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Role of Information Technology in Policy Implementation of Maternal Health Benefits in India

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Abstract

Fifty thousand women died during childbirth in India in 2013, the highest total in the world; that is, one maternal death every 10 minutes. India and Nigeria account for almost one-third of total global maternal deaths. In pursuit of the Millennium Development Goals, the government of India directed efforts to improve maternal health and was able to reduce maternal mortality rate from 437 per 100,000 live births in 1990 to 140 per 100,000 in 2015, albeit missing the target of 109. Moreover, estimates for maternal morbidity are three to four times that of the mortality rates with even more pronounced regional disparities. Universal access to free public healthcare for maternal health has been a national goal since 2005, but its quality of service and utilization rate of maternal healthcare remains an elusive dream for many of the rural women even after a decade of substantial efforts.

In a stark contrast, mobile technology has become more pervasive than the most basic infrastructure across the world. There are over 7 billion mobile phones subscriptions worldwide, but only 4.5 billion people have access to basic sanitation facilities, implying more people have access to mobile phones than toilets in the world, including India. The ubiquity of mobile phones can no longer be ignored. According to the 2011 census of India, 47 percent of the rural households owned mobile phones, and mobile phone network coverage spanned over 99 percent of the rural landscape, but only 31 percent of these rural households had a toilet.

This exponential growth in mobile phone ownerships and adaptation has captured the imagination of academic scholars, public administration and the private sector to push for mobile based solutions and services in almost every aspect of public, social and personal life. M-governance has gained prominence too, aimed at improving service delivery, transparency,

policy monitoring, public engagement, combatting corruption and poverty, especially in the developing world, leap-frogging poor-resource and low-income constraints. Today there is a mobile app for everything and the solution to any problem is a mobile app, including maternal health.

However, amidst this optimism, it is surprising that the potential of mobile phones to improve social policy awareness is yet to be fully exploited. There are initiatives toward health literacy and mobile based cash transfers but few initiatives are geared toward improving awareness of social welfare policies, informing people about eligibility, enrollment and entitlements. Here lies the uniqueness of this research. Motivated to find solutions to actual policy implementation problems in practice, this research lies at the intersection of information communication technology, maternal health benefit policies and public management. In India, low maternal health benefits policy awareness imposes an administrative burden on rural women and leads to uptake of cash and public health service benefits. This research explores if mobile phones can be used as an effective medium to increase maternal health benefit awareness; thereby increasing the claiming of benefits.

Using mixed methods of research, insights are drawn from a longitudinal case study in Melghat, a tribal belt of Amravati District in Maharashtra, India; a region that suffers from high maternal morbidity and high infant mortality rate. Forty-two percent of total childbirths take place in the home despite four different maternal benefit policies promoting institutional delivery and safe motherhood. In this dissertation, customized audio messages about maternal healthcare benefit policies were designed and broadcasted to 82 pregnant tribal women and followed up with qualitative interviews to examine any improvements in claiming of the policy benefits in 2013. The research provided an in-depth view of how information was disseminated through

mobiles phones, and what factors and trade-offs, beyond information, were actually considered by the households in claiming the policy benefits.

This research offers four contributions. First, it provides a deeper understanding of maternal health policies, how incentives work and the impact of conditions attached to these incentives, providing a plausible explanation for why the policies remain only partially effective. Second, in an era of m-governance, it illuminates the potential and limitations of the mobile phones in policy implementation and civic engagement, through a gendered lens. Third, it yields a caution to the technological optimistic use of mobile phones. By evaluating the causal mechanism of whether and how information awareness led to greater claiming of benefits, the findings revealed that information awareness alone was insufficient to improve claims when there were structural and systemic deficiencies in the policy design and management. Fourth, it advances the theory of administrative burden, by using mobile phones to reduce learning costs and by expanding the concepts of compliance costs and psychological costs, and highlights the relative interaction and trade-offs between components of administrative burden in an international context. The research concludes that although mobile phones have the potential to trigger demand for policy benefits and public engagement, and reduce learning cost, they are not the “silver bullet” because they cannot bypass the fundamental challenges of other administrative burdens, policy design deficiencies and bureaucratic processes.

ROLE OF INFORMATION TECHNOLOGY IN POLICY IMPLEMENTATION OF MATERNAL HEALTH BENEFITS IN INDIA

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over two decades reinforced that the improvements in governance and administration can be made only by empowering the people with their rights. I am also grateful to the District Administration of Amravati, Maharashtra for their permission and support to conduct this research.

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Dedicated to my parents and my grandparents

Table of Contents

List of Illustrative Materials

Glossary

ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
ASHA	Auxiliary Social Health Activist
AWC	Anganwadi Center
AWW	Anganwadi Worker
DLHS	District Level Health and Facility Survey
HBNBC	Home-Based Newborn Care
ICT	Information Communication Technology
IEC	Information Education Communication
IGMSY	Indira Gandhi Matrutava Sahyog Yojana
IMR	Infant Mortality Rate
JSSK	Janani-Shishu Suraksha Karyakaram
JSY	Janani Surakshya Yojna
MAMA	Mobile Alliance for Maternal Action
MAY	Matrutava Anudan Yojna
MDG	Millennium Development Goal
MMR	Maternal Mortality Rate
NFHS	National Family Health Survey
NRHM	National Rural Health Mission
OBC	Other Backward Class
PDS	Public Distribution System
PHCs	Primary Health Care Center
RTI	Right to Information
SC	Scheduled Caste
ST	Scheduled Tribe
RCT	Random Control Treatment
TSP	Tribal Sub Plan
UT	Union Territory

Chapter 1. Introduction

I first heard about Melghat in December 2012 when Bandya Sane, KHOJ[1], stood up in a research consortium on community health and made a desperate plea drawing our attention toward the near crisis situation of maternal and child health in Melghat. He urged everyone to "take collective action." Melghat is a remote tribal belt of the Amravati District in northern Maharashtra, India encompassing a tiger reserve area with approximately 350 villages. Korkus, a Scheduled Tribe (ST), predominant in Melghat, has been "cursed" with starvation, high malnutrition and mortality rates for over two decades[2]. Bandya felt my research idea of using mobile phones for social policy awareness will be beneficial and insisted that I visit the region at least once before finalizing my research area. As I traveled across Melghat for the next two months, speaking with women, community workers[3], government officials and non-profit organizations, I realized Bandya's arguments were not completely ill-founded. In 2012-13 alone, there were thirteen maternal deaths during childbirth (more than 1 maternal death every month); 2559 home deliveries, almost 42 percent of the total deliveries; 129 stillbirths (more than ten stillbirths every month); 280 infant deaths with no account of miscarriages or unsuccessful pregnancies in this tribal population of 300,000[4]. Even with the familiarity of working with rural communities across the country and the federal government for over five years, the figures and the stories were both puzzling and deplorable to me.

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[1] KHOJ (Knowledge, Hope, Opportunity for Justice) is a non-profit organization working in Melghat, Maharashtra, India.

[2] "*Shaapit* (Cursed) Melghat" titled Documentary by Zee 24 Taas, a Marathi News Channel aired on September 5, 2015 accessible at https://www.youtube.com/watch?v=al2e1qaNGlA on June 16, 2016.

[3] I use the collective term "community workers" to imply ASHA (Accredited Social Health Activist), ANM (Auxiliary Nurse and Midwife) and AWW (Anganwadi Worker) working at the village and the community level.

[4] Figures shared by Bandya Sane from KHOJ in 2013.

Child and maternal health were a priority for the state government and for more than 300 odd registered non-profit organizations in this area (Devasia & Kumar, 2009) [5]. There were four maternal benefit policies implemented by the federal and the state governments in the region, with three being the policies for conditional cash transfers and one non-cash maternal health incentive (free medical services) for pregnant women. For any policy implementation and effectiveness, demand generation is as important as policy execution and service delivery. Demand generation refers to improving awareness about the maternal health benefit policies so that people make an informed choice about enrolling, receiving cash entitlements and utilizing public health care during pregnancy. This dissertation research focuses on reducing learning costs for maternal health benefits policies and examining any consequential change on claiming of benefits under these policies.

The government and non-profit organizations have directed numerous efforts toward Information-Education-Communication (IEC) and behavior-change-communication initiatives. Pre-field work during January through March 2013[6] showed a greater need for awareness and information dissemination about safe motherhood and maternal health policies. Pregnant women went for immunizations and health checkups, without knowing what or why immunizations or medicines were given. They opted for institutional delivery because either "everyone else goes" or local health volunteers "make them go or take us there." I visited many villages where community workers and local health officials periodically visited and counseled the women, yet many women could not recall or explain what these representatives had discussed with them in their last visit or the entitlements that accrued to them. The baseline survey also revealed that

[5] As per the RTI data provided by KHOJ, the figure was more than 350.
[6] Pre-fieldwork was in January to March 2013, Baseline survey was in March to August, Audio Broadcast was in August and September 2013.

policy awareness level among women was very low, at most, they were aware of only the amount of compensation and about free ambulance service (as part of the free medical assistance) they would receive under the policies. Consequently, most women viewed maternal health benefit policies as unimportant and ineffective.

With this lacuna in beneficiary awareness, I set out to design and initiate a maternal health benefits policy awareness intervention through mobile phones. Mobile phones have been extensively used for mobile health (m-health) and maternal health awareness, even by the government of India, but not for improving maternal health benefits policy awareness. In fact, there are few initiatives that exploit the potential of mobile phones for public engagement toward social welfare policies, beyond data collection and internal monitoring. In a way, using mobile phones to disseminate information regarding maternal health policies' eligibility, enrollment and entitlements and investigating its impact on claiming of the benefits might link "information" with "action" toward improved service delivery. Thus, this made the research unique, spinning off from the larger project by the Program on Liberation Technology at the Center for Democracy Development and Rule of Law at the Stanford University[7].

1.1 Mobile Phones and M-Governance

With over seven billion mobile phones subscriptions worldwide (ITU, 2015), mobile phones are ubiquitous. Mobile phones have emerged as the most widespread and cost effective

[7] The initial research design was a part of an informal collaboration with the Liberation Technologies project in India, with Dr. Vivek Srinivasan at the Program on Liberation Technology, Stanford University. It was intended to be a replication of the Center's project on disseminating information about wage entitlements for a rural employment program. However, as this research design for doctoral dissertation developed, I chose to focus on maternal health in Melghat; hence, diverging from the larger Stanford project.

way of information exchange in a personalized form. India has over one billion wireless subscriptions, the second largest network in the world, after China (ibid). India has earned a dubious name as the "Cell Phone Nation" (Doron & Jeffrey, 2013). In South Asian countries such as India, the expansion of Information Communication Technology (ICT) and mobile phone applications in accessing economic services, even by the lower income groups has been phenomenal (De Silva & Zainudeen, 2007). Mobile phone accessibility cuts across economic and social differentiations. It has become more pervasive than the most basic infrastructure across the world. For instance, in contrast to the seven billion mobile phone subscriptions, there are only 4.5 billion people with access to basic sanitation facilities worldwide, implying more people have access to mobile phones than toilets in the world, including India (Sunderarajan, 2012; United Nations, 2013). According to the census of India in 2011, 48 percent of the rural households owned mobile phones and mobile phone network coverage spanned over 99 percent of the rural landscape, but only 31 percent of these rural households had a toilet (Sunderarajan, 2012). In India, there are multiple mobile phone manufacturers, a variety of prepaid plans and competitive pricing among multiple carriers offer affordable cheap subscriptions to rural households. These offer affordability, flexibility in usage with little barriers to entry, making it a popular choice for information exchange for the low-income customers, as well as an innovative medium of public engagement and poverty reduction (Bhavnani, Chiu, Janakiram, Silarszky, & Bhatia, 2008; Cecchini & Scott, 2003).

It is because of these strengths that even the governance systems are now transformed toward mobile-governance or m-governance. M-governance is seen as the "*strategy and its implementation involving the utilization of all kinds of wireless and mobile technology, services, applications and devices for improving benefits to the parties involved in e-government including*

citizens, businesses and all government units" (Kushchu & Kuscu, 2003, p. 2). There has been an upsurge in m-governance for information dissemination, policy management and monitoring in recent years in India. Mobile phones are used to inform farmers about market prices and weather forecasts, reduce information asymmetries within fishing communities, track availability of food grains under the Public Distribution System (PDS), track chronic diseases and seek health consultations (De Costa et al., 2010; Dreze & Khera, 2010; Fafchamps & Minten, 2012; Poorman, Gazmararian, Elon, & Parker, 2014; Sreekumar, 2011). There is a wave toward *m-governance* in almost every sector, from passport issuance to pension delivery. The push has been so much that it has almost become a forced choice. Today, you cannot access internet banking or take a printout of your Government Unique Identification ID (Aadhaar Card) without a mobile phone number. This worrisome trend signals toward technological determinism, where mobile phones are assumed to be the solution to any and every administrative or management problem. Mobile phones have been exploited as a successful electoral strategy with federal government and regional political parties promising free mobile phones to public time and again (Janardhanan, 2015, 2016; Times of India, 2012).

Not surprisingly, mobile phones are used in mobile-health or m-health in improve health literacy, remote health monitoring, telemedicine and maternal health awareness (Agarwal & Lau, 2010; Kaplan, 2006; Lund et al., 2012; Noordam, Kuepper, Stekelenburg, & Milen, 2011; Ramachandran, 2010; Shrestha, 2011; Tamrat & Kachnowski, 2012; World Bank, 2012). United Nations founded the Mobile Alliance for Maternal Action (MAMA) reaching out to two million pregnant women in South Africa, Bangladesh, India and Nigeria to provide interactive voice and text messages about maternal health ("MAMA," 2015). Similar initiatives have also been taken up by World Vision in India and recently, the Gates Foundation collaborated with the Ministry of

Health and Family Welfare in India to initiate a national level mobile phone-based voice messages to promote general maternal health awareness (Reuters, 2015). Hopefully, this research can inform such endeavors.

1.2 Maternal Health Care and Policies in India

Millennium Development Goals (MDGs) brought the global attention and commitment toward maternal health. MDG five emphasized universal access to maternal health care and set objectives to reduce Maternal Mortality Rate (MMR), ensure safe delivery, ante- and post-natal care and adequate nutritional care for mother and child. India was expected to reduce MMR from 437 maternal deaths per 100,000 live births to 109 per 100,000 by 2015. Although MMR decreased to 167 per 100,000 in 2013, India missed its MDG five target (Government of India, 2015). The national average for India was still three to five times higher than other BRIC[8] countries—Brazil (56), Russia (34) and China (37) (Marten et al., 2014). In addition, in spite of the progress, there were significant disparities across states, from 81 per 100,000 in Kerala to 390 in Assam and potentially even higher rates in the rural areas (Census, 2011). The targets for universal access to health care for safe motherhood, ante-natal and post-natal care also fell short of their mark, with estimates indicating that only 76 percent of total childbirths are institutional deliveries, 50 percent of pregnant women have more than four ante-natal care visits and there were only seven physicians and seventeen nurses and midwives available per 10,000 population in India (Government of India, 2014a).

[8] BRIC- Brazil, Russia, India and China

The maternal health care policy discourse in India has also undergone multiple transformations, aligning with changing national and international priorities over the seven decades since the country's independence. In the early 1950s, with high health inequities in maternal mortality[9] (Government of India, 1956), the government addressed the critical need in rural health care by relying on traditional birth attendants or *dais*, mostly elderly women in the community with experience in assisting childbirths. With advancement in medical care and strengthening of rural health infrastructure, the *dais* were slowly replaced by trained/skilled birth attendants or Auxiliary Nurse Midwives (ANMs). With high rates of fertility and population growth, the focus of health policies then moved toward population control, prioritizing sterilization using cash incentives and coercion in the 1960s. In the next decade, the policy focus moved again, this time the high rates of child mortality caught attention, compelling a shift from family planning to family welfare programs. Maternal health care gained attention with the safe motherhood initiative by the UN agencies in the late 1980s and raised the need for IEC, pushing for a holistic approach to sexual, maternal and child health care. The first phase of Reproductive and Child Health in India was initiated in 1997, followed by the National Population Policy in 2000, National Health Policy in 2002 and then establishment of the National Rural Health Mission (NRHM) in 2005 to align the country with the global health commitments for the MDGs. The NRHM was aimed to improve the availability of and the accessibility to quality health care. A new cadre of village health workers, the Accredited Social Health Activists (ASHAs[10]), was created to facilitate NRHM community activities at the village level, mainly in counseling the women to access public health care for institutional care. This was the second phase of the Reproductive and Child Health. In 2013, National Urban Health Mission was also

[9] Twenty for every 1000 live births.
[10] ASHA also means 'hope' in Hindi.

initiated, complementing the NRHM to form a unified National Health Mission. The third phase was expanded to Reproductive, Maternal, Newborn, Child and Adolescent Health approach which included adolescent health care (Government of India, 2013a; Hunter, Bisht, Chakravarthi, & Murray, 2014).

Under NRHM, numerous maternal health care benefits policies were launched at the federal and the state levels across the country. At the federal level, Janani Suraksha Yojana (JSY or Mother Protection Policy) in 2005 offered conditional cash transfers to both pregnant women for an institutional delivery and the ASHA[11], for her successful counseling and assistance toward each institutional delivery. The second policy was the Janani Shishu Suraksha Karayakaram (JSSK or Mother and Child Protection Policy) in 2011 offering unconditional free and cashless medical assistance during pregnancy and limited ante-natal and post-natal health care through public health care institutions. These were financially sponsored by the Ministry of Health and Family Welfare. Simultaneously, the Women and Child Welfare Department, through its Integrated Child Development Services Program and state-run day creche or *Anganwadi*, initiated another conditional cash incentive policy, Indira Gandhi Matrutva Sahyog Yojana (IGMSY or Indira Gandhi Motherhood Support Policy) in 2010 that entitled cash incentives to compensate pregnant women for the loss of wages during pregnancy in 53 selected districts in India, including Melghat. The fourth policy, Matrutava Anudaan Yojana (MAY or Motherhood Support Policy), applicable in Melghat, was a state government policy providing an unconditional cash incentive for tribal women during their pregnancy.

Policy evaluation and impact research on maternal health benefit policies has been predominantly based on either quantitative research from the National Family Health Surveys,

[11] The ASHA also receives a small honorarium per institutional delivery. For details, see Chapter 6.

the District Level Health and Facility Surveys, Coverage Evaluation Surveys or qualitative and mixed methods of social research. Common outcome indicators for maternal health evaluation include preference for institutional delivery over home delivery, the choice between public and private health facilities, quality and utilization of ante-natal care, services and family planning. Literature review showed that few factors are significant such as maternal age, education level, birth order, religion and Scheduled Caste (SC)/ Scheduled Tribe (ST) status in influencing the choice of delivery (Kesterton, Cleland, Sloggett, & Ronsmans, 2010; Thind, Mohani, Banerjee, & Hagigi, 2008). Other significant independent exogenous factors influencing the outcome variables included income and economic status, media exposure, the number of ante-natal visits and location (Balarajan, Selvaraj, & Subramanian, 2011; Shrivastava, Shrivastava, & Ramasamy, 2013).

However, the existing research literature fell short on four grounds. First, there was little research on how the cash and service benefit policies were causally linked with maternal health improvement. Existing evidence correlated the increase in institutional deliveries with the implementation of JSY, but not whether the higher institutional deliveries was actually triggered by cash incentives, or whether higher institutional delivery rate actually leads to a reduction in maternal mortality or an improvement in maternal health (Lim et al., 2010). Second, there was little research on the impact and evaluation of recent policies including IGMSY and JSSK implemented in 2010-11. Third, there was a need to investigate and understand the extent to which women make informed choices in accessing maternal health care and policy benefits (Thind et al., 2008). Fourth, there had been consistent evidence over the decades that the shortcomings in existing IEC strategies led to underutilization of maternal health care and policies (Falcao, Khanuja, Matharu, Nehra, & Sinha, 2015; Griffiths & Stephenson, 2001; Sunil,

Rajaram, & Zottarelli, 2006; Vikram, Sharma, & Kannan, 2013). Similar low levels of policy awareness were also observed in Melghat (Patil, 2009). Although the policies were designed to generate demand for health care (Hunter et al., 2014), but as this dissertation research showed, women often received cash transfers without even being aware of the policy or the reason why they received them. Hence, cash benefits were a consequence of choosing the option of institutional delivery, not the incentive to opt for that option. Through a small sample survey, my research makes an exploratory attempt to bridge these gaps in the current literature.

1.3 Theoretical Underpinnings

From the public management perspective, this dissertation research explored the role of reducing the learning cost as a component of administrative burden that mitigates social welfare policy uptake. Administrative burdens are the citizen experiences when they interact with the government for their social welfare entitlements (Burden, Canon, Mayer, & Moynihan, 2012). These interactions and experiences impose a cost or a burden to the citizens. The administrative state imposes learning costs, compliance costs such as enrollment requirements, complicated procedures for the beneficiaries and psychological costs (Moynihan, Herd, & Harvey, 2014). In the case of welfare policies, these administrative burdens translate to program rules and administrative capacity, limiting the program effectiveness (Heinrich, 2015; Heinrich & Brill, 2015). Moynihan et al. also propose that incidence and magnitude of administrative burdens could be indicative of implicit political agendas (2014). Theory of administrative burden suggests that the administrative burdens can be disproportionately higher for disadvantaged groups when classified on the basis of race, class, income and gender differences (ibid). Heinrich et al. analyzed social welfare entitlements for children in South Africa and found evidence that

administrative burden and it impacts can be higher in developing countries as compared to the United States (2015). Overall, higher administrative burdens lead to a lower policy uptake, intermittent benefit distribution and higher opt-out rate.

In the case of maternal health benefit policies in India, the learning costs were the costs incurred by the beneficiaries in collecting information about the policies. The compliance costs were the burdens of following administrative rules and requirements, including transactional cost incurred in accessing health care and receiving the cash benefits. The policy information provided through mobile phones aimed to reduce the learning cost component of the administrative burden by providing policy specific information about the objectives, eligibility conditions and the benefits applicable under the four maternal health care benefit policies. Therefore, the mobile phone intervention examined the impact of policy uptake by reducing the learning costs of administrative burden. Findings from the research indicate that substantial burdens continue to exist beyond information awareness that lower social welfare policy uptake. I explored the relevance of each administrative burden component when viewed in an international public administrative structure as complicated as the Indian bureaucracy.

1.4 Research Objectives

As I mentioned, the key motivation for this research was to examine whether mobile phones can be effective in increasing information awareness about the maternal health benefit policies and lead to an increase in claiming of the policy benefits. To this end, the overall research question for this doctoral dissertation was:

Q1. Does policy information and awareness through mobile phones affect claiming of maternal health policy benefits? If so, to what extent?

The research question encompassed two research propositions:

a. Mobile phones are an effective medium to increase policy information and awareness.
b. Increase in policy awareness leads to claiming of benefits under maternal health benefit policies.

1.5 Research Methodology

Using mixed methods of research, insights were drawn from a longitudinal case study in Melghat, where customized audio messages about maternal health care benefit policies were designed and broadcast to 82 pregnant tribal women in 2013. This was followed by qualitative interviews to examine any improvements in their claiming of the policy benefits.

Cluster sampling was employed in this longitudinal case study conducted between March and September 2013. Nine villages were selected within a jurisdiction of a single Public Health Center (PHC) including two sub-centers in Chikaldhara Block of Melghat. A list of pregnant women registered from the ASHA supervisor for these nine villages was obtained and a house listing was conducted through door-to-door verification. Eighty-two women were enrolled in the research. Using a pre- and post-intervention framework, a baseline survey was conducted with the enrolled women to capture their initial level of awareness, their perceptions of the maternal health benefit and their preferences toward maternal health care. The survey also collected information on ownership, accessibility and usability of mobile phones.

After the initial pretesting of an audio message to the respondents in May 2013, short bilingual messages in Hindi and Korku language were audio-recorded and broadcasted using a commercial web application, awaaz.de ("to call out") biweekly. I followed up with these women through their pregnancy term up until September 2013 to understand whether and how the information disseminated through mobiles phones helped them in claiming the maternal benefits. This involved continuous interactions with the pregnant women. They were asked if they had received the audio broadcasts, if they could recall the content of the messages and if they or any other family member took any action based on the information received. I was able to process trace whether the information actually helped women in claiming the benefits. I also participated in multiple public meetings, attended community-based monitoring and planning hearings and UNICEF workshops related to maternal health in the region. In addition, twenty qualitative interviews were also conducted with health officials including seven ASHA workers and their supervisor, five Anganwadi workers and their block level supervisor, two community counselors at the rural hospitals, two public medical officers, a private gynecologist practicing at the Amravati District Headquarters and a non-profit organization representative to understand their perceptions and knowledge of the policies.

Secondary data included policy documents at the federal and state levels, details of disbursement of cash incentives within these nine villages for two years previous to this research. These were obtained through the Right to Information (RTI) requests. Periodic news and media coverage of the maternal health situation in Melghat in English national newspapers also informed the analysis. Mumbai High Court orders for an ongoing civil writ petition case against the State Government of Maharashtra for the failure of the health administration to curb malnutrition and child mortality in Melghat were also accessed through the High Court website. I

attended a court hearing in August 2013. The field observations and the qualitative data were used to triangulate responses from the women participants. This, in turn, contributed toward an informed and detailed health policy design and implementation analysis in Chapter 6.

1.6 Research Finding and Contributions

The research illuminates a critical linkage. Policy implementation implies two different but inter-linked aspects: first, delivery of maternal policy benefits (cash and/or service) and second, achieving greater public health care utilization. On one hand, benefits could incentivize public health care utilization, but on the other hand, they might not be able to change personal beliefs and preferences toward public health care. Hence, even delivery of incentives did not always translate to changing preferences or achieving objectives of the policy. Regarding information awareness, even with limited outreach and coverage of mobile phones, there was clear evidence that information acting as a trigger for women and families to seek benefits, or at least, demand them. However, in most cases their efforts were thwarted by administrative burden, bureaucratic discretion, conditionality attached to the benefits and the cultural context. In conclusion, research confirmed the importance of intensive public engagement, the need for reduced administrative burden and discretion, as well as the use of mobile phones as an innovative medium for effective policy implementation.

I plan to continue my research interests in areas of ICT applications in public management, policy implementation and collaborative governance. With more governments embracing open governance, digitization and m-governance, I hope to work toward identifying administrative and institutional frameworks needed to make the transformation happen. I am a

pracademic[12] at heart and intend to work with both public officials and communities exploring ways in which these technologies can improve bureaucratic processes and strengthen community participation. I believe such research will fill a significant gap in the literature about administrative burden and policy implementation.

1.7 Overview of the Dissertation

This chapter began with the research motivation for this dissertation research in an effort to find solutions to actual real life policy implementation issues through technology. It provided a brief overview of the maternal health situation in Melghat and the ubiquity of mobile phones. The chapter also summarized the development of maternal health policies and existing shortcomings in the policy research. It laid out the research methodology, research objectives and research findings and contributions.

Chapter two outlines the research design and methodology for the dissertation fieldwork in Melghat, Maharashtra, India. The first section discusses the relevance of qualitative research design suited for this research. The second section elaborates on the case study selection, sampling strategies and the method of "structured and focused comparison" for data collection. It also summarizes the timeline and data collection sources used during the fieldwork. The third section provides the overview for data analysis and coding. The fourth section highlights limitations and potential threats in the research design and challenges faced during the fieldwork.

Chapter three provides an in-depth contextual background for the condition of STs in India and the maternal health situation in the Melghat region. Maternal health must be

[12] A pracademic is someone who is both an academic and an active practitioner in their subject area.

understood in its historical, social, economic and cultural contexts (Smith, 2014). The first section is an overview of the social-economic condition of the STs at the national level and the federal government administrative setup responsible for the implementation of social welfare policies. The second section focuses on the historical, economic and socio-cultural factors of Melghat and delves into the gendered space of Korku women within the households to identify factors that influence their daily lives, their social relations and interactions, as well as their choices in maternal health, childbirth decisions, accessing medical care and claiming of the maternal health policy benefits.

Chapter four begins by looking at the emergence of ICT and mobile phone initiatives in m-governance and m-health. A brief review of the e-governance initiatives highlights important lessons for m-governance and mobile initiatives for development. I then focus on the prevalence and the use of mobile phones in areas of development, rural economies and maternal health. This helps in identifying the potential and the challenges of using mobile phones for improving maternal health benefit policy awareness in Melghat. The literature review illuminates the undercurrent dichotomy between growing optimism for mobile phones and the implicit assumption of "technological determinism." It also illuminates broader debates between public values of transparency and privacy; between access, medium and content of information pertinent to policy implementation in public management discourse and the mobile phone adoption in a "gendered space" in the Indian society. Addressing each concern in detail is beyond the scope of this dissertation; however, Chapter 4 summarizes these trade-offs in context of the research.

Chapter five concentrates on the findings of implementation of the audio messages for maternal health benefits policy in Melghat. The first section summarizes the results of the

baseline survey conducted with 82 women respondents. The section analyzes the findings from two aspects, the prevalence and the reliability of the mobile phone as an instrument of mass communication among rural Melghat women. The results on mobile ownership, accessibility and usability by the female respondents are discussed in this chapter. The third section, in turn, focuses on the outcomes after broadcasting the audio messages. It highlights the different cases about why some women and their families took action based on the information received while other did not. I elaborate on the reasons of how and why the actions taken by some respondents were insufficient in helping women receive their maternal health policy benefits.

Chapter six shifts the focus toward the maternal health policy analysis. With the limited effect of information awareness on claiming of the benefits, this chapter delves deeper into maternal health policy designs, implementation and outcomes to understand why information awareness was insufficient. The field research revealed that the respondents and their families found the maternal health policies either irrelevant or ineffective. Triangulating the voices from the field with a document analysis of the policy documents and secondary evidence, this chapter identifies different factors that yield the maternal health benefit policies and their incentives redundant. The analysis contributes toward a more comprehensive understanding of the sources of such administrative burdens imposed on the rural public.

Chapter seven summarizes the key findings of the dissertation research and makes recommendations for using mobile phones and ICT for improving maternal health benefit policy implementation and public governance more broadly. I also reflect on the maternal health care benefit policies based on my fieldwork. I end with a brief research plan for future research.

Chapter 2. Research Methodology

Introduction

This chapter outlines the research design and methodology for the dissertation fieldwork in Melghat, Maharashtra in India. The first section discusses the relevance of qualitative research design suited for this research. The second section elaborates on the case study selection, sampling strategies and the method of structured and focused comparison for data collection. It also summarizes the timeline and data collection sources used during the fieldwork. The third section provides the overview for data analysis and coding and the fourth highlights limitations and potential threats in the research design and challenges faced during the fieldwork.

2.1 Qualitative Research Design and Case Study overview

A research methodology should follow the research question. The research question here is if policy information and awareness through mobile phones affect claiming of maternal health policy benefits and if so, then to what extent. The overall objective was to explore whether a causal process exists between information dissemination and increase in policy awareness among the beneficiaries exists and if it does, then in what way does it impacts the claiming of entitlements. To pursue this objective, I used an exploratory and longitudinal case study research approach. I employed purposive cluster sampling with mixed methods of data collection and analysis. I conducted a baseline survey with women to understand their existing level of awareness and perceptions about maternal health benefit policies, sent audio messages about the policies on their mobile phones and followed up with qualitative interviews.

Case studies remain stronger in assessing whether and how a variable matters to the outcome rather than assessing how much it mattered (George & Bennett, 2005). They are well suited for the complexity and flexibility of social life and allow examination of multiple variables and their effects. Through case studies, one can investigate an empirical inquiry with multiple sources of evidence, especially where a real-life phenomenon and its context are neither clearly evident nor distinguishable. An exploratory approach is useful in identifying different contextual variables that may not have been considered in earlier policy evaluations and impact research and may emerge relevant to the outcome. Case study analysis offer explanations for presumed as well as new causal links in real-life that are too complex or nuanced for experimental strategies (Yin, 1982). One can investigate multiple potential causal paths simultaneously to eliminate spurious relations and offer stronger causal explanations of the results. The focus is more on the causal mechanisms rather than the strength or incidence of the relationship.

With this perspective in mind, the overall research strategy was to conduct a comprehensive baseline survey of the pregnant women in the study area, design and broadcast the mobile phone intervention based on the baseline survey information followed by qualitative feedback and participant observations. A mixed-method survey was used as the baseline survey. To capture the change in claiming of policy benefits because of the mobile phone intervention, I conducted a longitudinal pre- and post-intervention. The research design was a focused and structured comparison with the baseline survey instrument focusing only on specific aspects of the phenomenon and of variables of interest, that is, accessibility of mobile phones and claiming of benefits from maternal health policies. This structured and focused comparison approach reinforced content validity with the survey instrument was designed to reflect these research

variables. Multiple interactions with the women before and after the baseline survey and audio broadcasts strengthened the internal validity of the analysis. This was supported by participant observation and secondary field evidence data wherever available to process trace and triangulate the actual reasons behind the choices women make during their pregnancy in accessing public health services and receiving benefits of maternal health policies.

This research strategy also bridged an inherent gap between empirical and normative policy research, as empirical questions often do not focus on understanding whether and how programs and policies actually work (Pitts, 2011). For instance, the causation link between JSY and maternal health indicators[13] has not researched as mentioned earlier in Chapter One. This research attempts to draw the attention toward multiple competing reasons for policy outcomes. Lastly, process tracing, pattern-matching and triangulation of data from multiple sources led to the congruence of findings and results. However, this theoretical parsimony in the case study research comes at a cost of external validity and statistical generalization (George & Bennett, 2005; Jick, 1979; Yin, 1982, 2003a, 2003b). Potential threats and weakness of this research design must also be recognized and are discussed in detail under section 2.4.

2.2 Research Methodology

2.2.1 Sampling Strategy and Data Collection Methodology

The sampling strategy followed the administrative structure of the health delivery services at the block and village level in the region. Melghat is comprised of two administrative

[13] As mentioned in Chapter 1, an increase or preference toward institutional deliveries is often selected as an indicator for evaluating the success of JSY. Any statistically significant increase in institutional delivery is attributed to the cash incentive offered under JSY. However, such a trend can also be due to other reasons, such availability and easier accessibility to more local public health facilities and staff instead of cash incentives being the only reason.

blocks, Chikaldhara and Dharni. At the block level, PHCs were a critical access point for public health services, with each PHC covers approximately forty-fifty villages, based on population distribution. The PHC served as the first point of interaction with a medical doctor or officer. Each PHC, in turn, was supported by sub-centers, similar to health clinics and referral units and each sub-center covered an average of four to five villages. The sub-centers were supervised by a head ANM, appointed by the Health Department. She was supported by other staff. In addition to the medical staff at the PHC and sub-center level, there was a parallel auxiliary or supporting staff appointed under the NRHM including a second ANM, a contractual employee who assisted the head ANM at the sub-center.

The villages under the PHC were regrouped into clusters of nine to ten villages. Within NRHM, an ASHA was appointed under the NRHM for each village to generate awareness and mobilize people, toward the child and maternal health and nutrition. Her remuneration was commission based and considered as an honorarium[14]. For instance, she received remuneration for every woman who was immunized and had a childbirth at a public health care facility. For each cluster of nine to ten villages, an ASHA supervisor monitored NRHM implementation and the performance of ASHAs within the cluster.

Because the research focused on information awareness of maternal health benefit policies, the NRHM structure was considered as the basis for sampling. With purposive cluster sampling, a cluster of nine villages under the supervision of ASHA supervisor was selected. This fell under the jurisdiction of a single PHC in the Chikaldhara Block of Amravati District, Maharashtra. Because of resource and logistical constraints in this forest-protected tiger reserve

[14] The government outlook is that she is a paid volunteer doing community service.

area, the area selected under the PHC[15] was chosen after consultation with the District Health Department Administration and the non-profit organization representatives. The PHC selected was a "typical case" in many ways that it had medical staff, a maternity ward and a pathology laboratory; and faced common infrastructural, functional, management challenges like any other rural PHC. The PHC was accessible by an all-weather road (as compared to other PHCs that were within the core reserve area in the tiger reserve and had limited accessibility with security and safety concerns). The shortlisted PHC covered approximately 40 villages divided into four clusters, each under the supervision of an ASHA supervisor. This research focused on one of the clusters, under the charge of one ASHA supervisor, as mentioned above.

Two sub-centers were situated within this cluster, each covering four to five villages. This cluster of nine villages was also close to the sub-divisional/district Health Center and a nearby township, which was useful because the villagers had access to both public and private health care and one could observe if the availability of private health care affected the decision to access public health care. The ASHA supervisor and the ANM were contacted and permission was sought by the District Health Department for Institutional Review Board approval.

The unit of data collection for the research and analysis is at the individual level, that is, a pregnant woman. Findings are aggregated and analyzed for cross comparison at the village, sub-center and finally at the cluster level.

In addition, choice of purposive cluster sampling was considered appropriate for this research. Within a cluster, one could control and minimize exogenous factors such as PHC and

[15] The name of the PHC is withheld in accordance to the Institutional Review Board norms of confidentiality. Since the research includes interview of public health officials and staff, specifying the PHC would potentially disclose the identity of the medical officer and the staff in charge at the selected PHC. Similarly disclosing the names of the village would potentially identify the pregnant women included in the study because all the registered pregnant women in these villages during 2013 were included in the research.

sub-center effects, quality and availability of health service provided by the medical staff by the PHC, sub-center staff and counseling by the ASHA supervisor, yet have enough variation within the cluster to look at the differences at the sub-center, village and individual levels. Focusing on availability, accessibility and quality of health service, and the alternatives was also important for selection because maternal health policies are conditional upon accessing public health care influencing policy uptake.

It is common to consider random sampling and control treatment (RCT) framework in research. RCTs are considered the gold standard in development economics and evidence-based policy making (Victora, Habicht, & Bryce, 2004). However, critics have argued, that in certain cases, RCTs pose practical problems that can undermine claims to statistical or epistemic superiority without providing any more credible knowledge than other methods (Deaton, 2010). RCT framework would have posed three challenges as a potential research design in this research. First, simple random sampling of villages across the clusters could have minimized selection and measurement biases, but would not be the most pragmatic because I needed to ensure there were pregnant women in the selected villages during the time of the study[16]. Second, a control treatment division with limited ownership of mobile phones among pregnant women would have further reduced the sample size. Third, because villages were very close knit communities and have strong social networks, individual sampling would not be practical within a village because information would be easily and quickly shared among people. It would be impossible to guarantee that information would not be communicated from one individual or even across villages, for the fear of sample contamination. Cluster sample, in fact, allowed me to

[16] One could argue that PHC level list of all pregnant women could be obtained for each villages and then a random sample of the villages could be drawn. However, this would be logistically challenging and the PHC and sub-center level effects would be even more severe.

examine if, how and with whom women actually shared information among each other when not everyone owned a mobile phone. To understand the complicity and reality of their communication skills, as an anecdote, my wallet was stolen in one of the villages during the fieldwork. Within twenty-four hours, the news had spread to all the nine villages that "tai's (madam) pocket (colloquial for the wallet) had been stolen" and before I reached the second village for the interviews the next day, the women were ready with their barrage of questions[17]. Disappointingly, the same speed and efficiency in communication did not emerge with the research intervention.

Cluster sampling also allowed me to maintain flexibility in the sample. For sample selection and baseline survey, a list of pregnant women from the ASHA was obtained in each of the selected villages in March 2013. This was cross-checked with a similar list maintained by ANM and through snowballing and door-to-door verification in the villages. If there were women who were pregnant, yet not enrolled with the ASHA or ANM and were willing to be interviewed, they were included in the sample. Similarly, women who became pregnant after the first round of baseline survey were included. Benefits of IGMSY accrue up to six months from the date of delivery; hence, women post childbirth up to six months were also included in the sample. Verbal informed consent was taken from all participants and they were free to withdraw from the research at any point in time. At least two participants did not wish to participate in the research. Some were excluded from the baseline and the subsequent mobile phone broadcasts if they had an unsuccessful pregnancy, miscarriage or an infant mortality during the survey, or if

[17] My wallet was never recovered.

they were not eligible for any maternal benefit. The list was updated every month across the nine villages.

Another component that made the sample dynamic was the traditional custom according to which pregnant women often travel to one's maternal home for childbirth. Women would often register in one village, begin attending initial ante-natal checkups, immunization services and other benefits and then travel to their maternal village during the advance stages of pregnancy and childbirth and continued to stay for a few months after the delivery. Hence, a few women who were part of the baseline survey were not available during the follow-ups after the audio broadcasts. In such a case, as long as a mobile number was provided, the audio messages were broadcasted. During the follow-up after the mobile messages, the respondents' houses were visited to ask if they had received any message or communicated anything about the maternal policy based on the message broadcasted. If the woman returned after the delivery to her home village during the research time, she was interviewed for the follow-up. Conversely, if a woman was registered in an outside village and was visiting her maternal home in the sample villages for her delivery, she was also included in the sample. Such temporary migrations also affect the receipt of cash incentives under the maternal health benefit policies. This is discussed in Chapter 6 on the findings and the recommendations.

2.2.2 Timeline of Research and Sources of Data Collection

The primary source of data collection for the case study research were the pregnant women and the community workers in the selected cluster. Pre-dissertation fieldwork was conducted from January through March 2013 to identify potential research areas in the region

and assess if there was a potential awareness constraint among pregnant women regarding maternal health policies. During March and April 2013, 73 women were interviewed for the first round of baseline survey and the sample increased to 82 by the time of audio broadcasts in August 2013. The baseline survey captured basic socio-economic-demographic information, previous childbirth and current pregnancy information, current awareness about relevant policy benefits and eligibility, preference for place of delivery, ownership-accessibility-usability of mobile phones and preferences toward public health care.

Audio broadcasts were not carried out in April because of the *Holi* festival, the main festival for the Korkus and the beginning of the wedding seasons, when many women travel to other villages and the migrant workers come home. This time was used to design the content and interview other key stakeholders. I attended two workshops organized by UNICEF, as a brainstorming and training sessions on maternal and child with all the key government departments (health, education, tribal affairs, rural development, labor, women and child welfare) at the district level and below, other non-profits organizations and stakeholders (doctors, medical and NRHM staff, village residents) to gain an in-depth understanding of the status and the factors affecting the existing child and maternal health status. The culmination of workshop series for a Melghat Action Plan with a white paper on policy recommendation to the state government.

The first idea for information content through mobile broadcasts was to communicate the dates of the ante-natal check-ups in their villages. Free monthly ante-natal checkups were provided within the maternal health policies services in every village by the ANMs. Similar mobile based immunization alerts had been implemented in other states too (Dash, 2011). For

my dissertation research, an audio test broadcast was designed and conducted in May 2013 across the villages and is discussed in Chapter six.

Because of the onset of monsoons in June and July, some villages became inaccessible making it difficult for follow-up interviews. Hence, the audio broadcasts were scheduled post-monsoons in August. The health officials also run an intensive child health campaign during the monsoons to curb high rates of child mortality during the monsoon season. During this time, the ANM and community workers do not follow their regular ante-natal checkup schedules. I visited the villages that continued to enroll new pregnant women in the survey. Participant observations were conducted regularly to understand how women would claim the maternal health benefits, *ceteris paribus*, in the absence of mobile phone intervention. Although there were no instances of maternal mortality, there were cases of miscarriages, spontaneous abortions, infant mortality, stillbirth, maternal morbidity and infant mortality across the sample. They were followed up with qualitative interviews, wherever permissible to understand the shortcomings in public health services and the policies. Such instances accounted for ten percent of the sample, significantly high for the region.

By the time of the audio broadcasts in August, the total number of women surveyed for the baseline reached 82. The audio broadcasts were also made to the ASHAs and their supervisor. In addition, over 20 open-ended semi-structured interviews including ANM, ASHA, block and district level officials, volunteers, registered and unregistered traditional birth attendants at the village, doctors and medical officers and representatives from prominent non-profit organizations were audio recorded. These were supplemented by field notes maintained by the researcher. In addition, participant observations were noted at the village meetings, town halls and other events.

Secondary data also include policy memos and government resolutions regarding maternal health policies obtained either online or through RTI request. Identical RTI requests regarding all four policies were filed at the sub-center level, block level, district level, state level and the federal level. Data regarding the entitlement distribution under the maternal health policies for the cluster villages were also obtained, wherever publically available to triangulate the responses from the pregnant women included in the survey. Some health officials voluntarily and (confidentially) shared information regarding the maternal health policies regarding the sample cluster villages. The host non-profit organization also shared their records of all local health related news and other government reports. Secondary literature also included scholarly journal and evaluation studies conducted for the region. In addition, routine orders from the Maharashtra High Court were accessed from the Mumbai High Court website. A document analysis on these sources is discussed in chapter six.

2.3 Mobile Phone Intervention

2.3.1 Designing and Broadcasting Audio Messages through Mobile Phones

Baseline survey results showed that women preferred voice messages in Hindi and Korku over Marathi language and text messages. The broadcasting software allowed women to dial back and listen to the voice messages again, just like a voice mail. Voice as a medium was also preferred as a text by the women because of low level of literacy and limited mobile phone usability knowledge. A total of five[18] bilingual voices messages were designed for four different maternal health benefits—JSY, JSSK, IGMSY and MAY. These messages were recorded in

[18] Each policy message was played twice to ensure absorption; therefore, a total of nine broadcasts.

Hindi and Korku and broadcasted. An English translation of these messages is available in the annexure.

The message content for audio recording was decided by the ASHA supervisor (with researcher's assistance) based on the findings of the baseline survey. There were instances of disagreement over the content of the voice messages which are explained in Chapter six, but the final decision on the content was made by the ASHA supervisor. This was done for two reasons. First, to minimize external (the researcher's influence) on the content because the research objective was just to capture the effectiveness of mobile phone broadcasts as a medium. Second, because the AHSA supervisor was known to the women and their families, she was also responsible for addressing any follow-up queries if they reached out to her after the broadcasts. Because the ASHA supervisor was not a Korku tribal herself, a Korku volunteer from a sister non-profit organization was requested to translate the messages from Hindi to Korku and recorded by her. The two audio messages were edited, cleaned and combined together as a single audio file using free software, *Audacity*.

Broadcasting these voice messages was similar to an automated promotional or telemarketing calls that one receives on mobile phones. There are many online software programs available that allow for customized voice calls. For this research "awaazde" software (http://awaaz.de/) for voice broadcasts *("Awaaz de" in Hindi means to call out*) was used. Airtime in minutes was purchased (approx Rs 1.50 or 3 cents per minute) for the research. The airtime funding and technical support were provided by The Program on Liberation Technology, Center for Democracy, Development and the Rule of Law at the Stanford University. In the software, a dedicated number was created for every village and women were informed about the number and when to expect the call. The messages were broadcasted every Tuesday and

Thursday, morning and evening based on the time preferences given by the women. The software had an auto-dial feature, where three attempts would be made to reach a phone number. A call log of the number of successful calls and the duration of the message listened to was captured by the software. If any respondent called the number back, she would be able to hear the voice message again. Such incoming calls were also noted in the software. The audio broadcasts were then followed up with face-to-face interviews with the women to see if they had received the calls, the information content of the calls and if they took any follow-up action. This was continued until September to ensure any change in claiming of the benefits was observed and noted.

2.3.2 Data Analysis

The baseline survey and the follow up interviews were paper surveys with the pregnant women. These were later entered in MS Excel and Word respectively. An online web- interface used for broadcasting audio messages provided a call log of how many calls were picked up by the women (or their family members) and whether the entire message was heard during the broadcast. Women who did not own a mobile phone but referred me to an alternate contact number where they could be contacted or the message could be communicated to them were coded separately. Coded responses from the baseline were entered in Microsoft Excel and qualitative open-ended questions were entered in Microsoft Word. In addition, policy and other documentation from government websites and officials were available either in paperback or as PDF in English, Hindi or Marathi. If the documentation was on paper and in a language other

than English, summaries of the key points were made in Microsoft Word or tabulated in Microsoft Excel.

Interviews with health officials were audio recorded. Most officials were comfortable with interviews in Hindi and some in Marathi. Key points of the interviews were translated and transcribed in English. There were instances when the officials requested to pause the recording and preferred to answer certain questions off the record. In these cases, conversations were summarized after the interview in the field notes. The researcher maintained a journal for field notes in English.

For data analysis, open coding was used to identify emergent themes from the baseline, follow-up surveys and secondary data. Broad categories were developed from the emergent themes with key dimensions and properties wherever possible. These categories were also correlated with the literature to postulate the possible direction of relationships between the categories. The rules of measurement were coded and coding of approximately ten questionnaires were tested for inter-coder reliability analysis[19].

2.4 Limitations and Potential Threats in Research

As mentioned earlier in this chapter, it was difficult to maintain a completely unbiased and uninfluential role as a researcher in field research. This section outlines the potential benefits and biases identified in the research design and those emerging from the field research, as well as the strategies taken to minimize these threats.

[19] I coded the entire data myself and to check for coding bias and reliability, data for ten baseline and follow up questionnaires (after de-identification) were given to another graduate student for recoding. A rough estimate of 80 percent of agreement was determined.

At the outset, it is also important to clarify this research was not aimed at policy impact evaluation or assessing the status of implementation. This dissertation does not aim to evaluate whether health policies were able to achieve their stated objectives or their impacts. Instead, the objective of this dissertation research was to understand key relationships, between reducing learning costs that is, creating information awareness about the policy and its impact on claiming the benefit and identifying factors beyond information that could influence those claims. The policy review and analysis in Chapter six identified the rival explanations and other competing administrative burdens (compliance, psychological, transaction costs) these policies imposed on the beneficiaries over and above the learning costs. It also emerged that the women and their families took into account their preferences toward biomedical health care, previous experiences, quality of health service, eligibility conditions, timeliness and ease of receiving the benefits, in addition to the information available while deciding about the maternal policy uptake. Hence, the analysis elucidated additional limiting factors, beyond the potential of information awareness through mobile phones.

Further, underneath the ideology behind the formulation of the maternal health policies is an implicit assumption that biomedical methods and public medical health care are the best methods to check maternal and child mortality. This assumption is itself questioned in the findings of this research in Chapters six and seven.

One of the shortcomings in the baseline survey was the poor recall regarding previous benefits received by the respondents because of the low levels of initial policy awareness and literacy. To capture the information communicated by the community workers, women were asked to recall all possible sources of information about the relevant policies and their recent interactions with different health officials. It appeared that even after having availed or received

benefits in the past, some women had poor recall or awareness about the policies. In addition, the previous experience of the respondents with community workers or medical staff influenced their outlook toward the policies and public health care.

I also followed and observed many community workers during their visits (at least once to each village) and their interactions with the women. This was helpful in distinguishing between poor recall of the policy by the respondents and insufficient information provided by the health workers to these women. Previous policy records were also checked to verify earlier claims of maternal policy benefits made by the respondents. Health volunteers who maintained their journals of work-related activities were requested to voluntarily share their journal during the field research period. Hence, data was triangulated from multiple sources to minimize the recall bias and understand the reasons for the low level of awareness about maternal health policies.

Predictive accuracy and interpretations. Researchers must be cognizant that even simple "factual" responses may be open to question and can affect the predictive accuracy and interpretation of the surveys (Parry & Crossley, 1950). This could be a potential shortcoming of the qualitative case study too. It was soon observed there was an inherent bias in responses given by the women for various questions in the baseline survey and interviews thereafter. There were multiple reasons for this bias.

First, the baseline survey was the initial point of introduction and interaction between the pregnant women and myself. The presence of ASHA or the ASHA supervisor near the premises at times made respondents hesitant. Second, it was also revealed that families were accustomed to such surveys and would know what answers to give. For some questions, women were more likely to give the "expected" answer. For instance, women would not know their own present age

definitively but when asked their age at marriage to estimate their present age, they would always say 18 (the legal age) at marriage. There were instances when the women insisted that they had an institutional delivery even when the official records or other evidence indicated otherwise. During the follow-up interviews, two respondents also admitted being lured by the ANM to say that they had gone to the sub-center for the delivery when they had delivered at home, if they wanted the cash incentive.

In another instance, during a baseline interview, the mother-in-law of a respondent intervened and rebuked,

> *"Why do you ask so many questions? Every now and then, someone comes to just fill up their questionnaires and go away and nothing improves for us, so don't waste our time."*

Melghat was the focus of international aid and academic research and had noticeably frustrated the people with no significant improvement at the ground level over the years. This also signaled that the families are "well-experienced" in replying to survey questions and know what the "expected" answers should be.

Here, the longitudinal and the qualitative nature of the case study turned out to be beneficial. After the baseline survey, the interactions were more open ended. Open-ended interviews not only made women feel at ease about sharing their experiences but were far more insightful. The narratives and experiences during informal conversations were quite different from their responses to the baseline survey. This reduced the response bias, but may not have completely eliminated it because responses of women and the officials were still influenced by the researcher's presence and self- reflexivity.

Researcher's presence. A longitudinal case study allows for a stronger causal claim between the intervention and the outcome as the claim is traced over time (Leonard-Barton,

1990; Pettigrew, 1990). Having observed the phenomenon in the absence of the intervention, any change in the outcome after the intervention could possibly be linked to the intervention. Multiple qualitative interactions fostered trust and confidence with women and their families over time to share their experiences, some intimate and painful. With regular meetings, monosyllable responses gave way to stories and experiences, which transitioned into inquisitive queries, questions and even assistance to help them obtain the maternal benefits. The strongest bonds are made over a cup of tea and a shared meal. With multiple visits over few months, I was no longer a *"jangri,"* a colloquial for an outsider in Korku, but *"mahiti tai" or "*information madam*"* for the families. I was surprised when men (often husbands of the respondents) would come to greet me or felt comfortable to just walk up to me in a street (which is not a social norm) and ask a question about the maternal benefit policies or "how to get the contact number for the ambulance" instead of approaching the community workers. Even after the field research was complete, I received a call from one of the women from a village, worried that her newborn daughter was ill and wanted to know what to do or who to contact. These requests for assistance reinforce the fact there is a scarcity of information about policies and benefits and a genuine need for maternal benefits. It is a proof that information dissemination, if communicated through the right medium, could over time trigger demand generation and policy uptake.

A fallout of this, as in any action research, was also an expectation toward the researcher by the villagers to do something or correct the problem, beyond collecting research data. Women or their families were requested to contact the health workers for queries beyond the informational gap or to approach *KHOJ*, my host non-profit organization activists, to file complaints, if they wished to, or follow the grievance redressal mechanism as outlined in these policies. In one village, the women requested to file a collective application for not receiving the

earlier benefits and urged me to help them write an application on their behalf because they were not literate to write the application themselves.

However, the mere fact that someone comes and regularly enquires about maternal benefits can also make the respondents and their families pay a little more attention to the policy themselves. Multiple visits were critical before the intervention to understand and identify maximum possible rival explanations for the low uptake of the policies, including implementation and cultural issues. This could have led to self-monitoring by the respondents to some extent, to take more notice of their entitlements, but presumably not significant enough to change their preferences.

These repeated follow-ups may also have led to a certain degree of self-monitoring by the public officials during the survey. Self-monitoring among the government officials could also be a result of repeated State level health official visits during the time of the field study owing to the writ petition filed against the State Health Department for poor implementation of public health care in the Melghat region. Wherever possible, instances toward such self-monitoring were noted and explained.

Positional bias and self-reflexivity. Beyond presence, there is also a threat of positional bias and self-reflexivity from the researcher, referred to as the "reflection problem" (Finlay, 2002; Manski, 1993). It is critical how a researcher aligns herself with the different stakeholders in the public view and the perceptions by the respondents regarding the researcher's "vested interests." I was hosted by a non-profit organization, KHOJ, in a nearby village where I paid rent to live and use their office premises[20]. This was opted over staying in the villages for safety

[20] There were no residential rooms, so the KHOJ employees and I slept on the floor in the office itself.

reasons and basic need for necessities, especially sanitation and electricity[21]. I was also able to rent their vehicle for the field trips or share rides with them. In return, I volunteered in their office work. However, because of this, some respondents initially assumed I was working for the organization while my interactions with health officials during other meetings led some women to believe that I was studying to become a nurse. Some villagers were curious about my "motives toward the survey questions" and "what would I gain from it" because they had grown to become skeptical of both government officials and non-profit organizations over time.

My interviews with higher government officials, participant observations and or questions to verify information made some local health level officials and villagers even more hesitant to share information. It took them time to realize I was trying to help them gain information without any tangible returns. My affiliation with the non-profit organization, repeated follow ups with local officials and the filing of the RTI requests, led to three instances where the officials either declined to provide information or threatened to disrupt and stop my research. These concerns were promptly communicated to my dissertation advisor. Thereafter, my host organization ensured that I never traveled or visited villages without a local volunteer. Being aware of these biases, I tried not to be perceived as being aligned with a specific organization or group and made independent visits to the villages whenever possible. Yet, there is a possibility that a certain degree of positional bias and bias because of self-reflexivity to influence responses to my questions. This was also a critical challenge in field research, especially when the access to a research field was independent and not referred by either higher levels of governments or through personal networks. It aptly imitated and illuminates the challenges in accessing information or seeking coordination by the local public administration. It

[21] Although the access to a wifi-internet connection also felt like an indulgent luxury.

was a reflection of difficulties an ordinary citizen faces in accessing public services and information in India.

Data availability and equifinality. As with any qualitative research, there is no assurance that the data collected is completely accurate or exhaustive. The possibility of discrepancies in data collected in the study cannot be completely ruled out. There were instances where complete information on maternal health was not available from the concerned offices despite the RTI requests. The RTI requests at the PHC, Block and District Level for policy documents were turned down. The requests were filed in April and by the end of the field research in September, only the Federal and State level documents were furnished[22]. Few health officials agreed to an interview for the research. This posed a severe constraint on data availability on the implementation status of the policies. However, best attempts were made to construct a verifiable database for analysis and recommendations. It must also be highlighted that despite the fact all efforts to identify and eliminate rival explanations that emerged from the findings were addressed, other alternative explanations for women's decisions toward policy uptake could still remain. Equifinality cannot be completely ruled out.

Construct, content and internal validity. As mentioned earlier, case study analysis strengthens conceptual validity because the measured variables are designed to best represent the research questions and varying the measurements according to the context and environmental factors to allow for "contextualized comparisons" (George & Bennett, 2005). Two methods strengthened construct validity: a triangulation of data through multiple sources and process tracing. Triangulation of data was done by matching the survey responses with official data made

[22] The usual timeline for furnishing the information under RTI is 21 days. I had to petition the State Chief Information Officers for the delays and was able to get the information only after three months.

by individuals that they received or have not received benefits, perceived infrastructural deficiencies in the health care system, interviewing different key informants (ANM, ASHA workers, block and district officials) to validate reasons and results for benefit claims.

Internal validity was central for postulating casual explanations between information awareness and claiming of the policy benefits. Congruence testing and process tracing minimized risks of inferential errors for greater internal validity. Congruence testing involved testing for whether the outcome of a case, in its various dimensions, was congruent with the various dimensions of the independent variable(s) and the expectations of the underlying theory linking the two. Process tracing involved testing whether all of the intervening variables were consistent with the expectations of the causal theory under consideration and the causal mechanisms that it posits. Although process tracing required extensive data and literature, as a method of investigation, it allowed me to move beyond correlation into the causal mechanism. The only way to minimize the spurious correlations is through process tracing, not just on the main variable of interest that changes at a particular time but also tracing other potential causal variables that changed at the same time. This established whether the variables of interest were causal and whether other potential variables that also accounted or contributed toward change in the outcome. Here, process tracing was useful in separating the impact of the standard list of potentially "confounding" variables such as effects of history, maturation, testing, instrumentation, regression and selection.

External validity and generalizability. Case study research is often criticized for the lack of statistical generalizability because of purposive cluster, small size sampling and insufficient degrees of freedom (King, Keohane, & Verba, 1994). Case study research is perceived to be weak in measuring the incidence and the strength of the causal relationship.

Although these issues continue to be debated in academia, advocates of case study analysis claim that case studies provide analytical generalizations over theoretical concepts instead of statistical generalization population groups (George & Bennett, 2005; Yin, 2003a). Hence, the findings of this research are generalizable only for nine sample villages but they are applicable to the theoretical concepts of administrative burden, m-governance and maternal health policies.

Because the intervention was conducted at the individual level, each individual can be viewed as a distinct *experiment* that stands on its own as an analytical unit. In this sense, one could say that there were 82 replications of the same research intervention. Hence, with 82 replications of a single experiment[23], common findings could be generalized across the sample units. This replication logic is central for theoretical contribution and further support analytical generalizations (Eisenhardt, 1989; Eisenhardt & Graebner, 2007; Pentland, 1999). Thus, with process tracing and congruence testing, the findings could be generalizable toward the ICT and the public management literature.

This research contributes to the public management literature in three ways. First, it provides a deeper understanding of maternal health policies, how incentives work and the impact of conditions attached to these incentives, providing a plausible explanation for why the policies remained only partially effective and generated insights for policy recommendations. Second, in an era of mobile governance, it explores that potential and limitations of mobile phones in policy implementation and civic engagement, through a gendered lens. Third, it yields a caution to the technological optimism and determinism toward the use of mobile phones. By evaluating the causal mechanism of whether and how information awareness led to greater claiming of benefits,

[23] In this case an "experiment" is the mobile phone intervention, broadcasting audio messages about maternal health policies to a pregnant woman.

the findings revealed that information awareness alone was insufficient to improve claims when there are structural and systemic deficiencies in the policy design and management. The research concludes that although mobile phones have the potential to trigger demand for policy benefits and public engagement and reduce learning cost, they are not the "silver bullet" because they cannot bypass the fundamental challenges of administrative burden, deficiencies and bureaucratic processes.

It also contributes to advancement and application of the theory of administrative burden in public management literature. Similar to the research by Heinrich on applying the theory to social protection policies in South Africa (Heinrich & Brill, 2015), this research also extended the theory of administrative burden to maternal health policies in India. While Heinrich focused on measuring the loss in entitlements because of administrative burdens, this research focused on improving the entitlement claims by reducing administrative burden, specifically the learning component. This research also posits other types of costs, beyond learning, psychological and compliance, that pose administrative burdens on the beneficiaries and suggests expanding the concept of administrative burden. The findings highlighted the inherent tensions and need for complementarity between the costs—learning costs and compliance costs—and how reducing one cost without the other did not affect the claiming of entitlements in certain contexts. As a real life intervention and an *action* research, it also hopes to bridge the gap between public management academia and policy makers (Moynihan, 2015) and be demonstrative of a successful academic-practitioner research collaboration (Roper, 2002).

Chapter 3. The Melghat Region and the Korku Tribe

Introduction

> "*…the climate {of Meilghat} is mild and invigorating and admirably suited for all classes of invalids….Ladies and children in particular seem to derive much benefit from the place; from my own observation I can say that I have seen children, weak and sickly looking in growing up, return to Cantonment strong and vigorous and in several cases with a rosy hue on their cheeks. Invalids and others who have visited these hills, testify in the most unqualified terms of salubrity of the climate; it is beneficial influence in a few days is perceptible and it has been frequently remarked that after the failure of all other means, patients, in almost every stage of disease, have rapidly recovered their health."*
>
> -James Mulheran (1861), *citing a Medical Report of 1860*

A lot has changed in Melghat in the last 160 years. Since the early 1990s, Melghat, once a place recommended for recovery and recuperation of health, is 'notoriously infamous' for chronic malnutrition, infant and child mortality (Menon, 2009). Unofficial estimates have pegged the number up to 5,000 child deaths in Melghat from 1992-97 (Datta, 2013). Independent scholars estimate that eight out of ten children under five years of age are severely to moderately undernourished by one or more international standards (Dani et al., 2015). In 2012-13, for a population of approximately 0.3 million Korku tribal population in Melghat, there were thirteen maternal deaths during childbirth (more than 1 maternal death every month); 2559 home deliveries, accounting for 42 percent of the total deliveries; 129 stillbirths (more than ten stillbirths every month); 280 infant deaths with no account of miscarriages or reproductive loss. There is little consensus if the situation is improving or worsening[24]. With over 300 registered non-profit organizations (Devasia & Kumar, 2009) working in the region with the government, improvements in maternal and child health indicators have been sluggish. During my fieldwork,

[24] In December 2015, my host organization, KHOJ, claimed that infant and child mortality had risen in Melghat, with 486 child deaths in 2015; thereby disputing the government's claim of 365 child deaths, indicating that health conditions were improving (Andhale, 2014; Ganjapure, 2015).

I observed that although more focus and efforts are directed toward infant and child health and nutrition, maternal health and nutrition receives little attention in its own right and, if at all, only as a means to mitigate infant mortality rates.

This chapter provides an in-depth contextual background of the Korku Tribe to elucidate three arguments. First, I argue that consistent with existing health and development research, inequalities in maternal and child health are more severe among tribal communities because of higher incidence of poverty and lower social economic development among the tribal population in comparison to other social groups (Das, Kapoor, & Nikitin, 2010; Griffiths & Stephenson, 2001; Say & Raine, 2007). I review the social-economic status of the tribal population at the national level to highlight these disparities between the tribal population and other social groups. Second, I argue that maternal health must be viewed not only from a clinical health perspective but also from an historical, cultural, social and economic context (Hollen, 2003a; Smith, 2014). Anthropological studies in Melghat indicate that livelihood changes in the colonial and post-colonial eras have altered food diets and nutrition, potentially accentuating malnutrition and adversely affecting health of the tribal population, including women. Third, I argue that the traditional practices, Hindu marriage customs and family setup and intra-family dynamics also influence a woman's agency to navigate through her choices and decisions about her fertility, which in turn determines her position in the affinal family (Wadley, 1980, 1995, pp. 92, 98). These factors apply to the tribal families as well as influence women's participation in the maternal health benefit policies.

The first section is an overview of the federal government administrative setup responsible for the implementation of social welfare policies and the social-economic condition of the STs at the national level. The second section substantiates the second and the third

arguments mentioned above, by reviewing the colonial and post-colonial history of Melghat, the social structure of the tribal community and dominant customs and traditional beliefs around childbirth and fertility. It also delves into the gendered space of Korku women within the household to highlight the gender stratification of roles and activities within the family. A woman's role, position and autonomy in the family influences her decision regarding her maternal health and childbirth, preferences for biomedicine and in turn, her claims on maternal health benefit policies.

At the outset, I provide clarifications of a few terminologies used in this dissertation. India has a rich history and tradition of following different medical practices. Beyond allopathic or biomedical medicine, alternative medical practices such as Ayurveda, Yunani. Siddha, Homeopathy and ethno-medicine are embraced and usually make up for the medical pluralism where one method is complemented with another instead of complete substitution (Hollen, 2003a; Ram, 2010). Modern medicine or biomedicine is often referred to as allopathy or "English medicine" in India. The term biomedicine is commonly used in feminist medical anthropology to refer to modern medicine, western medicine or cosmopolitan medicine (Hollen, 2003a, p. 8, 2003b, p. 50, 2007). Korku women and other stakeholders also used the term "dawakhana" or medical center to refer to public health centers and hospitals and the word "private" to refer to private healthcare. Hence, I use the term biomedicine to refer to medical healthcare in general and use the term public healthcare to refer to biomedical services provided by the government. Similarly, private healthcare in this dissertation refers to biomedical services provided by non-government establishments including individual medical practitioners, private for-profit hospitals, or those run by charitable trusts or religious missionaries in the Melghat

region[25]. Alternative medicine practices such as ethno-medicine or traditional medicine are specified separately. The classification is only to differentiate between the different health care systems, without any assumption or inclination that one system is better than the other. The classification and emphasis on biomedical health care provided by the government in this dissertation is only to maintain consistency with the maternal health benefit policy lexicon and because the maternal health benefits are conditional on accessing biomedical health care[26] provided by the government. As mentioned in Chapter six, it actually emerges that tribal communities still follow and prefer ethno-medicine or traditional medicine over biomedicine for numerous reasons.

Second, when referring to a woman's agency and her choices toward medical assistance during pregnancy and childbirth, I agree that reproductive decisions are rarely out of free individual will and purely rational[27], but constrained by complex social and cultural structures, including gender inequality (Hollen, 2007, p. 9). In anthropology, a woman's agency is conceptualized as having a "culturally constrained capacity to act," with her decisions incorporating the social, cultural and political factors and reflecting compliance, resistance or both in response to these forces (ibid). Hence, while describing and analyzing the respondents' and her household's decision to participate and claim benefits of the maternal health policies, I am cognizant of the individual's, households' and tribal communities' agency in their policy benefit uptake.

[25] These may or may not be recognized or accredited by the government.
[26] Also referred to as public healthcare in the dissertation.
[27] I imply rationality in the sense of microeconomics: that is, maximizing an individual's benefits based on available choices or incentives at the minimum cost. However, the opposite of a rational choice here does not mean irrationality, but a preference or choice where either cash or incentives are foregone or a higher cost option is selected even when a more economic one is available because of individual or social preferences.

There is selected literature available for Korku tribes by Fuchs (1988), Goswami, Sarkar and Dansa (1988), Deogaonkar and Deogaonkar (1990), Devasia (2009) and Samanta (2010). These provide rich anthropological accounts are still relevant and pertinent regarding social and cultural practices. The accounts give credence to the fact that despite development or modernization, tribal communities such as the Korkus still find it difficult to make ends meet. They have also co-opted their traditional religious and cultural practices with Hindu upper caste rituals (such as worshipping tribal animist gods with Hindu idol gods such as Ganapati, worshipped by upper caste Hindu Maharashtrians). I postulate two reasons for such religious and cultural changes, economic development of the region and Sanskritization.

3.1 The Tribal Population -The National Perspective

The traditional caste system, still prevalent in India, determines the social position of an individual based on birth and heredity in the Hindu society. Those belonging to the lower castes and tribal groups are more likely to be concentrated at the bottom of the social-economic hierarchy and often live in acute poverty. These lower castes, tribal communities and other negelcted groups are categorized as the Scheduled Castes (SCs), Scheduled Tribes (STs) or as Other Backward Classes (OBCs). SCs and STs[28] are defined in the Constitution of India (the Constitution Order 1950). The terms Scheduled Tribes, Aboriginal Tribes/Indigenous People or *Adivasis* are often used interchangeably in most research. A third category, OBCs, is a dynamic

[28] The identification criteria for STs includes primitive traits, distinct culture, geographical isolation and economic disparity and percentage of the population in a region. The criteria have been modified over time. The list of SCs and STs is State or Union Territory (UT) specific, where a community declared as an SC or ST in a state need not be scheduled in another state/UT (Government of India, 2009).

list of different historically disenfranchised communities declared also eligible for reservations[29] either by the President or by an Act of Parliament.

At the national level, SCs and STs constitute sixteen and eight percent of the total population respectively (Census, 2011). Ninety percent of the ST population lives in rural areas constituting eleven percent of the national rural population (ibid). The Korku tribe in Melghat is one of the forty-five STs identified in Maharashtra. They constitute approximately 300,000 population in the state with over ninety percent concentrated in the Melghat region of Amravati District (Dani et al., 2015).

Since independence, government efforts have been directed to "uplift" and integrate SCs, STs and OBCs with the "mainstream" population (Fuchs, 1988, pp. 151–153; Samanta, 2010, p. 4) by creating bureaucratic structures and legislative actions, legal frameworks and quota reservation. However, at the national level, the reservation quotas toward SCs, STs and OBCs have been controversial and intermittently challenged by the "general" population. There have been many nationwide protests, riots and violence over the three decades regarding two issues. First, growing inequality and poverty have pushed other rural (and non-rural) communities to demand replacing the existing caste and tribe based quotas by reservations based solely on poverty and other economic parameters[30]. Second, other caste and communities are now protesting and demanding their inclusion in the SC and OBC categories across the country to

[29] Reservation is quota-based affirmative action, where a certain percentage of seats or vacancies are earmarked for certain communities only. SCs, STs and OBCs are eligible for reservation and/or quotas. Reservations in public educational institutions, public sector, electoral offices amounting up to 49.5 percent (15 percent for SCs, 7.5 percent for STs, 27 percent for OBCs) of total seats. There is a gender based reservation too.

[30] This argument is in turn based on two grounds. First, it is argued that many equally impoverished communities in the general or mainstream population belonging to poor upper caste Hindu communities or other religions are excluded from affirmative action. Second, within the reserved categories, households and communities who are economically well off continue to take advantage of the reservations (commonly addressed as the "creamy layer") hence, depriving those who are in actual need of such support.

avail the benefits of reservation, the most recent being in Gujarat and Haryana (Anand & Najar, 2016; The Associated Press, 2015). Thus, stigmatization, violence and social- economic discrimination continues against these disspossessed communities, while the same deprived and reserved title is much desired and demanded by the remaining "mainstream or general" communities.

Apart from the reservation, the government has also enacted legislations to redress the displacement of the tribal populations across the country. This includes the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA); the Land Acquisition (the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement) Bill in 2012. Other welfare programs or special policies include educational scholarships, financial support and skill building for setting up enterprises, agricultural, irrigation and animal husbandry loans, drought compensations, health care and insurance, communal marriage compensations, loans to provide last rites and rituals (Samanta, 2010, p. 64) among the wide gamut of policies.

3.1.1 The Administrative Setup and Social-Economic Status of the Tribal Population

The main responsibility of tribal welfare, development and protection of the tribal rights as per the legislature rests with the Ministry of Tribal Affairs. In 1999, the Ministry of Tribal Affairs was carved out as an independent Ministry to oversee overall policy, planning, implementation and coordination of programs and schemes related to the development and

welfare of STs[31]. The Ministry of Tribal Affairs is responsible to ensure social security and social insurance to the STs, ensure promotion of voluntary efforts on tribal welfare Ministry and responsible for all matters including legislation relating to the rights of forest dwelling STs on forest lands. It is the key nodal agency to coordinate with other concerned central ministries/departments such as Land Resources, Water and Sanitation, Health, Rural Development and others, as well as state governments and UT administrations to support and supplement the latter's policies and efforts for the holistic development of tribal communities (Government of India, 2012). The ministry and the state/UT governments follow a tribal sub-plan method of fund allocation involving earmarking funds in proportion to the ST population in those states/UTs for policies, schemes or programs by the federal and state governments and also earmark for geographic areas where the ST population is 50 percent or more in an administrative block (a subdivision of a district).

However, the National High-Level Committee on Socio-Economic, Health and Educational Status of Tribal Communities of India (2014c) criticized the federal and states governments for not allocating the required funds for tribal development. Even if the funds were allocated, the committee observed that they remained unutilized because of inept basic state infrastructure, the absence of manpower and functionaries in other departments and a lack of communication. This adversely affects the implementation of numerous federal or centrally sponsored schemes that crucially depend upon the state government apparatus for execution. For instance, lack of good public transportation and communication infrastructure, electricity and deficiencies in the public healthcare infrastructure emerge significant determinants whether

[31] Information regarding the Ministry of Tribal Affairs accessed from the official website http://tribal.nic.in/Content/Abouttheministry.aspx as of July 1, 2016.

women can access biomedical healthcare during pregnancy or childbirth in time. This in turn affects participation and claiming of maternal health policy benefits by the Korku women.

3.1.2 Overview of Economic and Social Disparity between Social Groups at the National Level

Despite the affirmative action and social protection efforts, SCs, STs and OBCs are often at the lowest rung of the social hierarchy and economically worst off. ST households have the lowest annual income of Rs. 32,345 (USD 530.8[32]) compared to all social groups, Rs 72,717 (USD 1193) (Government of India, 2014c, p. 141). Nearly 43 to 50 percent of rural STs live in poverty, without ownership of productive assets and reliable sources of regular income. Approximately 38 percent of ST households depend on agriculture and 51 percent of the ST households are engaged in manual casual labor for earning their income (Government of India, 2011). They are more likely to own marginal or medium size (less than 2 hectares) land holdings, which are shared within a joint family and are insufficient to meet their basic needs (Government of India, 2014b, p. 102). The literacy levels among the ST population are also low, with the literacy rate at 59 percent among STs and 50 percent among tribal women, with high school dropout rates (Government of India, 2013b).

The standard of living for rural STs observed through the condition of living houses, access to basic amenities such as electricity, drinking water, sanitation is also very low. Approximately 40 percent of the rural STs have good occupied houses and 46 percent have access to electricity (Government of India, 2014c, p. 110). Only three percent of STs use gas cylinders as cooking fuel (LPG/PNG) and nearly 90 percent of tribal households use firewood,

[32] 1 USD=Rs 60.9, the average exchange rate for 2013 as per the Internal Revenue Service accessed on July 10, 2016: https://www.irs.gov/individuals/international-taxpayers/yearly-average-currency-exchange-rates.

crop residue or cow-dung-cakes (ibid, p112) which can be harmful to health in poorly ventilated homes (Chengappa, Edwards, Bajpai, Shields, & Smith, 2007; Government of India, 2014c, p. 112). Only 20 percent of the tribal households have access to water within their house premises and 25 percent still access water from uncovered wells and open sources, such as springs, rivers, canals, tanks, ponds and/or lakes (Government of India, 2014c, p. 114). Three out of four ST households in India do not have a latrine facility within the premises and defecate in the open. (Government of India, 2014c, p. 116).

The economic situation of the tribal communities has been further exacerbated with the loss of their traditional livelihoods, land, habitat and resource rights because of land alienation, dispossession, displacement and forced migration (Chacko, 2005; Government of India, 2014c, p. 205). Tribal communities live in and socio-culturally identify with forest and hilly areas. In the last few decades, there has been an increase in government appropriation of forest and tribal agricultural and residential land for multiple reasons: wildlife and forest protection, public infrastructural projects, reselling the land to the private sector for special economic zones or real estate development under the eminent domain claim. Many tribal communities across the country have been displaced and marginalized because of their association with their natural habitat and their customary rights on the forests were threatened (Devasia & Kumar, 2009). Earlier there was little protection for economic, cultural, religious and ancestral rights of tribal communities on the forests or the land and the communities were rarely adequately compensated or rehabilitated upon (Government of India, 2014c, p. 258). However, recent policies including Joint Forestry Management and the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act (2006) the Provision of the Panchayats (Extension to the Scheduled Areas Act) (1996); Minor Forest Produce Act 2005; have been crucial in recognizing

the rights of tribal communities and adequate compensation for land acquisition. This has important repercussions in Melghat too because one of my sample villages had been displaced without fair compensation or a rehabilitation program. As a consequence, the economic and health situation of the village worsened with an increase in malnutrition and infant deaths, elucidating the link between employment, income and health.

Similar linkages between health and economic status are also seen at the national level. There is a high incidence of communicable diseases (malaria, TB, HIV), hereditary diseases such as sickle cell, non-communicable diseases-hypertension, stroke, diabetes and cancers and alcohol and tobacco addiction among the rural tribal population (Government of India, 2014c, p. 204). On the other hand, within the rural tribal population, the overall intake of various foods, such as green leafy vegetables, milk and milk products is less than the recommended intake and has been declining over the years, becoming more severe in younger age groups (National Nutrition Monitoring Bureau, 2009). Looking at child health, infant mortality rate is higher by 27 percent among the ST population and the under-five mortality rate is higher by 61 percent when compared with all other social groups (Government of India, 2014c, p. 198). This difference in child mortality rates remains significant even after being controlled for poverty (Das et al., 2010). Malnutrition is also not only high but concentrated in the tribal areas. More than half of the ST children are stunted (weight to height ratio) and underweight and 28 percent of all underweight children in India come from ten percent of villages and districts, mostly tribal (ibid). Tribal women and children are not only more likely to get sick but are much less likely to get treated than their other counterparts from other social backgrounds (ibid). Similar correlations have been found between maternal health and economic-social status as well (Balarajan et al., 2011). According to the public data available at the Ministry of Tribal Affairs website, ST

women are least likely to have received medical assistance by the doctor during childbirth or prefer institutional delivery[33]. Thus, one can see how lower economic-social development in the tribal regions have an adverse effect on the maternal and child health among the STs.

Because this research focuses on mobile phones, I also looked at ownership patterns of communication assets among STs, which reveals interesting trends. Ownership patterns of communication assets from the Census 2011 show that for all social groups, the popularity of radio and landline telephones has declined in favor of an increase in ownership of television (45 percent) and mobile phones (53 percent). The rural tribal population has also followed suit, with only fourteen percent ownership of radio sets and two percent have landline in comparison to 22 percent owning television sets while over 41 percent have mobile phones (Census, 2011; Government of India, 2011). Nearly 40 percent of the ST population still do not own any assets, from radios, TV, mobile phones, laptops, bicycles or cars.

3.2 Overall Background of the Study Area, Melghat, Maharashtra

In this section, I focus on the historical, social and cultural context of the Melghat region highlighting how social, household and individual conceptualization of maternal health and childbirth influence a woman's decision to participate and opt for benefits under the maternal health benefit policies in India.

Maharashtra has the fourth largest forest cover in terms of absolute area and with substantial tribal populations (Government of India, 2014c, p. 49). Amravati District is a north-

[33] Health Profiles of Scheduled Tribes, accessed from Ministry of Tribal Affairs website, July 12, 2016 at http://tribal.nic.in/WriteReadData/CMS/Documents/201306110212435208455HEALTHPROFILEOFSCHEDULEDTRIBES.pdf

eastern district of Maharashtra with a total population of 2.8 million, of which 64 percent lives in the rural areas. There are about 1992 villages in the Amravati clustered into 845 village panchayats (Census, 2011), of which approximately 350 villages are in the Melghat region.

3.2.1 Melghat

"Melghat" literally means a meeting of the valleys. The Melghat region consists of two administrative blocks, Chikaldhara and Dharni in the northwestern part of Amravati District. Out of a total of 350 villages in Melghat, 146 are in Dharni and 199 are in Chikaldhara, with the tribal division headquarters at Dharni. Geographically, the Melghat region borders the neighboring state Madhya Pradesh and spreads on the mountainous Satpura ranges with five major seasonal tributaries of the river Tapi flowing in the region. The deciduous forest is rich in high-quality hardwood timber, which is strictly controlled, protected and traded only by the Department of Forestry (Fuchs, 1988; Samanta, 2010, p. 11). Melghat was declared as a Tiger Reserve in 1974; therefore, there are further restrictions on felling, grazing or movements of people in core areas of the reserves. Forest conservation, wildlife protection and anti-poaching initiatives have come in direct conflict with the livelihood of the rural people, including labor work, picking of minor forest produce, farming in the buffer area, communication through the area (Read, 2015). Reports indicate that the tribal population also feels neglected by the state and perceive that the "tigers enjoyed higher status than humans" (Talwar, 1997).

3.2.2 Rural Infrastructure and Accessibility

Predominantly rural and forest covered, there were only a few townships in the Melghat region until the present day. Amaravati city, where the district hospital and a woman's specialty

hospital[34] are situated, is about 85 kilometers from the Chikaldhara block headquarters. The closest railway stations are Badnera and Amravati in Maharashtra or Betul on the Madhya Pradesh. The closest airport is Nagpur, about 250 kilometers from the reserve. There are two major highways: Maharashtra State Highway 6 (connecting Amravati city to Dharni Block) and intersecting Highway10 connects to Madhya Pradesh. The state highways are the only few major bitumen/all-weather roads. Other key villages are Semadoh with the government maintained resort and a key transit point while traveling between Chikaldhara and Dharni. Ghatang, one of the sample villages, is another key transit point traveling across the blocks. The nearest urban center to Chikaldhara block and for my research area was Paratwada outside the Melghat area, a source for local market and immediate medical help with many private maternity and child clinics and hospitals.

Almost all villages in the Melghat area have been connected with road networks of tarred, cemented or earthen (*Kuccha)* roads. However, earthern roads get easily washed away during the rains. Accessibility to the interior villages still remains a big concern during the monsoon rains with interior villages completely cut off (Dahat, 2013). Even in the outskirts forest region where this research was conducted, half of the villages could not be accessed during the rains at all times. Public transportation is limited, leaving people dependent on private taxis and paid carpools. The condition of the roads, finding transportation, reaching hospitals or ambulances reaching in time for medical emergencies remains the top concern in accessing medical health care. This was also observed to be the key factor in accessing medical health care during maternity and childbirth. Maintenance of roads is a joint responsibility of the Public Works Department and the Forest Department in the forest area within their jurisdiction. More

[34] This is the Lady Dufferin Woman's Hospital, one of the charitable maternity hospitals set up by the British.

than the distance, it is the condition of the roads and availability of transportation (in case the public ambulances are not available) at odd hours that severely hinders the accessibility to public healthcare for pregnant women in the region.

3.2.3 Historical Background of the Korku Tribe

Korkus are a Kolarian tribe speaking the Korku language, linguistically belonging to the Munda subfamily (Russell, 1916). They are one of the western-most sections of the Munda family separated from other Munda tribes in the *chhotanagpur* area, the Deccan Plateau, by a large section of the Gond group (Samanta, 2010, p. 15). The present day Korku area comprises of the districts of Chhidwara, Betul, Hoshangabad, Panchami, Khandwa and Dewas in Madhya Pradesh and Melghat in Amravati district in Maharashtra. More than 90 percent of the population of Melghat is Korku.

Korkus have experienced different systems of administration over the course of history and the changes in political rule have impacted their perception of the administrative state (Fuchs, 1988, p. 15). The relationship between the invaders (and rulers) and the tribal population was that of "a nature of confrontation and marginal accommodation," (Deogaonkar & Deogaonkar, 1990, p. 2) a phrase that possibly best explains the nature of the relationship with the present Indian administration today as well. This perception also influences when they interact with the local government to claim their social welfare entitlements.

Melghat came under British administration in 1853 (Deogaonkar & Deogaonkar, 1990; "History," n.d.) and the British administration built the first intensive transportation infrastructure to access natural resources and employed the tribals for casual wage labor work under the forest department and public works department (Fuchs, 1988, p. 17). Korkus until then

had practiced "*dhaiya" or* shifting agriculture and depended on minor forest produce for their livelihood. The British abolished the shifting agriculture and imposed restrictions on access, cultivation and extraction of wood in 1877, disrupting the Korku's traditional livelihood of hunting, forest produce gathering such as honey and bamboo and agriculture (Samanta, 2010, p. 47). With little skill or education, the tribe were turned toward the British government for employment. They were traditionally hired as wildlife trackers and professional hunters and guides for the British and are still employed by the present day Forest Department. In fact, the economic marginalization has also persisted over the century under the Indian government as well, compelling tribal households to work as either farm or casual wage laborers in the unorganized sector as explained in the next section.

It is also interesting to note that despite the exploitation and hardships under the colonial era, the tribe were mostly law-abiding and were not actively involved in the independence struggle for political freedom, remaining submissive, law-abiding, peaceful and indifferent to all national aspiration (Fuchs, 1988, p. 21). Hasnain attributes this historical absence of a social movement in the community as one of the factors that still inhibits the community from any organized social protest against the government apathy and poor policy implementation (2010). Hence, their engagement and relationship even with local officials, of subjugation and deference even when ostracized (Malekar, 2014) and the relationship between community health workers and tribal pregnant women was no exception.

3.2.4 Cultivation and Employment

As mentioned above, the lives and livelihoods of the Korkus were intricately connected with the forests (Samanta, 2010, p. 47). Initially, cultivation was predominantly done near the

river valleys where there was black soil, fit for cotton and paddy cultivation and other local millets and grains such as *jawori* (sorghum), wheat, *til* (sesame) and *tuar* (yellow lentils) in addition to *jhaura, kodon* and *kutki* (panicum psilipodium) and *chana* (chickpea) (Deogaonkar & Deogaonkar, 1990; Fuchs, 1988, p. 75). With the commercialization of agriculture, grains and millets have been replaced with soy cultivation, spices and legumes. These changes in crop production have also influenced changes in their dietary patterns and nutritional intake from shifting self-consumption of their own food grains toward dependence on market produce for sustenance. Traditionally, Korkus were also keen fishermen and Fuchs noted that the Korkus would even neglect their fields during the monsoons when the rivers would be swelling and full of fish and crabs (Fuchs, 1988, p. 138). Over time, they have also lost their traditional rights on community water bodies to the government. However, villages are now trying to reclaim their right to access natural water bodies and cultivate fishing through community forest rights under the Forest Rights Act[35].

Overall, restrictions in access to the forest, fragmentation of agricultural land, low level of literacy and skills leave the tribal workforce with few alternatives such as casual farm labor or contractual labor employment in public works programs, forest department, brick kilns and road construction contractors (Samanta, 2010, p. 53). With agricultural income rarely sufficient for a family, family members supplemented their earnings by migrating seasonally as casual laborers to nearby towns and seek employment with the mushrooming non-profit sector. Korkus seek employment either as daily wage laborers or as annual contract laborers. It is no surprise that public works programs and any assistance from the government such as the Mahatma Gandhi National Rural Employment Guarantee Programs are much sought after. However, with

[35] One of my sample villages petitioned to claim fishing rights on an adjacent common resource water body.

unreliability of public works programs and delays in wage payments, seasonal migration has increased again recently. Income is a strong determinant of family and individual health and such irregularity and vagaries of income in turn, not only leads to poor health outcomes, but also forces pregnant women to continue farm work until advanced stages of pregnancy, risking both their own and their infant's life.

3.2.5 Nutrition and Food Habits

Based on fieldwork interviews with community health workers, the average weight of pregnant women was not more than 50 kgs (120 lbs) with an upper range of hemoglobin level of 10gm/dL among my sample respondents, even during their last trimester. During one of the monthly ante-natal checkups during my fieldwork, I visited the center for a follow-up interview. The ANMs and the pregnant women insisted that I should weigh myself and on seeing the scale[36], the ANM exclaimed, "if you were pregnant, you would have been our ideal pregnant woman to give an example of to the rest (of the women)."

Nutrition and diet have a crucial bearing on a woman's overall health, infant health and child nutrition and remains the top health priority in the public health and child welfare departments in the region. However, as mentioned above, changes in income, cropping patterns, agriculture and livelihood have had a direct impact on women's diet and nutrition too. Although there is little research directly linking women's health with the commercialization of agriculture, it was clearly apparent that economic marginalization of the Korku households and the loss of access to forest produce has had an effect on their dietary patterns. There is only one small

[36] That was considerably higher than the average weight mentioned above.

sample study linking the social and economic status of Korku households to chronic energy deficiency and low body mass index (Adak, Gautam, & Gharami, 2006), but it also observed that Korkus still fared better than other tribes in the region.

There are multiple reasons for changes in nutritional and dietary patterns among the tribal population. First, women respondents complained that because of more cash crop production, the women can no longer easily find traditional millets like *kutki*, eaten during pregnancy to recuperate after childbirth. Second, access to forests was a source of balanced nutrition in Korkus diets in the form of meat, wild green vegetables, wild yam and pumpkins, tuberous roots and fruits like mangoes and berries. With increased restrictions on collection of minor forest produce, this is no longer the case. Third, although Korkus are used to keeping poultry and including it in their diets, cows and buffaloes for dairy products are still more common among the Gawlis tribe, who live with Korkus in the region. This means lower intake of dairy products, but with the government subsidy on cattle purchases for ST households, Korkus are also trying to adapt. Fourth, even though meat is a crucial source of protein for rural households, many Korkus are converting to vegetarianism because of Sanskritization[37]. In the village where I was residing (not in the sample area), followers of a religious-spiritual guru would carry out a procession every week promoting vegetarianism and blaming meat as the root cause of ailments and impure thoughts and trying to make the tribal people convert to vegetarianism. Fifth, the Department of Family and Child Welfare provides a nutritious meal through the village day-crèche to pregnant women enrolled under the IGMSY policy, which included occasional eggs, milk and fruits, but since 2015, eggs have now been disallowed by certain state governments. Sixth, because of

[37] Fuchs calls it as Hinduization. Sanskritization refers to the upward mobility, social and cultural transformation of the lower caste and tribal groups as they imitate practices and social customs of the upper-class Hindus (Srinivas, 1972).

commercialization, increases in population and fragmentation of the land, most Korku households no longer have their own kitchen gardens, as Fuchs had observed in his research in the 1960s. He had noted that families grew basic vegetables and fruits, even bamboo shoots, to access fresh vegetables (Fuchs, 1988, p. 78). In 2013, during my fieldwork, World Vision, an international non-profit organization was actively reintroducing the idea of kitchen gardens to the Korku tribal households to encourage nutritional diets. Seventh, lack of access to perineal clean drinking water worth adds to the daily woes of the rural women and increases the risk of water borne diseases. One of my sample villages was on a hillock and had no water source or electricity. They depended on a seasonal dug well on the downhill and had to rely on government water tanks to replenish the well every week in the summer. Another village had their water supply cut because of pending dues to the water department.

Although such anecdotal evidence is not sufficient to make a conclusive argument that food and nutrition status among the Korku tribe has worsened, one could argue that it has not significantly improved either. Economic, social and cultural changes have led to changes in nutritional intake and diets, these changes also percolate to maternal health status in the region, beyond clinical management as offered by the maternal health benefit policies. Having looked at the economic, social and nutritional aspects related to maternal health, in the following sections, I focus on social and cultural norms in the Korku community to explore their effect on a woman's choice about fertility and biomedicine.

3.2.6 Korku Clans, Community Leadership, Cultural and Religious Beliefs

As mentioned in the introduction section of the chapter, a woman's agency to negotiate her fertility choices and consequently, toward her maternal health, are conditioned on the social and cultural contexts as well as intra-family relations (Hollen, 2003a; Wadley, 1980). The tribe has an elaborate social classification dictating social and marital tradition and relationships, as well as community relations. Marital alliances and couples violating these rules face the threat of being out casted by their families and from the community. During the fieldwork, community workers and government officials also blamed traditional marriage traditions for encouraging early marriage and teen pregnancies, increasing maternal risk and also exclusion from the maternal health policy benefits (as elaborated on in Chapter 6).

The Korkus are divided into four to five main groups—Muwasi, Bavaria, Ruma, Bondya or Bopche (Samanta, 2010, p. 16; Fuchs, 1988, p. 24). Each group is endogamous and further classified into exogamous totemic groups or clans. These groups observe clan and kinship exogamy and are patrilineal and patrilocal. Korkus do not marry within the same clan because they consider people from the same totemic clan as doodhbhai or Phratries (Deogaonkar & Deogaonkar, 1990; Russell, 1916). Because the tribe is animist by nature, the clan names are based on the names of trees, animals, grass, earth, stone and other animate or inanimate objects. There are approximately thirty-two to thirty-six exogamous clans, where more than one clan can be associated with the same element of nature (Goswami, Sarkar, & Danda, 1988). Women often represent their clan totems through body tattoos.

The degree of Sanskritization is more strongly visible than the social divisions among the Korku sections. The more Sanskritized or Hinduized a section, the higher is the perceived social rank. The Hindus enjoy a higher status than the Korku, but Korkus have a higher status than

some other SCs such as Bala, Chamar or Mahar (Samanta, 2010, p. 14). Some Korkus may have discarded their Korku beliefs and customs and turned into orthodox Hindus, but local Hindu castes would still treat them with condensation (Fuchs, 1988, p. 24). Korkus, in general, have been very adaptive because their religious, social customs and lifestyles have undergone a much greater change, at least on the visible level. Officially, the Korkus are classified as Hindus for any enumeration purposes. Korkus have their own verbal language but are also comfortable with Hindi, Gondi (another tribal language) and those educated also understand Marathi because Marathi is the medium of instruction in schools and colleges. However, this creates a disconnect in communication and information awareness and communication strategies because the communication is mostly in Marathi, which many women were not able to understand completely.

The tribe also maintained their traditional social system of community organization alongside the statutory Panchayati Raj System, the decentralized village governance system. Korku communities were ruled by a tribal village called council supervising the moral conduct and local customs. These tribal village councils could include either all or selected elderly adult male members in a village and an official village headman called the *patel*. Even though the patel is a nominal position, he still commands respect in the tribal communities (Samanta, 2010, p. 167). The village councils oversee settling of communal and family issues such as teenage pregnancy, elopement and martial disputes, bride price settlement and custody of the infants in case of parental death. The decision by the village council is generally accepted.

Other influential members in the village are the Bhumka/Bhagat (devotees) and the Parihars (shamans), the spiritual leaders in the villages. Fuchs observed that with a Korku, religion was motivated by fear and he believed negligence in prayers, sacrifices or prescriptions

would bring upon sickness or other misfortune (Fuchs, 1988, p. 320). Korku must give offerings once a disease is cured or a prayer is fulfilled lest the spirit would take revenge (Fuchs, 1988, p. 409). Often matters of pregnancy, safe childbirth and preference of boys are consulted with the Bhumka/Bhagat for local traditional ethno-medicinal remedies. He also supervises religious ceremonies, predicting good or bad omens and believed to possess divine powers. A Parihar is a person who is visited by the divine afflatus or selected as a messenger of the deity. Parihar is more like a prophet than a priest. Bhumkas are permanent positions and hereditary and retain power and influence over the village community. Public health officials often see Bhumka/Bhagats and Parihar as barriers in tribal people accessing biomedical care.

One must also acknowledge that tribal and traditional communities have a rich history of herbal and ethnomedicine. Melghat forests are rich in flora and fauna and among the Korkus, the knowledge of medicinal herbs for healing treatments is not restricted to Bhumkas but traditionally considered as common knowledge, which is passed on from fathers to sons (Fuchs, 1988, p. 282). There has been extensive documentation on the ethno-medicinal flora and their prescriptions ranging from diarrhea to infertility and labor pains among the Korku community by regional medical anthropologists (Abhyankar & Upadhyay, 2011; Ghorband & Biradar, 2011; Jagtap, Deokule, & Bhosle, 2006; Zade et al., 2013). For tribal women, these are not only a matter of faith and an alternative to biomedical care, but also at times the only recourse in an effort to have a son or a safe childbirth to ensure her position in her affinal household.

Birth, marriage and death are the three most crucial milestones in life and it is only natural for every community to have elaborate traditions and customs around them. These can also influence marital age, restrictions and traditions around the choice of spouse, fertility decisions and motherhood; hence, have a bearing on the maternal health of a woman. According

to the Census in 2011, one out six women marry before the legally permitted age of eighteen years (Shaikh, 2015). Early marriages are much more common in the rural population and one of the main reasons for early pregnancies. In the Korku tribe, early marriage has its roots in social and traditional customs. Teenage pregnancies are not strictly prohibited because marriage after puberty is an acceptable custom. Premarital relationships are generally overlooked unless they lead to pregnancy, upon which the couple is encouraged to marry (Goswami et al., 1988). If the boy refuses to marry, the tribal village council imposes a fine on the boy's family, paid in part to the girl's family and the rest to the council to provide a meal to the people of both villages. Single parenting is acceptable and abortions are rare. According to Fuchs, the age for marriage for women used to be higher, eighteen to twenty-four years for men and sixteen to twenty for women because the Korkus believed that adolescent women would bear weak and sickly children and a woman should be fully mature and healthy before she sets out on married life (Fuchs, 1988, p. 239). In areas subjected to Hindu influence, teen marriages (between twelve to eighteen years) became more common (Fuchs, 1988, p. 238; Mitra, 2008).

Korkus follow bride price, the reverse of the Hindu dowry norms. Bride price can be seen as a form of compensation to the girl's family for the loss of the "healthy worker." The bride price money is handed over in full to the bride's father; however, the village council and the middlemen may receive a customary fee (Fuchs, 1988, p. 258). However, there is also evidence of Korkus' "marginal accommodation," as in one of the interviews when the husband of a respondent remarked that he had recently incurred expenses for providing household furniture as a "gift" for his sister's wedding, a subtle substitute for dowry. Another instance is the adoption of the ritual of rice throwing and recitation of the *Mangalshtaka* (the eight sacred verses) in Korku

weddings, a key in an upper caste Hindu Marathi wedding custom (Deogaonkar & Deogaonkar, 1990).

Traditionally, there were four different ways through which marriage alliances would be fixed and three of them are still followed by the tribal households. Tribal marriages are arranged either by negotiation, elopement, intrusion or contractual service (Goswami et al., 1988). The most common is marriage by negotiation or *Mangani,* where a third person coordinates between the two families and if the parties agree to the alliance, the elderly and the tribal council fix the bride price. Marriage by elopement or choice is also acceptable and not discouraged. A popular place for young men and women to meet are the bazaars (*Hati or Bhongdu-Hati)* or festival fairs *(Jataras).* Samanta also observed that youth employed as contractual labor would elope leading to pregnancies, sometimes with no obligation of getting married (2010, p. 105). If the families do not agree, the couple is allowed to live separately and a regular marriage ceremony is performed whenever the families settle the bride price (Goswami et al., 1988). Families usually agree when a pregnancy is disclosed. The third common practice is marriage by intrusion or *ghar-ghusi* (Fuchs, 1988, p. 238; Goswami et al., 1988). If a woman likes a man, she may go to the man's house and declare that she wants to live with him. Marriage by elopement and intrusion give equal importance and respect to a woman's choice in her marriage and may not be marked with a "formal wedding" ceremony. One of my respondents had practiced *ghar-ghusi* and had never solemnized a formal wedding ceremony, even though she wore a *mangal sutra*[38]. One can see how elopements and pregnancy before marriage may be strongly condemned by the mainstream Hindus, even warranting violence and honor killings. However, these are a perfectly accepted part of the tradition among the Korkus.

[38] A sacred black and golden necklace worn by Hindu women as a symbol of marriage.

The last form of marriage by service contract or Lamzana/Lamshena is rarely practiced today. This was preferred if the groom was unable to pay the bride price or when the bride's family had only daughters. The groom would agree to live and "belong" to the bride's family and even serve the family for a fixed time period, sometimes up to twelve years. Sometimes, the groom would be expected to make the bride pregnant within a year, to ensure he could continue to live with the bride's family ("Korku Culture," 2003). This leads to the groom staying with the bride's family, known as a *ghar-jamai and* being completely dependent on his father-in-law, which is again not perceived as respectful among the mainstream Hindus.

Hence, early marriages and teen or even single pregnancies are not explicitly discouraged and with social and family pressure for male heirs, women are willing to keep having more children until they have a son. Risk of morbidity and mortality increases with a higher number of pregnancies and there is little adherence to the conditions on the number of births in the maternal health benefit policies.

3.2.7 Composition of a Korku Household

Household composition and intra-family relations also influence a woman's reproduction decisions and her accessibility to maternal health policy benefits. A rural household composition can be either nuclear or joint including a married couple, children, in-laws, parents of the in-laws, siblings and their families. In India, the "common kitchen" definition of the household is followed by enumeration. Joint family structure is common in rural households in India. Koku families also as live joint families, where parents, sons, sons' wives and grandchildren all live together. Married daughters live with their husbands' families and periodically visit the home of

their birth (Wadley, 1980, p. 95). It was observed during the fieldwork that in some cases, a few young couples also lived with the woman's parents. I also observed in a few families that a separate room would be constructed attached to the main house for the married couple giving them privacy but not complete separation. In such cases, during the day all members of a joint family live and work together. However, their relations are controlled by definite rules of behavior, enforced with special strictness between members of the opposite sex, especially between the young bride and her father-in-law and brothers-in-law (Fuchs, 1988, p. 167; "Korku Culture," 2003). Meals are prepared for all the members in common and are taken together, although men and women usually eat separately—the women after the men.

The family institution is patriarchal, patrilineal and patrilocal but the women are treated fairly. In general, the status of women among STs is more egalitarian than other social groups (Mitra, 2008). Among the Korku tribe, the male head of the household is the owner of all movable and immovable property. If an adult son decides to separate from the family when the father is still alive, the son may not receive any help from the family. The eldest Korku woman in the house—either the mother-in-law or the mother of the father-in-law—is responsible for all internal matters of the house. It is viewed that the male members represent the household to the outside world, the women dominate the internal matters including the income (Fuchs, 1988, p. 168). The female head of the household buys food, kitchen utensils, pots, pans and other house related items and is allowed to travel on her own (Fuchs, 1988, p. 169). The sons and their wives are supposed to hand over to her all the wages they earn from their labor ("Korku Culture," 2003). The sons and daughters-in-law are not supposed to keep any of their earnings for themselves or to dispose of any family property. Inheritance goes to the mother (that is, widow) and the sons (Fuchs, 1988, p. 161).

In contrast, there are restrictions placed on the daughters-in-law, especially on newlyweds and those with no children. Although the purdah system is not common among the tribal population, other restrictions are imposed on the young woman's mobility and autonomy. They are not allowed to travel outside the village on their own and must be accompanied by the husband or another male member of the family. Fuchs noted that even for a call of nature they must be accompanied by other women or at least have a child along (Fuchs, 1988, p. 167). These emerged as important in the baseline survey among the respondents as the norms of interaction determine a daughter-in-law's role and position in the household, her mobility outside the house and autonomy regarding household assets (such as mobile phones) and finances (including cash incentives from the maternal health benefit policies) and their participation in household decision-making. However, over time as the daughter-in-law proves her "worth" by bearing sons and as younger sisters-in-law come in to the family, she moves up in the family hierarchy. Even in general, the lifecycle of a rural Indian female suggests as a woman ages and becomes a mother-in-law herself, her power, authority and autonomy in the household is established (Wadley, 1980, p. 93).

3.2.8 Rituals around Pregnancy and Childbirth

A woman's position is in the household is based on her fertility and the first born being a son. She must prove her fertility because the birth of a child strengthens the marital relationship and also solidifies her reputation in the whole family (Fuchs, 1988, p. 271). Earlier in the 1970s, the number of children borne by a Korku woman was ten to twelve, with about one-third mortality rate (Fuchs, 1988, p. 228). There is a spiritual belief that a soul of a deceased Korku enters the womb of a woman when she becomes pregnant. Sterility is a defect in the woman and

if a woman does not conceive within a year or two of the marriage, she is encouraged to consult Bhagat/Bhumka (Samanta, 2010, p. 104), who could prescribe herbal medicines, mantras/chants, perform specific ceremonies or give totems. Consultations are also sought to ensure that a son is born or the delivery is safe, in the case of an unsuccessful one earlier.

There are several restrictions on food and taboos during pregnancy. Women are restrained from eating certain foods or may be advised by the Bhumka/Bhagats to cook their own food and not to accept any food from anyone else. Thus, this means women would avoid eating free meals provided by the Anganwadi, the village daycare center under IGMSY policy. At least one respondent confirmed bringing the food home to either feed the cattle or distribute among the other household members. However, during research, I also met many women who ate the meals at the Anganwadi. Women are also advised to abstain from eating too much during the last trimester lest the fetus would grow too big, leading to an obstructed and painful labor. At times, the *Bhagat or Bhumka* may also instruct that the delivery must be at home as per the traditions and the infant should neither be weighed nor inoculated (for instance, the BCG vaccination administered at birth) until the newborn is brought to the faith healer for blessings. Social restrictions include not passing under a mango tree, not traveling alone and keeping away from menstruating women and from a woman who has recently given birth (Fuchs, 1988, p. 221). General prescriptions are also valid such as not lifting heavy weights or a heavy bundle of firewood, but a woman is still responsible for all of her household chores and works in the field until she goes into labor (Fuchs, 1988, p. 221). However, with few income options, women continue to work until their third semester. One respondent recalled that she had gone in to labor while working in the field and delivered her child in the field without any medical assistance.

Nearly forty percent of childbirths still take place at home in Melghat, despite cash incentives and free medical treatment provided through the governmental maternal health benefit policies. Childbirth at home is administered by the traditional birth attendants or *dai,* who has a special social and spiritual significance in the tribe. *Dais* can be either a trained and government certified woman, or can be an uncertified elderly woman in the village who has taken to the profession as a living. In the Korku tribe, they are referred to as *Sayani-budhi* or *Sunni-Sayin dai*. If a woman goes into labor and a home delivery is preferred, the *dai* is called to assist the household women.

During labor, the midwife presses and massages the woman's body from the hips downwards. The woman must lie on the floor as the "birth must take place on mother earth" (Fuchs, 1988, p. 223). After the birth, the umbilical cord is tied with a strip of cloth and cut with a knife, sickle or bamboo splint and smeared with turmeric and oil (Fuchs, 1988, p. 224). During my conversations with two *dais*, they mentioned now using delivery kits distributed by the ANM containing a small travel size soap bar, a roll of cotton wool and a sterilized (shaving blade) wherever available. The mother and the newborn are immediately given a bath in lukewarm water after the childbirth. For the next five days, the mother is considered impure and restricted to a corner of the house and taken care by the midwife. The midwife is responsible for bathing, massaging and washing the soiled clothes of the mother and helping her feed the newborn. Because the midwife takes care of the mother, she too is considered impure and not allowed to mingle with the family members. Women respondents in the research found the comfort of being at home and help of the *dai* as a big advantage over being alienated at a medical facility without much surety of medical assistance or provision of food.

There is also a ritual regarding disposal of the placenta. When the placenta is ejected, the *dai* buries it with a layer of cow-dung paste in a corner of the house. It is believed that anyone accessing the buried placenta will endanger the life of the mother and child. It is advisable that the mother should not eat any solid food for the next four or five days. She is given a *kutki* gruel and other light foods such as rice or *jawari. Kutki* is a believed to stimulate the mother's exhausted body. Traditionally, the newborn child was not breastfed until the third day (Fuchs, 1988, p. 224; Samanta, 2010, p. 98); however, now breastfeeding at birth is acceptable. On the fifth day, the *dai* conducts a special ceremony, *Sugni/Dherlu puja*, by digging a ditch at a corner of the house and collecting water used for bathing the mother and newborn. An offering of herbs is made and the ditch is filled up. This is followed by naming the child and inviting the village members for a feast (Deogaonkar & Deogaonkar, 1990). After this, the *dai* is paid her remuneration in cash. The mother goes with the *dai* in the evening to perform puja by the riverside (Samanta, 2010, p. 99).

Concurrent with the literature, many respondents preferred delivery at home and felt the need to visit a medical institution only in case of obstructed labor. Some exceptions to this were the women from the villages where the public sub-center was situated and those women who were living with their husbands but separately from their in-laws. The latter preferred going to medical institutions only because there were no other women in the house to help them when they went into labor.

3.3 Conclusion

To summarize, inequalities in maternal and child health are more chronic and severe among STs because of incidence of higher poverty and lower social economic development. I

reviewed the social-economic status of tribal communities at the national level to highlight the economic disparities between the tribal population and other social groups. Second, to better understand the inequities in maternal health, maternal health must be looked at not only from a clinical health perspective but also from historical, cultural, social and economic context. Third, traditions and intra-family dynamics also impact the choices and decisions regarding a woman's fertility and health in rural tribal communities such as Melghat. These factors in turn influence women's participation in the maternal health benefit policies.

It is also clear that the Korku tribe is still deeply rooted in its culture and traditions and it is hard to expect and foresee the women easily abandoning their beliefs and rituals about maternity, childbirth and maternal health and instantly switching to allopathic or medical advice of the public health officials, even with a cash incentive and free medical services. Poor quality of public health and delay in cash incentives only make the transition harder for the tribals. Their beliefs often conflict with practices of allopathic medicine practices. However, although these beliefs should not be only viewed as barriers to accessing biomedical health care, they are often "gap-fillers" when public health care is inaccessible because of economic and geographical limitations (Shrestha, 2011). It is only natural to empathize with the Korkus, stuck with acute poverty and marginalization, struggling and desperate to take on any and every method in an attempt to save another newborn life. These tensions between the cultural norms and biomedical health care also impact the preference for maternal health benefit policies as discussed in chapter six.

Chapter 4. ICT and Mobile Phones in Public Management

Introduction

Four key developments in the last few months have been relevant to this research. First, India crossed the 1 billion mobile phone subscriptions mark in January 2016 (Saritha Rai, 2016). Second, India launched the world's cheapest smart android based phone—Freedom 251—costing less than Rs 251 (USD 4.1) (ET Bureau, 2016). Third, the Ministry of Health in India, with the Bill and Melinda Gates Foundation, launched a nationwide mobile maternal health program to provide "life-saving and life-changing information" projected to reach out to 850,000 families in six states (PIB, 2016; PR Newswire, 2016; WHO, 2016), very similar to the mobile intervention I conducted in 2013. Fourth, MAMA, a global UNDP initiative that had been using mobile phone for voice messages about maternal health awareness to pregnant women, including in India, abruptly posted a "goodbye" note on their website, indicating discontinuance of the program (Gannaire, 2015). These developments echo to the centrality of my research—the ubiquity of mobile phones, the (over) optimism in mobile phones applications in governance, particularly in maternal health, ephemerality of the mobile initiatives and the undercurrent assumption that mobile phones are the "silver bullet" for social, political, administrative and health problems.

In this chapter, I first review the literature on ICT and e-governance, which are a precursor to m-governance. The review of ICT and e-governance initiatives is essential to understand the impact of technical systems on policy implementation and draw lessons for m-governance and other mobile initiatives for development sector. I then review the prevalence and the use of mobile phones in areas of development, rural economies and maternal health to

identify the potential and the challenges of using mobile phones for information dissemination. The review of the literature highlighted contrasting trends, the first being optimism about using ICT and mobile phones and the second, the implicit assumption of "technological determinism." The findings from the fieldwork mirrors these two perspectives. Here, it was my technological optimism in assuming that just because mobile phones are everywhere and that they could be the next best solution to improve policy uptake. The danger of technological determinism was that I assumed that mobile phones could bypass the fundamental policy and management issues.

The literature and my fieldwork in Melghat also revealed broader debates between public values of transparency and privacy; between access, medium and content of information pertinent to policy implementation in public management discourse and the mobile phone adoption in a "gendered space" in Indian society. Addressing each concern in detail was beyond the scope of this dissertation; however, I attempt to briefly summarize these trade-offs in the context of this dissertation research.

4.1 ICT and E-governance

ICT refers to using electronic and digital means for capturing, storage, processing, transmission and display of information (Cecchini & Scott, 2003). This includes using the internet, telephones, mobile phones and other wireless technologies. In today's world, ICT is infused in almost every activity relating to societal planning, governance and political organizations, including the civil society (Grönlund, 2001). Communication and development theorists always posit that technological leap-frogging by adopting new communication techniques not only modernizes the traditional societies but also reforms the bureaucracies (Jain,

2004; Rogers & Svenning, 1969; Schramm, 1964). Electronic means of governance or *e-governance* is the use of ICT by public bodies and government to provide information and receive feedback from citizens, external organizations, elective representative and other stakeholders. ICT applications in governance can provide decision support to public administrators, improve services to citizens and can empower citizens by providing access to information and knowledge (Bhatnagar, 2000). Advocates of e-governance believe it is administratively more efficient, cost-effective, transparent and interactive, thus complementing, replacing and improving delivery systems and fostering e-democracy (Anttiroiko, 2003; Bhatnagar, 2004; Bowman, 2009; Cecchini & Scott, 2003; Cho & Choi, 2005; Cuillier & Piotrowski, 2009; Grönlund, 2001; O'Donnell, Boyle, & Timonen, 2003; Paul, 2007; Sharma, 2007). E-governance tools can push information access and dissemination to the citizen and the public, improving transparency and providing new tools and arenas for public scrutiny, investigation and checking corruption (Andersen, 2009; Goetz & Jenkins, 2003). ICT can develop a "culture of transparency" through sharing different types of information such as government rules and procedures, performance data, the disclosure of public assets, government budgets and procurement information. It can be a mechanism to gain feedback from citizens on the quality of service offered to promote accountability (Andersen, 2009; Bertot, Jaeger, & Grimes, 2010; Relly & Sabharwal, 2009; Shim & Eom, 2009). Technological changes can also provide new tools and avenues for investigation and exposure of corruption (Goetz & Jenkins, 2003). E-government can serve as a tool to fight corruption by opening up government processes and enabling greater access to information, enhancing effectiveness of internal and managerial control (Andersen, 2009; Bertot et al., 2010; Bhatnagar, 2000; Chawla & Bhatnagar, 2004; Cho & Choi, 2005; Roberts, 2006; Shim & Eom, 2009). It also discourages corruption by promoting

good governance and strengthening government-citizen relationships (Shim & Eom, 2009). E-governance, thus, can be perceived to provide *"effective services to citizens transparently with optimized efficiency so that citizens would increasingly prefer to interact with the system with trust and respect"* (Misra, 2009).

Over the last decade, the splurge of electronic and digital governance in India has been a result of concurrent developments in exponential growth in telecommunications and internet access and legislative measures such as RTI and social audits that pushed for proactive transparency, public monitoring and accountability mechanisms. The government of India has encouraged e-governance and government over the years. A dedicated department of Electronics and Information Technology or *DeitY*, (www.deity.gov.in) has been set up under the Federal Ministry of Communications and Information Technology to promote e-governance and provide government services through electronic media across the sectors, government departments and public at the federal and the state levels. The National E-Governance Plan was formulated in 2006 by this department to provide a single window for beneficiaries to submit their grievances and seek redressal through an online portal (Government of India, n.d.). Numerous ICT initiatives were also introduced, piloted and implemented in India with a wide array of objectives, from increasing public participation to reducing poverty by improving access to education, health and financial services (Bertot et al., 2010; Cecchini & Scott, 2003; Keniston, 2002). Other initiatives also provided easy access to several government services through *Gyandoot* (rural internet kiosks in rural areas), *Gyanganga* (accessibility of information under RTI), *Bhoomi* (digitization of land records), *e-shakti* (smart cards for rural employment policy) and *e-Mamta* (online and mobile alert mother and child tracking system). These initiatives received a mixed response and were critiqued for being isolated projects with low replicability

and success rates (Bhatnagar, 2000, 2004; Bhatnagar & Schware, 2000; Chawla & Bhatnagar, 2004; Thomas, 2009). ICT and e-governance are also perceived to be gender empowering by lowering information access barriers for women (Bertot et al., 2010).

Moreover, e-governance is not just a simple application of information technology in an administrative system because a country needs to be "e-ready" (Bhatnagar, 2004). E-readiness of a country depends on the level of computerization for back-end processes, capacity to design and implement e-government systems, availability of resources and existence of enabling legal and administrative frameworks and attitude of civil servants (ibid). It requires alignment of ICT infrastructures, institutional reform and substantial changes in relations between the individuals and organizational structures (Hacker & Dijk, 2000). Further, even with the infrastructure and the policy in place, Bhatnagar observed that administrative willingness to reform governance and institutional capacity to absorb and manage change are critical for a successful ICT application (2004). The implementation and effectiveness of ICT initiatives could be restricted by potential resistance from the public administrators themselves when there is a need for bureaucratic acceptance of transparency and ICT (Bertot et al., 2010). The classical study by Markus about management implementation systems revealed the struggle between employees resisting changes that accompanied implementation of information system (Benbasat, Goldstein, & Mead, 1987; Eisenhardt & Graebner, 2007; Markus, 1983). Similar instances have been observed in public organizations too. As decision making processes get automated with e-governance, public administrators feel they have lesser administrative discretion, power and patronage (Bhatnagar, 2004). Lack of clear incentives to initiate or implement such reform are a further impediment (S. Sharma, 2007). Thus, in some respect, low effectiveness of e-government may be attributed as a consequence of bureaucracy itself (Jain, 2004).

Another area of concern is the limited scope of replication and scaling up of ICT initiatives beyond pilot projects. In India, the infrastructure concerns are a serious impediment. Contrasting to the present government's Digital India dream, the country still falls behind in telecommunications infrastructure beyond urban centers, with poor broadband connections and long delays in laying of fiber optic networks. In 2013, over 85 percent of the Indian population still did not have access to the internet and only one percent of 250,000 central village hubs had access to broadband connections, irrespective of the speed (Sugden, 2015). UNESCO 2015 Report on the "State of Broadband" ranked India 131 among 189 countries with only 1.2 fixed broadband connections per 100 per capita (2015).

This research sits at the intersection of information communication technology and public engagement to claim their social welfare entitlements. Its significance stems from both experience and directions pursued in the public policy implementation in India. First, although e-governance and ICT have been instilled in the Weberian- traditional bureaucratic system, a systematic analysis of how its impact, influence, contextual barriers and evaluation in achieving the policy objectives was still evasive (Bhatnagar, 2004; Chawla & Bhatnagar, 2001; Heeks & Bhatnagar, 1999; Thomas, 2009). Internet and ICT application in governance have reduced the gap between outreach, availability and accessibility of information and services but have not closed it completely. There is a need for further low-cost and high outreach information technology interventions, beyond digitization and e-governance, to circumvent the limitations of accessibility of information, specifically on entitlements and outcomes. Here, mobile phones can potentially provide the crucial last mile extension. They have served as the missing link, augmenting the access to economic and social services, openness, human development and innovation (Spence & Smith, 2010).

4.2 Mobile Phones and M-Governance

Mobile phones have become the most economic and extensive medium for communication and outreach across the world. With close to seven billion mobile subscriptions in global ownership (97 mobile users per 100 population), including India with over one billion wireless subscriptions (ITU, 2015; Saritha Rai, 2016), mobile phones have become more pervasive than the most basic infrastructure across the world. For instance, in comparison to seven billion mobile phones subscriptions worldwide, only 4.5 billion people have access to basic sanitation facilities, implying that more people have access to mobile phones than toilets in the world, including India (Sunderarajan, 2012; United Nations, 2013). According to the census of India in 2011, forty-seven percent of the rural households owned mobile phones and mobile phone network coverage spanned over ninety-nine percent of the rural landscape, but only thirty-one percent of these rural households had a toilet. In India, there are multiple mobile phone manufacturers and the prepaid plans and competitive pricing among multiple carriers offer affordable subscriptions to the rural communities. India has earned a dubious reputation as the "Cell Phone Nation" (Doron & Jeffrey, 2013).

Mobile phones have reached an effective penetration of "one phone: one person" (Patrick, Griswold, Raab, & Intille, 2008). Mobile communications now constitute as the primary form of access, exchange of information and contribute to social and personal interaction (Donner, 2008). In countries where mobile communications constitute the primary form of access, increased exchange of information on commercial or social services is contributing to development goals, whereas in countries where people commonly use both fixed-line and mobile communications, the personalized traits of the mobile phone are changing social interaction (ibid). Information accessibility through mobile phone has reduced transaction costs

in terms of money and time. Smartphones have transformed daily lives and influenced every sector of development and public administration. Mobile phone adoption and diffusion has been fastest in the developing countries with nearly two-thirds of the world's mobile phones in the developing world (Dasgupta, Lall, & Wheeler, 2005). In South Asian countries including India, the growth of mobile phones has been associated with accessing economic services for poor households, creating opportunities for employment, education, entertainment and toward social, political and economic transformation (De Silva & Zainudeen, 2007; World Bank, 2012).

Given the widespread connectivity, low costs, growing popularity and affordability, mobile phones strengthen strong ties within existing personal relations as well as promoting social capital and social cohesion. They also serve as crucial lifeline of communication during natural and health emergencies by aiding disaster relief efforts, disseminating locally-generated and locally-relevant health as well as educational information (Bhavnani et al., 2008; Donner, 2008). The ominous presence of mobile phones has made international non-profit organizations feel that the focus for ICT for Development should no longer be about ownership and accessibility of mobile phones but on creatively thinking about what can be done with the phones, with texting and tweeting becoming the modern vocabulary across the globe (World Bank, 2012).

Mobile phones provide customization in languages, formats contents and audio-video multimedia allowing immense flexibility in communicating information. They serve as an apt alternate medium to counter constraints of literacy, poverty, lack of infrastructure and barriers such as stigma, privacy loss and transportation limitations associated with traditional interventions. Dasgupta, Lall and Wheeler (2005) found that mobile phones are popular in poor Asian and Latin American households because they require little literacy for independent

operation, in contrast to high literacy and language skills for using e-mail and other internet services. Mobile ownership is not perceived to be a significant limiting factor as phones are often shared and even rented with non-owners including other household members, neighbors and relatives' phones (Aminuzzaman, Baldersheim, & Jamil, 2003; Labbe, 2010).

Mobile phones' ubiquity has also penetrated in public administration and policy management. Time and again, mobile phones have been used as an electoral strategy with federal and state governments announcing free mobile phones to the public (Janardhanan, 2015, 2016; Times of India, 2012).

It is because of the above strengths that governance systems are now transforming from e-governance to m-governance, where m-governance is seen as "*strategy and its implementation involving the utilization of all kinds of wireless and mobile technology, services, applications and devices for improving benefits to the parties involved in e-government including citizens, businesses and all government units*" (Kushchu & Kuscu, 2003, p. 2).

M-governance involves using mobile tools to either improve the interactions between citizens and government or overall processes of government. Various tools included mobile networks (such as broadband, Wi-Fi and voice-centric), mobile devices (tablets, smartphones, feature phones), their associated technologies (voice calling, short-messaging-service or text messaging, location detection, internet access) and software in the form of network services and applications (World Bank, 2012). Governments have worked to increase openness and transparency in their actions through e-governance and m-governance. Digitization, internet and e-governance has improved efficiency, transparency, accountability, public engagement and collaboration. With exponential growth in mobile communications, the avenues have only increased manifold. Greater access to information could result in greater citizen engagement and

compels the administration to be accountable. Mobile communications have also made seeking information and feedback from the public much easier, making governments more public-centric. Mobile phones have become the eyes and ears for the public to highlight gaps in deliverance of public services.

The Government of India has also taken many initiatives to embrace m-governance. Under *DeitY, Mobile Seva* (Mobile Service) has been launched as an integrated platform to provide government services from over 2,000 different departments and agencies to the public. This includes push and pull text message applications and app development for almost every sector—from agriculture, education, health, social welfare, rural development, food distribution, grievance redressal, accessing government records and information. This is accessible at http://mgov.gov.in.

The following section focuses on how mobile phones and m-governance has been changing rural landscapes and health sector, key areas relevant to this research initiative in rural Melghat.

4.2.1 Prevalence of Mobile Phones in Rural and Social Space

Research approaches to mobile use in developing countries revolve around mobile phone use, adoption and assessing the interrelationships between mobile technologies and its users (Donner, 2008). Most research is based on either communication and information discourse, development studies or sociological and anthropological studies. Mobile phones have been extensively used to boost rural economies for information gathering and dissemination, monitoring and remote sensing, particularly in Africa and South Asia. Initiatives and startups

have focused on agriculture, rural employment, education, transportation and community health care.

In India, mobile phones are now used to inform farmers about market prices, fishing communities, track availability of grains under subsidized public distribution systems (PDS), monitor women and child care programs, seek health consultations (Fafchamps & Minten, 2012; Abraham, 2006; Dreze & Khera, 2010; Nandakumar & Sabharwal, 2012; Bali & Singh, 2007). Mobile applications for agriculture allow applications to be designed locally and for specific target markets, with localized content specific to the languages, crop types and farming methods (World Bank, 2012). Voice calls and text messages and multimedia imagery overcomes illiteracy to provide a wide array of complex information regarding weather and climate, pest control, cultivation practices and agricultural extension services to potentially less tech-savvy farmers. In Uganda and India, farmers have been using mobile phones to coordinate access to agricultural inputs, obtain market information, monitor agriculture emergency situations, carry out financial transactions and consulting with experts (Fafchamps & Minten, 2012; Martin, 2010; Patel et al., 2009). Mobile phones have contributed toward productivity enhancement in agriculture (Mittal, Gandhi, & Tripathi, 2010). Another rural employment sector benefitting from mobile phones has been the small fisheries in India. Rural Indian fisherman have been able to successfully use mobile phones to reduce price and information asymmetries and uncertainties, in turn making markets more efficient (Abraham, 2006; Jensen, 2007; Sreekumar, 2011).

Among the government initiatives, text notifications for Global Positioning Systems (GPS) tracking of government trucks carrying food grains for PDS from warehouse to the fair price shops was successful in Chhattisgarh in curbing leakages (Dreze & Khera, 2010). Tamil Nadu state follows a similar initiative to report food stock availability and its price by sending a

query through mobile phones. Non-profit organizations are using these initiatives to monitor and check different development programs. Some initiatives are targeted toward individual beneficiaries in areas of health. For instance, the State of Gujarat extended the online maternal and child health tracking system *e-Mamta* to a mobile application through push text notifications and alerts for immunization dates and regular medication for pregnant women to women and rural community health workers.

4.2.2 M-Health, Telemedicine and M-Maternal Health Care

With ubiquitous outreach of mobile phones, its extension in supporting health care particularly developing countries is not surprising. Mobile technology was pitched as a "significant enabler" to UN Millennium Development Goals relating to health by the UN Foundation (Consulting, 2009). "Mobile" health, or m-health is the use of mobile and wireless technologies such as cellular phones to support public health and clinical care by transmitting and enabling various e-health data contents and services (Consulting, 2009; Kahn, Yang, & Kahn, 2010). M-health programs include applications for health education and awareness (such as text, voice, multi-media or app-based) and remote data collection and monitoring of patients' health for chronic diseases and enabling public managers to monitor the implementation and effectiveness of health care programs. Mobile phones have also been used for communication and training of health care workers by connecting them with sources of information to perform more effectively and enable disease and epidemic and outbreak tracking. It also serves as telemedicine, by providing treatment and diagnostic support (Bali & Singh, 2007; Consulting, 2009; Martinez et al., 2008; Shrestha, 2011; Tachakra, Wang, Istepanian, & Song, 2003)

Developing countries have been facing a steady growth in the prevalence of chronic diseases, including diabetes, asthma and HIV along with a continued burden from communicable diseases. Mobile phone technology is used in promoting awareness and remote monitoring toward such diseases, facilitating emergency medical responses, aid-disaster relief efforts, point-of-care support and telemedicine in poor resource and low-income settings (Bhavnani et al., 2008; Kahn et al., 2010; Tamrat & Kachnowski, 2012). Mobile technologies are now used in health care at the regional, community and individual levels. Numerous mobile applications have been developed for a variety of uses in rural health care including health education, awareness, alerts, m-finance or mobile payments (Agarwal & Lau, 2010; Bali & Singh, 2007; De Costa et al., 2010; Densmore, 2012; Martinez et al., 2008; Shrestha, 2011; Tachakra et al., 2003).

Mobile communications also provide opportunities for remote health monitoring for chronic diseases including diabetes and hypertension, thereby improving patient health care. Health statistics such as blood pressure or blood sugar levels can be collected through patients' mobile phones and made available to doctors through web interface (Agarwal & Lau, 2010). MOCA, a project of the Massachusetts Institute of Technology NextLab, uses Google Android-based mobile phones to remotely monitor patients in rural areas for diagnosis by medical experts located anywhere in the world. Telemedicine also involves seeking medical consultation over mobile phones as a cost effective way to reach out to rural remote areas with shortage of trained medical staff. Rural villagers in Haryana, India, responded positively to seeking medical advice regarding common ailments of skin, respiratory, mental health and sexual problems (Bali & Singh, 2007).

Text messages and voice based alerts are most commonly used in influencing health behaviors across communities in diverse contextual settings. For instance, in a study exploring

the use of mobile phones for adherence toward antiretroviral therapy found voice based alerts more effective than text messaging in South India (De Costa et al., 2010). On the other hand, a similar text-based intervention for HIV patients was found effective in Kenya (Lester et al., 2010). Another research in rural Kenya revealed a preference toward text messaging as a feasible and culturally appropriate medium to target at-risk groups to receive health information, medication adherence reminders and referrals (Hamilton, 2010). Multimedia mobile software was also observed to be effective in improving maternal health literacy and their training among rural health workers in India (Ramachandran, 2010). Shrestha explored the effectiveness of synchronous and asynchronous models of teledentistry to reach out to areas with lack of economical, geographical and public health infrastructural facilities in Nepal (2011).

M-health has also emerged as a key approach in addressing inequities in access and delivery of maternal health care across the globe. The integration of mobile health for ante-natal and newborn health services is observed to be effective in improving health literacy skill, specifically toward maternal health care (Lee et al., 2016; Noordam et al., 2011; Poorman et al., 2014; Ramachandran, 2010; Tamrat & Kachnowski, 2012; World Bank, 2012).

With increased focus on maternal health targets under the MDGs, a number of mobile phones initiatives were taken up in developing countries by policy makers and nonprofit organizations to spread maternal health awareness. Developing countries account for over two-thirds of the global mobile phone subscription and more than ninety percent of maternal deaths every year. The push initiatives were either directly to the women or toward community health workers. Among them, the largest was the Mobile Alliance for Maternal Action, an international public-private partnership with the United States Agency for International Development (USAID), Johnson and Johnson, the m-Health Alliance, the United Nations Foundation and

BabyCenter initiated in 2011. Under MAMA, free, adaptable multimedia mobile messages regarding maternal, newborn and child health were developed and disseminated to over two million women across Bangladesh, South Africa, India and Nigeria. Other initiatives in Africa include recently launched "GiftedMom"[39] (www.giftedmom.org), a mobile application that provides text messages for maternal health care, immunization, ante-natal checkup alerts, family planning information as well as real-time health tracking by connecting rural health workers and medical students with pregnant women in Cameroon. GiftedMom serves 3000 women in Cameroon and has expanded to Nigeria ("POWER," 2014). Similarly, "Zero Mothers Die" is another initiative where free mobile phones are given to pregnant women in Ghana, Gabon, Mali, Nigeria and Zambia to enable women to access maternal health-related texts.

Similar initiatives have also been explored in the United States. In 2010, the Center for Disease Control in the United States launched Text4Baby, free text-based information service to provide critical information for encouraging healthy habits and behavior among pregnant and new mothers in the United States (Evans, Abroms, Poropatich, Nielsen, & Wallace, 2012; Gazmararian, Elon, Yang, Graham, & Parker, 2014; Gazmararian, Yang, Elon, Graham, & Parker, 2012; Parker, Dmitrieva, Frolov, & Gazmararian, 2012; Poorman et al., 2014; Remick & Kendrick, 2013; U.S. Department of Health and Human Services & Health Resources and Services Administration, 2015).

From 2010-2015, over 900,000 mothers enrolled in this two-year program. An evaluation of the Text4Baby initiative by the U.S. Department of Health and Human Services and Health Resources and Service Administration showed that the text information improved health literacy about vaccination and preventive health behavior among women (2015).

[39] This is the brainchild of Alan Nteff, a young Cameroonian who won the first (British) Queen's Young Leaders Award and Anzisha prize of USD 25,000 in 2012.

Within India, similar initiatives have been launched by the government and the non-profit organizations. *E-Mamta* used to send text notifications regarding immunization dates or medicines to pregnant women (Nandakumar & Sabharwal, 2012). This model has been emulated at the national level in collaboration with the Gates Foundation, sending pre-recorded voices messages on maternal health to pregnant women (Reuters, 2015). A similar initiative was also initiated by international wireless provider, Vodafone in India[40]. Similarly, in 2011 an immunization information system was introduced in a district in Haryana to provide text notifications about immunization dates to expectant mothers and parents of children under five years of age (Dash, 2011).

Some initiatives also focus on improving health literacy, skill development and provide expert advice to community health workers and ANMs. *M-Sakhi* (Sakhi meaning a female companion) is a self-guided audio/visual tool that works on tablets or simple mobile phones storing 150 text messages, audio recordings and illustrations on ante-natal, delivery and postnatal care; breastfeeding; immunization; and nutrition in the local languages (R. Sharma, 2015). It aids health workers with limited literacy skills and training and allows them to store and track health-related information through the application and projects to improve interpersonal communication health workers and women, assisting them with scheduling ASHAs' postnatal home visits and improving both the quality and number of visits. The application is operational in Uttar Pradesh (www.msakhi.org).

[40] Vodafone Foundation supports Maternal Health Services on Mobile project that uses mobile technology to disseminate antenatal, antenatal, maternal and child health information to pregnant and lactating women in rural districts of Uttar Pradesh. This initiative, Maternal Health Services on Mobile had won the Women and Innovation for Mobile Awards 2011 (*Maternal Health Services on Mobile*, 2013).

In Melghat too, World Vision, was implementing a similar initiative in providing multi-media information for general maternal and child health care and tracking individual level immunization and health information through pre-installed software on mobile phones given to ASHA workers in 40 villages in 2013. ASHA workers were incentivized to play the application to the expecting mother. The application also stored and tracked information about the pregnant women such as expected date of delivery, immunization details, etc. These initiatives rely on the commitment of the ASHA workers and on how much women are able to absorb. The researcher had multiple informal interactions with World Vision representatives and attended their open-to-public review sessions with the participating ASHA to gain better understanding of scope, potentials and limitations of existing initiative. Most participating ASHAs gave positive testimonials on benefits of such initiatives. Among the 40 villages, two were a part of the nine sample villages.

In her dissertation, Ramachandran developed and used a mobile video maternal health awareness application for ASHAs in a chronic malnourished region of Kalahandi (KBK) in Orissa (2010). She found that introduction of mobile phones lead to health learning, self-efficacy and improved the quality of counseling provided by ASHA to the pregnant women. Mobile phones were effective, persuasive and motivational even after controlling for varied levels of literacy and prior training skills among the ASHAs (ibid). However, Ramachandran recommends that application designers must widen the target groups to include pregnant women as well as household authorities, such as mothers-in-law, in changing attitudes toward greater biomedical health care utilization (such as institutional deliveries) and incentivizing through long-term financial considerations for safe motherhood (Ramachandran, 2010; Ramachandran, Canny, Das, & Cutrell, 2010).

M-health applications attracted other numerous academic research dissertations from information management, computer sciences and health sciences discipline but hardly any from public health policy perspective (Bowman, 2009; Densmore, 2012; Diga, 2007; Hamilton, 2010; Kwami, 2010; Labbe, 2010; Lee, 2009; Martin, 2010; Matanhelia, 2010; Potnis, 2010; Ramachandran, 2010; Shrestha, 2011; Wallis, 2008).

Clearly, there is a lot of enthusiasm and optimism about ICT and mobile phone applications in governance and development. However, scholars have also been skeptical about quality of evidence and the actual impact of ICT and mobile phones toward their intended outcomes. Although evidence indicates that public service delivery has improved with the introduction of ICT and mobile phones, their economic performance and social impact warrants systematic evaluations. Some scholars criticize existing research as over-optimistic, a-theoretical work, with little empirical evidence and understanding of factors that actually determine the effectiveness of these applications and their impact on social relationships (Heeks & Bailur, 2007; Heeks & Bhatnagar, 1999; Keniston, 2002; Sooryamoorthy, Miller, & Shrum, 2008; Thomas, 2009). Keniston (2002) and Thomas (2009) believe that expectations from grassroots ICT initiatives, particularly in developing countries, are "built almost entirely on an empirical vacuum." Many initiatives remain as pilot projects because they are not feasible to be expanded or replicated successfully in other regions (Bhatnagar, 2004).

Even when it comes to m-health, there is a lack of rigorous and extensive clinical evaluations and a paucity of wide-scale impact assessments of telemedicine or m-health initiatives to establish their causal link toward improving health outcomes (Kahn et al., 2010; Kaplan, 2006; Lee et al., 2016; Noordam et al., 2011). More evidence-based studies are needed to assess the cost-effectiveness, efficacy and effectiveness of m-health interventions, including

those for maternal health (Noordam et al., 2011). Noordam, Kuepper, Stekelenburg and Milen view that current research is insufficient to conclude that ICT and mobile phone initiatives have improved health literacy or timely delivery and accessibility of medical equipment and reproductive health services toward maternal health (2011). Often, inadequate understanding of the parameter requirements and reliability of data also affects the performance of the initiatives (Agarwal & Lau, 2010). In health monitoring and telemedicine, concerns about ownership rights, confidentiality of user data, safety and reliability of service delivery, network issues such as availability, speed, bandwidth and geography have also been raised (Talip & Narayan, 2012). These concerns have only become more pertinent in today's world health apps and Fitbits. These have also necessitated a more proactive guidance from governments to ensure privacy and confidentiality of the consumers of these technologies (Noordam et al., 2011).

ICT and mobile phone initiatives in governance and development also lack an understanding of user's perspectives and contextual complexities that may constrain scalability and replicability of the projects. One of the limiting factors is the disproportionate focus on technical architectures and back-end processes to the point where the service or information is made available (Bhatnagar, 2004). For *mobile interventionist developers*, the focus is on building the application and content delivery or collection. Lesser attention is given to evaluate whether the information is actually accessed and is relevant to user (ibid). It is assumed that once the intervention is rolled out, the intended outcome can be expected. Rarely do developers factor in the importance of interaction between the mobile phone and the users, whether and how do end-users access, use or even provide information. By concentrating only on measures of usage and acceptance of a technology, the development outcomes are ignored (Ramachandran, 2010). In fact, many ICT initiatives have either been unsuccessful, have failed to reach the target audience

or the distribution of benefits has not been uniform (Bhatnagar, 2004). Because of these limitations in ownership, affordability and accessibility, the intended beneficiaries may not always be the poorest or most disadvantaged groups. Without recognizing these challenges and in absence of an attitudinal and institutional change, scaling up of the initiatives will remain a serious challenge (Walsham, 2010). Even if the implementation is feasible, one must be careful in assuming citizens will be easily able to adopt and internalize the technology to become customers (Bowman, 2009; Ciborra, 2005). Also, with a deluge of m-commerce, m-retail and m-advertising, we are nearly reaching the "saturation point" with overuse of texts and voice messaging by the private and public sector becoming spam, thus losing their effectiveness (Noordam et al., 2011).

Critiques of e-governance also argue that although digitization and technology adoption leads to proactive transparency, the architecture, relevance, content quality and their uptake can be questioned. Often citizen input and participation from rural areas is limited because they are rarely included in conceptualizing and planning these projects (Dalmia, 2009; Das, Patra, & Panda, 2011). ICT and mobile initiatives lead to greater information dissemination, presumably leading to increased transparency and incentivizing the recipients to engage and participate in self-monitoring of the system. However, research also cautions us that availability of information may be necessary but not sufficient to induce public engagement, induce accountability or reduce corruption because people need to *act* on the accessed information to compel the government to take action to yield any results (Roberts, 2006).

Another reason for their limited success is an implicit assumption of technological determinism. Technological determinism assumes that layering of ICTs in policy implementation and development is the de facto solution to all issues related to information and service delivery

(Bhatnagar, 2000; Heeks & Bhatnagar, 1999; Thomas, 2009). Technological determinism is not a new phenomenon. In the 1960s and 1970s, when management information systems were changing bureaucratic systems, technological interventions were seen as a sufficient input for change because the context was completely ignored (Thomas, 2009). Technological determinism ignores the fact that technological applications have to work in a complicated socio-economic, political, administrative and a contextual environment to be successful (Bhatnagar, 2000, 2004; Bowman, 2009; Ciborra, 2005; Kumar et al., 2010; Ramachandran, 2010; Thomas, 2009). Although academic research has been critical of ICT and mobile phone applications for more than a decade, cautioning that implementation of information systems and transfer of knowledge is a socially embedded action, contingent social-economic and political context (Avgerou, 2008), this has done little to deter the widespread application by practitioners and policy makers.

Social and contextual factors impact both the ICT initiatives and the users of the service. In a diverse and multi-lingual environment challenges such as digital divide, multiple language interfaces, cultural norms, delivery mechanisms, organizational governance structures and localized content can mitigate effectiveness ICT applications (Bertot et al., 2010; S. Sharma, 2007). In 2008, Densmore (2012) for her doctoral dissertation, designed and tested Claim Mobile, a smartphone-based data collection application intended to reduce claims processing delays and improve health facility engagement for a non-profit agency in Uganda. She had to discontinue its deployment six months later because the integration and scale-up of the technology succumbed to dynamic agency's priorities and management practices. She concluded that ICT designs must account for all stakeholders, the dynamic and changing constraints, the mutual relation and influence of such constraints with different user contexts (Densmore, 2012).

Realistically, ICT initiatives must acknowledge real-life contestations such as pre-existing infrastructure constraints (electricity or network coverage and bandwidth) and address social constraints related to gender, caste, feudalism, privilege and traditional exercises of power that influence the outcomes (Kumar et al., 2010; Kwami, 2010; Mittal et al., 2010; Thomas, 2009). ICTs projects are seldom located in an enabling environment and supported by economic policies, political will, organization and availability of trained social capital and be supported by local culture/s (ibid). In Ghana, despite efforts toward universal accessibility of the internet through setting up of community information centers, gendered differences in terms of access, use and impacts were observed (Kwami, 2010). Further, in individual communities, social networks, personal relationships and grassroots intermediaries play a significant role in the acceptance of ICT-enabled services by citizens, with acceptance and usage (Bertot et al., 2010; De Costa et al., 2010). The implementation of the technology depends on the host organizational goals or policies objectives in governance that aimed at configuring and introducing these initiatives (Bowman, 2009; Ciborra, 2005). The implementation of ICT projects needs to be performed by organizations and individuals who have the appropriate incentives to work with marginalized groups.

Therefore, technology is not a panacea of every policy implementation problem. According to Walsham, ICTs are neither 'silver bullets' for development nor completely irrelevant (2010). ICT and mobile phones can be instrumental toward development and service improvement when they are understood as a 'co-constructed phenomena,' i.e. as a relation between what the technology is and how people choose to use it and complemented with wider sociotechnical interventions (Donner, 2008; Walsham, 2010). The economic, social, cultural, political and administrative environment must be taken into account throughout the design

process, evaluation methodology, execution and sustainability of an initiative (Ramachandran, 2010).

In this spirit, the mobile phone intervention designed in this research was conceptualized, designed and implemented in cognizant of the social, cultural and economic context as well as the individual's (respondent) needs. The social, cultural and economic context has been elaborated on in Chapter three and the individual needs and preferences regarding mobile phone adoption are analyzed in Chapter six. Because this research intervention targets rural tribal women in Melghat, the gender dimension of mobile technology adoption cannot be ignored.

The following section looks at the intersections of mobile technology and gender and a theoretical approach to understand the gender-technology dynamics that could potentially influence the effectiveness of the intervention.

4.2.3 Mobile Phones and Gender

The digital revolution may have transformed social and interpersonal relationships, but it has not broken gender barriers (Balasubramanian, Thamizoli, Umar, & Kanwar, 2010). Even in the information age era, women from developing countries face a double disadvantage than the men when in poverty (Hafkin & Taggart, 2001). There are distinct patterns of mobile phone ownership, adoption and usage pattern across gender. A 2015 report on mobile gender gap in low- and middle-income countries estimates that women are fourteen percent less likely to own a mobile phone than men, creating a gender gap of 200 million fewer women than men owning mobile phones (GSMA, 2015). The disparity is worst for South Asia where the mobile ownership gap between men and women is more than 38 percent.

Research on mobile technologies suggests that wealthier, better educated males are more likely to own mobile phones (Blumenstock, 2012). In some areas, men can be three times more likely to own a mobile phone than women in low-income settings (De Costa et al., 2010). Women are also less likely to adopt mobile phones and use it for unique purposes such as access market information or taking photos, for collective organization, using voice recorder or storing data (Martin, 2010).

In the western world, a mobile phone is a private personalized item. Even in developed countries such as the United States, women from minority groups and those with limited literacy are more likely to share a cell phone (Poorman et al., 2014). Shared ownership of phones can also be a serious drawback for individual level health care interventions in the developing country as foreseen by Kaplan (2006). Shared ownership among married couples and within family members is also common because of cultural norms and economic constraints in many other communities. In Chile, ownership of a mobile phone is associated with formal employment and income, with the main reasons for non-ownership being financial constraints and no perceived use of owning or using a mobile phone. Among low income households in Chile, mobile phones are treated as a "common property," intended to be a common good of the family because of the expense associated with the mobile phone (Ureta, 2008).

With women more likely to share phones and phone use disparities being more acute with socioeconomic status, women are further marginalized from the mainstream. However, it is also argued that mobile technology by itself is neither liberating nor empowering and it does not inherently require women and men to use it differently. It is the gender ideology, political and economics context that leads men and women to access and use technologies differently (Balasubramanian et al., 2010). In Africa, research shows that although access to telephones has

many benefits for female users, it is not a solution to female poverty or gender equality (Doron & Jeffrey, 2013). If mobile interventions are aimed at pulling women out of poverty, then they should address the gender gaps by circumventing traditional and cultural norms and ensure women are able to meet their basic needs and have access to the resources (Hafkin & Taggart, 2001).

Based on my field experience, ownership and accessibility of a mobile phone, even within a house, is a symbol of control and power and simultaneously, a tool for liberation and independence. Even though women have lesser access and adoption to mobile phones than male counterparts, mobile phones have been linked to improving women's status and as medium for gender empowerment. Unlike other ICT devices, mobile phones do not require literacy or sophisticated skills that women from low income settings lack (Kahn et al., 2010; D. Lee, 2009). Mobile phones are found to be effective in inducing information behavior among women toward exploring socio-economic opportunities (Potnis, 2010). Lee in her dissertation postulates that ownership of a mobile phone is equivalent to about two to four extra years of women's education (Lee, 2009). Among many successful initiatives, *Grameen Phone* (Village Phone) in Bangladesh helped women self-help groups own and rent out mobile phones among members has been much appreciated for empowering women (Aminuzzaman et al., 2003). With access to a shared village phone, women experienced an increase in their income and renewed status and social image in the villages. Rural women found mobile phones as an accessible medium for empowerment in poor resource settings (Balasubramanian et al., 2010).

Mobile phones also provide autonomy in mobility and economic independence to women and in renegotiating their social spaces. With stronger communication, women strengthened their social networks and built personal relationships. In China, young migrant women used mobile

phones to negotiate their identity, associate modern notions of femininity and maneuver their way in the consumer society (Wallis, 2008). In West Bengal in India, rural women used mobile phones to expand their social network to a wide circle of connections in search for suitable brides and grooms, giving them greater control in marriage negotiations (Tenhunen, 2008). Mobile phone ownership was also associated with lesser tolerance toward domestic violence among men and women in India (Kahn et al., 2010; D. Lee, 2009).

However, mobile phones also have a "dark" side, as they have been also a "disruptive technology," leading to conflicts and friction. Mobile phones may have been transformative in bringing a process of social and cultural cohesion and even "homogenization of social logistics" (Tenhunen, 2008) but they have also tested gender relations and household dynamics in many societies. In today's world, information is the "real power" and controlling (devices of) information is a way of reinforcing power structures of control (Doron & Jeffrey, 2013). This is a fascinating space for anthropologist and sociologists, examining how the introduction and current widespread use of the mobile phone have altered daily life and relationships. Wallis observed that although mobile phones expand social networks and intimacy for young Chinese women, the phones were also a controlling and disciplinary device by the women's employers leading to selective exclusion (2008).

The relationship between phone, the community and the individual has become complicated in many communities including India. Doron and Jeffery (2013) explored this complex relationship within the Indian context viewing how affordable mobile phones have become "disruptive" devices within the reach of the poor and women in the society. By the virtue of being small, discrete and easily concealable devices, mobile phones encourage personal, social and intimate relationships particularly among youth, which were earlier neither

easily possible nor encouraged in a traditional conservative Indian society. Privacy was a rare privilege in Indian families, affecting courtship practices, marriage relations and kinship ties. Mobile phones changed and challenged the traditional institutions of authority that reinforced the traditional gender roles (Doron & Jeffrey, 2013, p. 166).

The dynamics are equally complex with the inclusion of mobile phones as one enters into a rural or semi-urban household. Mobile phones have actually questioned the ideas, practices and social norms relating to ownership, gender and household economy. Mobile phone ownership sparked jealousy and rivalry in relations among individuals (Doron & Jeffrey, 2013). Wives owning the mobile phones was empowering as well as an indication of their domination over their husbands, often leading to restrictions on accessibility and use of mobile phones by their partners (Diga, 2007; Doron & Jeffrey, 2013). Men exercised their control over household mobile phones by purchasing recharge cards for prepaid phones at their own discretion.

Doron and Jeffery also observed that mobile phones further exacerbating the power conflict between a mother-in-law and daughter-in-law in the Indian communities. By facilitating natal ties, the (household shared) mobile phone was a valued possession for newly married women trying to find their way in the new conjugal setting. But this also warranted careful management of the unsupervised phone with a young bride by men and older women. The household mobile phone, unlike the one exclusively belonging to the male members, were carefully guarded and not considered private possession of young female members. Conversations over mobile phone by young brides were conducted in the open household spaces and under the supervision of family elders. Doron and Jeffery observed that mobile phones were controlled by the mother-in-law even if it belonged to their son. However, unlike the household mobile, the men's personal mobile phones were more likely to have long contact lists, songs,

video clips and screen savers and their handsets and secured with passwords to protect their privacy.

I saw a U-shaped relation with a woman's right to use the mobile phone and her relative position in the household hierarchy at different stages of their life, as alluded to by Doron and Jeffery. During my fieldwork, I saw young girls and boys and unmarried women equally playing with mobile phones belonging to their parents, sibling or relatives in the house. Children fiddling with mobile phones, switching ringtones, playing games or music or clicking pictures at the threshold of a household in a village was not an uncommon sight. Simultaneously, older women with school-aged children and mothers-in-law were more often carrying mobile phones than young newly married women. The few exceptions among young wives owning mobile phones or using shared mobile phones were those who either had a middle school education, had some form of employment or where living separately with their husbands. A woman's access to a mobile phone was the lowest when she was newly-wed and moved to her new home. Slowly, over time as she regained her status in the family and became a mother, she would regain her access to the mobile phone.

There has also been a social backlash against mobile phones in the Indian society. Mobile phones have been blamed for an increase in inter-caste marriages, courtships and even linked to increase in incidences of female molestation and rapes (Jaiswal, 2015; PTI, 2015). Consequently, women, especially younger women, are increasingly banned from owning or using mobile phones in many villages across Gujarat, Uttar Pradesh, Haryana, Bihar and Rajasthan (Dave, 2016; Deswal, 2011; WITF Staff, 2015). These diktats may seem erratic but the "love-hate relationship" between mobile phones and society, but they are actually symptomatic of the

society's attempt to reinforce gender ideologies on "neutral and liberating" technologies, such as the mobile phone.

This has a very significant bearing on this research intervention and similar initiatives rolled out by the government aimed at reaching out to young women through mobile phones. We can keep sending texts and voice messages, but do they actually reach the intended target—women in the rural landscapes?

This is an interesting paradox. The device seen as instrumental in increasing women's independence, providing employment and financial autonomy, empowering her in social relationships and even women's safety, is also blamed for endangering the same women. While the government is launching mobile applications for reaching out to rural women for maternal health awareness (among other numerous initiatives) and even mandating a "panic button in the mobile phones" at the national level to address women's safety (Gowen, 2016), women at the same time are barred from owing or using the mobile phones. The digital and mobile inclusion wave in India is selectively excluding women from riding the same wave. Mobile phones have become the universal "cause" and "solution" to almost all social, economic and governance problems. For research scholars, that is a classic case of endogeneity!

Global mobile phone initiatives for maternal health awareness have been cognizant of these gender dynamics. During a webinar hosted by the Harvard Chan School of Public Health on February 26, 2015, I posed a question to Kirsten Gannaire, Executive Director of MAMA on the gender dynamics limiting maternal health awareness and policy awareness through mobile phones and their strategies for possible solutions. She responded that MAMA tried to engage with not only mothers, but also men and fathers to sensitize them about women's reproductive health and rights. This is a step in the right direction because interventions should consider

expansion to include other members of the households because women's reproductive decisions are anything but personal.

Thus, understanding how social norms shape mobile technology adopting becomes critical in making it help women claim their maternal health benefits policy entitlements. Gender-technology relationship within a household, family or at an individual level can also be understood through the domestication of technology framework proposed by Silverstone, Hirsch and Morley (1992). This framework proposes four elements: appropriation, objectification, incorporation and conversion. Appropriation refers to the ability to access and own the technology, which implies access and ownership of mobile phones for this research.

Objectification reflects to the use of resources within the household, how is the mobile phone used and by whom. Thus, the baseline survey looks at women's familiarity in using the mobile phones—saving contacts, reading and sending text messages, average expenditure on purchasing talk time.

Incorporation refers to how the technological objects are integrated and have an impact on the power relations within the household. Conversion implies eventual changing of the power relationships between the individual, household and its social environment because of the use of technology. From the policy implementation within this dissertation research's perspective, incorporation and conversion would reflect how information made available through mobile phones is absorbed by the women and members of the households and 'converted to action' in attempting to claim the benefit. Any increase in receipt of benefits would imply an improvement in policy implementation and effectiveness. Information is the first step toward empowerment. People may be empowered when they are informed, information may make them capable enough to be inquisitive and question the authorities about their inefficiencies in implementation. I say

"may" because information can be seen as a necessary condition, but may not be sufficient because other factors such as local, structural, social, cultural and economic factors can restrain public action. Only if all conditions are conducive, will people be able to mobilize for collective action, leading to community development.

This implies the overall research question in this dissertation should be two-pronged, first, it should aim to understand the effectiveness of mobile phones as an instrument of information dissemination as a standalone and then follow the causal path how far the information disseminated was successful in increasing claiming of the benefits. This bifurcation ensures that I evaluate the medium of information separately from the flow and content of the information toward the impact on the beneficiaries' claiming of the policy benefits.

Thus, the research question, "Does policy information and awareness through mobile phones affect claiming of maternal health policy benefits? If so, then to what extent?" encompasses two research propositions:

a. Mobile phones are an effective medium to increase policy information and awareness
b. Increase in policy awareness leads to claiming of benefits under maternal health benefit policies

These research propositions are evaluated and analyzed in Chapter five, which begins with a discussion on the results of the baseline study—the presence and opportunity of using mobile phones to disseminate information about different maternal health benefit policies. It elaborates on the designing and rolling out of audio broadcasts to women's mobile phones and then follow up interviews with them to trace if they received and acted upon the information

received. On the other hand, Chapter six delves deeper into relevance and the effectiveness of the four maternal health awareness policies.

Chapter 5. Baseline Survey and the Mobile Phone Intervention

Introduction

This chapter presents findings from the baseline survey and broadcasting of audio messages through mobile phones for maternal health benefits policy in Melghat. The first section summarizes the economic and demographic background of the 82[41] women respondents who participated in the baseline survey. Maternal health and policy awareness has been low in Melghat too even with different IEC methods in place (Patil, 2009). The survey assessed women's initial level of maternal health benefit policy awareness, their perceptions and previous experiences in accessing public health care and benefits from maternal health policies[42]. In the second section, I focus on the feasibility of mobile phones as a medium of information dissemination by examining their prevalence, ownership and accessibility to the women respondents from the baseline survey results. I then discuss the process, challenges and outcomes of designing and broadcasting of the audio messages regarding maternal health benefit policies in the third section. In the fourth section, I highlight reasons for low rate of receipt and communication of the messages and reasons why the broadcasts did not lead to any significant changes in the information awareness level. In cases where women or their family members

[41] 84 women registered their pregnancy in these villages. One woman had a miscarriage before the baseline survey and was excluded. Another woman declined to participate in the baseline survey and the subsequent mobile phone intervention. For women who had unsuccessful pregnancies, miscarriage or infant mortality after the baseline survey interview was conducted, they were removed from the mobile phone broadcast list, but their survey interviews were still included in the analysis.

[42] As mentioned in Chapter 1, there are four maternal health benefits policies where JSY provides Rs 700 (USD 11.5) or Rs 500 (USD 8.2) for institutional and home delivery respectively, IGMSY provides Rs 4000 (USD 65.6), MAY provides Rs 400 (USD 6.6) and JSSK provides free medical services. These are discussed in detail in Chapter 6.

received the information, I elaborate on the action they took, if at all, based on the information and why their efforts were insufficient to improve their claiming on the benefits.

5.1 Results from the Baseline Survey

5.1.1 Economic and Demographic Background of the Respondents

As mentioned in Chapter two on research methodology, 82 pregnant women from nine villages participated in the baseline survey and the mobile phone intervention. The baseline survey captured the demographic and economic background of the enrolled women. Existing research showed that age, education, autonomy, birth order, social background and income levels were some of the factors that influenced women's preferences for place of delivery and decision to access public health care in general, including in rural India (Kesterton et al., 2010; Thaddeus & Maine, 1994; Thind et al., 2008). Scholars have stressed the need for contextualized studies and focused efforts toward improving IEC among women and their households about maternal health and related policy benefits (Falcao et al., 2015; Griffiths & Stephenson, 2001; Khatib et al., 2009; Singh, Rai, & Singh, 2012; Srivastava, Sanyal, Rao, & Chakraborty, 2007; Sunil et al., 2006; Vikram et al., 2013; Vora et al., 2009). Hence, a semi-structured survey, with both quantitative and qualitative questions was used to capture the above characteristics among the respondents.

As anticipated, the majority of female respondents were Korkus, 72 out of 82 (88 percent), and categorized as STs. Of the remaining respondents, nine belonged to SC and OBC[43]

[43] Note: SC women are not eligible for MAY cash incentive. An APL non SC/ST woman would not be eligible for JSY or MAY. For more on eligibility criteria in the policies, see chapter 6.

and one belonged to the general category[44]. Most respondents also belonged to Below Poverty Line households (BPL), with 59 having BPL cards (72 percent) and 17 (21 percent) with APL cards. The remaining six women did not have either BPL/APL cards[45]. The economic condition of the households was meagre. Main sources of income included unskilled casual work, owned agricultural land and income from cultivation and in a few cases, regular non-agricultural (self) employment among the families[46]. Women were mainly aware of only their husband's income and not the aggregate household income, including income from all other members and other sources[47]. More than 64[48] (78 percent) families relied on casual unskilled work either as a main source of income or in supplementing agricultural income. For 50 families (61 percent), casual work is the main source of income, earning an average of Rs 170 (USD 2.8) per day per family. With limited employment opportunities in the rural areas, seasonal out migration among the men and sometimes for women, was common. On the other hand, in only eight families, men were engaged in regular non-agricultural employment earning approximately Rs 436 (USD 7.1) per day per family. Nearly half of the female respondents continued to work during their

[44] She was a school teacher at a village high school. This was her first pregnancy. In many ways, her education qualifications, income level, awareness and preferences toward biomedical health care made her an outlier in the sample, but with not her experience with the bureaucracy.

[45] Households are issued different types of Below-Poverty-Line (BPL) or Above Poverty Line (APL) cards by the governments to be eligible for subsidized or free food grains and cooking fuel under the Public Distribution System (PDS). This is a key document of eligibility proof for numerous other federal and state social welfare policies for the households. Often when a couple decides to live separately from a joint family, it applies for a new BPL/APL card. There has been a shortage and lag in issuing PDS cards by the government.

[46] I use the term family to denote the nuclear family of the respondent, i.e., the couple and their own children. On the other hand, the term household or joint family is used to denote all people living together, including the respondent's nuclear family, parents or in-laws, grandparents or any other relatives (often brothers-in-law or sisters-in-law with their own families). In India, a household is defined by the common kitchen method.

[47] This was self-reported income by the women. Often because of irregularity in availability of casual labor work, incomes are fluctuating; hence, women were able to only provide an estimate. The estimates were converted as a daily wage rate. If the employment (and the income) was fixed and regular, it was still calculated on a per day basis. As mentioned in the text, there was a possibility of under reporting because many women were not aware of their husband's exact income.

[48] 51 families relied heavily on casual work, whereas the remaining thirteen families depended on a combination of agricultural income and wages from casual unskilled work

pregnancy[49]. Although many women stopped working during pregnancy (especially if it was their first pregnancy), working until the last trimester or even childbirth was not uncommon[50]. Some women also mentioned that they or their mothers-in-law would work at brick kilns for 2 to 3 months in the summer, when there was no agricultural work. Clearly such hardships, with responsibility of household duties and inadequate nutrition, could endanger the health and safety of woman and the child[51].

Another reason for dependence on casual work was the small size of agricultural land holdings jointly owned by the entire household. Income from agriculture was not only insufficient but also fluctuated due to monsoon uncertainties for irrigation[52]. Within the sample, 48 women (59 percent) reported they were landless, whereas for the rest, the size of agricultural landholding varied between 1-8 acres jointly owned by the households.

The rural literacy rate for Amravati district was 82 percent among men and 72 percent among women and it was lowest for the Chikaldhara block (73 percent and 57 percent respectively)[53]. Even with looking at years of education, most respondents were school drop outs with an average of only 6.5 years of education among women and 8 years of education for

[49] Of these, three had regular employment, one was the school teacher, another was an ASHA in a village and a third ran the infant crèche in her village

[50] One respondent shared her story that last year; she had been working at the agricultural land and went into labor and delivered the child in the farm itself. There were at least three more respondents with whom I had difficulty following up with the interviews because they were always working on the fields, especially during peak season or harvest time. This is also one of the reasons women miss their antenatal checkups in the villages if the ANM team does not reach the village early in the day.

[51] During the second day of my baseline research in March, I went to a village where a woman had just had a spontaneous abortion/miscarriage the day before. I had actually gone to interview her. The ASHA supervisor did not allow me to meet her, saying it would be too much for me to see so soon. During the follow up, the supervisor mentioned that she had the abortion because of exhaustion due to housework. Being an interior village, the ANM had not visited her yet.

[52] There was a shortage of rainfall and droughts in the state for more than three years in a row. Farmer suicide in the Vidharbha region (which includes Amravati District) in Maharashtra State is a chronic issue.

[53] Source: Census 2011 data, Amravati District Website, amravati.nic.in accessed on May 31, 2016

men[54]. Literacy affects women's autonomy to take decisions, including her decisions related to reproductive choices (Vora et al., 2009). Women living in joint households have little autonomy in decisions regarding their fertility. Around 60 out of 82 women (72 percent), were living with their parents-in-law, while seven (10 percent) of the women were at their parent's place[55] and only fifteen women (18 percent) were living separately with families at the time of the baseline survey. When living in a joint household, women were more likely to be willing to have more children for want of at least one or two sons because of family pressure[56]. They were also less likely to have a say in preference for accessing medical care or have a choice for place of delivery. I used the following four indicators to assess the respondents' relative autonomy and independence in the house. These were:

- flexibility to use the mobile phone in the household
- whether the respondent can travel alone to markets or other places outside the village
- if the respondent has access to family income and how to spend it
- whether the respondent has the authority to choose her place of delivery.

On a scale of 0 to 4, with 0 being "no" to all of the above indicators and the least amount of autonomy, to 4 implying "yes" to all of the above and implying the most autonomy, it was found that the mean value was 0.8[57] among the respondents. Women were least allowed to travel on their own outside the village, with only three women saying they were used to going to markets or the town on her own. All others either are not allowed to go outside the village or

[54] I excluded the education level of the teacher for this indicator because she is not a Korku. She had completed a post graduate diploma. She is included in other measures.
[55] As mentioned earlier, women are likely to visit their parents place for childbirth.
[56] In some instances, respondents and their families felt that the existing male child "should at least have a brother."
[57] 37 women achieving a 0, 31 scoring a 1, nine women scoring a 2, the remaining five scoring a 3.

must be accompanied by her husband or a male member of the family. Six out of 82 women felt they would have some say in the decision-making authority for the place of delivery. Also, similar to what was found in the literature review, women did not have access to their husband's income because all or part of the income[58] would be given to either the mother-in-law or the female head of the household. This has implications for conditional cash policies' uptake because the policies require women to be able to travel to the town to open and operate bank accounts and deposit checks. Bank transfers are made to ensure women retain control of her entitlements, but as per the household norm, she too may be expected to turn in her cash entitlement to the female head of the household.

5.1.2 Maternal Health Preferences and Policy Awareness

Consistent with the literature review, most Korku women in my sample married early. Their average age at the time of the baseline survey was 21[59] years and ranged between 17-30[60] years in the sample. Out of these, 24 women (29 percent) were primigravida[61] and aged between 17-24 years. Out of these, eleven (13 percent of the sample) were age 19 or less[62]. For multigravida[63] women, 31 women (38 percent) had had at least one childbirth at home and 25

[58] Some women mentioned that the husband gave some portion of the income to the respondent and the rest to the female head of the household.
[59] This is the self-reported age, in cases where the respondents did not know their own age, I was referred to ASHA/ANM upon their consent.
[60] The oldest pregnant woman was aged 30. This was her second marriage. She had children from a previous marriage and had contracted copper T. She complained that it led to infections and she could not even walk. Hence she had it removed and was now pregnant for the third time. After her, two women were 25 years of age, one was the ASHA with her fourth pregnancy and another respondent with her fifth pregnancy.
[61] Pregnant for the first time. Some women may have chosen not to disclose any previous unsuccessful pregnancies.
[62] JSY and IGMSY had a minimum age condition for 19 years; hence, they might have been ineligible. For more details, see Chapter 6.
[63] Multigravida: a woman who is or has been pregnant for at least a second time.

women (32 percent) had all previous deliveries at a public health care institution. Among those with at least one institutional delivery, the most preferred place of childbirth was the sub-center followed by the Sub-District Hospital at Achalpur[64], the nearby administrative block, followed by the public health care institutions (Government District Hospital or Government Women and Child Specialty Hospital at the district headquarters, Amravati). Most women could recall getting at least one ante-natal checkup done during their previous pregnancy. Among these women, eleven (13 percent) mentioned complications in their previous pregnancies. One woman had spent Rs 60,000 (USD 984.6) at a private health care facility and mentioned incurring out-of-pocket expenditures for her previous delivery. In case of home delivery, when assisted by the local *dai,* families had paid the *dai* around Rs 500 (USD 8.2) as a fee, along with clothes, bangles or alcohol as per the tradition for her services[65]

Among all 82 women, 43 (52 percent) expressed sub-center as their preference for the current pregnancy, while 25 (30) preferred to deliver at home. The rest (18 percent) were ambivalent, stating that either they would decide at the time of labor or would try delivering at home and go to the hospital if there was a complication. Women living in joint families, especially younger women, preferred to deliver at home because they felt scared of going to a medical facility (sub-center, PHC or any other) and felt 'safer' among other female household members who assist during childbirth. Conversely, women who were living alone were more

[64] This was an interesting finding. This cluster of nine villages is located on the south of the PHC overseeing them. Now, the district headquarter is to the south of this cluster, implying that the PHC and Rural Hospital at Chikaldhara is in the opposite direction of the district headquarters, Amravati. Hence, to prevent loss of time in case of referrals, women are directly referred to the Sub-District Hospital at the neighboring block, Achalpur, which was enroute to district headquarters. Also, staff absenteeism is common at the sampled PHC and with a bigger hospital nearby, ANM's and ASHA preferred to take women directly to Achalpur. Hence, PHC remains underutilized by this cluster. This implies it is not only the distance but also the relative location of the medical facility that matters.

[65] For a discussion of importance and relevance of *dai* in the Korku community, see Chapter 3 on cultural context.

likely to go to the sub-center/clinic for their delivery because they did not have any help at home. Almost all women did not know their dates of conception or their estimated date of delivery. They were only aware of the month of pregnancy. All pregnant women were registered with the AWW and ASHA/ANM. However, most women were given not their immunization records, IGMSY registration cards, or JSSK enrollment cards[66]. Although women admitted going for an ante-natal checkup once a month, they did not know the scheduled dates and were called out by the ASHA or the ASHA supervisor when the ANM and her team arrived in the village[67].

Women had a very low level of self-health awareness and knowledge of maternal health care benefit policies. Multigravida women could recall numerous amounts for cash received during their earlier pregnancies such as Rs 400 (USD 6.6), Rs 500 (USD 8.2), Rs 700 (USD 11.5), Rs 1500 (USD 24.6), Rs 4000 (USD 65.6) or some combination thereof[68]. They could recall only the amount of cash transfer received in the past without knowledge of policy names or the eligibility conditions, provisions, or how or when they received incentives in the ongoing pregnancy. If at all, only a few could justify the entitlement because they went to the *davakhana* (medical facility or a clinic) but could not differentiate between the different payments. A 46-point scale index was used to ascertain female respondents' initial level of awareness of the various policy provisions and entitlements[69]. Thirty-three women (40 percent) received a score

[66] As per the maternal health benefits policies, all pregnant women should be given a copy for their immunization records (called Mother and Child Protection Card) by the ANM in case they migrate or are referred to a medical institute. This is an eligibility requirement under IGMSY (see Chapter 6). They should also have enrollment/registration cards for IGMSY and JSSK policies too, if they are registered under them. During interviews, ANMs admitted not giving them the immunization records alleging that the women 'are careless and lose the records.'

[67] Ideally, there are fixed days for ANM visits and antenatal checkups for every village that ANM and the medical teams should follow. But that rarely happens. Often ANMs schedules depend on when the vaccination stock arrives at the PHC and they try to cover nearby villages together in the same day instead of spending one whole day per village.

[68] At times, they would remember the aggregate amount not the individual entitlements.

[69] See Question Baseline questionnaire in Annex.

of "0," implying no awareness about the policies with the highest score of thirteen out of 46 by the ASHA in the sample. Another 26 women (31 percent, the highest number among all provisions) knew about the IGMSY Rs 4000 (USD 65.6) cash incentives followed by 23 women (28 percent) who knew they are eligible for the free transportation or ambulance[70].

Low policy awareness reflected poor IEC strategies of the government and non-profit organizations including wall paintings[71], mass media initiatives (such as television[72], radio or interactive street plays) and door to door counseling by ASHAs, as well as regular counseling workshops organized by the AWW and ANM. Women were also asked to list different sources of information other than community workers; television was a popular choice. When asked to identify five people women would approach for any questions on pregnancy, 78 percent of the women preferred family members[73] over the community workers.[74] I also asked women to recall the kind of information or counseling done by the community workers. ASHA and the ASHA supervisor focused on general health, such as proper meals and adequate rest, whereas ANMs focused on immunizations and institutional delivery. In counseling regarding maternal benefit policy awareness, the information shared was limited to the IGMSY cash incentive and the need to open a bank account for it.

[70] This does not necessarily mean they were not receiving benefits. Women are going to antenatal checkups, receiving multivitamin supplements and received cash entitlements in the past. However, they are not aware these incentives are through the four policies. This lack of awareness makes them feel that policies are irrelevant and lowers their perception of these policies.
[71] Wall paintings were often in Marathi, the official state language, which many respondents were not conversant in. Even when the wall paintings were in Hindi, the national language Korkus knew, the vocabulary was technical and terse. On the other hand, World Vision had circulated a monthly wall calendar about maternal health and policies, but it was in English. Some women had the calendar in their house but were unable to read it.
[72] Television had limited impact. There was a television spot highlighting five key points for maternal health by popular Bollywood actor Amir Khan during 2013. Some women were able to recall the content of the TV spot.
[73] Mothers, mothers-in-law, neighbors.
[74] ASHAs, the ASHA supervisor, ANMs, AWWs. A very few mentioned sub-center or PHC, only those who lived closest to the PHC.

Consequently, respondents had limited understanding of benefits of such policies and were not able to articulate the benefits of either conditional cash transfer. 36 women (44 percent) did not think the policies were beneficial. Others, nearly the same proportion (33 women) felt public health care (for institutional delivery) was important because institutional delivery would ensure safety of the mother and child. Only eleven (8 percent) women viewed cash transfers as one of the benefits of the policies.

This also revealed a weak link between the cash incentive policies and public health care utilization, especially with JSY providing cash incentive for institutional delivery. Out of 82, 38 percent of the women had at least one previous institutional delivery and nearly 52 percent preferred accessing public health care as a place for delivery for their current pregnancy, but only eight percent viewed that the cash benefit was useful. Of those who were multigravida and eligible for JSY, had received cash incentive without knowing about it. Hence, the cash incentive was the consequence of the institutional delivery and not the reason or the incentive to access public health care as prescribed as the cash conditional policy.

Thus, either the women did not know about the cash incentive being linked to institutional delivery or that cash was not the main reason for opting for public health care. During the qualitative follow up, different hypothetical scenarios were also discussed. For instance, would women change their preferred place of delivery if the cash incentive amount was increased or completely withdrawn? Most respondents did not waver from their initial preference

and said if they preferred public health care, it was because of the medical treatment and not because of the money[75].

5.2 Mobile Phones as a Medium of Information Awareness

With the shortcomings in the existing IEC methods, there was an opportunity for a new, more personal medium—the mobile phone—to be tried in increasing information awareness about maternal health benefit policies. As mentioned in Chapter four, mobile phones were extensively used in m-health and specifically, maternal health awareness, but not used for policy specific information dissemination. This made these mobile phone audio broadcasts in this research unique. In the next section, I assess the ownership, accessibility and usability of the mobile phones by the respondent women to evaluate the first research proposition, that 'mobile phones are an effective medium to increase policy information and awareness.'

5.2.1 Mobile Phones as a Medium of Communication

5.2.1a Ubiquity of mobile phones

At first, mobile phones appeared to be omnipresent, but with deficiencies in network coverage and systemic patterns of ownership, accessibility and usability of mobile phones across gender emerged during the research intervention. Both Code Division Multiple Access (CDMA)

[75] However, their responses did not completely match their observed behavior. Although they may view the JSY (USD 8.2 or USD 11.5 for home and institutional delivery) as insignificant, but upon knowing about IGMSY (USD 65.6), the families seemed interested in getting the entitlement. This probably hints toward a possible minimum threshold of cash incentive that could be attractive and hence, attractive to the households.

and Global System for Mobile Communication (GSM) phones were used in the region. CDMA phones have a broader network coverage but do not offer flexibility of number portability in the mobile handset[76]. In this research cluster sample, only one village had complete coverage; in five villages, the network coverage was partial; and there was no network coverage in three villages[77]. In every village, people knew a certain area or location where the mobile network would be the strongest. Ramachandran called such locations as 'hello points' (Ramachandran, 2010). This implied that villagers could make calls at their convenience but they might not receive calls all the time. People did not mind the patchy network coverage because they carried mobile phones to the town or to work in the fields where they could receive or make calls. However, this limitation substantially reduced the percentage of maternal health benefit policy broadcast calls because many mobile phones were out of coverage at the time of the call[78]. In addition, if women preferred to receive the call in the evening when the men were back from work, the women did not know there may be no network coverage in their own house. Women who did not own the phone were comfortable if someone else received the call and communicated the message to them. However, in almost all cases where women had referred someone else's mobile phone, including her husband, the messages were not communicated to her, even if they were received.

[76] This implies that the user cannot remove or change the SIM card from the handset.
[77] The network coverage also varied according to the network provider. For instance, in some villages, Vodafone would have coverage, whereas in another it would be Reliance Idea or BSNL (mobile service providers) that had the coverage.
[78] This also posed difficulty in contacting the selected PHC because mobile phones of the medical officers in charge would be unreachable and the landline would invariably be out of order.

5.2.1b Ownership, accessibility and usability

The second pattern that emerged was about mobile phone ownership and accessibility among the pregnant women. First, only five out of 82 women (six percent) reported owning a mobile phone, including two respondents, the ASHA and the school teacher. For the remaining respondents, the closest accessible mobile phone was owned either by their husbands, brothers-in-law or another male member of the household. Many respondents did not even know the phone numbers of the mobile phones owned by their household members[79]. In many instances when mobile phones were shared, the respondent's husband, his brother or father, or whomever is going out of the home, would take the phone with them. This shared ownership further limited the accessibility of the phone. In such cases, neither the privacy of the information in the audio messages nor the communication of the message to the women could be guaranteed. If there was no mobile phone in the household, women identified the nearest relative or neighbor in the village with a mobile phone number who would communicate the content of the messages to her. Women were also less familiar or comfortable using mobile handsets[80]. Unless they owned the phone or were allowed to use the shared phone in the household freely, their usability of the mobile phone was limited to 'the green button and the red button.' This coupled with low literacy were the reasons women preferred voice messages over text messages, although some mentioned that a text message in addition to voice message would help save the information for future use. When asked for their preferences in language, they preferred Hindi and Korku over

[79] Some had scribbled the phone numbers on the wall, while one had it etched on a keychain stub. In other cases, if they had to make a call, they would ask another male neighbor to call their husband. Men in the village were likely to know everyone else's mobile numbers in the village.

[80] For one respondent, her husband had given her a mobile number for home, she kept the phone packed in the box as new and had never even switched it on.

Marathi. Respondents also felt that home visits and giving simple written material on the policies would be an alternate if mobile phones did not work.

5.3. Designing and Broadcasting the Audio Messages

5.3.1 Test Survey in May 2013

As per the baseline survey, women did not know the dates when ANM and her team would visit their village for ante-natal checkup and vaccinations, even though there were days fixed for every village. This was simple information that could be obtained by the ANM and communicated to the women so they could attend ante-natal checkups. A test broadcast was rolled out by asking the two ANMs of the sub-centers to provide their schedule and sending a bilingual audio broadcast notifying the women a day before the scheduled checkups for each village. As a test case, this was conducted in two villages.

In both cases, a limited number of women received the voice broadcast but turned up for the checkup. However, in both villages the ANM and their staff did not come as scheduled. Women who came to the AWC for their ante-natal checkups after listening to the audio-broadcasts had to turn back when the checkup was cancelled unannounced. The irregularity in scheduling immunization camps by the health officials was a regular pattern and posed a serious problem[81]. Hence, for later broadcasts, information was limited to health policy information-name, overall objective, eligibility conditions, entitlements and reference to public health official for further queries.

[81] When a community health worker shared her daily register, she confessed that even though they did not follow the schedule, they registered their visits in the register as per the scheduled dates.

5.4 Maternal Health Benefit Policy Awareness Messages

After initial pretesting in May 2013, short bilingual messages in Hindi and Korku language were audio-recorded and broadcasted biweekly using a commercial web application, awaaz.de ("to call out"). The women were asked if they received the broadcasts and if they could recall the content of the messages. I also enquired if they or any other family member took any action based on the information received and whether the action helped them in claiming their maternal benefits.

The content and voice recording for messages were done by the ASHA supervisor (with my assistance). As mentioned in Chapter two, when there were instances of disagreement over the content of the voice messages, the final decision on the content was made by the ASHA supervisor. One such instance was about mentioning specifically in the broadcasts that IGMSY was not conditional on institutional delivery. However, the ASHA supervisor and a few AWW felt that stating this explicitly would discourage women from opting for institutional delivery. This was construed as a miscommunication and is further discussed in Chapter six.

Instances were also observed when the broadcasted call was received and listened to, but the information was not communicated to the pregnant women. In one case, the husband of a respondent heard all the broadcasted messages, but did not communicate them to his wife. Instead, he chose to discuss the messages with his mother, the respondent's mother-in-law. The respondent overheard the two conversing and recalled that *"he had received messages in the Korku language and told his mother that his wife will get money for her pregnancy.*[82]*"* Gendered ownership of the mobile phones also emerged as the strong barrier to communication and

[82] In another instance, regarding the ASHA who was pregnant and owned a mobile phone, for one audio broadcast, her phone was with her brother-in-law who not only listened to the entire audio message but also dialed back to the system to hear it again three times, yet did not inform the ASHA.

information awareness. However, it was not a completely male-female ownership divide. The only exception to male members owning and using the mobile phones were the female heads of the household, most commonly, the mothers-in-law of the respondents. In the Korku tribe, as in most households, mothers-in-law have a stronghold on all affairs of the household. A similar trend was also observed by Doron and Jeffrey in their anthropological research (2013). I observed at least one instance where the mother-in-law picked up and heard the voice messages about the policies. But in this case too, information was not communicated to the respondent. During participant observation, the mother-in-law initially stated not receiving any call but eventually boasted, *"I know everything, the government is supposed to send us the ambulance and give free treatment, I got a call on the mobile phone, I heard and understood everything."* The findings indicate that policy information was received by the household member and increased the household's awareness of the entitlements, even if they may chose not communicate it to the respondent. It is more likely that the information was internalized.

However, despite the challenges and limitations, information disseminated through mobile phones triggered reactions and limited public engagement such as queries, proactive action and demand for maternal health benefits, which had not happened with earlier IEC media. Two women who owned the mobile phones, listened and recalled the policy benefits. One of them[83] inquired about the IGMSY cash benefit with the ASHA and AWW after each broadcast. The ASHA was "fed up"[84] with the woman and clarified that the calls were just informational and the cash incentive would come only when the funds are released from the higher authorities. In two other cases, it was the husbands of the respondents who heard the broadcasts. Although,

[83] The second woman did not take any action because her mother-in-law worked as the ASHA in their neighboring village and the respondent felt her mother-in-law knew and would follow up on the policy benefits.
[84] The ASHA complained to me that the messages were becoming annoying because this respondent woman would come asking for money when the ASHA did not have any.

the husbands did not communicate the message to the women, they themselves took proactive action. The first person made inquiries with the ASHA supervisor and asked me further questions about the maternal health care benefits. The second individual made trips to the nearby town to get a bank account application for his wife to get the enrollment process started. He also inquired about the ambulance helpline numbers and other contact details. The ASHA supervisor reported that members of the respondent families had inquired for additional information or clarifications about the messages.

Thus, the information through mobile phones served multiple purposes. Besides providing individual level information at their convenience, it made the male members of the family aware and interested in maternal health policy benefits, even if only for the cash incentives. ASHAs and their supervisor felt such a system in the long run might be more helpful because with multiple and regular broadcasts, the messages could supplement their daily "rounds."

However, the intervention also exposed that information dissemination only was not sufficient. Another woman, who did not own a mobile phone but had access to a household shared phone, had listened to the messages and recalled that she should get Rs 4000[85] (USD 65.6) and should ask the ANM for more information. On the other hand, the ANM had just told her about the Rs 500 (USD 8.2) bank check[86]. She had gone ahead and opened a bank account for the IGMSY policy cash incentive. Months had passed since her childbirth, but neither the cash incentive nor the JSY check had arrived. In the follow up interview, she remarked that having information was useless if they don't get the benefits[87]. Women who made inquiries also

[85] IGMSY benefit.
[86] She had her childbirth at home.
[87] "*Mahiti ka kya fayada agar paisa nahi mila"* What is the use of the information if (we) don't get the money?

felt helpless because they had no choice but to wait for the claims to be disbursed in their own time. For instance, there was one respondent, who although she did not hear any of the broadcasts, knew she had not been paid full entitlements for her previous children. Her first two childbirths were at the PHC and the third was a home delivery. She claimed to have been paid only once Rs 500 (USD 8.2) in cash. She also alleged that the ANM had asked her to pay for multivitamin capsules (Rs 100 or USD 1.6) and no one had come to visit her. She had made inquiries with the ASHA supervisor and other officials but in vain. Because her children were old and I did not have access to records before 2011, her claim could not be verified.

Thus, the increase in engagement was limited to a small number of cases and, despite the engagement, informational awareness did not lead to any increase in actual claiming of the benefits. This was because even when respondents and their families were made aware of the information and made inquiries, they did not get the claims any earlier. Two potential explanations were postulated for this failure. First, it was observed that many households did not find the maternal health care benefit polices culturally and socially relevant in their tribal context[88]. Hence, the information about the benefit polices did not lead to a change in behavior. Second, even if the households felt the policies were relevant and were interested in obtaining the benefits, the benefit policies were ineffective because of their implicit policy design limitations, implementation bottlenecks and shortcomings in benefit deliveries. These are discussed in detail in the next chapter.

[88] A possible explanation for why some members heard the information but limited their discussion about the messages within the households and did not inquire with the community workers or pursued delay in payments.

Chapter 6. Maternal Health Benefit Policy Analysis

Introduction

For an effective policy outcome, policy design and articulation of its objectives are as important as policy implementation and management. However, scholars and practitioners seem to have given greater attention to policy feedback and impact evaluations than to an in-depth analysis of how the policies are articulated, framed and the implementation structure that executes these policies. Implementation and impact assessment of policies implicitly assume there is no interaction and influence of social and administrative context in which they are implemented (Moynihan, 2014).

This chapter focuses on the analysis of four maternal health benefits policies within their social and administrative environment of Melghat. With the limited effect of information awareness on claiming the policy benefits as observed in Chapter five, this chapter delves deeper into the framing and design of the maternal health benefit policies, their implementation structure and their service delivery to understand why the information awareness was insufficient. Fieldwork in Melghat showed that the women and their families found the policies either irrelevant or ineffective. Policies were perceived as irrelevant because of social and personal preferences of the respondents. On the other hand, policies can be considered ineffective if the cash incentive or the medical service is not provided in time[89] or when the incentive does not result in the expected health behavior outcome, making the benefits redundant. Triangulating

[89] Unlike other health conditions targeted by many social welfare policies, such as hunger, malnutrition or sanitation, pregnancy is strictly a time bound condition. If the cash benefits or the medical services intended for specific time during pregnancy, at childbirth or post-natal care are not delivered in time, they are of no use. Timely benefit delivery is paramount.

voices from the field with document analysis of these policies[90], I process traced the policy design, implementation and service delivery factors at the administrative end and the user end that lowered claims for the policies. The objective was to construct a coherent narrative highlighting the reasons that prevented the women from claiming benefits of the maternal health policies beyond the information awareness gap. Thus, the following factors serve as rival explanations for the limited impact of information dissemination through mobile phones on claiming the maternal health benefits.

There is a need for a deeper analysis of conditional cash transfers and social welfare policies from a behavioral and an ecological perspective. According to behavioral economics, beneficiaries' decision to enroll and participate in a social welfare policy may not always be rational. Risk, future uncertainty and cognitive bias can influence their decisions. Policies can neither be divorced from personal preferences and choices of the targeted beneficiaries nor isolated from their social, cultural and political context in which they operate. If the social, cultural and personal preferences are such that, despite awareness level, the beneficiaries do not want to access medical care during pregnancy or childbirth, then offering cash incentives or free health care services may not alter their behavior. In such a case, the relevance of the policy itself can be questioned. On the other hand, if the policy benefits do not reach the targeted beneficiaries in time (or in full measure as assured), then the policy design, implementation and benefit delivery must be re-examined.

Scholarly research suggests maternal health benefit policies, specifically JSY, have improved maternal health care outcomes (Barua, Baruah, Ojah, & Saikia, 2016; Thind et al.,

[90] Based on government websites, RTI requests and Mumbai High Court summary judgements for Melghat, among other secondary sources.

2008). However, as mentioned earlier, the causal processes behind these perceived correlations need to be probed further. Through this longitudinal fieldwork, I observed to what extent the anticipated behavior outcome (such as immunization, institutional delivery or public health care utilization) was a result of the cash incentives offered by the policies in the selected villages. I identified the weak linkages between the incentive structures and the anticipated behavioral and policy outcomes. As explained in Chapter 1 and later in this chapter, this research supports the existing skepticism of cash incentive programs for institutional deliveries actually leading to any significant decline in maternal mortality (Lim et al., 2010).

The first section provides an overview of the overall maternal health status and maternal health care benefit policies implemented in India. The second elaborates on the four maternal health benefit policies applicable in Melghat. The third section analyzes the policy design, implementation and delivery mechanisms in the four policies. Although it is simpler to examine each policy separately, from the beneficiaries' perspective all four policies form a "basket" of benefits and there is a possibility that women may be comparing, selecting and making choices between different policies. Also, all four policies have the similar objective of improving maternal health but focus on different components of maternal health such as immunization, nutrition and safe delivery. Therefore, it is appropriate to consider them holistically. In the fourth section, the findings are viewed from the theoretical framework of administrative burden.

6.1 Maternal Health Policies in India

After the International Conference on Population Development in Cairo in 1994, it was the MDGs that brought the global attention toward maternal health. MDG 5 emphasized the

universal access to maternal health care and set targets for reducing the MMR, ensuring safe delivery, ante-natal and post-natal care and adequate nutritional care for mother and child for developing countries. India was expected to reduce MMR from 437 maternal deaths per 100,000 live births to 109 per 100,000 by 2015. Although it made considerable progress by lowering their MMR to 167 per 100,000 in 2013 (anticipated to reduce further to 140 by 2015), it narrowly missed the target (Government of India, 2015)[91]. This MMR for India is still higher than other BRIC[92] countries such as Brazil (56), Russia (34) and China (37) (Marten et al., 2014). There were significant differences in MMR across the states, from 81 per 100,000 in Kerala to over 300 in Assam (Census, 2011; Government of India, 2015) and potentially even higher rates in the rural areas. Beyond the MMR targets, the vision of universal maternal health aimed to ensure safe deliveries and provide ante-natal and postnatal care through the public health care system. This objective is still elusive, with estimates indicating that only 76 percent of total childbirths were institutional deliveries in 2015. Out of these, only 50 percent of pregnant women have more than four ante-natal care visits and there are only seven physicians and seventeen nurses and midwives available per 10,000 population across the country (Government of India, 2015). This is illustrated in Table 6.1 below.

Table 6.1: Maternal Health and Nutrition Status in India

Objective	**Indicator**	**Baseline (1990)**	**Target (2015)**	**Status**
Reduce Maternal Mortality	MMR*	437	109	167[1]
Safe Delivery	Institutional Delivery	22%[2]	100%	76%[1]
Ante-natal care	4+ANC visits	27%[2]	100%	50%[3]
Health and Nutrition	54% of pregnant women are anemic in India[3]			
Universal Health care	7.1 physicians and 17.1 nurses and midwives per 10,000 population[4]			

*Maternal Mortality Ratio (MMR)-Maternal deaths per 100,000 live births.

[91] However, according to the new revised estimates by the World Bank, the MMR in India is much higher, 189 per 100,000 in 2013, 181 in 2014 and 174 in 2015. Accessed at http://data.worldbank.org/indicator/SH.STA.MMRT on June 21, 2016.

[92] BRIC- Brazil, Russia, India, China.

[1]MDG Report (2014), [2]UNICEF(2013), [3]World Bank(2014), [4]WHO.

The maternal health care policy discourse in India has also undergone multiple transformations, aligning with changing national and international priorities over the seven decades since the country's independence. In the early 1950s, with high health inequities in maternal mortality[93] (Government of India, 1956), the government addressed the critical need in rural health care by relying on *dais* to assist childbirths. With advancement in medical care and strengthening of rural health infrastructure, the *dais* were slowly replaced by ANMs. With high rates of fertility and population growth, the focus shifted toward population control, prioritizing sterilization using cash incentives and coercion in the 1960s. In the next decade, the policy focus moved again, this time toward the high rates of child mortality, compelling a shift from family planning to family welfare programs. Maternal health care gained attention again with the safe motherhood initiative by the UN agencies in the late 1980s and raised the need for IEC and pushed for a holistic approach to sexual, maternal and child health care. The first phase of Reproductive and Child Health in India was initiated in 1997, followed by the National Population Policy in 2000, National Health Policy in 2002 and then the establishment of the NRHM in 2005 to align the country with the global health commitments for MDGs. The NRHM was aimed to improve the availability of and accessibility to quality health care. A new cadre of village health workers, the ASHAs, was created to facilitate NRHM community activities at the village level, mainly in counseling the women to access public health care for institutional care. In 2013, the National Urban Health Mission was also initiated, complementing the NRHM to form a unified National Health Mission. The third phase has been expanded to a Reproductive,

[93] Twenty for every 1000 live births.

Maternal, Newborn, Child and Adolescent Health approach, which now includes adolescent health care (Government of India, 2013a; Hunter et al., 2014).

Under NRHM, numerous maternal health care benefits policies were launched to incentivize access to the public health care system. The policies focused on two forms of incentives—subsidizing (or providing it free of cost) rural public health care and providing unconditional and conditional cash transfers to encourage public health care utilization for maternal health care. Unconditional transfers were linked to a target population without any commitment toward undertaking a particular activity. In contrast, conditional transfers were dependent on the fulfillment of certain activities or tasks. Some policies were aimed to be universal whereas others were targeted or means-tested (had certain eligibility or enrollment criteria).

The basket of maternal health care benefit policies applicable in the research area are outlined in Table 6.2. To analyze the shortcomings in the maternal health benefit policies, it is important to first understand their objectives, eligibility conditions, provisions and benefits in detail. Through this description, one is able to foresee the complexities and exclusions in the policy coverage, their overlap as well as conflict with each other. A detailed description of the policies also provides a realistic magnitude of how difficult it can be for the beneficiaries to understand the policies and follow up with each entitlement and installment under all policies. For instance, as observed from Table 6.2, the four policies are implemented by three different departments, with different cash or service incentives with different conditions.

Table 6.2: Federal and State Funded Policies for Maternal Health Benefit in Maharashtra (2013)[1]

Policy	Federal/State Funding	From	Brief description	Eligibility conditions
Janani Suraksha Yojna (JSY) (Mother Protection Policy)	Federal Funding/ Department of Health and Family Welfare	2005	This policy integrates cash assistance with delivery and post-delivery care. For every institutional delivery (i.e. delivery at a government hospital/clinic) Rs 700 (approx USD 11.5[2]) and Rs 500 (USD 8.2) for home delivery are offered as an incentive	19 years, Below Poverty Line Households, SC/STs, up to 2 live births
Janani Shishu Suraksha Karyakaram (JSSK) (Mother and Child Protection Policy)	Federal Funding/ Department of Health and Family Welfare	2011	A non-cash (in-kind) benefits scheme with free entitlements to women and newborns under JSSK. The services provided include medicines, diagnostic tests, transportation, medical assistance during childbirth	No restrictions or exclusions
Indira Gandhi Matritva Sahyog Yojana (IGMSY) (Indira Gandhi Supporting Motherhood scheme)	Federal Funding/ Department of Women and Child Development	2010	Conditional cash scheme for improving the nutrition and health of pregnant and lactating mothers. The scheme is implemented in 52 selected districts on a pilot basis by the Ministry of Women and Child Development. The pregnant women receive a cash incentive of Rs. 4000 (USD 65.6) in three installments for the first two live births.	53 selected districts, women 19 years and above, up to 2 live births, registered at government village-level day care (Anganwadi Center)
Matrutva Anudan Yojana (MAY)	State Funding (Maharashtra State Government) Department of Public Health	1999	In selected 15 tribal districts, a pregnant woman is paid Rs. 400 (USD 6.6) in cash for visiting a health center for Ante-natal check up and also medicine worth Rs. 400 (USD 6.6).	15 districts, tribal women, current pregnancy and up to 3 live births

Source: (JSY Guidelines, JSSK Guidelines, JSY Guidelines, Amravati District Website for MAY, Government of India),

[1]The incentives and eligibility restrictions are as of January 2013, at the time of the beginning of the research. Since then, the amount of cash incentives and eligibility restrictions have been revised for individual policies. These are elaborated on in the relevant sections below.

[2]Conversion 1 USD= Rs 60.9, applicable in for average 2013.

6.2 Four Maternal Health Benefit Policies in Maharashtra

In 1987, Tamil Nadu was the first state to implement a universal maternity benefits scheme called Dr. Muthulakshmi Maternity Assistance Scheme in 1987, distributing a Rs.300

(USD 4.9) cash incentive to all pregnant women to meet childbirth expenses[94]. Maharashtra also introduced started a similar but means-tested policy for tribal women, Matrutva Anudan Yojana (MAY) in fifteen tribal districts providing tribal women medicines worth Rs.400 (USD 6.6) and Rs 400 (USD 6.6) of cash transfers. One of the earliest, maternal cash benefits policy at the federal level was under the National Social Assistance Program in 1995. The National Maternity Benefit Scheme (NMBS) provided a cash transfer of Rs 500 (USD 8.2) per woman from below poverty line (BPL[95]) families toward out-of-pocket expenditures during pregnancy (Falcao et al., 2015).

6.2.1 Janani Suraksha Yojana (JSY)

However, in pursuit of universal institutional delivery targets, in 2005, NMBS was merged into JSY, a conditional cash transfer to pregnant women for institutional delivery, sponsored by the Federal Ministry of Health and Family Welfare. JSY aimed to reduce maternal and neo-natal mortality by incentivizing institutional delivery among poor rural women. The cash incentive was meant to offset the high out-of-pocket expenditures incurred during childbirth, which often discouraged women from accessing health care. States were categorized into high performing or low performing states based on demographic and health indicators, with the eligibility criteria and the cash amount being different in each category and across rural and urban areas.

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[94] Because health is a state subject and there are many additional maternal cash and service benefit policies initiated in different states to complement the federal policies.

[95] The document required for evidence of being below- or above the poverty line (BPL or APL) category, is the Public (Food grain) Distribution System Card (or PDS ration card) issued to the households. There are different categories of BPL categories. The identification and number of BPL cards issued have been contentious across the states.

As per the 2006 guidelines, the eligibility criteria for women under JSY for low performing states was "all pregnant women delivering in government health centers or accredited private institutions[96]." For the high performing states, including Maharashtra, BPL "pregnant women, nine years of age and above" and "up to two live births" were eligible for JSY cash incentives for visiting government health centers or accredited private institutions for childbirth. SC and ST women (irrespective of APL or BPL status) are eligible for JSY benefits, regardless of the state category[97].

In the case of institutional delivery, a pregnant woman would receive Rs. 700 (USD 11.5) in a high performing state and Rs. 1400 (USD 23) in a low performing state. If a woman delivered at home, she would receive Rs. 500 (USD 8.2), similar to the earlier NMBS policy. However, the lesser highlighted incentive under JSY was the cash incentives given to ASHA workers for counseling and successfully convincing women during the ante-natal and childbirth. In the low performing states, an ASHA received Rs. 600 (USD 9.8) in rural areas and all tribal districts, whereas Rs 200 (USD 3.3) in urban areas[98]. For the high performing states, she received Rs 200 (USD 3.3) per delivery. However, there was no incentive for ASHA in case of a home delivery.

However, even in the case of institutional delivery, there was a differentiation made between public health care institutions and private hospitals[99]. First, not all private hospitals were recognized or accredited. Second, the cash incentive amounts did not change even if the cost of delivery was higher in the accredited private hospital. Third, ASHAs were not eligible for their

[96] No age or parity restriction in low performing states.
[97] Among non-SC/ST, only BPL women were eligible.
[98] Additional money is given to the ASHA for referral support (transportation) from village to a hospital.
[99] Clause 4.5 of Features and Frequently Asked Questions and Answers (as of October 2006) by the Ministry of Health and Family Welfare, Maternal Health Division, Government of India furnished under the Right To Information Request.

share of incentives if the women choose to deliver at an accredited private institution[100]. Hence, there was an implicit selective bias against accessing private health care.

Regarding the timing of the cash disbursement, the women initially were given cash at the time of delivery and place of delivery[101]. However, with reported delays, non-payment and leakages of cash incentives to women and ASHAs, the government decided from 2007 to disburse cash incentives through bank checks only[102]. Melghat, being a tribal area in a high performing state, the incentive amounts applicable were Rs 700 (USD 11.5) and Rs 500 (USD 8.2) for the pregnant women for institutional delivery and home delivery, whereas Rs 600 (USD 9.8) was given to the ASHA per institutional delivery as per JSY conditions.

In 2013, the age and parity[103] conditions were removed from all states for JSY[104]. The federal government amended the policy with effect from May 2013. However, during my fieldwork from March to August 2013, the ASHAs, ANMs and other block level officials were not aware of these changes until August, indicating a delay in communication between the different levels of government. Hence, during the complete fieldwork the age and parity restrictions were considered valid.

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[100] Clause 4.5 ibid.

[101] For instance, if a woman is referred to the district hospital for her delivery, then she is eligible to receive money at the hospital before she is discharged, provided she carries her referral slip, BPL or SC/ST certificate and immunization records.

[102] Government Order No. D.O. Z 14018/39/2007-NMBS dated December 4, 2007 and D.O. Z.14011/4/2011-JSY dated September 9, 2011. For ASHAs see D.O.Z. 14018/39/2006-NMBS. Commercial banks include Public Sector Banks, including Rural Regional Banks and Cooperative Banks, not private banks. Note: Although it is not mentioned in the government orders, but the attached guidelines with D.O.Z. 14018/39/2006-NMBS, also permit post office accounts for payment. That could be a plausible reason why many respondents who had received JSY benefits earlier did not have existing bank accounts.

[103] Parity is the number of pregnancies carried beyond twenty weeks. Gravida is number of times a woman has been pregnant regardless of whether the pregnancies were successful or not.

[104] The BPL and SC/ST qualifications remain.

6.2.2 Janani-Shishu Suraksha Karyakaram (JSSK)

To complement JSY, other federal policies were also initiated. The first was the JSSK in 2011, which provided all medical services free of cost at public health care institutions to all women during their pregnancy, childbirth and limited medical service during the post-natal period[105]. As a universal medical service policy, there were no eligibility or geographic restrictions. Some of the medical expenses included free medicines, diagnostic testing, free transport between home and medical institution, free hospitalization at childbirth and provision of meals during the stay. This was aimed at making pregnancy and childbirth "cashless," eliminating out of pocket expenses for all pregnant women. The only limiting condition was the use of PHCs. The JSSK had attempted to plug this void by assuring free transport for sick newborns from home to a health facility and back. Being a recent policy, the awareness about the policy and its utilization has been slow (Barua et al., 2016; Deshpande, Gadappa, Pagare, Dhaduti, & Andurkar, 2016; Ramji, Modi, & Gupta, 2013).

6.2.3 Indira Gandhi Matritva Sahyog Yojna (IGMSY)

Another policy initiated at the federal level was a conditional cash incentive by the Ministry of Women and Child Development in 2010 aimed at providing nutritional support to the pregnant woman during pregnancy and post-natal period through their public child-crèche (*Anganwadi*) system. IGMSY was implemented in 53 selected districts across India. Until 2013, as a conditional maternity benefit policy, it provided a Rs 4000[106] cash incentive to pregnant and

[105] Up to seven days for normal delivery, seven days for C-section and 30 days of free medical service for the newborn.
[106] The amount of cash incentives as of January 2013. The amount is based on wage loss of Rs 100 per day for 40 days.

lactating women of nineteen years of age and above for the first two live births subject to fulfilling conditions of maternal and child health. The cash incentive was provided in three installments—a first installment of Rs 1500 after the second trimester, a second installment of Rs 1500 at the end of three months after childbirth and third installment of Rs 1000 at the end of six months after the childbirth, provided the mother and the newborn were fully immunized[107]. Similar to JSY, the community workers responsible for this policy, the AWW and her helper, were eligible for Rs 200 (USD 3.3) and Rs 100 (USD 1.6) respectively as a cash incentive per beneficiary once all cash incentives due to the women have been paid[108]. The mode of incentive payment allowed in 2011 was a direct deposit to the beneficiaries' bank or post office accounts[109]. Unlike JSY, cash or bank checks were not permitted.

The objective of the policy was to promote appropriate maternal and childcare practices including immunization and exclusive breastfeeding and serve as "partial compensation for the wage loss so a woman was not under compulsion to work until the last stage of pregnancy and can take adequate rest before and after delivery[110]." The eligibility condition of nineteen years of age and above was based on the legal age of eighteen years for marriage for women in India. The implementation guidelines recommend that the minimum age should be nineteen years (one year more than the legal age) to "encourage marriage and childbirth at the right age[111]." Similarly, the

[107] Government of India Order F.No.9-5/2010-IGMSY dated 04.04.2011 and enclosed implementation guidelines for state governments/UT administrations. Available through RTI.
[108] Unlike JSY, which is payable at the place of delivery, IGMSY benefits are payable at place of registration: i.e. if a woman registers her pregnancy at one village and migrates to another village for delivery, then she can get the IGMSY benefit only from the Anganwadi center where she is originally registered by showing her completed immunization records.
[109] Women in sample villages reported to have received their payments through their post office accounts.
[110] Page 3 of the IGMSY implementation guidelines for state governments/UT administrations.
[111] Page 5 ibid.

limit for two live births was to "ensure that health of the woman is not compromised because of repeated pregnancies and to promote family planning[112]."

It must be noted that although IGMSY encouraged women to simultaneously benefit from JSY, the IGMSY policy itself was silent on the place of delivery and hence, was also applicable for women who had childbirth at home. However, all community workers underscored this condition and often told women that like JSY, IGMSY was also conditional on institutional delivery. Government statistics show that more than 40 percent target beneficiaries were not covered in 2012-2013, almost 25 percent funds remained unspent, thereby indicating a low level of policy uptake (Falcao et al., 2015).

Recent changes in policy related to the implementation of the National Food Securities Act (NFSA) on 12 September 2013, which subsumed IGMSY because it guarantees that every pregnant and lactating mother should be entitled to Rs 6000 (USD 98.5). Hence, the cash incentive under IGMSY was increased to Rs 6000 (USD 98.5) effective from July 2013 and disbursed in two installments instead of three—first installment of Rs 3000 (USD 49.2) due in the third trimester and the second installment of Rs 3000 (USD 49.2) at the end of six months after the delivery[113]. Similar to the experience with JSY, these policy changes had not been communicated to the block and community level functionaries in Melghat until the end of the fieldwork. However, because NFSA aimed at universalization of maternity benefits including IGMSY throughout the country, the expansion and universality is being challenged by the federal government at the Supreme Court level.

[112] Ibid.
[113] Government of India G.O. F.No. 5-10/2012-IGMSY dated November 13, 2013 accessible at http://wcd.nic.in/sites/default/files/meeting_igmsy_24_28_feb_2014.pdf as on June 11, 2016.

6.2.4 Matrutva Anudan Yojana (MAY)

Because the Indian Constitution mandates that public health and sanitation is in the purview of the states' legislatures, states often provide additional cash incentive or additional services to aid federal policies. MAY was one of the first cash conditional transfer policies implemented in Maharashtra in 1997-98 as part of the Navsanjivani Yojana (New Life Policy) specifically for tribal regions[114]. Navsanjivani Yojana was a package of health related initiatives. This policy provided Rs. 400 (USD 6.6) in cash for visiting a health center for ante-natal checkup along with medicines worth Rs. 400 (USD 6.6) to tribal women having a current pregnancy and two live births. This policy was sponsored by the Ministry of Tribal Affairs and the cash incentive was disbursed as cash by the ANMs.

As mentioned in the introduction chapter, policy evaluation and research on maternal health policies and beneficiary choices in India are either based on quantitative research or qualitative social research where the outcome indicators include the preference for institutional delivery over home delivery, choice between public and private health facilities, quality and utilization of ante-natal care, and services and family planning are analyzed as a proxy for maternal health benefit policies. Because JSY is an older federal policy applicable since 2006, research suggests that the JSY policy design was well targeted because factors such as maternal age, education level, birth order, religion and scheduled caste/tribe status significantly influenced the choice of delivery (Kesterton et al., 2010; Thind et al., 2008). JSY had been largely considered a success with substantial increasing of the number of institutional deliveries in the

[114] As per Maharashtra State Government website: http://testmahaarogya.mahaonlinegov.in/Site/Form/DiseaseContent.aspx?CategoryDetailsID=igzy0Gs2U8g%3d accessible on June 11, 2016

country after 2006 (Balarajan et al., 2011; Shrivastava et al., 2013; Thind et al., 2008). According to the Ministry of Health and Family Welfare, the number enrolled under JSY has risen from 0.73 million women[115] in 2005-06 to 1.06 million in 2013-14 (Government of India, 2014a). However, according to the nationwide District Level Household Survey Phase IV (2012-2013)[116], the actual policy benefit received at the district level is reported to be very low. For the Amravati district, only fifteen and 23 percent of women who delivered at home and at a health care institution, respectively, reported to have received JSY benefits[117]. Even if discounting for poor reporting and eligibility exclusions under JSY, this is not an encouraging uptake rate for a policy existing for almost ten years. In contrast, the percentage of deliveries that were institutional in Maharashtra and in the Amravati District was 96 percent (with close to 89 percent in the rural Maharashtra and 94 percent for rural Amravati)[118]. Therefore, it is hard to correlate low levels of JSY policy uptake with such high levels of institutional delivery.

Scholars have also expressed other concerns about effectiveness of maternal health benefit policies and observed low awareness levels about the JSY policy (Gopalan & Durairaj, 2012; Hunter et al., 2014; Lim et al., 2010; Thind et al., 2008). As mentioned in the introduction chapter, there is little research on how the cash and service benefit policies were causally linked with maternal health improvement. Existing evidence correlated with the increase in institutional deliveries with the implementation of JSY, but not whether the higher institutional deliveries was

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[115] The terminology used in government records is "the number of women benefitting from the JSY," hence unclear whether it implies number of women enrolled into JSY or number of institutional deliveries or number of women receiving the JSY cash benefit amount.

[116] Percentage of women who received JSY benefits CSV data file available at https://data.gov.in/catalog/district-level-household-and-facility-survey-dlhs-4 as of June 11,2016.

[117] The highest policy uptake rate for institutional delivery was only 61 percent for a small North-Eastern State of Mizoram (Maharashtra was 18 percent).

[118] DLHS-4 2012-2013 State Fact Sheet Maharashtra is accessible at https://nrhm-mis.nic.in/DLHS4/State%20and%20District%20Factsheets/Maharasthra/Maharasthra.pdf and for Amravati District as of June 11, 2016

actually triggered by cash incentives and whether higher institutional delivery rate actually led to a reduction in maternal mortality (Lim et al., 2010). Also, there is little research on the impact and evaluation of recent policies including IGMSY and JSSK implemented in 2010-11. Third, we need to know women beneficiaries enroll and decide to avail the benefits of the maternal health benefit polices and public healthcare after knowing and understanding the information made available about these polices (Thind et al., 2008). This is important had there been consistent evidence over the decades that the shortcomings in existing IEC strategies led to underutilization of maternal health care and policies (Falcao et al., 2015; Griffiths & Stephenson, 2001; Sunil et al., 2006; Vikram et al., 2013). Similar low levels of policy awareness were also observed in Melghat (Patil, 2009). Although the policies were designed to generate demand for health care (Hunter et al., 2014), if women received cash transfers without even being aware of the policy or the reason why they received them, then their enrollment is only incidental not causal. In such a case, the cash incentive is a consequence of the choice made but not the trigger or the reason for availing the public healthcare and hence, cannot be attributed to the success of the policy.

As mentioned in Chapter five on the baseline survey results, similar low levels of policy awareness were also observed in the sample villages. Women were not aware of the name of the policy through which they received the benefit. Hence, they were neither able to correlate the cash or service benefits with policy objectives nor make informed health care choices in response to these incentives.

6.3 Relevance and Effectiveness of Maternal Health Benefits Policies in Melghat, Maharashtra

I anticipated that policy information through mobile phones would enable women to make informed decisions about accessing health care systems. However, as mentioned earlier, despite limited public interest in maternal health benefits policy generated by the mobile phone broadcasts, there was no actual increase in claiming the benefits in Melghat in 2013. Two main arguments are proposed for this low claim on maternal health benefits policies, beyond information awareness about the policies. These serve as counterfactual or rival explanations against limited impact of mobile phone broadcasts.

First, it was observed that the maternal health care benefit polices were not culturally and socially relevant or useful to the households. Hence, information about the benefit polices had little effect. Second, even if the households felt that policies were relevant and they were interested in obtaining the benefits, the benefits were either denied or delayed because of policy design limitations, implementation bottlenecks and shortcomings in service deliveries, rendering the policies ineffective. I provide an in-depth analysis of all the relevant factors observed during the fieldwork. I discuss each individually rather than generalizing from the findings, because "the devil is in the details," and unless the source of such discrepancies are clearly identified, they cannot be remedied. Thereafter, I analyze these findings within the theoretical framework on administrative burden. I now elaborate on the relevance and ineffectiveness of the policies.

6.3.1 Relevance of the Policies

Maternal health benefit polices were not relevant in the Melghat context for three reasons. First is the low level of awareness about maternal health and maternal health benefit

policies. The second reason is the low demand for any biomedical health care and third is low preferences for the public health care system. These are explained in detail below and also described in Figure 6.1.

6.3.1a Low maternal health and policy benefits awareness

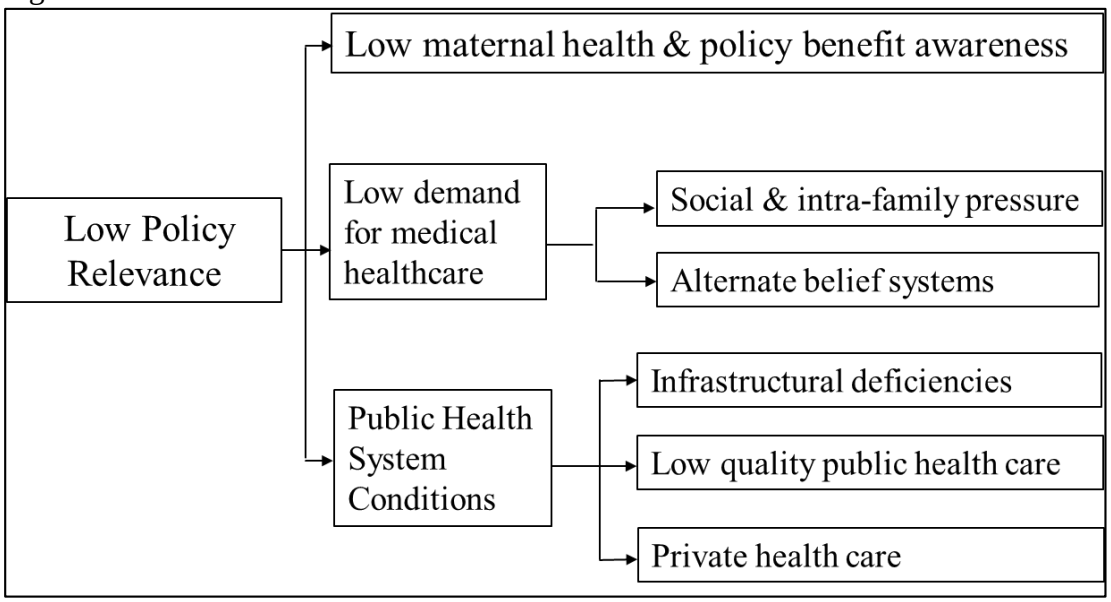
As observed in Chapter five and shown in Figure 6.1, women had a low level of awareness about the need for medical care and assistance during pregnancy and childbirth and about the maternal benefit policies. Women who were pregnant for the first time were less aware of the advantages of medical care and felt more hesitant in accessing public health care. Even when women preferred public health care, such as the sub-center as their preferred place of delivery, they were often unable to articulate the need for medical assistance or reasons behind their preference. Their responses varied from "just because everyone goes" or "there is no difference between childbirth at home" or the "ANM and ASHA makes us go." Only a few women believed going to medical facilities was beneficial because they would get an "injection and medicine for a safe delivery." Incidentally, only four[119] out of 82 respondents admitted that cash was one of the reasons for opting for institutional delivery.

The fears and rumors persist also because of lack of counseling and trustful doctor-patient relationships. Medical doctors and community health workers seldom explain the severity of risk in pregnancy, or the diagnosis for a miscarriage or stillbirth. Most common explanations

[119] Out of the four responses, two respondents were told they would not get any money if they had home delivery. The third respondent was told they would get Rs 4000 if they went to the hospital, otherwise, they would only Rs 900. All these were incomplete and miscommunicated information. In the fourth case, they preferred the cash incentive as an additional income for household expenditures and preferred institutional delivery because of medical expenses.

were generic, such as a weak mother or a low-birth weight and premature delivery of the newborn. One of my respondents had a forceps delivery at the sub-district hospital, a standard procedure but not explained to the women or the family. When the infant died a few days later, the family and villagers assumed that that it was a result of using forceps and blamed the sub district hospital, leading to a tense atmosphere in the village. The family threatened the community workers and ANM against entering the village or contacting the family again.

Figure 6.1: Relevance of Maternal Health Benefit Policies



6.3.1b Low demand for biomedical health care

Many women refrained from accessing any form of medical care because of the family pressure and traditional practices, following ethno-medicine and fear of a negative outcome. Childbirth is seen as a natural process not requiring medical assistance unless there is a complication. Given a choice, many respondents and their families preferred home delivery and would decide to go to a hospital as a last resort only if there “was an obstructed labor” or a

complication[120]. This delay in decision to access medical care raised the risk level and often, by the time help could be sought, it might be too little and too late leading to a greater chance of an unsuccessful childbirth or endangering the mother. Hence, it reinforced the perception that seeking medical care would lead to "negative results."

Sometimes, the community workers recalled that ambulance and health officials would be turned away by family members when the women were in labor because household members believed that women are taken to hospital only because ASHAs have a vested interest for their own (ASHA's) cash incentives. Bhatia notes similar findings in other parts of Maharashtra as well (2014).

Women also had little autonomy over the decision to access biomedical health care, whether from public or private. Instead of being an individual pregnant women's choice, it was a family or household decision with the key decision maker being the female head of the household, the mother or the mother-in-law of the pregnant woman. Rural women, especially during the first pregnancy, also felt more comfortable and safer being in the convenience of their own home with other household women and the *dais* rather than being in "unknown and alien spaces" such as the hospitals. They preferred the *dais,* who were often known village women, because they offered personal care and post-delivery assistance to the mother for up to five days at home. Medical assistance is also not sought when Bhagats or Bhumkas were consulted (as described in the contextual background chapter) for the want of a son or ensuring a safe delivery, though not openly confessed. In addition, women also prescribed to local ethno-medical

[120] Those families who had no preference or were undecided, in the previous chapter.

prescriptions such as a wild lily (Gloriosa superba L.), commonly known to ease labor pains and delivery, but could be toxic.

There were multiple evidences for the above preferences where women did not seek biomedical health care during pregnancy and childbirth. For one respondent, her first delivery was at the sub-district hospital and the newborn died shortly after because of an infection, whereas her second delivery was at home with no complications. With her second child, now two years old and healthy, she was initially adamant not to go to any hospital for the third delivery. Out of the four responses, two respondents were told they would not get any money if they had a home delivery. The third respondent was told they would get Rs 4000 if they went to the hospital, otherwise, they would only receive Rs 900. All these were incomplete and miscommunicated information. In the fourth case, they preferred the cash incentive as an additional income for household expenditures and preferred institutional delivery because of medical expenses. Another respondent from the same village had been regularly attending her ante-natal checkups and her family was also supportive of her going to the sub-center for her childbirth. However, she was compelled by her mother to have her delivery at her native home as per the family tradition. Their neighbor, who lived just next door to the sub-center had a delivery at home assisted by the *dai,* who was a family relative, and the respondent felt much more comfortable with her than with the ANM.

Women did not seek medical care or eat free meals at the *Anganwadis* when following Bhagat and Bhumka. One of my respondents confessed that she would collect her share of food from the *Anganwadi,* but did not eat it because she was instructed by the Bhagat to only eat the food she herself cooked. Another respondent was the daughter-in-law of a Bhagat, a fact she confided much later in the interview process. She had a long history of unsuccessful pregnancies

and claimed that she had "lost the count" of the number of times she had conceived and miscarried and if left to herself, she would have been happy with her only five-year-old daughter. As a tuberculosis patient, she was not allowed to follow the DOTS treatment by her father-in-law and was pressured for another child even when she knew that her sickness was the cause of miscarriages.

Alternate faith beliefs, traditional faith practices and ethno-medicine not only posed as barriers in medical care utilization, but many times they were the only recourse to the families who were trying to simply filling in the gaps when biomedical health care was inaccessible because of economical and geographical limitations (Shrestha, 2011).

6.3.1c Condition and quality of the public health system

Access to medical service crucially depends on the proximity to the health care facility and quality of health care available. Villages where a sub-center was located in the village itself had higher rates of institutional delivery than those that were even a few miles away[121]. Therefore, it was a contradiction to see a mushrooming of private maternity clinics and pediatric hospitals in the nearest town. Clearly, there was a demand for private biomedical health care, even if they were expensive compared to the completely free public health care[122]. The public

[121] It is important to clarify that accessibility to a medical delivery does not only mean physical distance between the village and the medical center but also the road connectivity and availability of transport at odd hours. In this hilly region with mud-roads, even a small distance of two miles across the hillocks could take up to one hour in good weather. In one such village, people often opt (including me) to walk through the forest to visit the sub-center to reach it more quickly.

[122] Inequity and poor quality of public health care have been a core concern and reasons for underutilization of maternal health care (Balarajan, Selvaraj, & Subramanian, 2011; Griffiths & Stephenson, 2001). Low income households may be apprehensive in incurring high out of pocket expenditures in a private health care facility, but socioeconomic status ceases to be a barrier to service use when women perceived the benefits of the service to outweigh the cost (ibid).

health care system, especially at the lowest level, is crippled with poor infrastructure, unavailability of the medical staff and poor quality health care. For instance, at one of the sub-centers, there was no refrigeration for storing vaccines, which meant the vaccination had to be brought from the PHC only for the scheduled day and if the women missed the immunization day, they would have to wait until the next month. Irregular medicine stock, lack of electricity, no placenta disposal unit, or no provision of meals at the sub-center level discouraged many women to stay beyond their delivery. Many women just go to the sub-center for the delivery and leave soon after. This still qualified as an institutional delivery but not necessarily quality institutional care.

At higher public hospitals in Melghat, there was persistent shortage of beds (with bed-sharing a common sight in maternity wards), inadequate blood supply and medicines. Many specialized equipment did not function, there was no-power backup and posts for fulltime specialists including gynecologists, radiologists and anesthetists lay vacant[123]. Women complained of insufficient or no meals provided to female patients and unavailability of water to bathe after the delivery at the district health hospital[124]. Such inconveniences dissuaded women and families to opt for unreliable and poor quality public health care if they could afford private health care. Some women preferred the public health care clinic or hospital for childbirth, but preferred private doctors for ailments such as cold, cough or diagnostic testing.

[123] Such shortages in medical personnel were repeatedly observed by the Mumbai High Court, suggesting medical students may be instructed to intern in Melghat and public appeals made for doctors to serve as volunteers in the region. Also, a special hardship allowance was sanctioned for medical officers to attract applicants.
[124] Women were asked to purchase hot-water buckets from the nearby market (Rs 10 or 20 cents a bucket). There was also no provision for a family member to stay with the pregnant women at the district hospital.

An interesting case was that of the pregnant ASHA[125], responsible for encouraging women to access public medical health care. She chose to deliver at home and did not get her newborn weighed or inoculated, as per the instructions of a Bhagat for the want of a son. This was her fourth pregnancy and she was not eligible for any cash incentives[126] but only free medical service. When the infant developed an infection, she opted for private child hospital because "they take better care of the patients (than public hospitals)" and chose to pawn her household items to pay for expenses rather than opting for free public medical care. Thereafter, she admitted to her superior that "her son should now have at least one brother," alluding that she may not opt for family planning or sterilization methods just yet. Clearly, women factor in many other variables beyond cash incentives and other policy benefits in their reproductive decisions.

6.3.2 Effectiveness of the Policies

The second reason for lower claims on maternal health benefit polices was their own ineffectiveness. Even if the households knew about the policies and were interested in claiming the benefits, the shortcomings in design, implementation and benefit delivery mitigated the policy uptake. These are depicted in Figure 6.2 and explained below.

6.3.2a Design limitations in maternal health benefit policies

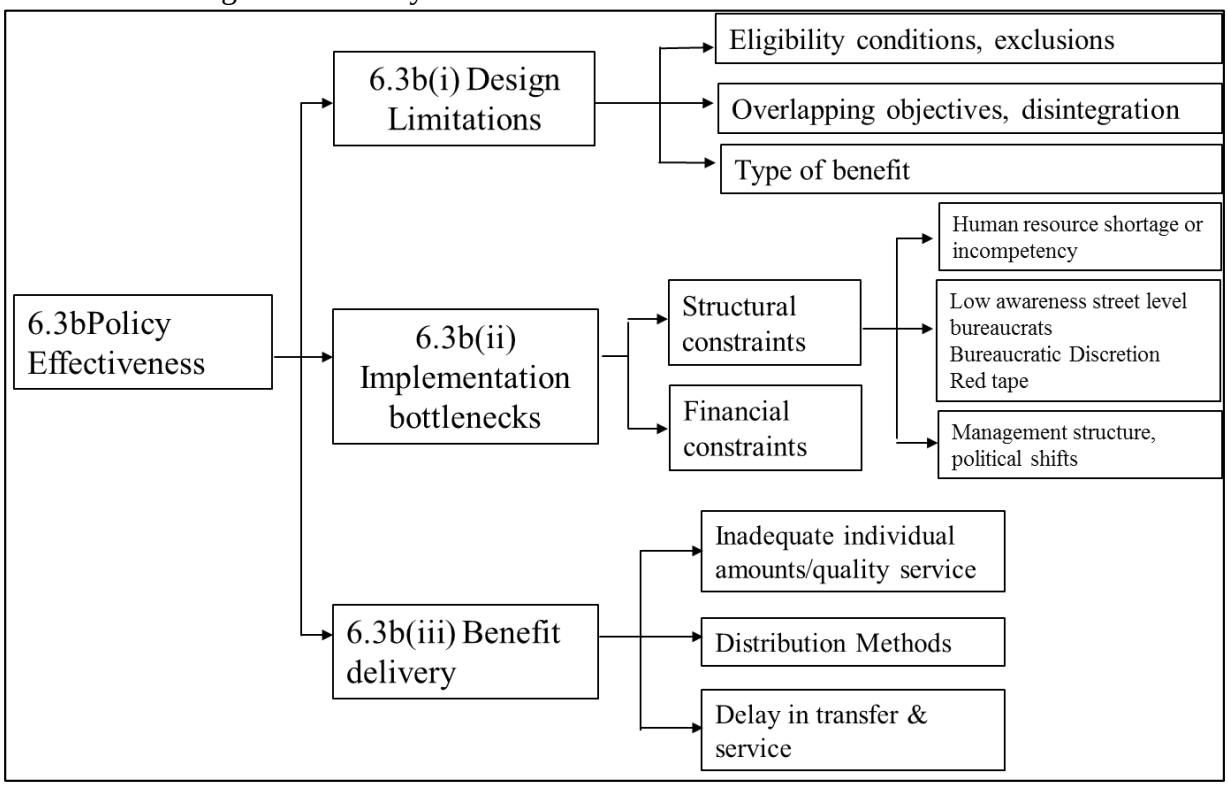
As shown in Figure 6.2, three design limitations were responsible for lower claims on maternal health benefit policies. First, the eligibility requirements in cash conditional policies lead to explicit and implicit exclusions. Second, as newer policies are introduced, they tend to

[125] As mentioned earlier in the previous chapters.
[126] This was in March 2013 when the JSY amendments were not yet released.

overlap and even conflict with existing policies, making the latter ineffective. Third, there is disconnect between the policy objective and incentive structure.

Maternal health care under NRHM and MDGs was intended to be universal and inclusive, but the eligibility conditions, particularly of the age (nineteen years and above) and number of births (two live births) for JSY[127] and IGMSY limit their coverage. This implied that adolescent women (15-18) and higher order parity (beyond two), who were more likely to have a higher risk in pregnancy were excluded from being incentivized for institutional delivery, seeking ante-natal and postnatal care and being compensated for wage loss during pregnancy. It also implicitly excluded women who married at the legal age of eighteen and had their first child in the first year of marriage itself.

Figure 6.2: Policy Effectiveness of Medical Health Benefit Policies



[127] In addition, JSY was applicable to only BPL households or SC/ST households in the high performing states.

This is counter intuitive because even at the national level, one out of six women in India marry before the legal age of eighteen (Shaikh, 2015) and early marriages are one of the main reasons for early pregnancy (Singh et al., 2012), implying young mothers might not be eligible for benefits. Government independent estimates project that approximately 37-48 percent of women were excluded because of age and number of births limitations, whereas nearly 60 percent of women had one or more vulnerabilities; because of caste, class or education, they would not be eligible to avail IGMSY benefits, clearly defeating the policy objective (Falcao et al., 2015, p. 26).

The justification for age and number of births under IGMSY is at best weak, if not the administrative state's covert attempt to influence family planning and population control similar to the health campaigns in 1960s and 1970s[128]. During the end of my fieldwork, as ANMs became aware of the JSY amendments, they believed that removal of age and number of births would actually encourage women to have more children, giving credence to the administrative mindset toward population control.

The second design limitation is policy objectives and incentive structure. The incentives were insufficient to encourage institutional delivery. For instance, the following is a comparison of total cash benefits entitled to a pregnant woman if she had a delivery at home or at a public hospital (assuming she fulfils all eligibility conditions).

[128] Even if justified, the restrictions assumed that the cash incentives of Rs 4000 (USD 65.6) under IGMSY and Rs 700 (USD 11.5) under JSY were attractive enough to make families delay their first child or discourage them from having more than two children. This seemed hardly an effective incentive strategy in Melghat where social norms and household preference were more likely to govern reproductive decisions than monetary incentives.

Table 6.3: Total Cash Incentives in Institution Delivery and Home Delivery

	Cash Incentive for Institutional Delivery (in Rs/USD*)	Cash Incentive for Home Delivery (in Rs/USD*)
JSY	700 (11.5)	500 (8.2)
IGMSY	4000 (65.6)	4000 (65.6)
MAY	400 (6.6)	400 (6.6)
JSSK	-	-
Total	5100 (83.7)	4900 (80.4)

** Rough Conversion 1 USD = Rs 60.9*

It is clear that the difference between accessing public health care for institutional delivery and home delivery is only Rs 200 (USD 3.3)[129] because of JSY incentives[130]. Also, Rs 700 (USD 11.5) under JSY as the cash incentive amount has remained the same for over eleven years and has not been revised with the increased cost of living since 2005. Adjusting this amount with the price index for 2016 (base year 2004-5), the cash incentive in real terms reduces to approx. Rs 525[131] (USD 8.6), an equivalent of one to two days of casual wages, an insufficient amount to cover any incidental expenses. Further, although JSY was intended to compensate for out-of-pocket medical expenses, with the implementation of JSSK since 2011, all medical services are now provided free of cost. This could have made JSY more redundant. As one of health employee remarked, *"if providing all medical services free of cost within (the public*

[129] The only cash incentive policy mandating public health care is JSY.
[130] This was pointed out by one of my respondents who stated that the difference of Rs 200 was only marginal, not enough to change her preferences.
[131] Price index as indicated in the Information Bureau Release by the government of India, accessed on June 1, 2016 http://pib.nic.in/newsite/PrintRelease.aspx?relid=137868.

health system) is not incentive enough for families to opt for institutional delivery, then giving them an additional Rs 700 (USD 11.5) will not convince them either."

A similar disconnect was visible in the IGMSY policy too. Although the policy aimed to compensate for wage loss during pregnancy and post-natal care, the conditions related only to immunization and exclusive breastfeeding for the first six months. There was no restriction or clause that actually dissuaded women from working during pregnancy even after receiving IGMSY incentives in time. Also, the cash incentive amount under IGMSY (Rs 4000 vs. Rs 700) is almost six times that of JSY and is roughly equivalent to a rural tribal household's one-month income, making it more attractive than JSY.

6.3.2b Implementation limitations in maternal health benefit policies

Structural issues and financial constraints were the two main implementation bottlenecks observed during the field research that limited policy uptake. Structural issues relate to shortage of personnel, absenteeism, vacancies at the community level and lack of competency among the community health workers, ANMs and AWWs across the sample villages[132]. For instance, women did not prefer going to the PHC within the sample area because the medical staff would not stay there at night, leaving the patients alone at the PHC. Absenteeism was also common among the lower medical staff[133]. Such instances can be thought of as temporary, but they have

[132] In additional to shortage of medical staff at higher public hospitals mentioned above.
[133] One respondent had actually traveled to a sub-center as she went into labor, only to find the ANM not present and not contactable. She waited for a few hours, only to travel back to her village and deliver at home with assistance from the local *dai*. Around the same time, the head ANM from one of the sub-centers was transferred without a replacement for the next three months.

serious implications such as: if the medical help is not available when needed during pregnancy or childbirth, the services are of no use later on.

Awareness levels and skill competencies also varied substantially between the AWW and ASHA across villages regarding maternal health benefit policies beyond the amount and documentation paperwork. Many community workers were not clear about the policy provisions and changes. With limited knowledge, they were less likely to inform and persuade women to take advantage of the policy benefits. There was also a visible lack of coordination between ANMs, ASHA and AWWs at the village level while counseling pregnant women regarding policy benefits, often because of a lack of a clear line of authority and accountability among them. ASHA and ANMs were not clear on IGMSY policy benefits whereas the AWW knew little about JSY, JSSK and MAY. Hence, all three would provide fragmented information about maternal health care polices. From the respondent's perspective, all policies are public policies and women were unable to distinguish between all four.

Bureaucratic discretion at the micro level refers to discretion exercised within a range of choice within a set of parameters such as organizational rules, norms, codes or practice exercised by individual service providers acting within a specific organizational and policy context (Lipsky, 1980; Scott, 1997). Street-level bureaucrats, those interacting directly with the beneficiaries, such as ASHA, AWWs and ANMs are responsible for interpreting the rules and whether women should be enrolled within a policy or under what conditions she should be receiving or not eligible to receive the entire benefit amounts. There were four instances of bureaucratic discretion. First, limited awareness about policy norms increased chances of

omissions and exclusions[134]. Second, in some cases, the policy guidelines are ambiguous leading to discretionary decisions or on a case by case basis[135]. The third instance was when an individual service provider decided to act on her accord and did not discharge her duties[136]. Fourth, there were multiple instances of delayed, informal, selective, distorted communication or instructions affecting claiming of the benefits. Some of these instances are discussed below.

A clear instance of the delayed communication was the fact the JSY and IGMSY amendments took over four months to be communicated from the federal level to the community level. An example of distorted communication was observed when ANMs and AWWs told women that IGMSY was only applicable for institutional deliveries[137]. On the other hand, there were also instances where informal communication and instructions were passed on from a higher level that circumvented or diverged from written instructions or policy norms. Some of these communications were reflective of the political priorities (even though well intentioned) of the ruling administrative state. For instance, as per the IGMSY policy, cash incentives can be distributed either through commercial bank accounts or post office accounts. Although the

[134] An AWW did not know how to consider special conditions such as twin births (counted as one or two live births), instances of miscarriage or still births under IGMSY. Some of the cases are specified in the implementation guidelines but the guidelines are not shared by the block level officials. With no clear instruction, she based her decision to enroll the women based on previous experiences. Instructions are often verbally communicated at the block level with possibility of greater discretion.

[135] For instance, under IGMSY the age restriction is nineteen and above but it is not specified at when the age restriction should be imposed: at the time of conception, pregnancy registration at the AWC, at the time of policy enrollment or at the time of childbirth because women could attain nineteen years of age anytime during the nine-month pregnancy period. The AWW recalled that there was no consistency in acceptance or rejection of cases at the block level.

[136] Some acts of administrative discretion were reflective of sympathetic attitudes of local community health workers. An ANM refused to assist a delivery at a women's home because her priority is toward institutional delivery at the sub-center. She stood there while the *dai* assisted the delivery. Such discretionary experiences embitter the villagers as they become more resistant toward public health officials.

[137]This was because the priority was institutional deliveries and they felt that if women knew that the maximum cash incentive was applicable with home deliveries, it would discourage women further from accessing public health care. I was not allowed to specify this provision on the mobile broadcasts on IGMSY because the ASHA supervisor felt this would discourage institutional deliveries.

federal instructions clearly specify that while opening of commercial bank accounts is a priority under the financial inclusion agenda of the Prime Minister's Office, if women held postal accounts, those should be continued. However, at the village level, respondents were instructed to mandatorily open new commercial bank accounts at a specific branch of a specific bank despite having existing post office accounts[138]. Such discretions may be well intentioned but lead to delay in benefit distribution.

The second evidence reflective of political priorities was the requirement of a Adhaar card (unique identification number and an id issued) for IGMSY and JSY enrollment and opening of bank accounts. Mandatory imposition of a Adhaar card for centrally sponsored social welfare policies had been a priority of the earlier federal government and a contentious issue with the Supreme Court instructing that enrollment into Adhaar cards was voluntary and no beneficiary should not be deprived from welfare entitlements. However, Adhaar cards were still considered mandatory for receipt of JSY and IGMSY and commercial banks refused to open bank accounts without an Adhaar card for receipts of policy. Thus, despite clear instructions, these instances of administrative discretion often lead to either delay or denial of cash benefits or higher opt out rate by the households.

[138] A government employee admitted that they had received oral instructions to push for commercial bank accounts and transfer payments to commercial bank accounts only from state level officials. However, when the local media began reporting delays in IGMSY payments, only then was the official allowed to release the funds to existing post office accounts. At a town hall meeting with a senior state level official, I questioned the bureaucrat about the insistence on bank accounts as a violation of the policy, he admitted that the government's priority was financial inclusion and electronic fund transfer (direct benefit transfer); hence, post offices were discouraged because they were not under electronic banking, even though they should be allowed as per the policy.

Delivery of cash benefits are also delayed because of red tape[139]. Instances of red tape involved furnishing all documents even when reapplying under the same policy, delay in application processing, paperback applications despite digitized databased by both the Ministry of Health and the Ministry of Women and Child Welfare for an individual level, digitized, online tracking and monitoring database. Digitization only led to duplication of efforts and served as internal data aggregation and monitoring, without making the enrolment process more efficient. They have not reduced any workload automation of the ASHA and AWW as they maintained paper records. The community worker's understanding of the online tracking system is just another responsibility of data entry once a month. Even when a digitization process attempted to ease the compliance process, it conflicted with the actual field practice. For instance, pregnant women travel to their parent's home for childbirth, which is not her resident village. As per district officials, the ANMs can electronically share the health record through the database with the ANM of the village where the women migrate for uninterrupted care. First, this is rarely done and second, it still conflicted with IGMSY and JSY disbursement. Although women should be given the JSY benefit at the place of delivery, this was not done because the ground staff reported that financial auditors often objected to disbursing benefits to "non-resident" women. I had a school teacher as one of my respondents. She opted for a sub-district hospital for her childbirth where the ANM refused to issue the JSY benefit because she felt that it should be issued by the ANM who was responsible for the village where the respondent was living. Subsequently, the village ANM refused to issue the benefit because the respondent was only

[139] Red tape refers to excessive or meaningless paperwork, a high degree of formalization and constraint, unnecessary rules, procedures and regulations; inefficiency; unjustifiable delays; and as a result from all this, frustration and vexation (Bozeman, 1993) .

living temporarily for her job and technically, should be considered a resident of the village where her husband was living as per her documents. However, the respondent had never lived or registered herself in her husband's village[140]. Such confusions are not uncommon, but persist because of rigid financial audit rules and considered on a discretionary case-by-case basis. There was another case of a woman who stayed at her mother's house throughout her pregnancy, availed all the medical services and had her childbirth at the village sub-center. However, she was denied IGMSY benefits because she was not a resident of her mother's village and "technically could not be registered in the same way as other resident pregnant women from the village." This also becomes a disincentive for the ASHA and AWW to invest equally to these "temporary visitors" because they are not always sure if they would receive their own end of the cash incentive for these women.

Another implementation bottleneck is lack of clear, administrative/hierarchal flow of power and authority. First the claim of accountability and authority is not clear between contractual employees under NRHM and permanent staff employed under the Ministry of Health. In both sub-centers, there was evidence of friction and dissatisfaction between the head ANM and the contractual ANM because the latter is paid much less with no employment benefits that the former has. In absence of the permanent ANM, the contractual ANM refused to issue immunization proof to pregnant women ("*it was not her job")*. Without this immunization document proof, women could not apply for IGMSY installments. At the community, block and

[140] By the end of the fieldwork, she still had not received her benefits, it had been over three months after her delivery for both IGMSY and JSY.

PHC level, it was felt that senior employees lacked effective power to penalize or check non-performance at the lower levels[141].

6.3.2c Benefit delivery in maternal health benefit policies

Beyond such ambiguities, the disbursement of benefits and medical service leaves much to be desired. First, the amount of the cash incentive varies significantly across the policies from Rs 400 for MAY, to Rs 700 for JSY and Rs 4000 for IGMSY, making some policies more attractive to be pursued than others. Second the disbursement mechanisms are different for all three policies. IGMSY is through a bank account (or a post office account), JSY was through a bank account check (not cashable at post offices) and MAY is disbursed in cash. Pregnant women found the process of opening banks accounts[142], keeping track of the payments[143], uncertainty whether the payment would come to a bank account or post office account and multiple trips to the town as overwhelming. Often transactional costs outweighed the incentive amount[144]. These discrepancies further result in lower policy uptake for JSY and IGMSY. Hence, in both cases, information awareness was not sufficient to increase claims on maternal health care benefits, either free medical service or cash incentive. However, women and their families

[141] One such official (off the record) confessed that he fears sexual assault allegations if he tried to be strict on the non-performing ANMs or ASHA workers. During the UNICEF workshops, it was felt that district officials lacked effective power to act on delayed construction projects or repairs of the hospitals.
[142] Many rural households were not familiar with commercial banking processes, with many women unable to even read a bank check. For instance, women were not aware they had been given a back-dated (some with only two to three weeks of validity left) or unsigned checks. In addition, contrary to the Reserve Bank instructions to open zero-balance accounts, many banks asked Rs 250 (USD 4.1) to be deposited up front while opening the account. A formal petition was made by the host non-profit KHOJ apprising the block and district officials about the problems in grassroots banking.
[143] Based on the records observed for sample villages for 2011-2013 under the Right to Information Request, JSY and IGMSY payments were always delayed, not paid as the policy timelines indicated.
[144] Some women decided not to deposit in the JSY check because the cost of each trip to the bank would be more than the incentive itself (USD 8.2 or 11.5).

were most interested in IGMSY because of the benefit amount. In most cases, it would be the husband or the AWW who would operate the bank accounts of the respondents, on a woman's behalf. In the case of free medical services, the most important service perceived by the women is the transport facility and in hospitalization during childbirth, both contingent on timing of availability and quality of service. A delayed ambulance, unavailability of medical staff, lack of quality care and health user experiences can alter the preferences toward private health care and lowering uptake of the service benefit despite information awareness.

6.4 Theory of Administrative Burden

Burden, Canon, Mayer and Moynihan define administrative burdens as individual experiences, interactions or encounters between citizens and public administration officials that are onerous (Burden et al., 2012). These interactions are burdensome because they impose costs on citizens, constraining them from receiving their social welfare entitlements.

I analyze my research findings within the theoretical framework of administrative burden because both, my research and the theory, look at how beneficiary experience their interactions with the administrative state and how these interactions affect social welfare entitlements. From the public management perspective, the use of mobile phones to improve information awareness can be viewed as reducing administrative burdens that mitigate policy uptake. Administrative burdens influence whether citizens are able to receive the services and entitlements. The theory of administrative burden is apt for framing and analyzing the counter factual and rival explanations that led to the limited impact of mobile phones on claiming policy entitlements.

As a theoretical concept, it aims to provide common analytical framework for different, yet similar, concepts of public management that affect policy implementation such as red tape[145], street level bureaucracy, bureaucratic discretion and policy feedback. Initially, administrative burden was conceptualized as an onerous experience faced either by the service provider or by the citizen. Perception of administrative burdens by the administrator meant understanding his policy preferences (Burden et al., 2012). Research showed that such perceptions of administrative burdens by public electoral officials led to the likelihood of shifting responsibilities to others and there being a hesitance in policy innovation (ibid).

However, theory development has focused recently more on administrative burdens placed on the citizens. According to Moynihan, Herd and Harvey, administrative burden on the citizen is a function of learning costs, compliance costs and psychological costs (2014). Learning costs are incurred when citizens engage in collecting information about public services, such as enrollment and eligibility requirements, the nature of benefits and how to access them. This lack of knowledge is also affected by other variables such as distance from the service center, lower education among citizens and language barriers. When citizens comply with the administrative rules, requirements and provide documentation and adhere to discretionary demands, they incur compliance costs. New changes that reduce program participation, more stringent conditions and procedural barriers, restrictiveness of state policies and a measure of the organizational culture

[145] Moynihan, Herd and Harvey differentiate between red tape and administrative burden by viewing administrative burden as a broader concept (2014). They propose that red tape focuses on how rules affect experiences of administrative employees not so much as citizens. Red tape does not include rules that have a legitimate purpose or hold organizations accountable even if unpopular. Red tape is bad and not needed. On the other hand, administrative burdens include rules and regulations that often serve a legitimate purpose and are not bad. Therefore, red tape can be a part of compliance cost. Also red tape relates to rules and processes of the administrative system instead of being specific to a policy. By isolating experiences as a consequence of such rules, whether red tape or legitimate rules, Moynihan et al. are able to look at the implementation of a specific policy contextually. However, it is usually the complexity and conditions for exclusion embedded within rules that leads to an imposition of administrative burden of a policy.

are reflective of bureaucratic discretion (Brodkin, 2011). Research evidence is strongest for compliance costs of administrative burden.

On the other hand, psychological costs arise when citizens feel stigmatized when enrolling for social welfare benefits or when they feel a sense of loss in self-autonomy and stressed while interacting with the state. The stress of stigmatization can be higher when the social welfare is means-tested because the processes requires the recipients to prove their eligibility as poor or deserving of the policy benefits, making the association stigmatized. Administrative processes can also increase stigmatization when interactions with the state lead to a further loss of autonomy. There is also a sense of subservience and frustration when the citizens are compelled to artificially alter their identity to successfully fulfill certain requirements. The evidence for psychological cost is least strong because it is the least overt and not clearly measurable. It is more difficult to the distinguish the stress component from the compliance cost because almost every aspect of compliance does add to a certain amount of stress and no welfare policy entitlement can be completely "without stress."

Administrative burden can occur in any context where the state regulates private behavior in accessing public services. Moynihan, Herd and Harvey propose that the level of administrative burden and its distribution across citizens are a result of deliberate political choice and reflective of hidden agendas influencing policy preference by the administrative state (2014). Such burdens are often projected as "technical fixes" as a policy instrument to pursue a hidden political agenda. However, even small changes in policy can have significant burdens on the citizens. The incidence and distribution of burden also may vary across economic, race, class and gender differences. When applied to international contexts, Heinrich and Brill project that the incidence

and magnitude of burden is much higher in non-U.S. social welfare policy contexts (Heinrich, 2015; Heinrich & Brill, 2015).

Moynihan, Herd and Harvey (2014) base their theoretical justifications of administrative burden on behavioral economics and social psychology, implying that burdens affect policy uptake because of the individual factor in perceived risk and probability, value of immediate benefits are higher than future benefits. The study of administrative burden is relatively recent and it has pushed the "state-citizen interactions" as the unit of analysis and locus in public management, public participation and social welfare literature. Application of the administrative theory has shown that existence of learning costs can lead to under-enrollment and wrongful exclusions, thus undermining the policy objectives. As the theory is developed, we are able to look beyond implementation shortcomings and really understand how and why such shortcomings occur, why certain groups of citizens (based on distinctions of race, class or gender differences) are more burdened because of these interactions and why they are not able to receive their entitlements.

The theory overall projects that efforts to reduce administrative burdens will increase uptake. By focusing on the state-citizen interactions, one can uncover the sources and the mechanisms through which the burdens appear and mitigate policy effects. Therefore, appropriate policy tools and instruments can be devised to either shift the administrative burdens from the citizens to the state or reduce the burdens.

6.5 Analyzing Findings in the Administrative Burden Framework

Applying the theoretical framework of administrative burdens in this case of maternal health care benefit policies, the above findings can be seen as administrative experiences. This research examined how the target beneficiaries—the pregnant women and their families—navigate through the burdens and choose between receiving the entitlements or opting out of the policy based on the burdens imposed relative to the incentives or entitlements. The above findings elaborate why burdens occur and how they affect policy enrollment and entitlement receipt.

These experiences or interactions imposed costs or burdens on the service providers and the beneficiaries. The audio broadcasts through mobile phone were aimed to reduce the learning cost of the administrative burden for the beneficiaries by providing information on policy eligibility and entitlements. The findings show that the administrative burdens were also faced by state administrators, specifically the street level bureaucrats- the ASHA, ANM, AWW and block level official. First, the interviews with the community workers showed that they themselves were not completely aware of the policies for which they were responsible and had to depend on oral instructions and clarifications from higher officials. Second, as explained in detail below, the community workers have to incur compliance costs. These learning costs and compliance costs from bureaucratic discretion, red tape, resource constraints and informal communication from higher levels made their own administrative experience as onerous. As proposed by the theory (Moynihan et al., 2014), some burdens could be linked to political priorities of the federal and state governments and were justified as technical fixes for legitimate public values of transparency and accountability.

On the beneficiary side, the impact of reducing learning costs by information awareness was offset by existing compliance and psychological burdens. Burden of compliance on the women included design issues from legitimate policy requirements and exclusions, implementation bottlenecks of red tape, bureaucratic discretion, financial delays and additional compliance requirements imposed because of policy changes and "technical fixes." The psychological cost included stigmatized identity was more complicated in the Indian context than proposed in the theory. I explain these in detail below.

On the other hand, certain experiences also reduced administrative burdens on the women as well. Linking ASHA and AWW incentives with enrollment and entitlement disbursement of the beneficiaries shifted some learning and compliance burden from the women to these community workers[146]. In addition, with multiple policies and incentives, families exercised their autonomy and strategically chose to pursue one policy over another[147], thus reducing their administrative burden but also their entitlements. Moreover, social and cultural preferences as reasons for opting out of policy entitlements are not administrative burdens. I elaborate on these observations below.

The first step in systematically understanding and estimating the effect of these burdens was to identify and define them, specifically what experiences account for which component of the burden. The eligibility requirements, the complicated compliance and benefit delivery

[146] ASHA and AWW receive their compensation or incentive only when the beneficiary is enrolled and has received her entitlements. Hence, the ASHA and ANM have a vested interest in ensuring eligible women are enrolled, their applications are submitted and the conditions are met. It was observed that ASHA and AWW filled out the application forms, collected the beneficiaries' documentation, submitted to the block office and followed up on the disbursement.

[147] This is not to say they do not get enrolled in other policies because ASHA and the AWW would automatically enroll women as soon as they registered their pregnancy. From the household's perspective, they were interested and directed their effort in complying with the requirements of the policy with the highest incentive, that is, IGMSY while not following up on JSY or MAY.

mechanism imposed a learning cost on the women and the families. As proposed in the theory, among the four maternal health benefit policies, the conditional transfers and mean tested policy of IGMSY and JSY had the maximum conditions and exclusions, hence imposed a greater administrative burden. However, IGMSY had the highest value of entitlement.

The compliance costs in these polices are the burdens imposed because of exclusion (as they follow the exclusionary conditions), the collection of documentation and fulfilling conditions of mean-tested policies. Although Moynihan et al. do not explicitly categorize the components of compliance costs, they allude to the fact that red tape and bureaucratic discretion are a part of compliance costs (2014). Taking this forward, the compliance costs then can be seen as a composite of at least three different burdens—legitimate policy compliance[148], compliance costs because of red tape[149] and compliance imposed because of bureaucratic discretion[150]. Legitimate policy compliance would be the compliance burdens in providing documentation and following rules as specified in the policy. Compliance costs because of red tape are the costs incurred by the beneficiaries because of complexity and delays in the administrative system that may or may not be specific to the policy. These could include administrative errors, resubmitting documentation each time enrolling into the same policy, delay in application processing, multiple trips to banks, or returned checks leading to a delay in payments, proof of residency mandated for financial audits, or delay in ambulance transport when needed.

On the other hand, compliance costs because of bureaucratic discretion would be the burdens borne by the family because of lack of awareness among the community workers

[148] These would be the compliance costs as outlined in the policy itself and legitimate because they are specified in the policy design.
[149] In concurrence with Moynihan et al.'s (2014) view that red tape excludes rules that exert legitimate purpose and may be organizational or structural rules and process and not policy specific.
[150] As outlined in the previous section.

themselves and because of non-institutionalization in treatment of different cases or situations. Bureaucratic discretion surfaces when community health workers, the AWW and block level workers interpret policies on a case by case basis to determine their eligibility and benefit amount. At times, ASHA and the AWW would wait until they collected more than one application to submit at the block level to save cost of trips, thus delaying enrollment for some women. As explained above, such discretions could lead to delay in application processing, denial in eligibility or additional incidental compliance costs, such as making a special case or pursuing the case with higher authorities.

According to the theory, the incidence and distribution of administrative is also reflective of political priorities and often such policy shifts are justified as technical fixes. Some compliance costs, such as compelling women to open a commercial bank account at the block office (despite having a post office account in or near their village) or insistence on Adhaar card enrollment were indicative of the political priority of administrative state toward their flagship programs of direct benefit transfers and Adhaar enrollments. They were justified as ways to curb leakages, delays in entitlement delivery and making the overall governance more transparent. However, such compliance costs also imposed a psychological cost by adding to the stress and loss of autonomy in accessing cash benefits.

Looking at sources of psychological costs, the first source was the policy design and the eligibility conditions. Restrictions on age and number of births signaled adolescent women and those with higher gravida to see themselves as undeserving of the cash benefits and often rebuked by the community workers for not following family planning norms. However, the overlaps in the policies did not directly affect policy uptake, but when faced with multiple policies and administrative burdens of each policy, beneficiaries are likely to make strategic

choices and pursue the policy (or policies) they find most useful or attractive to them. This could be viewed as a negative psychological cost instead of a loss in autonomy; families are in a position to actually exercise their choice in selecting which policies to opt for. However, if there is auto enrollment in all the remaining policies, which the burden of compliance is on the ASHA and AWW, then the attrition may not be that significant. This is because the burden then falls on the community workers lest they lose their share of the incentive.

However, the conceptualization of psychological cost as stigmatization because of program participation is different in the Indian context that suggested by the theory. Policy feedback analysis in the United States show that beneficiaries feel stigmatized when identified as a recipient of social welfare entitlement. Participation in the welfare program is the source of stigmatization, hence a psychological cost. In the Indian context, it is the identity of the person as a SC or a ST that leads to stigmatization and social exclusion, but it is the same identity that makes the person eligible for affirmative action and social welfare entitlements. Hence, the welfare benefits are demanded and considered as "rights" and entitlements by the disadvantaged groups. In fact, as mentioned in the literature review, the attractive social welfare entitlements, including reservation, makes other communities desire (even demand) to be identified as a SC/ST group or an OBC. Hence, the stigmatized identity is sought after to claim the social welfare entitlements. However, this does not reduce the social stigmatization, oppression and oppression of SC/ST population because the general population still considers such communities are "undeserving of such privileges."

Further, as mentioned above, imposition of incidental rules that compel beneficiaries to open bank accounts limits their accessibility toward their entitlements leading to a sense of loss of autonomy and choice. The frustration and uncertainly of not knowing whether and when the

households will receive the benefits, and if at all in its entirety, all add to the psychological burden in lieu of the entitlements.

Beyond the policy design and implementation factors, other reasons for lower policy uptakes are *residual* because they cannot be classified as an administrative burden but still lead to a lower policy uptake. Cultural preferences, cognitive bias, experiences from previous administrative experiences and low quality of public health service also lead to a lower uptake of the benefits policies. However, if administrative burden is measured as exclusion or opt out rate or monetary loss in welfare transfers from the social welfare policy, then these residual exclusions should also be accounted for as confounding reasons.

To conclude, the above comparative analysis of political practices and program designs helped identify burdens that undercut policy uptake. Unlike the social security program in the United States, where the onus of data collection falls on the state, here the onus of proof of eligibility falls on the beneficiary, assisted in some measure by the community health workers. Consequently, information technology, digitization, government data systems here can be effectively used for data collection, internal monitoring but does not reduce or eliminate burdens placed on the women, beyond mere duplication.

However, all hope is not lost. As suggested in the administrative burden research, the recommendations of digitization of records, a central or common application format for all social welfare policies and auto enrollment can lessen the impact of administrative burdens. Streamlining of implementation processes and minimizing changes in policy can also encourage the beneficiaries to enroll and continue to receive their benefits. In addition, as observed above, linking the incentives of the ASHA and AWW with beneficiary entitlements also reduces the burdens for recipients. Even though the impact of mobile phones was limited, its application still

holds potential in reducing learning costs for both service providers and beneficiaries. These and other recommendations are discussed in detail in the next chapter on recommendations.

Chapter 7. Conclusion

Introduction

This chapter summarizes the key findings of the dissertation research and makes recommendations for using mobile phones and ICT for improving maternal health benefit policy implementation and public governance more broadly. I also reflect on the maternal health care benefit policies based on my fieldwork. I end with a brief research plan for future research.

7.1 Summarizing the Research Findings

The motivation for this dissertation was to find solutions for real life public management issues. As an example of action based research, designing the mobile phone broadcasts was both relevant to the increasing academic interests in ICT applications and m-governance and as testing of an actual functional system at the field level for the practitioners. It is true that mobile phones cut across economic, social and geographic differentiations. They are pervasive and become entrenched in all aspects of personal and social life, including many areas of public governance. Today, India has the world's second largest mobile network with over one billion wireless subscribers. The Indian government is embracing m-governance and has initiated a nation-wide mobile phone awareness campaign on maternal health in 2013. It has attracted multi-national corporations as well. Microsoft recently adopted and decided to develop Harisal[151], a remote village in Melghat as India's first digital village in hopes of offering e-

[151] This is a village with high rates of child malnutrition and infant mortality. As a remote village, it is still struggling with no roads and no electricity. Microsoft promises to provide solar electricity in each of the 400 houses in the village.

panchayat, mobile connectivity, Wi-Fi zones, cashless markets, smart cards and telemedicine facilities to the households (Chatterjee, 2016; Khapre, 2015). M-governance applications, such as m-health holds promise in expanding and delivering health service to poor income and resource settings in a cost effective manner. The use of ICT in governance has increased in other countries across the world too, including the United States[152]. In addition, within the whole gamut of m-governance and m-health general initiatives, this research was one of the few initiatives[153] that attempted to provide policy specific eligibility and entitlement information to the public. I hope this research is able to inform the design and implementation of such initiatives by policy makers and practitioners alike in the future.

Mobile phones as a personal medium of information and communication, when integrated with internet and online software options, has opened up endless possibilities of information dissemination and data collection through text, voice or multimedia, making governance more transparent and participatory. This dissertation showed that mobile phones as an ICT medium could reduce learning costs, improve policy awareness and trigger engagement between the beneficiaries and street bureaucrats. When beneficiaries received the policy relevant information through their mobile phones, they became interested in the policies and sought out more information. They engaged with the community workers to inquire about demand

[152] The U.S. government has pushed toward m-governance with Open Government initiatives and Digital Government Strategy with key objectives of being information- and customer-centric. With the push toward mobile apps, there are over 300 apps developed by 75 federal departments. For more information, look at https://www.whitehouse.gov/sites/default/files/omb/egov/digital-government/digital-government.html (accessed on May 31, 2016).

[153] Perhaps the only one except another initiative within the larger Center for Liberation technologies project at Stanford, which provides customized welfare entitlement information to individuals enrolled in a rural employment workfare program, MGNREGA.

entitlements. Even in a limited sense, mobile phones were able to stimulate public engagement, which the earlier methods of information dissemination could not.

However, the key contribution of my research is contrary to the optimism about m-governance because my findings suggest mobile phones still are not the "silver bullet" for increasing receipt of social welfare entitlements such as maternal health benefits in this case study. There is merit in the promise of m-governance, but with caveats. This research intervention provided critical insights into the relevance of, and reliance on, mobile technologies in public administration. First, mobile phone ownership, accessibility and usability is far from egalitarian and universal. Second, there is a strong implicit assumption of technological determinism, which allures us to believe that introduction of technology is the solution to all management inefficiencies. It assumes that application of a technological system is independent of the social dynamics, policy and political context in public management. Third, even when the technologies are implemented, they may reduce but cannot completely bypass the fundamental challenges of policy design, administrative burden, deficiencies and bureaucratic processes. In the case of maternal health policies, because the benefits policies were linked with public health care systems, the uptake of benefits is marred by poor quality service and further mitigated by ineffectiveness of the policies themselves. The impact of mobile phones and other information technologies would be marginal as long as there are administrative deficiencies and misalignments. Providing information will not be of any use if the assured medical services[154] cannot be provided. Fourth, a technological solution can improve policy uptake but can do little to change social, cultural and personal preferences toward health, at least in the short run.

[154] For instance, assuring that the ambulances arrive in time or the doctor is available at a medical facility.

From a theoretical perspective, by analyzing findings through the lens of administrative burden, this research advanced the relevance and application of the administrative burden theory in a health policy context with a non-U.S. perspective. Mobile phone broadcasts were meant to reduce the learning costs component of administrative burden placed on the women and help improve the policy uptake. The analysis reaffirmed many prescriptions of theory including that burdens do lead to a lower policy uptake, with the possibility of higher burden placed on the disadvantaged groups (on the basis of race, caste, class, income or gender) and such impact of burdens can be higher in developing countries (Heinrich, 2015; Heinrich & Brill, 2015; Moynihan et al., 2014). At the same time, the research highlighted areas where administrative burdens can also be different in the Indian social welfare policy context, such as the uncertainty of receiving the benefits and in their full measure even after fulfilling all obligations and different source stigmatization. The conceptualization of certain burdens like those arising from stigmatization can be different in different cultural settings. Simultaneously, this analysis also pushed the theoretical agenda by acknowledging that such burdens can exist for the individual service provider as well for the beneficiary. Process tracing such burdens enabled me to identify the source of such administrative burdens. Based on the qualitative findings, I offer suggestions to reduce such burdens through different measures, including ICT and mobile phones.

Based on the findings, I put forth two sets of recommendations in the following section. First, regarding the potential use of mobile phones in m-governance and specifically toward maternal health policies in India. My second set of recommendations are directed toward expansion in the scope of maternal health care as viewed currently and toward restructuring of the maternal health care benefit policies in India.

7.2 Recommendations and Future Research Plans

Even though mobile phone broadcasts had limited impact, they showed potential. There were learnings regarding the design, content, medium and broadcast from the experiment. First, the research underscored the need for a simple design and contextualized content. Voice broadcasts with clear, simple information in a familiar conversational manner emerged most useful, recognizing that many targeted beneficiaries may not be familiar with mobile phone usage. With the multiple regional languages and dialects spoken in India, it becomes important that the information content is localized as much as possible. In this research, respondents and their families found the information translated in their Korku dialect most useful, as compared to Hindi or Marathi. In addition, for areas such as maternal health awareness, the information should be designed to be generic enough to target not only the pregnant woman, but also other members of the household, specifically the older women (mothers or mothers-in-law) and male members (such as husbands) because they are more likely to receive the message, decide whether to communicate the information and more likely to make decisions on behalf of the pregnant women. A similar approach was taken by the MAMA group by targeting not only the pregnant women but also their husband for maternal health awareness. Moreover, when using mobile phone messages, there is always a choice of media- voice, text or multimedia formats. Each format has it benefits and limitations, with voice (including an interactive voice response system) being more interactive and requiring lesser literacy requirement than text, but limited by patchy service provider network coverage in the rural Indian landscape[155]. With voice messages,

[155] In this research too, the broadcast rate was low because mobile phones were out of network coverage at the time of calls. For voice calls, the phones must be in the coverage area at the time of the call. Other systems provide the option of dial-back later, but the onus is placed on the respondent to call back and that costs money. In India, incoming calls and text messages are free but all outgoing calls and text messages are charged. As an alternative, many initiatives, including those by private banks now offer the option of a missed call, where one can just "flash" or a give a missed call a certain number and the interactive voice system calls back, making the call free of charge.

information may not be stored for future reference. In contrast, two-way interactive voice response systems have also been developed; however, they have a learning curve. Text messages, in turn as an alternative, can partially overcome the coverage issue and can be stored for future reference. However, designing the text message can be complicated with multiple language scripts and ensuring compatibility with different mobile phone handsets. Therefore, it is suggested to use a combination of methods for better outreach and increased frequency and longer time period for such interventions to improve the message uptake. However, it should also be kept in mind that most mobile connections in rural areas are prepaid or pay-as-you-go connections and users frequently change network providers and mobile phone numbers based on the cheapest offers available. Hence, maintaining an updated database will also be a pragmatic challenge.

Beyond technical aspects, mobile phone broadcasts generated interest but could only go so far. They are not the "magic wand" to replace other IEC methods. At most, mobile phones can only complement the existing awareness initiatives. The baseline study showed that women preferred home visits and face-to-face interactions the most followed by written literature material. Among younger women, mass media such as television spots were also popular[156]. Therefore, it is important that such ASHA home visits and ANM interactions must be focused and policy specific with distribution of written materials about the policies [157]. There is a need to

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For more initiatives, look at, *Five things you can get in India with a missed call,* http://blogs.wsj.com/briefly/2016/05/13/5-things-five-things-you-can-get-in-india-by-using-a-missed-call/ accessed on June 14, 2016.

[156] One such campaign was a television spot highlighting five key points for maternal health by popular Bollywood actor Amir Khan during 2013. Some women were able to recall the content of the TV spot.

[157] Participant observations of ASHA and ANM visits to pregnant women revealed that interactions were general conversations about eating meals, not lifting weights, requests for institutional delivery etc. over maternal health policy specific information.

develop simple interactive materials for women to track their own health progress[158]. For example, during the baseline survey, I realized women could not recall the number of ante-natal checkups they had attended or their expected delivery dates. In addition, they requested to have contact information for the ASHA, ANM, NRHM helplines or PHC numbers to call for medical help when in need. In collaboration with my host organization KHOJ, we developed a simple wall calendar that included emergency contact information of health officials and the helpline numbers for the ambulance. Women pasted the calendar on their walls and circled their expected delivery date and the dates whenever they went for an antenatal checkup (Figure7.1). Such simple, inexpensive and visual interactive ideas enabled women to be more proactive towards their own maternal health while ensuring they fulfill the policy requirements alongside.

However, there are other potential areas where mobile phone communication was found to be equally useful. With lacunae in information awareness among community workers and officials, mobile phones (with similar voice or text broadcasts) can be an efficient and cost-effective medium to keep community workers informed about different policies and updated on policy changes. The Indian Ministry of Health and Family Welfare already collects contact information for employees and women on their online tracking system and sends text and voice messages on general maternal health. Such a system can be put to use for policy awareness as well among employees and the beneficiaries[159].

[158] Women need to attend at least three (now five) ante-natal checkups to qualify for the first installment of IGMSY.
[159] The Ministry of Health and Family Welfare and the Ministry of Women and Child Development each have their own individual level data base of the beneficiaries and the community workers, including mobile phone numbers. Perhaps in addition to maternal health awareness messages, the government can also send audio and text messages regarding policy changes.

Figure 7.1 Hindi Day-to-Day 2013 wall calendar: The top portion of the calendar contained contact information of health officials and ambulance. The calendar allowed for women to mark ante-natal checkups and their expected delivery date for their own tracking.

The second set of recommendations emerging from this research is regarding the expansion of the scope of maternal health care and restructuring of the maternal health benefit policies. Maternal health care is more than clinical management during pregnancy, childbirth and post-childbirth. Maternal and child health are more of a nutritional issue than a curative one, not only in Melghat but in elsewhere in Maharashtra too. According to official records, more than 60 percent[160] of infant mortality deaths and stillbirths in 2011-12 with the sample PHC were a result

[160] From field notes.

of premature delivery and low birth weight. Further, preterm birth and low birth weight were the main cause of infant mortality in the state (Mascarenhas, 2016). Premature delivery and low infant birth weight are highly correlated with the mother's health and nutrition.

In addition, medical issues such as post-partum depression are common even in normal pregnancies, let alone in situations of miscarriage and stillbirth, but these are not focused on in the India's existing maternal health care framework. Although the MDGs were successful in focusing global attention toward the maternal health crisis in developing countries, maternal health care was benchmarked with quantitative targets of institutional delivery, number of ante-natal checkups and immunizations rate only. Because these targets were pushed down the administrative and health care system, lesser attention was given to the quality of health care provided and salient issues of maternal morbidity. Even within the maternal health benefit policies, maternal health benefits (cash, nutritional or medical services) were aimed only toward ensuring "live births." Women who had unsuccessful pregnancies (stillbirths, miscarriages, or clinically ill otherwise) just fall out of the system[161] with no additional care provided to help them recuperate. This becomes a serious concern in Melghat because almost ten percent of my respondents had unsuccessful pregnancies in 2013[162] but were not provided any additional medical assistance post-delivery.

Further, prioritization of institutional delivery has also disrupted the traditional community health care support systems. Although public health care institutions are recommended, they are also the weakest at the village, block and district levels in the rural areas. Therefore, it becomes difficult to convince beneficiaries to prioritize public health care

[161] If at all, they are marked as high risk mothers in the system.
[162] Cases of miscarriage, stillbirths and infant mortality during the fieldwork.

institutions over private or home deliveries. Home deliveries and *dais* are criticized in pursuit of institutional delivery targets even when they are accepted in other countries, including the United States, where home births still constitute 1.3 percent of total births[163]. This led to the marginalization of the *dais*, who previously were, and in many ways still, responsible for providing the critical level of emergency obstetric health in the villages (Ghoshal, 2015; Kakar, 1980; Saboo, 2009). *Dais* were previously trained and certified in midwifery by the government themselves but over time, were replaced by ANMs[164]. On the other hand, seminal work in maternal and infant health care by Abhay Bang and Rani Bang of the SEARCH organization in Gardcharoli, Maharashtra has shown successful results in declining infant mortality by training these local village *dais* in providing para-medical maternal and infant care (Bang, Reddy, & Deshmukh, 2002; Bang et al., 1989). Their Home Based Newborn Care model has been internationally recognized by UNICEF and WHO and widely replicated internationally (Day, 2011). With persisting shortages of trained personnel at the grassroots level and continued high rates of home deliveries, there has been a renewed demand to reintegrate the *dais* into the system, even in India, to achieve the MDG 5 targets (Deka, 2014; Devraj, 2015; Mohan, 2015; Sinha, 2012). I do not recommend that home deliveries are in any way safer than those supervised by trained medical staff health care institutions, but until such time as the public health care system is equipped to provide quality medical service, the maternal health care approach should be more inclusive of these community alternatives. Such stark ground level disparities and realities necessitate a revised outlook toward rural maternal health care in India.

[163]Home Births in the United States, 1990-2009 http://www.cdc.gov/nchs/products/databriefs/db144.htm, accessed from CDC accessed December 14, 2015

[164] Today the indicator for deliveries assisted by skilled birth attendants do not include deliveries assisted even by trained and certified *dais*.

Correspondingly, similar restructuring is needed in the maternal health benefit policies, specifically those pertaining to conditional cash incentives. At present, the three cash incentive polices provide different amounts of cash incentives after satisfying different conditions of maternal health care. The incentives are disbursed at different times during pregnancy through different modes. The complexity in the policy design and implementation can be daunting for rural, semi-literate women.

My first recommendation is consistency in policy design including eligibility conditions, especially regarding the age and number of birth restrictions. If the age restriction is considered important, then it should be the same as the legal age for marriage, that is, eighteen years[165]. Similarly, the conditionality of number of births or whether such benefits should be made universal (such as with the expansion of IGMSY under NFSA), or the policy should remain means tested are legitimate concerns when looking at financial feasibility of these policies. But these restrictions do not hold merit when based on assumptions that when linked with cash incentives, they implicitly induce "appropriate" family planning behavior or the reverse argument, that removal of such restrictions will encourage more births. If at all culturally relevant and effective, the more appropriate policy tools for promoting family planning are the cash conditional incentive policies for sterilization, which already exist. Maternal health should be distinguished and divorced from notions of population control. In addition, policies must not be ambiguous and parsimonious. There must be a more direct link between the policy objective, conditionality and measurement of the anticipated behavior. If the policy is aimed at institutional deliveries, then it must offer the choice to the beneficiary to opt for public or private health care.

[165] If a woman is allowed to marry at eighteen and considered mature enough to be an adult and cast her vote, she should be considered capable of making her reproductive decisions.

If women need to be compensated for their wage loss during pregnancy, then the eligibility should be measured by proof they did not work during the time for which compensation is sought[166]. In addition, the policies and their guidelines must institutionalize all foreseeable situations in which the policies can be applicable. Such observations also highlight that although much attention is given to implementation structures and impact evaluation, less consideration is given to policy design, how policies are formulated, worded and communicated. As shown in this research, both policy implementation and impact suffered because of shortcomings in the designs itself, leading to a lower policy uptake.

It was also observed that maximum administrative burden imposed related to compliance costs. As mentioned in Chapter six, linking community health worker's incentives with enrollments and cash incentive delivery to the beneficiaries. This had the similar effect as auto enrollment by shifting the burden of enrollment, providing documentation and follow up to the community workers from the beneficiaries. To this effect, the burden can be further reduced by digitization, centralization of the data and making it more transparent. If digital records can be linked to the online digital databases, then the burden of re-documentation can be reduced. This would involve institutional reforms to accompany technological changes. In addition, there is a need to interlink and centralize vast amounts of digital information collected by the administrative state to reduce duplicity. At present, multiple data systems are created at the federal and the state level and across the different departments collecting similar information such as the Health Management Information System, Mother and Child Tracking System by the Federal Ministry of Health with additional systems developed by the Ministry of Women and

[166] This is an example to demonstrate that the conditions in a social welfare policy should be consistent with the policy objectives. In the case of IGMSY, it becomes complicated with the NFSA, which had made the policy universal.

Child Welfare to also track the health of pregnant women through their service providers (AWW). This is further duplicated through additional databases maintained by individual state governments and non-profit organizations. For instance, World Vision maintained a similar individual level database for the villages it covered under its own mobile phone initiative. In turn, these increase the burden of information collection and data management at the field level. The linking of the Aadhaar card with all federally sponsored policies is a step in this direction but only in tracking disbursements of the social welfare policy entitlements, not individual level information[167].

Similarly, I recommend moving from a complicated silo-department approach toward an integrated service benefit delivery (single window) approach. Disbursement of cash incentives for maternal health from different policies, even if sponsored through different departments, can be disbursed through a single medium—a single bank or post office account or by cash or check. Additional conditions such as single ownership account for one policy and a household joint account for another only dissuades women from claiming the benefits. From a client-based perspective, a single window approach has been recommended under the new public management discourse. Also, as proposed by the administrative burden theory, even small technical fixes and or frequent policy changes can result in significant burdens on the beneficiaries. Even slight changes in compliance or disbursement can make women opt out from the welfare entitlement. For instance, in JSY, bank checks were introduced to curb leakages but led to lower policy uptake. However, if direct bank transfers are recommended now for IGMSY,

[167] Aadaar card numbers are linked to benefits disbursement of federal sponsored social welfare policy. My recommendation is toward a centralized digital database that can link an individual's health, employment, taxation and other attributes to the Aadhaar Card. This is similar to the Social Security Number database maintained in the United States.

JSY payments should follow the suit[168]. Basically, the easier it is for the beneficiaries to receive the entitlements, the more likely they are to stay enrolled and fulfill the conditions, if any.

7.3 Summary

In the end, even as a small case study, I believe my research in information technology in public management and maternal health has relevance and implications beyond the geographical contexts of India. Regarding my future research agenda, as the political and administrative interest in open government, digitization and internet transparency continues to grow in the United States, I plan to continue research in identifying and developing necessary administrative and institutional frameworks needed to ensure such initiatives are effective in a comparative global context. I am interested in understanding the advantages and the ramifications of using ICT in public governance. When the Affordable Healthcare Act was implemented through health exchange websites, it allowed millions of Americans to enroll for health care for the first time, but it became rapidly clear that it was not without teething problems. Who are the people that are being left behind because of design flaws in digital governance? And how should bureaucratic systems and process adapt to ensure equality and equity? How does digital governance change our conceptualizations of transparency and privacy? I find these questions pertinent and worth pursuing.

In addition, mobile phones have emerged as a powerful tool for information collection and dissemination, community monitoring and engagement. I intend to further develop this line

[168] As per government orders, JSY is also eligible for direct bank transfers just like IGMSY, yet bank checks were disbursed in Melghat in 2013.

of research and have already begun follow-up work for my next step. During my doctoral dissertation fieldwork, we pre-tested ways to collect real time information on availability of medicines and availability of health services in rural areas, through text messages in a community-based real time monitoring approach. With smartphones and millions of applications, the possibilities are endless. Beyond further developing my research in India, I foresee avenues for future comparative work contrasting health information delivery and service delivery in India and the United States. The United States is one of the few developed countries where maternal mortality is increasing and the government has undertaken initiatives such as Text4Baby to increase awareness among pregnant women. I think there is fascinating work to be done contrasting the limited impact information has in the face of political and social marginalization in rural India and I want to explore the U.S. context to see if similar forces could be at work as well. Going forward, I envisage conducting active and engaging research on similar domestic and global avenues.

To summarize, my current and future research interests lie at the intersection of information communication technologies, public management and policy implementation and collaborative governance. I firmly believe in the synergy of research and practice and envision working with both public officials and communities to explore and evaluate the use of these technologies in improving bureaucratic processes and strengthening community participation. I believe such research can fill a significant gap in the public administration literature about administrative burden and policy implementation.

Appendix One: Baseline Survey Instrument and Key Policy Documents
Role of Information Technology in Policy Implementation of Maternal Health Benefits in India

Principal Investigator: John McPeak Researcher: Nidhi Vij
IRB Approval: 12-205, Syracuse University

Schedule 1: Pregnant Women -Individual Household Questionnaire

Note to the Researcher: *Please read the Consent form and take oral or written consent (wherever applicable) before proceeding with the survey. Explain the objective of the survey and the role of the research participant in the research. Participation in the research is completely voluntary and the participant may choose to withdraw from the survey at any point in time. Answer all questions and queries that the participant may have. Provide your contact information (Local and the University Information) as mentioned in the consent form before proceeding with the survey. Follow all procedures as approved as per the Protocol IRB-12-205.*

Date: (day) /_____/ (month) /_____/ (year) /_____/

District: /_____/ **Block:**/_____/

Gram Panchayat: /_____ Village:/_____/

1. Name of the household head and relationship with the respondent:

_____

2. Name of the respondent: _____

3. Number of household members:

Adults (age 18 and above)	/_____/
Children	/_____/
Women	/_____/
Others	/_____/
Total	/_____/

(Please consider a nuclear family as a unit of analysis, if other members also stay then mention separately in others)

4. Caste/community of the household: /_____/
[1 = SC; 2 = ST; 3 = OBC; 4 = Caste Hindu; 5 = Muslim; 6 = Other (specify)]

5. BPL/APL Card /_____/

6a. Main Occupation of the household: /_____/
[1 = Self-employment (agriculture); 2 = Self-employment (non-agriculture);
3 = Casual labour; 4 = Regular employment (naukri); 5 = Other (specify)]

6b. Main Occupation of the respondent: /_____/
[1 = Self-employment (agriculture); 2 = Self-employment (non-agriculture);
3 = Casual labour; 4 = Regular employment (naukri); 5 = Other (specify)]

7. Amount of land owned: **/_____/acres**

8. Annual Income of the Household (estimated else take monthly x 12) /_____/

9a. Level of education of the respondent:

9b. Level of education of the husband:

10. Communication Assets Owned by the respondent Y/N /_____/
(If yes then ask I. if no then go to II)
[1 = Computer; 2 = cell phone, 3= Television, 4=radio, 5= other, specify]
I. If they own mobile cell phone(s) then

- Number (1) +91-
- Number (2) +91-
- Who is the service provider?
- Average monthly expenditure on mobile phone?

(Note: try to ask the respondent to show the mobile phone and ask then explain how they use it)

- What brand of mobile, type of connection (prepaid/postpaid)? Is it a smart phone?
  Brand _____, Type_____ Smart Phone _____
- Does it display text in Hindi language? 1= Yes, 2= No /_____/
- Do you send (write) or receive (read) text messages? 1= Yes, 2= No /_____/
- If No, then does someone in the family reads the messages for you /_____/
- How do you store numbers into the phonebook?
  (Note if the respondent can explain the procedure or who does it for her)

- How do they charge the mobile phone, is there electricity? 1= Yes, 2= No /_____/
- Any other use of mobile phones (eg. do they play games, use any applications, or access internet)

II. If **No** then, do they have access to a mobile phone- another family member, neighbors, relatives and any other?

- Who has the mobile phone, (name)
- Relation with the respondent (specify)
- Do you make and receive calls on that mobile phone at your convenience? 1= Yes, 2= No
  /_____/
- Does it display text in Hindi language? 1= Yes, 2= No
- Do you send (write) or receive (read) text messages? 1= Yes, 2= No?
- If yes to above, then ask for the mobile number _____

11. Information about Pregnancy History and Current Pregnancy

- **Pregnancy History & preferences (based on number of children mentioned above)**
  - Place of delivery for previous childbirth
  - Whether ANC checkups, an
  - Schemes for which benefits were availed
  - Any complications during previous pregnancies
  - Do you (or your family has preference for sons), would you have more children till you have a son?
  - Any out of pocket expenses paid during previous pregnancies (which was not reimbursed)

- **Current Pregnancy Details**
- Estimated date of conception
- Month of Pregnancy and Trimester
- Expected date of delivery (DD/MM/YY)
- Any complications or precautions advised by medical officer, if know?
- Has the pregnancy been registered?
  - Anganwadi Center 1= Yes, 2= No /_____/
  - Public Health Center 1= Yes, 2= No /_____/
- Preference for delivery
  - Home 1= Yes, 2= No /_____/
  - Government clinic/health center/ hospital 1= Yes, 2= No /_____/
  - Private/Non-Government clinic/health center/ hospital
- Is the respondent registered and have the following identification cards (1=Yes, 2 =No, 3= Don't Know) /_____/
  - Janani Suraksha Yojna and Card /_____/
  - Mother and Child Protection Card /_____/
  - Janani Shishu Suraksha Karyakaram Card /_____/
- ANC Camps
  - Do you know when ANC camps are held /_____/
  - Do you visit the ANC camps /_____/
  - Who informs you about the ANC camps /_____/
  - If they do not attend, then why?

- What are the other mass sources of information about pregnancy and health (TV, radio etc)

- List 5 people you contact or ask if you have any questions or queries about your pregnancies

12. Understanding the awareness of policies for pregnant women and sources of information

Please ask the respondent about her knowledge about different policies and the entitlements that she should be entitled to. Also ask her the source of this information and who counsels her about nutrition, health checkup, immunization and other related information.

(Note: try identifying the points where the respondents find it most difficult to provide information/ or low level of awareness, without probing or leading questions. At times, the respondent may not know the name of the policy but the entitlement they should receive, Ask the ANM/ASHA worker how the policy is popularly known as)

Tick the relevant section the respondents are aware of

I. Janani Suraksha Yojna (JSY) /_____/

1.1. Objectives of the scheme (to encourage institutional delivery) /_____/
1.2. Eligibility requirements (above 19 years, BPL households, SC/ST households in Maharashtra) /_____/
1.3. Benefit eligible for first two live births /_____/
1.4. Rs 700 cash assistance for institutional delivery: /_____/
1.5. Rs 500 cash assistance for home delivery: /_____/
1.6. The above includes cash benefit of Rs. 500/- for registration for ANC with the ASHA/ANM/PHC, disbursed at the time of delivery, or within 7 days, irrespective of the place of delivery. /_____/
1.7. Benefit paid in one installment including compensation amount for sterilization if applicable at the time of discharge from the hospital/health centre. /_____/
1.8. Assistance upto Rs 1500 for caesarean for referral and treatment /_____/
1.9. Rs. 600 package for ASHA includes referral assistance for ASHA and the pregnant woman to the nearest health center /_____/

II. Janani Shishu Suraksha Karyakaram (JSSK) /_____/

2.1. Objective of the scheme (providing free ante-natal, postnatal and neonatal care to reduce MMR and IMR): /_____/
2.2. Eligibility requirements: /_____/
2.3. Free Entitlements for pregnant women
- Free and cashless delivery /_____/
- Free C-Section /_____/
- Free drugs and consumables /_____/
  (Free iron folic acid to be given during ANC, INC, PNC upto 6 weeks)
- Free diagnostics (Blood, Urine tests and Ultra-Sonography etc) /_____/
- Free provision of blood /_____/
- Exemption from user charges /_____/
  Exemption from all kinds of user charges, including for seeking hospital care up to 6 weeks post-delivery (for post-natal complications)
- Free transport from home to health institutions /_____/
- Free transport between facilities in case of referral /_____/
- Free drop back from institutions to home after 48hrs stay /_____/
- Free diet /_____/

(up to 3 days during normal delivery and up to 7 days for C-section, free diagnostics and free blood wherever required)

2.4. Free Entitlements for sick newborns until 30 days after birth /_____/

- Free treatment /_____/
- Free drugs and consumables /_____/
- Free diagnostics /_____/
- Free provision of blood /_____/
- Exemption from user charges /_____/
- Free Transport from Home to Health Institutions /_____/
- Free Transport between facilities in case of referral /_____/
- Free drop Back from Institutions to home /_____/

III. Indira Gandhi Matritva Sahyog Yojana (IGMSY)

3.1. Objective of the scheme /_____/
(providing financial support for nutrition and health of women during pregnancy and compensate for wage loss)

3.2. Eligibility requirements: /_____/
(*19 years and above, up to 2 live births, only in 52 districts, registration at AWC and hold a Mother and Child Protection Card, subject to conditions)*

3.3 Total cash incentive of Rs 4000 in three installments /_____/

3.4 First Installment Rs. 1500 at the end of second trimester of pregnancy /_____/
(subject to 5 conditions: Pregnancy registered within 4 months at the AWC or Health Centre (Sub-centre/ PHC/CHC/ district hospital/ empanelled private doctor under JSY), received at least one ante-natal check-up, received IFA tablet, received at least one TT vaccination, received at least one counseling session at the AWC/ Village Health and Nutrition Day (VHND)/Home Visit)

3.5 Second Installment Rs.1500 at the end of 3 months after delivery /_____/
(subject to 6 conditions: child birth is registered, child received all the following vaccination: BCG vaccination, 3 dozes of Polio, DPT-1 and 2 vaccinations; child has been weighed at least two times after birth; mother has attended at least two counseling sessions at the AWC/VHND/Home Visit.)

3.6 Third Installment Rs.1000 six months after delivery /_____/
(subject to 6 conditions: on fulfillment of all conditions-child has been exclusively breastfed for first six months and introduced to complementary foods on completion of age six months, received Polio and DPT-3 vaccination, weighed at least two times between age 3 and 6 months, mother has attended

at least two counseling sessions between 3 and 6 months of lactation, at the AWC/VHND/Home Visit.

3.7 How to receive the entitlements and from whom /_____/
(*through bank and post office accounts)*

IV. Matrutva Anudan Yojana (MAY)

4.1. Objective of the scheme /_____/
(encouraging tribal women for Ante-natal checkup and support toward medication under Integrated Tribal Development Project)

4.2. Eligibility requirements: /_____/

(*19 years and above, up to 2 live births, tribal districts)*

4.3 Total benefit worth Rs. 800 /_____/

4.4 Rs.400 is given in cash for Ante-natal checkup at health center /_____/

4.5Medicines worth Rs 400 provided to each beneficiary /_____/

V. Who/What are the main sources of information about above policies, counseling on health, nutrition, checkups, immunization etc.
(Key: ASHA: Accredited Social Health Activist, ANM: Auxiliary Nurse Midwife, AWW: Anganwadi Worker, AWH: Anganwadi)
Place implies: Place of counseling such as home, health clinic, Anganwadi center etc.
Frequency of visit implies: how often the person visits or counsels the respondent
Other: any other information provided by the person, such as time and notification of payment of entitlements

	JSY	JSSK	IMGSY	MAY	Health	Nutrition & diet	Immunization	Medication	Place	Frequency of Visit	Other
ASHA											
ANM											
AWW											
AWH											
PHC Doctor											
Private Doctor											
Family members											
Neighbors											
Local Activists											
Other (specify)											
No one											

13. Perceived Benefits of Schemes (Individual)

13.1 Cash Assistance	/_____/
13.2 Non-cash Assistance	/_____/
13.3 Counseling	/_____/
13.4 Healthy Mother	/_____/
13.5 Healthy Child	/_____/
13.6 Safe Institutional Delivery	/_____/
13.7 Others (please specify below)	

14. Main Challenges/Complaints (open-ended questions)

I. Complaints relating to information/awareness

II. Complaints relating to key informants

III. Complaints relating to entitlements

IV. Relating to health facilities

V. Relating to transparency/corruption

VI. Other complaints (if any)

14. Health and Nutrition Meetings (*Mata Bedak- meeting of the mothers)*

- Are Mata Bedaks Meetings held?
- Are you aware when the meetings are held?
- Do you attend meetings? Why or why not?
- If you have, did you raise your concern in the meetings? Why or why not? What was the outcome?

15. Action taken

- Has anyone made a formal complaint regarding any of the above? Yes/No/Can't tell

- If yes, has any action been taken? Yes/No/Can't tell

Details about (action taken if any, reasons if not):

16. Further Observations on the respondent experience

17. Potential use of mobile phones for communicating information

I. What is the information they would like to know about above schemes

II. Would they be comfortable receiving this information on their/other's mobile phone? In what form- SMS or IVR. Please detail notes on respondent's perspective, feasibility, preferred timing, frequency and any suggestions.

III. Would they find the information useful and how would they use it?

IV. If they do not think receiving information on mobile phones will be feasible or useful, try to ascertain why and if the respondent prefers an alternate medium or form.

V. In informal conversation try to ascertain the respondent's level of autonomy in the house-
   - Whether she owns a mobile or free to use a family member's mobile
   - If she is allowed to go to the market (eg. the weekly market, jatara alone)
   - Access of family income and how to spend it
   - Decision making authority about place of delivery
   - Whether in-laws are staying with the respondent, kind of relationship with the mother-in-law

Other Observations and Feedback

Appendix Two: Transcriptions of the Broadcasted Policy Audio Messages

These messages were recorded in Hindi (by the ASHA supervisor) and in Korku (by a volunteer).

Audio Message 1: “The government has implemented numerous policies to ensure safety of the mother and her newborn child. There are four policies for pregnant mothers and newborn through which you can receive up to Rs 5000. For more information, contact the ASHA or ANM. We will inform you about these policies through mobile phones regularly.”

Audio Message 2: “Like I mentioned before, there are four government policies for pregnant women. The first policy is Indira Gandhi Matrutava Sahyog Yojana, in which you are get Rs 4000 in three installments through the Anganwadi Center. The second policy is Janani Surakshya Yojna through which one can get Rs 700 upon delivery. Third policy is Matrutava Anudan Yojna only meant for Korku women. Under this policy you can get Rs 400 in cash and worth of medicines. The fourth policy is Janani Shishu Suraksha Karyakaram, through which free transportation, medicines, sonography and other tests are free of cost. For more information, contact your village ASHA, ANM and AWW.”

Audio Message 3: “The objective of Janani Shishu Suraksha Karyakaram is safety of both mother and the child. Under this policy free pick and drop transportation between the hospital and home through government ambulance. During the pregnancy, urine, blood and sonography tests and medicines are also free of costs. If there is a need of an operation or C-section, then it is also free at the government hospital. If additional blood is required, then it will also be provided free of charge. In hospitalization and meals during the stay are also free. You will not have to pay for anything. For more information, contact your village ASHA, ANM and AWW.”

Audio message 4: “The objective of JSY is to ensure safe delivery. Under this policy, women can receive Rs 700 upon delivery. You receive a bank check for Rs 700 that can be deposited to the mother’s bank account. To get the benefit, woman must register her name with her village ASHA, ANM or AWW after her first trimester. Simultaneously you must attend ante-natal checkups and get full immunization. For more information, contact your village ASHA, ANM and AWW.”

Audio message 5: “Today we will inform you about Indira Gandhi Matrutava Sahyog Yojana. The objective of this policy is to ensure health and nutrition of the pregnant mother. You will receive Rs 4000 in three installments through the Anganwadi Center. The first installment is for Rs 1500 given after second trimester of pregnancy. This compensates for wage loss during this period, so that the mother can take care of her health and nutritional needs. Only a health mother can have a healthy child. The second installment is for Rs 1500 given after three months of delivery and the third installment of Rs 1000 is given six months after the delivery. For these two installments, the newborn should be fully immunized and exclusively breastfed. The entire amount is deposited directly to the mother’s bank account. To get the benefit, women must register her name with her AWW within her first trimester and open a bank account with a public bank. This policy is eligible for women of 19 years of age and up to two births. For more information, contact your village AWW.”

Audio message 6: “Under Matrutava Anudan Yojna, tribal pregnant women can get Rs 400 in cash and worth of medicines. This benefit is available up to three births to tribal women. For more information, contact your village ASHA and ANM.”

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JOURNAL PUBLICATIONS and WORKING PAPERS

Vij, Nidhi. *Empowering the Marginalized: Mahatma Gandhi National Rural Employment Guarantee Act in India*. Human Affairs, Vol.23, Issue 1, 2013 (91-104)

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Vij, Nidhi. *Two to Tango: Monitoring Mechanisms in Practice: Impediments and IT-Initiatives in Social Audits under MGNREGA in India.* South Asia by the Bay, Graduate Student Conference, Stanford, 2012

O'Leary, Rosemary and **Vij, Nidhi**. *Collaborative Public Management: Where Have We Been and Where Are We Going?* The American Society for Public Administration, Las Vegas, 2012

Vij, Nidhi. *Collaborative Governance: Empowering the Marginalized through Collaboration- Case of Social Protection Policies in India.* PIDOP Conference, Bologna, Italy, 2011

Vij, Nidhi. *Building Capacities for Empowerment: The Missing Link between Social Protection and Social Justice- Case of Social Audits in Mahatma Gandhi National Rural Employment*

Guarantee Act. International Conference, Social Protection for Social Justice, Institute of Development Studies, Sussex, UK, 2011

INVITED TALKS/ LECTURES

Betting Maternal Health on Mobile Phones. Conversations in Conflict Studies, Program for Advancement of Research on Conflict and Collaboration, Syracuse University .October 2015

Mobile for Mothers: Using Mobile Phones to Enhance Maternal Health care in Melghat, India. South Asia Center, Syracuse University ..... February 2015

Social Protection, Guest Instructor, Economics of Development, Department of Public Administration and International Affairs, Syracuse University..... January 2014, 2012

AWARDS, FELLOWSHIPS AND GRANTS

Graduate School, Syracuse University

Outstanding teaching Assistant Award 2016

Center of Technology in Government, University at Albany

Visiting Fellowship ..... July 2016

Dean's Office, The Maxwell School

Competitive Teaching Assistantship .....Fall 2014-Spring 2016

Department of Public Administration and International Affairs

Competitive Summer Teaching Assistantship 2012, 2014, 2015
Competitive Dissertation Fellowship .....Fall 2012-Spring 2013
Graduate Assistantship .....Fall 2009-Spring 2012
Summer Research Grant.....2010, 2011, 2012

South Asia Center, Syracuse University

Competitive Bharati Memorial Scholarship 2012

American Institute of Economic Research, Massachusetts

In-Absentia Fellowship Award.....2010-2011
Summer Fellowship.....2010

PREVIOUS WORK EXPERIENCE

UNDP Consultant 2007-2009
Monitoring and Evaluation Head, Technical Secretariat, Mahatma Gandhi National Rural Employment Guarantee Act, Government of India, New Delhi, India

Amnesty International India 2007
Campaigns, Communication Associate, New Delhi

American Express (India) Pvt. Limited 2005-2006
Business Analyst, Gurgaon, India

Prof. Jean Dreze, Delhi University .....Summer 2004
Research Assistant, New Delhi, India

AD-HOC REVIEWER

- American Review of Public Administration
- Journal of Rural Studies
- Development in Practice

PROFESSIONAL AFFILIATION

- Association for Public Policy Analysis and Management
- American Political Science Association
- American Society for Public Administration

COMPUTER SKILLS

- Skilled in STATA, SPSS, ATLASti, Qualtrics; Proficient in MS-Office

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