Caste, Religious Conflict and Economic Development: The Indian Experience

by

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Abstract

This thesis aims to understand the economic and political changes in India and how it affects different marginalized groups in India. It looks at the effects of mandated political representation of Scheduled Castes and Scheduled Tribes, the effect of British colonization on Hindu-Muslim conflict in post-Independent India and the evolution of economic conditions of Muslims in India in the past three decades.

The first research chapter looks at the effect of political quotas for Scheduled Castes and Scheduled Tribes on households belonging to these groups. Scheduled Castes and Scheduled Tribes form some of the most disadvantaged groups in India. I exploit the policy rule mandating reservations for these groups to identify the effect of political representation of these groups. I find that for Scheduled Caste politicians effectively target narrow based public goods such as participation in workfare program to members of their own ethnic groups but do not do so for broad based public goods such as health, education and access to subsidized food grains.

The second research chapter looks at the effect of British colonization on

post-Independence religious conflict in India. British colonialism has often been blamed for the worsening of Hind-Muslim relations.Comparing districts ruled by native kings with districts which were ruled directly by the British, I find no adverse effect of British colonialism.

The third research chapter looks at the evolution of the economic conditions of Muslims in the last three decades-a period which has been characterized by rapid economic growth in India. I compare Muslims with non-Muslims in education, occupation choice, wages and consumption expenditure. I find that Muslims are worse off compared to non-Muslims and this relative deprivation gets more acute over time.

Preface

This thesis is original, unpublished, independent work by the author, Arka Roy Chaudhuri.

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Chapter 1

Introduction

For a researcher in development economics, India is one of the most interesting places to study. Not only is it the second most populous countries in the world, it is also one of the fastest growing economies in the world. The last three decades has been one of the most interesting phases in Indian history. Various political changes have occurred such as the weakening of the Congress party which was at the forefront of the independence movement in India, the rise of the Hindu nationalist party, the Bharatiya Janata Party (BJP) and the rise of identity politics of marginalized groups spearheaded by parties like the Samajwadi Party (SP) and the Bahujan Samaj Party (BSP). This was also a time of rapid economic growth. Although India was officially a mixed economy, in practise it suffered from a high degree of protectionism which led to the very low average growth rates of 3.5 %, pejoratively referred to as the Hindu rate of growth. The Indian economy started opening up in the mid-1980s and this process of liberalization received a mas-

sive boost when facing a Balance of Payments crisis it was forced to open up its economy in return for IMF support (Topalova (2007)). Since then India has been one of the fastest growing economies in the world. In the light of these political and economic changes it becomes imperative to look how different marginalized groups have fared so far.

Post-colonial India was founded on democratic principles. India is a developing country with high degree of democratic participation with voter turnout of more than 60% (Khemani (2004)). However, it is often not clear whether the overall democratic set-up and the improvement in economic circumstances have translated into better socio-economic outcomes of marginalized communities. In India the issues faced by disadvantaged minorities are multifaceted as they simultaneously face problems relating to security and economic equity (Wilkinson (2006), Iyer et al. (2011)). This study aims to evaluate the Indian experience through the prism of disadvantaged minorities specifically Scheduled Castes, Scheduled Tribes and Muslims.

Scheduled Castes form the lowest tier in the Hindu caste hierarchy. Scheduled Tribes, also known as *adivasis* (original inhabitants, are) composed of tribal groups who were distinguished by their physical isolation and were removed from the mainstream Hindu society (Chin and Prakash (2011)). Various forms of discrimination including untouchability has been practiced against both Scheduled Castes and Scheduled Tribes for centuries by upper castes. This has led to acute impoverishment among these groups. The 1950 Indian Constitution had guaranteed mandated political representation for Scheduled Castes and Tribes. Chapter

2 looks at the effect of such political reservation on primary education attainment, infant mortality, access to the subsidized food grain distribution system known as the Public Distribution System (PDS) and participation in the workfare program the National Rural Employment Guarantee Act (NREGA). The aim of this chapter is to analyze whether mandated political representation leads to improved outcomes for hitherto marginalized groups. My empirical analysis which exploits the policy rule that determines political quotas shows that in case of Scheduled Caste politicians, for broad based public goods like education, health and PDS there is no such effect whereas for narrow based program like NREGA there is positive effect on outcomes of members of own ethnic group. I find no comparable effects for Scheduled Tribe politicians.

Religious violence in India, more specifically Hindu-Muslim religious violence has imposed a great strain on the social fabric of India. More than 7000 deaths have occurred in India over the 1950-1995 period. These riots have also led to large scale displacement. The cost of these communal riots should not be seen only in terms of the immediate loss of life and property but also in terms of the long-run cost it imposes on a country's institutions due to the increased ethnic tensions. It has long been argued that British colonialism had a role in institutionalizing Hindu-Muslim communal discord (Kabir (1969), Das (1990). In Chapter 3 I examine this claim by comparing the incidence of Hindu-Muslim evidence between British ruled areas and areas ruled by native kings during the colonial period. I find that contrary to conventional wisdom British ruled areas actually see lower incidence of Hindu-Muslim violence.

Muslims form one of the most disadvantaged groups in modern India. This relative deprivation of Muslims is more stark considering the fact that Muslims had ruled large arts of India for about 600 years preceding British colonialism. In Chapter 4 I document the evolution of economic condition of Muslims vis-a-vis non-Muslims in the last three decades in terms of education, occupation choice, wages and consumption expenditure. I document how the relative deprivation of Muslims has been getting worse over time. I find that this worsening of conditions for Muslims over time happens both in respect to upper caste Hindus and Scheduled Castes/Tribes and is more stark in respect of Muslim men. I perform a quantile analysis to shed light on which points of the wage and consumption distribution are these changes most evident.

Chapter 2

Mandated Political Representation and Development Outcomes: Evidence from India

2.1 Introduction

Affirmative action policies have often been used in various countries as a means of targeting historically disadvantaged minority groups. India has a history of various affirmative action policies which have been established with a view to help historically disadvantaged minorities such as the Scheduled Castes, Scheduled Tribes and women. One of those policies aimed at giving political representation to Scheduled Castes and Scheduled Tribes. The Constitutional Amendment Act guaranteed mandated political representation for Scheduled Castes and Tribes in

accordance with their population shares. This chapter analyses the effect of reservation for Scheduled Castes (SC) and Scheduled Tribes (ST) on the development outcomes of Scheduled Caste and Scheduled Tribe households. Specifically I look at how reservations for Scheduled Castes and Scheduled Tribes in India affect schooling outcomes, health outcomes, access to the food security system, Public Distribution System (PDS) and participation in the workfare program, National Rural Employment Guarantee Act (NREGA).

Scheduled Castes form the lowest tier in the Hindu caste hierarchy. Scheduled Tribes, also known as *adivasis* (original inhabitants) are composed of tribal groups who were distinguished by their physical isolation and were removed from the mainstream Hindu society (Chin and Prakash (2011)). Various forms of discrimination including untouchability has been practiced against both Scheduled Castes and Scheduled Tribes for centuries by upper castes. Political representation for Scheduled Castes and Scheduled Tribes was mandated in the 1950 Indian Constitution. The political reservations were originally introduced for a period of ten years and have been continuously renewed thereafter. Reservations were brought in order to provide political voice to hitherto marginalized communities. It was also thought that Scheduled Caste and Scheduled Tribe politicians would be better able to serve the interests of their own ethnic community. In light of these objectives, the importance of developmental outcomes is important. Does reservation lead to better development outcomes for disadvantaged groups?

There has been a growing literature on the poor record of India in education and health outcomes with different authors having analysed various factors such as

teacher and doctor absenteeism (Kremer et al. (2005),Banerjee and Duflo (2006)). What these papers point to is a pervasive lack of state capacity even to maintain the existing infrastructure. Similarly Jha and Ramaswami (2010) have written about the large extent of leakage in PDS.[1]. Others similarly have written about the poor implementation of NREGA (Johnson (2009)). It is in this backdrop of a broken down public good/service delivery mechanism that the question I ask in this chapter becomes important-whether reservation has led to better or worse outcomes for Scheduled Castes and Scheduled Tribes.

To identify the effect of reservations for Scheduled Castes, I use the policy rule governing political reservations in India in a manner similar to that used in Pande (2003) but I extend it to the district level.[2] The 1950 Constitution mandates that reservation for Schedule Castes (SC) in proportion to their population shares. This rule is implemented by allotting to each state a number of reserved constituencies based on the state's population share of SC's. Given that share, a district's share of reserved constituencies is based on its share of SC's among the state SC population . Since changes in reservation only happen during a sitting of the Delimitation Commission[3], the exact share of reserved constituencies in a

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1. Leakage refers to the differences in the supply of subsidized food grains by the government and the actual receipt of subsidized food grains by households

2. Each state in India is divided into a number of administrative divisions which are districts. Elections are fought at the electoral constituency level with each district comprising of several electoral constituencies.Since I can identify the district of residence of a household in my survey data and not the electoral constituency of residence, I aggregate up the political variables from the constituency level to the district level. The fact that legislative assembly constituency boundaries fall entirely within a single district allows me to do so

3. Delimitation Commission determines the boundaries of assembly constituencies and their reservation status

state and district depends on the population shares of the last census before the sitting of the Delimitation Commission. This makes it possible for us to control for the present population shares which is crucial since minority population shares might be correlated with development outcomes.[4]

For Scheduled Tribes, the policy rule is that each state gets a number of reserved constituencies for Scheduled Tribe legislators in proportion to the population share of Scheduled Tribes in the state. However in contrast to the case of Scheduled Castes, the share of each district is not separately determined. Within a state all electoral constituencies are ranked according to the population share of Scheduled Tribes in the constituency and then the first n constituencies are reserved for Scheduled Tribes where n is the number of constituencies to be reserved for Scheduled Tribes in that state. The case of Scheduled Tribe reservations are analyzed separately in Section 2.5.

I find that for broad based goods such as primary education, infant mortality and PDS access, Scheduled Caste households fare relatively worse in districts with a higher proportion of reserved constituencies. However for a narrow based public good such as NREGA access, Scheduled Caste legislators do target the members of their own ethnic group. I find no such pattern for Scheduled Tribe legislators.

This chapter contributes to the broad literature that looks at the effect of politi-

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4. In the US context, Gordon (2004) uses a similar strategy to estimate the effects of the federal government's education program, Title I on state and local education revenue and spending decisions by recipient school districts. Assessing the effects of Title I is difficult because a districts poverty determines its Title I allocation, but poverty also affects a district's outcome through other channels. The author uses the fact that federal grants are based on decennial census poverty estimates with a time ag of three years which allows her to control for current poverty in her regression.

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cian identity (Levitt (1996), Milligan and Smart (2005), Washington (2008), Hodler and Raschky (2014)). Rehavi (2007), Clots-Figueras (2011) and Clots-Figuerasa (2012) look at the effects of electing women legislators to office. Many papers in this literature look at whether legislators target members of their own ethnic group-however the evidence remains mixed. Franck and Rainer (2012) finds that for primary schooling and infant mortality there is significant evidence of ethnic favouritism in sub-Saharan Africa and Burgess et al. (2014) find that Kenyan districts that share the ethnicity of the President receive twice as much expenditure on road building and has four times the length of paved roads compared to what would be predicted by their population share. However Kudamatsu (2009) find that there is no effect of the President's ethnicity on infant mortality in Guinea and Kasara (2007) shows that for farmers sharing the ethnicity of the head of state leads to the imposition of higher tax rates on cash crops. In the US context a large literature looks at the effect of electing Black politicians to local political office on Black employment outcomes (Eisinger (1982), Sass and Mehay (2003), Nye, Rainer, and Stratmann (2014))[5].

In the Indian context a large literature has emerged in the last decade which looks at the effect of reservations for minorities at a more local level. Most of this literature has looked at the effect of political representation on public goods provision. The 73rd and 74th Constitutional Amendment Act mandated setting up of regularly elected Gram Panchayats (village councils) which were supposed to look after the administrative needs of the local population including public good

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5. See Hajnal (2001) for a brief review of the literature

provision such as public buildings, water and roads (Chattopadhyay and Duflo (2004)).The Constitutional amendments also mandated political reservation for women, Scheduled Castes and Tribes at the village level. Most of the papers in this literature look at the effects of this policy in a selected few states. Chattopadhyay and Duflo (2004) was one of the first papers to study the effects of reservations at the gram panchayat level in the Birbhum district of West Bengal and Udaipur district of Rajasthan. Exploiting the fact that reservations for women for the Gram Panchayat Pradhan (village council chief) were assigned randomly, they found that women Panchayat Pradhans tend to invest more in public goods that are valued more by their female constituents: female Pradhans invested more in drinking water and roads in West Bengal while they invested more in drinking water in Rajasthan. Using survey data from three southern states of India, Besley et al. (2004) found that sharing the Pradhan's caste identity leads to increased access to public goods but only for low spillover public goods. Bardhan, Mookherjee, and Parra Torrado (2010) find that reservation of Pradhan posts for minority members in West Bengal was associated with a significant increase in benefits received by the members of the group of the pradhan.

This chapter is most closely tied to the literature that looks at the effects of reservation for different disadvantaged groups in state legislative assemblies.Pande (2003) looks at the effect of reservations for Scheduled Caste and Scheduled Tribe legislators on state level legislation and spending. She finds that for broad based goods such as education spending there is no favourable effect of minority representation but for narrowly targeted goods such as job quota or welfare spending

there is a positive effect. Chin and Prakash (2011) using state level data and the methodology used in Pande (2003) find that reservation for Scheduled Castes have no effect on poverty reduction while reservations for Scheduled Tribes have a positive effect on poverty reduction. Looking at rural areas in a sample of 65 districts, Krishnan (2007) finds a positive effect of Schedule Caste reservation on primary schools and no effects for public health facilities, roads and drinking water and no effects or negative effects of Schedule Tribe legislators on provision of public goods. She finds no evidence of targeting by legislators belonging to either Scheduled Castes or Scheduled Tribes towards members of their own ethnic group.

This chapter contributes to the above literature by looking at the effect of reservations for Scheduled Castes in India on actual outcomes using district level reservation data. Specifically, it contributes to the existing literature in three different ways. Firstly, previous literature has emphasized on the role of legislator identity on legislation (Pande (2003)) or public good provision (Krishnan (2007)). In contrast my research focusses on actual individual level outcomes (primary education, infant mortality) and household level participation in public service programs (PDS, NREGA).[6]Pande (2003) showed that policies enacted by legislators in reserved seats for SC/STs differ from the policies enacted by legislators in non reserved seats. However what remains unanswered is whether the differences in policy adopted by SC/ST legislators translates into differential outcomes at an individual or household level. Policy changes might not always truly reflect the

6. Chin and Prakash (2011) focusses on the effect of reservations on state-level poverty.

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changes in outcomes. Politicians often target a number of policies together and thus focussing on one policy or a subset of policies can underestimate the true impact (Alesina (1997)). This becomes more important in the context of less developed countries like India where legislator effort manifests in different kinds of informal arrangements (Nayak, Saxena, and Farrington (2002))which are difficult to measure. Hence focussing on outcomes gives us an idea of the net effect of the effort put in by legislators towards the welfare of her constituents. The analysis of the impact of reservation on individual and household level outcomes is also important since it gives an estimate of the magnitude of the problem for important predictors of welfare like education and health. My results show that a move from the 10th to the 90th percentile of the proportion of seats reserved for SCs reduces the relative probability of primary education completion, infant mortality and per capita consumption of food grains under PDS for SCs by 6.1%, 17.2% and 15.7% of the sample mean respectively. Similarly a move between the two percentile increases the relative probability of NREGA participation of SC households by about 30% of the sample mean.

Secondly, instead of looking at the cross-state variation in the proportion of reserved seats which previous studies have emphasized (Pande (2003), Chin and Prakash (2011)), my study looks at the interstate cross-district variation using nationally representative data. State is a mich higher level of aggregation and we might face substantial loss of information using state-level variation in the proportion of reserved seats. Instead I use district level variation, district being the most important administrative unit after the state. Using district level variation

also allows me to include state-time fixed effects in addition to district fixed effects in my regressions. Thus I can control for state-time level factors such as state assembly election-specific shocks. This is not possible using state-level variation.

Finally, my study shows that SC legislators do worse in terms of broad based goods and better in terms of narrow based goods. This pattern has been emphasized in the literature (Keefer and Khemani (2005)) and theoretically analysed in Keefer (2002). In this chapter I show that this pattern holds true empirically.

The chapter is organized according to the following sections. The next section discusses the institutional background. Section 2.3 describes the data used in the paper. Section 2.4 discusses the effect of Scheduled Caste reservations- 2.4.1 outlines the empirical strategy, 2.4.2 discusses the results, 2.4.3 contains robustness checks and 2.4.4 contains a short discussion of the results. Section 2.5 looks at the effect of reservation for Scheduled Tribes. Finally section 2.6 concludes.

2.2   Institutional Background

I use data from the State Legislative Assembly elections which are held after every five years. The elections are held in single member electoral constituencies with winners being determined by plurality rule. The Assembly constituencies fall within a districts boundaries which enables me to aggregate up the electoral results of the assembly constituencies to the district level. This is essential since my survey data on outcomes allows me to identify only the district of residence of the household and not the assembly constituency.

Article 332 of the Indian Constitution provides for political reservation in state

elections. Only a person belonging to the Scheduled Castes and Scheduled Tribes can stand for election in constituencies reserved for Scheduled Castes and Scheduled Tribes respectively. However the entire electorate votes to choose the representative of the constituency. Reserved constituencies are determined by a statutory commission known as the Delimitation Commission which was set up under the Delimitation Commission Act,1952. Since Independence, the Delimitation Commission has been constituted four times -1952, 1963, 1972 and 2002. The Delimitation Commission is entrusted with determining the electoral constituency boundaries. It is also the body which determines which constituencies are to be reserved.

India has a federal structure. The Constitution delineates responsibility between the federal government and the state governments. There are three lists which divides the executive and legislative powers between the central government and the state governments: the central list which lists out the subjects under the jurisdiction of the centre, the state list contains the items under the jurisdiction of the state government and the concurrent list contains items on which the centre and state has joint jurisdiction. The central list contains items such as defence, atomic energy, foreign affairs and banking. The state governments control public order, police, public health and sanitation, agriculture and industries. The items on the concurrent list include subjects like education, social security and social insurance, and labour over which state governments assume significant responsibility of administration[7] . Even for schemes financed by the federal government,

7. Education was under the state list till 1976 and subsequently transferred to the concurrent

state governments take the leading role in their implementation (Khemani (2004), Rao and Singh (2003)).

For the items under the state list and many of the subjects under the concurrent list, the State Assembly legislators are concerned with making laws, taking spending decisions, working with the local bureaucracy in the administration of their constituency and utilizing their constituency development funds[8] (Khemani (2004), Rao and Singh (2003), Chin and Prakash (2011)). Legislators can also put pressure on the government regarding issues in the constituency by asking questions during the *Question Hour* [9]. Legislators are often members of different oversight committees of the Legislative Assembly and can affect the development outcomes in their respective constituencies through participation in these committees (Banerjee et al. (2010)) . The effect on development outcomes that I see in this chapter can be due to any of the above roles performed by the state legislators. The basic point is that the MLA is a local political notable who has different instruments at her disposal to influence development outcomes in her constituency.

In this chapter I look at completion of primary schooling, infant mortality, participation in the Public Distribution System (PDS) and participation in National

list (Mukundan and Bray (2006))

8. MLAs in India are entitled to constituency development funds which are discretionary funds at their disposal that they can spend on public good provision in their constituencies. The exact amount at the disposal of the MLA varies across states and time. For example the current amount that a MLA in Delhi can spend is 40 million rupees each year while MLAs in Uttar Pradesh can spend 15 million rupees each year. Utilization of funds varies significantly across individual legislators.

9. The *Question Hour* is a time set apart during the session of the Legislative Assembly when individual legislators can raise questions which must be answered by the concerned Minister in the government. Since the proceedings are usually broadcast on television or reported in the media legislators use this tool to mobilize public opinion on different issues.

Rural Employment Guarantee Act (NREGA). In what follows I briefly talk about these public goods and their administration.

As mentioned earlier education is listed in the concurrent list. However states bear most of the responsibility of the running of state government schools in addition to building new schools and appointing teachers. State spending on education is much higher than that of the Central Government. Surveys show that one of the main problems of the government schools is teacher absenteeism (Kremer et al. (2005)). This is one of the problems that could be addressed by the local bureaucracy over which the Member of Legislative Assembly (MLA) have significant supervisory powers.

Public health is on the State list. State Governments mostly appoint health care workers (Singh (2008)) and they undertake most of the spending (Berman (1998)).Similar to government schools, health care services are also wracked by health worker absenteeism (Kremer et al. (2005))- a problem which is amenable to political pressure from the local MLA.[10]

The Public Distribution System (PDS) is one of the largest safety net programs in India under which primarily food grains are distributed to households. The quota available and the subsidy received by the household is determined by the wealth of the household. There is considerable difference in the performance

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10. Often this kind of political pressure is manifested in the form of informal pressure put on the district officials or direct public action taken by the MLA. For example *The Tribune* newspaper in an article in its December 13, 2005 Chandigarh edition reports an incident where a MLA in Punjab "raided" the local public hospital in response to a complaint from his constituents and found the doctor on emergency duty absent. He subsequently gave media interviews and informed the local district administration of the doctor's absence who rushed a team of higher officials to the hospital (http://www.tribuneindia.com/2005/20051213/cth3.htm).

of PDS across states (Khera (2011)).The PDS has often been used by state govern-ments as a response to smooth out temporary income shocks(Besley and Burgess (2002)). One of the persistent problems in the functioning of PDS is the leakage of food grains along different points of the distribution chain from government godowns to Fair Price Shops (FPS) from which PDS food grains are distributed to households.[11] Using 2004-05 survey data Jha and Ramaswami (2010) find that the per capita consumption of food grains under PDS was 1.03 kg per month while the per capita supply of food grains based on official data on subsidized food grain supply works out to be 2.27 kg per month. This points to an estimated diversion of about 55 percent of the food grains which are supplied by the government into the PDS system. Legislators can work towards reducing this leakage which would include working with the local bureaucracy as well as ensuring the proper func-tioning of the Fair Price shops through which such food grains are distributed (Banerjee et al. (2010)).

The National Rural Employment Guarantee Scheme (NREGS) was estab-lished in 2005 under which each rural household is guaranteed 100 days of em-ployment. The workfare scheme is supposed to create rural assets. The scheme has been criticized for numerous defects including not enough work available,

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11. Here leakage refers to the differences in the supply of subsidized food grains by the govern-ment based on administrative records and the actual receipt of subsidized food grains by house-holds. Although this might include transport losses and wastage along the distribution chain, the general perception is that a significant part of these consists of illegal diversion of food grains (Jha and Ramaswami (2010),Khera (2011) and Svedberg (2012)). Precise estimates of the leakage at different points of the distribution chain are hard to come by. However based on media reports of various cases of corruption scandals affecting PDS, Svedberg (2012)notes that "..cases include corruption and theft at all levels, from fraudulent small FPS owners to chief ministers, in some cases of mind-boggling scales."

non-payment of dues and poor quality of asset creation (Johnson (2009),Maiorano (2014))[12]. Although the scheme was supposed to be primarily administered by the local governments, numerous case studies in different states have shown that the scheme is susceptible to political interference from MLAs (Maiorano (2014), Bhatia and Dreze (2006))

2.3 Data

2.3.1 Population and Political Data

The election data are taken from the election reports published by the Election Commission of India. My election data set spans from 1970-2012 and covers State Assembly elections in the major Indian states. Depending on the outcome variable, I use a part of this dataset. The political data in the Election Commission reports are at the constituency level. Since in both NSS and NFHS dataset, I can identify the district of residence of the household and not the constituency of residence, the constituency level election data is aggregated up to the district level. The reservation status of the constituency is obtained from the Delimitation Commission reports. The Census population figures are taken from the India District Database for 1961-1991 and from data CDs and website of the Census of India for 2001 and 2011. The population figures for intercensal estimates are obtained by linear interpolation.

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12. See Mookherjee (2014) for a brief review of the literature

2.3.2 Education Data

The education data considered in this analysis come from the 68th round of National Sample Survey (NSS) conducted in 2011-2012. This survey collected educational and demographic information on all members of the surveyed households. The main dependent variable, primary education completion is defined as a dummy variable equal to 1 if the individual has completed primary education. In order to ensure that individuals are old enough to complete primary education, we drop individuals aged less than 14 years from the sample.

The NSS survey also provides information on other demographic characteristics such as the caste status, religion, area of residence (rural or urban), sex and land possessed by the household of the individual. These variables are included as controls in my regression.

I include the census and current figures of Scheduled Caste population in a district as a share of the total Scheduled Caste population in the state as controls in the regressions estimating the impact of political reservation for Scheduled Castes. In addition, in the robustness check section, I also include the share of Scheduled Caste population in the total district population as control. In the regressions estimating the impact of the reservation for Scheduled Tribes, I include census and current share of Scheduled Tribe population in the total district population as controls. All these variables are calculated as averages over the period in which the individual was 4-11 years of age. I also include the proportion of Congress, Left and Hindu legislators in the assembly as controls. The summary statistics of the controls used in education regressions are given in Table 2.1.

2.3.3   Infant Mortality Data

The data used in the infant mortality regressions study are derived from the second round of the National Family Health Survey of India (NFHS-2) conducted in 1998. This data-set contains complete fertility histories for ever-married women aged 15-49 in 1998-99, including the information on time and incidence of child deaths. I have used this data-set to construct individual-level indicators of infant mortality. Infant mortality variable is defined as a dummy variable indicating whether a child died by the age of 12 months. The estimation sample contains more than 200,000 children born over the period 1970-1998. The NFHS data also provides information on a number of demographic characteristics like sex of the child, month of birth, whether there was single or multiple birth, order of birth, parental education, mother's work status and whether the child belongs to Scheduled Caste, Scheduled Tribe or Muslim households. These variables are used as controls in the infant mortality regressions.

I also include the proportion of Congress, Left and Hindu legislators in the assembly from the district as controls. The regressions estimating the impact of Scheduled Caste reservation additionally include the census and current figures of Scheduled Caste population in a district as a share of the total state Scheduled Caste population. For estimating the impact of Scheduled Tribe reservation I include census and current share of Scheduled Tribe population in the total district population as controls. Table 2.2 presents the summary statistics for the controls used in infant mortality regressions.

2.3.4 Public Distribution System Data

The regressions on PDS delivery are household level regressions and the variables considered in these regressions come from the 61st (2004-05), 66th (2009-10) and 68th (2011-12) rounds of National Sample Survey. The survey rounds provides information on the quantity of products available to a household under PDS in the last 30 days preceding the date of survey. I have created two variables to indicate PDS access: one measuring the per capita quantity of food-grains available to a household under PDS and a dummy indicating whether the household received any items under PDS. The survey rounds provide information on the caste status of the household, religion of the household, area of residence (rural or urban), educational level of household members, age of household members, sex of the household head, land possessed by the household and household size. These variables are used as controls in the PDS regressions. I also include the proportion of Congress, Left and Hindu legislators in the assemblies from the district, the census and current figures of Scheduled Caste population in a district as a share of the total state Scheduled Caste population for regressions estimating the impact of Scheduled Caste reservation and census and current share of Scheduled Tribe population in the total district population as controls in regressions estimating the impact of Scheduled Tribe reservation. Table 2.3 presents the summary statistics for the controls used in PDS regressions.

Items under PDS are provided at a subsidized rate for poor households. Households are first classified into general, below poverty line (BPL) and Antodaya (poorest households). The subsidies are highest for Antodaya households fol-

lowed by BPL households. However, the information on whether the household belongs to BPL or Antodaya categories is not available for 66th round of NSS. In the robustness check section I have included two additional dummies indicating whether the household belongs to BPL or Antodaya categories using data from the 61st and 66th rounds of NSS.

2.3.5 Data on Employment under National Rural Employment Guarantee Act

Employment under National Rural Employment Guarantee Act (NREGA) are also household level regressions. The variables come from the 66th (2009-10) and 68th (2011-12) rounds of National Sample Survey. The dependent variable is a dummy variable equal to 1 if any member of the household got work under NREGA in the 365 days preceding the date of survey. The demographic and political controls used are similar to the ones used for the PDS regressions. These are dummies indicating the caste status of the household, a Muslim dummy, a dummy for rural area of residence, proportion of individuals belonging to different educational categories[13], average age of household members and its square, a dummy indicating the sex of the household head, land possessed by the household, household size, the proportion of Congress, Left and Hindu legislators in the assembly from the district. The regressions estimating the impact of SC reservation additionally include census and current figures of Scheduled Caste population in a district as a

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13. Non literates, literates but less than primary education, primary but not completed middle school, completed middle school but less than secondary education, completed secondary education but not graduates and graduates and above

share of the total state Scheduled Caste population and the regressions estimating the impact of ST reservation include census and current share of Scheduled Tribe population in the total district population as controls. The summary statistics of the variables used in the NREGA participation is presented in Table 2.4.

2.4 Scheduled Caste Reservations

This section looks at the effect of Scheduled Caste reservations.Section 2.4.1 discusses the empirical strategy, 2.4.2 discusses the results, 2.4.3 contains robustness checks and 2.4.4 contains a short discussion of the results.

2.4.1 Empirical Strategy

Since we are interested in estimating the effect of SC reservation on primarily SC outcomes we would like to estimate an equation of the following nature

$$
\begin{aligned}
Y_{idst} =& \alpha_d + \tau_t + \psi_{st} + \beta_1 SC\ Reservation_{dst} + \beta_2 SC\ Reservation_{dst} \times SC_{idst} \\
& + \beta_3 SC_{idst} + \lambda X_{idst} + u_{idst}
\end{aligned}
$$

$$(2.1)$$

where Y_{idst} is the outcome variable for individual/household i in district d of state s at time t, $SCReservation_{dst}$ is the proportion of assembly constituencies in a district which are reserved at time t and SC_{idst} is a dummy variable taking the value of 1 if the household is a SC household. α_d, τ_t and ψ_{st} denote district, time and state-time fixed effects. X_{idst} includes a set of controls. Inclusion of district fixed effects ensures that our identification comes from within-district variation

and state-time fixed effects controls for any policies which can vary at the state and across time.

The main coefficient of interest is β_2 since it estimates the effect of SC legislator on SC household. However estimating equation Equation (1) would not provide the causal effect of SC political representation. This is because there might be omitted variables which determine reservation proportion of the district and are correlated with the outcome variable. Although I include different fixed effects (district, time and state-time) which partially address this concern yet there might still be variables varying across district and time which might bias my results.

To address the above concern I use the policy rule that determines reservation for SC's in state legislative assemblies in India. The constitution of India mandates that reservation for Scheduled Castes in each state to be proportional to the population share of SC's in that state. The Delimitation Commission following this constitutional principle sets apart a number of constituencies proportional to the state's SC population proportion for reservation.For reservation of constituencies within a state the Delimitation Act states the following:

> constituencies in which seats are reserved for the Scheduled Castes shall be distributed in different parts of the State and located, as far as practicable, in those areas where the proportion of their population to the total is comparatively large

To implement the above provision, the Delimitation Commission allocates to

each district a number of reserved constituencies. This number is determined by the share of the district's SC population of the total SC population of the state within which the district is located.[14]

To understand this rule let us take the example illustrated in Fig 2.1. The figure illustrates the case of the state of Gujarat and the determination of reservation based on the 2001 census done by the last Delimitation Commission. The Gujarat state legislative assembly has a total of 182 assembly seats and approximately 7 percentage SC population. Hence the total number of seats reserved for SCs are 13 seats. Within Gujarat the figure gives the example of three districts-Kachchh, Anand and Surat. Based on the district's SC population share of the total state SC population, Kachchh gets 1 reserved seat (rounded up from 0.67), Surat gets 0 reserved seat (rounded down from 0.36) and Anand gets 1 seat (rounded up from 0.61). As the last column shows that there was no change in existing number of seats for Kachchh but the number of seats changed for Surat and Anand.

Given the above policy rule we can directly control for the district SC population share of the state SC population which determines the number of reserved constituencies in a district. We can control for this variable without this variable becoming perfectly collinear with the reserved proportion in a district because as illustrated in figure 1 the number of reserved seats can only be a whole number and not a fraction.

We can exploit other features of the policy rule that lets us control for current

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14. Within a district the constituencies with the highest share of Scheduled Caste population gets reserved.

population share of SC. The population numbers that the Delimitation Commission uses are that of the last census and hence would not be equal to the population figures for intercensal years which we can control directly.Moreover there is usually a lag between the sitting of a Delimitation Commission and the implementation of its directives by the Election Commission.

Figure 2.2 illustrates illustrates the above feature of the policy rule. Consider the hypothetical state which holds elections in 1972 and 1977. Since the Delimitation Commission which was set up in 1972 came up with its findings in 1974, the 1972 election will have reservation of constituencies based on the 1961 census population figures. However the 1977 election will have reservation proportion based on the population figures of 1971 census (Chin and Prakash (2011)).

Given the above features of the policy rule we estimate an equation of the following form:

$$Y_{idst} = \alpha_d + \tau_t + \psi_{st} + \beta_1 SC\ Reservation_{dst} + \beta_2 SC\ Reservation_{dst} \times SC_{idst}$$
$$+ \beta_3 SC_{idst} + \delta_1 Census\ Prop\ SC_{dst} + \delta_2 Current\ Prop\ SC_{dst} + \lambda X_{idst} + u_{idst}$$

$$(2.2)$$

where

$$Census\ Prop\ SC_{dst} = \frac{SC\ population\ in\ the\ district\ d\ in\ the}{census\ year\ used\ in\ last\ delimitation}{\frac{}{SC\ population\ in\ the\ state\ s\ in\ the}{census\ year\ used\ in\ last\ delimitation}}$$

$$Current\ Prop\ SC_{dst} = \frac{Current\ SC\ population\ in\ the\ district\ d}{Current\ SC\ population\ in\ the\ state}$$

The set of controls X_{idst} includes various economic and demographic characteristics of the household such as rural dummy, religion, land possessed and household size. I also include political controls which account for the proportion of constituencies held by the different political formations in India[15].

2.4.2 Results

Tables 2.5-2.8 present the baseline results. The tables show the impact of the proportion of assembly seats reserved for Scheduled Castes in a district on individual and household level outcomes. The outcome variables considered in this analysis are primary education completion of individuals, infant mortality, per capita household food-grains consumption under Public Distribution System, a dummy indicating whether the household consumed any PDS item and whether any member of the household got employment under National Rural Employment Guarantee Act (NREGA) in the last 365 days from the survey date. The tables show the differential impact on members of Scheduled Castes from political reservations. This impact which is captured by the interaction between the Scheduled Caste

15. I divide up the political parties in India as Congress which includes the Indian National Congress that has been in power for most of the time since India's independence and its allies, Hindu which includes the right wing Hindu nationalist party BJP, its predecessor Jan Sangh and fraternal organizations like the Hindu Mahasabha, Left which includes the various Communist parties and its allies and Others which includes the old Janata Party (an alliance of anti-Congress parties set up in the wake of the Emergency rule imposed by Congress Prime Minister, Indira Gandhi in the 1970s), its breakaway groups and other smaller parties and independents.

dummy and the Scheduled Caste political representation is our main variable of interest.

Education

Table 2.5 presents the estimates of equation (2) where the dependent variable is a dummy indicating whether the individual completed primary education. I restrict the sample to individuals aged 14 and older to ensure full exposure to primary education completion[16].

The politicians in power during primary schooling years are likely to affect the likelihood of completing primary education. It is also likely that the effects of policies such as teacher training programs, building new schools can only be felt with a time lag. Given that a child generally attends primary school between the age of 6 and 13, I have calculated the average proportion of assembly seats reserved for Scheduled Castes in the district corresponding to the period when the individual was 6 to 13 years old lagged by two years. Thus I have calculated the average proportion of Scheduled Caste reservation when the individual was 4 to 11 years old[17].

The first column of Table 2.5 shows that the average proportion of seats reserved for Scheduled Castes do not have any significant impact on primary education completion. However it is seen from column 2 that Scheduled Caste reservation significantly reduces the probability of primary education completion for

16. The sample is thus restricted to individuals who are old enough to have completed primary education.

17. The results are shown to be robust to the inclusion of the average proportion of Scheduled Caste reservation between the age 5 and 12 (lagged one period)

Scheduled Castes.

Infant Mortality

Table 2.6 shows the impact of Scheduled Caste reservation on infant mortality. The dependent variable is a dummy indicating whether the indicator child died by the age of 12 months. Since infant mortality depend on policies during the year before birth, following Bhalotra et al. (2014), I match the infant mortality data to the share of Scheduled Caste reservation in the year before birth.

Column 1 shows the average impact of Scheduled Caste reservation on infant mortality. As with education, the impact of Scheduled Caste reservation on infant mortality is insignificant. Again similar to the education results, column 2 shows that higher proportion of Scheduled Caste reservation in district increases the mortality risk of children belonging to Scheduled Castes households.

Public Distribution System

The impact of Scheduled Caste reservation on the delivery of public distribution system is shown in Table 2.7. The dependent variables are household level per capita amount of food-grains consumed under PDS (Column 1 and 2) and a dummy variable indicating whether the household consumed any PDS item. I match PDS variable with Scheduled Caste reservation variable lagged by two years.[18]

Column 1 and 2 of Table 2.7 show the impact of Scheduled Caste reserva-

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18. In the robustness check section (section 2.4.3) I show that the results are robust to making the reservation variable lag by one year instead of two years.

tion on the per capita food-grains consumed under PDS. Column 1 shows that Scheduled Caste reservation has no average effect on the amount of food-grains consumed under PDS. Column 2 shows that higher proportion of assembly seats reserved for Scheduled Castes in a district reduces per capita food-grains consumed under PDS for Scheduled Caste households.

Column 3 and 4 of Table 2.7 demonstrate the impact of Scheduled Caste reservation on PDS participation. Column 3 shows that proportion of seats reserved for Scheduled Castes in a district has no statistically significant impact on PDS participation of the average household. However, again, higher proportion of Scheduled Caste legislators significantly reduces the probability of PDS participation of Scheduled Caste households.

NREGA

Table 2.8 shows the impact of Scheduled Caste reservation on NREGA participation. The dependent variable is a dummy variable indicating whether at least one member of the household got work under NREGA in the last 365 days. The proportion of Scheduled Caste legislators is lagged by two years to allow for the lagged effects of policies.

Column 1 shows that Scheduled Caste reservation has no average impact on NREGA participation. However higher proportion of Scheduled Caste reserved seats in the districts significantly increases NREGA participation of Scheduled Caste households.

2.4.3 Robustness Checks

I have modified my baseline specification in a number of ways to check the robustness of my results. Tables 2.9-2.13 presents these results.

Table 2.9 shows the robustness checks for primary education. The first column of Table 2.9 presents the baseline result for primary education and is the same as column 2 of Table 2.5. Column 2 includes the square of average district Scheduled Caste population as a proportion of the total Scheduled Caste population in the state[19] in addition to the covariates mentioned in the empirical strategy section (section 2.4.1). In column 3, I have included the average district share of Scheduled Caste population as a control. Column 4 allows the population, demographic and political controls[20] to differ across Scheduled Castes and non Scheduled Castes. Thus I have included the interaction of population and demographic controls with the Scheduled Caste dummy as additional controls in column 4. Comparing columns 2, 3 and 4 with the baseline result given in column 1, we can see that the results presented in columns 2 , 3 and 4 are similar to the baseline result presented in column 1.

In column 5 of Table 2.9, the reservation variable has been lagged by one period instead of two periods. Thus, I have matched the primary education completion dummy to the average proportion of Scheduled Caste reservation in the district when the individual was 5-12 years old. The results are again similar to

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19. Average for the period when the individual was 4-11 years old

20. These include rural area of residence, land possessed by the household, average census and current district Scheduled Caste population as a proportion of the total state Scheduled Caste population, average proportion of Congress, Hindu and Left parties

the baseline results.

In column 6 of Table 2.9, I have restricted my sample to individuals who were exposed to Scheduled Caste reservation before 1993. In 1993, the 73rd and 74th constitutional amendments required all states to form local governments which were to be elected every 5 years. However, the 1993 amendments left legislative details to the states since local government remained in the State List. In addition the states in general have chosen to provide limited revenue autonomy to local governments, especially rural bodies. It can still be argued that the role of the state government was particularly relevant before 1993 when local governments did not have constitutional status and local affairs were entirely within state's sphere. So I have estimated my results for the sub-sample consisting of observations on Scheduled Caste reservation before 1993 and the result is presented in column 6. We can see that the results given in column 6 are similar to the baseline results.

Table 2.10 shows the robustness checks for infant mortality. Column 1 presents the baseline result which is similar to column 2 of Table 2.6. In column 2, I have included the square of district Scheduled Caste population as a share of the total state Scheduled Caste population as an additional covariate. Column 3 includes the district share of Scheduled Caste population as a control. In column 4, I have added the interaction of the demographic and political controls with Scheduled Caste dummy as controls. Column 5 of Table 2.10 presents the results estimated for the children who are exposed to Scheduled Caste reservation before 1993, the year when local government legislation was brought in the federal parliament. It can be seen that the results presented in columns 2, 3, 4 and 5 of Table 2.10 are

similar to the baseline result.

Table 2.11 shows the robustness checks for the amount of food-grains consumed under PDS. Column 1 again shows the baseline results and is similar to column 2 of Table 2.7. Column 2 and 3 include square of district Scheduled Caste population as a share of the total state Scheduled Caste population and district share of Scheduled Caste population respectively as controls. In column 4, I have added the interaction of Scheduled Caste dummy with the political and demographic variables as controls. In column 5, the reservation variable and the political controls are lagged by one period. The results presented in columns 2, 3, 4 and 5 are similar to the result presented in column 1.

PDS food grains are provided at a discounted rate for poor households. Households are first classified into three groups: general, poor (those who are below poverty line or BPL households) and the poorest households (households belonging to Antodaya category) and the subsidy varies across these categories. However, the information on whether a household belongs to BPL or Antodaya categories is not available for all NSS rounds. Only NSS 61 and 68 has information on these variables[21]. Column 6 of Table 2.10 includes dummies for whether the household belongs to BPL or Antodaya categories as additional controls. The sample size however is smaller in this case. The results are again similar to the baseline result.

Table 2.12 shows the robustness checks for PDS participation. Column 1 is

21. Round 66 which has been used in the estimation of the baseline results does not have this information

similar to column 4 of Table 2.6 and presents the baseline estimates. Column 2 includes the squared census Scheduled Caste population shares and column 3 includes district share proportion of Scheduled Caste population as additional controls. I have included the interaction of the demographic and political controls with the Scheduled Caste dummy as controls in column 4. In column 5, the reservation variable and the political controls are lagged by one period. Column 6 includes dummies for BPL and Antodaya households and thus the regression is estimated for a smaller sample as noted above for Table 2.11. The results presented in columns 2-6 are again similar to the the column 1.

Table 2.13 shows the robustness checks for NREGA participation. Column 1 again presents the baseline result. Column 2 and 3 includes square of census Scheduled Caste population shares and district population shares of Scheduled Castes respectively as additional controls. Column 4 includes the interaction between the Scheduled Caste dummy and the demographic and political controls. The results in columns 2-4 are similar to the baseline result.

2.4.4 Discussion

The results show that compared to non-Scheduled Castes, Scheduled Castes have worse educational and health outcomes in districts with high proportion of state assembly seats reserved for Scheduled Castes. Scheduled Castes are also more likely to get less food grains under the Public Distribution System in these districts compared to the non-Scheduled Castes. However, Scheduled Castes are more likely to get employment under NREGA as compared to non-Scheduled Castes.

The results show that a one unit increase in the proportion of SC candidate reduces the relative probability of completing primary education by 0.196 points for SCs. One way of interpreting the estimates is by focusing on differences between districts having least and most proportion of seats reserved for SCs. The 90th percentile of proportion of SC reservation is 0.25 while the 10th percentile of proportion of SC reservation is 0.03. Therefore, a move from the 10th to the 90th percentile induces an effect equal to 0.22 times the coefficient on the interaction of SC with the SC reservation variable. Thus a move from 10th to 90th percentile reduces the relative probability of primary education completion for SCs by about 0.043 which is 6.1% of the sample mean. Similarly a shift from 10th to 90th percentile of SC reservation increases the relative infant mortality risk of SCs by about 0.016 which is 17.2% of the sample mean, reduces per capita food grains consumption from PDS by 0.3 which is 15.7% of the sample mean and reduces the probability of PDS participation by 0.04 which is about 6% of the sample mean. On the other hand a movement from 10th to 90th percentile of SC reservation would increase the relative probability of a SC household gaining employment under NREGA by about 0.0735 which is 30% of the sample mean.

While improvements in education, health and public distribution system requires broad based changes, employment under NREGA can be more precisely targeted. Keefer and Khemani (2005) argues that politicians especially in developing countries find it difficult to provide broad based public services as informational constraints makes it difficult for politicians to signal their effort by providing broad based public goods. It becomes difficult for voters to attribute the

improvement in quality of the broad based public goods to politicians since they involve input from a number of authorities.

These problems get exacerbated in the presence of social divisons. In a polarized society like India voters tend to find credible the promises made by candidates belonging to their own ethnic group (Keefer and Khemani (2005)). These tensions would be further heightened in a reserved constituency where the only candidates are from lower castes. Upper caste voters living in a caste ridden society would be contemptuous of lower caste candidates and would vote based on party preference rather than vote according to candidate ability. In such an environment lower caste politicians would prefer providing public services which can be narrowly targeted to members of their own ethnic group.

This kind of narrow targeting would harm lower caste voters more since given their initial disadvantaged status any improvements in public services would improve their conditions more than members of upper caste. In absence of effective public services, upper caste households can substitute towards more private alternatives such as private schools [22], private tuition, private healthcare and increased parental inputs. For PDS delivery, Thorat and Lee (2005) mentions that lower caste households are often residual claimants on food stocks that reach the PDS shops. Hence any worsening of the running of the PDS system such as increased leakage across the distribution chain would lead to decreased consumption for lower caste households. This would explain why we see that in districts with a

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22. Goyal and Drèze (2003) notes that children enrolled in government schools in India mostly belong to disadvantaged backgrounds.

higher proportion of seats reserved for Scheduled Castes, Scheduled Castes do worse than non-Scheduled Castes in terms of education, health and PDS access. However, if we consider benefits under targetable government programs like employment under NREGA, it can be seen that the Scheduled Castes are more likely to get employment compared to the non Scheduled Castes in districts with higher proportion of assembly seats reserved for the Scheduled Castes.

2.5   Scheduled Tribe Reservations

The Constitution of India mandates reservation for Scheduled Tribes in legislative assemblies of the states in proportion to their population shares. However unlike the case of Scheduled Castes, constituencies that are to be reserved for each district are not separately determined. The Delimitation Act states that:

> constituencies in which seats are reserved for the Scheduled Tribes
> shall, as far as practicable, be located in areas where the proportion
> of their population to the total is the largest.

Thus seats for Scheduled Tribes are to be reserved in the constituencies in which the percentage of their population to the total population is the largest. Therefore the constituencies to be reserved for Scheduled Tribes will be those where the percentage of the ST population to the total population of the constituency is the largest, in descending order equal to the number of constituencies to be reserved for Scheduled Tribes in that state. Given this criteria, the fraction of constituencies in a district that end up getting reserved for Scheduled Tribes will be a function of

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the proportion of Scheduled Tribes in that district. Hence I estimate an equation of the following form to analyze the effects of Scheduled Tribes:

$$
\begin{aligned}
Y_{idst} =& \alpha_d + \tau_t + \psi_{st} + \beta_1 ST\ Reservation_{dst} + \beta_2 ST\ Reservation_{dst} \times ST_{idst} \\
&+ \beta_3 ST_{idst} + \delta_1 Census\ Percent\ ST_{dst} + \delta_2 Current\ Percent\ ST_{dst} + \lambda X_{idst} + u_{idst}
\end{aligned}
$$

$$(2.3)$$

where

$$
Census\ Percent\ ST_{dst} = \frac{\substack{ST\ population\ in\ the\ district\ in\ the \\ census\ year\ used\ in\ last\ delimitation}}{\substack{Total\ population\ in\ the\ district\ in\ the \\ census\ year\ used\ in\ last\ delimitation}}
$$

$$
Current\ Percent\ ST_{dst} = \frac{Current\ ST\ population\ in\ the\ district}{Total\ current\ population\ in\ the\ district}
$$

where Y_{idst} is the outcome variable for individual/household i in district d of state s at time t, $ST\,Reservation_{dst}$ is the proportion of assembly constituencies in a district which are reserved for Scheduled Tribe at time t and ST_{idst} is a dummy variable taking the value of 1 if the household is a ST household. α_d, τ_t and ψ_{st} denote district, time and state-time fixed effects. X_{idst} includes a set of controls which as before include political controls which account for the proportion of constituencies held by the different political formations in India and various economic and demographic characteristics of the household such as rural dummy, religion, land possessed and household size.

However the strategy outlined above might give us biased estimates of β_1 and β_2. This is because unlike the case of Scheduled Caste reservation there is no unique rule determining the fraction of constituencies that are to be reserved for Scheduled Tribes in the district. As the above discussion shows the fraction of reserved constituencies in a district depends on the census population share of Scheduled Tribes of that district (*Census Percent ST*)which we control for but it does not uniquely determine it. For example my regressions might run into trouble if for example two districts having the same population share of Scheduled Tribes have different fractions of reserved constituencies for Scheduled Tribes if the districts are very different in the way Scheduled Tribes are spatially distributed within the districts. For a given proportion of Scheduled Tribes in a district, the fraction of constituencies that gets reserved within that district depends on the spatial concentration of Scheduled Tribes.If Scheduled Tribes are concentrated within a small area in a district it gets higher fraction of reserved constituencies compared to the case where Scheduled Tribe population is dispersed within a district. This would lead to an omitted variable bias if the spatial distribution of Scheduled Tribes within a district has an independent effect on the outcome variables. This problem is taken care of to an extent by the inclusion of district fixed effects but if the spatial distribution of Scheduled Tribes changes over time it might lead to biased results. Hence the results in this section should be interpreted with caution.

Table 2.14 shows the impact of the proportion of assembly seats reserved for Scheduled Tribes in a district on individual and household level outcomes. Col-

umn 1 presents the estimates of equation (3) where the dependent variable is a dummy indicating whether the individual completed primary education. There is no significant effect of the average proportion of seats reserved for STs on primary education completion. Column 2 shows the impact of ST reservation on infant mortality. Again there is no significant effect of the proportion of seats reserved for STs on infant mortality. The impact of ST reservation on the delivery of public distribution system is shown in Columns 3 and 4. The results show that ST reservation has no significant impact on the per-capita food-grains consumption. However, ST reservation variable increases PDS participation of Scheduled Tribes. Column 5 shows the impact of Scheduled Tribe reservation on NREGA participation. It can be seen that ST reservation has no significant effect on NREGA participation.

The results for Scheduled Tribes show that except for the indicator variables denoting PDS participation, Scheduled Tribe legislators have no significant effect on members of their own ethnic group. This is in contrast to the results that I got for Scheduled Castes. The differences in the nature of political mobilization between Scheduled Castes and Scheduled Tribes might be a source for these difference in results. Banerjee and Somanathan (2007) mentions that there has been a dearth of independent political mobilization among Scheduled Tribes in contrast to the experience of Scheduled Castes. Specifically since the 1980s there has been increased political mobilization of Scheduled Castes which has led to a rise in an independent political leadership among Scheduled Castes which relies to a large extent on the Scheduled Caste electorate for their electoral success. This

political mobilization has led to the Scheduled Castes having emerged as a strong political bloc with the tendency to vote as a bloc and thus more effectively sway the political fortunes of individual politicians. In the absence of similar political mobilization among Scheduled Tribes, party identity will matter more than legislator identity and thus we would not see any effect of individual legislator identity which my reservation variables are picking up.

2.6 Conclusion

Electoral incentives often determine whether a politician invests in broad based public good or narrowly targeted government programs. Depending on the political preferences, policies adopted by the politicians can have long term impact on the lives of individuals. This is particularly true for the disadvantaged sections in developing countries who are highly sensitive to policy fluctuations due to their vulnerable economic position.

This chapter shows that higher proportion of seats reserved for the Scheduled Castes negatively affects the educational, health and PDS consumption of foodgrains for Scheduled Castes. However reservations also lead to Scheduled Castes being more likely to get employment under NREGA. It can be argued that the Scheduled Caste politicians can signal their ability to the Scheduled Caste voters by credibly committing the delivery of targeted government programs like government jobs. However education, health and distribution of items under public distribution system cannot be easily targeted. Thus Scheduled Caste politicians are likely to invest less in these broad based public goods and Scheduled Caste

voters, who are most likely to benefit from the investment in these public goods are likely to suffer more from the under-provision of these broad based public services. Finally the absence of any comparable effects for Scheduled Tribe legislators point to heterogenous effects of reservations for disadvantaged groups. Future work would be aimed at trying to provide more direct evidence of this broad vs narrow based distinction in the supply of public goods and services by minority politicians.

Figure 2.1: Reservations for Gujarat

Reservation of Seats for Scheduled Castes= Proportion of SC Population to Total multiplied by Total Seats in the Legislative Assembly

Proportion of SC= 0.0709
Total Assembly Seats= 182

Seats for SCs in Assembly $= 0.0709*182 = 13$ seats

$$\text{Seats for SCs in District} = \frac{\text{Population of SCs in District}}{\text{Population of SCs in the State}} \text{ X } 13$$

District	2001 Census population		Entitlement of Seats		Existing Seats
	State SC Population	**District SC Population**			
Kachchh	3592715	185932	0.67	1	1
Anand	3592715	98485	0.36	0	1 (-1)
Surat	3592715	169324	0.61	1	0 (+1)

Notes: The figure gives an example of the determination of reservation based on 2001 census done by the last Delimitation Commission for the Kachchh, Anand and Surat districts of Gujarat.

Figure 2.2: Time lag in Reservations

census 1961
.
.
1967 — 1967-1976
. Seats based on
census 1971 1961 census
.
.
1976
1977 — 1977-2007
. Seats based on
. 1971 census
.
.
.
census 2001
.
.
2007
2008 — 2008-2012
. Seats based on
. 2001 census
2012
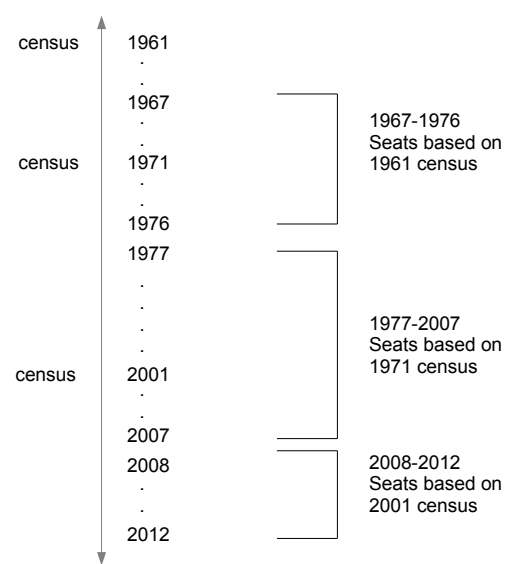
Notes: The figure illustrates the time lag in the determination of reservation of constituencies.

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Table 2.1: Summary Statistics: Education

Variable	Mean	Std. Dev.	N
Primary education completion	0.702	0.457	174632
Average proportion of SC reservation	0.151	0.083	174632
Average proportion of ST reservation	0.077	0.182	174632
SC household	0.191	0.393	174632
ST household	0.083	0.276	174632
Muslim household	0.136	0.343	174632
Female	0.494	0.5	174632
Rural area of residence	0.704	0.456	174632
Land possessed	595.9	1400.3	174632
Average SC census population share	0.061	0.045	174632
Average SC current population share	0.062	0.046	174632
Average current district population share of SC	0.161	0.071	174632
Average census district population share of ST	0.071	0.136	174632
Average current district population share of ST	0.08	0.132	174632
Average proportion Congress	0.38	0.241	174632
Average proportion Hindu	0.161	0.209	174632
Average proportion Left	0.102	0.216	174632

Notes: The table reports the mean and standard deviation of variables used in the primary education regressions. Primary education completion dummy, SC, ST, Muslim, female and rural dummies and land possessed by the household come from the 68th round of NSS. The reservation variables, the population proportions and the proportion of political parties are averaged over the years an individual attained primary school, lagged by two years. Thus the average is taken for the years when the individual was between 4 and 11 years old. Average proportion of SC and ST reservation and proportion of seats obtained by Congress, Hindu and Left parties are obtained from the official website of the Election Commission of India. The population proportion variables come from the Census of India.

Table 2.2: Summary Statistics: Infant Mortality

Variable	Mean	Std. Dev.	N
Infant mortality	0.0918	0.2887	212501
Proportion of SC reservation	0.1503	0.0805	212501
Proportion of ST reservation	0.0754	0.1825	212501
SC	0.1982	0.3986	212501
ST	0.0897	0.2857	212501
Muslim	0.8555	0.3516	212501
Rural area of residence	0.7694	0.4212	212501
Multiple birth	0.0135	0.1155	212501
Female child	0.4794	0.4996	212501
Mother's years of schooling	2.5521	3.9466	212501
Father's years of schooling	5.3532	4.8998	212501
Female headed household	0.0783	0.2687	212501
Mother not working	0.5961	0.4907	212501
Mother works at home	0.0666	0.2493	212501
Mother works away	0.3374	0.4728	212501
Mother's age at birth	23.246	5.0672	212501
SC census population share	0.0613	0.0492	212501
SC current population share	0.0618	0.0499	212501
Current district population share of SC	0.1598	0.0671	212501
Census district population share of ST	0.0700	0.1374	212501
Current district population share of ST	0.0780	0.1348	212501
Proportion Congress	0.4340	0.3165	212501
Proportion Hindu	0.1224	0.2136	212501

Notes: The table reports the mean and standard deviation of variables used in the infant mortality regressions. Infant Mortality, SC, ST, Muslim, female, rural, multiple birth, female headed household, mother's work status dummies, mother's and father's years of schooling and mother's age at birth comes from NFHS II. Proportion of SC and ST reservation and proportion of seats obtained by Congress, Hindu and Left parties comes from the official website of the Election Commission of India. The population proportion variables come from the Census of India.

Table 2.3: Summary Statistics: PDS Participation and Food Grains

Variable	Mean	Std. Dev.	N
Per capita food-grains from PDS	1.9182	3.1923	256763
PDS participation	0.7180	0.4500	256763
Proportion of SC reservation	0.1535	0.0821	256763
Proportion of ST reservation	0.0794	0.1836	256763
SC household	0.1966	0.3975	256763
ST household	0.0858	0.2800	256763
Muslim household	0.1153	0.3194	256763
Proportion of educational groups in household			
Non literates	0.3514	0.3234	256763
Literates but below primary	0.1583	0.2095	256763
Primary but below middle	0.1362	0.1985	256763
Middle but below secondary	0.1396	0.2032	256763
Secondary without graduate degree	0.1515	0.2341	256763
Graduate and above	0.0630	0.1784	256763
Female headed household	0.1135	0.3171	256763
Average age of members	29.641	12.604	256763
Household size	4.5661	2.2987	256763
Land possessed	562.13	3498.8	256763
Rural area of residence	0.7150	0.4514	256763
SC census population share	0.0619	0.0454	256763
SC current population share	0.0627	0.0459	256763
Current district population share of SC	0.1651	0.0722	256763
Census district population share of ST	0.0737	0.1324	256763
Current district population share of ST	0.0814	0.1298	256763
Proportion Congress	0.2950	0.2477	256763
Proportion Hindu	0.2284	0.2575	256763
Proportion Left	0.0973	0.2291	256763
BPL households	0.3515	0.4774	140200
Antodaya households	0.0445	0.2063	140200

Notes: The table reports the mean and standard deviation of variables used in the PDS regressions. Per-capita food-grains consumption under PDS, PDS partici-pation dummy, SC, ST, Muslim, female headed household and rural dummies, proportion of educational groups in household, household size, average age of household members and land possessed by the household come from the 61st, 66th and 68th rounds of NSS. Proportion of SC and ST reservation and pro-portion of seats obtained by Congress, Hindu and Left parties comes from the official website of the Election Commission of India. The population proportion variables come from the Census of India. The dummies indicating whether the household belongs to BPL or Antodaya categories is obtained from the 61st and 68th rounds of NSS. This information is not available in the 66th rounds of NSS.

Table 2.4: Summary Statistics: NREGA Participation

Variable	Mean	Std. Dev.	N
NREGA participation	0.236	(0.425)	89607
Proportion of SC reservation	0.16	(0.082)	89607
Proportion of ST reservation	0.085	(0.19)	89607
SC household	0.216	(0.412)	89607
ST household	0.106	(0.307)	89607
Muslim household	0.108	(0.311)	89607
Proportion of educational groups in household			
Non literates	0.389	(0.319)	89607
Literates but below primary	0.177	(0.219)	89607
Primary but below middle	0.145	(0.2)	89607
Middle but below secondary	0.136	(0.194)	89607
Secondary without graduate degree	0.123	(0.201)	89607
Graduate and above	0.03	(0.113)	89607
Female headed household	0.118	(0.322)	89607
Average age of members	30.06	(13.21)	89607
Household size	4.524	(2.188)	89607
Land possessed	687.7	(1453.3)	89607
SC census population share	0.06	(0.045)	89607
SC current population share	0.061	(0.046)	89607
Current district population share of SC	0.171	(0.072)	89607
Census district population share of ST	0.08	(0.136)	89607
Current district population share of ST	0.087	(0.136)	89607
Proportion Congress	0.264	(0.234)	89607
Proportion Hindu	0.23	(0.264)	89607
Proportion Left	0.109	(0.249)	89607

Notes: The table reports the mean and standard deviation of variables used in the MN-REGA regressions. NREGA participation dummy, SC, ST, Muslim, female headed household and rural dummies, proportion of educational groups in household, household size, average age of household members and land possessed by the household come from the 66th and 68th rounds of NSS. Proportion of SC and ST reservation and proportion of seats obtained by Congress, Hindu and Left parties comes from the official website of the Election Commission of India. The population proportion variables come from the Census of India.

Table 2.5: SC Reservation:Primary Education

	(1)	(2)
Average Proportion of SC Reservation * SC		-0.196**
		(0.0990)
Average Proportion of SC Reservation	-0.0904	-0.00795
	(0.185)	(0.188)
SC	-0.0944***	-0.0803***
	(0.00841)	(0.0165)
Observations	174632	174632
r2	0.247	0.257

Notes: All regressions include district, year and state-year fixed effects, dummies for Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, land possessed by the household. Other controls include census and current district SC population as a proportion of the total state SC population, proportion of Congress, Hindu and Left parties. Standard errors are clustered at district level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 2.6: SC Reservation:Infant Mortality

	(1)	(2)
Proportion of SC Reservation * SC		0.0719**
		(0.0345)
Proportion of SC Reservation	-0.0304	-0.0437
	(0.0428)	(0.0433)
SC	0.00532**	-0.00654
	(0.00256)	(0.00625)
Observations	212501	212501
r2	0.0459	0.0460

Notes: All regressions include district, year of birth, state-year of birth fixed effects, dummies for month of birth, order of birth, sex of the child, multiple birth, Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, sex of the household head, mother's work status, mother's and father's education and mother's age at birth. Other controls include census and current district SC population as a proportion of the total state SC population, proportion of Congress, Hindu and Left parties. Standard errors are clustered at district level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 2.7: SC Reservation:Public Distribution System

	(1)	(2)	(3)	(4)
	PDS Food Grains		PDS Participation	
Proportion of SC Reservation * SC		-1.279***		-0.199***
		(0.428)		(0.0577)
Proportion of SC Reservation	0.163	0.410	0.0282	0.0666
	(0.753)	(0.755)	(0.139)	(0.138)
sc	0.578***	0.801***	0.0373***	0.0719***
	(0.0348)	(0.0809)	(0.00508)	(0.0104)
Observations	256763	256763	256763	256763
r2	0.283	0.284	0.301	0.302

Notes: All regressions include district fixed effect, dummies for round, state-round fixed effect, dummies for Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, sex of the household head, average education of household members, average age and its square, land possessed by the household. Other controls include census and current district SC population as a proportion of the total state SC population, proportion of Congress, Hindu and Left parties. Standard errors are clustered at district level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%..

Table 2.8: SC Reservation:NREGA Participation

	(1)	(2)
Proportion of SC Reservation * SC		0.369***
		(0.111)
Proportion of SC Reservation	-0.0514	-0.112
	(0.261)	(0.261)
sc	0.117***	0.0493**
	(0.00965)	(0.0210)
Observations	89607	89607
r2	0.225	0.226

Notes: All regressions include district fixed effect, dummies for round, state-round fixed effect, dummies for Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, sex of the household head, average education of household members, average age and its square, land possessed by the household. Other controls include census and current district SC population as a proportion of the total state SC population, proportion of Congress, Hindu and Left parties. Standard errors are clustered at district level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 2.9: SC Reservation: Robustness Checks: Primary Education

	(1)	(2)	(3)	(4)	(5)	(6)
		Non Linear Census	District share	Interaction of covariates with		Pre 1993
	Baseline	population	of SC	SC Dummy	Lag 1	Sample
Average Proportion of SC Reservation * SC	-0.196**	-0.196**	-0.196**	-0.221**	-0.197**	-0.299**
	(0.0990)	(0.0990)	(0.0991)	(0.105)	(0.0993)	(0.133)
Average Proportion of SC Reservation	-0.00795	-0.00786	-0.0165	-0.00556	-0.0796	0.0881
	(0.188)	(0.188)	(0.191)	(0.188)	(0.164)	(0.272)
SC	-0.0803***	-0.0803***	-0.0802***	-0.0567*	-0.0828***	-0.0993***
	(0.0165)	(0.0165)	(0.0165)	(0.0295)	(0.0166)	(0.0233)
Observations	174632	174632	174632	174632	179930	70290
r2	0.257	0.257	0.257	0.258	0.260	0.258

Notes: All regressions include district, year and state-year fixed effects, dummies for Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, land possessed by the household. Other controls include census and current district SC population as a proportion of the total state SC population, proportion of Congress, Hindu and Left parties. Column 1 gives the baseline results. Column 2 includes the square of SC census population share as control. Column 3 includes district share of SC as control. In Column 4 I have included the interaction between the SC dummy and the political and demographic covariates. In column 5 the reservation variable and the political controls are lagged one period. Column 6 shows the baseline results for the restricted sample for pre 1993 period. Standard errors are clustered at district level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%..

Table 2.10: SC Reservation:Robustness Checks: Infant Mortality

	(1)	(2)	(3)	(4)	(5)
		Non Linear	District	Interaction of	Pre
		Census	share	covariates with	1993
	Baseline	population	of SC	SC Dummy	Sample
Proportion of SC Reservation * SC	0.0719**	0.0719**	0.0719**	0.0745**	0.0879**
	(0.0345)	(0.0345)	(0.0345)	(0.0347)	(0.0407)
Proportion of SC Reservation	-0.0437	-0.0430	-0.0439	-0.0445	-0.0508
	(0.0433)	(0.0434)	(0.0432)	(0.0433)	(0.0457)
SC	-0.00654	-0.00653	-0.00654	-0.00535	-0.00812
	(0.00625)	(0.00625)	(0.00625)	(0.0134)	(0.00760)
Observations	212501	212501	212501	212501	164214
r2	0.0460	0.0460	0.0460	0.0463	0.0478

Notes: All regressions include district, year of birth, state-year of birth fixed effects, dummies for month of birth, order of birth, sex of the child, multiple birth, Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, sex of the household head, mother's work status, mother's and father's education and mother's age at birth. Other controls include census and current district SC population as a proportion of the total state SC population, proportion of Congress, Hindu and Left parties. Column 1 gives the baseline results. Column 2 includes the square of SC census population share as control. Column 3 includes district share of SC as control. In Column 4 I have included the interaction between the SC dummy and the political and demographic covariates. Column 5 shows the baseline results for the restricted sample for pre 1993 period. Standard errors are clustered at district level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 2.11: SC Reservation:Robustness Checks: PDS Food Grains

	(1)	(2) Non Linear Census population	(3) District share of SC	(4) Interaction of covariates with SC Dummy	(5)	(6) BPL, Antodaya Dummies
	Baseline				Lag1	
Proportion of SC Reservation * SC	-1.279***	-1.281***	-1.279***	-1.033**	-1.192***	-1.316***
	(0.428)	(0.427)	(0.428)	(0.436)	(0.423)	(0.393)
Proportion of SC Reservation	0.410	0.526	0.365	0.348	-0.337	0.398
	(0.755)	(0.764)	(0.772)	(0.763)	(1.099)	(0.943)
sc	0.801***	0.801***	0.801***	-0.440	0.786***	0.457***
	(0.0809)	(0.0808)	(0.0809)	(0.279)	(0.079)	(0.0766)
Observations	256763	256763	256763	256763	256763	140200
r2	0.284	0.284	0.284	0.286	0.283	0.511

Notes: All regressions include district fixed effect, dummies for round, state-round fixed effect, dummies for Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, sex of the household head, average education of household members, average age and its square, land possessed by the household. Other controls include census and current district SC population as a proportion of the total state SC population, proportion of Congress, Hindu and Left parties. Column 1 gives the baseline results. Column 2 includes the square of SC census population share as control. Column 3 includes district share of SC as control. In Column 4 I have included the interaction between the SC dummy and the political and demographic covariates. Column 5 includes dummies for whether the household belongs to bpl or antodaya categories. Since this information is not available for 66th round of NSS, the sample size is smaller in this case. Standard errors are clustered at district level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 2.12: SC Reservation:Robustness Checks: PDS Participation

	(1)	(2)	(3)	(4)	(5)	(6)
		Non Linear	District	Interaction of		BPL,
		Census	share	covariates with		Antodaya
	Baseline	population	of SC	SC Dummy	Lag1	Dummies
Proportion of SC Reservation * SC	-0.199***	-0.199***	-0.199***	-0.113*	-0.202***	-0.177***
	(0.0577)	(0.0577)	(0.0576)	(0.0605)	(0.0568)	(0.0550)
Proportion of SC Reservation	0.0666	0.0486	0.0591	0.0537	0.154	0.109
	(0.138)	(0.140)	(0.140)	(0.138)	(0.161)	(0.220)
SC	0.0719***	0.0719***	0.0719***	0.0956**	0.072	0.0442***
	(0.0104)	(0.0104)	(0.0104)	(0.0400)	(0.0104)	(0.0109)
Observations	256763	256763	256763	256763	256763	140200
r2	0.302	0.302	0.302	0.303	0.3019	0.367

Notes: All regressions include district fixed effect, dummies for round, state-round fixed effect, dummies for Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, sex of the household head, average education of household members, average age and its square, land possessed by the household. Other controls include census and current district SC population as a proportion of the total state SC population, proportion of Congress, Hindu and Left parties. Column 1 gives the baseline results. Column 2 includes the square of SC census population share as control. Column 3 includes district share of SC as control. In Column 4 I have included the interaction between the SC dummy and the political and demographic covariates. Column 5 includes dummies for whether the household belongs to bpl or antodaya categories. Since this information is not avaiable for 66th round of NSS, the sample size is smaller in this case. Standard errors are clustered at district level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 2.13: SC Reservation:Robustness Checks: NREGA Participation

	(1)	(2)	(3)	(4)
		Non Linear Census population	District share of SC	Interaction of covariates with SC Dummy
	Baseline			
Proportion of SC Reservation * SC	0.369***	0.368***	0.369***	0.260**
	(0.111)	(0.111)	(0.111)	(0.123)
Proportion of SC Reservation	-0.112	-0.0786	-0.146	-0.0901
	(0.261)	(0.265)	(0.260)	(0.261)
sc	0.0493**	0.0496**	0.0495**	-0.0735
	(0.0210)	(0.0210)	(0.0210)	(0.0881)
Observations	89607	89607	89607	89607
r2	0.226	0.226	0.226	0.228

Notes: All regressions include include district fixed effect, dummies for round, state-round fixed effect, dummies for Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, sex of the household head, average education of household members, average age and its square, land possessed by the household. Other controls include census and current district SC population as a proportion of the total state SC population, proportion of Congress, Hindu and Left parties. Column 1 gives the baseline results. Column 2 includes the square of SC census population share as control. Column 3 includes district share of SC as control. In Column 4 I have included the interaction between the SC dummy and the political and demographic covariates. Standard errors are clustered at district level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 2.14: Effect of ST Reservation

	(1) Primary Education	(2) Infant Mortality	(3) PDS Food Grains	(4) PDS Participation	(5) NREGA
Proportion of ST Reservation * ST	-0.0143	0.0127	0.2428	0.1365**	0.0332
	(0.0493)	(0.0130)	(0.2326)	(0.0537)	(0.0435)
Proportion of ST Reservation	0.375	0.0715	-0.4553	-0.0405	-0.2862
	(0.352)	(0.0556)	(1.2423)	(0.1000)	(0.1896)
ST	-0.195***	0.000450	0.5823**	0.0418***	0.1021***
	(0.0167)	(0.00436)	(0.0781)	(0.0103)	(0.0186)
Observations	174632	212501	256763	256763	89607
r2	0.257	0.0460	0.2834	0.3018	0.2261

Notes: Column 1 shows the impact of ST reservation on primary education completion. The regression include district, year and state-year fixed effects, dummies for Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, land possessed by the household, census and current proportion of ST population in a district as a proportion of the total district population and proportion of Congress, Hindu and Left parties. Column 2 shows the impact of ST reservation on infant mortality. The regression include district, year of birth, state-year of birth fixed effects, dummies for month of birth, order of birth, sex of the child, multiple birth, Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, sex of the household head, mother's work status, mother's and father's education and mother's age at birth, census and current proportion of ST population in a district as a proportion of the total district population and proportion of Congress, Hindu and Left parties. Column 3 and 4 shows the impact of ST reservation on PDS food-grains consumption and a dummy indicating whether the household purchased any item under PDS. The regressions include district fixed effect, dummies for round, state-round fixed effect, dummies for Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, sex of the household head, average education of household members, average age and its square, land possessed by the household, census and current proportion of ST population in a district as a proportion of the total district population and proportion of Congress, Hindu and Left parties. Column 5 shows the impact of ST reservation on NREGA participation. The regression include include district fixed effect, dummies for round, state-round fixed effect, dummies for Scheduled Caste, Scheduled Tribe, Muslim, rural area of residence, sex of the household head, average education of household members, average age and its square, land possessed by the household, census and current proportion of ST population in a district as a proportion of the total district population and proportion of congress, Hindu and left parties. Standard errors are clustered at district level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Chapter 3

Colonization and Religious Violence: Evidence from India

Typically, imperial powers depend on the inability of oppressed local populations to muster a unified resistance, and the most successful occupiers are skilled at exploiting the differences among the occupied. Certainly that was the story of the British Empire's success, and its legacy of nurtured local hatreds can be seen wherever the Union Flag flew, from Muslim-Hindu hatred in Pakistan and India, to Catholic-Protestant hatred in Ireland, to, yes, Jew-Arab, hatred in modern Israel. — James Carroll, Constantine's Sword (2001)

3.1 Introduction

As the above quote suggests colonizers have often been blamed for creating rifts between different indigenous communities in the lands that they colonized so as to prevent any consolidation of indigenous forces against them. In the context of India, this is particularly true. British colonization has often been blamed for ushering in an era of Hindu-Muslim communal discord after centuries of communal harmony under the Mughals. This chapter is an attempt at evaluating whether this assertion is true. I empirically test whether British annexation has any long-term effect on religious violence in post-Independent India controlling for selective annexation by the British.

Hindu-Muslim religious violence has been one of the most pressing issues in post-Independent India. According to the Varshney and Wilkinson (2006) dataset on Hindu-Muslim conflict in India there have been more than 1100 cases of Hindu-Muslim violence in India causing around 7000 deaths over the period 1950-1995. In addition, riots result in substantial property damage, loss of livelihood and residential segregation (Field et al. (2008), Baber (2004), Mitra and Ray (2014)).

I compare districts ruled directly by the British with districts ruled by the native Indian rulers and see if British colonization has any long run effects on post-Independence religious violence in India. To account for potential selective annexation by the British I use the instrumental variable strategy used in Iyer (2010). Iyer (2010) compares public good provision across directly ruled and indirectly

ruled areas using the Doctrine of Lapse policy used by the British in annexing native states. According to the Doctrine of Lapse policy instituted by Lord Dalhousie in 1848, the British reserved the right to annex native states whose kings died without leaving a natural heir. Thus one can use the death of a native king without an heir in the period from 1848-1856 as an instrument for annexation by the British. Using this instrumental variable helps me to control for selective annexation and thus get rid of any endogenity in the variable indicating British annexation. Using the Doctrine of Lapse policy as an instrument, I find that contrary to the popularly held view, British ruled districts experienced lesser instances of religious violence compared to those ruled by native states. This result is robust to controlling for different geographic features, population and economic characteristics and political variables.

My research contributes to the literature analyzing the causes behind religious violence in India. The leading explanations for religious violence focus on economic and political factors. Studies have shown that greater economic competition between Hindus and Muslims leads to more religious violence (Kumar (2005)) and religious violence is used as a tool to usurp resources belonging to members of the rival religion (Mitra and Ray (2014)). On the other hand political scientists have tended to focus on political reasons behind riots. Wilkinson (2006)) shows that even after controlling for a town's socio-economic attributes and its level of previous Hindu-Muslim violence, "electoral cycles and the level of electoral completion exert an independent effect on the likelihood of communal riots." By comparing directly ruled areas with native states, this chapter adds to

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the above literature by looking at the effect of the identity of the historical ruler on Hindu-Muslim violence.

My research is part of the expanding literature on the role of historical institutions in explaining contemporary outcomes (Acemoglu, Johnson, and Robinson (2001), Engerman and Sokoloff (1997), and La Porta et al.). In the Indian context, Iyer and Banerjee (2005) analyze how different land tenure systems established by the British have affected long-term economic outcomes and Iyer (2010) compares public good provision across directly ruled and indirectly ruled areas. However research on the role of historical institutions in explaining ethnic violence is limited in the economics literature (Alesina, Easterly, and Matuszeski (2011)). Jha (2013) is one of those few papers which does so in the Indian context. The paper analyzes the role of medieval trade in explaining Hindu-Muslim riots during the period 1850-1950. It argues that religious violence is reduced if Hindus and Muslims could share the gains of trade in the medieval period and found that medieval trading ports were less likely to experience a religious riot between 1850-1950. My research complements the literature on the role of historical institutions on ethnic violence by focusing on the role of colonial rule in explaining the post independence Hindu-Muslim riots.

This chapter is most closely tied to the significant literature in history which analyzes the role of the British colonizers in fomenting Hindu-Muslim conflict. Indian nationalist historians have often claimed that the British followed a "divide and rule" strategy which created rifts between communities and laid the foundations for later day religious violence (Mehta and Patwardhan (1942), Kabir

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(1969), Das (1990)). This claim has been contested by other historians who argue either that communal tensions had already been simmering before the British came (Bayly (1985)) or that factors independent of British rule like pan-Islamism and the rise of Hindu and Muslim revivalist movements (Hardy (1972)) led to a rise in communal discord in the colonial era. There might be other channels too through which British annexation might affect religious violence. The British laid the foundations for a modern law and order machinery which, due to institutional persistence, might affect present religious violence in India. Moreover directly ruled British areas have a longer experience of democratic systems of governance through a system of directly elected government councils. This too might affect religious violence in independent India. Olsson (2009) showed that there is a strong positive effect of colonial duration on democracy, particularly for former British colonies. This too might affect religious violence in independent India. Thus given arguments on both sides, whether British rule lead to a deterioration in Hindu-Muslim relations becomes an empirical question which has not been tested so far in a rigorous manner. This chapter attempts to address this gap in literature.

As mentioned this chapter complements the aforementioned literature in a number of ways. Firstly by looking at a historical institution namely colonization it brings in a new dimension to the empirical literature on Hindu-Muslim political violence which has largely focussed on economic or political causes. Secondly this chapter adds to the growing literature on the effect of colonial institutions by looking at one of the relatively unexplored areas in economics which is the role of historical institutions in ethnic conflict. Most importantly this chapter tries

to resolve the question that has been debated among historians whether British colonization has led to increased Hindu-Muslim conflict. By controlling for selective annexation by the British it is able to address endogenity concerns.[1] The results challenge the popular narrative that British colonization led to increased Hindu-Muslim conflict.

The rest of the chapter is organized as follows: Section 3.2 discusses the historical background. It describes in detail the "divide and rule" strategy that is alleged to have been followed by the British and also some alternative channels through which British rule might affect Hindu-Muslim communal tension in the long-run, Section 3.3 describes the data used in this chapter, Section 3.4 discusses the empirical strategy, Section 3.5 discusses the results and Section 3.6 concludes.

3.2   British Colonization and Rise in Religious Violence

In this section I first discuss the various measures taken by the British which are attributed by historians to the strategy of divide and rule and have been suggested as playing a significant role in the rise of Hindu-Muslim communal discord. I then briefly discuss some alternative channels through which British annexation might have affected Hindu-Muslim religious violence in a different manner.

Various accounts suggest that the British followed a divide and rule strategy which incited religious violence and helped the British to maintain their hold over

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1. Lange and Dawson (2009) in a sample of 160 countries find evidence that "inter-communal violence is a common legacy of colonialism." However his results might be subject to endogenity concerns common in cross-country studies. Most importantly he does not control for selective annexation by the British.

their Indian subjects. In the ensuing account I describe the narrative that blames the British for the worsening of Hindu-Muslim relations. The narrative essentially contends that that British policy essentially consisted of two phases-an initial period of Hindu appeasement and suppression of Muslim aspiration followed by a period of inciting Muslim communalism to serve as a counterweight to emerging Indian nationalism. In the ensuing account I describe the narrative that blames the British for the worsening of Hindu-Muslim relations.

The first phase of Hindu appeasement and suppression of Muslim aspiration is considered to have consisted mainly of three measures taken by the British: the Permanent Settlement Act of 1793, the Resumption Proceedings and the abolition of Persian and adoption of English as the official language in 1835. Under the Permanent Settlement Act of 1793, *zamindars* (landlords) of the Bengal province were granted proprietary and hereditary rights over the land and their revenue obligation to the British government were fixed in perpetuity. Some commentators like Kabir (1969) claim that this system was established via a massive land transfer from the Muslim landed gentry to the Hindu landholding class. Others like Hardy (1972) claim that the Permanent Settlement Act affected Muslims adversely by "virtual closing the door of landlordism to Muslims". Hardy (1972) states that Hindu cultivators suffered as much as that of the Muslims cultivators under the Permanent Settlement but the number of Muslim cultivators in Bengal at that time were greater. Moreover the moneylenders who were the lenders of the last resort for the individual cultivators to pay their rent to the landlords were mostly Hindu-this too led to communal antagonism. In fact some of the

major Hindu-Muslim communal disturbances during the colonial era such as the rebellion of Titu Mir in 1830, the Faraizi movement in the 1830s and 1840s and the Malabar Rebellion in 1921 were essentially class struggles waged by Muslim cultivators against Hindu landlords and the British. The next measure that is considered to have affected Muslims adversely was the Resumption Regulation of 1820, under which the East India Company appropriated *lakhiraj*, revenue-free land granted mainly to Muslims. These land rights had been granted by both Hindu and Muslim rulers to support learning and education (Hardy (1972)). In order to maximize their tax collections from land revenue, the East India Company embarked on a policy which called for investigation and resumption of those holdings which did not possess proper title deeds. Some commentators contend that though some Hindus were also affected by the resumption proceedings, Muslims were the worst hit since Muslim grantees were much larger in number than Hindu grantees and also because as the erstwhile ruling elite they did not preserve their title deeds properly(Hardy (1972)). This gave a further blow to the Muslim middle and upper classes as it adversely affected their traditional educational system, which was based mostly on revenues from these grant lands and thus might have led to deepening of Muslim communal feelings (Kabir (1969)).

The third major step of the British which is said to have resulted in the impoverishment of the Muslims vis--vis Hindus in colonial India was the abolition of Persian and adoption of English as the official language in India by Lord Bentinck in 1835. This measure was also followed by the introduction of English in schools supported by the East India Company replacing Persian and Sanskrit.

Both these steps benefitted Hindus and disadvantaged Muslims primarily because of two reasons-firstly because Hindus had already been learning English and there was already a significant section of the Hindu elite who were well-versed in English and secondly because Muslims thought it to be against their religion to learn English (Khalidi (2006)). The replacement of Persian by English as the official language resulted in a huge loss for the Muslims and resulted in a significant loss of employment for Muslims in government service and also diminished the probability of Muslims finding government employment in the future.

The Indian Sepoy Mutiny of 1857 worsened British-Muslim relations. Although both Hindus and Muslims participated in the rebellion, a significant majority of British officials considered it to be Muslim-led in character (Kabir (1969)). The Mughal crown was abolished and the last Mughal emperor was sent to Rangoon on exile. Along with the annexation of Awadh from the Muslim nawab (king) a year earlier in 1856, the British suppression of the Sepoy Mutiny and the changes it brought thereafter completed the destruction and disintegration of the Muslim elite in much of North India, thus "further curtailing the prospects of soldiery, intelligentsia and artisans dependent on feudal patronage" (Khalidi (2006)). However these events also led to a change in Muslim attitudes. The surviving elite realized in order to prevent further economic loss they should shake off their hitherto insular attitude towards the British. The Muslims under the leadership of Sir Syed Ahmed Khan, founder of the Aligarh movement, embraced English education and co-operated more closely with the British (Hardy (1972)). On the other side the rising Hindu middle class, a class which had been established due to the

favored treatment of the British, started expressing themselves politically against the British by demanding more political autonomy. This led to the formation of the Indian National Congress in 1885. With rising Hindu antipathy towards the British manifested in the actions of not only the Congress but also many militant organizations who were advocating violence against the British colonizers, the British started raising Muslim communalism as a counter-weight to the emerging Hindu nationalism (Sahoo (2008)). According to many historians this British policy manifested itself in three key measuresthe partition of Bengal in 1905, the Minto-Morley Reform of 1909 and the Montagu-Chelmsford Reforms of 1919 (Mehta and Patwardhan (1942),Sahoo (2008)).

The British had set up base first in Bengal. In fact colonial rule in India is generally considered to have started with the victory of the British over the *Nawab* (king) of Bengal in the Battle of Plassey in 1757. Under British patronage Bengal soon became one of the leading provinces in India. Bengali Hindus particularly took to English education and soon established themselves in the colonial bureaucracy. However the Bengali Muslims lagged behind their Hindu counterparts. For example in 1901, only 22 out of every 10,000 Muslims knew English while the corresponding number for the Hindus was a much higher at 114 (Ray (1977)). The cultural, economic and political capital of Bengal was in Calcutta. The British proposal to carve out a Muslim majority province of East Bengal from the Bengal province thus received support from Muslims as they saw a chance to improve their fortunes through this proposal (McLane (1965)). On the other hand the upper caste Hindu Bengali elite, with most of their roots in the western part of

Bengal, saw a British conspiracy to undermine their ascendancy and staunchly opposed this move. Thus the partition led to a further deterioration in Hindu-Muslim relations in Bengal (McLane (1965)).

The Minto-Morley Reform of 1909 is considered to have further deepened communal discord between the two communities. The reforms were undertaken with a view to tame the nationalist fervor, especially militant activity in Bengal, following the partition of Bengal. The Reforms sought to give native Indians a greater role in governance. However one of the proposals in these reforms was the provision of separate electorates for Muslims. The provision of separate electorates meant that candidates of either religion could pander to the narrow interests of their own community and not have to serve members of the other community in order to win votes. This move of separate electorates has also been held responsible in encouraging Muslim communalism in India (Hasan (1980)).

The Montagu-Chelmsford reforms of 1919 were aimed to introduce autonomous institutions of self-governance gradually to India. A system of dyarchy was established under which law and order subjects and subjects responsible for maintaining the supremacy of British Empire like the railways were kept under the control of the British appointed bureaucracy who reported to the Governor of the province while subjects like education, public health, agriculture were transferred to the provincial governments which were run by Indians. Both the Central and provincial legislative assemblies were enlarged and franchise was extended to new groups of citizens. However with these measures the provision of separate electorates were not only maintained but the principle of Muslim over-representation

i.e. representation more than their share in population were introduced in the newly enlarged central and provincial legislative assemblies. Moreover the nature of the reforms gave power to the newly appointed Muslim legislators to distribute patronage to members of their own brethren at the cost of Hindus (Hardy (1972)). The reforms of 1919 instead of ushering in an era of Hindu-Muslim cooperation in self-governance is said to have increased communal antagonism (Hasan (1980)).

From the above analysis we see that there exists a narrative in which the British are held responsible for sowing the seeds of communal discord between Hindus and Muslims. However this is not an unchallenged interpretation of history. Historians like Peter Hardy, emphasize the gradual rise of more aggressive, revivalist streams of Hinduism and Islam, which although originated in the late eighteenth or early nineteenth centuries but received a fillip by the spread of modern transport and communications after 1860. Hardy (1972) also argues that the British followed a strategy of "balance and rule" rather than a strategy of "divide and rule". Others have argued the rise of new arenas of local power (Robinson (2007)) and the spread of pan-Islamism in the late nineteenth century led to deepening of the communal fissures in Indian society. Still others like Bayly (1985) and Van der Veer (1994) have argued that there is a "pre-history of communalism" and communalism is not just a product of the colonial era. They argue that it was "community-based state policies" practiced by the various Hindu and Muslim rulers who succeeded the Mughlas and "increasing competition between a declining Muslim service gentry and rising Hindu merchant classes" which created communal conflict in India in the pre-colonial period (Talbot (2007)). Hence

it is a matter of debate whether there was any policy of divide and rule actively followed by the British and whether this policy had any long-term impact on religious violence in India.

Apart from the channels mentioned above there might be alternative channels through which British rule might have a very different long run impact on Hindu-Muslim religious violence in India. The British instituted a system of modern law and order in the provinces that they controlled. This system not only consisted of an efficient police force which was required to keep the native population in line but also a network of judicial courts. Various accounts suggest that the British police force was more efficient in curbing law and order problems than their counterparts in the native states (Freitag (1991)). Lange (2004) in his sample of 33 British colonies shows that indirect rule had a negative effect on the institutional measure "Rule of Law" in the post-colonial period. Hence due to institutional persistence areas those were under direct British rule might have a more able police force, better equipped to deal with communal disturbances than areas that were under the native princes.

British rule might have a long run effect on religious violence is through the functioning of democratic institutions. Areas under direct British rule have a longer experience of democratic institutions since the Minto-Morley reforms of 1909. While the Minto-Morley reforms brought in limited self-government in British India, the subsequent Montagu-Chelmsford reforms of 1919 and Government of India Act, 1935 led to regular elections in the provinces. Moreover the fight for independence against British rule exhibited a large degree of Hindu-

Muslim cooperation. If greater experience with democratic institutions and a history of Hindu-Muslim cooperation lead to better functioning of local administration or development of higher social capital, British ruled areas might see lower incidence of religious violence compared to princely states in independent India.

3.3   Data

I construct a district-level panel dataset ranging from 1950-1989. The data for this district-level dataset comes primarily from three sources-the Varshney and Wilkinson (2006) dataset on religious violence in India, the replication dataset for the paper, Iyer (2010) and the India District Database which has data from the Indian Census. The Varshney- Wilkinson dataset contains information on occurrence of religious riots over the period 1950-1995. I concentrate on the period 1950-1989 since from 1990 onwards there was massive Hindu political mobilization which heralded in a new era of Hindu-Muslim antagonism.

The Varshney-Wilkinson dataset collects information about Hindu-Muslim religious violence from reports appearing in The Times of India newspaper on Hindu-Muslim conicts in India over the period 1950-1995. The dataset also records for each incident of communal violence the name of the city/town/village, the district and state, its duration, the number of people killed, injured and arrested and the reported proximate cause of the riot. Although there might be some under-reporting on the incidence of riots in small towns the authors take great care to cross check the validity of the dataset with other sources. The replication dataset for Iyer (2010) available on the The Review of Economics and Statistics data

archive contains all the data used in Iyer (2010). The dataset contains district level information on the ruler status of each district (colonial vs. native ruled), date of annexation by the British, mode of annexation, deaths of native rulers, heirs left by the native rulers, length of British rule and colonial era land revenue information.

District level demographic and economic data come from the 1951-1991 Indian Censuses which is available on the Indian District Database.. The Indian Census is a decennial Census. I use district level data on total population, proportion of rural population, population of Muslims, proportion of literates, proportion of employed and proportion of SC/ST population. Since the Census data is decennial, I fill the data in the inter Census years through linear interpolation.

I also collected district level geographical information from the India Agriculture and Climate data set assembled by the World Bank. This dataset has district level information on altitude, latitude, mean annual rainfall, soil type and a coastal dummy. To control for state level political representation, I collected data on state-level political variables which include the number of effective parties in a state legislature and proportion of seats occupied by different political groupings.[2] The political variables were taken from the EOPP Indian States database which is maintained by Timothy Besley and Robin Burgess.

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2. Effective parties is a widely used measure of party competition which weighs parties with a higher vote/seat share more heavily than parties with lower vote/seat share. The formula used is $1/\sum v_i^2$ where v_i is the vote/seat share of the ith party.

3.4　Empirical Strategy

I compare incidence of religious violence between directly ruled British district and districts belonging to native states by running regressions of the following form:

$$Y_{dst} = \alpha_s + \tau_t + \beta Brit_d + \lambda X_{dst} + u_{dst} \tag{3.1}$$

where d indexes districts and t time periods. Y_{dst} is our dependent variable which is either a dummy variable taking a value of 1 if a district experiences a riot in a given year and 0 if not or it is a count variable which takes the value of the number of riots or casualties in a given district i in year t. $Brit_d$ is a dummy variable which takes the value of 1 if the district was part of the British empire and zero otherwise. α_s and τ_t are state and time fixed effects and X_{dst} are district level controls. There are both time-varying and time-invariant (mainly geographical characteristics) variables in the set of controls X_{dst}.

β is the main coefficient of interest-it measures the differential effect of British annexation on religious violence in post-Independent India compared to the effect of being ruled by a native king/queen. However β might not represent the causal effect of British annexation if the variable Briti is potentially endogenous. For example the British might have been more successful in conquering areas which exhibited high levels of initial Hindu-Muslim conflict by exploiting Hindu-Muslim disunity. In that case β would not represent the true effect of British annexation

and would be biased upward. To overcome this problem of endogenity I use the instrumental variables used in Iyer (2010). Specifically I exploit the fact that between 1848-1856, under the command of Governor-General Lord Dalhousie, the British instituted a policy known as the Doctrine of Lapse under which native states whose rulers died without a male heir were to be taken over by the British. The policy was withdrawn when the British Crown took over the reins of government after the Indian Sepoy Mutiny of 1857. The event of death of a native state ruler without leaving a natural heir is exogenous to our dependent variable, religious violence in post-Independent India. Hence using the Doctrine of Lapse as an instrument for British annexation will help me in recovering the causal impact of British annexation on post-Independent religious violence in India.[3] Similar to Iyer (2010) I construct the instrument Lapse as follows: Lapse equals 1 if the native state was not annexed before 1848 and the ruler died without a male heir in the period 1848-1856; Lapse equals zero if the native state was not annexed before 1848 and there was no such death in the period 1848-1856. Since I cannot assign Lapse to districts that were annexed before 1848, my IV sample essentially restricts the sample to only those districts that were not annexed before 1848. The instrument Lapse would help us recover the causal effect of British annexation on post-Independent religious violence in India as long as Lapse does not have a direct effect on post-Independent religious violence in India even if the British were selective in their use of the Doctrine of Lapse policy.

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3. There are 17 districts out of a total of 160 districts in my IV sample where such death of ruler without a natural heir occurred.

3.5 Results

I start my empirical analysis with investigating the descriptive statistics of my key independent variables. Table 3.1a presents the mean of my dependent variables. Table 3.1b-3.1d present the means of my independent variables for British ruled and native districts separately and the differences in the means. Table 3.1b presents the means and the difference in means for geographical controls.Britis ruled areas have higher rainfall and more red soil. The means and the difference in means for population controls are summarized in Table 3.1c. There is no significant difference in means except for log of population. Table 3.1d shows the summary statistics for political controls. The means of none of the political controls are significantly different across British ruled and native ruled districts.

I now move on to OLS estimates of the effect of British annexation on the measures of the intensity of riots in districts. Tables 3.2-3.4 present the results. Table 3.2 shows the effect of British dummy on the probability of occurrence of any riot in a district d in time t. I introduce different controls sequentially. Column 1 presents the results from estimating equation (1) without any controls. Only state and time dummies are included. In column 2, I introduce geographical controls latitude and altitude, soil dummies, mean annual rainfall and a coastal dummy. The coefficient is positive and significant in both these columns which seem to support the traditional divide and rule theory. However once I enter population controls in column 3 the positive effect goes away-the effect is now negative although insignificant. In my regressions population controls include log of

population, proportion of urban, proportion of Muslim and squared proportion of Muslim, proportion of literate and proportion of SC/ST. Since post-Independent religious violence might differ across native ruled districts according to the religion of the ruler I include in the last column a Muslim ruler dummy and a Sikh ruler dummy (Hindu ruler being the omitted category). To account for the fact that most religious riots are motivated by political concerns in India, I also include the number of effective parties and proportion of seats won by various political groupings in the state Legislative Assemblies in India. The coefficient on the British dummy continues to be negative and insignificant after including these set of additional controls.

Table 3.3 shows the OLS estimates of the British dummy on the total number of riots in a district d at time t. Again controls are introduced sequentially. Similar to Table 3.2, the coefficients are positive in the first two columns (corresponding to including no controls and only geographical controls) but turns negative with the introduction of population (column 3) and religion of ruler and political controls (Column 4). However, none of the coefficients are statistically significant.Table 3.4 shows the OLS estimates of the British rule on the total number of riot casualties in a district d at time t. Again none of the coefficients are significant.

Table 3.5 presents the estimates for the first stage of my instrumental variable estimation. As can be seen, the instrument (the Lapse dummy) is positive and significant for all specifications including the one with the full set of controls given in column 4. Thus, as expected, the instrument or the Lapse dummy is a statistically significant predictor of the dummy indicating British Rule.

Tables 3.6-3.8 present my IV estimates. In all the regressions I exclude districts which were annexed before 1848 since there was no Doctrine of Lapse policy in force then. Table 3.6 presents the IV estimates where the dependent variable is the probability of occurrence of any riot. Columns 1 and 2 include only state and year fixed effects, columns 3 and 4 include only geographical controls, columns 5 and 6 include geographical and political controls and columns 7 and 8 include the full set of controls including political controls and dummies for the religion of the native ruler. Columns 1, 3, 5 and 7 show the OLS estimates using this reduced sample. The OLS estimates are all insignificant in this reduced sample. However in column 2 when I use my instrumental variable Lapse, the British dummy becomes negative and significant. This result is the main result of this research. This result signifies, at least for the restricted sample considered here, that contrary to the popularly held idea that British rule led to deterioration in Hindu-Muslim relations, British rule actually has a negative effect on the probability of occurrence of riots in post-Independent India. The effect is robust with the inclusion of additional controls as shown in columns 4 (only geographical controls), 6 (geographical controls and population controls) and 8 (full set of controls). Thus IV estimates show that British rule reduces probability the occurrence of riots by about 5 percentage points.

In tables 3.7 and 3.8, I estimate the effect of British annexation on total number of riots and total casualties. The controls are again included sequentially. Columns 1 and 2 do not include any controls, columns 3 and 4 include only geographical controls, columns 5 and 6 include geographical and population controls

and columns 7 and 8 includes all controls. The OLS estimates are presented in columns 1, 3, 5 and 7 and are all insignificant for both the total number of riots (Table 3.7) and total casualties (Table 3.8). Columns 2, 4, 6 and 8 show the IV estimates. It can be seen from table 3.7 that again British dummy significantly reduces the total number of riots and the effect is robust across all specifications. Columns 2, 4, 6 and 8 of Table 3.8 shows again that British rule reduces the total riots casualties. The coefficient of the British dummy is significant in the columns 2 (no controls) and column 4 (only geographical controls) of Table 3.8. However it loses its significance with the introduction of population controls (column 3 of Table 3.8) and religion of ruler and political controls (column 4 of Table 3.8).

Finally, I have done a falsification exercise in order to test the validity of my instrument, the Lapse dummy. It can be argued that the Lapse dummy is not a valid instrument if the death of a ruler without natural heir is somehow directly correlated with the occurrence of riots and the IV estimates obtained in this chapter are capturing that effect. In order to test if this is indeed true I checked whether the death of a ruler without a natural heir in years when the Doctrine of Lapse was not in place has any impact on the occurrence of riots (Iyer (2010)). Thus I regress the riots variables on a dummy that equals 1 if the ruler died without a natural heir in the period 1858 to 1884 during which such a death would not result in British annexation.[4] The estimates are presented in Table 3.9. It can be seen that the results are all statistically insignificant and small compared to the IV estimates.

4. The Doctrine of Lapse policy was withdrawn when the British Crown took direct control of administration of British India in 1858 following the First War of Independence/Sepoy Mutiny in 1857.

3.6 Conclusion

In this chapter I exploit the exogenous nature of the Doctrine of Lapse policy to estimate the causal effect of British annexation. Using instrumental variable strategy I show that British annexation does not lead to greater Hindu-Muslim violence in post-Independent India. Since the British have often been blamed for increased tensions between Hindus and Muslims, this result assumes significance as it challenges the established popular narrative that British colonization led to increased Hindu-Muslim conflict. Future work would be directed at trying to shed light on the precise channels through which British annexation might affect post-Independence religious conflict. One possible area of future research would be to look at the role of land relations in religious violence. Many instances of communal violence in the colonial period such as the Malabar rebellion in 1921 and the rebellion by TituMir in the late 1820s were primarily class based in nature. Since the British brought in many innovations in land relations (Iyer and Banerjee (2005)), it would be interesting to see the role of these changes in religious violence.

Table 3.1a: Summary Statistics: Dependent Variables

Variable	Mean	Std. Dev.	N
Probability of Riot	0.0454	0.2082	12240
Total Cases	0.0712	0.4859	12240
Total casualties	1.656	22.46	12240

Notes: The table reports the mean and standard deviations of the dependent variables used in this analysis. Probability of Riot is a dummy variable equal to 1 if a district experiences a riot in a given year. Total cases and total casualties indicate the number of riots and the total number of riot casualties in a district in a given year. The data comes from the Varshney and Wilkinson (2006) dataset on religious violence in India

Table 3.1b: Differences in Geographical Controls

	British State	Native state	Difference
Altitude	393.0	407.0	-13.97
			(45.26)
Latitude	22.84	22.92	-0.083
			(1.602)
Black soil	0.184	0.296	-0.112
			(0.098)
Red soil	0.195	0.096	0.100*
			(0.060)
Alluvial soil	0.534	0.478	0.056
			(0.108)
Coastal dummy	0.139	0.086	0.053
			(0.070)
Mean Annual Rainfall	1419.3	1075.4	343.9**
			(135.5)

Notes: The table reports the summary statistics of geographical controls used in this paper. Column 1 reports the mean of the variables for districts under British rule and the column 2 reports the means for the districts under native rule. Column 3 presents the differences in the means. The geographical data comes from the India Agriculture and Climate data set assembled by the World Bank. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 3.1c: Differences in Population Controls

	British State	Native state	Difference
Log Population	14.42	13.77	0.659***
			(0.117)
Proportion Urban	0.190	0.174	0.016
			(0.019)
Proportion Muslim	0.113	0.111	0.002
			(0.036)
Proportion workers	0.368	0.375	-0.007
			(0.016)
Proportion literate	0.304	0.260	0.045
			(0.029)
Proportion SC/ST	0.239	0.253	-0.014
			(0.026)

Notes: The table reports the summary statistics of population controls used in this paper. Column 1 reports the mean of the variables for districts under British rule and the column 2 reports the means for the districts under native rule. Column 3 presents the differences in the means. The data population controls come from the 1951-1991 Indian Censuses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 3.1d: Differences in Political Controls

	British State	Native state	Difference
Proportion Congress	0.518	0.561	-0.043
			(0.028)
Proportion Hard-Left	0.078	0.040	0.038
			(0.034)
Proportion Soft-Left	0.039	0.028	0.011
			(0.008)
Proportion Janata	0.127	0.115	0.012
			(0.029)
Proportion Hindu	0.022	0.022	-0.0003
			(0.006)

Notes: The table reports the summary statistics of political controls used in this paper. Column 1 reports the mean of the variables for districts under British rule and the column 2 reports the means for the districts under native rule. Column 3 presents the differences in the means. The political variables are taken from the EOPP Indian States database. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 3.2: OLS: Probability of Riot

	(1)	(2)	(3)	(4)
		Geographical	Population	Ruler Religion and
	No Controls	Controls	Controls	Political Controls
British dummy	0.0158*	0.0215*	-0.00326	-0.00195
	(0.00901)	(0.0120)	(0.00799)	(0.00938)
Geography Controls	NO	Yes	Yes	Yes
Population Controls	NO	NO	Yes	Yes
Ruler Religion and Political Controls	NO	NO	NO	Yes
Year Dummies	Yes	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes	Yes
Observations	12240	11080	11080	8858

Notes: All regressions include state fixed effect and time fixed effects. Column 1 shows the baseline results which includes only state and year fixed effects. In column 2, I have included geographical controls (altitude, latitude, dummies for soil type, coastal dummy and mean annual rainfall of district). Column 3 includes population controls (log population, proportion of urban population, proportion of Muslim population, proportion of workers, proportion of literates and proportion of SC/ST in district) in addition to geographical controls. In Column 4, I have included controls for the religion of the ruler and state level political representation variables (number of effective parties in a state legislature and proportion of seats occupied by Congress, hard Left, soft Left, Janata and Hindu). Standard errors are clustered at native state level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 3.3: OLS: Total Cases

	(1)	(2)	(3)	(4)
		Geographical	Population	Ruler Religion and
	No Controls	Controls	Controls	Political Controls
British dummy	0.0323	0.0337	-0.0217	-0.0124
	(0.0211)	(0.0226)	(0.0207)	(0.0324)
Geography Controls	NO	Yes	Yes	Yes
Population Controls	NO	NO	Yes	Yes
Ruler Religion and Political Controls	NO	NO	NO	Yes
Year Dummies	Yes	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes	Yes
Observations	12240	11080	11080	8858

Notes: All regressions include state fixed effect and time fixed effects. Column 1 shows the baseline results which includes only state and year fixed effects. In column 2, I have included geographical controls (altitude, latitude, dummies for soil type, coastal dummy and mean annual rainfall of district). Column 3 includes population controls (log population, proportion of urban population, proportion of Muslim population, proportion of workers, proportion of literates and proportion of SC/ST in district) in addition to geographical controls. In Column 4, I have included controls for the religion of the ruler and state level political representation variables (number of effective parties in a state legislature and proportion of seats occupied by Congress, hard Left, soft Left, Janata and Hindu). Standard errors are clustered at native state level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 3.4: OLS: Total casualties

	(1)	(2)	(3)	(4)
		Geographical	Population	Ruler Religion and
	No Controls	Controls	Controls	Political Controls
British dummy	1.312	0.894	-0.476	0.654
	(0.828)	(0.717)	(0.704)	(1.251)
Geography Controls	NO	Yes	Yes	Yes
Population Controls	NO	NO	Yes	Yes
Ruler Religion and Political Controls	NO	NO	NO	Yes
Year Dummies	Yes	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes	Yes
Observations	12240	11080	11080	8858

Notes: All regressions include state fixed effect and time fixed effects. Column 1 shows the baseline results which includes only state and year fixed effects. In column 2, I have included geographical controls (altitude, latitude, dummies for soil type, coastal dummy and mean annual rainfall of district). Column 3 includes population controls (log population, proportion of urban population, proportion of Muslim population, proportion of workers, proportion of literates and proportion of SC/ST in district) in addition to geographical controls. In Column 4, I have included controls for the religion of the ruler and state level political representation variables (number of effective parties in a state legislature and proportion of seats occupied by Congress, hard Left, soft Left, Janata and Hindu). Standard errors are clustered at native state level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 3.5: IV: First Stage

	(1)	(2)	(3)	(4)
		Geographical	Population	Ruler Religion and
	No Controls	Controls	Controls	Political Controls
Instrument	0.596***	0.560***	0.486***	0.438***
	(0.172)	(0.161)	(0.133)	(0.123)
Geography Controls	NO	Yes	Yes	Yes
Population Controls	NO	NO	Yes	Yes
Ruler Religion and Political Controls	NO	NO	NO	Yes
Year Dummies	Yes	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes	Yes
Observations	6200	5560	5560	4428
F-stat	12.02	12.12	13.40	12.50

Notes: Notes: All regressions include state fixed effect and time fixed effects. Column 1 shows the baseline results which includes only state and year fixed effects. In column 2, I have included geographical controls (altitude, latitude, dummies for soil type, coastal dummy and mean annual rainfall of district). Column 3 includes population controls (log population, proportion of urban population, proportion of Muslim population, proportion of workers, proportion of literates and proportion of SC/ST in district) in addition to geographical controls. In Column 4, I have included controls for the religion of the ruler and state level political representation variables (number of effective parties in a state legislature and proportion of seats occupied by Congress, hard Left, soft Left, Janata and Hindu). Standard errors are clustered at native state level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 3.6: IV: Probability of Riot

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	No Controls		Geographical Controls		Population Controls		Ruler Religion and Political Controls	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
British dummy	0.0106	-0.0458**	0.00541	-0.0513***	-0.00292	-0.0438**	-0.0101	-0.0571**
	(0.0149)	(0.0193)	(0.0152)	(0.0195)	(0.0159)	(0.0218)	(0.0224)	(0.0280)
Geography Controls	NO	NO	Yes	Yes	Yes	Yes	Yes	Yes
Population Controls	NO	NO	NO	NO	Yes	Yes	Yes	Yes
Ruler Religion and Political Controls	NO	NO	NO	NO	NO	NO	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6200	6200	5560	5560	5560	5560	4428	4428

Notes: All regressions include state fixed effect and time fixed effects. Column 1 shows the baseline results which includes only state and year fixed effects. In column 2, I have included geographical controls (altitude, latitude, dummies for soil type, coastal dummy and mean annual rainfall of district). Column 3 includes population controls (log population, proportion of urban population, proportion of Muslim population, proportion of workers, proportion of literates and proportion of SC/ST in district) in addition to geographical controls. In Column 4, I have included controls for the religion of the ruler and state level political representation variables (number of effective parties in a state legislature and proportion of seats occupied by Congress, hard Left, soft Left, Janata and Hindu). Standard errors are clustered at native state level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 3.7: IV: Total Cases

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	No Controls		Geographical Controls		Population Controls		Ruler Religion and Political Controls	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
British dummy	-0.00402	-0.0716***	-0.0242	-0.0988**	-0.0486	-0.0847**	-0.0837	-0.120**
	(0.0165)	(0.0251)	(0.0262)	(0.0385)	(0.0329)	(0.0390)	(0.0515)	(0.0523)
Geography Controls	NO	NO	Yes	Yes	Yes	Yes	Yes	Yes
Population Controls	NO	NO	NO	NO	Yes	Yes	Yes	Yes
Ruler Religion and Political Controls	NO	NO	NO	NO	NO	NO	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6200	6200	5560	5560	5560	5560	4428	4428

Notes: All regressions include state fixed effect and time fixed effects. Column 1 shows the baseline results which includes only state and year fixed effects. In column 2, I have included geographical controls (altitude, latitude, dummies for soil type, coastal dummy and mean annual rainfall of district). Column 3 includes population controls (log population, proportion of urban population, proportion of Muslim population, proportion of workers, proportion of literates and proportion of SC/ST in district) in addition to geographical controls. In Column 4, I have included controls for the religion of the ruler and state level political representation variables (number of effective parties in a state legislature and proportion of seats occupied by Congress, hard Left, soft Left, Janata and Hindu). Standard errors are clustered at native state level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 3.8: IV: Total casualties

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	No Controls		Geographical Controls		Population Controls		Ruler Religion and Political Controls	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
British dummy	-0.218	-1.509**	-0.608	-2.189**	-0.777	-1.434	-1.211	-1.622
	(0.315)	(0.603)	(0.543)	(0.860)	(0.628)	(0.960)	(0.995)	(1.243)
Geography Controls	NO	NO	Yes	Yes	Yes	Yes	Yes	Yes
Population Controls	NO	NO	NO	NO	Yes	Yes	Yes	Yes
Ruler Religion and Political Controls	NO	NO	NO	NO	NO	NO	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6200	6200	5560	5560	5560	5560	4428	4428

Notes: All regressions include state fixed effect and time fixed effects. Column 1 shows the baseline results which includes only state and year fixed effects. In column 2, I have included geographical controls (altitude, latitude, dummies for soil type, coastal dummy and mean annual rainfall of district). Column 3 includes population controls (log population, proportion of urban population, proportion of Muslim population, proportion of workers, proportion of literates and proportion of SC/ST in district) in addition to geographical controls. In Column 4, I have included controls for the religion of the ruler and state level political representation variables (number of effective parties in a state legislature and proportion of seats occupied by Congress, hard Left, soft Left, Janata and Hindu). Standard errors are clustered at native state level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Table 3.9: Robustness Check: Effect of Death of Ruler Without Natural Heir

	(1) Probability of Riots	(2) Total Cases	(3) Total Casualties
Ruler Died Without a Natural Heir Dummy	0.00136	-0.0261	-0.606
	(0.00991)	(0.0296)	(0.560)
Geography Controls	Yes	Yes	Yes
Population Controls	Yes	Yes	Yes
Ruler Religion and Political Controls	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
State Dummies	Yes	Yes	Yes
Observations	3377	3377	3377

Notes: All regressions include state fixed effect time fixed effects, geographical controls (altitude, latitude, dummies for soil type, coastal dummy and mean annual rainfall of district), population controls (log population, proportion of urban population, proportion of Muslim population, proportion of workers, proportion of literates and proportion of SC/ST in district), dummies for the religion of the ruler and state level political representation variables (number of effective parties in a state legislature and proportion of seats occupied by Congress, hard Left, soft Left, Janata and Hindu). Standard errors are clustered at native state level and displayed in parentheses. * denotes significant at 10%; ** denotes significant at 5% and *** denotes significant at 1%.

Chapter 4

The Economic Lives of Muslims in India, 1983-2012

4.1 Introduction

Muslims are one of the most significant minority groups in India. Although Muslims constitute around 14 percentage of India's population and is one of the most underprivileged sections of society very little systematic study has been done to examine the evolution of economic lives of Muslims in India. Quite a substantial literature now exists studying various facets of the economic gap between upper and lower castes and between males and females. However very little study has been done on the Hindu-Muslim gap. This is precisely the gap in the literature that I want to address. This chapter is a an analysis of the evolution of economic condition of Muslims over the period of 1983 to 2011-12.

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The study of economic conditions of Muslims in India is an interesting subject for many reasons. One, as mentioned above, Muslims constitute one of the most significant minority groups in India. Not only are they significant in terms of raw numbers, they are also significant as a political symbol of a secular India. In spite of being a Hindu majority country, India has the third largest Muslim population in the world after Indonesia and Pakistan. One of the reasons for the painful and violent partition of the Indian sub-continent after the British left in 1947 was the contention put forward by a large section of the Muslim leadership at that time that Muslims would be treated as second class citizens in independent Hindu majority India. Hence since Independence the socio-economic conditions of Muslims has always been a politically sensitive topic in India. Muslims are also seen as a politically powerful minority with popular accounts suggesting that they vote as a bloc and hence control the fate of almost 100 seats in the Union Parliament in India.

Another reason why the study of economic conditions of Muslims is an interesting topic is that unlike other marginalized groups in India, the lower castes and women, Muslims are not a historically disadvantaged community. In fact most of the Indian sub-continent had been under Islamic rule for about six centuries (12th to 18th century) prior to the arrival of the British and the establishment of British colonial rule in India. In those six centuries Muslims were at the forefront in social, economic and cultural life in Indian society. Hence the relative deprivation faced by Muslims is a relatively modern phenomena and not a medieval or ancient legacy.

The study of the evolution of the economic fortunes of the Muslims over the last three decades is particularly important because of the tremendous economic growth that India achieved in these three decades compared to the sluggish growth it had suffered earlier. Hnatkovska, Lahiri, and Paul (2012) shows that other marginalized groups like Schedule Castes and Tribes (SC/ST's) have fared quite well in this period and has closed down the gap with their upper caste counterparts. It remains to be seen whether Muslims have also shared in the economic success of this time period. The Sachar Committee (2006) report tried to shed light on the deprivation faced by Muslims in India. This chapter is an extension of that effort. It shows the relative deprivation that Muslim face with respect to other social groups and undertakes a quantile analysis to understand the extent of deprivation at various parts of the distribution. I also undertake a decomposition analysis to understand the relative contribution of different factors to the relative gap that Muslims face.

In this chapter I try to analyze the economic conditions of Muslims in the period 1983-2012 following a similar structure as in Hnatkovska, Lahiri, and Paul (2012). First I compare all Muslims with Hindus. Then I break up the sample according to the sector of residence (rural or urban). I also carry out the comparisons across gender. I also break up the Hindu sample into two caste groups-upper castes and SC/STs and then compare Muslims with these two different caste groups of Hindus. I look at educational attainment, occupational choices, wages and consumption expenditure[1] and analyze how Muslims have fared in relation to other

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1. I do not include wage and consumption data after 2005 since I only have consistent deflators

groups over the sample period. Using seven rounds of National Sample Survey (NSS) data spanning the period 1983 to 2011-12, I find that Muslims are indeed deprived with respect to Hindus in education, wages and consumption. More significantly this relative deprivation is increasing over time. An interesting fact is that the deprivation faced by Muslims is particularly worse at the top end of the wage and consumption distribution. The other interesting fact that comes out of this analysis is that while disadvantaged Hindu castes (SC/STs) have been able to close their gap with Muslims, the gap between Upper Castes and Muslims have been increasing over time. These results stand in stark contrast to the results obtained by Hnatkovska, Lahiri, and Paul (2012) who showed that there has been a striking convergence between SC/ST's and non-SC/ST in India.

There is a very thin economics literature studying explicitly the economic conditions of Muslims in India. Borooah and Iyer (2005) focus on differences in school enrolment rates across religious groups. They find that the difference in the enrolment rates between Hindu and Muslim children was disproportionately greater than the difference in their economic position. However they find that the difference in enrolment rates of Hindus and Muslims at schools has been narrowing down over time. Bhaumik and Chakrabarty (2009) examine earning differentials between Hindus and Muslims. Their results suggest that lower education attainment is the key factor behind Hindu-Muslim wage differentials. An interesting recent paper Kuran and Singh (2013) shows that in the late colonial period Muslims were relatively less likely than Hindus to use large-scale and long-living

till 2004-2005

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economic organizations, and less likely to serve on corporate boards. The authors provide evidence that these differences lay in the differences in the inheritances laws of the two communities. While Hindu inheritance laws favored capital accumulation within families and the preservation of family fortunes across generations, the Islamic inheritance system tended to fragment family wealth.

The analysis undertaken in this chapter adds to the existing literature in a number of ways. Firstly by considering education, occupation, wages and consumption all together I can present a holistic picture of the evolution of economic conditions of Muslims over the entire sample period. Secondly by undertaking a quantile analysis I can study changes at key points in the distribution of wages and consumption and not just the mean. Thirdly by focusing on both static and inter-temporal aspects of the education, wage and consumption distributions I can provide a more nuanced perspective of the evolution of the economic conditions of Muslims over the entire sample period. Fourthly by comparing Muslims with both upper and lower caste Hindus I am able to point out that the relative deprivation of Muslims is not only in comparison with upper caste Hindus, they have been faring worse economically than lower caste Hindus over the period under study.

The rest of the chapter is organized as follows. Section 4.2 describes the data, Section 4.3 contains the empirical analysis with sub-sections 4.3.1, 4.3.2, 4.3.3 and 4.3.4 looking at educational attainment, occupational choice, wages and consumption expenditure respectively. Section 4 concludes.

4.2 Data

The data for this project comes from various rounds of the National Sample Survey (NSS) of India. I use household survey data data from the 38th (1983), 43rd (1987-88), 50th (1993-94), 55th (1999-2000), 61st (2004-05), 66th (2009-10) and 68 (2011-12) rounds of the NSS. These are thick quinquennial rounds which contain information on socio-economic attributes of over hundred thousand households. Since the main focus of this chapter is on tracing differentials in labor market outcomes across Muslims and Hindus, my primary sample consists of all working age individuals between the ages of 16 and 65.

In Section 4.3.3 where I specifically look at wage differentials across different religions, my sample is restricted to only those who report working for a wage/salaried job. This leaves out self-employed individuals from my wage-analysis sample. I restrict the wage analysis till 2004-05. I deflate wage data using state-level poverty lines using 1983 rural Maharashtra prices as the base. I do not include the wage data from the 66th and 68th NSS rounds because I do not have comparable poverty line data for these rounds. [2] Wages are reported in the NSS survey as the daily wage/salaried income received by respondents during the reference week, which is one week previous to that of the survey week. Both cash and in-kind income received is recorded where the in-kind income is converted into monetary terms using retail prices.[3] I derive average daily wage from the deflated weekly wage.

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2. This is because the way poverty lines were defined were changed in 2005 and the two series are not comparable.

3. This conversion is done by NSS.

I also analyze differences in consumption expenditure which are recorded on a monthly basis at the household level. In Section 4.3.4 where the focus is on consumption expenditure, the analysis is done at the household level since consumption expenditure is the same for all members of the household. Similar to the wage analysis I restrict my analysis till 2004-05 due to the absence of consistent deflator as described above. I deflate consumption using state-level poverty lines with 1983 rural Maharashtra prices as the base and then calculate per capita daily consumption expenditure.

The other important variables included in my analysis are educational variables and occupation variables. In the NSS education is coded as a categeorical variable. For expositional simplicity I group the education categories into five broad categories: not-literate (Edu1), literate but below primary (Edu2), primary (Edu3), middle (Edu4), and secondary and above (Edu5) in the analysis. For occupational choice, I have aggregated the 3-digit occupation codes that individuals report in NSS survey into one-digit code. These codes are then broadly grouped into three categories: white collar jobs, blue collar jobs and agriculture. I have further divided blue collar jobs and agriculture into the self employed and wage employed.

4.3 Empirical Analysis

4.3.1 Education Attainment

I this section I examine the evolution of the distribution and gap in educational attainment between Muslims and Hindus. In addition to comparing all Muslims with all Hindus, I divide the sample according to the sector of residence (rural or urban) and gender and compare Muslims with Hindus over these subsamples. I also compare Muslims separately with SC/ST and upper caste Hindus. The sample consists of all working age Hindus and Muslims between the ages of 16 and 65 who are currently not enrolled in any educational institution.

Figure 4.1 examines the pattern of difference between Muslims and Hindus across different education categories. Panel (a) of Figure 4.1 shows the distribution of Hindus (left) and Muslims (right) across the five education categories for each of the seven NSS rounds. The first thing to note about the figure is that both groups seem to be getting more educated over time. The lowermost bars which represent the percentage of illiterates among the two groups get shorter over time whereas the uppermost bars representing higher education categories are getting longer over time. The reduction of illiterates among either group is quite substantial with the percentage of illiterates falling from about 59 percent to about 39 for Hindus and 63 to 45 percent for Muslims.

The difference in the percentage of people completing secondary education and above (the topmost bar) is more pronounced. This gap is also increasing over time. While the percentage of Hindus in this highest education category increased

from 9.3 percent to 26 percent from 1983 to 2011-2012, for Muslims it increased from 5.8 percent to 15.4 percent over the same period.

To investigate the relative gap in educational attainment more closely we now turn to Panel (b) of Figure 4.1. Each of the five bar for a given NSS round measures represents the five educational categories and the height of the bar measures the relative gap between the share of Hindus and Muslims in that educational category. Specifically the height of the bar (H) for any given educational category i and NSS round t is given by

$$H_{it} = \frac{Share\ of\ Hindus_{it}}{Share\ of\ Muslims_{it}}$$

The height of the bars going above 1 for any category i indicates a disproportionate share of Hindus in that category while the height of the bar going below 1 denotes a disproportionate share of Muslims in that category. Looking at the figure we see that Muslims are over-represented in the lower three education categories and under-represented in the top two education categories, the under-representation being most sharp in the top category. Again we note that the relative gap between Muslims and Hindus has slightly increased in the top category over time. The over representation of the Muslims in the illiterate category has also increased over the sample period. However for the middle school category (Edu4) the relative gap has been decreasing.

We now turn to different sample comparisons. I start by breaking up the sample into rural and urban sectors. First looking at Figures 4.2 and 4.3 we see that

in rural areas the relative gap in the topmost education category (secondary and above) between Muslims and Hindus is increasing over time whereas in the urban sector there has been a decrease in the relative gap for this category. The over-representation of Muslims in the bottom category has increased slightly over time for both rural and urban sectors. Again for the middle school category (Edu4) the relative gap has been decreasing in both rural and urban areas.

Next I compare Muslims with upper caste Hindus. Figure 4.4 presents these results. There has not been much change in the relative gap in education for the topmost category between the upper castes and the Muslims and upper castes continue to be about two times more represented compared to Muslims in the top category. The over-representation of muslims in the illiterate category have slightly increased. Similar to above, the relative gap is declining for the middle school category.

Figure 4.5 compares Muslims with lower caste Hindus and shows that lower castes are improving vis-s vis Muslims.[4] Panel (b) shows that Muslims are more represented than lower castes in the top educational categories and are less represented in the lowest educational category. However the SC/STs are catching up overtime. The height of the bars for the top two education categories (middle, secondary and above) has been increasing over time. This signifies that compared to Muslims, the relative proportions of SC/STs in the higher education categories has

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4. I drop Muslims who self-identify as SC/ST from the sample. This is because Muslims do not get official SC/ST status from the government even if they had historically belonged to these groups. However the number of Muslims who claim to be SC/ST are negligible in the sample. In the 68th round they are less than 0.02 % of the entire sample and around 1% of Muslims.

been increasing over time. The height of the bar representing the lowest education category (illiterates) has slightly decreased over time.

Next I compare Muslims with Hindus separately for males and females. Figure 4.6 and 4.7 present these results. We can see that for the topmost category, while the Hindu-Muslim gap has increased for males, it has reduced for females. The over-representation of Muslims in the lowest educational category has increased for both males and females, the increase being higher for males.

Having looked at all the graphs from Figure 4.1 to 4.7 an overall picture emerges. Muslims seem to lag behind Hindus in education and this gap has been increasing over time. When we subdivide the Hindu sample into upper and lower castes we see that Muslims lag behind upper castes and there is no convergence over time. Muslims seem to enjoy a narrow advantage over lower caste Hindus. However this relative gap has been decreasing over time with the lower castes fast catching up with the Muslims. So as far as education attainment is considered Muslims would rank slightly higher than lower caste Hindus but much lower than upper caste Hindus. However Muslims seem to be faring worse than both lower and upper caste Hindus over time-they are not being able to reduce their gap with the upper caste Hindus and lower caste Hindus are catching up with them. Between males and females Muslim men are doing much worse than Hindu men overtime compared to Muslim females vis-a-vis Hindu females.

4.3.2 Occupational Choice

In this section I analyze the differences in occupational choice across Muslims and Hindus. I group the occupational categories into the following broad categories- the first category (Occ1) comprises white collar workers-administrators, executives, managers, professionals technical and clerical workers; the second category (Occ 2) consists of blue collar workers such as sales workers, service workers and production workers; while Occ 3 comprises farmers, fishermen, loggers, hunters etc. To get a clearer understanding of occupational choice within these broad categories I subdivide both the Occ2 and Occ3 categories into a self-employed part and a wage-employee part. For example a retail dealer would be classified as Occ2 (self-employed) whereas a retail salesman would be classified as Occ2 (wage employee). Cultivators would be classified as Occ3 (self-employed) whereas agricultural labourers would be classified as Occ3 (wage employee).

Figure 4.8 depicts the occupational distribution of the two religious groupings. From panel (a) we see that there has been a consistent decline in the percentage of people belonging to the Occ3 categories for both groups and an increase in the percentage of people working in occupations belonging to categories Occ1 and Occ2. Muslims are more concentrated in Occ2 occupations than Hindus.

In Panel (b) of Figure 4.8 the height of the bar for any occupation category for a given NSS round given by the share of Hindus in that category divided by the share of Muslims in that category similar to what I did for educational categories. Looking at the graph there does not seem to be much convergence across occupation categories. While Muslims dominate occupations belonging to Occ2, Hindus

dominate occupation belonging Occ3. Within the Occ3 category although Hindus have greater relative shares of both wage employment and self-employment in the category, the discrepancy seems to be higher for self-employment which mainly denotes cultivators. Again the gap in agricultural employment, particularly self employment has increased overtime. However the gap in white collar jobs has decreased slightly overtime.

Figures 4.9 and 4.10 compares Hindus and Muslims in Rural and Urban sectors respectively. We see that compared to upper caste Hindus, Muslims are moving out of the agricultural self employment occupation in both the sectors. Muslims are also moving out of agricultural wage employment in the rural sector. Muslims also seem to be moving into Occ1 occupations over time (the height of these bars are decreasing) in both rural and urban sectors.

As a next step I compare Muslims with both upper and lower caste Hindus. Figures 4.11 and 4.12 present these results. We see that compared to upper caste Hindus, Muslims are moving out of the agricultural occupations (Occ3), particularly for agricultural self employment (Figure 4.11). Muslims also seem to be moving into Occ1 occupations over time as compared to upper castes. From Figure 4.12, we can see that Muslims are moving out of agricultural self employment and blue-collar jobs (wage employed) compared to SC/STs. In Figures 4.11 and 4.13, I compare Muslims with Hindus separately for males and females. Again both Muslim men and women are moving out of agricultural self employment.

4.3.3 Wages

I start my wage analysis by plotting the kernel densities of the wage distributions for Muslims and Hindus for 1983 and 2004-05 in panel (a) of Figure 4.15 . The graph shows that the wage distributions for both groups have shifted to the right over time indicating that both groups have seen their real wages rise during the sample period. The other interesting fact seen from the graph is that the Muslim wage density has a heavier middle and a thinner upper tail than Hindu wage density in 1983 indicating that there was a greater share of middle-income wage earners among Muslims but a lower share of high income earners. The heavier middle disappears to a large extent in 2004-05 with the Muslim wage density almost tracking the Hindu wage density in the middle but the thinner upper tail still remains.

Panel (b) of Figure 4.15 plots the differences in log wages between Hindus and Muslims at different percentiles of the wage distribution for the two time periods. In both time periods the graph slopes up indicating that the wage distribution of Hindus is more unequal than that of Muslims and the Hindu-Muslim gap is larger at higher percentiles. However the key fact that one learns from the graph is that there is non-convergence in the wage distribution across time periods as the 2004-05 curve lies entirely above the 1983 curve. Hindus seems to be doing better than their Muslim counterparts at almost all percentiles of the wage distribution over time. Infact the initial advantage that Muslims enjoyed at lower quantiles of the wage distribution seems to have been almost wiped out over time.

To evaluate the role of various factors in the wage gap, I employ an Oaxaca-

Blinder decomposition technique to decompose the observed mean and quantile wage gaps into explained and unexplained parts and quantify the contribution of education to the gap. I employ Recentered Influence Function(RIF) regressions (Firpo, Fortin, and Lemieux (2009)-henceforth FFL) for decompositions at the 10th, 50th and 90th quantiles and OLS regression for the decomposition of mean. In these regressions I use the following covariates apart from the education dummies: age, age squared, a rural dummy and state dummies. I first carry out decompositions for 1983 and 2004-05 separately (Panel A and B of Table 4.1) and then decompose the changes over the entire sample period (Panel C of Table 4.1).

Panel A and B of Table 4.1 report the decomposition the wage gap in 1983 and 2004-05 into the explained and unexplained components. Column 1 reports the total gap, column 2 the gap explained due to the covariates in my regression, column 3 reports the contribution of education to the explained gap and column 4 reports the unexplained gap. At the very top of the distribution i.e. at the 90th quantile the total gap is positive for both time periods. At the lower end of the distribution i.e. at the 10th quantile the total gap is negative and statistically significant in 1983, i.e. the Muslims enjoyed an advantage in 1983. While the total gap remains negative in 2004-05 for the 10th percentile, the magnitude falls sharply and no longer remains statistically significant. Again for the mean and the median, the gap was small and statistically insignificant (negative in case of median) in 1983. However, by 2004-05 both the mean and median gap became positive and statistically significant with sharp increase in magnitude.

Now looking at the components of the total gap we see that the explained gap

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is positive for all points of the wage distribution in 2004-05 and for the mean and 90th quantile in 1983. As can be seen from column 3 differences in educational attainment is an important contributor to the explained gap and in some cases it explains more than 100 percent of the explained gap. This signifies that education is one of the key hurdles in Muslims achieving greater economic prosperity.

In Panel C of Table 4.1, I turn to decomposition of the inter-temporal changes in the gaps reported in the previous table. The table shows the changes in the wage gap between 1983 and 2004-05 and its various components. As is clear form column (1) the wage gap has increased at all points of the wage distribution. The unexplained part of the gap seems to be quite high for the top percentile which might point towards increased discrimination in the top quantile. However more rigorous analysis is needed for a more concrete conclusion on this phenomenon.

To understand the different facets of the change in the wage gap between Muslims and Hindus, I repeat the exercise in Table 4.1 with the sample being divided into rural and urban sample. Table 4.2 compares Muslims with Hindus in rural sector. We can see from Panel A and B of Table 4.2 that Muslims enjoy a relative advantage at the lower end of the wage distribution (10th quantile and mean) in both the periods. Column 3 shows that the coefficient of education is almost always positive and significant (except for the bottom quantile in 1983) and thus education remains an important obstacle for Muslims in the rural sector. Panel C shows that there has not been much change over the period 1983 to 2004-05.

Table 4.3 presents the same analysis for the urban sector and we can see that in comparison to the rural sector, Muslims have done much poorly in the urban

sector. Panels A and B show that the wage gap between Hindus and Muslims is positive for almost all the quantiles in both the periods, except the bottom quantile in 1983. Again education remains a key contributor to the explained gap in both the periods and unexplained gap is positive and significant for the top quantile in 2004-05. Panel C shows that the Hindu-Muslim wage gap at mean and the 10th and 90th quantiles have increased significantly from 1983 to 2004-05.

Next I compare Muslims separately with upper and lower castes Hindus in tables 4.4 and 4.5. Comparing Muslims with upper castes we see that the wage gap is positive for the 50th and 90th quantiles in both the periods. Muslims seems to have a advantage in the bottom quantile in 1983 which have disappeared by 2004-05 (Panel A and B of Table 4.4). Again education explains a significant part of the observed wage gap as shown in column 3. Panel C of Table 4.4 shows that the wage gap between upper castes and Muslims have increased significantly for the mean and the 90th percentile with unexplained gap explaining a significant fraction of the increase.

Table 4.5 compares Muslims with SC/STs. Panels A and B show that Muslims have advantage over SC/STs in terms of wages. However looking at Panel C we see that the Muslims are losing their initial advantage over SC/STs overtime, especially for the bottom percentiles (10th and 50th) and mean, where the change is statistically significant. Column 3 of Panel C show that convergence in education explains a significant part of the convergence in wage gaps between Muslims and SC/STs over the period 1983 to 2004-05.

If we look at men and women (Tables 4.6 and 4.7) we see similar pattern for

men with the wage gaps increasing for all percentiles and mean over the period 1983 to 2004-05 (Table 4.6). However for women although an initial gap exists between Muslims and Hindus in the bottom quantile, there does not seem to be much movement over time.

4.3.4 Consumption

Now I turn to studying consumption differentials between Muslims and Hindus. The variable that I consider is per capita daily household consumption expenditure. Since the household consumption is the same for all individuals in a given household my unit of analysis in this section is a household. Panel (a) of Figure 4.16 plots the kernel densities of distribution of consumption expenditure for Muslims and Hindus for 1983 and 2004-05. The important feature of this graph is that in both time periods the distribution for Hindus lie to the right of that of the Muslims signifying that Muslims spend much lower on consumption than Hindus.

Panel (b) of Figure 4.16 plots the differences in log of daily consumption expenditure between Hindus and Muslims at different percentiles of the consumption distribution for the two time periods. In both time periods the graph slopes up indicating that the consumption distribution of Hindus is more unequal than that of Muslims and the Hindu-Muslim gap is larger at higher percentiles. Similar to what we saw for the wage distribution, there is divergence in the consumption distribution across time periods as the 2004-05 line lies almost entirely above the 1983 line. Hindus seems to be doing better than their Muslim counterparts at nearly all percentiles of the consumption distribution.

Similar to that of wages I now perform an Oaxaca-Blinder decomposition of the change in the consumption gap at the mean and various quantiles of the consumption distribution. I use the following covariates in the regressions for decomposition:household size, the number of earning members in the household, rural dummy, state dummies, educational attainment of the household head and highest level of education attained by any household member.

Panel A and B of Table 4.8 reports the decomposition the consumption gap in 1983 and 2004-05 into the explained and unexplained components. Column 1 reports the total gap, column 2 the gap explained due to the covariates in my regression, column 3 reports the contribution of education to the explained gap and column 4 reports the unexplained gap. It can be seen that the total and explained gaps are positive and significant at all points of the distribution and in both time periods. Also the magnitude of the gap increases as we move up the distribution from the 10th quantile to the 90th quantile.

Panel C of Table 4.8 reports the decomposition of the inter-temporal changes in the gaps reported in the Panels A and B. Column 1 reports the change in the total gap, column 2 the change in the explained gap, column 3 reports the change in the explained gap due to education and column 4 reports the change in the unexplained gap. From column (1) we see that the gap has increased significantly at both the mean and median. It has also increased at the 10th and the 90th percentile, however the change is not statistically significant. Most of the increase in the gap can be explained and education explains a significant part of the explained component especially as one moves up the distribution.

As a next step I compare Muslim households with Hindu Households separately for rural and urban sectors. For the rural sector we can see that the Hindu-Muslim consumption gap is positive and significant for all percentiles in both the periods, with education explaining a significant portion of the gap (Panel A and B of Table 4.9). However there is not much movement overtime in the rural sector as seen from Panel C of Table 4.9. On the other hand for the urban sector, the Hindus Muslim consumption gap in addition to being positive and significant for each of the time periods (Panel A and B of Table 4.10), is increasing overtime for the mean, median and the 90th quantile. The increase is sharpest at the 90th quantile.

Next I compare Muslim households separately with upper and lower caste Hindu households. Comparing Muslim households to upper caste households in Table 4.11, we can see that there has been a significant increase in the gap at the upper end of the distribution (mean, median and 90th quantile). In contrast, in comparison to Muslim households, lower caste households have increased their consumption expenditure at the lower end of the distribution (10th and 50th quantile and the mean), as shown in Table 4.12.

4.4   Conclusion

In this analysis I have analyzed the evolution of education attainment, occupation choices, wages and consumption expenditure between 1983 and 2004-05 of Muslims relative to that of Hindus. I found that over this period the deprivation faced by Muslims has grown more acute, particularly in wages and consumption,

in spite of the tremendous economic growth enjoyed by India during this period. This deprivation is more true at upper ends of the wage and consumption distribution.

The analysis carried out in this chapter also presents some important questions. Firstly the analysis shows that Muslims not only fared worse than upper caste Hindus during the period under study they also lagged behind lower castes. I would like to further study as to why the SC/STs are gaining with respect to Muslims. In particular I would like to examine the if the political changes that happened in India over this period are a reason for such differences. I would like to examine whether the rise of a Hindu nationalist party, the Bharatiya Janta Party (BJP) on one hand and the increase in political mobilization of Dalits (Scheduled Castes) on the other hand (Banerjee and Somanathan (2007), both of which happened during this period, has any role to play in these changes. The other key change that happened during this period was the opening of the economy. Market forces often result in different groups of winners and losers(Ravallion and Lokshin (2004)). It would be interesting to see if the opening of the economy has disproportionately benefitted other groups in comparison to Muslims. Another interesting question that seems to recur in my analysis is that although the gap between Hindu and Muslim men seem to be rising the same cannot be said about differences between Muslim and Hindu women. I would like to further study this pattern and see whether as Munshi and Rosenzweig (2006) suggest in a globalizing world, new groups who enter the labour force such as women are in a better position to adapt to the fast changing economy than entrenched groups such as
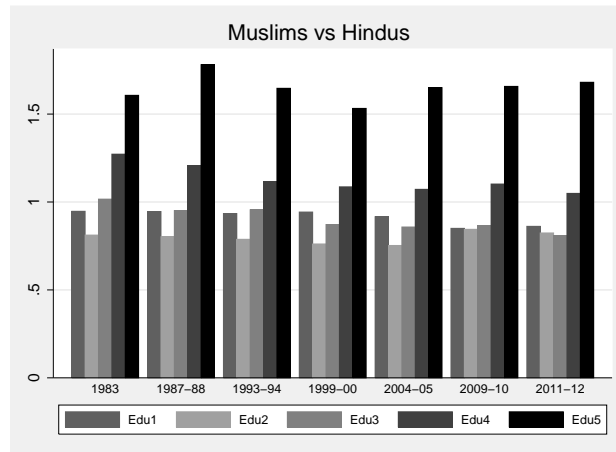
men who rely on traditional networks for their labour market success.

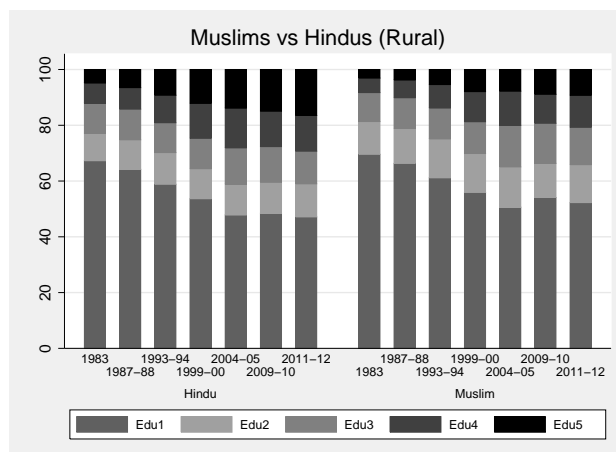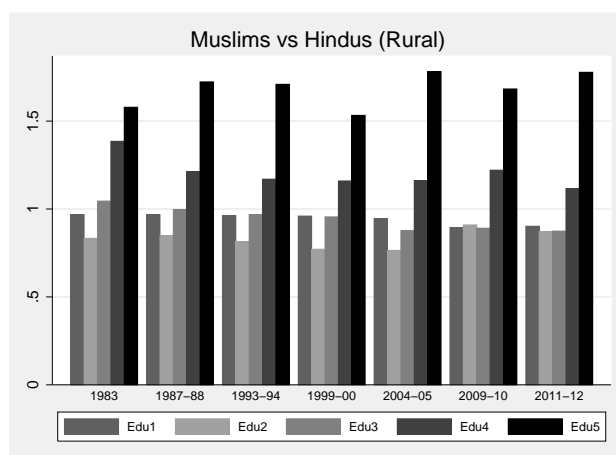**Figure 4.1:** Distribution of education attainment
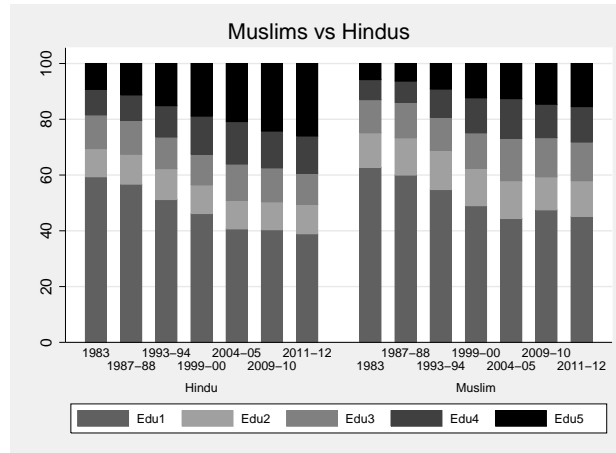
(a)

(b)

Notes: The figure shows the pattern of educational distribution and educational gap between Hindus and Muslims over five broad educational categories. The time points correspond to seven rounds of NSS covering the period 1983-2012. The five broad educational categories are not-literate (Edu1), literate but below primary (Edu2), primary (Edu3), middle (Edu4) and secondary and above (Edu5). Panel (a) shows the distribution across the five broad education categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in educational attainment between Hindus and Muslims over the same period.

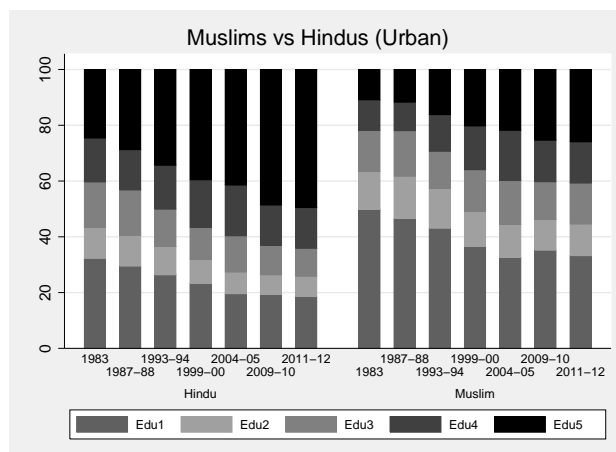**Figure 4.2:** Distribution of education attainment-Rural

(a)

(b)

Notes: The figure shows the pattern of educational distribution and educational gap between Hindus and Muslims over five broad educational categories for the rural sample. The time points correspond to seven rounds of NSS covering the period 1983-2012. The five broad educational categories are not-literate (Edu1), literate but below primary (Edu2), primary (Edu3), middle (Edu4) and secondary and above (Edu5). Panel (a) shows the distribution across the five broad education categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in educational attainment between Hindus and Muslims over the same period.

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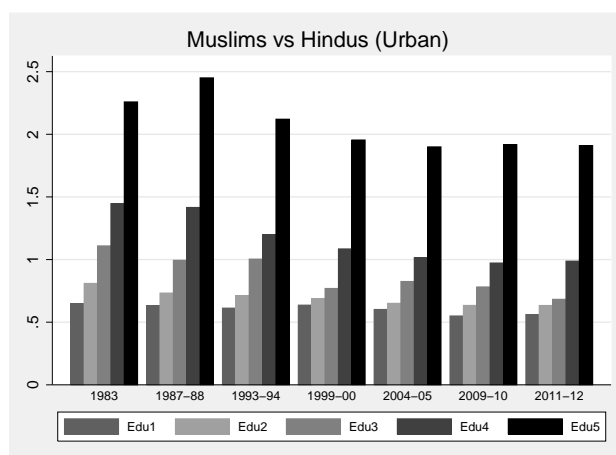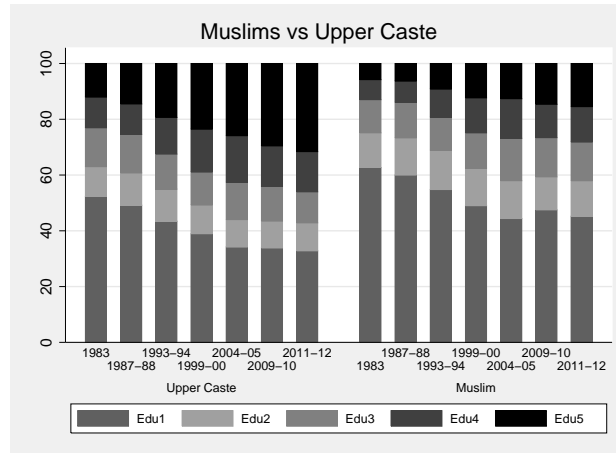**Figure 4.3:** Distribution of education attainment-Urban

(a)

(b)

Notes: The figure shows the pattern of educational distribution and educational gap between Hindus and Muslims over five broad educational categories for the urban sample. The time points correspond to seven rounds of NSS covering the period 1983-2012. The five broad educational categories are not-literate (Edu1), literate but below primary (Edu2), primary (Edu3), middle (Edu4) and secondary and above (Edu5). Panel (a) shows the distribution across the five broad education categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in educational attainment between Hindus and Muslims over the same period.

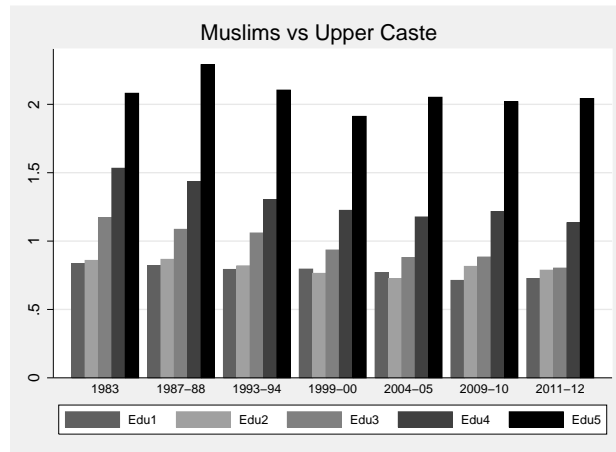117

Figure 4.4: Distribution of education attainment-Muslims vs Upper Caste

(a)

(b)

Notes: The figure shows the pattern of educational distribution and educational gap between Upper Castes and Muslims over five broad educational categories. The time points correspond to seven rounds of NSS covering the period 1983-2012. The five broad educational categories are not-literate (Edu1), literate but below primary (Edu2), primary (Edu3), middle (Edu4) and secondary and above (Edu5). Panel (a) shows the distribution across the five broad education categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in educational attainment between Upper Castes and Muslims over the same period.

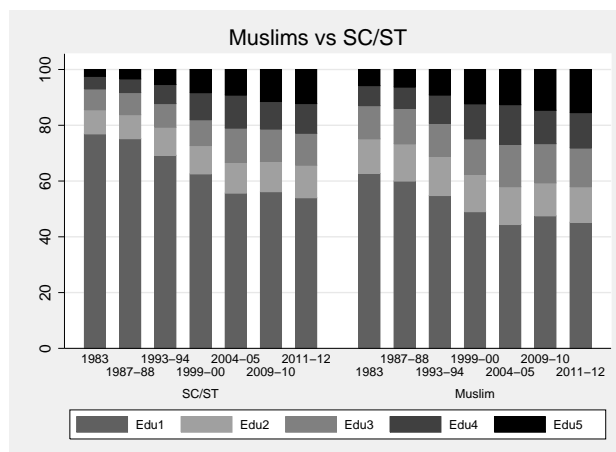**Figure 4.5:** Distribution of education attainment-Muslims vs SC/ST

(a)

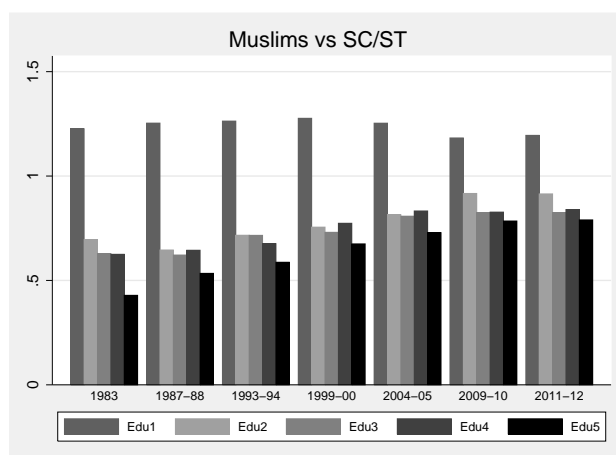**(b)**

Notes: The figure shows the pattern of educational distribution and educational gap between SC/STs and Muslims over five broad educational categories. The time points correspond to seven rounds of NSS covering the period 1983-2012. The five broad educational categories are not-literate (Edu1), literate but below primary (Edu2), primary (Edu3), middle (Edu4) and secondary and above (Edu5). Panel (a) shows the distribution across the five broad education categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in educational attainment between SC/STs and Muslims over the same period.

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Figure 4.6: Distribution of education attainment-Male

(a)

(b)

Notes: The figure shows the pattern of educational distribution and educational gap between Hindu males and Muslim males over five broad educational categories. The time points correspond to seven rounds of NSS covering the period 1983-2012. The five broad educational categories are not-literate (Edu1), literate but below primary (Edu2), primary (Edu3), middle (Edu4) and secondary and above (Edu5). Panel (a) shows the distribution across the five broad education categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in educational attainment between Hindu males and Muslim males over the same period.
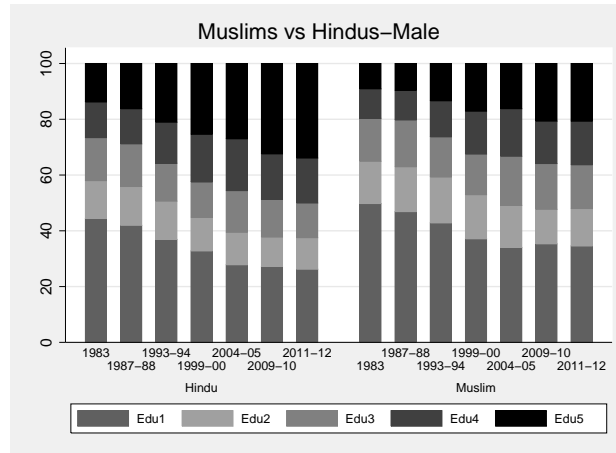
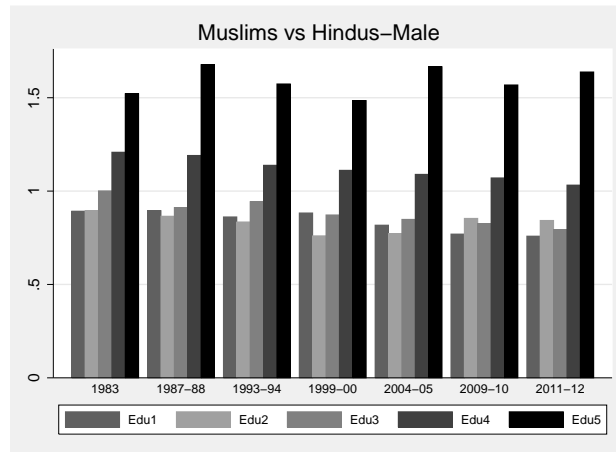**Figure 4.7:** Distribution of education attainment-Female
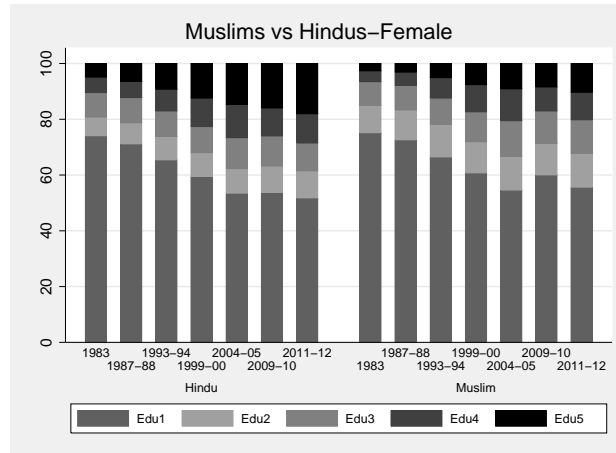
(a)
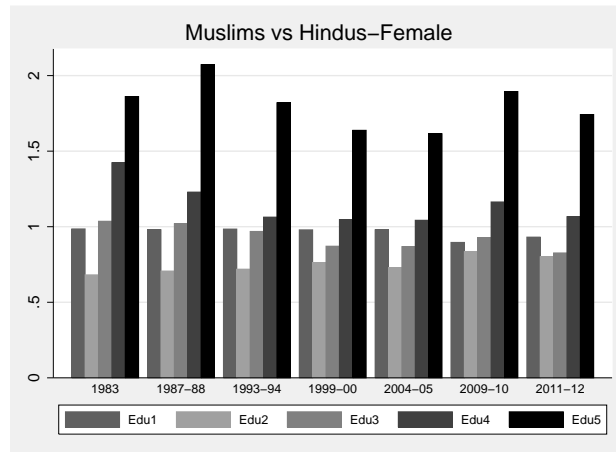
(b)

Notes: The figure shows the pattern of educational distribution and educational gap between Hindu females and Muslim females over five broad educational categories. The time points correspond to seven rounds of NSS covering the period 1983-2012. The five broad educational categories are not-literate (Edu1), literate but below primary (Edu2), primary (Edu3), middle (Edu4) and secondary and above (Edu5). Panel (a) shows the distribution across the five broad education categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in educational attainment between Hindu females and Muslim females over the same period.

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Figure 4.8: Distribution of occupational choices
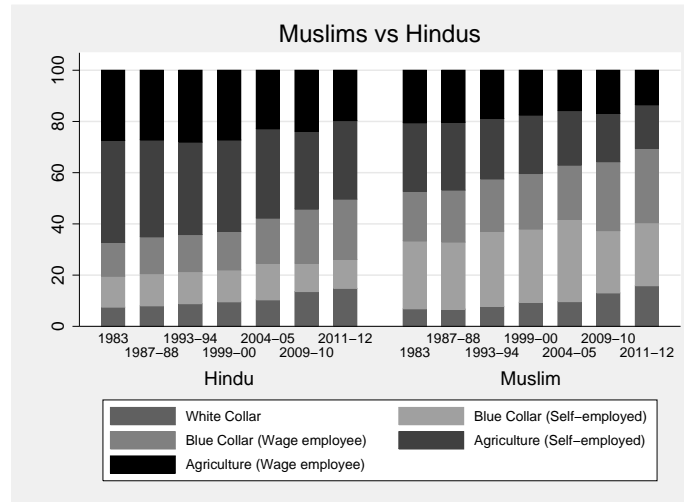
(a)
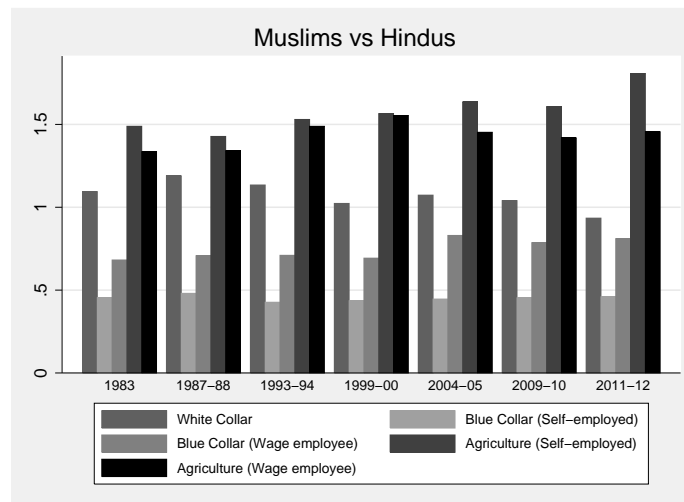
(b)

Notes: The figure shows the pattern of occupational choice and gap in occupational choice between Hindus and Muslims over five broad occupational categories. The time points correspond to seven rounds of NSS covering the period 1983-2012. Panel (a) shows the distribution across the five broad occupational categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in occupational choice between Hindus and Muslims over the same period.

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Figure 4.9: Distribution of occupational choices-Rural

(a)

(b)

Notes: The figure shows the pattern of occupational choice and gap in occupational choice between Hindus and Muslims over five broad occupational categories for the rural sample. The time points correspond to seven rounds of NSS covering the period 1983-2012. Panel (a) shows the distribution across the five broad occupational categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in occupational choice between Hindus and Muslims over the same period.

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Figure 4.10: Distribution of occupational choices-Urban

(a)

(b)

Notes: The figure shows the pattern of occupational choice and gap in occupational choice between Hindus and Muslims over five broad occupational categories for the urban sample. The time points correspond to seven rounds of NSS covering the period 1983-2012. Panel (a) shows the distribution across the five broad occupational categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in occupational choice between Hindus and Muslims over the same period.

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Figure 4.11: Distribution of occupational choices-Muslims vs Upper Caste
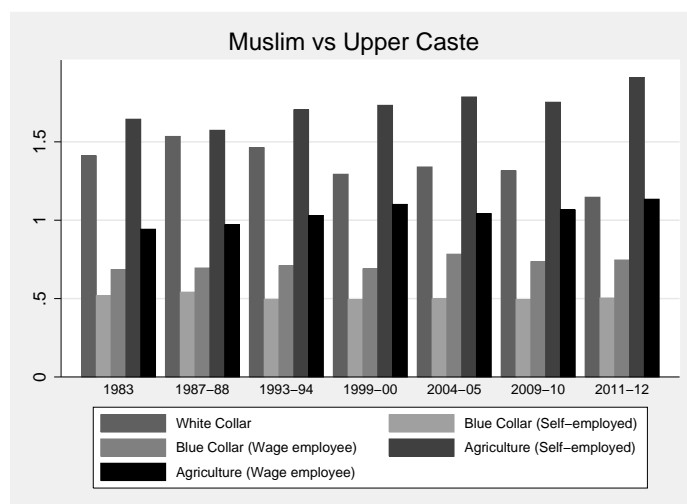
(a)

(b)

Notes: The figure shows the pattern of occupational choice and gap in occupational choice between Upper Castes and Muslims over five broad occupational categories. The time points correspond to seven rounds of NSS covering the period 1983-2012. Panel (a) shows the distribution across the five broad occupational categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in occupational choice between SC/STs and Muslims over the same period.

Figure 4.12: Distribution of occupational choices-Muslims vs SC/ST
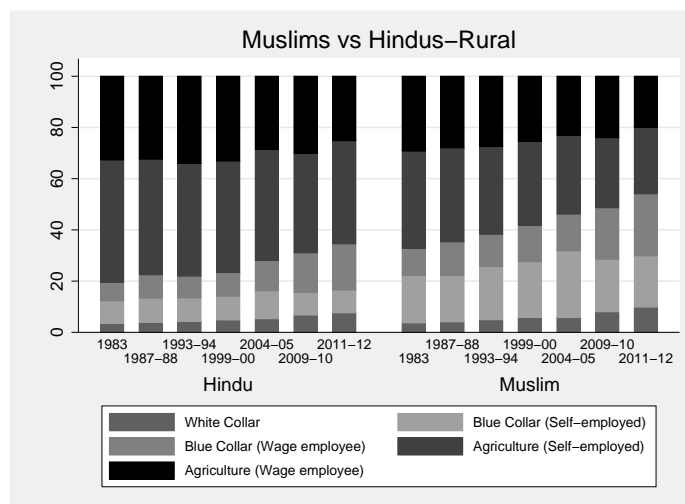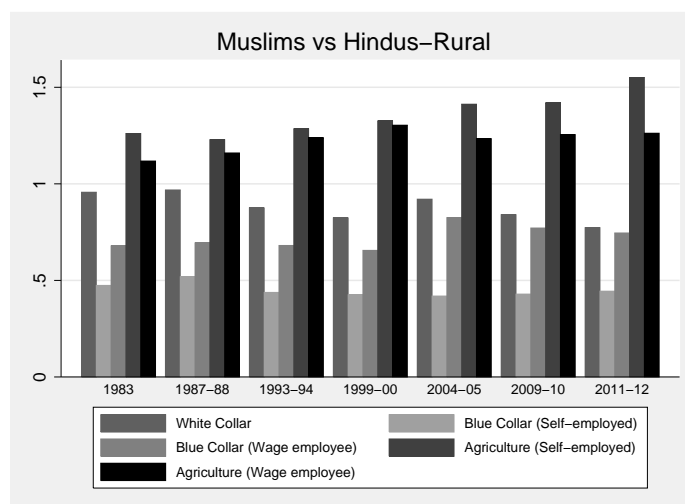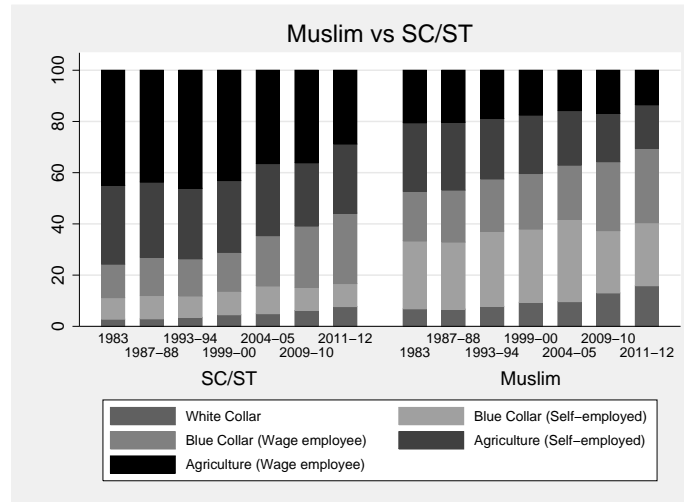

(a)
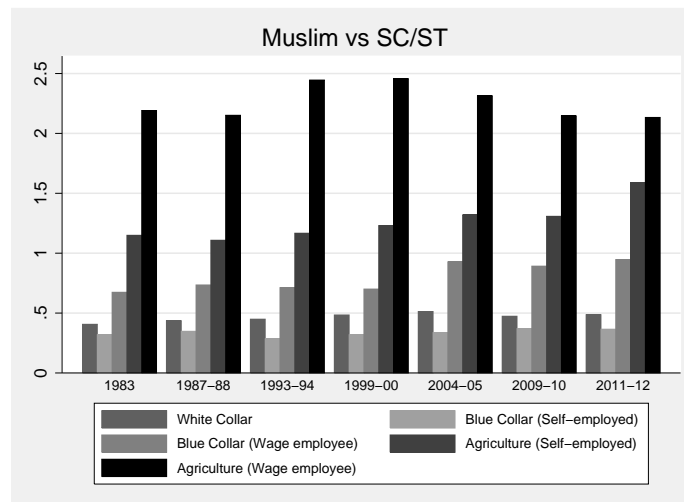
(b)

Notes: The figure shows the pattern of occupational choice and gap in occupational choice between SC/STs and Muslims over five broad occupational categories. The time points correspond to seven rounds of NSS covering the period 1983-2012. Panel (a) shows the distribution across the five broad occupational categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in occupational choice between SC/STs and Muslims over the same period.

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Figure 4.13: Distribution of occupational choices-Male
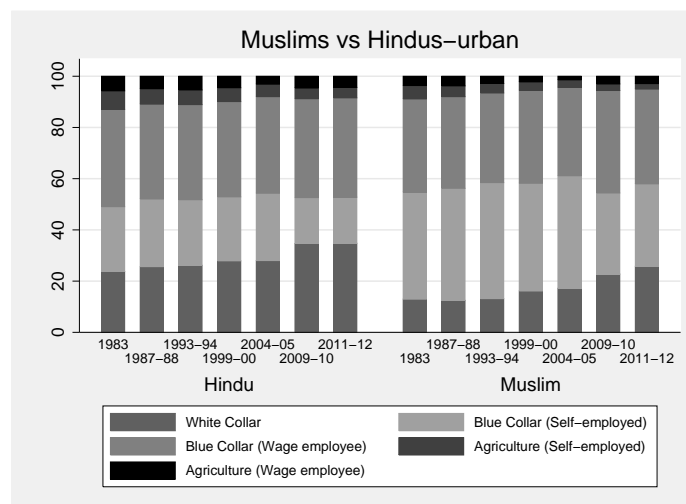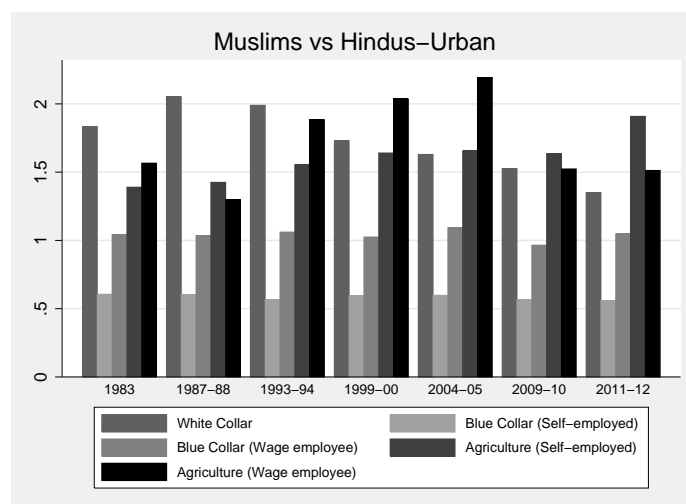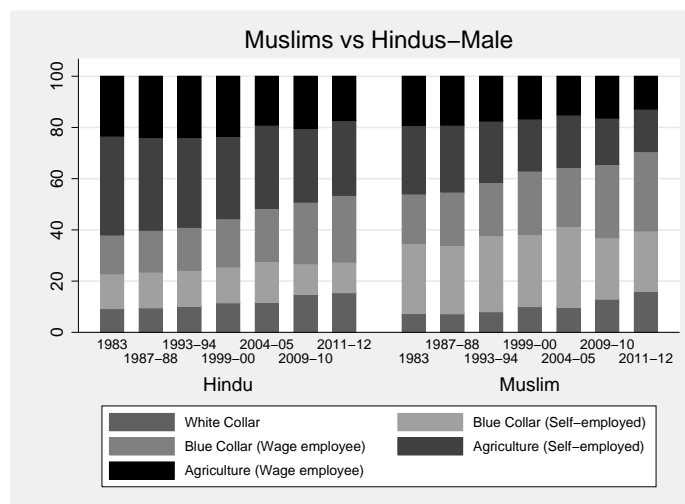

(a)
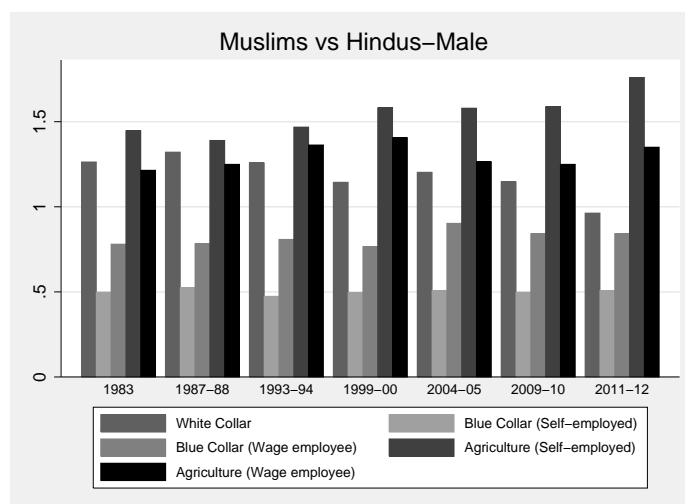
(b)

Notes: The figure shows the pattern of occupational choice and gap in occupational choice between Hindu males and Muslim males over five broad occupational categories. The time points correspond to seven rounds of NSS covering the period 1983-2012. Panel (a) shows the distribution across the five broad occupational categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in occupational choice between Hindu males and Muslim males over the same period.

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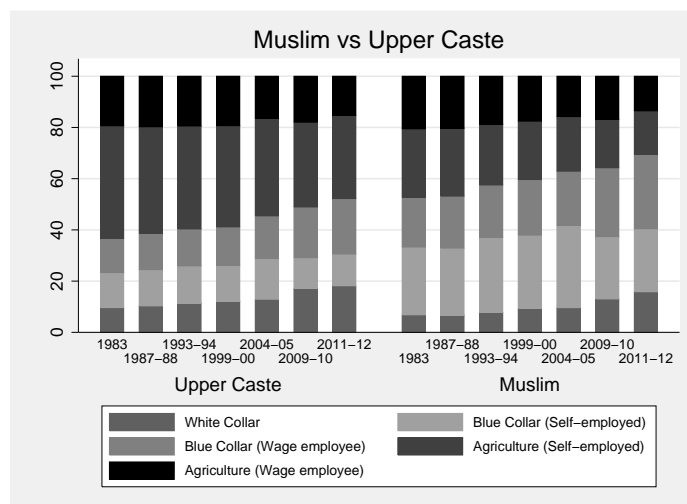**Figure 4.14:** Distribution of occupational choices-Female
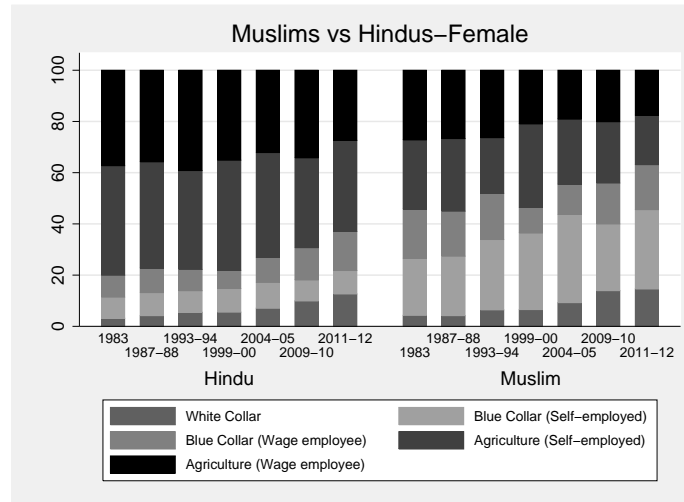
(a)
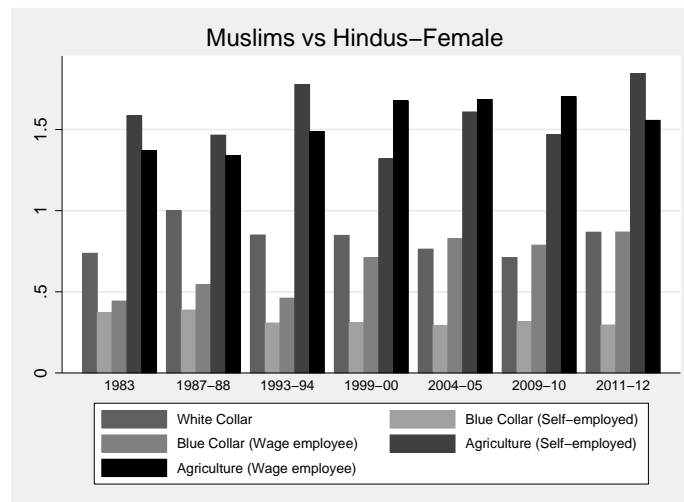
(b)

Notes: The figure shows the pattern of occupational choice and gap in occupational choice between Hindu females and Muslim females over five broad occupational categories. The time points correspond to seven rounds of NSS covering the period 1983-2012. Panel (a) shows the distribution across the five broad occupational categories and the evolution of the distribution over the period 1983-2012. Panel (b) shows the the relative gap in occupational choice between Hindu females and Muslim females over the same period.

Figure 4.15: The Log Wage Distributions for 1983 and 2004-2005

(a)

(b)
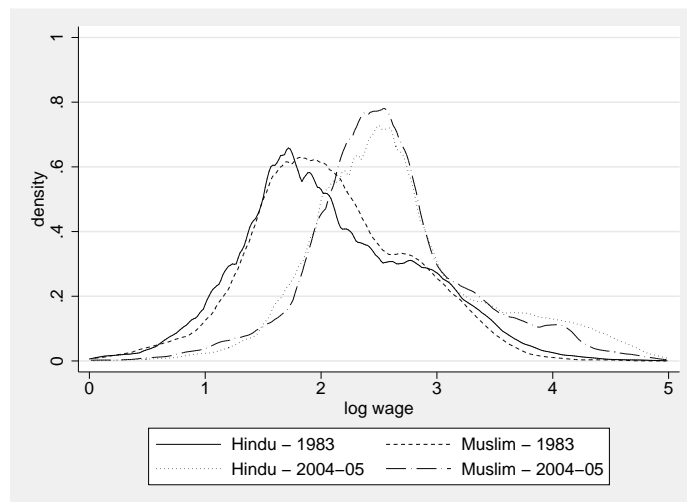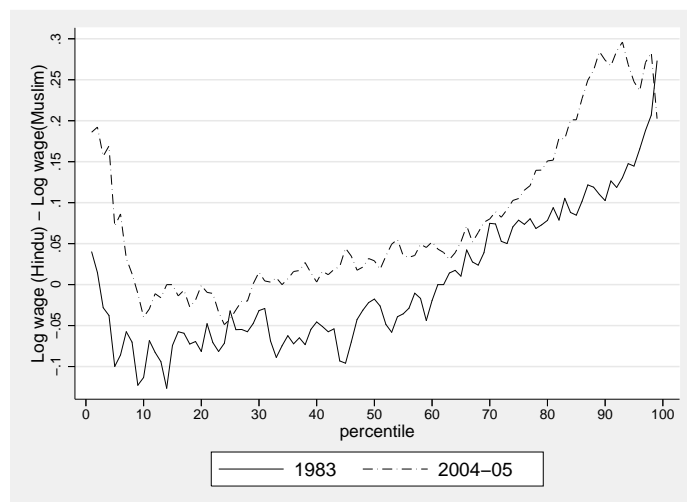
Notes: Panel A presents the kernel densities of the log wage distributions for Hindus and Muslims for 1983 and 2004-2005. Panel B shows the differences in log wages between Hindus and Muslims at different percentiles of the wage distribution for the two time periods.

Figure 4.16: The Log Consumption Distributions for 1983 and 2004-2005

(a)

(b)
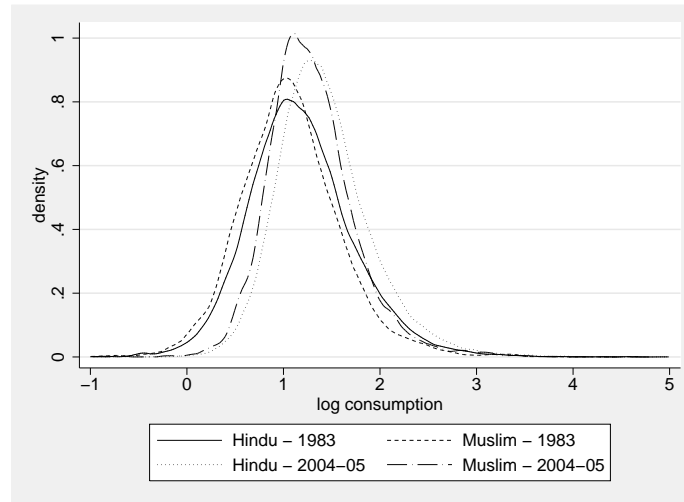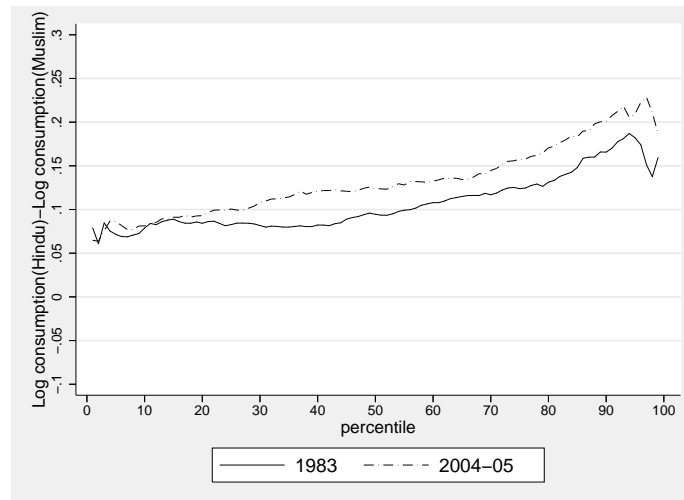
Notes: Panel A presents the kernel densities of the log consumption expenditure distributions for Hindus and Muslims for 1983 and 2004-2005. Panel B shows the differences in log consumption expenditure between Hindus and Muslims at different percentiles of the consumption distribution for the two time periods.

Table 4.1: Oaxaca-Blinder decomposition of log wage gaps

	(1) Total Gap	(2) Explained	(3)	(4) Unexplained
		Total	Education	
Panel A: 1983				
10th quantile	-0.1224***	-0.0083	0.0189***	-0.1141***
	(0.0177)	(0.0082)	(0.0041)	(0.0179)
50th quantile	-0.0183	-0.0026	0.0407***	-0.0157
	(0.0148)	(0.0128)	(0.0061)	(0.0149)
90th quantile	0.1047***	0.1061***	0.1011***	-0.0014
	(0.0233)	(0.0128)	(0.0099)	(0.0192)
mean	0.0015	0.0241**	0.0558***	-0.0226*
	(0.0150)	(0.0100)	(0.0069)	(0.0116)
Panel B: 2004-05				
10th quantile	-0.0417	0.0208**	0.0218***	-0.0625**
	(0.0300)	(0.0087)	(0.0051)	(0.0288)
50th quantile	0.0268**	0.0523***	0.0359***	-0.0255**
	(0.0125)	(0.0096)	(0.0063)	(0.0121)
90th quantile	0.2888***	0.1855***	0.1813***	0.1034***
	(0.0385)	(0.0267)	(0.0221)	(0.0361)
mean	0.0813***	0.0751***	0.0675***	0.0062
	(0.0150)	(0.0118)	(0.0097)	(0.0116)
Panel C: Change 1983 to 2004-05				
10th quantile	0.0807**	0.0291**	0.0028	0.0516
	(0.0339)	(0.0127)	(0.0059)	(0.0333)
50th quantile	0.0451**	0.0549***	-0.0048	-0.0098
	(0.0191)	(0.0157)	(0.0085)	(0.0196)
90th quantile	0.1841***	0.0793***	0.0802***	0.1048**
	(0.0475)	(0.0305)	(0.0252)	(0.0420)
mean	0.0798***	0.0511***	0.0117	0.0288*
	(0.0217)	(0.0156)	(0.0117)	(0.0172)

Notes: Panel A and B presents the decomposition of the Hindu-Muslim wage gap in 1983 and 2004-2005 respectively. Panel C presents the change in the Hindu-Muslim wage gap between 1983 and 2004-2005. The wage gaps are decomposed into explained and unexplained components using RIF regression approach of FFL for the different quantiles and using a standard OLS decomposition for the mean. Education dummies, age, age squared, a rural dummy and state dummies are the covariates. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4.2: Oaxaca-Blinder decomposition of log wage gaps: Rural

	(1) Total Gap	(2) Explained	(3)	(4) Unexplained
		Total	Education	
Panel A: 1983				
10th quantile	-0.1245***	-0.0263**	0.0035	-0.0982***
	(0.0296)	(0.0133)	(0.0026)	(0.0337)
50th quantile	-0.0271	-0.0414***	0.0106***	0.0143
	(0.0243)	(0.0119)	(0.0040)	(0.0226)
90th quantile	0.0576	0.0716***	0.0769***	-0.014
	(0.0453)	(0.0259)	(0.0193)	(0.0390)
mean	-0.0537***	-0.0105	0.0228***	-0.0432**
	(0.0178)	(0.0124)	(0.0065)	(0.0173)
Panel B: 2004-05				
10th quantile	-0.1549***	-0.0419***	0.0067*	-0.1130***
	(0.0209)	(0.0106)	(0.0035)	(0.0240)
50th quantile	-0.0089	0.0198*	0.0130***	-0.0287**
	(0.0128)	(0.0115)	(0.0041)	(0.0136)
90th quantile	0.0079	0.1050***	0.1375***	-0.0971**
	(0.0370)	(0.0403)	(0.0265)	(0.0405)
mean	-0.0345**	0.0272**	0.0349***	-0.0617***
	(0.0165)	(0.0135)	(0.0079)	(0.0146)
Panel C: Change 1983 to 2004-05				
10th quantile	-0.0304	-0.0156	0.0032	-0.0148
	(0.0310)	(0.0206)	(0.0041)	(0.0416)
50th quantile	0.0182	0.0612***	0.0024	-0.043
	(0.0297)	(0.0159)	(0.0057)	(0.0277)
90th quantile	-0.0497	0.0334	0.0606*	-0.0831
	(0.0555)	(0.0509)	(0.0338)	(0.0610)
mean	0.0192	0.0377*	0.0121	-0.0185
	(0.0258)	(0.0194)	(0.0102)	(0.0252)

Notes: Panel A and B presents the decomposition of the Hindu-Muslim wage gap in 1983 and 2004-2005 respectively for the rural sample. Panel C presents the change in the Hindu-Muslim wage gap between 1983 and 2004-2005. The wage gaps are decomposed into explained and unexplained components using RIF regression approach of FFL for the different quantiles and using a standard OLS decomposition for the mean. Education dummies, age, age squared and state dummies are the covariates. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4.3: Oaxaca-Blinder decomposition of log wage gaps: Urban

	(1) Total Gap	(2) Explained	(3)	(4) Unexplained
		Total	Education	
Panel A: 1983				
10th quantile	-0.0012	0.1640***	0.1489***	-0.1651***
	(0.0306)	(0.0201)	(0.0162)	(0.0348)
50th quantile	0.2540***	0.2743***	0.2175***	-0.0203
	(0.0351)	(0.0198)	(0.0172)	(0.0293)
90th quantile	0.2236***	0.1905***	0.1583***	0.0331
	(0.0204)	(0.0165)	(0.0109)	(0.0207)
mean	0.2023***	0.2225***	0.1806***	-0.0202
	(0.0226)	(0.0156)	(0.0131)	(0.0175)
Panel B: 2004-05				
10th quantile	0.1818**	0.1904***	0.1248***	-0.0086
	(0.0709)	(0.0218)	(0.0170)	(0.0713)
50th quantile	0.2492***	0.2860***	0.1936***	-0.0368
	(0.0347)	(0.0314)	(0.0198)	(0.0350)
90th quantile	0.4280***	0.2507***	0.1862***	0.1773***
	(0.0607)	(0.0200)	(0.0142)	(0.0569)
mean	0.3150***	0.2731***	0.1890***	0.0419*
	(0.0264)	(0.0229)	(0.0161)	(0.0252)
Panel C: Change 1983 to 2004-05				
10th quantile	0.1830**	0.0265	-0.024	0.1565**
	(0.0809)	(0.0317)	(0.0226)	(0.0796)
50th quantile	-0.0048	0.0116	-0.0239	-0.0164
	(0.0520)	(0.0375)	(0.0246)	(0.0468)
90th quantile	0.2044***	0.0602**	0.0279*	0.1442**
	(0.0651)	(0.0260)	(0.0165)	(0.0598)
mean	0.1127***	0.0506*	0.0085	0.0621**
	(0.0377)	(0.0283)	(0.0200)	(0.0309)

Notes: Panel A and B presents the decomposition of the Hindu-Muslim wage gap in 1983 and 2004-2005 respectively for the urban sample. Panel C presents the change in the Hindu-Muslim wage gap between 1983 and 2004-2005. The wage gaps are decomposed into explained and unexplained components using RIF regression approach of FFL for the different quantiles and using a standard OLS decomposition for the mean. Education dummies, age, age squared and state dummies are the covariates. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4.4: Oaxaca-Blinder decomposition of log wage gaps: Muslim vs Upper Caste

	(1) Total Gap	(2) Explained	(3)	(4) Unexplained
		Total	Education	
Panel A: 1983				
10th quantile	-0.0458*	0.0465***	0.0834***	-0.0924***
	(0.0274)	(0.0118)	(0.0073)	(0.0334)
50th quantile	0.1356***	0.1844***	0.1967***	-0.0488***
	(0.0172)	(0.0168)	(0.0123)	(0.0158)
90th quantile	0.2681***	0.2053***	0.1907***	0.0628***
	(0.0246)	(0.0131)	(0.0095)	(0.0208)
mean	0.1416***	0.1581***	0.1715***	-0.0165
	(0.0162)	(0.0115)	(0.0084)	(0.0133)
Panel B: 2004-05				
10th quantile	-0.0051	0.0232**	0.0569***	-0.0283
	(0.0304)	(0.0099)	(0.0063)	(0.0297)
50th quantile	0.1266***	0.1312***	0.1157***	-0.0045
	(0.0184)	(0.0146)	(0.0096)	(0.0157)
90th quantile	0.4970***	0.3050***	0.2900***	0.1920***
	(0.0367)	(0.0174)	(0.0166)	(0.0365)
mean	0.2005***	0.1708***	0.1612***	0.0297**
	(0.0169)	(0.0140)	(0.0110)	(0.0136)
Panel C: Change 1983 to 2004-05				
10th quantile	0.0407	-0.0234	-0.0265***	0.0641
	(0.0393)	(0.0156)	(0.0084)	(0.0427)
50th quantile	-0.009	-0.0532***	-0.0810***	0.0442*
	(0.0227)	(0.0191)	(0.0150)	(0.0231)
90th quantile	0.2288***	0.0997***	0.0993***	0.1291***
	(0.0450)	(0.0211)	(0.0194)	(0.0418)
mean	0.0589**	0.0127	-0.0103	0.0462**
	(0.0232)	(0.0170)	(0.0131)	(0.0195)

Notes: Panel A and B presents the decomposition of the Upper Caste-Muslim wage gap in 1983 and 2004-2005 respectively. Panel C presents the change in the Upper Caste-Muslim wage gap between 1983 and 2004-2005. The wage gaps are decomposed into explained and unexplained components using RIF regression approach of FFL for the different quantiles and using a standard OLS decomposition for the mean. Education dummies, age, age squared and state dummies are the covariates. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4.5: Oaxaca-Blinder decomposition of log wage gaps: Muslim vs SC/ST

	(1) Total Gap	(2) Explained	(3)	(4) Unexplained
		Total	Education	
Panel A: 1983				
10th quantile	-0.1389***	-0.0400***	-0.0386***	-0.0989***
	(0.0190)	(0.0125)	(0.0039)	(0.0231)
50th quantile	-0.2002***	-0.1056***	-0.0755***	-0.0946***
	(0.0183)	(0.0120)	(0.0056)	(0.0148)
90th quantile	-0.3363***	-0.2479***	-0.2233***	-0.0884***
	(0.0339)	(0.0210)	(0.0180)	(0.0236)
mean	-0.2309***	-0.1273***	-0.1052***	-0.1036***
	(0.0187)	(0.0114)	(0.0064)	(0.0128)
Panel B: 2004-05				
10th quantile	-0.0472	-0.0535***	-0.0288***	0.0064
	(0.0294)	(0.0101)	(0.0037)	(0.0305)
50th quantile	-0.0616***	-0.0447***	-0.0381***	-0.017
	(0.0161)	(0.0103)	(0.0038)	(0.0155)
90th quantile	-0.3152***	-0.2545***	-0.1967***	-0.0608
	(0.0371)	(0.0274)	(0.0212)	(0.0398)
mean	-0.1114***	-0.0862***	-0.0655***	-0.0252**
	(0.0141)	(0.0095)	(0.0065)	(0.0128)
Panel C: Change 1983 to 2004-05				
10th quantile	0.0917***	-0.0136	0.0098*	0.1053***
	(0.0344)	(0.0142)	(0.0053)	(0.0369)
50th quantile	0.1386***	0.0609***	0.0374***	0.0777***
	(0.0250)	(0.0168)	(0.0071)	(0.0236)
90th quantile	0.021	-0.0066	0.0266	0.0276
	(0.0542)	(0.0366)	(0.0302)	(0.0510)
mean	0.1195***	0.0411**	0.0397***	0.0784***
	(0.0245)	(0.0170)	(0.0099)	(0.0189)

Notes: Panel A and B presents the decomposition of the SC/ST-Muslim wage gap in 1983 and 2004-2005 respectively. Panel C presents the change in the SC/ST-Muslim wage gap between 1983 and 2004-2005. The wage gaps are decomposed into explained and unexplained components using RIF regression approach of FFL for the different quantiles and using a standard OLS decomposition for the mean. Education dummies, age, age squared and state dummies are the covariates. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4.6: Oaxaca-Blinder decomposition of log wage gaps: Male

	(1) Total Gap	(2) Explained	(3)	(4) Unexplained
		Total	Education	
Panel A: 1983				
10th quantile	-0.0320**	-0.0024	0.0232***	-0.0296*
	(0.0147)	(0.0073)	(0.0023)	(0.0164)
50th quantile	0.0214	0.1035***	0.0943***	-0.0822***
	(0.0180)	(0.0136)	(0.0083)	(0.0191)
90th quantile	0.1602***	0.1434***	0.1333***	0.0168
	(0.0227)	(0.0126)	(0.0097)	(0.0197)
mean	0.0623***	0.0871***	0.0892***	-0.0248**
	(0.0145)	(0.0089)	(0.0065)	(0.0112)
Panel B: 2004-05				
10th quantile	0.0784***	0.0325***	0.0193***	0.0460*
	(0.0211)	(0.0093)	(0.0025)	(0.0245)
50th quantile	0.1325***	0.0929***	0.0566***	0.0396**
	(0.0170)	(0.0105)	(0.0053)	(0.0164)
90th quantile	0.3773***	0.2612***	0.2388***	0.1161***
	(0.0339)	(0.0244)	(0.0176)	(0.0324)
mean	0.1717***	0.1213***	0.0964***	0.0504***
	(0.0143)	(0.0121)	(0.0078)	(0.0118)
Panel C: Change 1983 to 2004-05				
10th quantile	0.1104***	0.0349***	-0.0039	0.0755***
	(0.0244)	(0.0125)	(0.0031)	(0.0267)
50th quantile	0.1111***	-0.0107	-0.0376***	0.1218***
	(0.0232)	(0.0154)	(0.0097)	(0.0254)
90th quantile	0.2171***	0.1178***	0.1056***	0.0993***
	(0.0381)	(0.0276)	(0.0213)	(0.0340)
mean	0.1094***	0.0342**	0.0072	0.0752***
	(0.0187)	(0.0150)	(0.0101)	(0.0151)

Notes: Panel A and B presents the decomposition of the Hindu-Muslim wage gap in 1983 and 2004-2005 respectively for males. Panel C presents the change in the Hindu-Muslim wage gap between 1983 and 2004-2005. The wage gaps are decomposed into explained and unexplained components using RIF regression approach of FFL for the different quantiles and using a standard OLS decomposition for the mean. Education dummies, age, age squared and state dummies are the covariates. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4.7: Oaxaca-Blinder decomposition of log wage gaps: Female

	(1) Total Gap	(2) Explained	(3)	(4) Unexplained
		Total	Education	
Panel A: 1983				
10th quantile	0.1973***	0.0202	0.0053*	0.1771***
	(0.0653)	(0.0168)	(0.0032)	(0.0645)
50th quantile	0.003	-0.0146	-0.0026	0.0176
	(0.0297)	(0.0154)	(0.0043)	(0.0279)
90th quantile	0.0198	-0.0087	-0.0157	0.0285
	(0.0711)	(0.0471)	(0.0334)	(0.0647)
mean	0.0514*	-0.0118	-0.0040	0.0632**
	(0.0308)	(0.0174)	(0.0097)	(0.0275)
Panel B: 2004-05				
10th quantile	0.2804***	-0.0099	-0.004	0.2903***
	(0.0745)	(0.0091)	(0.0033)	(0.0744)
50th quantile	0.0054	-0.0523***	-0.0059	0.0577
	(0.0457)	(0.0128)	(0.0077)	(0.0429)
90th quantile	-0.2987	-0.149	-0.0945	-0.1497
	(0.2046)	(0.1164)	(0.1246)	(0.1676)
mean	0.0524	-0.0478**	-0.0165	0.1002**
	(0.0455)	(0.0201)	(0.0204)	(0.0400)
Panel C: Change 1983 to 2004-05				
10th quantile	0.0831	-0.0301	-0.0093*	0.1133
	(0.0980)	(0.0195)	(0.0049)	(0.0999)
50th quantile	0.0023	-0.0377**	-0.0033	0.0401
	(0.0595)	(0.0174)	(0.0086)	(0.0604)
90th quantile	-0.3185	-0.1403	-0.0788	-0.1782
	(0.2199)	(0.1291)	(0.1299)	(0.1838)
mean	0.0010	-0.0360	-0.0125	0.0370
	(0.0573)	(0.0269)	(0.0227)	(0.0543)

Notes: Panel A and B presents the decomposition of the Hindu-Muslim wage gap in 1983 and 2004-2005 respectively for females. Panel C presents the change in the Hindu-Muslim wage gap between 1983 and 2004-2005. The wage gaps are decomposed into explained and unexplained components using RIF regression approach of FFL for the different quantiles and using a standard OLS decomposition for the mean. Education dummies, age, age squared and state dummies are the covariates. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4.8: Oaxaca-Blinder decomposition of log consumption gaps

	(1) Total Gap	(2) Explained	(3)	(4) Unexplained
		Total	Education	
Panel A: 1983				
10th quantile	0.0763***	0.0779***	0.0306***	-0.0017
	(0.0147)	(0.0043)	(0.0024)	(0.0140)
50th quantile	0.0971***	0.1115***	0.0397***	-0.0144*
	(0.0093)	(0.0046)	(0.0028)	(0.0085)
90th quantile	0.1685***	0.1652***	0.0578***	0.0032
	(0.0158)	(0.0071)	(0.0040)	(0.0143)
mean	0.1058***	0.1138***	0.0417***	-0.0080
	(0.0093)	(0.0047)	(0.0029)	(0.0081)
Panel B: 2004-05				
10th quantile	0.0841***	0.1043***	0.0397***	-0.0202*
	(0.0108)	(0.0065)	(0.0032)	(0.0108)
50th quantile	0.1328***	0.1393***	0.0569***	-0.0065
	(0.0102)	(0.0070)	(0.0038)	(0.0099)
90th quantile	0.2066***	0.1867***	0.0990***	0.0199
	(0.0259)	(0.0116)	(0.0065)	(0.0226)
mean	0.1420***	0.1428***	0.0644***	-0.0007
	(0.0094)	(0.0070)	(0.0042)	(0.0082)
Panel C: Change 1983 to 2004-05				
10th quantile	0.0078	0.0263***	0.0091**	-0.0185
	(0.0190)	(0.0078)	(0.0037)	(0.0170)
50th quantile	0.0357**	0.0278***	0.0172***	0.0079
	(0.0152)	(0.0081)	(0.0046)	(0.0148)
90th quantile	0.0382	0.0215	0.0412***	0.0167
	(0.0279)	(0.0139)	(0.0083)	(0.0266)
mean	0.0362***	0.0290***	0.0227***	0.0073
	(0.0136)	(0.0082)	(0.0049)	(0.0125)

Notes: Panel A and B presents the decomposition of the Hindu-Muslim consumption gap in 1983 and 2004-2005 respectively. Panel C presents the change in the Hindu-Muslim consumption gap between 1983 and 2004-2005. The wage gaps are decomposed into explained and unexplained components using RIF regression approach of FFL for the different quantiles and using a standard OLS decomposition for the mean. Household size, the number of earning members in the household, rural dummy, state dummies, educational attainment of the household head and highest level of education attained in the household are the covariates. * significant at 10%; ** significant at 5%; *** significant at 1%.

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Table 4.9: Oaxaca-Blinder decomposition of log consumption gaps: Rural

	(1) Total Gap	(2) Explained	(3)	(4) Unexplained
		Total	Education	
Panel A: 1983				
10th quantile	0.0558***	0.0830***	0.0266***	-0.0272*
	(0.0185)	(0.0078)	(0.0028)	(0.0161)
50th quantile	0.0583***	0.1072***	0.0295***	-0.0489***
	(0.0098)	(0.0065)	(0.0027)	(0.0101)
90th quantile	0.1250***	0.1631***	0.0419***	-0.0382**
	(0.0183)	(0.0104)	(0.0042)	(0.0162)
mean	0.0678***	0.1135***	0.0313***	-0.0457***
	(0.0107)	(0.0079)	(0.0029)	(0.0097)
Panel B: 2004-05				
10th quantile	0.0396***	0.0856***	0.0297***	-0.0460***
	(0.0131)	(0.0065)	(0.0025)	(0.0125)
50th quantile	0.0789***	0.1192***	0.0415***	-0.0403***
	(0.0102)	(0.0069)	(0.0030)	(0.0099)
90th quantile	0.1289***	0.1855***	0.0679***	-0.0565**
	(0.0216)	(0.0130)	(0.0054)	(0.0221)
mean	0.0849***	0.1273***	0.0461***	-0.0424***
	(0.0103)	(0.0068)	(0.0030)	(0.0101)
Panel C: Change 1983 to 2004-05				
10th quantile	-0.0162	0.0025	0.0031	-0.0187
	(0.0222)	(0.0109)	(0.0031)	(0.0183)
50th quantile	0.0206	0.012	0.0120***	0.0086
	(0.0156)	(0.0095)	(0.0036)	(0.0162)
90th quantile	0.0039	0.0223	0.0260***	-0.0184
	(0.0271)	(0.0163)	(0.0066)	(0.0269)
mean	0.0171	0.0138	0.0148***	0.0033
	(0.0157)	(0.0108)	(0.0036)	(0.0151)

Notes: Panel A and B presents the decomposition of the Hindu-Muslim consumption gap in 1983 and 2004-2005 respectively for the rural sample. Panel C presents the change in the Hindu-Muslim consumption gap between 1983 and 2004-2005. The wage gaps are decomposed into explained and unexplained components using RIF regression approach of FFL for the different quantiles and using a standard OLS decomposition for the mean. Household size, the number of earning members in the household, state dummies, educational attainment of the household head and highest level of education attained in the household are the covariates. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4.10: Oaxaca-Blinder decomposition of log consumption gaps: Urban

	(1) Total Gap	(2) Explained	(3)	(4) Unexplained
		Total	Education	
Panel A: 1983				
10th quantile	0.1526***	0.1758***	0.1020***	-0.0232
	(0.0175)	(0.0082)	(0.0060)	(0.0165)
50th quantile	0.2435***	0.2602***	0.1347***	-0.0167
	(0.0167)	(0.0111)	(0.0070)	(0.0158)
90th quantile	0.2620***	0.2920***	0.1396***	-0.03
	(0.0296)	(0.0178)	(0.0094)	(0.0294)
mean	0.2384***	0.2489***	0.1281***	-0.0105
	(0.0159)	(0.0100)	(0.0059)	(0.0153)
Panel B: 2004-05				
10th quantile	0.1502***	0.2274***	0.1140***	-0.0772***
	(0.0196)	(0.0174)	(0.0111)	(0.0202)
50th quantile	0.3318***	0.3413***	0.1813***	-0.0095
	(0.0186)	(0.0201)	(0.0133)	(0.0195)
90th quantile	0.3791***	0.3427***	0.1878***	0.0364
	(0.0377)	(0.0240)	(0.0127)	(0.0285)
mean	0.2977***	0.3034***	0.1615***	-0.0057
	(0.0199)	(0.0180)	(0.0110)	(0.0157)
Panel C: Change 1983 to 2004-05				
10th quantile	-0.0023	0.0517***	0.012	-0.0540**
	(0.0269)	(0.0198)	(0.0136)	(0.0236)
50th quantile	0.0883***	0.0811***	0.0466***	0.0072
	(0.0267)	(0.0254)	(0.0160)	(0.0244)
90th quantile	0.1171***	0.0507*	0.0482***	0.0664*
	(0.0452)	(0.0304)	(0.0162)	(0.0376)
mean	0.0593**	0.0545**	0.0335**	0.0048
	(0.0264)	(0.0223)	(0.0134)	(0.0191)

Notes: Panel A and B presents the decomposition of the Hindu-Muslim consumption gap in 1983 and 2004-2005 respectively for the urban sample. Panel C presents the change in the Hindu-Muslim consumption gap between 1983 and 2004-2005. The wage gaps are decomposed into explained and unexplained components using RIF regression approach of FFL for the different quantiles and using a standard OLS decomposition for the mean. Household size, the number of earning members in the household, state dummies, educational attainment of the household head and highest level of education attained in the household are the covariates. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4.11: Oaxaca-Blinder decomposition of log consumption gaps: Muslim vs Upper Caste

	(1) Total Gap	(2) Explained	(3)	(4) Unexplained
		Total	Education	
Panel A: 1983				
10th quantile	0.1727***	0.1086***	0.0618***	0.0641***
	(0.0135)	(0.0073)	(0.0029)	(0.0131)
50th quantile	0.1826***	0.1363***	0.0727***	0.0463***
	(0.0092)	(0.0062)	(0.0030)	(0.0087)
90th quantile	0.2521***	0.1943***	0.0997***	0.0577***
	(0.0162)	(0.0076)	(0.0047)	(0.0165)
mean	0.1945***	0.1432***	0.0768***	0.0513***
	(0.0090)	(0.0075)	(0.0031)	(0.0095)
Panel B: 2004-05				
10th quantile	0.1615***	0.1175***	0.0568***	0.0440***
	(0.0113)	(0.0062)	(0.0031)	(0.0106)
50th quantile	0.2196***	0.1751***	0.0905***	0.0446***
	(0.0106)	(0.0077)	(0.0044)	(0.0105)
90th quantile	0.3179***	0.2533***	0.1583***	0.0645***
	(0.0267)	(0.0152)	(0.0106)	(0.0241)
mean	0.2334***	0.1801***	0.0992***	0.0533***
	(0.0098)	(0.0073)	(0.0046)	(0.0086)
Panel C: Change 1983 to 2004-05				
10th quantile	-0.0113	0.0088	-0.0051	-0.0201
	(0.0183)	(0.0104)	(0.0040)	(0.0166)
50th quantile	0.0370**	0.0387***	0.0178***	-0.0017
	(0.0144)	(0.0096)	(0.0052)	(0.0148)
90th quantile	0.0658**	0.0590***	0.0585***	0.0068
	(0.0286)	(0.0165)	(0.0118)	(0.0262)
mean	0.0389***	0.0368***	0.0224***	0.0020
	(0.0131)	(0.0103)	(0.0054)	(0.0135)

Notes: Panel A and B presents the decomposition of the Upper Caste-Muslim consumption gap in 1983 and 2004-2005 respectively. Panel C presents the change in the Upper Caste-Muslim consumption gap between 1983 and 2004-2005. The wage gaps are decomposed into explained and unexplained components using RIF regression approach of FFL for the different quantiles and using a standard OLS decomposition for the mean. Household size, number of earning members in the household, state dummies, educational attainment of the household head and highest level of education attained in the household are the covariates. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4.12: Oaxaca-Blinder decomposition of log consumption gaps: Muslim vs SC/ST

	(1) Total Gap	(2) Explained	(3)	(4) Unexplained
		Total	Education	
Panel A: 1983				
10th quantile	-0.0836***	-0.0152**	-0.0401***	-0.0684***
	(0.0172)	(0.0069)	(0.0026)	(0.0198)
50th quantile	-0.1005***	0.0017	-0.0496***	-0.1023***
	(0.0119)	(0.0056)	(0.0028)	(0.0122)
90th quantile	-0.1165***	0.0404***	-0.0678***	-0.1569***
	(0.0178)	(0.0090)	(0.0063)	(0.0198)
mean	-0.1005***	0.0054	-0.0537***	-0.1059***
	(0.0116)	(0.0056)	(0.0031)	(0.0130)
Panel B: 2004-05				
10th quantile	-0.0325***	0.0132**	-0.0144***	-0.0457***
	(0.0109)	(0.0064)	(0.0019)	(0.0110)
50th quantile	-0.0372***	0.0244***	-0.0180***	-0.0616***
	(0.0113)	(0.0056)	(0.0024)	(0.0112)
90th quantile	-0.1227***	0.0260**	-0.0342***	-0.1487***
	(0.0273)	(0.0105)	(0.0048)	(0.0258)
mean	-0.0573***	0.0222***	-0.0217***	-0.0795***
	(0.0105)	(0.0059)	(0.0028)	(0.0097)
Panel C: Change 1983 to 2004-05				
10th quantile	0.0511**	0.0284***	0.0256***	0.0227
	(0.0203)	(0.0094)	(0.0031)	(0.0222)
50th quantile	0.0633***	0.0227***	0.0316***	0.0407**
	(0.0185)	(0.0069)	(0.0035)	(0.0191)
90th quantile	-0.0062	-0.0144	0.0337***	0.0082
	(0.0311)	(0.0128)	(0.0087)	(0.0315)
mean	0.0432***	0.0168**	0.0320***	0.0264
	(0.0166)	(0.0078)	(0.0042)	(0.0180)

Notes: Panel A and B presents the decomposition of the SC/ST-Muslim consumption gap in 1983 and 2004-2005 respectively. Panel C presents the change in the SC/ST-Muslim consumption gap between 1983 and 2004-2005. The wage gaps are decomposed into explained and unexplained components using RIF regression approach of FFL for the different quantiles and using a standard OLS decomposition for the mean. Household size, the number of earning members in the household, state dummies, educational attainment of the household head and highest level of education attained in the household are the covariates. * significant at 10%; ** significant at 5%; *** significant at 1%.

Chapter 5

Conclusion

This thesis attempts to understand the Indian development experience through the prism of disadvantaged minorities and their interaction with the majority group.

Political reservations in India were mandated with a view that it would provide political representation to Scheduled Castes and Tribes and thus make it possible for them not to be at the mercy of their upper castes. Chapter 2 shows that any evaluation of such a policy of reservation would need to take into account the incentives of the politicians. It shows that Schedule Caste politicians tend to target goods which are more easily identifiable with a particular legislator and hence can bring in political gains for the legislator. The absence of a comparable effect for Scheduled Tribes points to the fact that such incentives might differ across politicians belonging to different ethnic groups.

The third chapter which deals with the effect of colonization on post-Independent Hindu-Muslim violence tries to answer an important question-whether British

colonialism had led to a worsening of Hindu-Muslim relations in the Indian sub continent. I find evidence contrary to the popular claim that British colonialism had an adverse effect on Hindu-Muslim relations. One thing to note though in that my results is not a direct test of the "divide and rule" policy allegedly followed by the British in their dealings with their colonial subjects in the Indian subcontinent. It might well be the case that in addition to the "divide and rule " policy, the British were responsible for other measures such as an improved law and order system or establishment of democratic institutions which offsets the adverse effects of their "divide and rule" policy. Future research would try to gain an understanding of the precious channel through which British colonialism might have an effect on Hindu-Muslim religious violence.

Chapter 4 looks at the evolution of economic conditions of Muslims vis-a-vis non-Muslims in the last three decades. The analysis shows that not only relative deprivation of Muslims is increasing with respect to upper caste Hindus, Scheduled Castes/Tribes are also gaining compared to Muslims. Surprisingly this worsening of relative deprivation is more acute in case of Muslim men than women. My results are in contrast to what Hnatkovska, Lahiri, and Paul (2012) find in case of Scheduled Castes/Tribes. This difference in outcomes between Scheduled castes and Muslims in the context of a liberalizing economy like India throws up a puzzle about how different marginalized communities have fared which requires further research.

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