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SUBALTERN STUDIES: ADVANCING CRITICAL THEORY IN ICT4D

Research paper

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Abstract

Critical research has been advocated as capable to uncover multiple contradictions in ICT-induced development processes. This paper explores the potential of subaltern studies to contribute to the generation of critical theory in ICT4D. Following the postcolonial thought of Partha Chatterjee, the paper proposes a vision of subalternity centred on technologies of rule that concur to devoicing the marginalised. The theory is used to examine the computerisation of a large Indian social protection scheme, illustrating how processes of digitalisation, formally aimed at the empowerment of recipients, actually resulted in the systematic crystallisation of alienating power structures in the programme. This resulted in the further devoicing of the wageseekers that the scheme should have empowered, casting doubt on the image of a pro-poor "digital India" represented in mainstream narratives. Used as analytical framework, subalternity theory makes it possible to represent the views of the devoiced and marginalised, hence contributing to enacting the emancipatory purpose of critical theory in ICT4D.

Keywords: ICT4D, subaltern studies, anti-poverty programmes, NREGS, India.

1   Introduction

Critical research combines the different, but interlinked purposes of *theorisation* and *transformation* of a status quo characterised by socially oppressive conditions. Its theoretical intent is that of generating social critique, where "the restrictive and alienating conditions of the status quo are brought to light" (Myers, 1997, p. 5). Its transformative purpose lies in transforming the alienating conditions into which subjects are forced, with a view of tackling the root causes of social domination (Orlikowski and Baroudi, 1991; Myers, 1997). Conceptual continuity between theorisation and transformation makes critical research a unique paradigm, different from the predominantly theoretical nature of positivist and interpretivist approaches.

Attention to critical research in information systems (IS) has emerged relatively recently. The analysis of IS literature conducted by Orlikowski and Baroudi (1991) found no papers adopting the critical paradigm, and its absence from the field has been brought to light by other scholars over time (Chen and Hirschheim, 2004; Richardson and Robinson, 2007). Focus on critical epistemologies and on their emancipatory potential has however increased over the last decade, with journals dedicating special issues to it (Cecez-Kecmanovic, Klein and Brooke, 2008) and the enunciation of guiding principles for conducting critical research in IS (Myers and Klein, 2011). Signs of attention towards this paradigm are hence more tangible than before, which encourages IS researchers to engage directly with it.

Research in information and communication technology for development (ICT4D), focusing on the multiple implications of ICT for development processes (Zheng, Hatakka, Sahay and Andersson, 2018), has been framed as a particularly fertile ground for critical research (Lin, Kuo and Myers, 2015; De', Pal, Sethi, Reddy and Chitre, 2018). This is because the link between macro socio-political context and local innovation may illuminate important aspects (Lin et al., 2015, p. 698) that may not be caught by the sheer interpretive eye. In her review of discourses on ICTs and development, Avgerou (2010) highlighted the importance of making arguments about ICT-enabled socio-economic development, and of devising theoretical perspectives to enable researchers to do so. With its emancipatory focus, critical research is especially well-suited to contribute to this.

This paper contributes to critical research in ICT4D, exploring the theoretical potential of the school of thought of subaltern studies to advance such research. The subaltern studies school originates from a scholars' collective (Guha and Spivak, 1988) whose perspectives are underpinned by focus on the *subaltern* as a devoiced and systematically objectified entity (Spivak, 1988, p. 5). In Gramscian theory, the condition of the subaltern is characterised by exclusion from institutions in society, which makes it at the same time devoiced and subordinated (Gramsci, 1971). Starting from such historically shaped condition, subaltern studies question the social and political system that led to it and are well-positioned for the construction of critical theory (Guha, 1988).

The paper advances a vision of subalternity that follows Partha Chatterjee's work on the "politics of the governed", as put forward in "most of the world" in postcolonial times (Chatterjee, 2004, p. 3). It proposes a vision of subalternity based on *technologies of rule*, meant as governmental practices that "structure a war on poverty" in postcolonial settings (Corbridge, Srivastava, Véron and Williams, 2005, p. 6). In such theorisation technologies of rule, a term that encompasses all practices of government (Rose, 1999), maintain their structure of control when embedded in the social protection programmes designed to serve the poor. In this way, anti-poverty programmes become forms of control on the "dangerous classes" (Corbridge and Srivastava, 2013, p. 456) and maintain these in a relation of subordination with the dominant state (Chatterjee, 2004). Applied to the design of social policies in developing countries, this lens problematises the hegemonic idea of social protection as inherently "good" and apolitical (Ghosh, 2011; Carswell and De Neve, 2013).

This stream of subalternity theory is applied to the computerisation of a large Indian social protection programme, the National Rural Employment Guarantee Scheme (NREGS), which provides a legal guarantee of 100 days of employment in public works per year to rural households who demand it. Undertaken at the state level, digitalisation of the NREGS is depicted as a means to empower pro-

gramme recipients by tracking wage payments and preventing resource leakage. Our findings, collected in five tribal villages of Andhra Pradesh in 2014, show instead problematic recipient views of the project, linked to the uncertainty of digital payments and crystallisation of alienating practices. This reveals a different narrative on the programme, where workers are detached from the materiality of cash payments and feel further devoiced by the computerisation that should empower them.

Subaltern studies have been introduced quite recently in ICT4D (Lin et al., 2015; Addo, 2017). Here I use this perspective to advance critical theory on ICT-induced development processes, through a lens that places the subaltern subject at its core. I argue that subalternity, in the notion presented here, brings to light an "anthropology of the everyday state" (Benei and Fuller, 2001) which illuminates the condition of devoiced subjects, focusing on its social and political roots. In doing so, it explains ICT4D interventions from a recipients' perspective, contributing to represent the view of the objectified and often marginalised recipients of development projects.

The paper is structured as follows. I first introduce the debate on critical theory in ICT4D and explain the roots of increasing scholarly attention towards it. I then introduce subaltern studies as a strand of critical theory, illustrating Chatterjee's (2004) vision of subalternity as informed by technologies of rule. The study of computerisation of the NREGS in Andhra Pradesh is then illustrated, juxtaposing a dominant narrative to the alienation and disempowerment experienced by tribal wageseekers. In the discussion I detail the contributions of the study to ICT4D, highlighting the implications of subaltern studies for critical research in the field.

2   Introducing Critical Theory in ICT4D

Critical research highlights the presence of alienating conditions in the status quo, setting the purpose of inducing transformative change (Myers and Klein, 2011). Its definition is in terms of assumptions rather than methods (Brooke, 2002), and its purpose is that of exposing issues of structural asymmetry to enable emancipation (Schwandt, 1990; Orlikowski and Baroudi, 1991). Its uniqueness hence stems from the unity of its value positions with the transformative intent that allows it to inform emancipatory action (Howcroft and Trauth, 2005; Kvasny and Richardson, 2006; Young, 2018).

In IS particularly, this implies studying "how the development and use of IS in organisations and society in the pursuit of efficiency, rationalization and progress also increase social control and domination, with potential detrimental consequences for some stakeholders and society as a whole" (Cecez-Kecmanovic et al., 2008). This means applying a problematising perspective to the themes of the IS field, questioning the techno-economic rationality that dominates its paradigms (Avgerou, 2000). What emerges is a focus on the roots of power relations, and on the multiple forms of embeddedness of ICT into them. The condition of vulnerable groups such as the disabled (Adam and Kreps, 2006) and women experiencing gender imbalance (Trauth and Howcroft, 2006) lends itself to such theorisation.

Notwithstanding its theoretical importance, critical research has been framed as a "missing paradigm" in IS (Richardson and Robinson, 2007; Myers and Klein, 2011). The analysis by Orlikowski and Baroudi (1991) which found it missing from scholarly outlets was replicated through similar methods by Chen and Hirschheim (2004), finding the substantial continuation of absence of critical epistemologies from the field. These perspectives are however counteracted by the last decade's increasing focus on critical research in IS, signalled by the interest of top journals and growing recognition in international conferences (Cecez-Kecmanovic et al., 2008). Myers and Klein's (2011) recent codification of guiding principles for such research adds to recognition of the paradigm's importance in IS.

Such importance has however been recognised in ICT4D, where Walsham (2005) highlighted the relevance of critical theory to analyse the power asymmetries with which developing subjects are faced. In the wake of narratives around the positive effects of digital development, Wade (2002) highlighted how "bridging the digital divide" resulted in new forms of dependency for developing subjects, which further crystallised their subordination to technology-controlling industrialised nations. This made it

more important to unveil the structural asymmetries of digitally-induced development (Poveda & Roberts, 2018), and identify its effects on the entitlements of recipients. In a similar vein De' et al. (2018) propose a "strong critical" approach to ICT4D research, among whose key pillars are the nature of the postcolonial state and the issues of representation and subjectivity of devoiced subjects.

Critical research *per se* is not prescriptive on choice of theories. As noted in Cecez-Kecmanovic et al. (2008, p. 124), the horizons of this perspective have broadened from the days in which critical research in IS was automatically identified with Marx or Habermas' social theory perspective. Even researchers who engage in taxonomies of the field (Myers and Klein, 2011) state that no classification of critical approaches can be exhaustive, since this research is by definition open to the emergence of new perspectives. Despite the presence of predominant theories, new approaches emerge to conceptualise particular interactions between context and subject and their mediations by ICTs.

Lin et al. (2015) still find a predominance of interpretive perspectives in ICT4D and identify postcolonial theory as a space for generation of critical approaches. Such theory identifies the persistence of gaps between the mainstream and the marginalised, heightened by a postcolonial context that is "powerful and pervasive" (Lin et al., 2015, p. 698). Postcolonial approaches have been adopted in IS to explore structural inequalities, for example image formation processes experienced by ICT industry workers in India (Ravishankar, Pan and Myers, 2013). With their focus on the root causes of marginalisation, postcolonial approaches yield potential to advance critical theory in ICT4D.

3   Advancing Critical Perspectives through Subaltern Studies

The subaltern studies group originated in the late 1960s among scholars of South Asia, whose perspectives are underpinned by a focus on "history from below" (Guha, 1988). This implies a vision of postcolonial theory centred on the subaltern, conceived in the Gramscian notion as individuals excluded from the hegemonic structure of society. While originating from the South Asia-centred collective, subaltern studies focus on popular politics affecting "most of the world" (Chatterjee, 2004, p. 3) as a result of postcolonial structures. The consequence of marginalisation is the devoicing of subjects (Spivak, 1988), who are hence excluded from most forms of participation in the "development" interventions meant for them.

Subalternity theory has been introduced in ICT4D, both as a component of postcolonialism (Lin et al., 2015) and in its own right (Addo, 2017). Its potential, Addo (2017, p. 2) argues, is that of uncovering "blind spots" of IS in developing countries, including the contradictory effects of ICT implementation. Approaches to subaltern studies have evolved and varied contextually, making it important to identify theorisations of subalternity that may suit ongoing problems of IS in developing nations. Among these, Partha Chatterjee's (2004) view of the "politics of the governed" resonates with ongoing debates on social protection, and on the role played by ICTs around it.

Chatterjee's (2004) vision is rooted on the dichotomy between a civil society of equals, enabled to establish a dialogue with the state, and a political society encompassing the poor and marginalised, detached from the state in postcolonial settings. Separating the two are historically established conditions that make it possible for civil society elites to interact with the state, excluding the poor and objectified masses from any dialogical interaction with it. Members of the political society inhabit "rough and tumble worlds" of exclusion and violence, often being denied basic civic and human rights. While instantiated by contemporary South Asia, this division is framed as structural and intrinsic to the postcolonial world (Chatterjee, 2004, p. 12).

As a result, the subaltern are afforded particular ways of "seeing the state" (Corbridge et al., 2005). In subaltern studies "the state" is not framed as an abstract entity: instead it is actively "seen" and experienced in its physical manifestations, through the embodiments (bureaucrats, state agencies, security forces) that subjects encounter in their daily lives. These encounters are often violent for the subaltern, who are systematically ignored or treated as inferior when interfacing with state bureaucrats or service

providers. For members of the political society, encounters with the state are hence *loci* of extenuating waits, alienating behaviours and acts of sheer violence (Chatterjee, 2004).

Violent and dismissive as they may be, such encounters are not unstructured. They are instead given specific forms by a host of *technologies of rule*, meaning all institutions, practices and classification techniques through which government is performed (Rose, 1999). Such technologies are plied to the purpose of disciplining the political society, whose "dangerous classes" (Corbridge and Srivastava, 2013, p. 456) need a form of control and domination. Technologies of rule *par excellence* include the Indian census, which inscribes individuals into colonially-established tribes and categories (Dirks, 2001). This implies the construction of tribes in imaginary ways, detached from the lived reality of subjects (Béteille, 1998).

One of the most visible technologies of rule in India consists of anti-poverty programmes, designed by the central government to serve the poor and vulnerable. The Indian structure of social protection is substantiated in a host of programmes covering the key aspects of social assistance: food security, employment guarantees, health insurance and all the basic needs that the condition of poverty entails (Devereux and Sabates-Wheeler, 2007). Inscribed in India's social policy since the first years post Independence, such programmes have become part of a rights-based agenda which expands their coverage. But these are, at the same time, structured in top-down architectures that leave no room for participation, often resulting in the devoicing of the recipient (Khera, 2011; Masiero, 2015).

Chatterjee's vision of subalternity is reflected in several studies of anti-poverty programmes, framed as technologies of rule that combine social assistance with alienating effects (Williams, Véron, Corbridge and Srivastava, 2003; Swaminathan, 2008). This perspective becomes relevant today, with social protection schemes undergoing forms of digitalisation aimed to increase their effectiveness (Government of India, 2015). The idea of the central government is that of leveraging ICTs as anti-poverty tools: this means embedding digitalisation in structures that have informed social protection for many decades, structuring the ways in which the poor are served. To observe the theoretical potential of subalternity theory, below we illustrate the study of computerisation of one such programme.

The study focused on computerisation of the NREGS, India's main scheme for the generation of rural employment, in a tribal district of Andhra Pradesh. Scheduled Tribes are among the most vulnerable socioeconomic groups in India, and derive their main subsistence from agricultural activities in land and forest. According to the 2001 Census of India, 61 per cent of tribals in the state lived below the poverty line (Maiorano and Buddha, 2015), and the economic fragility of such communities entails the need for state governments to adopt special terms for them. As such, our guiding research question was centred on how computerisation of the NREGS affected people's entitlements in tribal areas.

A first set of interviews was conducted with senior officers, as well as software developers responsible for the design and implementation of the programme's core information system. Having formed a clear idea of the system's functioning, a second set was conducted with NREGS workers and agricultural labour organisations in five tribal villages located in Visakhapatnam district. Interview data were triangulated with demonstrations of the information system by the software provider, and observations conducted in two of the Mandal Computer Centres (NREGS administrative units) where the information system was operated. The analysis followed a thematic coding pattern based on identifying relevant themes in the corpus of data and relating them to theoretical categories built in response to the research question (Boyatzis, 1998).

4   NREGS in Andhra Pradesh: Competing Narratives

Approved by the Indian Parliament in August 2005, the NREGS was implemented in 200 rural districts of India in February 2006, and then scaled up to the whole country in 2008. Framing the right to work as a legal guarantee, the NREGS provides 100 days of minimum wage employment to rural households who demand it, acting as an income guarantee to wageseekers who enrol for it. By doing

so it concurs to the infrastructural development of rural areas, where wageseekers are recruited and enrolled. The programme has been recognised for its impact on poverty reduction, as well as on the financial inclusion of the affected households (Ravi and Engler, 2015; Drèze and Khera, 2017).

At the same time, the scheme is not free from problems. Limited monitoring of the NREGS supply chain leaves room for illicit diversion of resources, as well as clientelistic practices in their allocation (Das, 2015). Resource leakage is combined with issues relating to workers' wage payments, often missing or delayed even if linked to beneficiaries' bank accounts. Resource capture and wage payment diversion represent the two main problems of the NREGS, limiting its effectiveness as a social protection scheme. For this reason several states have started computerisation, with the idea of minimising leakage through ICT-based monitoring (Khera, 2011; Jenkins and Manor, 2017).

Andhra Pradesh is one of India's top spenders of NREGS funds, and consistently ranks among the top providers of work under the scheme. The programme serves a developmental as well as a political function, aimed at mobilising the political support of vulnerable classes. NREGS constitutes the main source of income for many of the rural poor (Ravi and Engler, 2015), and political promises around it tend to influence their voting behaviour. In this context, computerisation was designed by the state government with the explicit purpose of combating the problems of resource leakage and missing, delayed and incomplete payments (Masiero and Maiorano, 2018).

The state-level computerisation of the scheme started in 2006 with the purpose of digitising the main phases of the programme's supply chain. This has resulted in the NREGS Management Information System (MIS NREGS), a suite of software commissioned to a private IT company by the Rural Development Department, the state agency in charge of the scheme. MIS NREGS is articulated in four main modules:

Generation of works – a first module pertains to generation of NREGS works for each *mandal* (sub-district unit) where the programme operates. Such works, in which the scheme's wageseekers are employed, are generated monthly based on the Rural Development Department's assessment of local needs and priorities. The information system allows the assignation of works to each mandal and calculates the amount of labour and capital required for each work in a given number of days.

Procurement of materials – a second module regulates the procurement of work materials. This is carried out through *e-tendering*, an online procedure that allows assignation of procurement tasks to the lowest bidder. The purpose of automatisation of this critical phase is that of enhancing efficiency, but also preventing the unlawful assignation of such tasks on the basis of political connections.

Measurement of works – once works are completed, their outcomes are measured by officials known as Engineering Consultants (ECs). These actors use the information system to record, based on measurements conducted on the field, the extent to which expected outcomes have been achieved. Wage payments for each work are then determined on the basis of fulfilment of the intended tasks by the workers employed in it.

Processing of payments – muster rolls (registers of workers employed in each work) are compiled at the work site and uploaded weekly at offices called Mandal Computer Centres. Once measurement of outcomes has occurred, wage payment orders are uploaded online and sent to disbursement agencies, normally banks or post offices located in the workers' mandal. To collect their salary workers visit the disbursement agency, or alternatively wait for a banking correspondent to visit their area. In addition, biometric recognition of beneficiaries has been piloted in a limited number of disbursement agencies involved in the programme.

All four modules are tailored to minimise resource leakage, supporting the scheme's ability to provide incomes to the rural poor. The first three modules pertain to internal effectiveness, in terms of the management of works and measurement of their outcomes. These digitise leakage-prone operations such as budget determination, procurement and measurement, which could otherwise be manipulated to make illicit profits from inflated budgets, help political connections win procurement bids, or reduce the amount of wages paid to workers.

The fourth module is instead centred on external effectiveness, meaning the timely disbursement of payments to wage workers. In spite of Andhra Pradesh's general success with NREGS, cases of missing, delayed and incomplete payments are significant constraints to the incomes of the rural poor. MIS NREGS allows tracking of payments until the disbursement agency receives them, allowing their automatic accreditation on workers' bank or post office accounts. The choice of substituting digital transfers with cash payments aimed at reducing opportunities for diversion (Bhatti, 2012).

So depicted, computerisation of the NREGS materialises the idea of leveraging ICTs to improve the lives of the rural poor. Crucial as they are for income generation, NREGS work sites and disbursement agencies are core spaces through which the rural poor "see the state", in the form of work supervisors or the bank officers disbursing their wages. Computerising such spaces introduces ICT in the relation between the state and vulnerable citizens, seeking to frame the former as an efficient pro-poor service provider. As a result, this logic frames digitalisation as means to greater effectiveness of social protection policies.

Yet in the tribal villages where works were implemented, different narratives emerged from workers and the agricultural labour organisations working with them. We have encountered issues that computerisation solves only partially, and in some cases actually seems to reinforce and perpetuate. Significantly, the issues which emerged in this setting pertain to the effects of computerisation on tribal wageseekers' entitlements, and to their practical ability to access them.

Fieldwork villages are situated in a remote part of Andhra Pradesh, whose inhabitants have no relation with the urban, industrialised setting where software is developed. In their work routines tribal villagers do not encounter the back-end modules of the MIS but witness its effects on how NREGS works are structured and remunerated. The first concern expressed in group interviews with workers relates to payments, which greatly affect the ability of the households involved to make an income. The transition from cash payments to accreditation of wages on bank accounts has removed the sense of security that cash-based wages used to afford, as a civic volunteer said:

> When they went for cash payments, [workers] knew exactly how much was due to them. Now they do not know how much is on their bank account, and how much they will really get.

Workers are often unsure about salary determination and reported, on multiple occasions, "not being aware" of how much they will be paid. While cash was visible and tangible, the determination of bank payments remains an obscure process, systematically leaving the worker in doubt on the amounts stored in their bank accounts. The reason for uncertainty is the low familiarity of tribal workers with the banking system, perpetuated by the physical distance of banks and their limited exposure to them. This led several respondents to express an explicit preference for cash payments, whose tangibility simplified the issue of wage determination.

Biometric recognition, piloted in a few post offices at the time of fieldwork, was regarded with equal suspicion and preoccupation. As discussed in an agricultural labour organisation in Visakhapatnam, whose volunteers commit to the defence of NREGS workers' rights, when biometric recognition was piloted multiple reports of failure were filed, primarily by tribal workers whose fingerprints would not be correctly read by the machines designed for this. Interviews with workers revealed open suspicion towards biometrics, which does not solve the problem of salary determination. One worker said,

> [Biometric recognition] very often does not work. If I go to the bank and it doesn't recognise me, I don't get paid, and nothing can be done about it [...] for five months, I could not collect any payments. This was not a problem when cash was paid.

These perceptions of digital payments reveal a gap with tribal wageseekers' reality. The system was designed with the idea of enhancing traceability, empowering workers to obtain their entitlements. But

workers express preference for a cash-based system where the fruit of their work is tangible, rather than dematerialised by a banking system that is difficult and problematic to access.

Besides, payments are based on the preparation of muster rolls on the work site. The actor in charge of filling in and managing the muster roll is a Field Assistant (FA), a government-appointed officer that supervises NREGS operations in each village (Maiorano, 2014). In Andhra Pradesh FAs enjoy high discretionary power in the NREGS and are sometimes reported as misusing this power to pocket workers' salaries or establish unfair rules. As powerfully reported by a tribal worker, their gatekeeping role implies that "whether one is or is not signed into the muster roll depends on the FA".

While abuses of power by FAs have been reported as an issue in the NREGS, the information system is not designed to check the legitimacy of the FA's behaviour. Discretionary power on muster rolls enables the FA, for example, to inflate registers with "ghost worker" names to then pocket salaries related to them (Khera, 2011). As it is constructed, the system leaves the scheme's power structure untouched: in particular it leaves the preparation of muster rolls in the hands of the FA, leaving wageseekers unable to verify that their names have been inserted. A *mate*, who is a worker appointed as head of a workers' group, is also empowered to act in collusion with the FA, as a worker explains:

> The *mate* is very independent, and collaborates with the FA [...] if he wishes, the mate can withhold payments too, by not inserting names in the muster rolls.

Other modules of MIS NREGS, due to their back-end nature, are not physically sighted by workers. But their effects are still witnessed in work and payments, as it is for measurement of works: if ECs decide that the expected results have not been reached, wage payments are reduced accordingly, leaving no power to the worker to contest this. As explained by an agricultural labour organisation volunteer,

> [Here] the terrain is rocky, which makes it very difficult to dig in the first place. Still, workers have been digging it for months, but they keep being assigned to the same pond – where nothing is left to dig, they have hit rock bottom […] workers have been paid 40–50 [rupees] a day instead of 160, because the measurement says they are less productive than they should be.

The system is not designed to deal with cases of this type, as it can only determine wage payments according to the measurements conducted by the ECs. As a result, in case of unjust determinations, the automatised system prevents workers from highlighting problems with these, such as the case of impossibility of digging rocky terrain illustrated above. While designed to computerise key phases of the supply chain, the system is not built to enable workers to voice concerns related to unfair or illicit practices in the scheme.

At the same time, if workers have complaints they want to advance, on paper they can do so through the scheme's local officers, who are supposed to institutionalise grievance redressal mechanisms specific to the programme. However little evidence of grievance redressal systems has been found among wageseekers, where the lack of a system for this, as a worker explains, results in frustration:

> They send us from one office to the other, till the APO [Additional Programme Officer] tells us to go [to complain] to the computer centre. Here, they [the Computer Operator] tell us that they cannot help, because it is the bank that decides on payments [...] it is very unclear who we should turn to.

The programme officer referred to above identifies the Mandal Computer Centre, where muster rolls are uploaded in the MIS, as the office to which complaints should be directed. This, while indicative of the importance of computer operators in the NREGS, adds to the frustration of workers who, turned down by computer officers too, still do not know "to whom" they should turn in case of missing, incomplete or delayed payments. While the cash-based system was perceived as simplifying payment processes, digitisation of muster rolls adds new actors to the equation: as observed by agricultural la-

bour organisation volunteers, this makes it easier for officers to move away from responsibilities, adding to the sense of impotence expressed by workers.

Finally, a radical problem signalled by workers and volunteers lies in the fact that the selection of works to be conducted, rather than being influenced by the communities based in the affected areas, remains firmly in the hands of the Rural Development Department. Works should be decided through the village council (*gram sabha*), where villagers identify infrastructural development priorities to fix through NREGA works. But as noted by a workers' group leader,

> [Workers] would rather engage in jungle clearance. This is the type of work that is needed in this area, because it is from jungle clearance that their households, their economy, would really benefit. But they are always assigned to irrigation works [...] because these are the works that they get from the government.

Most workers expressed their preference for works of jungle clearance, systematically needed in the tribal areas where this is a priority. The Rural Development Department however kept designating them to irrigation works, factually devoicing them on the infrastructural development which is a stated purpose of the NREGS. Agricultural labour organisation volunteers are explicit on this point: despite the general anti-poverty nature of the scheme, the programme has been designed with a rural setting in mind, ignoring the substantial differences that the tribal context involves. As such, tribal workers remain devoiced in a system that does not take their needs and conditions into account.

From generation of works to digital payments, multiple problems are perceived by tribal workers. They are not in the position to see the system's back-end modules, and experience the greater transparency and accountability that these aim to instil in the NREGS. They see, however, the further devoicing that computerisation has brought, crystallising an existing set of power relations that concur to their further marginalisation. As a result of how the system is currently designed, the empowerment expected is hence not experienced, and technology seems instead to contribute to perpetuating an extant condition of exclusion and devoicing.

5   NREGS Computerisation: A Subaltern Studies Perspective

With its focus on the devoiced as its main subject, subalternity theory is well-suited to make sense of the narratives illustrated here. Originally depicted as a means to enhance programme effectiveness, the NREGS information system participates in the implementation of the scheme, but is linked to the reaffirmation of power structures that characterised it before. As it emerges from tribal wageseekers, such structures seem to increase workers' alienation, *de facto* legitimising the power of the FA without devising mechanisms to oppose it. The image that emerges from this is not that of a pro-poor digital India, but of a programme whose computerisation, designed and implemented as it is, ultimately reinforces the marginalisation of tribal workers.

In particular, Chatterjee's vision of subalternity illuminates the dynamics of this case. The persistence of subalternity emerges in the subordination and discriminatory practices that workers reveal, forcing them, in spite of the anti-poverty nature of the scheme, to continue to inhabit what Chatterjee (2004) frames as the "rough and tumble worlds" of political society. The concept of the subaltern as devoiced, on which Guha and Spivak's (1988) work is centred, is embodied by the impotence of workers to negotiate more equal relations with the Rural Development Department and the officials depending on it. The reproduction of alienation comes as a consequence of adverse power structures, which in this case are crystallised by a technology that contributes to reinforce them.

The technology of rule at the centre of the study is the NREGS, which as theorised by Corbridge et al. (2005) informs tribal workers' visions of the state. What a subaltern perspective affords is, in the words of Benei and Fuller (2001), an "anthropology of the everyday state" which illuminates the con-

dition of devoiced subjects, by focusing on their everyday experiences with the bureaucracy of a large anti-poverty programme. A study of this type leads to observe how marginalised subjects see computerisation, and how this affects the material encounters through which they "see the state" on a daily basis. It is through observation of these encounters that insights can be gained on the impact of ICT-enabled interventions on the lives of the subaltern.

This has important implications for critical research in ICT4D. Technology emerges here as part of a structure of control, which perpetuates the problems implicit in existing power structures and factually neglects the condition of tribal workers. This leads recipients to state their preference for the non-computerised version of some parts of the supply chain, such as cash payments which could be accessed without the mediation of banks and offices with which they are not familiar. In the perception of workers, computerisation is inextricably linked to a controlling setting, "powerful and pervasive" as that found by Lin et al. (2015) in their postcolonial study of an ICT4D project.

Two further clarifications are needed in this respect. First, the study presented here problematises the vision of social protection as inherently good and effective, and shows how its dynamics may result in unintended outcomes for recipients. Scholars have already highlighted the importance of continuity and long-term logics in social protection (Devereux and Sabates-Wheeler, 2007), distinguishing it from the short-term assistance provided by social safety nets (Ghosh, 2011). Here the power relations implicit in social protection are also problematised, through the experience of tribal workers employed by the NREGS. If technology design fails to take these into account, computerisation may reproduce alienating dynamics which prevent recipients from accessing their entitlements.

Second, a sheer interpretive study would have been in a suboptimal position to illuminate the type of problems discussed here. With its focus on participants' views of reality, the interpretive paradigm would have shown the meaning attached by each actor to computerisation, but would not *per se* illustrate its inscription in a pre-existing logic of power and domination. In particular, within the field of subaltern studies, it has been key to take a vision centred on technologies of rule, and on their role in structuring state-citizen relations as experienced by the poor and vulnerable. This is particularly so in a setting characterised, like the one presented here, by uses of computerisation that intertwine with existing enactments of social policy.

This leads to conclude that subaltern studies offer an important way to expand critical theory in ICT4D. Perspectives of this type motivate the persistence of design-reality gaps as in Heeks (2002), emerging between the design of technology and the lived reality of recipients. In the light of this, the predominance of interpretivism highlighted by Lin et al. (2015) in the field needs completion by more critical perspectives, since ascertaining the causal roots of design-reality gaps requires individuation of the power structures implicit in technology. This study, centred on Chatterjee's (2004) particular vision of subalternity, aims to move in this direction.

6 Conclusion

Critical theory, with its focus on theorising and transforming extant conditions of social oppression, has emerged more recently than other paradigms in IS. This study advances a specific form of critical theory, which views subalternity as linked to technologies of rule devised for the management of the poor and vulnerable. Such governmental practices are influenced by computerisation, which can challenge but also crystallise the power relations implicit in them. A case of crystallisation of alienating structures, which perpetuate the devoicing of marginalised communities, emerges here from the narratives of tribal NREGS workers in Andhra Pradesh.

Subalternity has led us to illuminate aspects of power that are beyond the scope of the interpretive paradigm, leading to argue that a critical perspective is particularly useful for this type of studies. This is highly helpful in ICT4D, where dependency relations (Wade, 2002) tend to be obfuscated by narratives that assimilate technology adoption to greater empowerment. Tribal communities live a particu-

larly fragile condition in contemporary India (Maiorano and Buddha, 2015), which requires specific attention in the design of social protection programmes. To illuminate this condition, and the power of computerisation of anti-poverty programmes to face it, the field needs theories taking the devoiced into specific consideration, tracing the social and political roots of their status.

Finally, seeking to illustrate the power of subaltern studies in ICT4D, this study opens three areas for further research. The first pertains to the condition of tribal workers in the NREGS and other social protection schemes, which should be further examined especially in the wake of the increasing uptake of biometric technologies across Indian states. A second area relates more broadly to ICT adoption in social protection systems, on which a subaltern perspective offers an alternative to the mainstream vision of technology as inherently good. Finally, a third area lies in the juxtaposition of Chatterjee's perspective to other extant approaches to subaltern theory, to complement a focus on technologies of rule with enquiry on other forms of marginalisation.

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