebmly.gov.in and official website of Election Commission of India: http://eci.nic.in/eci/eci.html

Till 1997, the INC was the major opponent political party in West Bengal, but from 1st January 1998 a fraction of the Congress party broke away and formed a new political party- the All India Trinamool Congress (TMC) led by Mamata Banerjee, the current Chief Minister of West Bengal. Soon after its inception, the TMC was able to establish itself as the main opponent of the LF in the state. The ideology of the TMC could be broadly classified as Right Populist (Mallik, 2013; Bhattacharaya, 2012; Rana 2013).

From the early 1980s onwards, the LF had managed to get strong popular support, which has been reflected in electoral mandates based on programmes such as land reform, tenancy reform and effective decentralisation and devolution of power to the grass-roots democratic organisation i.e. the Panchayats. However, with the fading away of their progressive agenda in late 1990's (Barua, 1990; Webstar, 1992) and with the advent of contentious issues such as the acquisition of land for industry from 2006 onwards, the popularity of the LF gradually shrank (Mallik, 2013; Williams, 2001). Further, in the 2000s, the cadres of the LF increasingly intruded into the daily life of citizens, leading to increasing unhappiness of voters with the rank and file of the Left parties (Chatterjee, 2009; Bhattacharyya, 2009). Moreover, during this period, the basis of success in elections shifted from *institutional effectiveness* and *political mobilisation* to *clientelism* in which the LF made the disbursement of government benefits conditional on continued electoral support for them (Chatterjee, 2009; Bardhan and Mookhjee 2006). As a consequence of all these factors, there was a rapid erosion of the support-base of the LF towards the end of the first decade of the 2000s, with a

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district level tier is called Block Panchayat or *Panchayat Samity* and lowest tier is called the Village Panchayat or *Gram Panchayat*.

correspondingly sharp increase in the electoral success of the TMC in the local and state assembly elections. Table 4 shows how the vote share of the Left Front fell sharply in the Gram Panchayat (GP) elections from 1978 to 2013.

**Table-4: GP-level vote-share of Left Front in Panchayat Elections, 1978-2013**

| Year | GP level Vote Share of the Left Front |
|------|----------------------------------------|
| 1978 | 70.28 |
| 2003 | 65.75 |
| 2008 | 52.98 |
| 2013 | 32.01 |

Source: Author's calculation from CPIM party documents and West Bengal State Election Commission Website.

Figure 2 shows the seat-share of major political parties (or party coalitions) in the Zilla Parishad or District Panchayat (i.e. the district level tier of local government) election over the indicated years in West Bengal. It clearly shows that from 2003 onwards, the TMC started gaining electoral success and by 2013 it had become the ruling party in the district-level local governments as well. Figure 3 shows the winning party in each district in Zilla Parishad elections in 2003, 2008 and 2013. In 2003, most of the Zilla Parishads were ruled by the LF; however, by 2013, the LF had lost control of most of these district-level local governments to the TMC.

**Figure-2: Seat-share of major political parties in Zilla Parishad (i.e. the district-level tier of the local government) Elections over the years**
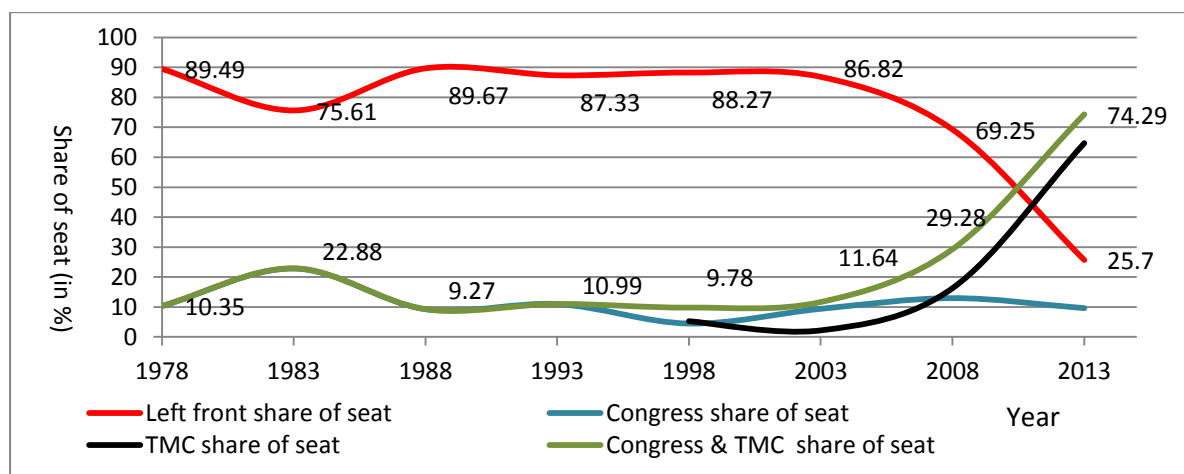


Source: Author's calculation from
a) West Bengal State Election Commission website
b) Pashchim Banga Saptam Panchayat nirbachan-2008: Porisankhan-o-Parjalochana, from the Communist Party of India (Marxist) West Bengal State Committee, 2013.

**Figure-3: District wise ruling party position after the Local Government Elections**



| CPIM: | Congress: | TMC: |
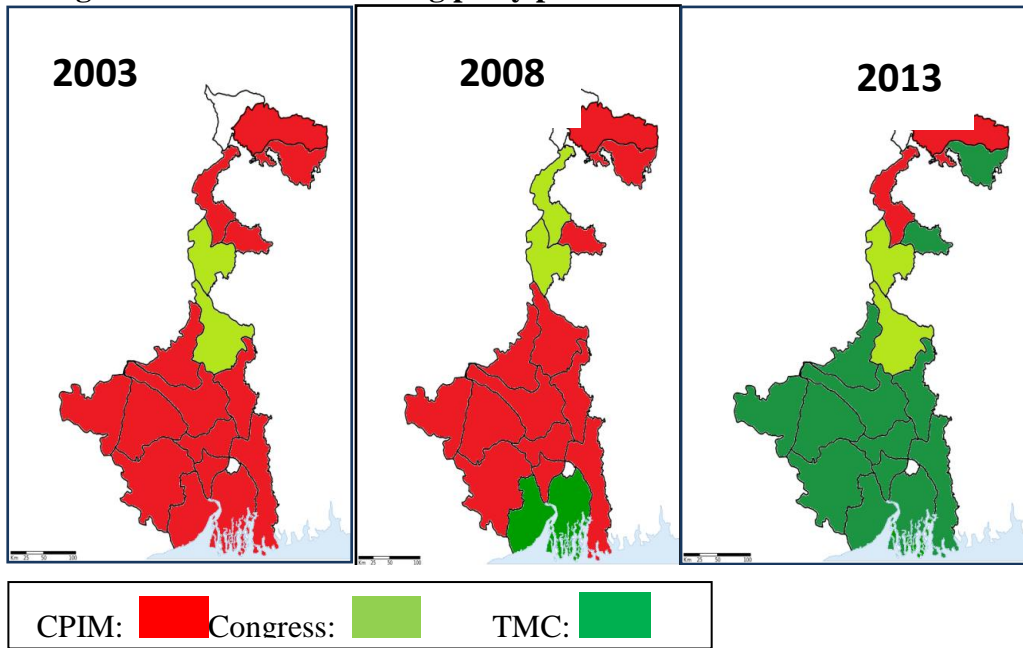
Note: White sections in the maps above show the areas where there was no District Panchayat
Source: Author's calculation from West Bengal State Election Commission website

Discussion in this section has particular importance with reference to our household survey periods. In each round of our survey, we asked the household respondents about their political inclination and preference. Since, during or around our survey period from 2009 to 2012, West Bengal had three major elections, we expected the household response to also reflect these regime-changing aspects described earlier. We conducted our first round of surveys in 2009, after respondents had just experienced the 2008 Panchayat Election, which witnessed the first major setback for the Left in West Bengal after three decades of rule. But Left Front was still able to retain more than 50% of Village Council Seats (i.e. GP seats) and 13 District Panchayats out of 17 in the 2008 Panchayat Election. In 2010, when we carried out our second round of surveys, respondents still harboured fresh memories of the 2009 Parliamentary Election, which had just seen support for the Left Front erode further, as they could retain only 16 parliamentary seats out of 42 in the whole state. Finally, when we conducted our third round of surveys in 2012, respondents were still harbouring memories of the 2011 State Assembly election, in which the Left Front was almost wiped out and following which 35 years of its rule over the state came to an end. If our sample households are a credible representative at the state level, then such a regime-changing political saga should also be reflected in the revealed political behaviour of the sample households. We will

revisit this regime-change aspect in the discussion of our main econometrics results in Section 3.6

**3.3 Literature on political clientelism and private benefit from public programmes**

In the literature of political economy, political clientelism has been described as one of the various forms of distortion in the political mechanism that may impede the choice of pro-poor development by elected governments (Bardhan and Mookherjee-2012). Borrowing from the comprehensive definition in Bardhan and Mookherjee (2012, page 2), "clientelism refers to strategic transfer made by political parties and the governments to poor and disadvantaged groups as a means of securing their votes, in an effort to consolidate political power". It simply shows a high correlation between the membership in the ruling party and beneficiary status or the extent of private benefit in public programme administered by the government of the ruling party. Like many other concepts in social science, the concept of clientelism means different things to different people but, the underlying connotations are largely the same. Medina and Stokes (2002) comprehensively summarise the definitional aspect of clientelism in different context by different authors.

Any analysis of political clientelism or clientelistic politics entails analysis of the interactions between patron and client. Here the patrons are the political leaders, and the poor or disadvantaged groups or individuals are the clients. We have already explained that, under clientelism, public resources are allocated to clients in exchange for political support. This then immediately prompts the questions: why does clientelistic politics arise? Why does the patron need to buy votes? And why does the revealed support of the client to a political party potentially matter?

In poor and in developing countries, patron-client relationships work as insurance devices and means of obtaining access of scarce resources for the ordinary citizen (Markussen, 2011). But if we consider the swing-voter theory, which says that political leaders who are motivated only by re-election should focus on pleasing the 'swing voters', rather than loyalists (Downs, 1957; Lindbeck and Weibull, 1987), why do politicians practising clientelistic politics distribute scarces resources on developing their networks of clients? One possible explanation is given by Markussen (2011), who argues that the main reason for a purely office-seeking politician to deviate from swing-voter motives originates from the fact that candidates for political office need to run in election campaigns. Services offered by the clients may come in the form of contribution in campaign and election rallies, in addition to

vote for the candidate. From our field experience, we observe that mostly poor clients take part in the election campaign by providing physical labour and time.

Another argument for politicians to deviate from swing voters is to support the core voters who actually voted for them. On the other hand, it is also quite natural for the political clients to support the patron's party if the party leader's motive for maintaining the network of clients is to run an effective campaign (ibid). Even if the motive of clientelism is to buy votes, politicians may still favour clients who visibly join the campaign, as secret ballot voting is not observable. Therefore physically joining a party and openly campaigning for it also offers a less ambiguous and more positive signal of the clients' voting intentions.

The next major challenge for the researchers is how to trace the presence of clientelism. Because, by its very nature, clientelism involves transferring public funds for private benefits, it can create an appearance of successful pro-poor targeting. But this usually comes at the cost of long-term overall socio-economic development, since it creates a damaging bias towards private transfers of resources, with short-term benefits rather than longer-term developmental goals (Bardhan and Mookherjee, 2012).

The conventional measures of government accountability and targeting incidence analysis cannot trace clientelism. The sheer presence of political clientelism would enhance inequality among the poor, reduce political competition (ibid) and lower productivity (Robinson and Verdier, 2002). But it would not provide any direct indication of resource misallocations resulting from clientelism. Information is seldom available concerning how narrowly directed these transfers are to specific subgroups within the targeted group, based on their political inclination. According to Bardhan and Mookherjee (2012) clientelism would tend to be marked by the transfer of 'inferior' consumption goods to select poor groups of voters in exchange for their political support. Referring to the West Bengal example, which is also the focus of our study, Bardhan and Mookherjee (2012) find that clientelism is more associated with delivering recurring types of benefits (such as distribution of food, NREGS work etc.) rather than with 'one-time long-term' benefits (like land reform, housing etc.) from local village councils (i.e. GP). Therefore, in our context, one way of tracing the existence of clientelism is to investigate, whether those among the poor supporting the ruling party are receiving a larger share of the recurring private benefits (from the public programme administered by the village council or GP level) than those who are not.

There is a sizable body of literature, both theoretical and empirical, on the issue of clientelism and biased public-resource allocation for private benefit. Kitschelt and Wilkinson (2007) provide an extensive overview of empirical studies from Africa, India, Latin America and Japan detailing the extensiveness of 'patronage based party-voter linkage'. Markusson (2011) summarises the empirical studies on patron-client relations and biased distribution, focusing exclusively on India. Based on a survey of 9132 households from 320 villages from the Indian state of Maharashtra, Anderson et al. (2015) identify that to control governance, the elite minorities - namely the landed Maratha caste as patrons - are thwarting the implementation of centrally mandated initiatives that would raise wages at the village level. According to the evidence cited there, clientelism leads to fewer programme, more insurance but lower wages when vote trading occurs.

Based on a 2004-05 survey of 2410 households from 89 villages in West Bengal, a series of papers (Bardhan et al. 2009, 2010, 2012, and 2014) investigated the existence of political clientelism and biased distribution of private benefits under public programmes. Bardhan et al. (2009) found a visible form of political loyalty, in the form of attendance at political meetings. Their empirical findings suggest that, within a village the households regularly attending political meetings received more benefits on average than those that did not. The authors argue that this suggests the presence of political clientelism. These findings are also similar to Dey (2010) and Das (2015), both studies, in context of West Bengal (Birbhum and Cooch Behar districts respectively), find the evidence of political clientelism in the distribution of benefits under NREGS. Along with clear evidence of inter-village elite capture of government benefits (which is different from clientelism), Bardhan et al. (2012, 2014) also find that political support among voters for the dominant Left party is positively correlated with the receipt of recurring and personal benefits; but they find *no* correlation between political support and long-term one-off benefits or local public benefits. All the empirical studies cited so far used a cross-section data but our study will shed new light by investigating similar questions using a novel *three* rounds household-level longitudinal data from West Bengal

Among the theoretical literature, Bardhan and Mookherjee (2012) present a theoretical analysis extending the standard models of probabilistic voting and competition between two parties in the Downsian tradition. Through their model, they distinguish between political capture and political clientelism and claim capture and clientelism are negatively correlated. Medina and Stokes (2002:3) present a theoretical model in terms of a game theoretic

approach showing how clientelism reduces electoral competition, preference among incumbents against redistribution, and lethargic economic development. Anderson et al. (2015) present a theoretical model of village governance to predict when clientelism is likely to arise as a function of the variation in the land-holding and population numbers of the dominant or elite caste.

In practice there are some factors which work in favour of clientelism, and some which increase the possibility of the fading out of clientelism (Bardhan and Mookherjee, 2012). On the one hand, a low level of development and high poverty among voters facilitate clientelism, partly because their votes are cheap to buy. On the other hand, in keeping with the process of development, as poverty declines, buying votes become expensive and clientelism tends to decline. Moreover, citizens increasingly demand public goods as their societies and aspirations develop:

"….complementary supply-side factors that cause clientelism practices to erode with the process of development include increased difficulty of monitoring when citizens become spatially mobile, less trapped in rigid, durable social networks…programmatic politics takes over when mobility increases and makes the delivery of clientelistic goods unreliable…….increased media exposure undermines clientelistic practices…,and voters become more receptive to such media accounts as they become more literate…"

(Bardhan and Mookherjee, 2012 p. 7)

Also in the line of the theoretical argument of Medina and Stokes (2001), we can claim that there is a negative co-relation between clientelistic politics and political competition. However, Shapiro (2009), in an empirical work in the context of Argentina, claims that the relationship between political competition and clientelism is contingent on levels of voters' poverty. In particular, she claims that a high level of political opposition is compatible with clientelism when poverty is high, while the combination of substantial opposition and a sizeable middle class generates incentives to eliminate clientelism. But once controlling the voters' poverty, how clientelism then behaves with political competition needs further exploration and our study will contribute to that. Moreover, we do not find any empirical work which traces the evidence of clientelism using longitudinal data at the household level. Our paper will thus represent a contribution to the literature in that respect too.

### 3.4 Survey Design, Data and Descriptive Statistics

### 3.4.1 Survey Design and Data

The data used for this study come from a household-level longitudinal survey conducted in Birbhum district of West Bengal in 2009, 2010 and 2012. The survey was conducted over a sample of 500 households from 49 villages/Gram Sansads from 13 Gram Panchayats over 7 administrative Blocks in Birbhum district. While the choice of the district was driven by pragmatic concerns, the sampling approach within the district was designed to yield a sample which is representative at the district level. First, Gram Panchayats (GPs) were chosen on the basis of a stratified sampling procedure and thereafter, within each stratum, households were chosen on the basis of random sampling. In Appendix-2 we illustrate sampling design in detail. There was no eligibility restriction for the responding households to be a participant of the NREGS programme as this programme was a self-selected universal programme. Among the respondents, we had a good mixture of participants and non-participants in each round.

Out of 500 households we could obtain the same sets of information all across the rounds for 477 households; for 11 households, we were able to obtain information for the first and third rounds only; for 10 households; we were able to obtain information for the first two rounds only; and for 2 households, we were able to obtain information for only the first round. As a result, we find only a 4.6% (i.e. 23 households) attrition rate between the first and the last round. Hence our study is based on the balanced panel. The major focus of this survey was to gather data on the functioning and participation in NREGS by the responding households and to gather information on each household's livelihood, income, expenditure, employment, savings, indebtedness, average monthly volume of regular transactions on credit, livestock, assets (both related to production and household durables) and other socioeconomic variables. The descriptive results of our surveyed data in line with our research objectives are discussed in the following sub-section.

### 3.4.2 Descriptive Results

In this paper our primary research objective is to see the determinants of NREGS participation and in the process investigate whether being a supporter of the ruling party at the GP-level pays any extra dividends to the household, in terms of obtaining NREGS work after demanding for it. However, before presenting the regression based identification strategy and its results, we will present in this section simple two-way explorations between

NREGS days of work (or participation status) and possible factors that could influence NREGS participation.

### 3.4.2.1 NREGS participation and household assets

Table-5: Household's asset position: NREGS participants and non-participants

| NREGS Status | Total Land Owned (in Acre) | | | | Value of Asset Index | | | | % of Kutcha house | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2009 | 2010 | 2012 | Pooled | 2009 | 2010 | 2012 | Pooled | 2009 | 2010 | 2012 | Pooled |
| Participant | 0.507 | 0.591 | 0.517 | 0.539 | 0.521 | 0.584 | 0.551 | 0.552 | 74.34 | 65.70 | 61.53 | 67.21 |
| Non-participant | 1.323 | 0.943 | 0.867 | 1.050 | 0.668 | 0.693 | 0.627 | 0.662 | 47.44 | 38.15 | 39.15 | 41.96 |
| \|t\| for T-test | 6.40*** | 2.66*** | 3.40*** | 7.26*** | 7.58*** | 5.58*** | 3.46*** | 9.31*** | 6.3*** | 5.92*** | 4.93*** | 9.82*** |

Source: Author's calculation from survey data

From Table 5, it appears that, over the rounds, those who possess fewer household level assets turn out to be the participant of NREGS. These assets refer to owing land in acre, composite vale of asset index constructed by principal component analysis and percentage of Kutcha house. However, we do not claim this as any causal relation rather a better targeting picture in which NREGS participants are significantly more asset-poor on average than are non-participants.

### 3.4.2.2 NREGS participation and monthly per-capita income and consumption

**Table-6: Monthly per-capita income and consumption across different status of NREGS participation**

| Year | Type of household (figure in bracket is the no. of household) | Per-capita household expenditure | | Per-capita monthly income | |
|------|------|------|------|------|------|
| 2009 | Participant (n=304) | 613 | (52.88) | 582.8 | (82.61) |
| | Involuntary non-participants (n=91) | 685.93 | | 700.83 | |
| | Voluntary Non-participant (n=105) | 1402.86 | | 2172.09 | |
| 2010 | Participant (n=312) | 653.63 | (59.54) | 662.39 | (141.06)* |
| | Involuntary non-participants (n=84) | 735.79 | | 922.29 | |
| | Voluntary Non-participant (n=91) | 1212.01 | | 2029.09 | |
| 2012 | Participant (n=299) | 724.36 | (50.33) | 630.15 | (89.82) |
| | Involuntary non-participants (n=116) | 781.12 | | 709.87 | |
| | Voluntary Non-participant (n=73) | 1169.34 | | 1702.61 | |
| Pooled | Participant (n=915) | 663.25 | (31.18)* | 625.41 | (60.25)* |
| | Involuntary non-participants (n=291) | 738.27 | | 768.36 | |
| | Voluntary Non-participant (n=269) | 1274.93 | | 1996.31 | |

Source: Author's calculation based on surveyed data.
Note: Values in the brackets show standard error of 't' test of whether differences in the average values of said variables between '*Participants*' and '*Involuntary non-participants*' are statistically significant. '*'p<0.05 **p<0.01

In Table-6, we classified the entire surveyed households into 3 types: - Those who worked in the NREGS programme were classified as: *participants;* those who applied for or sought NREGS jobs after obtaining a Job Card[2], but who eventually did not get the job, were classified as: *involuntary non-participants;* and those who did not show any interest in obtaining a Job Card for NREGS work or, even after receiving a Job Card, did not apply for or seek NREGS work, were classified as: *voluntary non-participants.*

In Table-6, we can see that the monthly per-capita consumption and income of the voluntary non-participants are much higher than for those of the other two categories of households, in all rounds as well as in the pooled observations. However, the values of the monthly per-

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[2] The Job Card is a booklet which is issued to each NREGS participating household free of cost. This job card keeps a detailed date-wise record of the number of days of work and payments received from NREGS. It is mainly maintained by the programme-implementing officials at the village level and is indeed the best available instrument for tracing the number of days worked by a household in a year and also from the start of the programme. The Job Card is a mandatory document for obtaining NREGS work.

capita consumption and income for NREGS participants and of the involuntary non-participants are relatively close to each other, the difference of their average values being mostly statistically insignificant. But more precisely, the average values are smaller in magnitude for the participants, compared to the same values for the involuntary non-participants.

The overall picture that emerges from Table 6 is similar to the picture emerging from Table 5. Table 6 is simply saying that those who are participating in NREGS turn out to be the poorest people, and this matches the underlying notion of the programme, namely that only the poor will regard it as an incentive to participate in this kind of self-selected programme, whereas the non-poor will find no incentive to participate.

In Appendix 3, we plot a simple, two-way relationship between NREGS days of work and monthly per-capita income for those households that worked in the NREGS for at least a single day. That graph shows a negative relation between the two variables, indicating that households with a higher income tend to work less in NREGS programme. In the same appendix, we also plot the two-way relationship between NREGS days of work and land holding in acres, with that graph also showing a negative trend indicating that the higher land holding class of households tend to work for fewer number of days under NREGS.

### 3.4.2.3 NREGS participation and households' status of poverty

In this subsection we would like to explore the two-way relation between NREGS days of participation and the status of a household's poverty, measured in different ways. Based on 66th round (2009-10) of the National Sample Survey (NSS) of government India, the Indian Planning Commission estimated the poverty line consumption level for Rural West Bengal to be INR643.20 per head per month. Now adjusting our sample households' consumption level to compare with the government's poverty-line consumption, we construct Table 7 below.

**Table 7: NREGS participation and State Poverty Line**

| If Worked in NREGS | Poverty Status | | Total |
|---|---|---|---|
| | Below Poverty Line (average days of NREGS Work in the bracket) | Above Poverty Line (average days of NREGS Work in the bracket) | |
| Yes | 536 (33.52) | 379 (30.09) | 915 (32.099) |
| No | 231 (0) | 329 (0) | 560 (0) |
| Total | 767 (23.42) | 708 (16.10) | 1475 (19.09) |

Source: Author's calculation from surveyed data
Note: Here the Poverty line is defined in terms of the West Bengal State poverty line consumption level i.e. INR 643.20 per-capita monthly consumption expenditure. This is defined by the Planning Commission of India based on 66th round of NSSO survey 2009-2010.

Table 7 depicts a sort of targeting performance of the programme in a crude way. Out of 1475 sample households in the pooled balanced data, 767 or 52% households live below the poverty line (BPL). Among these 767 BPL households, 536 or 69.88% households participate in NREGS with 33.52 days of average NREGS work. Therefore in spite of being BPL households, remaining 30.12% households do not participate in NREGS. However, till now we do not know whether the latter households opted out voluntarily or they were not allowed to participate in NREGS work. On the other hand in our balanced pooled sample we have 708 or 48% above poverty line (APL) households. Among APL households, 379 or 53.53% households participate in NREGS with average 30.09 days of NREGS work per year and remaining 329 or 46.47% households are non-participants. If NREGS was exclusively a poverty targeting programme instead of being a self-selected universal programme, then 379 households (i.e. those who are not poor but NREGS participants) out of a total 1475 i.e. 25.69% would have been the Type-I error of targeting, and 231 households (those who are poor but NREGS non-participants) out of a total 1475 i.e. 15.66% would have been the Type-II error of targeting (Ravallion 2007). In that case all together the extent of leakages of targeting would have been Type-I + Type-II i.e. 41.35% i.e. the extent of mistargeting or misallocation of funds.

In Table 8, we present four different poverty classes viz. '*Ultra-poor*', *'Poor', 'Relatively Non-poor', 'Relatively rich'*. Construction of these poverty classes or categories are illustrated in detail in Appendix 4. From Table 4 we can see *ultra-poor* category of households are proportionately highest in the sample in 2009 and 2010; whereas, *relatively-rich* category of households are proportionately highest in 2012 as well as in pooled data. But percentage of NREGS-participating households in each category is highest within the ultra-poor, and least within the relatively-rich category of households across all the round. Moreover, average number of days worked under NREGS is also highest for the ultra-poor and least for the relatively-rich category of households. Essentially these evidences show good targeting outcomes, and also refers to a case where poorer households participate more in NREGS compared with non-poor categories.

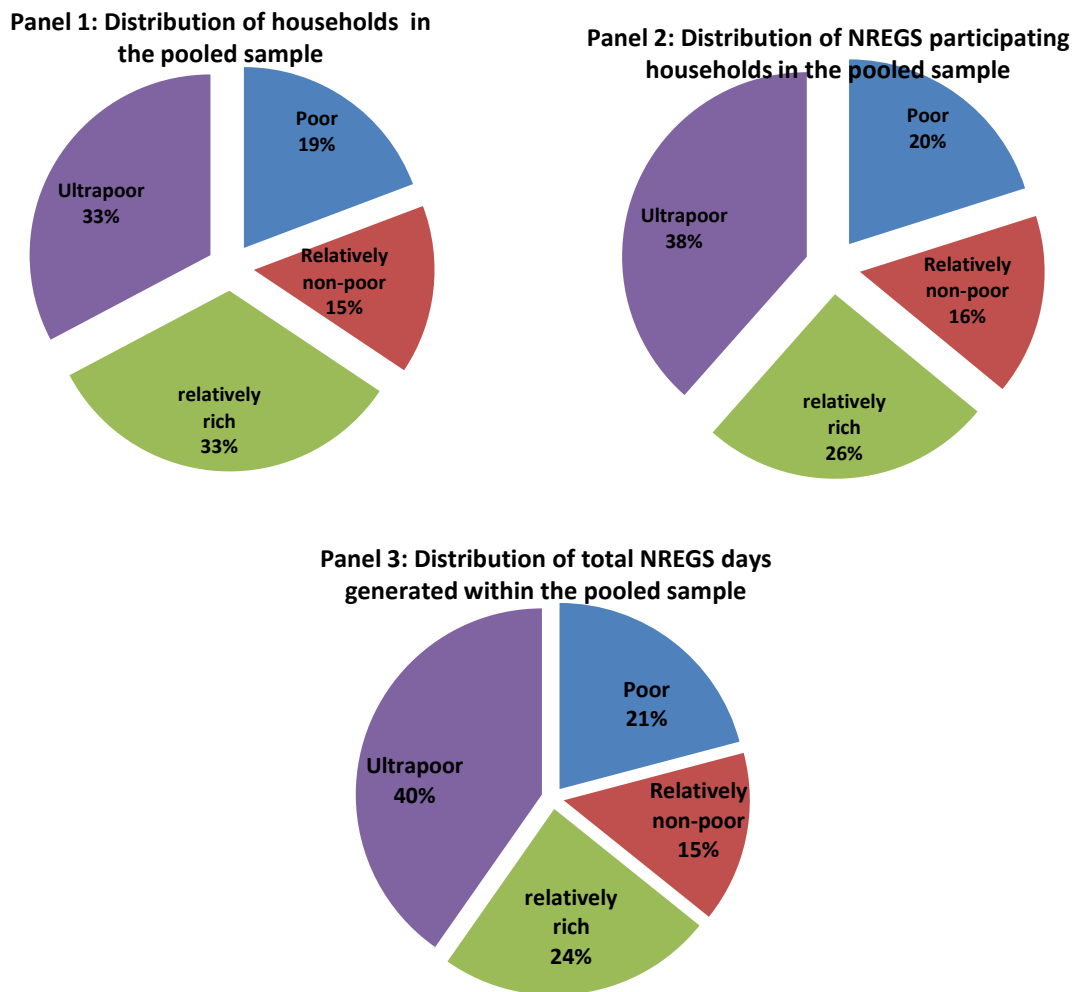**Table 8: Poverty status and NREGS participation**

| Poverty Status | 2009 | | | 2010 | | | 2012 | | | Pooled | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Ultra Poor (PCMCE<=514.56) | 34.60 | 75.14 | 25.88 | 37.78 | 72.28 | 36.07 | 25.81 | 70.63 | 41.21 | 32.75 | 72.88 | 33.61 |
| Poor (514.56<PCMCE<=643.20 | 19.60 | 63.27 | 24.67 | 17.45 | 70.59 | 34.35 | 20.70 | 61.39 | 41.06 | 19.25 | 64.79 | 33.35 |
| Relatively non-poor (643.20<PCMCE<=771.84) | 16.40 | 68.29 | 25 | 12.73 | 69.35 | 35 | 16.19 | 58.23 | 31.74 | 15.12 | 65.02 | 30.10 |
| Relatively Rich (PCMCE>771.84) | 29.40 | 38.10 | 20.37 | 32.04 | 48.72 | 30.95 | 37.30 | 56.04 | 34.76 | 32.88 | 48.25 | 30.08 |
| Total | 100 | 60.80 | 24.46 | 100 | 64.07 | 34.34 | 100 | 61.27 | 37.52 | 100 | 62.03 | 32.09 |

Source: Author's Calculation from surveyed data

Note: PCMCE= Per-capita monthly consumption expenditure. 1= Percentage in the sample; 2= Percentage of participating households in NREGS; 3= Average days of NREGS work.

Our main intention for Figure 4 below, is to explore whether there is any apparent capture of NREGS by the non-poor categories. In Panel 1, we show distribution of households in terms of their poverty category. In the whole balanced pooled sample of 1475 households, 33% are ultra-poor, 19% are poor, 15 % are relatively non-poor and 33% are relatively rich. Panel 2 reveals that, within the 915 NREGS-participating households in pooled sample, 38% are ultra-poor, 20% are poor, 16% are relatively non-poor and 26% are relatively rich. Finally in Panel 3, we present the distribution of total NREGS days generated by the entire cohort of 915 NREGS-participating households in the pooled sample. All together 29371 NREGS work-days have been generated (or worked) by the entire 915 NREGS-participating households in the pooled sample. Panel 3 shows the distribution of 29371 work-days across four different poverty categories. 40% days were availed by the ultra-poor (though they were 33% in the sample), 21% days were availed by poor (though they were 19% in the sample), 15% days were availed by relatively-non-poor (they were 15% in the sample), and 24% days were availed by the relatively-rich (though they were 33% in the sample). These pictures show ultra-poor and poor are over represented whereas relatively rich households are under-represented in terms of accessing NREGS days of work in our sample.

**Figure 4: NREGS and poverty status: household-level exploration**

**Panel 1: Distribution of households in the pooled sample**



Poor 19%
Relatively non-poor 15%
relatively rich 33%
Ultrapoor 33%

**Panel 2: Distribution of NREGS participating households in the pooled sample**



Poor 20%
Relatively non-poor 16%
relatively rich 26%
Ultrapoor 38%

**Panel 3: Distribution of total NREGS days generated within the pooled sample**



Poor 21%
Relatively non-poor 15%
relatively rich 24%
Ultrapoor 40%

Source: Author's calculation from the surveyed data

### 3.4.2.4 Consistency in NREGS participation and households' characteristics

In this sub-section we examine the two-way relation between 'consistency of NREGS participation' and 'different household characteristics' (as depicted in Table 9 below). In our pooled sample of 1475 households, we divide the households in four different types. Type-1 households are those who have worked in NREGS in all the three rounds of our survey. We call them *most consistent* households in terms of NREGS participation. Type-2 households are those who have worked at least two rounds during our three rounds of survey, and they are *relatively-consistent* households in terms of NREGS participation. Type-3 households are those who have worked at least one round during our three rounds survey, and they are *relatively-inconsistent* households. Finally the Type-4 households are those who have never worked in the NREGS, and they are *non-participants*.

There could be many supply side and demand side factors, which could determine households' status in terms of households' nature of consistency in terms of NREGS participation. Table 9 shows that the most consistent NREGS participating households (i.e. Type-1) are the most poor in terms of land holding and monthly per-capita consumption expenditure. Moreover, concentration of SC and ST (i.e. two most backward social castes) is also highest among the Type-1 households. Most interestingly, among the four types of households, concentration of '*ruling-party-supporter*' is also highest among Type-I households. On the contrary those who are consistently non-participants (Type-4), do not tend to be *ruling-party-supporter.* Interestingly, the attendance of the Type-4 households in the Gram Sansad (GS)[3] meeting or village/ward assembly meeting is also very low. Considering the Type-4 households to be apparently non-poor or rich, who do not expect obtaining any Panchayat benefit or NREGS work, it is revealed that they are also least interested about the politics and activities at the GP level. This may indicate a kind of *elite exit* (Bardhan 2015) from the public services.

**Table 9: Consistency in NREGS participation and households' characteristics**

| Type of household | % of Households | Days worked per year | Total days worked | land holding (in acre) | value of real MPCE (in INR) | % attend GS meeting | % of *ruling-party-supporter* | Caste (in %) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ST | SC | OBC | Gen |
| 1 | 43.35 | 35.09 | 105.29 | 0.619 | 645.80 | 60.56 | 33 | 5.94 | 56.43 | 4.45 | 33.18 |
| 2 | 23.48 | 18.67 | 56.03 | 0.77 | 708.36 | 60.42 | 23.81 | 3.57 | 38.39 | 5.36 | 52.68 |
| 3 | 13 | 6.35 | 19.06 | 0.867 | 704.53 | 51.07 | 19.89 | 1.61 | 37.09 | 4.84 | 56.46 |
| 4 | 21.17 | 0 | 0 | 1.071 | 1161.4 | 29.7 | 17.16 | 1.98 | 16.83 | 10.9 | 70.29 |
| Total | 100 | 19.91 | 59.30 | 0.783 | 789.6028 | 52.33 | 25.69 | 4 | 41.63 | 6.03 | 48.34 |

Source: Author's calculation from surveyed data.

### 3.4.2.5 NREGS participation and households' political status

In this subsection we present the relation between NREGS participation and households' political affiliation. To detect the households' political affiliation, we asked during our survey whether any member from the household took part in the last election campaign, and if so, for which political party they campaigned for. Since our survey timing (i.e. 2009, 2010, 2012) perfectly coincided with a post-election year (2008 was the 7th West Bengal Panchayat Election year, 2009 was the 15th Indian Parliamentary Election year and 2011 was the 7th West Bengal Assembly Election year) in each round, we could ask these election related political questions to the surveyed households. Later based on their responses and tallying

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[3] GS is a statutory forum where GP or Village council officials and people's representatives explain the budget allocation, schemes to be undertaken for the people/voters of the ward or Sansad. As per West Bengal Panchayat Act, GP has to conduct this meeting twice a year in each Sansad or ward within the GP. By attending this meeting villagers can learn lot on the GP functions (for more discussion on GS see Ghatak & Ghatak 2002)

their response with the GP level ruling party, we defined a household as a *'ruling-party-supporter',* if that household campaigned for and supported their GP level ruling party during the elections. The otherwise categories of household are clubbed under *'not-ruling-party-supporter'.*

Table 10 shows the relation between average days of participation of the households (which worked at least for one day during the year) and their political affiliation over the years. We can see being *ruling-party-supporter* as defined above, households are getting higher number of days every year compared to the *not-ruling-party-supporter.* However, the difference in the days of NREGS work between these two groups is gradually falling over time and also becomes statistically less significant. From 20 days difference in 2009, it is reduced to just 6 days by 2012, and the latter is statistically significant at 10% level. This particular trend of falling dividend of being *ruling-party-supporter* in terms of getting NREGS jobs could be interesting to investigate further once we control for other factors.

**Table 10: NREGS days of work and households' political affiliation**

| Political status | Average NREGS Days of work | | | |
|---|---|---|---|---|
| | 2009 | 2010 | 2012 | Pooled |
| *Ruling-party-supporter* | 37.94 | 41.96 | 41.65 | 40.42 |
| *Not-ruling-party-supporter* | 17.95 | 31.49 | 35.69 | 28.51 |
| \|t\|stats for T test | 9.36*** | 3.14*** | 1.684* | 6.56*** |

Source: Author's calculation from surveyed data

To sum up this section, we can say that in terms of factors like land, livestock, poverty status, asset position, housing status, per-capita income and consumption, household's NREGS participation and magnitude of days of work do not show any evidence of non-poor capture, rather based on the exploratory findings, incidence of targeting seems pro-poor. But as Bardhan and Mookherjee (2012) illustrate, if there is clientelism then even after an apparent pro-poor targeting and without any non-poor capture, the final outcome may show a distortion if political affiliation of the households is considered in distribution of private benefit. We will investigate this aspect in our confirmatory analysis section based on following methodology.

## 3.5 Methodology and Identification strategy

Our overall objective in this paper is to see the determinants of *NREGS participation* and the *number of NREGS days* of work availed by the participating households, once they demand for it. Precisely this will enable us to comment on the underlying pro-poor targeting notion of the NREGS. In doing so we would like to investigate further whether household's political affiliation with the GP level ruling party pays any extra dividend in terms of getting access of the work, and also the magnitude of the work i.e. days of NREGS work. If we find that being GP level ruling party supporter, households are getting extra benefit under NREGS, then we would refer that as an evidence of 'political clientelism' in our context. One of the important objectives of this paper is to investigate whether there is any evidence of political clientelism in the distribution of NREGS work, and if so, then how it changes over time.

To address our research objectives, we set three specific research questions.

*First*, what are the determinants of participation in NREGS work after demanding for it? Here our main dependent variable is a dummy, which takes '1' if the household gets work after demanding work and '0' if it does not get work after demanding for it.

*Second*, what are the determinants of days of NREGS work after demanding for it? Here our main dependent variable is a continuous variable which shows days of NREGS work in a year.

*Third*, what are the determinants of consistent participation in NREGS work after demanding for it? Here our main dependent variable is an unordered categorical variable which shows household type. Household Type-1: if the household could participate in all three rounds of our survey. Household Type-2: if the household could participate in at least two rounds of our three rounds survey. Household Type-3: if the household could participate in at least one round of our three rounds survey. Household Type-4: if the household could not participate in any of the rounds. In all these cases (i.e. Type-1 to Type-4), households' participation status is observed once they demand for NREGS work. Following subsections will illustrate our empirical strategies for each of these three separate research questions.

### 3.5.1 Participation in NREGS after demanding for it

Since participation in NREGS is conditioned only on demanding for it, therefore we can observe the participation status only for those households who have already demanded for NREGS work. Taking just the households, which demand for work, implies we are dealing with a selected sample of random households. This may lead to the classic case of "sample selection bias" (Heckman, 1979). Households may decide not to demand work when their reservation wage is higher than that offered under NREGS and typically this reservation wage is unobserved. Hence *probit regression* estimation, considering only those households, which demand for work, can lead to biased estimates. Thus, we followed a bivariate probit model with sample selection correction by Heckman methods (Van de Ven and Van Pragg 1981; used also in Das 2015). This involves two steps. First, we estimate demand equation and then participation equation.

i. *Demand equation (or Selection Equation)*: This is a probit regression (binary dependent variable taking a value of '1' if the household demand for work and '0' otherwise) to explain the decision to demand for work under NREGS.

ii. *Participation Equation (or outcome equation)*: This is also a probit regression to explain whether the household actually received NREGS work, observed only for those, who demanded for work that is dependent variable in the demand equation is '1'.

In terms of econometrics model, the Participation equation or the probit model to estimate the probability of households to participate in NREGS programme can be explained in terms of the following relationship.

$$y_i^{participaton} = x_i\beta + u_{1i} \ldots\ldots\ldots(1) \quad \text{(Participation Equation/Outcome Equation)}$$

$$y_i^{demand} = z_i\gamma + u_{2i} > 0 \ldots\ldots\ldots(2) \quad \text{(Demand Equation/Selection Equation)}$$

Where $u_1 \sim N(0,1), u_2 \sim N(0,1)$ and $\text{corr}(u_1, u_2) = \rho$

We observe only the binary outcome $y_i^{participaton}$ if $y_i^{demand} = 1$ (i.e. $z_i\gamma + u_{2i} > 0$) (Wooldrige, 2006, page 618-620). In Equation 1, $x_i$ is the vector of independent variables for household $i$ affecting its probability of getting work, $\beta$ is the vector of coefficients of independent variables and $u_{1i}$ are the error terms. $z_i$ is the vector of independent variables affecting the

probability of household $i$, in demanding work, $\gamma$ is the vector of coefficients of independent variables and $u_{2i}$ are the error terms. N(0,1) represents the standard normal distribution of the error terms. When $\rho \neq 0$, standard probit estimations, through the outcome equation, taking only the households which sought work, would yield biased and inconsistent estimates. Hence bivariate probit regression with sample selection is applied, where we followed two steps Heckit method. In the first stage we estimate a probit model of $y_i^{demand}$ on $z_i$ and obtain the estimates $\hat{\gamma}$. Then compute the Inverse Mills Ratio (*imr*) $\hat{\lambda}_i = \lambda(z_i \hat{\gamma}) = \varphi(z_i \hat{\gamma}) / \phi(z_i \hat{\gamma})$ [it is the ratio between the standard normal *pdf* and the standard normal *cdf*] for those with $y_i^{demand}$ =1. In the second step using the selected sample, i.e. observations with $y_i^{demand}$ =1, we run the regression ($y_i^{participaton} on \; x_i, \hat{\lambda}_i$). This procedure will give an estimator $\hat{\beta}$, which is consistent and approximately normally distributed. To test the selection bias we follow usual t test on the coefficient on *imr* i.e. coefficient on $\hat{\lambda}$ as a test of $H_0 = \rho = 0$. In our result section we will report the results with and without sample selection correction, where results without sample selection correction are the estimates without incorporating *imr* as one of the covariates.

One of the important assumptions of this two steps sample selection model is that $x$ is a strict subset of $z$. This implies that all regressor used in the second step need to be included as explanatory variables in the first step and we should have at least one variable in $z$ that is excluded from the second stage regression (Wooldrige, 2006, page 618-620). Otherwise, the model is identified by the functional form and the coefficients have no structural interpretations (Cameron & Trivedi, 2009). This is called the *exclusion restriction* which demands at least one such variable, which influences household to demand for work under the programme, but that would not influence the probability of those households to get the work. We chose '*the average days of unemployment per head in adult equivalent scale within the household (in short unemployed_ph)*' as our exclusion variable. The households with higher number of '*unemployed_ph*' are more likely to demand work. However, when GP and Gram Sansad (i.e. the ward of the village council) politicians select households for allocation of work, it seems less likely that this exclusion variable plays any crucial role, especially after controlling for other household level factors like land holding, caste, religion etc. We run simple probit regression to estimate the probability of getting NREGS work (after demanding for it) on the '*unemployed_ph*' (with and without controls) and the coefficient of

'*unemployed_ph*' is statistically insignificant. But '*unemployed_ph*' is statistically highly significant in selection equation i.e. in demanding work. This suggests that our exclusion variable affects demand for work but does not influence the local politician to allocate NREGS work. Moreover, in our result section we will see the coefficient of imr is statistically insignificant implying no sample selection bias. Even when we replace our exclusion variable by 'number of working individual of the households' (as did by Das, 2015), the findings remain fairly unchanged.

We run this bivariate probit model with and without sample selection correction with respect to pooled cross section data as well as for each round of our survey with GP and time fixed effects and adjusting standard error at the GP level. We will present the description of our main dependent and explanatory variables in Appendix 5. Results are reported in Section 3.6.

### 3.5.2 Days of NREGS work after demanding for it

The second objective of our paper is to investigate whether being a GP-level ruling party supporter, a household obtains extra days of NREGS work after demanding for it. Here also we follow a similar empirical strategy. Number of days of work under NREGS would be observed only for those households, which received work under the programme after demanding for it. However, if the households which received work are systematically different, and if we run regression with this group of households, it might again result in sample selection bias which has already been discussed (Heckman 1979). Hence we follow the similar approach as we explained in Section 3.5.1. But here we use the panel structure of our data. In the first stage we estimate the selection equation based on the probability of households getting work, and in the second stage we use the Inverse Mills Ratio (imr), to estimate the number of days of NREGS work. In the first stage instead of using a simple probit model of selection equation we run '*population-averaged probit model*' (Neuhaus et al., 1991; Neuhaus, 1992) using '*xtprobit*' command in stata (Cameron & Trivedi 2010) to use the panel structure of our data. In the second stage to estimate the outcome equation we use household fixed effect model with imr as one of the covariates within the sample where $y_i^{demand}$=1. Calculation of imr is exactly the same as illustrated in Section 3.5.1 Fixed Effect model would allow us to tackle the household specific time invariant unobserved heterogeneous factors, which could influence availability of days of NREGS work. This is to mention that we also run household random effect (RE) model and then compare the results

with the fixed effect (FE) results using the Hausman test. Hausman test result suggests us to use FE ove RE.

As in the earlier case, we use *unemployed_ph* as the exclusion variable. Along with the household fixed effect model in the second stage, we also run separately the simple ordinary least square (OLS) estimation for days of NREGS work for each year, with and without sample selection correction. Like in the previous model, here also we control for GP fixed effect and time fixed effect with the adjustment of standard error at the GP-level. Apart from the main dependent variable which is *days of NREGS work,* all other explanatory variables are the same as in Section 3.5.1 Descriptions of these variables are illustrated in Appendix 5. Results of this section are reported in Section 3.6

### 3.5.3 Consistent participation in NREGS work after demanding for it

Here our main dependent variable is an unordered categorical variable which shows household type. Household type-1: if the household could participate in all three rounds of our survey. Household type-2: if the household could participate in at least two rounds of our three rounds survey. Household type-3: if the household could participate in at least one round of our three rounds survey. Household type-4 if the household could not participate in any of the rounds. In all these cases households' type or participation status is observed after demanding for NREGS work. Now our objective is to see, whether households' observed political affiliation in terms of participating in election rallies and campaigns in favour of the GP-level ruling party, has any bearing not only on the obtaining the job (as illustrated in Section 3.5.1), but also on the consistency of obtaining jobs (i.e. obtaining jobs consistently all over the years after demanding for it). Here we are using maximum-likelihood multinomial logit model with and without sample selection correction.

As in the Section 3.5.1, here also we use the pooled cross section data and also follow a two stage sample selection model. We have already explained that looking at the simple participation and non-participation status in each round may entail sample selection problem. So as in the Section 3.5.1 in the first stage we run a probit model to estimate the selection equation with pooled cross section data where our main dependent dummy variable is $y_i^{demand}$ which is '1' if the household demand for NREGS work and '0' otherwise. Like in the Section 3.5.1 we also calculate the imr. In the second stage we use maximum-likelihood multinomial logit model which is explained below.

The multinomial unordered logit model for household type 'j' is

$$P[y_i = j] = \frac{e^{\beta'_j x_i}}{\sum\limits_{k=1}^{4} e^{\beta'_k x_i}}, \; j = 1,2,3,4 \quad \cdots\cdots\cdots\cdots(3)$$

Where j=1,2,3,4 refers to the type of household (Greene, 2012) since we assume that the dependent variable is unordered. The estimated equations yield a set of probabilities for j+1 categories for a household with characteristics $x_i$.

Out of four categories, only three parameter vectors are needed to determine all the four probabilities. The probabilities are given by

$$P[y_i = j \, / \, x_i] = \frac{e^{\beta'_j x_i}}{1 + \sum\limits_{k=1}^{j} e^{\beta'_k x_i}} \quad \text{for} \; j = 1, \beta_0 = 0 \cdots\cdots\cdots\cdots(4)$$

We use j=4 with Type-4 being the reference or base group. Furthermore, $\beta$ coefficients in this model are not straight forward to interpret; therefore we compute the marginal effects as

$$\delta_j = \frac{\partial P[y_i = j]}{\partial x_i} = P[y_i = j][\beta_j - \overline{\beta}]; \; j = 1,2,3,4$$

Thus, every sub-vector of $\beta$ enters every marginal effect, both through the probabilities and through the weighted average that appears in $\delta_j$. Here we calculated the standard error by the delta method. This model is also estimated with and without sample selection corrections. Results are reported in Section 3.6.

### 3.5.4 Variables

In our study the main dependent variables are related to NREGS participation. For the first research question and methodology as illustrated in Section 3.5.1 our main dependent variable is a dummy variable (which captures the *participation in NREGS* in each year), which takes value '1' if the household participates in the programme after demanding for it and '0' otherwise. For the second research question and methodology as illustrated in Section 3.5.2, our main dependent variable is '*days of NREGS work*' per year by the household after demanding for it. For the third research question and methodology as illustrated in Section 3.5.3, our main dependent variable is a categorical variable, which shows the household type. For Type-1 households it is 1, 2 for Type-2 households, 3 for Type-3 households and 4 for

Type-4 households. All these types and all dependent variables are explained in detail in Appendix 5.

To address our research objectives and all the three research questions, our main two explanatory variables are '*ruling-party-supporter*' and '*rps\*wave*'. '*Ruling-party-supporter*' is a dummy variable which takes value '1' if at least one member from the household participates in the election campaign and rallies for the GP level ruling party during our survey years and '0' otherwise. We have already mentioned that time of our survey periods (2009, 2010, 2012) coincided exactly with a post-election year in the local context. In our study, we refer this otherwise category as '*not-ruling-party-supporter*. '*rps\*wave*' is an interaction variable of '*ruling-party-supporter*' dummy and '*wave*' dummy. 'Wave' dummy takes value 1 for year 2009, 2 for 2010 and 3 for 2012. Therefore, coefficient of '*ruling-party-supporter*' will capture the effect of being a supporter of the GP-level ruling party on outcome variables, and interaction term 'rps\*wave' will tell us how the effect of being '*ruling-party-supporter*' changes over time. As part of robustness check of the results from the interaction term in the panel regression, we run all the regressions using the cross section data separately to compare the sign, magnitude and statistical significance of the coefficient of the variable '*ruling-party-supporter*'. Remaining explanatory variables are explained in detail in appendix 5.

## 3.6 Results and Discussion

### 3.6.1 Descriptive statistics

Table 11 describes the descriptive statistics of all the explanatory variables used in our regression analysis with respect to different samples. Column 1 refers to the descriptive statistics with respect to entire pooled sample of 1475 households. Column 2 refers to the sample of those households who demanded for NREGS work, and that is 81.63% of whole sample or 1204 households. Column 3 refers to the sample of those households who received work after demanding for it, and that is 75.99% of total job seeking households or 915 households. Finally column 4 refers to those households who did not receive work even after demanding for it and i.e. 24.01% of job seeking households or 289 households.

**Table 11: Descriptive statistics (Mean/Proportions)**

| | 1 | | 2 | | 3 | | 4 | |
|---|---|---|---|---|---|---|---|---|
| | Whole Sample | | Those who demanded work | | Received the work after demand | | Did not receive after demand | |
| Explanatory Variable | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| *ruling-party-supporter* | 0.26 | 0.44 | 0.28 | 0.45 | 0.30 | 0.45 | 0.20 | 0.40 |
| *rps*wave* | 0.52 | 0.98 | 0.58 | 1.02 | 0.59 | 1.01 | 0.51 | 1.06 |
| *Controls* | | | | | | | | |
| Total land | 0.73 | 1.33 | 0.55 | 1.09 | 0.53 | 1.11 | 0.61 | 1.02 |
| Age head | 48.86 | 13.08 | 47.91 | 12.81 | 47.55 | 12.42 | 49 | 13.95 |
| Age Squre | 2558.96 | 1341.30 | 2459.9 | 1288.4 | 2414.8 | 1233.9 | 2601.4 | 1439.2 |
| *Education Level* | | | | | | | | |
| Illiterate | 0.39 | 0.48 | 0.44 | 0.49 | 0.47 | 0.49 | 0.38 | 0.48 |
| Primary | 0.24 | 0.43 | 0.27 | 0.44 | 0.27 | 0.45 | 0.24 | 0.42 |
| Upper Primary | 0.15 | 0.36 | 0.15 | 0.36 | 0.14 | 0.35 | 0.18 | 0.38 |
| Secondary | 0.10 | 0.30 | 0.08 | 0.27 | 0.08 | 0.26 | 0.10 | .30 |
| Higher Secondary (HS) | 0.04 | 0.18 | 0.03 | 0.16 | 0.02 | 0.13 | 0.06 | 0.22 |
| Above HS | 0.08 | 0.26 | 0.03 | 0.17 | 0.02 | 0.15 | 0.04 | 0.20 |
| *Caste* | | | | | | | | |
| General Brahmin | 0.04 | 0.26 | 0.02 | 0.14 | 0.02 | 0.14 | 0.02 | 0.15 |
| General Non-Brahmin | 0.44 | 0.49 | 0.40 | 0.49 | 0.37 | 0.48 | 0.50 | 0.50 |
| OBC | 0.06 | 0.24 | 0.06 | 0.23 | 0.05 | 0.21 | 0.09 | 0.29 |
| SC | 0.42 | 0.49 | 0.47 | 0.49 | 0.51 | 0.50 | 0.35 | 0.47 |
| ST | 0.04 | 0.19 | 0.05 | 0.21 | 0.05 | 0.22 | 0.04 | 0.18 |
| HH Size | 4.71 | 1.96 | 4.43 | 1.87 | 4.43 | 1.9 | 4.44 | 1.78 |
| Male Head | 0.88 | 0.32 | 0.89 | 0.32 | 0.89 | 0.32 | 0.89 | 0.31 |
| Female Head | 0.12 | 0.32 | 0.11 | 0.32 | 0.11 | 0.32 | 0.11 | 0.31 |
| *Religion* | | | | | | | | |
| Hindu | 0.81 | 0.39 | 0.81 | 0.39 | 0.88 | 0.38 | 0.79 | 0.41 |
| Muslim | 0.19 | 0.39 | 0.19 | 0.39 | 0.12 | 0.38 | 0.21 | 0.41 |
| *Exclusion Variable* | | | | | | | | |
| Unemployed_ph | 166.12 | 145.08 | 170.11 | 143.89 | 172.02 | 143.25 | 164.12 | 145.96 |
| Total | 1475 | | 1204 | | 915 | | 289 | |

Source: Author's calculation from the surveyed data.

From Table 11 it is observed that in our pooled sample we have around 26% households who take part in the election campaign and rallies for the GP level ruling party, and we call them *ruling-party-supporter*. Among the households who demanded or applied for NREGS work there are 28% *ruling-party-supporter*. But among the households who received work after demanding for NREGS jobs, there are 30% *ruling-party-supporter*. This shows that most of the households who received work after demanding for NREGS work, are largely not *ruling-party-supporter* i.e. either they did not take part in the election campaign or campaigned for GP-level not-ruling-party. This is one way to look at the *ruling-party-supporter* households. But in the Figure 5 where we try to interact between '*ruling-party-supporter*', 'applied_work' (i.e. who demanded for NREGS work) and 'participants' (i.e. who eventually received the work) households. From this figure we can see that among 379 *ruling-party-supporter* households in the pooled sample of 1475 households 72.82% (i.e. 276) households received work after demanding for it, whereas only 15.57% (i.e. 59) households even being *ruling-party-supporter* did not receive work after demanding for NREGS work.

**Figure 5: Distribution of households in terms of 'ruling-party-supporter', 'applied_work' and 'participants'**
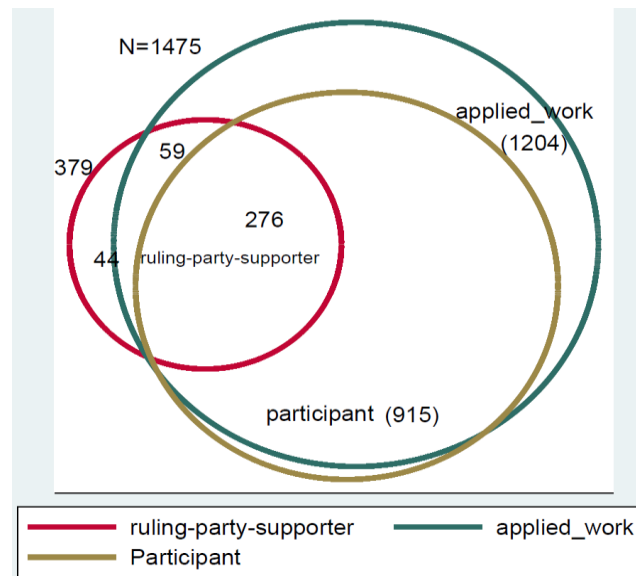


Source: Author's calculation from surveyed data

In Table 12 we work out separately, the distribution of political status of the involuntary non-participants i.e. who did not get work even after applying/demanding for it. From table 12 we can see out of 289 involuntary non-participants 79.58% i.e. 230 households are not- *ruling-party-supporter*.

**Table 12: Cross tabulation of '*ruling-party-supporter'* and '*participants'* after demanding for NREGS jobs**

| NREGS | *ruling-party-supporter* =0 | *ruling-party-supporter* =1 | Total |
|---|---|---|---|
| Non-participants | 230 | 59 | 289 |
| Participants | 639 | 276 | 915 |
| Total | 869 | 335 | 1204 |

Source: Author's calculation from surveyed data.

For other explanatory variables, we can see from Table 11 that among the households who received work after demanding for it, 39% are General (Brahmin and Non-Brahmin together), 51% SC and 5% are OBC and ST each. But among the involuntary non-participants, 52% are General, 35% are SC, 9% are OBS and 4% are ST. This implies that on average SC/ST households have not been denied work as much as the better off households in terms of caste. This is similar with the findings of Das (2015). There are 88% Hindu and 12% Muslim among households who received work after demanding for it. But among the households who

did not receive work even after demanding for it, there are 79% Hindu and 21% Muslim. This shows Muslim households on average are denied jobs more than receiving jobs after demanding for it, when compared against the Hindu households.

### 3.6.2 Regression results

**3.6.2.1 Participation in NREGS after demanding for it: Bivariate Probit estimates**

In Table 13 we present the marginal effects from the *Probit* estimations. Column 3 in Table 13 shows the marginal effects of *Probit* estimation of selection model, in which our main dependent variable is $y_i^{demand}$ which is '1', if households demand for NREGS jobs and '0' otherwise. Most importantly the exclusion variable *'Unemployed Days Per-head'* is significant at 1% level. This suggests that households with higher unemployed days are more likely to demand NREGS jobs. It is evident from column 3 that the *'ruling-party-supporter'* variable is not a significant predictor for higher probability of demanding NREGS work. Rather households with higher amount total land are significantly less probable to demand NREGS work. This suggests that if we assume land as a good proxy for households' economic status, then economically better households are less likely to demand NREGS job. Moreover, as the household heads' education level changes from illiterate to beyond primary level, probability of demanding NREGS jobs falls. Similarly if the households' caste shifts from upper general castes to lower castes (OBS, SC, ST), probability of demanding NREGS jobs increases significantly.

Column 1 in Table 13 presents the *Probit* marginal effect of the outcome equation with Heckman sample selection correction and Column 2 shows the same without Heckman correction. Here our main dependent variable is $y_i^{participaton}$ which takes value '1' if households receive work after demanding for it and '0' otherwise.

**Table 13: Estimation from *Probit* regression: Marginal Effects (with and without sample selection correction)**

| Explanatory Variables | (1) | (2) | (3) |
|---|---|---|---|
| | Outcome model with Heckman Correction | Outcome model without Heckman Correction | Selection model (applied for work) |
| *'ruling-party-supporter'* (Ref. not-*ruling-party-supporter*) | 0.283 | 0.276 | 0.060 |
| | (5.72)*** | (5.54)*** | (1.30) |
| rps*wave (Interaction of '*ruling-party-supporter*' and 'wave') | -0.139 | -0.139 | 0.003 |
| | (3.67)*** | (3.67)*** | (0.11) |
| Total Land owned | -0.001 | 0.005 | -0.016 |
| | (0.04) | (0.36) | (2.48)** |
| Age of Head of HH | 0.019 | 0.017 | 0.008 |
| | (3.01)*** | (2.85)*** | (1.95) |
| Agesqr | -0.000 | -0.000 | -0.000 |
| | (3.15)*** | (2.98)*** | (2.65)** |
| (Education of the head of household: Ref is illiterate) | | | |
| Primary | -0.004 | -0.001 | -0.041 |
| | (0.14) | (0.03) | (1.32) |
| Upper Primary | -0.040 | -0.023 | -0.159 |
| | (0.87) | (0.55) | (3.41)*** |
| Secondary | -0.094 | -0.051 | -0.273 |
| | (1.23) | (0.90) | (4.49)*** |
| Higher Secondary | -0.380 | -0.320 | -0.383 |
| | (3.11)*** | (3.02)*** | (4.15)*** |
| Higher secondary above | -0.265 | -0.130 | -0.618 |
| | (1.48) | (1.39) | (9.44)*** |
| Caste of the household: (Ref is General Brahmin) | | | |
| General (Non-Brahmin) | -0.001 | -0.030 | 0.049 |
| | (0.02) | (0.36) | (1.37) |
| OBC | -0.007 | -0.054 | 0.085 |
| | (0.07) | (0.52) | (4.70)*** |
| SC | 0.101 | 0.058 | 0.128 |
| | (1.10) | (0.71) | (3.65)*** |
| ST | 0.127 | 0.092 | 0.105 |
| | (2.09)** | (1.35) | (8.02)*** |
| Household size | 0.007 | 0.006 | -0.000 |
| | (0.98) | (0.96) | (0.11) |
| Male Head (Ref: Female head) | 0.045 | 0.026 | 0.123 |
| | (0.90) | (0.59) | (2.96)*** |
| Religion Hindu (Ref: Muslim) | -0.025 | -0.016 | -0.028 |
| | (0.62) | (0.40) | (1.14) |
| Year Dummy (Ref: Year 2009) | | | |
| Year=2010 | 0.036 | 0.034 | 0.079 |
| | (1.26) | (1.17) | (3.21)*** |
| Year=2012 | 0.017 | 0.008 | 0.106 |
| | (0.53) | (0.25) | (4.39)*** |
| Unemployed Days Per-head | - | - | 0.00034 |
| | - | - | (3.60)*** |
| GP Fixed Effect | Yes | Yes | Yes |
| Inverse Mills Ratio | 0.117 | - | - |
| | (0.96) | - | - |
| Observations | 1204 | 1204 | 1475 |
| Log Likelihood | -548.5379 | -548.9985 | -473.7266 |
| Pseudo R2 | 0.1762 | 0.1755 | 0.3267 |

Source: Author's Calculation;

Z statistics in brackets;* p<0.10, ** p<0.05, *** p<0.01

First important observation to make from Column 1 is that, the coefficient of *imr* is statistically insignificant, which suggests that there is no sample selection bias. However, we present the results with and without Heckman correction. From Column 1 and 2 this is interesting to note that probability of obtaining job after demanding for it, increases significantly if the household is a '*ruling-party-supporter*' household. But the coefficient of the interaction term 'rps*wave' is negative and significant. This implies that though for '*ruling-party-supporter*' households, there is an extra dividend in terms of ensuring higher probability of obtaining NREGS jobs after demand, this extra dividend is falling over time. In other words as we move from 2009 to 2010 to 2012, the additional dividend from being supporter of the ruling party diminishes. As a robustness check we run the outcome equation, i.e. we estimated the probability of obtaining jobs after demanding for it, for each year separately, with and without sample selection correction, to see the gradual movement of the coefficient of the main explanatory variable '*ruling-party-supporter*'. We report these results in Appendix 6.

From Appendix 6 we see the dividend of being '*ruling-party-supporter*' households is positive and significant in 2009. In 2010 this dividend is still positive but insignificant; but by 2012 this dividend becomes negative but insignificant. Interestingly, most of the variables which were significant in the selection equation, mostly become insignificant in the outcome equation. The prominent variables which become insignificant are 'total land', most of the education and caste dummies, and religion dummy. These results suggest that household level socio-economic factors are significant predictors of whether households demand for NREGS jobs. However, whether they obtain the jobs after demand, largely depends on households' explicit political affiliation with the ruling party. We suggest this is an evidence of political clientelism.

But as we saw the negative and significant coefficient of interaction term and cross section results in Appendix 6, we may claim that this evidence of clientelism is also falling over time. It may be mentioned that for all the results that we present in Table 13 and in Appendix 6, we control for year and GP fixed-effects. In the following sub-section we investigate the similar evidence of clientelism, if any, in respect of provisioning of NREGS days of work after demanding for it.

**3.6.2.2 Days of NREGS work after demanding for it: Household Fixed-Effect estimates**

In Table 14 we present the results from our household fixed effect model with and without Heckman sample selection correction. In the first stage, we estimate the selection equation by *population average probit model* and then calculate the imr. In the second stage, we run both household fixed-effect (FE) and random-effect (RE) model with imr as one of the covariates, with the sample of households who demanded for NREGS job. In Table 14 we report only the household fixed-effect results because our Hauman test p-value suggests to accept the FE over RE.

With the household FE model we could tackle any possible endogeneity arising from the presence of time invariant unobserved heterogeneity at the household level. However, if there is any endogenety arising possibly from the simultaneous relation between the days of NREGS job availed by the household, and the household's political inclination, then this FE model cannot tackle that. Precisely clientelism in this context indicates a correlation (or simultaneous relation.), but not any causal relation, between 'households' political inclination' and 'days of availability of NREGS jobs'. Politician from the ruling party would try to allocate more NREGS funds to her supporters (i.e. those who are termed as '*ruling-party-supporter*' in our study), and supporters are extending support (i.e. take part in the election rallies and campaign) for the ruling party, with the expectation of receiving proportionately larger share of NREGS jobs. In that case, the sign and statistical significance of the coefficient of the '*ruling-party-supporter*' variable would show a correlation rather than the causality. Considering this admonition we are interpreting our results from Table 14.

From Table 14 we can see the coefficient of imr is not significant even at 10% level. Here also we consider the same exclusion variable 'unemployed days per head'. Insignificant imr suggests that there is no sample selection problem, hence we will discuss the FE model without Heckman correction i.e. the column with simple FE. This simple FE estimation shows that if a household takes part in the election campaign and rallies in favour of the GP level ruling party, then that household would get 15 days extra NREGS job (after demanding for it ), compared to the household which does not take part in campaign or campaigns for the not-ruling party. However, the coefficient of the interaction term is still negative and significant. This suggests that over the years the extra dividend (of being *ruling-party-supporter*') in terms of availing extra NREGS days, is falling by 3 days in each year between the years 2009 and 2012. As an alternative exploration, we run year-wise regression for days

of NREGS work after demanding for it (Appendix 7), with and without Heckman correction. We see from the Appendix 7 that extra dividend of being '*ruling-party-supporter*' is gradually falling from 2009 to 2010 to 2012. By 2012 the effect is positive but insignificant. These results support the sign, magnitude and significance of the interaction term rps*wave in Table 14. Apart from the '*ruling-party-supporter*' variable and time fixed-effect most of the other covariates are insignificant in Table 14. This again indicates that households' socio-economic factors are important to seeking jobs, but obtaining the job and its exact magnitude depend on the household's political inclination to the GP level ruling party.

**Table 14: Determinants of *Days of NREGS work* after applied for it:**
**(Fixed Effect estimates with and without Heckman sample selection correction)**

| Explanatory Variables | Fixed Effect (with Heckman Correction) | Simple Fixed Effect |
|---|---|---|
| *ruling-party-supporter*' (Ref. not-*ruling-party-supporter*') | 14.812 | 14.789 |
| | [4.745]*** | [4.712]*** |
| rps*wave (Interaction of *ruling-party-supporter*' and wave) | -3.581 | -3.575 |
| | [2.154]* | [2.149]* |
| Total Land owned | 0.550 | 0.573 |
| | [1.341] | [1.225] |
| Age of Head of HH | 1.247 | 1.244 |
| | [0.777] | [0.774] |
| Agesqr | -0.013 | -0.013 |
| | [0.008]* | [0.008]* |
| (Education of the head of household: Ref is illiterate) | | |
| Primary | -1.985 | -1.987 |
| | [2.589] | [2.586] |
| Upper Primary | 0.288 | 0.296 |
| | [3.991] | [3.984] |
| Secondary | 0.232 | 0.286 |
| | [5.793] | [5.648] |
| Higher Secondary | -1.707 | -1.623 |
| | [9.478] | [9.266] |
| Higher secondary above | 3.455 | 3.807 |
| | [13.964] | [11.256] |
| Caste of the households | - | - |
| | (Omitted) | (omitted) |
| HH size | 0.849 | 0.848 |
| | [0.912] | [0.911] |
| Male Head (Ref: Female head) | 4.486 | 4.426 |
| | [5.649] | [5.465] |
| Religion | - | - |
| | (omitted) | (omitted) |
| Year Dummy (Ref: Year 2009) | | |
| Year=2010 | 8.956 | 8.944 |
| | [1.726]*** | [1.700]*** |
| Year=2012 | 11.124 | 11.094 |
| | [2.154]*** | [2.039]*** |
| GP Fixed Effects | - | - |
| | (omitted) | (omitted) |
| Inverse Mills Ratio | 0.365 | - |
| | [8.559] | - |
| Observations | 1204 | 1204 |
| $R^2$ | 0.084 | 0.084 |
| sigma_u | 19.397 | 19.385 |
| sigma_e | 21.798 | 21.783 |
| Rho | 0.442 | 0.442 |
| F | 4.568 | 4.900 |

Standard errors in brackets;  * p<0.10, ** p<0.05, *** p<0.01,  Source: Authors' calculation from the surveyed data.

### 3.6.2.3 Consistent participation in NREGS after demanding for it: Multinomial Logit estimates

Here we try to find the determinants of 'consistent participation' in NREGS programme. By 'consistent participation' we mean households' participation in NREGS (after demanding for NREGS jobs) in each year during our survey. Here our main dependent variable is a categorical dummy which takes value 1 for Type-I households (got job in all the 3 rounds after demanding for it), takes value 2 for Type-II households (got job in at least 2 rounds after demanding for.), take value 3 for Type-III households (got job in at least 1 round after demand for it), take value 4 for Type-IV households (never got job even after demanding for it). Here we follow two steps as well. In the first step we estimate the selection equation as we did in Column 3 of Table 13. Next, we calculate the imr, which as one of the covariates; we run the maximum likelihood multinomial unordered logit regression.

In Table 15 we report the marginal effects with and without Heckman correction. Like the previous cases we see the coefficient of imr is statistically insignificant. That reveals that we can report the results without Heckman correction. From the results without Heckman correction in Table 15, we see the probability of being Type-I households (i.e. probability of getting jobs in all the three rounds after demanding for it) increases significantly by around 22% if the household is the supporter of the GP level ruling party. Probability of being Type-II household (i.e. getting jobs in at least two rounds during our three rounds survey) increases by 1% with household being '*ruling-party-supporter*' but this result is statistically insignificant. But probability of being Type-III household actually decreases if the household is '*ruling-party-supporter*'; but this result is also statistically insignificant. Probability of being Type-IV households (i.e. probability of not getting NREGS job in any round even after demanding for it) is falling significantly by around 19% if the household takes part in the election campaign and rallies in favour of the GP level ruling party. Interaction term between '*ruling-party-supporter*' and 'wave' i.e. '*rps\*wave*' is negative and significant for Type-I households and it is positive and significant for the type-IV households. This again points to the trend of falling dividend, of being '*ruling-party-supporter*,* in terms of probability of consistently obtaining NREGS jobs in all the rounds after demanding for it.

Looking at the coefficients of other covariates in Table 15 we see, that (i) with the increase of the age of the head of household probability of getting jobs in all the rounds increases, (ii)

being lower caste increases the probability of being Type-I households and (iii) household being Hindu instead of being Muslim reduces the probability of being Type-I. In the following sub-section we will discuss all the above findings under sub-section 3.6.2, in the light of the political regime change in West Bengal during the periods covered by our survey.

**Table 15: Determinants of Consistency of NREGS Participation after seeking for it: (Multinomial logit marginal effect estimates with and without Heckman Correction)**

| Explanatory Variables | With Heckman Correction | | | | Without Heckman Correction | | | |
|---|---|---|---|---|---|---|---|---|
| | Type-I Households | Type-II Households | Type-III Households | Type-IV Households | Type-I Households | Type-II Households | Type-III Households | Type-IV Households |
| *ruling-party-supporter'* (Ref. not-*ruling-party-supporter'*) | 0.2302762 | 0.0017758 | -0.043782 | -0.1882701 | 0.2262618 | 0.0100466 | -0.0413231 | -0.1949854 |
| | (2.87)*** | (0.02) | (-0.61) | (-2.25)** | (2.85)*** | (0.12) | (-0.59) | (-2.33)** |
| rps*wave (ruling-party-supporter*wave) | -0.0814579 | -0.0001485 | 0.0080421 | 0.0735644 | -0.0826979 | 0.0000882 | 0.007986 | 0.0746236 |
| | (-2.33)** | (-0.00) | 0.27 | (2.33)** | (-2.37)*** | (0.00) | (0.27) | (2.35)** |
| Total Land owned | -0.0235693 | 0.0094448 | 0.0104782 | 0.0036463 | -0.0208263 | 0.0057431 | 0.0094126 | 0.00567 |
| | (-1.57) | (0.66) | (1.05) | (0.45) | (-1.50) | (0.44) | (1.11) | (0.82) |
| Age of Head of HH | 0.036723 | -0.0288482 | -0.0090527 | 0.0011779 | 0.0362897 | -0.0280018 | -0.008827 | 0.00054 |
| | (5.43)*** | (-4.69)*** | (-1.89)* | (0.27) | (5.45)*** | (-4.65)*** | (-1.92)* | (0.13) |
| Age Square | -0.0003671 | 0.0002658 | 0.0000862 | 0.0000151 | -0.0003604 | 0.0002541 | 0.0000832 | 0.000023 |
| | (-5.32)*** | (4.28)*** | (1.78)* | (0.36) | (-5.38)*** | (4.27)*** | (1.84)* | (0.61) |
| (Education of the head of household: Ref is illiterate) | | | | | | | | |
| Primary | 0.0266817 | -0.0423652 | 0.0382388 | -0.0225553 | 0.0288795 | -0.0450346 | 0.0380535 | -0.021898 |
| | (0.83) | (-1.29) | (1.56) | (-0.98) | (0.91) | (-1.38) | (1.57) | (-0.95) |
| Upper Primary | 0.0385505 | -0.0415505 | -0.0007422 | 0.0037423 | 0.0486054 | -0.0540439 | -0.0033042 | 0.008743 |
| | (0.83) | (-0.90) | (-0.02) | (0.13) | (1.17) | (-1.29) | (-0.10) | (0.34) |
| Secondary | -0.0805831 | -0.0118047 | 0.0810858 | 0.011302 | -0.0614183 | -0.037126 | 0.0761413 | 0.022403 |
| | (-1.22) | (-0.18) | (1.72)* | (0.30) | (-1.16) | (-0.72) | (2.11)** | (0.78) |
| Higher Secondary | -0.3951295 | 0.1464492 | 0.1805354 | 0.0681449 | -0.3727177 | 0.1175655 | 0.1749814 | 0.080171 |
| | (-3.71)*** | (1.60) | (3.01)*** | (1.41) | (-3.88)*** | (1.47) | (3.47)*** | (2.00)** |
| Higher secondary above | -0.140307 | 0.0203915 | 0.1377895 | -0.017874 | -0.0809164 | -0.0512674 | 0.1240555 | 0.008128 |
| | (-0.96) | (0.15) | (1.53) | (-0.25) | (-0.95) | (-0.62) | (2.55)*** | (0.21) |
| Caste of the household: (Ref is General Brahmin) | | | | | | | | |
| General (Non-Brahmin) | 0.3543712 | -0.2498798 | -0.0707102 | -0.0337813 | 0.346134 | -0.2345031 | -0.0679564 | -0.043674 |
| | (2.83)*** | (-2.64)** | (-0.91) | -0.66 | (2.80)*** | (-2.57)** | (-0.93) | (-0.93) |
| OBC | 0.4236969 | -0.2906781 | -0.1270222 | -0.0059966 | 0.4079244 | -0.2653952 | -0.1221716 | -0.020358 |
| | (3.11)*** | (-2.68)** | (-1.42) | (-0.10) | (3.12)*** | (-2.62)** | (-1.50) | (-0.41) |
| SC | 0.5175175 | -0.3832368 | -0.0601904 | -0.0740903 | 0.5015882 | -.3574782 | -0.0548448 | -.089265 |
| | (4.05)*** | (-3.89)*** | (-0.73) | (-1.30) | (4.12)*** | (-3.98)*** | (-0.76) | (-1.89)* |
| ST | 0.6469246 | -0.3831775 | -0.2164913 | -0.0472557 | .6233917 | -.3464184 | -.2089648 | -0.068001 |
| | (4.36)*** | (-3.06)*** | (-1.91)* | (-0.66) | (4.53)*** | (-3.12)*** | (-2.08)** | (-1.18) |
| Household size | -0.0005497 | 0.0126077 | -0.0014105 | -0.0106475 | -.0007536 | .0128257 | -.0012627 | -.010809 |
| | (-0.08) | (1.83)* | (-0.30) | (-2.40)** | (-0.10) | (1.86)* | (-0.26) | (-2.44)** |
| Male Head (Ref: Female head) | 0.073104 | -0.0710668 | -0.0282106 | 0.0261734 | 0.0646995 | -.0588397 | -.0261278 | .0202681 |
| | (1.64)* | (-1.54) | (-0.73) | (0.92) | (1.57) | (-1.41) | (-0.74) | (0.79) |
| Religion Hindu (Ref: Muslim) | -0.0804287 | 0.0918966 | -0.0334497 | 0.0219818 | -.0768077 | .0858108 | -.0347351 | .0257319 |
| | (-1.71)* | (2.01)** | (-1.06) | (0.76) | (-1.67)* | (1.91)* | (-1.14) | (0.93) |
| Year Dummy (Ref: Year 2009) | | | | | | | | |
| Year=2010 | 0.001543 | -0.0041105 | 0.0174769 | -0.0149094 | .0001017 | -.0022602 | .0180235 | -.0158649 |
| | (0.05) | (-0.13) | (0.76) | (-0.76) | (0.00) | (-0.07) | (0.79) | (-0.82) |
| Year=2012 | 0.0064034 | -0.00701 | 0.014274 | -0.0136674 | .0020751 | -.0005211 | .01603 | -.0175841 |
| | (0.18) | (-0.19) | (0.54) | (-0.63) | (0.06) | (-0.02) | (0.64) | (-0.89) |
| GP fixed Effect | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Inverse Mills Ratio | 0.0744526 | -0.0879475 | -0.0173894 | 0.0308843 | - | - | - | - |
| | (0.50) | (-0.65) | (-0.19) | (0.43) | - | - | - | - |

Z stats in bracket; * $p<0.10$,** $p<0.05$; *** $p<0.01$

### 3.6.3 Discussion of Results

In this section we would like to re-examine our main regression results in the light of the specific political scenario that we described in section 3.2.2. The main results which we found are the following: *First*, there is a clear dividend for the households being '*ruling-party-supporter*' in the sense that they take part in the election campaign and rallies in favour of the GP level ruling party. By dividend we refer to the extra benefit that these households could get in terms of availing extra NREGS days of work. *Second*, this dividend of being '*ruling-party-supporter*' is falling over time. As we relate this political dividend as the evidence of political clientelism, one could argue by referring our second finding that even if there is clientelism, it is falling over time. Political commentators could also refer to this phenomenon as gradual de-politicisation of NREGS in West Bengal. In this section we would like to argue whether there is indeed a falling evidence of clientelism or this is largely driven by the regime-change effect within the period 2008 to 2013 in the context of West Bengal.

To investigate the regime-change aspect we collected the results for the 2008 and 2013 West Bengal Panchayat elections, for all the villages within the sample of 13 GPs, in which our panel survey was conducted for 500 households in 2009, 2010 and 2012. It is evident from the Table 16, how political scenario changes between 2008 and 2013 in the context of our sample GPs. Out of 13 sample GPs, the Communist Party of India-Marxist (CPIM or Left) was the GP-level ruling party in 9 GPs, and the Trinomool Congress (TMC), the main opponent party in 2008 was in power in 3 GPs after 2008 election. This political scenario changes completely by 2013 when out of 13 sample GPs the CPIM was in power only in 1 GP, but the TMC was in power in 11 GPs.

**Table 16: Gram Panchayat level ruling party after 2008 and 2013 Panchayat election**

| Serial No | Name of the GP | Ruling Party After 2008 Election | Ruling Party After 2013 Election | Regime Change |
|---|---|---|---|---|
| 1 | Bahiri-Panchsowa | CPIM | TMC | Yes |
| 2 | Bajitpur | TMC+INC | TMC | No |
| 3 | Barrah | CPIM | TMC | Yes |
| 4 | Gonpur | TMC | TMC | No |
| 5 | Harisara | CPIM | TMC | Yes |
| 6 | Joydeb Kenduli | CPIM | TMC | Yes |
| 7 | Khoyrasole | CPIM | CPIM | No |
| 8 | Kundala | CPIM | BJP | Yes |
| 9 | Mollarpur II | CPIM | TMC | Yes |
| 10 | Panrui | TMC | TMC | No |
| 11 | Parulia | CPIM | TMC | Yes |
| 12 | Rupuspur | CPIM | TMC | Yes |
| 13 | Ulkunda | TMC | TMC | No |

Source: West Bengal State Election Commission Website

Looking at Appendix 8, we see that not only in terms of losing power at the GP level, Left also realised a massive fall in the vote-share; on the other hand TMC realised a massive increase in their vote-share. This also evident from Appendix 8.1 and 8.2 that after the 2013 Panchayat election, TMC not only gained a positive vote-share but were also abled to capture the elections. In Appendix 8.1 and 8.2, we see percentage of seats where TMC got 100% vote after 2013 election is 27.27%, whereas after 2008 election Left secured only 0.91% of seats with 100% vote share. Though these are the evidences of regime change in the context of our sample villages and GPs, this trend was very similar in the context of the whole state as reflected in the newspapers after 2013 Panchayat Election in West Bengal[4]. Our main objective for describing this entire narrative of regime change, is to place our regression results in the proper perspective. Considering the regime change aspect our interpretations of the main findings are as follows.

We conducted our survey in 2009, 2010 and 2012. This is to mention that 2009 was the year after the 2008 West Bengal Panchayat election, even after which the Left was the main dominant political party in West Bengal; though TMC had already started to occupy the political space. After 2008 election, till the time of our survey in 2009 in West Bengal, clientelism story was strong between *ruling-party-supporter* households who were supporting the Left and the Left ruled GPs. By 2010 (i.e. by the time of our second survey) TMC had started establishing itself as the emerging power in the state, because in late 2009 parliamentary election, the 'TMC + Congress' coalition together won 24 seats out of 42 Parliamentary Constituencies for the first time since 1978. Therefore by 2010, the opponent political clan lead by the TMC had become relatively stronger and started to block the so called existing clientelistic politics in Left GPs. However, it began to establish stronger clientelistic politics in its own GPs. In other word, though the Left was in power in most the GPs of the State in 2010 (as next Panchayat election was due in 2013) this period had already began to witness a fall in the overall intensity of clientelism. By 2012 (i.e. by the time of our third survey) the Left was almost out of the political picture, as the historical regime change occurred in 2011 through State Assembly election. In 2011 the TMC came into power in the state by convincingly defeating 35 years of Left regime in West Bengal.

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[4] http://www.ibnlive.com/news/politics/west-bengal-panchayat-election-results-cpm-alleges-malpractices-627476.html

But still upto 2012, most of the GPs were ruled by the Left as next Panchayat election was due only in 2013. By 2012, the political space in West Bengal allowed TMC to successfully destroy the political clientelism in the Left GPs, and strengthen the political nexus between its own supporters and politicians in their own GPs. As per the political commentators, such regime change in West Bengal pushed a large section of the ex-Left supporters to join in TMC (Rana, 2013). One question that arises here is that why TMC supporters, being politically active within the Left GP, could not reap the benefit of getting larger share of NREGS work which they used to get when they were Left supporters. The simple answer is because most the GPs were still run by the Left in 2012. So apparently what we are observing as falling evidence of clientelism from 2009 to 2010 to 2012, is in our opinion actually due to gradual emergence of an active and strong opponent political party in West Bengal during our survey periods which we refer as regime-change.

If our explanation has any validity, then we should get differential results in respect of the presence of clientelism and falling evidence of clientelism between the GPs where 'regime-changed' and where 'regime-did not-change'. Based on our sample of 13 GPs, in 8 GPs regime changed from 2008 to 2013 and all these 8 GPs were ruled by the Left after 2008. Therefore, in 8 GPs regime changed from Left to Non-Left (i.e. largely to TMC). In the other 5 GPs, regime did not change in the 2013 election. Among these 5 GPs only in one GP, the Left continued to be the ruling party and in rest 4 TMC continued to be the ruling party. So we can say that regime change happened mostly in the CPIM GPs (except the GP Khoyrasole) and regime did not change mostly in TMC GPS. We find 71.40% of households in our pooled sample belong to 'regime-change' GP where ruling party changed from 2008 election to 2013 election. We expect that the households which are '*ruling-party-supporter*' residing in 'regime change' GPs, may realise a faster falling trend of clientelism compared to the households who are '*ruling-party-supporter*' but reside in the non-regime change GP.

We define a dummy variable '*change*' which is '1' if the household resides in a regime-change GP and '0' otherwise. In respect of our household level panel data this variable has no variation over the rounds. If it is 1 for a household then it remains as 1 in all the rounds. For this reason we could not keep this dummy in our fixed-effects estimation as presented in Table 14. But to see the regime change effect we introduce a triple interaction variable called '*rps\*wave\*change*' which is the interaction of three variables '*ruling-party-supporter*', *wave* and *change*. After incorporating this new interaction term in our fixed effect model

specification, we get the results described in Table 17. It may be noted here that, in Table 17 we drop the observations under Khoyrasole GP which is the only GP where the CPIM or the Left retains its regime from 2008 to 2013. However, our results do not vary much without this dropping. As in the previous case with household fixed-effects, in Table 17 as well, we get positive and significant coefficient for '*ruling-party-supporter*' and negative significant coefficient for interaction term rps*wave. This ensures that there is a positive dividend of being *ruling-party-supporter*' which we refer earlier as evidence of clientelism, and this positive dividend or clientelism is falling over time. The coefficient of the new triple interaction term *rps*wave*change* is positive and significant. This implies that the falling trend of clientelism is more pronounced or faster for those '*ruling-party-supporter*' households who live in the regime-change GP compared to non-regime change GP.

**Table 17: Determinants of days of work (Fixed Effect estimates): with regime change**

| Explanatory Variable | FE Estimates |
|---|---|
| *ruling-party-supporter'* (Ref. not-*ruling-party-supporter'*) | 14.472 |
| | [4.706]*** |
| rps*wave (Interaction of 'ruling-party-supporter' and 'wave' dummy) | -8.276 |
| | [2.438]*** |
| rps*wave*change (Interaction of '*ruling-party-supporter'*, 'wave' and 'change' dummy | 6.876 |
| | [1.731]*** |
| Total Land owned | 0.314 |
| | [1.215] |
| Age of Head of HH | 0.925 |
| | [0.777] |
| Agesqr | -0.010 |
| | [0.008] |
| (Education of the head of household: Ref is illiterate) | |
| Primary | -2.127 |
| | [2.571] |
| Upper Primary | 0.167 |
| | [4.011] |
| Secondary | -1.175 |
| | [5.799] |
| Higher Secondary | -3.425 |
| | [9.430] |
| Higher secondary above | 3.774 |
| | [12.237] |
| Caste of the household | - |
| | (omitted) |
| HH size | 1.159 |
| | [0.910] |
| Male Head (Ref: Female head) | 3.569 |
| | [5.413] |
| Religion | - |
| | (omitted) |
| Year Dummy (Ref: Year 2009) | |
| Year=2010 | 8.993 |
| | [1.698]*** |
| Year=2012 | 11.583 |
| | [2.036]*** |
| GP Fixed Effects | - |
| | (omitted) |
| Observations | 1187 |
| $R^2$ | 0.107 |
| sigma_u | 19.233 |
| sigma_e | 21.544 |
| Rho | 0.443 |
| F | 5.843 |

Standard errors in brackets
* p<0.10, ** p<0.05, *** p<0.01
Source: Author's calculation from surveyed data.

Since all the regime-changed GPs under estimation were Left ruled GPs after 2008 (as we dropped the observation for Khoyrasole GP), and all the non-regime change GPs were non-Left ruled (all were TMC), the above interpretation of results can be restated as follows: The falling trend of political dividend or falling trend of political clientelism is more pronounced or faster in the Left GPs (since 2008 election) than in the non-Left GPs. Since there is an evidence of overall trend of falling clientelism, therefore there could be two possibilities in

the TMC ruled GPs (since 2008 election): First, there could be an increasing trend of clientelism in the TMC ruled GPs but definitely at slower rate than the falling trend of clientelism in the CPIM GPs. Second, even if there is a falling trend in the TMC ruled GPs then that must be at slower rate than that of the Left GPs.

To obtain more precise results, we divide our study sample of households into two sub-samples. One sub-sample is with the households which reside in the regime-change GPs (i.e. where GP-level ruling party changed from CPIM led Left in 2008 to TMC led non-Left in 2013), and another set of sub-sample is with the households which reside in the non-regime-change GPs (i.e. where GP-level ruling party was the TMC in 2008 as well as in 2013). The first sub-sample consists of 704 households in pooled sample, and the second sub-sample consists of 438 households. Then we run the same household fixed-effect regression with and without Heckman correction separately for these two sub-samples. The results are described in Table-18 and Table-19.

Once we break the sample between regime-change GPs and non-regime-change GPs, we find a clear picture that there is indeed a falling trend of clientelism (as the coefficient of interaction term *rps*wave* is negative) in regime-change GPs, and there is an increasing trend of clientelism (as the coefficient of interaction term *rps*wave* is positve) in non-regime-change GPs. All the regime-change GPs, considered in the regression results of Tabe-18, are CPIM-led Left ruled GPs between the period 2008 to 2013 and all the non-regime change GPs, considered in the regression results of Table-19, are TMC-led non-Left GPs between the period 2008 and 2013. Therefore we conclude, there was a falling trend of clientelism in the Left ruled GPs but there was an increasing trend of clientelism in the TMC ruled GPs. However, when we look at the pooled GP sample, the results show an overall falling trend of clientelism in general in the context of our study area.

## Table 18: Determinants of days of work (Fixed-Effect estimates): In regime change (CPIM to TMC) GPs

| Explanatory Variables | Fixed Effect with Heckman Correction | Simple Fixed Effect |
|---|---|---|
| *Ruling-party-supporter* (Ref. not-ruling-party-supporter ) | 9.873 | 9.721 |
| | [3.245]*** | [3.212]*** |
| rps*wave (Interaction of ruling-party-supporter and wave) | -3.971 | -3.975 |
| | [1.754]** | [1.749]** |
| Controls | Yes | Yes |
| | | |
| Year Dummy (Ref: Year 2009) | | |
| Year=2010 | 6.956 | 6.944 |
| | [1.726]*** | [1.700]*** |
| Year=2012 | 9.124 | 9.094 |
| | [2.154]*** | [2.039]*** |
| GP Fixed Effects | - | - |
| | (omitted) | (omitted) |
| Inverse Mills Ratio | 0.265 | - |
| | [8.559] | - |
| Observations | 704 | 704 |
| $R^2$ | 0.19 | 0.18 |
| sigma_u | 19.307 | 19.305 |
| sigma_e | 19.788 | 19.773 |
| Rho | 0.439 | 0.439 |
| F | 5.668 | 5.732 |

## Table 19: Determinants of days of work (Fixed Effect estimates): In non-regime change (TMC to TMC) GPs

| Explanatory Variables | Fixed Effect with Heckman Correction | Simple Fixed Effect |
|---|---|---|
| *Ruling-party-supporter* (Ref. not-ruling-party-supporter ) | 10.273 | 10.221 |
| | [3.97]** | [3.66]** |
| rps*wave (Interaction of ruling-party-supporter and wave) | 2.271 | 2.275 |
| | [0.87]*** | [0.83]*** |
| Controls | Yes | Yes |
| | | |
| Year Dummy (Ref: Year 2009) | | |
| Year=2010 | 6.956 | 6.944 |
| | [1.726]*** | [1.700]*** |
| Year=2012 | 9.124 | 9.094 |
| | [2.154]*** | [2.039]*** |
| GP Fixed Effects | - | - |
| | (omitted) | (omitted) |
| Inverse Mills Ratio | 0.465 | - |
| | [8.559] | - |
| Observations | 438 | 438 |
| $R^2$ | 0.28 | 0.24 |
| sigma_u | 18.407 | 18.405 |
| sigma_e | 18.288 | 18.273 |
| Rho | 0.349 | 0.339 |
| F | 6.768 | 6.732 |

## 1.7 Conclusion

In this paper, we started with the primary objective of looking at the determinants of NREGS participation and days of work. We set three research questions in line with our research objective. *First*, what are the determinants of participation in NREGS work after demanding for it? *Second*, what are the determinants of days of NREGS work after demanding for it? *Third*, what are the determinants of consistent participation in NREGS work after demanding for it? We acknowledged that due to the self-selected nature of the NREGS programme, we may end up with a selected sample to estimate the determinants of NREGS participation and days of work. To pay the attention to the sample selection bias which could make our estimated results inconsistent, we follow the Heckman sample selection corrections before running our estimated results. However, our results do not vary much both in magnitude and in statistical significance, with and without the Heckman corrections. This allows us to confirm that there is no sample selection problem. For each of the research questions described above, we follow different regression methods with and without Heckman corrections. For first research question, we follow bivariate probit estimation. For the second research question, we follow household fixed-effects estimation. For the third research question, we follow the maximum likelihood multinomial logit estimation. For first and third research questions, we used our pooled cross-section data from three rounds, with GP and time fixed-effects. For the second research question, we used the panel structure of the data, with GP, time, and household fixed-effects.

Our results show that there is no evidence of non-poor capture of the programme, either in terms of descriptive results or in terms of the regression findings. However, the political affiliation of the household with the GP-level ruling-party matters positively in the distribution of benefits of NREGS. We define a variable '*ruling-party-supporter*' which takes the value '1', if at least one member from the household takes part in the election campaign and rallies in favour of the GP-level ruling party, and '0' otherwise. Our results from bivariate probit regression show that a '*ruling-party-supporter*' household has a higher probability of obtaining NREGS jobs after demanding for it, but this magnitude of higher probability of obtaining NREGS jobs falls over time. From the household fixed-effects estimation we find that '*ruling-party-supporter*' households are obtaining around 14 days extra NREGS work a year after demanding for it. But this extra dividend of being '*ruling-party-supporter*', which we refer as evidence of political clientelism, also falls over time.

From our multinomial logit regression, that the probability of obtaining NREGS work consistently every year after demanding it increases, and the probability of not obtaining NREGS job every year decreases significantly if the household is a '*ruling-party-supporter*' household.

Finally we factor in political regime-change within the context of West Bengal, for the period corresponding to our study. We find that the falling trend in political clientelsim or falling dividend (in terms of obtaining NREGS jobs) from being '*ruling-party-supporter*' is more pronounced or faster in the GPs where the regime changed between 2008 and 2013. In our analysis, all the regime changed GPs were CPIM led Left ruled GPs after 2008 and not regime changed GPs were ruled by TMC and its allies after 2008. Eventually, we break the sample of GPs into regime-change GPs and non-regime-change GPs and run separate regressions. Our results suggest that during our survey periods, we find a falling trend of clientelism in CPIM led Left GPs and an increasing trend of clientelism in TMC led non-left GPs. Finally we conclude that though there is an overall falling trend of clientelism, essentially the practice of clientelism is gradually shifting from CPIM (Left) to TMC (Non-Left) with the advent of regime change.

In this way our paper contributes in two ways. First, it contributes in the larger literature of political clientelism and private good distribution under public programme and more precisely on the dynamics of political clientelism in the event of a regime change. Second, it contributes in the emerging thin body of literature on the determinants of NREGS and its interaction with local politics.

## 3.8 Appendix

### Appendix 1: Rank of big Indian states in terms of per-capita state domestic product in 2004-05 current prices

| Rank | State | 2004-05 | State | 2009-10 | State | 2013-14 |
|---|---|---|---|---|---|---|
| 1 | Haryana | 37971.67 | Haryana | 82037.47 | Haryana | 133426.67 |
| 2 | Maharashtra | 36076.56 | Maharashtra | 69764.57 | Maharashtra | 114391.92 |
| 3 | Himachal Pradesh | 33348.13 | Tamil Nadu | 64338.46 | Tamil Nadu | 112664.35 |
| 4 | Punjab | 33103.23 | Gujarat | 64097.22 | Gujarat | 106831.27 |
| 5 | Kerala | 32351.00 | Uttarakhand | 62757.29 | Kerala | 103820.00 |
| 6 | Gujarat | 32020.71 | Kerala | 62114.00 | Uttarakhand | 103715.80 |
| 7 | Tamil Nadu | 30061.64 | Punjab | 61804.66 | Punjab | 92637.72 |
| 8 | Karnataka | 26881.81 | Himachal Pradesh | 58402.45 | Himachal Pradesh | 92300.00 |
| 9 | Andhra Pradesh | 25959.14 | Karnataka | 51364.16 | Karnataka | 84709.47 |
| 10 | Uttarakhand | 24725.68 | Andhra Pradesh | 50515.12 | Andhra Pradesh | 81396.70 |
| 11 | West Bengal | 22649.00 | West Bengal | 41039.00 | West Bengal | 70059.00 |
| 12 | Rajasthan | 18565.31 | Rajasthan | 35253.60 | Rajasthan | 65973.71 |
| 13 | Chhattisgarh | 18559.09 | Chhattisgarh | 34365.66 | Chhattisgarh | 58546.78 |
| 14 | Jharkhand | 18510.00 | Odisha | 33028.62 | Odisha | 52559.48 |
| 15 | Odisha | 17650.26 | Madhya Pradesh | 28651.01 | Madhya Pradesh | 51797.97 |
| 16 | Assam | 16781.94 | Assam | 28382.69 | Jharkhand | 46131.00 |
| 17 | Madhya Pradesh | 15441.91 | Jharkhand | 28223.00 | Assam | 44263.00 |
| 18 | Uttar Pradesh | 12949.62 | Uttar Pradesh | 23671.42 | Uttar Pradesh | 36250.44 |
| 19 | Bihar | 7913.97 | Bihar | 15456.71 | Bihar | 31199.27 |

Source:Directorate of Economics & Statistics of respective State Governments

### Appendix-2: Sampling design

In the first stage, all GP's of Birbhum district were stratified into different clusters according to their degrees of backwardness. The following indicators have been used for measuring backwardness, all of which are available at the GP level from existing data bases: (1) No. of 'backward village'[5] within that GP (2) No. of Below Poverty Line Household (as per Rural Household Survey-2005) within that GP  and (3) average score away from 100 in the 'self-evaluation'[6] exercise (for 2006-07 & 2007-08) . I then stratified the entire GPs of district into cluster of GP as measured by these indicators according to the following procedure.

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[5] Backward Village: In 2004, in order to pin-point the fight against poverty, Govt. of West Bengal identified 4612 villages as 'backward villages' on the basis of the following indicators from Census 2001: A) female literacy (rural) < 30%, B) Marginal worker + non worker > 60 %. On the basis of these two criterions there are 218 such Backward villages are spread over 167 GP in Birbhum district.

[6] Self-Evaluation: This is an evaluation process done by the GP them to evaluate their own performance on different issue. GPs assign their score on their own performance from a given scale with a maximum limit of

Denoting by $Q^j{}_k$, the k-th indicator for the j-th GP, we find the index of backwardness in the j-th GP in the district by the following formula

$$Bj = \left( \frac{\left( Q^j{}_1 + Q^j{}_2 + Q^j{}_3 \right)}{3} \right)^{\frac{1}{3}}$$  …………………………………………………… (1)

Instead of a linear index, we employ the above so as to take care of any skewness that may be present. This is a formula followed by UNDP in its Human Development Report.[7]

Denoting by $B_{min} = \text{Min} (B^j)$ and $B_{max} = \text{Min} (B^j)$, we can calculate the score of the j-th GP $(S^j)$ by the following formula:

$$Sj = \left( \frac{\left( B_j - B_{min} \right)}{\left( B_{max} - B_{min} \right)} \right) \times 100$$ i.e. backwardness score for j= 1, 2, ………167(i.e. the no. of GP in

Birbhum). $B_{max}$ = maximum among $B_j$ and $B_{min}$ = minimum among $B_j$ & $0 \le Sj \le 100$ as $Sj$ increases implies backwardness score also increases and the concerned GP is more backward.

In this way, we assign a score for each GP within a [0, 100] interval. In effect, we can assign a rank for each GP within Birbhum district. Let this rank be denoted be $R^j$ for j =1,2,……,167.

In the next step, three clusters of GPs were considered namely *most advance cluster*, *moderately advance* and *backward* cluster depending upon the backwardness score. Then it was calculated that 13.48% of total district's households were in the most advance cluster, 36.97% households were in the moderately advance cluster and 49.55 % of households were in backward cluster. It was assumed that it would hardly matter if one selects certain number of households from any GP or from any no. of GPs within the same Cluster i.e. GPs within a cluster treated as homogeneous. Accordingly I chose 13.48% i.e. 67 households of our sample from advance cluster of GP, 36.97% i.e. 185 households of the sample from moderately advance cluster of GP and 49.55% i.e. 248 households of our sample from

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100, so higher score implies better performing GP and higher (100- score) implies relatively bad performing or backward GP. So I took score away from 100 for after having average score for two consecutive years 2006-07 and 2007-08.

[7] See Human Development Report, 1997, Technical note 1, pp. 117 to 125 which is actually based on a background paper by SudhirAnand and Amartya K. Sen, "Concepts of Human Development and Poverty: A Multidimensional Perspective".

backward cluster of GP. Since GPs within a cluster were assumed as homogeneous therefore choice of exact GPs from each cluster was a pragmatic choice. Accordingly 2 GPs (Rupuspur and Bajitpur) were selected from most advance cluster, 4 GPs (namely Horisara, Kundala, Panrui&Bahiri-Panchshowa) were selected from moderately advance cluster and 7 GPs (Ulkunda, Mallarpur-II, Parulia, Barrah, Gonpur, Joudev-Kenduli and Khoyrasole) were selected from backward cluster. Subsequently the households were almost equally distributed among selected GPs within a same cluster.

In the next step the choice of given no. of households from selected GP was simply random. In the second stage the households were chosen from the GPs on the basis of random sampling using a random number generator.

**Appendix-3: Two-way plot of NREGS days of work and household level variables**

*Asset Index and NREGS days of work*
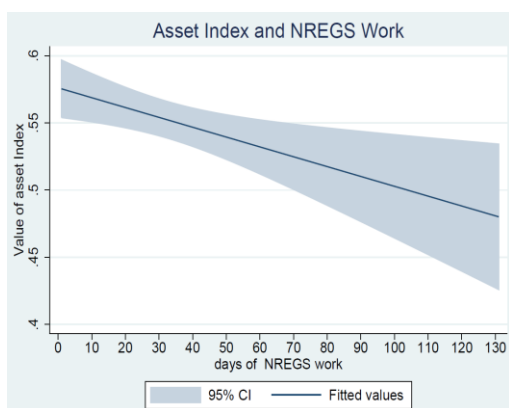
*Monthly Per-capita Income and NREGS days of work*
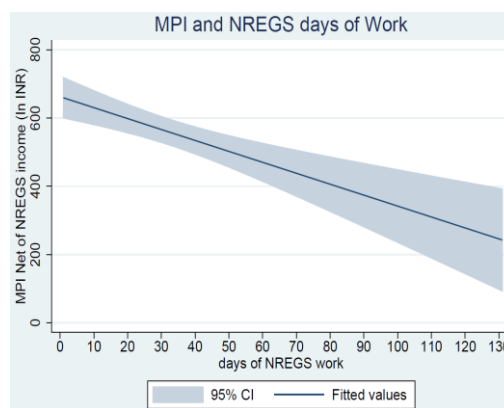




*Land holding and NREGS days of work*

*NREGS days of work and status of house*





Source: Author's calculation from the survey data.

**Appendix 4: Construction of poverty status**
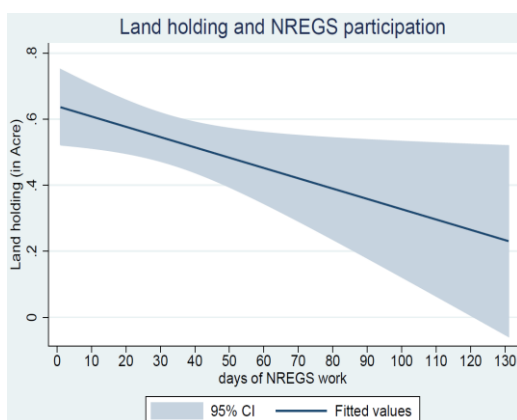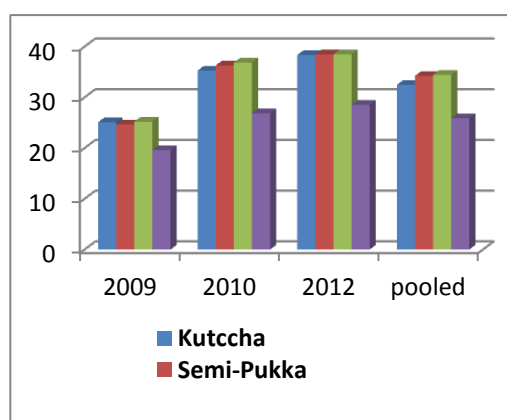
In our analysis we construct 4 poverty status groups. They are as follows.
   i)     Ultra poor: If PCMCE<=514.56
   ii)    Poor: If 514.56<PCMCE<=643.20
   iii)   Relatively non-poor: If 643.20<PCMCE<=771.84)
   iv)    Relatively Rich: If PCMCE>771.84)

PCMCE is the per-capita monthly consumption expenditure. Here INR 643.20 is the poverty line level of consumption expenditure. In the construction of 'Ultra Poor' we used consumption level which is below the 20% below the poverty line level of consumption expenditure. 'Poor' are those whose PCMCE is between 20% below poverty line consumption level and poverty line consumption. Relatively non-poor are those whose PCMCE is between poverty line consumption level and 20% above poverty line consumption level. Relatively rich are those whose PCMCE is above the 20% above poverty line consumption level.

## Appendix-5: Description of variables

| Dependent Variable | Description | Comment |
|---|---|---|
| $y_i^{demand}$ | This is a dummy variable. This is '1' if the household demand for NREGS work, '0' otherwise | This is used as a main dependent variable in the selection equation (i.e. equation 2) in section 3.5.1 |
| $y_i^{participant}$ | This is also a dummy variable. This is '1' if the household is the participant of NREGS work and '0' otherwise | This is used as a main dependent variable in the outcome equation (i.e. equation 1) in section 3.5.1 |
| $D$ | This is continuous variable which shows years wise days of NREGS work availed by a household | This is used as a main dependent variable in the Fixed Effect household model in section 3.5.2 |
| $y_i = j$ | Here $y_i$ is a categorical variable which shows type of household and it takes value j for type j household. We have 4 type of households so j=1, 2, 3, 4. Household type-4 used as the reference category | This is the main dependent variable in equation 3 in section 3.5.3 |
| **Exclusion variable** | | |
| *unemployed_ph* | This is a continuous variable which is shows *the average days of unemployment per head in adult equivalent scale within the household* | This is used as exclusion variable in the selection equation i.e. the first stage of each of the sample selection model as illustrated in section 3.5.1, 3.5.2 and3. 5.3 |
| **Explanatory Variable** | | |
| *ruling-party-supporter* (Reference as not-ruling-party supporter) | '*ruling-party-supporter*' is a dummy variable which takes value 1 if at least one member from the household takes part in the election campaign and rally for the GP level ruling party. It takes value 0 otherwise which we refer as not-ruling-party-supporter. | This is one of the two main explanatory variables which capture household's explicit inclination towards GP level ruling party. |
| rps*wave | This is an interaction term between the dummy variable '*ruling-party-supporter*'and the wave dummy which takes value 1 for year 2009, 2 for 2010 and 3 for 2012. | This is one of the two main explanatory variables which capture the marginal effect of being *ruling-party-supporter* over time |
| age | Age of the head of the household | |
| Agesqr | Age square | |
| Education | This is a dummy variable which takes value 1 if the head of the household is illiterate, 2 if studied up to primary level, 3 if studied up to upper primary level, 4 if studied secondary level, 5 if studied higher secondary level, 6 if studied above the higher secondary level. Here we use category 1 as reference dummy | |
| Caste | Caste is categorical variable. It is 1 if the caste of the household is 'Brahmin', 2 if general-non-Brahmin, 3 if Other Backward Caste (OBC), 4 if Schedule Caste (SC), 5 if Schedule Tribe (ST). Reference is 1 | |
| HH_size | Total number of member of the household | |
| Male | If the sex of the head of the household is male. Reference category is female | |
| Hindu | Religion of the household is Hindu and reference category is Muslim. | |
| Wave | Wave dummy. Wave=1 if year 2009, wave=2 if year 2010, wave=3 if year=2012. Reference is 2009 | This is capturing time fixed effect |
| GP | GP dummy 1 -13 for 13 GP under study. Reference is 1 | This is capturing GP fixed effect |
| Imr | Inverse Mills Ratio | This is capturing the presence of sample selection error. |

## Appendix 6: Year-wise determinants of getting NREGS job after seeking it: (marginal effect of probit estimates)

| Explanatory Variables | Year 2009 | | Year 2010 | | Year 2012 | |
|---|---|---|---|---|---|---|
| | With Heckman | Without Heckman | With Heckman | Without Heckman | With Heckman | Without Heckman |
| ruling-party-supporter (Ref. not-ruling-party-supporter ) | 0.232 | 0.233 | 0.051 | 0.032 | -0.028 | -0.015 |
| | (6.71)** | (7.04)** | (1.09) | (0.73) | (0.42) | (0.26) |
| Total Land owned | -0.011 | -0.012 | 0.008 | 0.018 | 0.000 | -0.003 |
| | (0.39) | (0.44) | (0.32) | (0.84) | (0.01) | (0.12) |
| Age of Head of HH | 0.007 | 0.007 | 0.008 | 0.004 | 0.043 | 0.045 |
| | (0.72) | (0.76) | (0.80) | (0.47) | (3.24)** | (3.42)** |
| Age Square | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 | -0.000 |
| | (0.61) | (0.67) | (0.71) | (0.32) | (3.45)** | (3.76)** |
| (Education of the head of household: Ref is illiterate) | | | | | | |
| Primary | -0.010 | -0.011 | 0.038 | 0.043 | -0.037 | -0.040 |
| | (0.19) | (0.20) | (0.83) | (0.95) | (0.54) | (0.59) |
| Upper Primary | -0.062 | -0.065 | 0.091 | 0.106 | -0.103 | -0.121 |
| | (0.77) | (0.92) | (1.99)* | (2.74)** | (1.04) | (1.36) |
| Secondary | 0.021 | 0.014 | -0.082 | -0.018 | -0.197 | -0.236 |
| | (0.19) | (0.17) | (0.59) | (0.19) | (1.21) | (1.83) |
| Higher Secondary | -0.341 | -0.355 | -0.645 | -0.549 | -0.269 | -0.315 |
| | (1.47) | (1.95) | (3.08)** | (2.59)** | (1.14) | (1.55) |
| Higher secondary above | -0.133 | -0.159 | -0.213 | -0.031 | -0.003 | -0.111 |
| | (0.42) | (0.86) | (0.71) | (0.28) | (0.01) | (0.59) |
| Caste of the household: (Ref is General Brahmin) | | | | | | |
| General Non-Brahmin) | 0.070 | 0.075 | -0.088 | -0.152 | 0.021 | 0.045 |
| | (0.44) | (0.50) | (0.54) | (0.95) | (0.11) | (0.26) |
| OBC | 0.106 | 0.110 | -0.079 | -0.189 | -0.161 | -0.114 |
| | (1.08) | (1.28) | (0.36) | (0.80) | (0.60) | (0.50) |
| SC | 0.114 | 0.122 | 0.101 | 0.028 | 0.076 | 0.116 |
| | (0.64) | (0.77) | (0.65) | (0.21) | (0.38) | (0.69) |
| ST | 0.118 | 0.123 | 0.133 | 0.112 | -0.029 | 0.023 |
| | (1.22) | (1.56) | (3.52)** | (1.92) | (0.11) | (0.11) |
| Household Size | -0.001 | -0.001 | -0.006 | -0.006 | 0.022 | 0.022 |
| | (0.12) | (0.11) | (0.56) | (0.58) | (1.61) | (1.59) |
| Male Head (Ref: Female head) | 0.002 | 0.006 | 0.037 | 0.012 | 0.062 | 0.078 |
| | (0.03) | (0.09) | (0.44) | (0.17) | (0.64) | (0.86) |
| Religion Hindu (Ref: Muslim) | 0.028 | 0.025 | -0.146 | -0.142 | 0.123 | 0.113 |
| | (0.36) | (0.35) | (3.91)** | (3.74)** | (1.26) | (1.22) |
| GP Fixed Effect | YES | YES | YES | YES | YES | YES |
| Imr | -0.020 | | 0.167 | | -0.117 | |
| | (0.09) | | (0.86) | | (0.38) | |
| Observation | 395 | 395 | 371 | 371 | 373 | 373 |
| Log Likelihood | -173.6068 | -173.6112 | -136.060 | -136.4232 | -173.2813 | -173.3556 |
| Pseudo R2 | 0.1857 | 0.1857 | 0.3144 | 0.3126 | 0.2506 | 0.2503 |

Z statistics in brackets;
* p<0.10, ** p<0.05, *** p<0.01

**Appendix 7: Determinants of days of work year-wise with sample selection correction**

| Explanatory variables | Year2009 | | Year2010 | | Year2012 | |
|---|---|---|---|---|---|---|
| | With Heckman | Without Heckman | With Heckman | Without Heckman | With Heckman | Without Heckman |
| Ruling-party-supporter (Ref. not-ruling-party-supporter ) | 19.078 | 19.024 | 10.205 | 9.946 | 4.168 | 4.007 |
| | [2.092]*** | [2.090]*** | [2.779]*** | [2.754]*** | [2.720] | [2.694] |
| Total Land owned | -0.611 | -0.735 | -1.141 | -0.826 | -0.058 | -0.006 |
| | [1.140] | [1.129] | [1.154] | [1.068] | [1.455] | [1.449] |
| Age of Head of HH | -0.793 | -0.757 | 1.371 | 1.282 | 1.857 | 1.842 |
| | [0.435]* | [0.433]* | [0.626]** | [0.613]** | [0.669]*** | [0.668]*** |
| Age Square | 0.008 | 0.008 | -0.013 | -0.012 | -0.019 | -0.019 |
| | [0.004]* | [0.004]* | [0.006]** | [0.006]* | [0.006]*** | [0.006]*** |
| (Education of the head of household: Ref is illiterate) | | | | | | |
| Primary | -3.788 | -3.738 | -2.640 | -2.734 | 1.018 | 1.009 |
| | [2.146]* | [2.145]* | [3.075] | [3.070] | [3.168] | [3.165] |
| Upper Primary | -1.209 | -1.389 | 4.372 | 4.403 | -3.611 | -3.521 |
| | [2.743] | [2.733] | [4.350] | [4.347] | [4.051] | [4.042] |
| Secondary | -4.271 | -5.427 | -8.548 | -8.010 | -5.717 | -5.187 |
| | [4.022] | [3.764] | [5.070]* | [5.011] | [5.257] | [5.121] |
| Higher Secondary | -8.174 | -9.285 | -20.059 | -19.022 | -13.643 | -13.281 |
| | [5.339] | [5.161]* | [9.006]** | [8.885]** | [7.834]* | [7.785]* |
| Higher secondary above | -3.999 | -8.727 | -11.910 | -7.839 | -6.772 | -2.865 |
| | [8.282] | [5.942] | [9.051] | [7.077] | [11.800] | [8.109] |
| Caste of the household: (Ref is General Brahmin) | | | | | | |
| General (Non-Brahmin) | -1.305 | 1.664 | 4.403 | 1.480 | 5.651 | 4.239 |
| | [9.215] | [8.470] | [8.881] | [7.900] | [8.577] | [7.990] |
| OBC | -4.751 | -1.342 | 0.125 | -3.172 | 3.207 | 1.490 |
| | [9.909] | [8.990] | [9.951] | [8.836] | [9.680] | [8.909] |
| SC | -2.058 | 1.511 | 14.549 | 11.307 | 12.367 | 10.632 |
| | [9.563] | [8.512] | [9.025] | [7.823] | [8.725] | [7.844] |
| ST | 1.139 | 5.046 | 4.453 | 0.820 | 9.452 | 7.525 |
| | [10.430] | [9.275] | [10.657] | [9.389] | [10.601] | [9.712] |
| Household Size | 1.023 | 1.045 | 0.602 | 0.541 | 1.233 | 1.228 |
| | [0.469]** | [0.468]** | [0.688] | [0.682] | [0.687]* | [0.687]* |
| Male Head (Ref: Female head) | 0.908 | 1.451 | 7.911 | 7.507 | 1.153 | 0.985 |
| | [2.931] | [2.854] | [4.207]* | [4.167]* | [4.049] | [4.029] |
| Religion Hindu (Ref: Muslim) | -1.395 | -2.024 | 2.487 | 2.930 | 1.212 | 1.537 |
| | [3.129] | [3.032] | [4.459] | [4.413] | [4.532] | [4.471] |
| GP Fixed Effect | YES | YES | YES | YES | YES | YES |
| Inverse Mills Ratio | -3.961 | - | 4.551 | - | 3.955 | - |
| | [4.830] | - | [6.302] | - | [8.671] | - |
| Observations | 395 | 395 | 394 | 394 | 415 | 415 |
| $R^2$ | 0.420 | 0.419 | 0.357 | 0.356 | 0.378 | 0.378 |
| F | 9.127 | 9.438 | 6.963 | 7.202 | 8.068 | 8.366 |

Standard errors in brackets
* p<0.10, ** p<0.05, *** p<0.01

**Appendix *8.1*: Comparison of Panchayat election results in sample GPs in Birbhum**

| Variable | 2008 | 2013 |
|---|---|---|
| Total Average Voter | 996.68 | 962.16 |
| Percentage of vote casted | 89.37 | 90.85 |
| Percentage of rejected | 2.80 | 4.04 |
| Percentage of vote to CPIM | 49 | 21.57 |
| Percentage of vote to TMC | 12.76 | 58.50 |
| Percentage of vote to Congress | 12.71 | 3.81 |
| Percentage of vote to BJP | 5.31 | 5.31 |
| Percentage of vote to FB | 6.67 | 1.88 |
| Percentage of vote to RSP | 5.43 | 0 |
| Percentage of vote to Independent | 4.37 | 3.77 |
| Percentage of vote to Other | 1.41 | 1.10 |
| Percentage of vote to Winning Party | 56.63 | 66.55 |
| Percentage of vote to Second Party | 39.37 | 23.67 |
| Percentage of Winning margin to Total Vote Casted | 17.26 | 42.68 |
| Percentage of vote to all other defeated party together | 3.99 | 9.57 |
| Percentage of seats where winning party got 80% and above vote | 3.64 | 30.91 |
| Percentage of seats where CPIM got 80% and above vote | 3.64 | 0 |
| Percentage of Seats where TMC got 80% and above vote | 0 | 30.91 |
| Percentage of seats where winning party got 100% vote | 0.91 | 27.27 |
| Percentage of seats where CPIM got 100% vote | 0.91 | 0 |
| Percentage of Seats where TMC got 100% vote | 0 | 27.27 |

Source: West Bengal State Election commission website.

**Appendix 8.2: Density plot of TMC and CPIM vote-share in sample GPs in Birbhum**
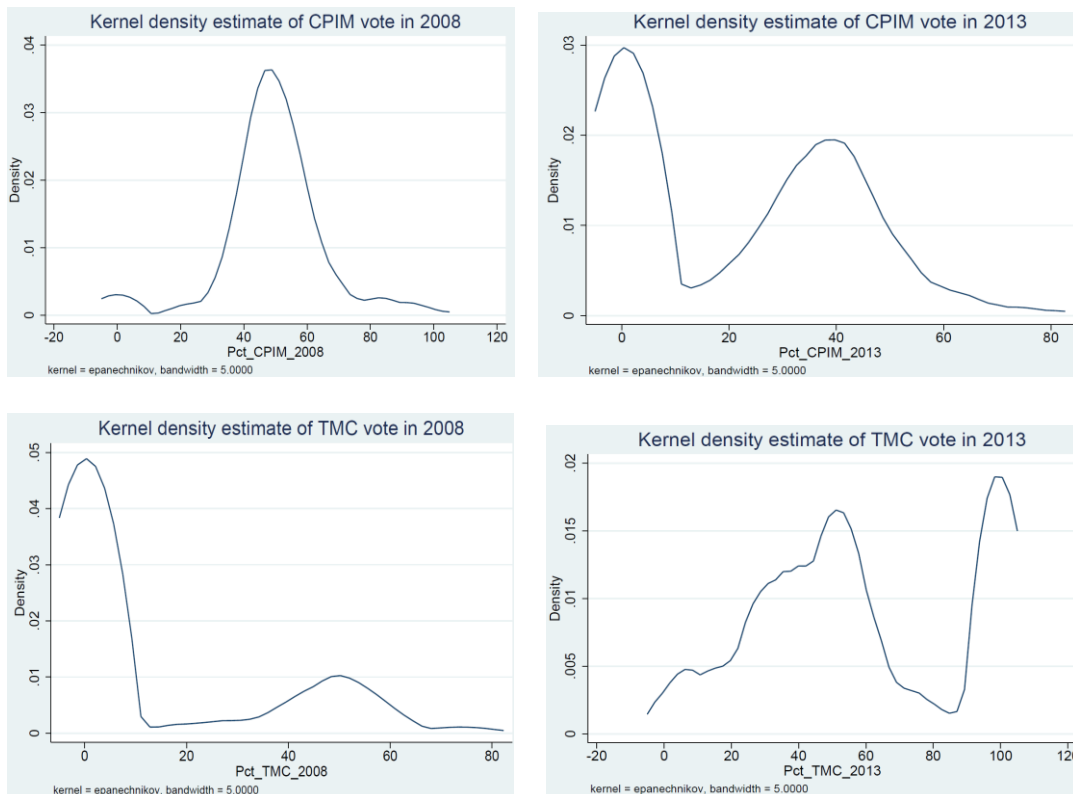


Source: Author's calculation from West Bengal Election Commission website data.