THE PARTITION OF INDIA: DEMOGRAPHIC CONSEQUENCES

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ABSTRACT. Large scale migrations, especially involuntary ones, can have a sudden and substantial impact on the demographic landscape of both the sending and receiving communities. The partition of the Indian subcontinent in 1947 resulted in one of the largest and most rapid population exchanges in human history. We compile comparable census data pre and post-partition from India and Pakistan to estimate the impact of the migratory flows on educational and occupational compositions of districts, as well as gender ratios. An Indian district that experienced a one standard deviation increase in inflows experienced an increase in literacy of about 1%, and a decrease in percent engaged in agriculture of almost 6%. A district in Pakistan with a one standard deviation increase in inflows saw its literacy rate increase by 0.8% and its percent male decrease by 0.25%. Outflows, on the other hand, decreased literacy levels in India and Pakistan. Outflows from India also tended to decrease percent male and increase percent engaged in agriculture in India. While the inflow and outflow effects tend to mitigate each other, reducing the net impact, the *overall* impact of partion needs to be interpreted in light of the fact that partition led to increased religious homogenization. Also as a result of partition, cross religious group differences were replaced with *within* religious group differences. We hypothesize that the compositional effects of the flows had important consequences for the subsequent development of India and Pakistan.

1. INTRODUCTION

Large-scale migrations, particularly involuntary ones induced by war and political strife, have been a constant feature in world history. Recent events in the Democratic Republic of Congo and Sudan (Darfur) bring to the forefront the importance of studying involuntary migrations. Current estimates suggest that there are 12 million refugees and an additional 21 million internally displaced people (World Refugee Survey 2006). Since migratory flows can have potentially large and long-lasting demographic and socio-economic effects, it is not surprising that such events can play a large part in shaping the future of affected regions. However, the consequences of involuntary flows are not well understood. Involuntary movements typically occur under extraordinary circumstances such as wars, partition, and ethnic/religious strife, and often involve the movement of a large number of people in a very short amount of time. These events make it all the more difficult to gather basic demographic information and even in their aftermath such data are hard to recall.

The partition of India in August 1947 offers a unique opportunity to examine the consequences of such involuntary migrations. It was one of the largest and most rapid migrations in human history - an estimated 14.5 million people migrated within four years (Bharadwaj, Khwaja & Mian, 2008).[1] Moreover, As detailed data is available for the periods before and after partition this facilitates an empirical investigation.

In an earlier work (BKM 2008) we detail the data compilation exercise we conduct at the district level to allow for a micro-level analysis, and present evidence for the significance of the migratory flows. We estimate that 16.7 million people were forced to leave during the four year period after the partition. With 14.5 million inflows during the same interval, this suggests that 2.2 million people were "missing" or unaccounted for during the partition.

In light of these large flows, the objective of this paper is to estimate possible demographic impacts of the flows on sending and receiving communities. We focus on immediate demographic consequences - particularly along the lines of education, occupation and gender. In subsequent work we intend to analyze whether these demographic changes had socio-economic or political consequences. While the impact of migratory flows is in general hard to separate from secular demographic changes over time, we are able to account for the latter by comparing two nearby districts which differed in the extent of migratory flows. A unique feature of the Indian partition, and one we have documented in detail in our earlier work, is that nearby districts often did differ substantially in migratory flows, making such comparisons possible.

While the migration was primarily along religious lines, with Hindus and Sikhs moving out of Pakistan/Bangladesh and Muslims out of India, our results show that migrants differed from residents along demographic lines: migrants were more likely to be men, educated, and choose non-agricultural professions. This suggests that districts experiencing inflows and outflows are likely to be affected along these dimensions.

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[1]From now on BKM 2008

Partition-related flows altered the composition of the literate populations in India and Pakistan. A one standard deviation increase in inflows and outflows is related to a 0.9% increase in literacy for India, a 0.2% decrease in literacy for Pakistan, and a 1.2% decrease in Bangladesh (not statistically significant). However, since inflows into a country were composed of the majority religious group of the receiving country, and outflows from a country were composed purely of the minority group of the sending country, we emphasize that inflows and outflows played an important role in the overall impact apart from an "aggregate effect." In particular for Pakistan, the aggregate impact is small as the out-migrating Hindus and Sikhs were vastly more literate than the resident Muslims.[2] A one standard deviation in outflows from Pakistan decreased literacy by 1.02%. However, in Pakistan, partition-related flows had large compositional effects *within* religious groups. This occurs due to in-migrating Muslims being vastly more literate than resident Muslims.

An example of place with a small aggregate effect but important compositional effects is the case of Karachi in Pakistan. The district of Karachi received a large influx of migrants - in 1951, nearly 28% of the population was migrant. We also compute an outflow of around 15% for the Karachi district.[3] Moreover, Hindus and Sikhs in Karachi in 1931 were also much more literate than the resident Muslims - 21% as opposed to just 3.7%. After partition, nearly all Hindus and Sikhs left Karachi (only 1.5% of the population in 1951 was composed of minorities). Yet, the aggregate effect on Karachi's literacy is very small - this was due to the highly literate migrants who moved into Karachi. In the *city* of Karachi, 91% of the literate population were migrants! What is important here is while overall literacy rates remained largely unchanged, *who* the literate population was composed of certainly changed. Partition thus replaced existing minority-majority literacy differences with *within* majority literacy differences.

Migratory flows also had a large impact on percent employed in agriculture. Indian districts that had one standard deviation increase in inflows saw a drop in percent engaged in agriculture of 5.95%, while one standard deviation increase in outflows increased percent engaged in agriculture by 4.79%. Consistent with migrants being less likely to engage in agricultural professions, the impact of outflows and inflows is the opposite - with inflows into a district lowering agricultural occupations and outflows from a district raising it. However, as Pakistan and Bangladesh show no significant net effects this suggests that the impact on India was not only in terms of migrants being less likely to initially belong to agricultural professions but that in-migrants, even agriculturists, were less likely to engage in agriculture once they entered India. This is supported by the fact that at least in Punjab, those leaving Indian Punjab were supposed to have vacated less land as compared to those who left Pakistani Punjab (Schechtman, 1951).

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[2]Literacy among Muslims in Pakistan in 1931 was 3.31%, while among Hindus and Sikhs in Pakistan it was 16.56%.
[3]Karachi *city*, in fact, had a rather high ratio of minorities in 1931 - nearly 50% of the population was composed of non-Muslims. Hence outflows from Karachi city were also possibly large.

While migrants were more likely to be male, to the extent that outflows and inflows into a district were balanced in percent male and similar to resident male ratios, one would have expected that gender balance would remain unaffected by migratory flows. However, our results reveal that Indian districts saw relative declines in male ratios suggesting that the outflows from these districts had relatively more men than the inflows. The impact on gender ratios in Indian districts is large: an Indian district which saw one standard deviation (12.04%) of its population moving out and being replaced by one standard deviation (6.14%) in inflows also saw an almost 0.20% higher decrease in the percentage of men between 1931-51 as compared to a district experiencing no migratory flows.[4] In Pakistan as well, partition resulted in decreased male ratios. A one standard deviation increase in inflows caused a decrease in percent male of almost 0.25%. These results are consistent with the fact that in 1931 Muslims in India had a smaller male ratio than Muslims in Pakistan - hence inflows into Pakistan might cause a decrease in percent male. In addition, Muslims in India had a *higher* male ratio than Hindus and Sikhs in India - hence the departure of Muslims also decreased male ratios in India. In general, we do not find significant effects from partition-related flows in Bangladesh. This is possibly due to the small number of district level observations we have for Bangladesh (approximately 17), or could also be the result of the large consequences of the Bengal famine. The Bengal famine could make it harder for us to isolate the effects due to partition.

Our results have shown that such migrations as those induced by the partition can have large and immediate demographic consequences, and moreover, that this impact may differ substantially across the different regions involved. In the South Asian context, understanding these demographic impacts could shed some light on how India, Pakistan, and Bangladesh evolved after partition. In particular, while Pakistan received co-religionists (Muslims), the general impact may not have been greater homogenization since the migrants were much more educated. We provide some evidence towards this hypothesis by examining educational attainment across migrants and residents (non-movers) in Pakistan. Migrants are not only more educated along basic literacy lines, but a large portion of migrants had college and graduate degrees. Hence, *within* the Muslim community, migrants occupied the top rung of the educational ladder.

By presenting such quantitative results, our work thus hopes to complement the major body of work dealing with partition that has mostly been qualitative. General texts (Bose & Jalal 1998, Brass 1990, Sarkar 1993, Kudaisya & Yong Tan 2000), anecdotal accounts (Butalia 2000, Shahid et al 1993), urban sociological work (Bopegamage 1957, Qadeer 1957) and fiction (Ghosh 1988, Manto 1997) form the large body of such work. The earliest attempt at an analytical view of the partition is a work by C.N. Vakil that focuses on a broad range of issues

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[4]Average percent inflows into an Indian district is 2.53%, while the average percent outflows from an Indian district is 3.75%

from the actual migration to irrigation and banking and finance.[5] However, the majority of the book tends to be more "documentary than analytical" (Basch, 1952).

Our work, along with recent work (Hill et. al., 2005, Leaning et. al. 2005), hopes to complement the existing literature by taking a quantitative approach that relies on analyzing disaggregated census data from the pre and post-partition period. Hill et. al. (2005) undertake a detailed demographic analysis of Bengal and Punjab during the partition. Their work focusing on Bengal discovers a major slowdown in population growth between 1941-1951 that cannot be explained completely by partition and probably reflects mortality due to the Bengal Famine. Their work on Punjab puts the number of unrecorded migrants (or those dead) during partition to be around 2.2 to 2.9 million. Leaning et al (2005) in an ongoing work examine partition and its impact on public health outcomes. Our current study, by examining most of British India, intends to present a complete picture of the migratory flows during partition. By focusing on the district level we develop a more detailed understanding of these flows and in particular, examine how the flows impacted the demographics of sending and receiving communities.

Our work also hopes to speak more generally to the subject of the consequences of involuntary migrations on sending and receiving communities. Van Hear (1995) and Jacobsen (1997) among many others study the role of receiving communities during times of mass involuntary migrations. Van Hear (1995) examines the impact of the involuntary return of Palestinians to Jordan in the wake of the Gulf crisis in 1990-91. He hints at potential benefits to sudden movements, despite the fact that absorption of refugees into the mainstream was a painful task. Jacobsen (1997) tackles the environmental issues that result during involuntary mass migrations. She studies the impact in the context of Africa and stresses the role of the receiving community in alleviating the environmental burden. Within the context of partition, we highlight a few mechanisms that play a role in distinguishing the migrant and resident communities. If migrant and resident communities differ substantially on education, occupation and gender lines, then it is likely that integration is slower and that the migration has long term consequences.

The paper is organized as follows - Section 2 discusses the methodology and data used. Section 3 contains results dealing with education, occupation, and gender respectively. Section 4 provides discussion and Section 5 concludes.

2. Data and Methodology

This sections details the data and methodology employed and highlights some of the results from our previous work that are relevant to this paper.

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[5]Economics Consequences of Divided India, 1950

2.1. **Data**

The data we use in this paper is from the Census of India 1931,[6] and the Census of India and Pakistan 1951. The migration (inflows) variable was directly collected by the census for both countries in 1951. There was a specific question that asked whether a person had moved due to the partition. Measuring outflows is much harder, for we cannot obtain this directly from any data source. As a result, we resort to various methods to impute outflows using census data. A quick example recreated from BKM (2008) helps illustrate the basic idea behind constructing this variable.

Suppose that an Indian district had 100,000 Muslims in the 1931 census. The 1951 census shows that this district had 50,000 Muslims. Suppose the expected growth rate for Muslims in the twenty year period between 1931 and 1951 was a doubling of the population. Given the 1931 numbers, the expected number of Muslims in 1951 is therefore 200,000. This gives total outflows in the district as 150,000 (i.e. 200,000 - 50,000).

We realize the shortcomings of such a measure. This measure is correct if two features hold: that flows from a district during partition were indeed religion-specific, and that we have correctly imputed the minority growth rate. While the former is supported by the data, it is much harder to compute the latter.[7] Appendix I provides more detail on the methodologies used to compute the outflows measure.

In order to be able to present a detailed analysis, an important consideration for this study was to compile data at the lowest feasible geographical unit - the district. The district is the lowest administrative unit at which we are consistently able to find demographic data. Moreover, identifying the same geographical units over time becomes nearly impossible if one were to try and use lower administrative units such as *tehsils*. A contribution of this work has been to map district boundaries over time from pre-partition to post-partition India and Pakistan. Details of this district mapping procedure can be found in BKM (2008).

2.2. **Methodology**

One of the main challenges of analyzing the impact of migration due to partition is to separate such impact from that of changes that would have occurred over time anyway. For example, how much of a change in literacy over time in a district could be attributed to partition versus other changes the district would have undergone. One potential solution is to find relevant control districts, i.e. districts that would experience similar changes in flows but were relatively unaffected by the partition-related flows. One of the features of partition-related migration is the large variation in flows *within* states (BKM 2008). Hence, our strategy is to exploit this variation by comparing nearby districts within a state that received differing numbers of migrants.

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[6]We choose to not use the Census of 1941 for various reasons. These reasons are outlined in detail in BKM 2008. One major reason is its incomplete tabulation due to World War II.

[7]Note that the census does not specifically ask the religion of migrants. However, anecdotal evidence supports the numbers - after partition, the percent Hindu and Sikh in Pakistani Punjab dropped from 22% (1931) to 0.16% (1951), while the percent Muslim in Indian Punjab fell from 32% (1931) to 1.8% (1951).

In BKM we establish that while partition had large migratory flows, since inflows and outflows generally balanced each other, the net population impact on a district was much smaller. Hence, migration due to partition has often been referred to as a "population exchange." Any demographic changes due to partition, then, must mostly arise due to compositional differences between movers (inflows and outflows) and non-movers.

We are interested in knowing how much of a district's changes over time in some demographic variable can be attributed to migratory flows due to partition. We construct a counterfactual outcome variable (i.e. the outcome that *would* have been observed had partition not occurred) and relate differences between actual and counterfactual outcome variables to partition-related flows. We consider the following change:

$$Q_{ij}^{51} - Q_{ij}^{31}(\frac{Pop_{ij}^{51}}{Pop_{ij}^{31}})$$

in terms of inflows and outflows. Here Q_{ij}^t refers to the *number* of people in district i in state j in year $t = (1931, 1951)$ that refer a particular outcome variable, for example literacy. Pop is the population of the district. The above difference is the deviation of the outcome variable from uniform population growth rate of the district.[8] We can decompose this quantity into effects due to inflows, outflows, and non-movers (those not part of partition-related flows).

$$(1) \qquad Q_{ij}^{51} - Q_{ij}^{31}(\frac{Pop_{ij}^{51}}{Pop_{ij}^{31}}) = Q_{ij}^{Inf^{51}} - Q_{ij}^{Out^{31}}(\frac{Pop_{ij}^{51}}{Pop_{ij}^{31}}) + Q_{ij}^{Nm^{51}} - Q_{ij}^{Nm^{31}}(\frac{Pop_{ij}^{51}}{Pop_{ij}^{31}})$$

Inf is inflows, Out is outflows, and Nm refers to non-movers. Hence, in our example Q^{Inf} refers to the number of literates in the inflows. Equation 1 is in levels, so we can divide by the population of the district in 1951 to convert levels into percentages of total population. Population adjusted quantities are referred to as R's.

$$(2) \qquad R_{ij}^{51} - R_{ij}^{31} = R_{ij}^{Inf^{51}} - R_{ij}^{Out^{31}} + R_{ij}^{Nm^{51}} - R_{ij}^{Nm^{31}}$$

Unfortunately, we do not observe all the RHS ratios in the data. For example, in India, no information regarding educational status of migrants was collected. In particular, it is especially hard to determine outflows based on outcome variables. Moreover, since not all Muslims left India, determining who is a potential "non-mover" from India is not easy.[9] To

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[8]Ideally, we'd like to test the deviation of a district's outcome variable in 1951 from its outcome variable until say 1946, i.e. right before partition. Unfortunately, there is no dataset that can achieve this, and as a result we multiply the outcome using the growth rate.

[9]In Pakistan, since we know ex-post that almost all Hindus/Sikhs moved, it is easy to identify the potential movers in 1931, and say with some confidence that Muslims in Pakistan in 1931 compromise the non-movers in 1931. We cannot say this for India and Bangladesh since only *some* Muslims/Hindus moved. The percentage Hindus/Sikhs in Pakistan dropped from 17% in 1931 to 2% in 1951. The minority numbers for India and Bangladesh are 12% to 9% and 29% to 21%. Clearly a large number of Muslims stayed back in India and a large number of Hindus stayed back in Bangladesh (until 1951).

solve this problem we start by expressing:

$$R_{ij}^{Inf^{51}} = \theta_{ij}^{Inf^{51}} * Inflow_{ij}^{51}$$
$$R_{ij}^{Out^{31}} = \theta_{ij}^{Out^{31}} * Outflow_{ij}^{31}$$
$$R_{ij}^{Nm^{51}} = \theta_{ij}^{Nm^{51}} * Non-movers_{ij}^{51}$$
$$R_{ij}^{Nm^{31}} = \theta_{ij}^{Nm^{31}} * Non-movers_{ij}^{31}$$

Where $\theta_{ij}^{Inf^{51}}$ is the *fraction* of inflows that are literate, for example, and $Inflow_{ij}^{51}$ is the percent of the district population that is made of inflows. Similar interpretation holds for the other variables. Moreover, since we can express population in 1931 and 1951 as being composed of inflows and non-movers, and outflows and non-movers respectively:

$$R_{ij}^{Nm^{51}} = 1 - R_{ij}^{Inf^{51}}$$
$$R_{ij}^{Nm^{31}} = 1 - R_{ij}^{Out^{31}}$$

Rewriting Equation 2 using the above identities yields:

(3) $\quad R_{ij}^{51} - R_{ij}^{31} = (\theta_{ij}^{Inf^{51}} - \theta_{ij}^{Nm^{51}}) * Inflow_{ij}^{51} - (\theta_{ij}^{Out^{31}} - \theta_{ij}^{Nm^{31}}) * Outflow_{ij}^{31}$
$$+ \theta_{ij}^{Nm^{51}} - \theta_{ij}^{Nm^{31}}$$

For notational simplicity, we rewrite Equation 4 as:

(4) $\qquad\qquad R_{ij}^{51} - R_{ij}^{31} = \beta_{ij} * Inflow_{ij}^{51} - \gamma_{ij} * Outflow_{ij}^{31} + \epsilon_{ij}$

For the most part, we cannot observe $\theta_{ij}^{Nm^{51}}$ or $\theta_{ij}^{Nm^{31}}$ and hence it forms part of the error term in the empirically estimated equation. Empirically, we can only estimate:

(5) $\qquad\qquad R_{ij}^{51} - R_{ij}^{31} = \overline{\beta} * Inflow_{ij}^{51} + \overline{\gamma} * Outflow_{ij}^{31} + \phi_{ij}$

Since we have only 1 observation per district, clearly we cannot estimate district specific effects in a regression framework. In fact, since we estimate these equations at the country level, our β's are country specific coefficients.[10] The main problem in estimating Equation 5 is if migrants decide which district to move into based on the growth rate of non-movers in that particular district, then ϕ_{ij} (which contains the term $\theta_{ij}^{Nm^{51}} - \theta_{ij}^{Nm^{31}}$) will be correlated with $Inflow_{ij}$, and the estimated $\overline{\beta}$ will be biased. If the growth of the outcome variable among non-movers in any way induces migration to (or from) that district, then $\overline{\beta}$ and $\overline{\gamma}$ are biased. Suppose migrants choose to go to districts that are growing faster. Moreover, if faster growing districts transition to adopt more non-agricultural occupations independently of migratory flows, by not observing this "growth" we are wrongly attributing changes in the occupational structure of the district to migratory flows. We attempt to mitigate this problem by introducing a state fixed effect in Equation 5. By introducing a state fixed effect, we are

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[10]Instead of a uniform $\overline{\beta}$, one can think of this as $\overline{\beta_c}$

now comparing districts *within* a state that received different amounts of migrants. The assumption needed to rid $\overline{\beta}$ and $\overline{\gamma}$ of bias is that within a state, migrants did not choose districts based on growth of residents along a particular outcome variable.

Since one of the main concerns is that changes in $\theta_{ij}^{Nm^{51}} - \theta_{ij}^{Nm^{31}}$ might be correlated both with migratory flows as well as the outcome variable of interest, rather than relying completely on the state fixed effect we include proxies for $(\theta_{ij}^{Nm^{51}} - \theta_{ij}^{Nm^{31}})$. For example in Pakistan, we can compute this quantity quite precisely since we can strongly predict in 1931 those who eventually left in 1951 (as noted above, almost *all* Hindus and Sikhs left Pakistan) - hence $\theta_{ij}^{Nm^{31}}$ is quite obvious in the case of Pakistan. For India and Bangladesh we proxy for $(\theta_{ij}^{Nm^{51}} - \theta_{ij}^{Nm^{31}})$ by using $(\theta_{ij}^{Maj^{31}} - \theta_{ij}^{Maj^{21}})$, which is the difference in fraction belonging to the outcome variable among the *majority* population between 1931 and 1921. The idea is to capture growth of non-movers in districts (state fixed effects do not capture time varying growth). The final estimating regression is:

$$(6) \qquad R_{ij}^{51} - R_{ij}^{31} \;=\; \overline{\beta} Inflow_{ij}^{51} + \overline{\gamma} Outflow_{ij}^{31} + \eta S_j + \delta X_{ij} + u_{ij}$$

S_j is the state fixed effect and X_{ij} are various controls used to mitigate the omitted variable bias problem.[11]

While we attempt to mitigate this problem by including growth of non-mover proxies, there might still be unobservables that influence both migration and the outcome variable. There is some evidence that selective migration might not be that important in this context. In BKM (2008) we provide evidence of "replacement" of outgoing migrants with incoming migrants that was facilitated by the government. The fact that the government was trying to place people in areas where there was land available (Kudaisya and Yong Tan, 2000) perhaps mitigates the selection issue to some extent. Moreover, the actual location of the boundary lines were kept a secret until after Independence (Kudaisya and Yong Tan, 2000). Hence, there was a surprise element to the boundary line location giving people less time to selectively migrate.[12]

3. RESULTS

The outcomes we analyze are literacy, occupation structure, and gender ratios. For each outcome, we will first discuss differences between incoming migrants and residents for

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[11]In estimating Equation 6 we use outflows relative to the 1951 population. This is because we compute outflows in 1951 units so it only makes sense to use outflows as a percentage of 1951 population. This is unlikely to lead to any bias if the out-migrant population grew at the same rate as the overall population. Given that out-migrants from a country tended to be religion specific, we can check to see if the growth rate of Muslims and non-Muslims differed. The table on growth rates by religion in Appendix 1 confirms that Hindus and Muslims did indeed grow at different rates. However, the *ratio* of Muslim or Hindu growth to overall population growth is almost 1 in all years. This implies that using outflows relative to 1951 population while estimating Equation 6 does not mechanically change the magnitudes on $\overline{\gamma}$.

[12]In BKM 2008, we note that distance to the border *within a state* played an insignificant role in determining where migrants went.

the relevant outcome variable (β_{ij} from above where such information is available), and then move on to presenting the results from estimating Equation 6.

3.1. **Literacy**

How did migrants compare to residents in terms of their educational background? The anecdotal evidence from Pakistan, especially accounts from Karachi, suggest that migrants were more educated. Figure 1 illustrates this for each district using a "linear" map of British India.[13] Since data on migrant literacy for India was not tabulated in the 1951 census, we can only provide results for Pakistan and Bangladesh. The Y-axis is the difference in 1951 literacy rates (in percent) between the migrants into a district and the residents (i.e. those who did not migrate). Since we are comparing literacy rates at the same point in time for both, we are not concerned about our differences being confounded by changes in literacy over time. Each point illustrates whether migrants moving into that district were relatively more literate than the district's residents. Districts with larger overall inflows have larger circles on the graph. This is important since at times areas with very few migrants had very high literacy rates. For example, Baluchistan in Pakistan had an average migrant literacy of around 63%, but the total number of migrants in Baluchistan was less than 28,000 - a relatively small number given the large inflows in other states. In order to get a sense of the overall impact of inflows on literacy rates, one should focus more on the larger circles.

The figure shows that for the most part, migrants into Pakistani and Bangladeshi districts were significantly more literate than the resident population. In some cases the differences were quite large: A case in point is Larkana district, which received more than 600,000 migrants and had a difference of 21% in the literacy rates between migrants and residents. Tests reveal that these differences are statistically significant and relatively large: for Pakistani districts the migrant literacy rate was 7.1 percentage points higher than residents. The corresponding difference for Bangladesh was 8.1 percentage points. This suggests that the coefficient on inflows as estimated from Equation 7 should be positive for Pakistan and Bangladesh.

Table 1 presents the results estimating Equation 6 with literacy as the outcome variable. The effects for India reveal an aggregate increase in literacy of around 0.98%. Outflows in India decreased literacy rates only mildly (coefficient is -0.007), while inflows increased literacy rates quite substantially (coefficient is 0.16). In Pakistan, as mentioned before, outflows decreased literacy rates, while inflows increased literacy rates. The overall effect for Pakistan is small and negative (0.2%). In Bangladesh, though the results are statistically insignificant, both inflows and outflows seem to decrease literacy rates.

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[13]Since we will make use of such figures subsequently as well, it is important to explain this more carefully. Each point on the figure represents a particular district. The X-axis of this graph labels the state these districts belong to (thus all districts in a given state are plotted along the same vertical line). States are roughly organized from west to east within each country so the graph is roughly akin to converting a map of the region into a single line "map." The western and eastern borders are plotted as vertical lines for reference. Note that the distance between states in the figure does not reflect actual distance between them.

Figure 4 is the graphical equivalent of the regressions in Table 1. It is constructed by taking the coefficients on inflows and outflows as given in Table 1 and multiplying them by the actual inflows and outflows in a district and plotting the points on the familiar "linear" map of the subcontinent. We see that most of the gains in literacy in India were in Punjab state, while all states in Pakistan show drops in literacy. Indian Punjab has large gains in literacy as a result of migration, while losses seem to have been less compared to gains across all states. West Bengal gained in literacy while Bangladesh had no districts that gained in literacy. The above analysis is confirmed in Figure 2.1 which plots the education of minority and majority groups in 1931. We clearly see that minority groups were more educated than the majority in each country. Hence, outflows should decrease literacy, while inflows *could* increase literacy.

As a check, since we know the β_{ij}'s for Pakistan and Bangladesh, we can check whether a weighted average[14] of the β_{ij}'s corresponds to the β as estimated in the regression. For Pakistan, a weighted average of the β_{ij}'s does match up somewhat to the coefficient suggested by the regression (the weighted average suggests a coefficient of around 0.0710, while the regression coefficient is 0.063). For Bangladesh this is not the case. The weighted average suggests a coefficient of 0.08 while the actual coefficient is -0.093, though it is statistically insignificant. This could be the result of the regression not being able to capture the selection process of the migrants or the confounding nature of the Bengal famine. However, it seems unlikely that the selection process of migrants would vary vastly between the Western and Eastern border. Hence, the results in Bangladesh are more likely to be confounded by the Bengal famine that affected the country just a few years prior to partition than some form of omitted variable bias.

As an aside, we can also examine whether literate migrants were more likely to move to more distant places than illiterate migrants. The details of this analysis can be found in Table III, Appendix II. Not surprisingly, the literate are significantly more likely to move to more distant and more educated districts as well as to larger cities.

3.2. Occupation

Did migrants differ in the occupations they took up after migrating? Were these occupational differences large enough to affect the overall occupational distribution of a district? Our results show that migrants were more likely to enter non-agricultural professions.

Figure 2 illustrates this result by plotting the percentage of migrants in agricultural professions less the percentage of residents in agriculture in districts in 1951. Each point illustrates whether migrants moving into that district were relatively more (positive values) or less (negative values) likely to be in agriculture. Districts with larger overall inflows are displayed as larger circles on the graph.

The figure shows migrants in all three countries were significantly less likely to be in agricultural professions, although this difference is largest for districts in India and Bangladesh.

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[14]We weigh by size of the inflows for this purpose.

This is not surprising given that "While the 'exchange in population' had almost been even between the two parts of the Punjab, there existed a wide disparity in the land that became available for cultivation in East Punjab [Indian Punjab]. The Hindu and Sikh refugees had left behind forty-three lakh acres of irrigated land, against which existed only thirteen lakh acres of irrigated land evacuated by the Muslims of East Punjab." (Kudaisya & Yong Tan, 2000, pg 127). However, it is likely that migrants leaving India were not in agriculture in the first place - in this event, areas with more outflows should have an *increase* in agriculture professions. Still, the difference in land vacated could have more of an effect than that of non-agriculturists leaving from India. Statistical tests reveal that these differences are indeed large and significant: for Indian and Bangladeshi districts, the percentage of migrants in agricultural professions was about 28% percentage points lower (compared to residents). The corresponding difference for Pakistan was only 7 percentage points.

In India, we can explore these relationships even further as the Indian census in 1951 provides a more detailed classification of occupation (Table IV, Appendix II). Migrants tended to engage more in all non-agricultural professions, except the production of raw materials. Moreover, while migrants were less likely to be in agricultural professions, those migrants that did go into agriculture were much more likely to own their land or cultivate unowned land, rather than cultivate land owned by someone else.

Table 2 estimates Equation 7 with percent in agricultural professions as the outcome of interest. The variables of interest are the coefficients on percentage inflows and outflows. The data for 1931 occupation is incomplete for parts of India and Pakistan. This is due to non-availability of data as well as some reshaping problems.[15] While this leads to low sample size and therefore lower statistical precision, the districts that experienced the largest inflows (such as those in Punjab and Bengal) are included. Also note that the growth proxy used in this case is the growth in literacy among the majority population between 1921 and 1931. This is because information on occupation status by religion was not collected by the censuses for any of the relevant decades.[16] The proxy performs reasonably well in India and Pakistan (though not statistically significant) and rather poorly in Bangladesh.

The results show that migratory flows affected the agricultural occupation structure in India. A district which saw one standard deviation increase in inflows (and no outflows) saw a drop of 5.95 percentage points in individuals engaged in agriculture. However, a district which experienced one standard deviation increase in outflows actually saw agricultural propensities rise by an additional 4.79 percentage points. Together these two effects suggest that both those who left India and those who entered it were less likely to be agriculturists/choose agricultural professions. Anecdotal evidence suggests that apart from just constrained choice due to relative shortage on land vacated in India, those leaving Pakistan may

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[15]Occupation tables are not uniform across the State Censuses. For this reason some states display the occupation tables in a different way than others and some compatibility problems emerged.

[16]There is some information on occupation by religion for Pakistan in 1951. We would still need this information in 1931 to construct the actual growth figure.

have also been more likely to have non-agricultural vocations. Kudaisya and Tan (2000: pg 179) note that "The economic consequences of partition for the city [of Lahore] were severe. Many institutions, banks and corporate organizations relocated from the city. The majority of factories closed down and their plants and buildings were destroyed or abandoned in the disturbances. The bulk of the skilled manpower left, banks and financial institutions ceased functioning, and there was a massive flight of capital."

Figure 5 shows the geographical variation in the impact on agriculture. Indian Punjab and Bengal experienced the greatest impacts in terms of decreases in people engaged in agriculture, while the effects are much smaller in Pakistan and Bangladesh.

Again, we can test the validity of our results, by examining the β_{ij}'s for occupational outcomes in each country. For India the weighted average of β_{ij} is close to the regression coefficient in Table 2 (the weighted average suggests a coefficient of -0.68, while the coefficient in the regression is around -0.97). The averages for Pakistan and Bangladesh differ from the regression coefficients, but we spare the details as the regression coefficients themselves are not significant.

Finally, as an aside, we also examine the mobility of agriculturists versus non-agriculturists. The details of this analysis are relegated to Appendix II (Table V). Migrants entering non-agricultural professions were more likely to migrate to further distances and to larger cities.

3.3. **Gender**

Did migrants have a different gender composition compared to the general population? If so, were these differences large enough to have changed overall gender ratios in a district?

Figure 3 presents evidence on whether the migrants were different from the residents of places where they migrated to (in terms of gender composition). The Y-axis is the percentage of males in inflows less the percentage of males in the resident population. Each point therefore illustrates whether migrants moving into that district had relatively more males than the district's residents. Districts with larger overall inflows are represented by larger circles. This is important as some districts in south India received very few migrants, but with a high percentage of men. For example, the districts of Hassan, Karimnagar and Chitaldurg in modern Karnataka (Hyderabad in our dataset) received 1, 11 and 2 migrants respectively, and they were all male. In order to get a sense for the overall impact of inflows on gender composition, one should focus more on the larger circles.

While migrants were indeed more likely to be men, in some districts the male ratios among residents was even higher so that the migrants were in fact relatively less likely to be male. Figure 4 shows that this is particularly the case in some Indian districts. The two large negative outliers are Calcutta and Bombay.

Statistical tests[17] reveal that on average in India the percentage of men in inflows was 1.09% percentage points lower than residents. In comparison, in Pakistan migrants are

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[17]Not included in the paper; available upon request.

slightly more likely to be male (0.35%) than residents (this is substantial given that Pakistan districts already had fairly high male ratios) and for Bangladesh this is even starker with migrants being 2.6% more likely to be male as compared to the residents in the districts they migrated to.

Table 3 presents the OLS results of estimating Equation (7) with percent men as the outcome variable. The results are interesting for India as they suggest that areas which experienced greater outflows were more likely to see a drop in male ratios: compared to a district which experienced no outflows, a district which saw one standard deviation increase outflows would see the difference in percentage of men from 1931 to 1951 drop by around 0.20 percentage points (Column 3). In Pakistan a one standard deviation in inflows decreased the difference in percent male by 0.25%. Outflows from Pakistan tended to increase male ratios, but the coefficient is rather small and statistically insignificant. For Bangladesh the overall effect is negative, small in magnitude, and statistically insignificant. These results are consistent with the fact that in 1931 Muslims in India had a smaller male ratio than Muslims in Pakistan - hence inflows into Pakistan might cause a decrease in percent male. In addition, Muslims in India had a *higher* male ratio than Hindus and Sikhs in India - hence the departure of Muslims also decreased male ratios in India.

Figure 6 shows the geographic variation of impacts on gender ratios. As expected, the biggest changes are close to the border. There are districts in Indian Punjab and Bengal that experienced decreases in male ratios. We see the same result in Pakistan as well.

The weighted average of the individual β_{ij}'s suggests a coefficient of -0.01 in India (the regression coefficient is -0.003, and statistically insignificant), *positive* 0.003 for Pakistan (quite different from the regression coefficient of -0.019), and 0.02 for Bangladesh (regression coefficient is 0.05). Hence, selection bias might be more of an issue in these estimates.

As an aside, we can also examine whether men were more likely to move to more distant places then women. The details of this analysis are relegated to Appendix II (Table I) but it is worth highlighting that men were more likely to migrate to more distant districts and to larger cities.

4. DISCUSSION: WITHIN MAJORITY DIFFERENCES

As emphasized in the introduction, while aggregate effects of the migratory flows are mitigated by the counteracting effects of inflows and outflows, they represent important changes in the composition of the newly formed countries. Minority-majority differences along various lines were likely replaced with within-majority differences. These differences may have been particularly salient for Pakistan both because most minority groups migrated out and because of the large differences in attributes such as educational attainment between in-migrants and the resident population.

We first examine these compositional changes along the lines of education status. Owing to greater data availability, we do this first for Pakistan only. As mentioned before, migrants into Pakistan were vastly more educated than the residents. Among total literate

in Pakistan in 1951, migrants were approximately 20%. In fact these differences were not only for basic educational measures such as literacy rates, but also for educational attainment in general (See Table I, Appendix II). If we categorize educational attainment as either attainment of primary and middle education (up to class 8) or matriculation (10th class) and higher, we find that migrants were more educated than residents in Pakistan. The idea that within-Muslim inequality increased is seen clearly in that among people with higher degrees (higher than college degrees) migrants were approximately 47%. Unfortunately we cannot compare migrant education attainment to that of the Hindus and Sikhs who left as we do not have attainment information from 1931.

In addition to the above within-group difference, geographic inequalities arose as educated migrants tended to concentrate in big cities. Nearly 20% of literate migrants concentrated in the city of Karachi. Hence Karachi, which in 1931 contributed only 8.9% of total literates in Pakistan, suddenly contributed 20% with most of that increase due to literate migrants. When the geographic concentration is combined with educational attainment differences, the results show the emergence of Karachi as the center of the migrant elite. Among migrants with higher degrees, 50% went to Karachi city. The case of Karachi is particularly important as it was the first capital of independent Pakistan.[18] While India may have experienced similar within-group differences, it is noteworthy that in terms of urban compositional changes, India's experience differed substantially from Pakistan's. In India, Hindus in big cities were already very literate in 1931 - in fact, they were almost as literate as Hindus in Pakistan at the same time (13.2% as opposed to 16.5%). Muslims in big cities in Pakistan, however, were less educated than the average migrant into Pakistan in 1951 (20.2% as opposed to 31.5%). Thus, post-partition, when migrants tended to go to larger cities (BKM 2008), the differences between migrants and residences were greater in Pakistan than in India.

Hence, on the surface what looks to be small aggregate changes in population characteristics actually hides important compositional and geographic concentration aspects. While it is hard to draw long term implications simply on the basis of these patterns, it is noteworthy that the within-group differences, particularly in urban areas, that arose due to the migratory flows may have contributed to differences in how the countries evolved. Pakistan experienced large within-group changes both because migrants were substantially more educated and because these differences were even starker in urban areas that likely played a greater influence. In contrast in India, while there were also substantial within-group differences in education created due to the migratory flows, these were likely to be less salient overall both because a large fraction of India experienced little migratory flows (and hence a greater fraction of the initial minority group remained) and also because the migrant-resident differences were much less stark in Indian cities. These patterns do raise the question of whether they may have impacted the lines of conflict in India versus Pakistan since the evidence in the ensuing decades suggests that while religion remained a salient source of divisions in India,

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[18]The capital moved to Rawalpindi in 1958 and then to Islamabad in 1960.

in Pakistan the more significant difference tended to be within Muslims, with migrant status often playing an important role. [19]

5. CONCLUSION

In this paper we analyzed the aggregate impact of partition-related migration on gender, education, and occupation structure of districts in India, Pakistan, and Bangladesh. We conclude that partition-related flows resulted in an increase in literacy rates in India and a decrease in the percentage of people engaged in agriculture. In Pakistan, while incoming migrants tended to raise the literacy rates, out migrating Hindus and Sikhs (themselves being very literate) tended to reduce total literacy - in sum, there is a small decrease in Pakistan's literacy rate as a result of partition. In addition, these flows led to a decrease in male ratios in India and Pakistan.

While the overall effects for India and Pakistan might seem small, there is considerable variation in how districts were affected. While these effects are important, they are only relevant if they played a role in the later development of these countries. We think partition-related flows were important for the future development of the countries involved for two reasons.

First, minority-majority differences were replaced with within- majority differences. In the case of Pakistan, the fact that the migrants were vastly more literate and geographically concentrated clearly shaped its political landscape.

> It is worth noting that the top leaders in the initial years of Pakistan had all been Muhajirs [migrants]....With ...their higher levels of education and skills, their representation in the bureaucratic and political systems, and their assertions of cultural superiority, the Muhajirs could not assimilate themselves with the original inhabitants of Karachi (Kudaisya & Yong Tan, 2000).

Second, at least in the case of India, the increase in people engaged in non-agricultural professions could have been instrumental in the industrialization process. The long-term consequences of these demographic changes for India are harder to determine due to the country's size. Perhaps the lack of land for agriculturists spurred growth in the non-agricultural sector via decreased supply of agricultural labor supply. It is harder to imagine how the change in gender ratios could have played a role in development.

In subsequent work we also hope to examine other socioeconomic consequences of these flows. Moreover, the broader goals of our project are to compile and make available comparable demographic and socioeconomic data for the pre and post-partition period that would make analytic work on the partition more feasible and attractive to the research community. In turn, such empirical analysis can both be driven by and add to the existing rich qualitative literature on the partition.

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[19]While this is also because Pakistan had fewer Hindus/Sikhs left, there are a substantial number of Hindus in Sindh and at least anecdotally there seem to be relatively less divisions in Sindh between them and Muslims than within Muslims.

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7. Appendix 1

7.1. State Names on Figures

X-axis State Names Key -

Pakistan: 1=Baluchistan, 2=NWFP, 3=Sind, 4=Bahawalpur, 5=Punjab (Pakistan)

6=Western Border

India: 7=Punjab,8=Pepsu, 9=Himachal Pradesh, 10=Saurashtra, 11=Kutch, 12=Ajmer, 13=Rajasthan, 14=Delhi, 15=Bombay, 16=Uttar Pradesh, 17=Madhya Pradesh, 18=Bhopal, 19=Madhya Bharat, 20=Vindhya Pradesh, 21=Hyderabad, 22=Andhra, 23=Madras, 24=Mysore, 25=Travancore Cochin, 26=Coorg, 27=Orissa, 28=Bihar, 29=Assam, 30=Manipur, 31=Tripura, 32=West Bengal

33=Eastern Border

Bangladesh: 34=East Bengal

7.2. District Mapping Over Time

Unlike later censuses, the 1951 census does not provide a comprehensive mapping of the districts in 1951 to those in previous census years. As such our approach is to use detailed maps in 1951 and 1931 and start by visually identifying mappings between districts in the two time periods. Once the visual exercise reveals potential matches between the two census years, we use census data for land areas of these regions and only consider a mapping to be permissible if the land areas of the two units are within 10 percent of each other. We also perform robustness tests with lower thresholds. If two areas do not meet these criteria we attempt to map them at higher levels of aggregation (for example, by combining adjacent districts). In the majority of cases we are able to map regions over time and only a few districts could not be mapped. Thus for the 472 districts and Princely states of British India in 1931 we are able to map 462. The equivalent number for the 1951 districts is 373 mapped out of a total of 363. Since some districts had to be merged this gives us a total of 287 comparable "districts" between the two census years.

7.3. Districts Not in Data set

These districts are not in our data set because of lack of information in a certain year or merging issues.

NWFP Frontier Areas(only British areas were censused in 1931)
- Chitral
- Malakand

- Swat
- Dir
- North & South Waziristan
- Khurran
- Khyber

Baluchistan (one area was not censused in 1951)

- Dera Ghazi Khan

Gilgit Agency (not censused)

- Yasin
- Kuh Ghizar
- Punial
- Tangir & Darel
- Ishkuman
- Gilgit
- Chilas
- Astor
- Hunza & Nagir

Assam Hill/Tribal Areas (not censused in 1951)

- Sadiya Frontier Tract
- Khasi and Jaintia Hills

Jammu and Kashmir (not censused in 1951)

- Baramula
- Anantnag
- Riasi
- Udhampur
- Chamba
- Kathua
- Jammu
- Punch
- Mirpur
- Muzaffarabad

Andaman and Nicobar Islands (have missing information in the 1931 census). Sikkim (its status was uncertain in 1951 and was only inducted into state of India in 1975).

7.4. Computing Outflows

Our method of computing outflows determines expected minority growth rates by re-scaling the growth rates of the majority population during the relevant period (1931-1951). Note that "minorities" in Pakistan are Non-Muslims, while minorities in India are Muslims. "Majority" in India are Non-Muslims, while majority in Pakistan are Muslims. We define the

Resident Majority Growth Rate as:

$$M_g = \frac{M_r^{1951}}{M_r^{1931}}$$

Where M_r denotes resident majority. The resident majority population in 1951 is calculated as the total population of the majority group in 1951 less the population of incoming migrants (incoming migrants belonged to the majority). Majority is defined as the population minus minority populations. In our notation, upper case M always refers to the majority, while lower case m refers to minorities.

Next we construct the scaling factor to adjust the majority growth rate to reflect minority growth rate from 1931-1951. We need a scale because, as is clear in the table below, Muslims tended to grow faster than Non Muslims in British India.

Growth rates in British India		
Years	Non Muslim growth rate	Muslim growth rate
1901-11	1.0572	1.0920
1911-21	0.9945	1.0467
1921-31	1.0963	1.1169
1931-41	1.1376	1.1909

Where G_m and G_M refer to minority and majority growth rates between the relevant period.

We use a 20-year scale because our majority growth rate is measured over 20 years as well. It is obvious that we cannot use 1931-1951 growth rates of minorities as a scale, since minorities were on the move by 1951. We need to look to previous years for a scale. We did not use the 1941 census because its quality is suspect (see Bharadwaj, Khwaja & Mian, 2007 for more on this). Our next choice was using 1911-1931 growth rates to compute the scale. However, these growth rates are likely to be very different from those in 1931-51 due to large internal migrations that took place in the 1920's. These migrations were primarily located in the East, with people moving from Bengal into Assam to work on the tea estates (Davis, 1951). In comparison we are aware of no significant criticism of 1901-1921 censuses as far as religious enumeration is concerned. To avoid problems of countering massive internal migrations and census accuracies, we therefore use the 1901-1921 growth rates to compute our scale.

Now we can impute the minority growth rate between 1931 and 1951 as:

$$G_m^{1931-1951} = G_M^{1931-1951} \times S$$

Finally we can compute the *expected* number of minorities in 1951.

$$\hat{m_{1951}} = m_{1931} \times G_m^{1931-1951}$$
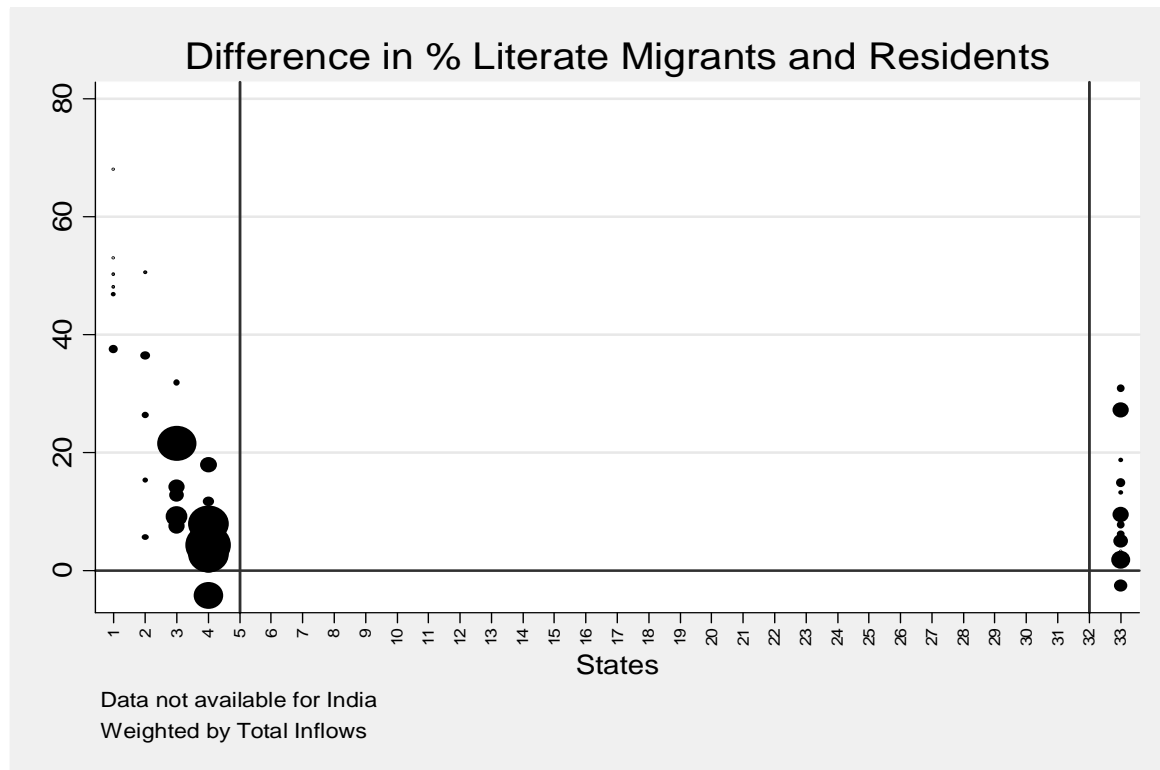
Outflow is the number of expected minorities less the actual number of minorities in a given district:

Outflow = $\hat{m_{1951}} - m_{1951}$

The above analysis is computed at the district level with one exception. We do not have 1901 census figures at the district level. Hence, we just use the country-wide scale on the 1931-51 majority growth rate at the district level.

Figure 1

Difference in % Literate Migrants and Residents

States

Data not available for India
Weighted by Total Inflows

States Key
Pakistan: 1=Baluchistan, 2=NWFP, 3=Sind, 4=Punjab

5=Western Border

India: 6=Punjab,7=Pepsu, 8=Himachal Pradesh, 9=Saurashtra,10=Kutch, 11=Ajmer, 12=Rajasthan, 13=Delhi, 14=Bombay, 15=Uttar Pradesh, 16=Madhya Pradesh, 17=Bhopal, 18=Madhya Bharat, 19=Vindhya Pradesh, 20=Hyderabad, 21=Andhra, 22=Madras, 23=Mysore, 24=Travancore Cochin, 25=Coorg, 26=Orissa, 27=Bihar, 28=Assam, 29=Manipur, 30=Tripura, 31=West Bengal

32=Eastern Border

Bangladesh: 33=East Bengal

Figure 1.1

Difference in Minority and Majority Literacy % in 1931

States Key

Pakistan: 1=Baluchistan, 2=NWFP, 3=Sind, 4=Punjab

5=Western Border

India: 6=Punjab,7=Pepsu, 8=Himachal Pradesh, 9=Saurashtra,10=Kutch, 11=Ajmer, 12=Rajasthan, 13=Delhi, 14=Bombay, 15=Uttar Pradesh, 16=Madhya Pradesh, 17=Bhopal, 18=Madhya Bharat, 19=Vindhya Pradesh, 20=Hyderabad, 21=Andhra, 22=Madras, 23=Mysore, 24=Travancore Cochin, 25=Coorg, 26=Orissa, 27=Bihar, 28=Assam, 29=Manipur, 30=Tripura, 31=West Bengal

32=Eastern Border

Bangladesh: 33=East Bengal

Figure 2

% Migrant less % Resident engaged in Agriculture

Weighted by Total Inflows

States Key
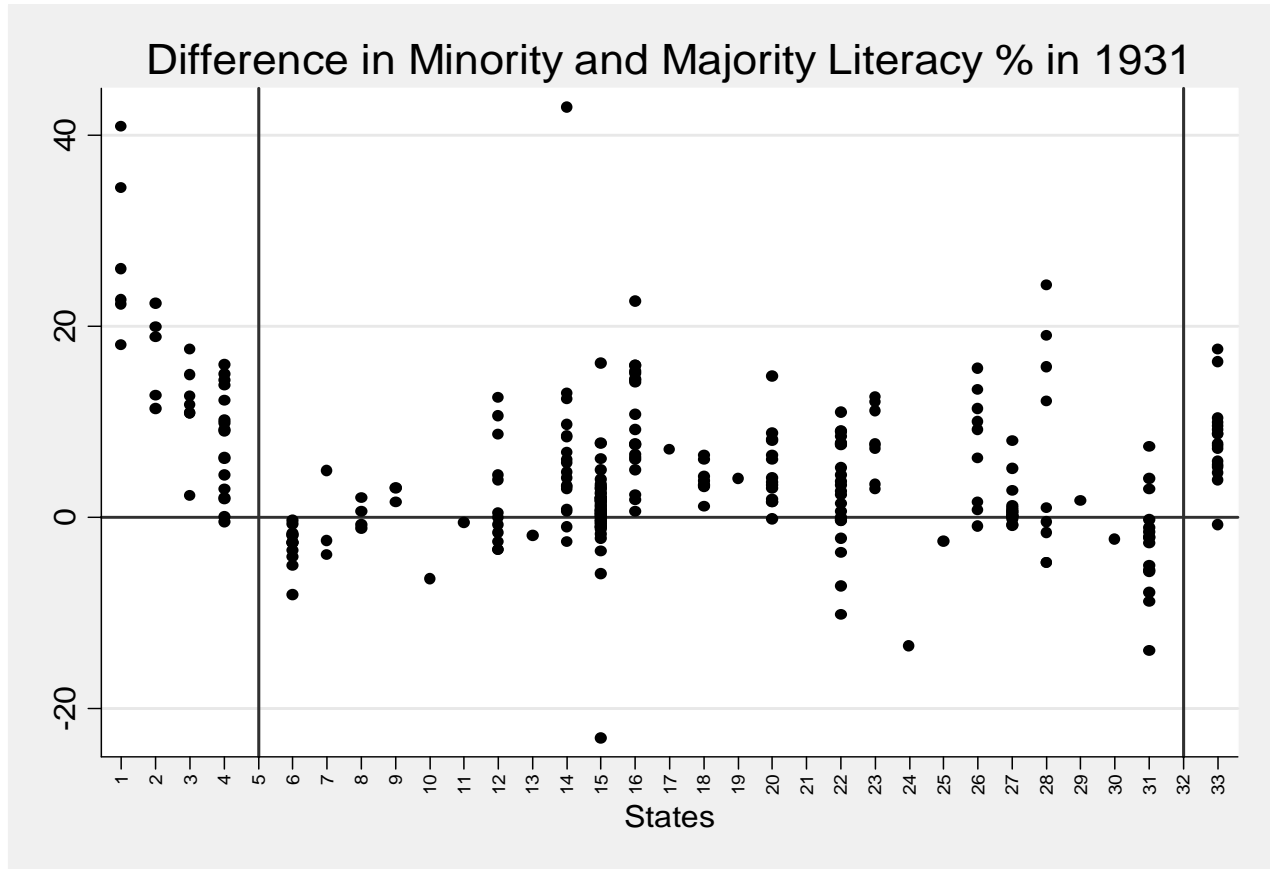
Pakistan: 1=Baluchistan, 2=NWFP, 3=Sind, 4=Punjab

5=Western Border

India: 6=Punjab,7=Pepsu, 8=Himachal Pradesh, 9=Saurashtra,10=Kutch, 11=Ajmer, 12=Rajasthan, 13=Delhi, 14=Bombay, 15=Uttar Pradesh, 16=Madhya Pradesh, 17=Bhopal, 18=Madhya Bharat, 19=Vindhya Pradesh, 20=Hyderabad, 21=Andhra, 22=Madras, 23=Mysore, 24=Travancore Cochin, 25=Coorg, 26=Orissa, 27=Bihar, 28=Assam, 29=Manipur, 30=Tripura, 31=West Bengal

32=Eastern Border

Bangladesh: 33=East Bengal

Figure 3

Difference in % Males in Inflows and Residents

States

Weighted by Total Inflows

States Key

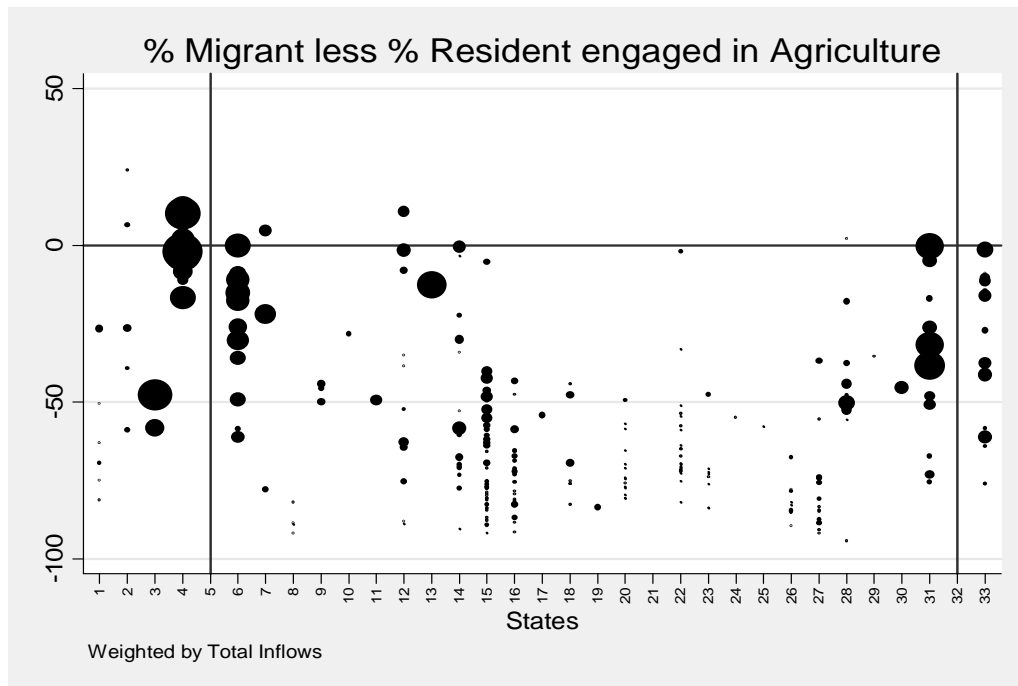Pakistan: 1=Baluchistan, 2=NWFP, 3=Sind, 4=Punjab

5=Western Border

India: 6=Punjab,7=Pepsu, 8=Himachal Pradesh, 9=Saurashtra,10=Kutch, 11=Ajmer, 12=Rajasthan, 13=Delhi, 14=Bombay, 15=Uttar Pradesh, 16=Madhya Pradesh, 17=Bhopal, 18=Madhya Bharat, 19=Vindhya Pradesh, 20=Hyderabad, 21=Andhra, 22=Madras, 23=Mysore, 24=Travancore Cochin, 25=Coorg, 26=Orissa, 27=Bihar, 28=Assam, 29=Manipur, 30=Tripura, 31=West Bengal

32=Eastern Border

Bangladesh: 33=East Bengal

Figure 4

Overall Impact on % Literate

Graph weighted by total population in 1951
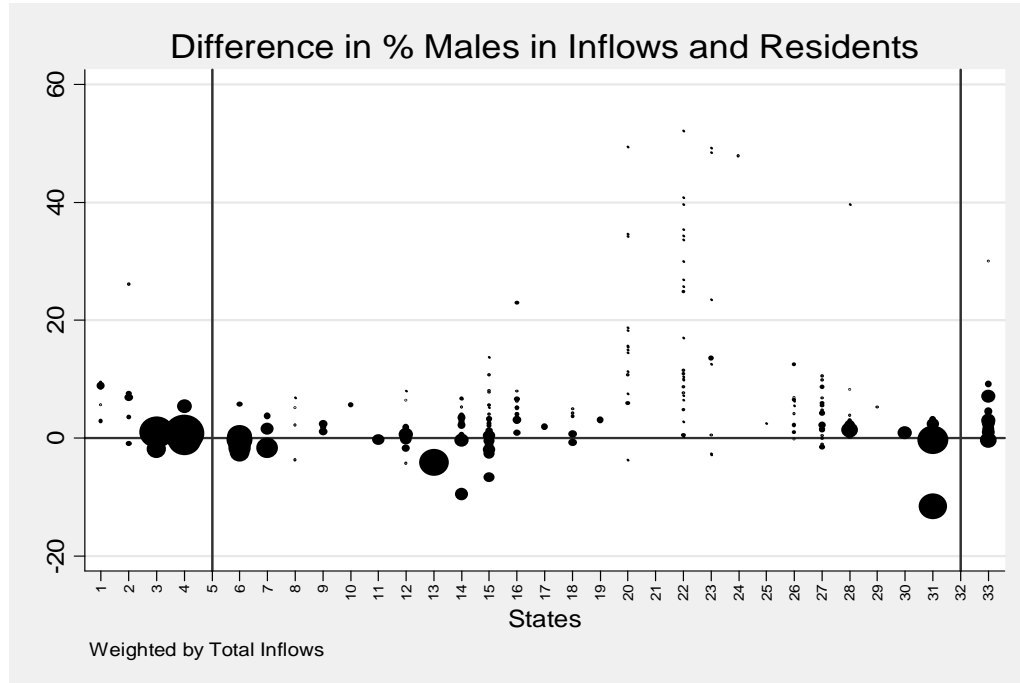**States Key**
Pakistan: 1=Baluchistan, 2=NWFP, 3=Sind, 4=Punjab

5=Western Border

India: 6=Punjab,7=Pepsu, 8=Himachal Pradesh, 9=Saurashtra,10=Kutch, 11=Ajmer, 12=Rajasthan, 13=Delhi, 14=Bombay, 15=Uttar
Pradesh, 16=Madhya Pradesh, 17=Bhopal, 18=Madhya Bharat, 19=Vindhya Pradesh, 20=Hyderabad, 21=Andhra, 22=Madras, 23=Mysore,
24=Travancore Cochin, 25=Coorg, 26=Orissa, 27=Bihar, 28=Assam, 29=Manipur, 30=Tripura, 31=West Bengal

32=Eastern Border

Bangladesh: 33=East Bengal

Figure 5

Overall Impact on % in Agriculture

Graph weighted by total population in 1951
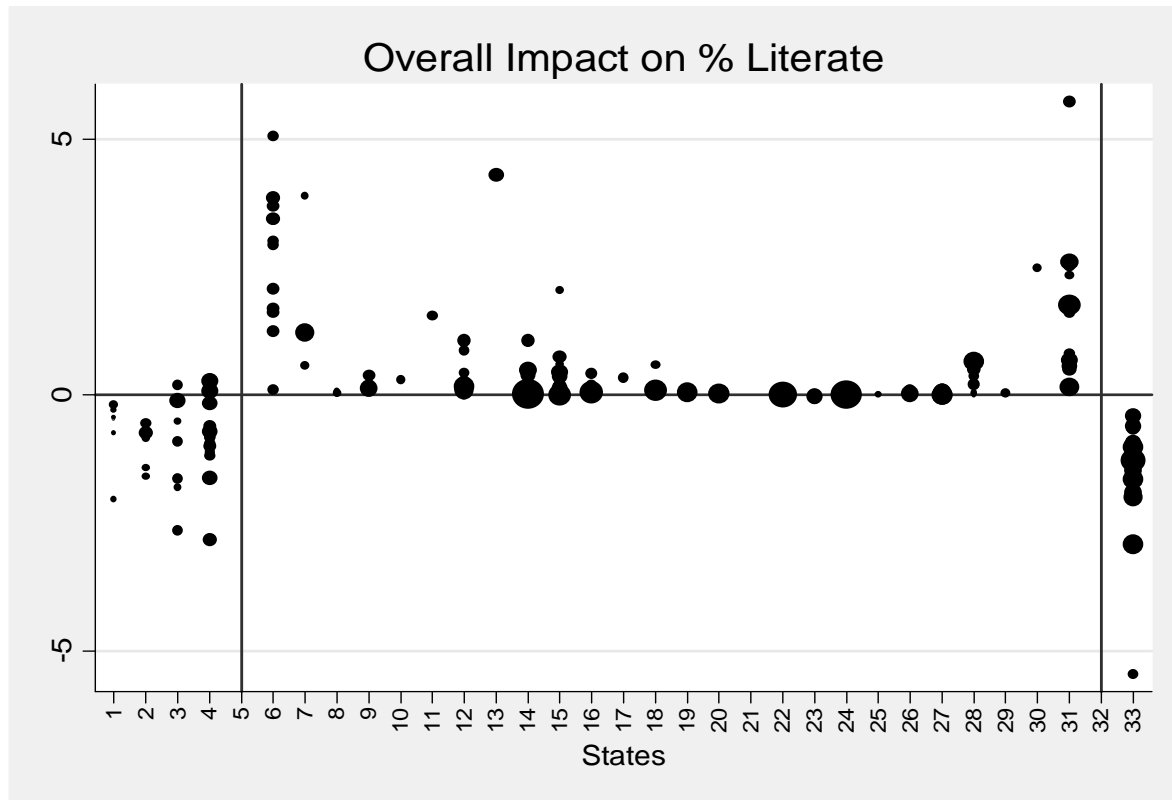**States Key**
Pakistan: 1=Baluchistan, 2=NWFP, 3=Sind, 4=Punjab

5=Western Border

India: 6=Punjab,7=Pepsu, 8=Himachal Pradesh, 9=Saurashtra,10=Kutch, 11=Ajmer, 12=Rajasthan, 13=Delhi, 14=Bombay, 15=Uttar Pradesh, 16=Madhya Pradesh, 17=Bhopal, 18=Madhya Bharat, 19=Vindhya Pradesh, 20=Hyderabad, 21=Andhra, 22=Madras, 23=Mysore, 24=Travancore Cochin, 25=Coorg, 26=Orissa, 27=Bihar, 28=Assam, 29=Manipur, 30=Tripura, 31=West Bengal

32=Eastern Border

Bangladesh: 33=East Bengal

Figure 6

Graph weighted by total population in 1951
States Key
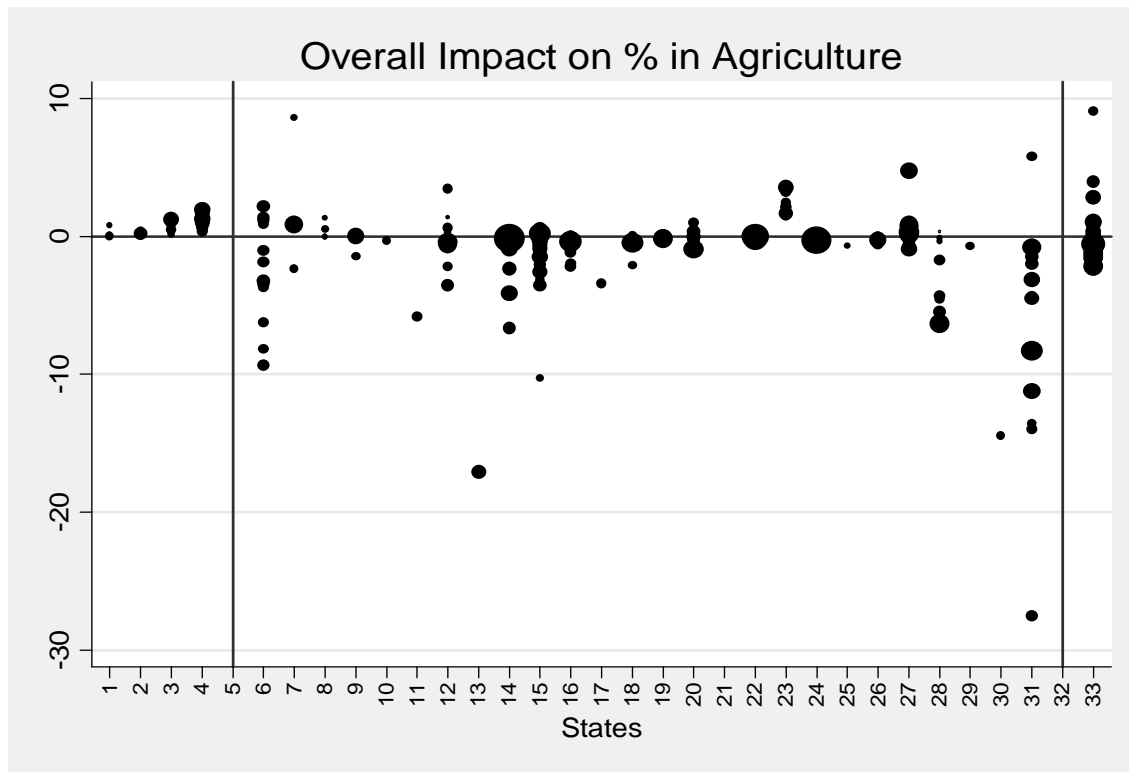Pakistan: 1=Baluchistan, 2=NWFP, 3=Sind, 4=Punjab

5=Western Border
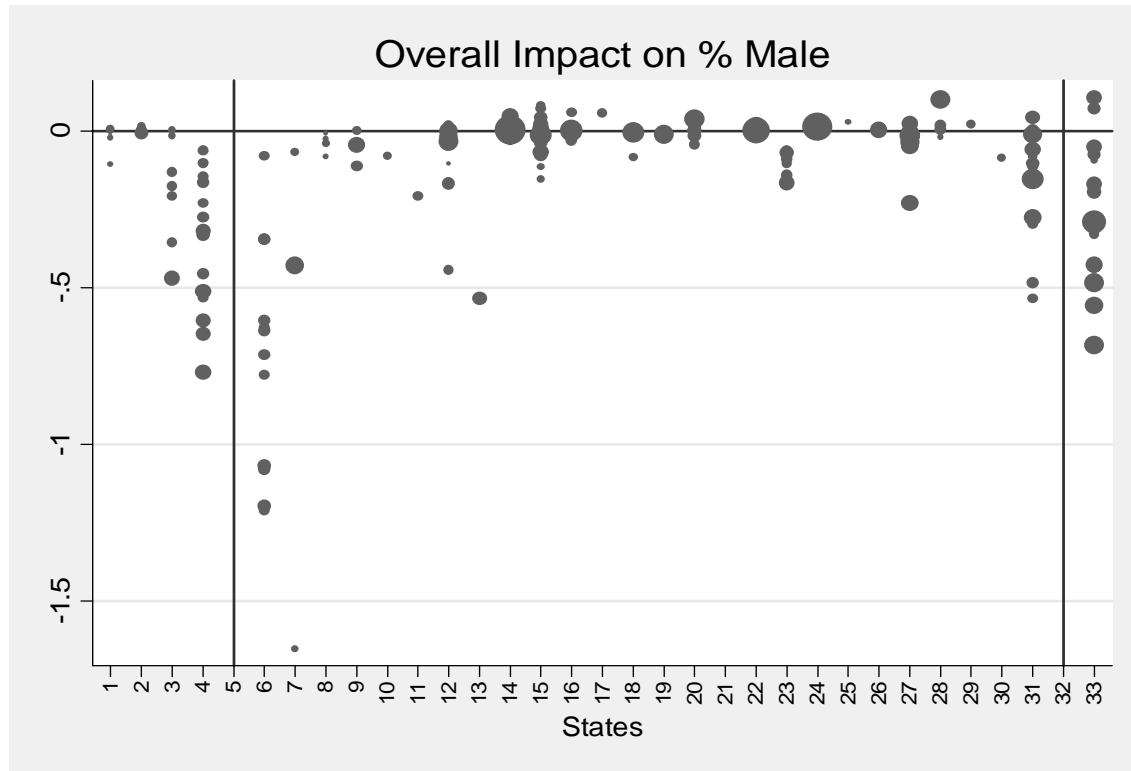
India: 6=Punjab,7=Pepsu, 8=Himachal Pradesh, 9=Saurashtra,10=Kutch, 11=Ajmer, 12=Rajasthan, 13=Delhi, 14=Bombay, 15=Uttar
Pradesh, 16=Madhya Pradesh, 17=Bhopal, 18=Madhya Bharat, 19=Vindhya Pradesh, 20=Hyderabad, 21=Andhra, 22=Madras, 23=Mysore,
24=Travancore Cochin, 25=Coorg, 26=Orissa, 27=Bihar, 28=Assam, 29=Manipur, 30=Tripura, 31=West Bengal

32=Eastern Border

Bangladesh: 33=East Bengal

TABLE I

IMPACT ON LITERACY AT DISTRICT LEVEL

Dependent Variable: Difference in Percent Literate (in District population) - 1951 minus 1931

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		India			Pakistan			Bangladesh	
Inflow as % of district population	0.15		0.16	0.041		0.063	-0.308		-0.093
	[0.058]**		[0.084]*	[0.021]*		[0.017]***	[0.253]		[0.385]
Outflow as % of district population		0.048	-0.007		-0.089	-0.122		-0.245	-0.198
		[0.028]*	[0.040]		[0.033]**	[0.029]***		[0.168]	[0.263]
Constant	4.36	5.64	4.309	0.405	1.085	0.378	6.173	5.944	6.274
	[3.129]	[3.094]*	[3.150]	[0.753]	[0.672]	[0.586]	[3.568]	[3.231]*	[3.643]
Controls used		Basic + A			Basic + B			Basic + A	
Observations	224	224	224	35	35	35	17	17	17
R-squared	0.52	0.51	0.52	0.97	0.97	0.98	0.65	0.67	0.67

Std Errors in brackets. * significant at 10%; ** significant at 5%, ***significant at 1%

This table examines the impact of inflows and outflows in a district on that district's percentage literate in 1951. Percent literate is defined in terms of the population. Computation of outflow is discussed in the Appendix. Inflows are people moving into a given district due to partition, outflows are those moving out. The observations for India are fewer than the usual 234 because we do not have 1921 information for 7 districts. We loose an additional 3 districts to outliers - these districts are Bombay (city), Cochin and Muzzafarnagar. "Residents" in 1951 are just the people who did not move due to Partition. "Majority" is defined as Muslims in Pakistan/Bangladesh and Non-muslims in India. Resident literacy (1951) cannot be computed for India as data on literacy of migrants was not collected.

Basic controls: State fixed effects, percent Majority and Minority literacy in 1931, dummy for whether the district had a big city (defined in Bharadwaj, Khwaja & Mian 2008).

A: difference in Majority literacy (1931-1921)

B: difference in Resident literacy (1951-1931)

TABLE II

IMPACT ON AGRICULTURAL OCCUPATION AT DISTRICT LEVEL

Dependent Variable: Difference in Percent Engaged in Agriculture (in District population) - 1951 minus 1931

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		India			Pakistan			Bangladesh	
Inflow as % of district population	-0.363		-0.97	0.035		0.031	0.758		0.934
	[0.231]		[0.327]***	[0.135]		[0.148]	[1.060]		[1.085]
Outflow as % of district population		0.068	0.398		0.042	0.023		-0.222	-0.265
		[0.110]	[0.154]**		[0.262]	[0.287]		[0.276]	[0.284]
Constant	-19.74	-24.165	-17.824	6.487	6.773	2.545	5.315	8.939	5.787
	[11.934]	[11.837]**	[11.749]	[6.704]	[7.964]	[10.820]	[5.415]	[4.016]*	[5.478]
Controls used		Basic + A			Basic + A			Basic + A	
Observations	180	180	180	21	21	21	15	15	15
R-squared	0.39	0.38	0.41	0.87	0.87	0.87	0.18	0.19	0.26

Std Errors in brackets. * significant at 10%; ** significant at 5%, ***significant at 1%

This table examines the impact of inflows and outflows in a district on the % engaged in agriculture in that district in 1951. Computation of outflow is discussed in the Appendix. Inflows are people moving into a given district due to partition, outflows are those moving out. Percent agriculture in India in 1951 includes dependents of the workers, while for Pakistan & Bangladesh they are exluded. It is not possible to separate out dependents in the Indian figure, or include dependents in the Pakistani figure. In 1931 the % agriculture figure includes dependents for India, but not for Pakistan and Bangladesh. Observations are fewer in these regressions as occupation data was collected only for some states in 1931. States included are Ajmer, Assam, Baluchistan, Bihar & Orissa, Bengal, Gwalior, Central India Agency, Hyderabad, Madhya Bharat, Madras, Mysore, NWFP, Punjab, Rajputana, UP and Western Agencies. State fixed effects used in all regressions. "Residents" in 1951 are just the people who did not move due to Partition. "Majority" is defined as Muslims in Pakistan/Bangladesh and Non-muslims in India.

Basic controls: State fixed effects, percent Majority and Minority literacy in 1931, dummy for whether the district had a big city (defined in Bharadwaj, Khwaja & Mian 2008).

A: difference in Majority literacy (1931-1921)

TABLE III

IMPACT ON GENDER AT DISTRICT LEVEL

Dependent Variable: Difference in Percent Men (in District population) - 1951 minus 1931

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		India			Pakistan			Bangladesh	
Inflow as % of district population	-0.026		-0.003	-0.017		-0.019	0.002		0.056
	[0.014]*		[0.020]	[0.007]**		[0.008]**	[0.066]		[0.093]
Outflow as % of district population		-0.018	-0.017		-0.008	0.004		-0.029	-0.059
		[0.007]**	[0.010]*		[0.010]	[0.011]		[0.049]	[0.070]
Constant	-0.094	-0.17	-0.15	0.71	0.811	0.936	-1.454	-1.194	-1.402
	[0.791]	[0.777]	[0.788]	[0.220]***	[0.258]***	[0.245]***	[0.927]	[0.851]	[0.942]
Controls used		Basic + A			Basic + B			Basic + A	
Observations	227	227	227	35	35	35	17	17	17
R-squared	0.3	0.31	0.31	0.97	0.96	0.97	0.72	0.73	0.74

Std Errors in brackets. * significant at 10%; ** significant at 5%, ***significant at 1%

This table examines the impact of inflows into and outflows from a given district on gender ratios in 1951. Computation of outflow is discussed in the Appendix. Inflows are people moving *into* a given district due to partition, outflows are those moving *out*. "Residents" in 1951 are just the people who did not move due to Partition. "Majority" is defined as Muslims in Pakistan/Bangladesh and Non-muslims in India. The observations for India are fewer than the usual 234 because we do not have 1921 information for 7 districts.

Basic controls: State fixed effects, percent Majority and Minority literacy in 1931, dummy for whether the district had a big city (defined in Bharadwaj, Khwaja & Mian 2008).

A: difference in % male among Majority population (1931-1921)

B: difference in % male among Residents (1951-1931)

DIFFERENCES IN EDUCATIONAL ATTAINMENT

Dependent Variable: Incoming migrant minus Resident educational attainment

	(1)	(2)	(3)	(4)	(5)	(6)
		Pakistan			Bangladesh	
	Overall Literacy	Primary and Middle	Matriculation and Higher	Overall Literacy	Primary and Middle	Matriculation and Higher
Constant	7.103	5.057	2.332	8.066	-0.253	3.861
	[1.199]**	[1.497]**	[0.651]**	[2.401]**	[1.276]	[0.899]**
Observations	35	35	35	17	17	17

Std Errors in brackets. * significant at 5%; ** significant at 1%, + significant at 10%
This table test whether incoming migrants differed in educational quality from the receiving residents. Literacy rates are calculated for the entire population. Migrant education data was not tabulated for India.

WHERE DID LITERATES GO?

Dependent Variable: % Literate in Incoming Migrants				
	(1)	(2)	(3)	(4)
	Pakistan		Bangladesh	
Distance	-0.238	-0.166	-0.457	1.14
	[0.177]	[0.130]	[0.843]	[1.145]
Distance Sq	0.001	0.001	0.007	-0.017
	[0.001]+	[0.001]	[0.013]	[0.020]
District Outflow as % of Total Outflow	-0.555	0.059	-0.639	-0.435
	[1.299]	[0.569]	[0.415]	[0.366]
Minority-Majority ratio 1931	-0.368	0.1	0.411	0.395
	[0.365]	[0.220]	[0.206]+	[0.211]+
% Literate in majority population, 1931	0.694	-0.158	2.716	1.787
	[1.128]	[0.703]	[1.038]*	[1.064]
% Literate in minorities, 1931	0.908	0.739	1.689	0.618
	[0.388]*	[0.367]+	[0.501]**	[0.747]
City Dummy	5.961	5.157	27.364	23.439
	[11.594]	[4.665]	[6.386]**	[6.939]**
Constant	29.621	17.05	-13.217	-16.784
	[14.630]+	[8.755]+	[11.945]	[15.387]
Observations	35	35	17	17
R-squared	0.57	0.52	0.88	0.9
Weights	None	Inflows	None	Inflows

Std Errors in brackets. * significant at 5%; ** significant at 1%, + significant at 10%

This table examines the impact of distance, outflow, minority-majority ratio, % literates among majority and minority population and the presence of a city in the district on the proportion of literates in the incoming migrant population in that district. Computation of outflow is discussed in the Appendix. Inflows are people moving into a given district due to partition, outflows are those moving out. Distance is measured as the straight line to the border from the center of a district. Minorities in India are Muslims. In Pakistan and Bangladesh minorities are Hindus and Sikhs. The remaining population is the majority in each country. City dummy was created from the 24 largest cities (in terms of population) from 1931. This data was obtained from the Historical Atlas of South Asia (Schwartzberg, 1978). Migrant education was not tabulated for India.

DETAILED OCCUPATION (INDIA)

Dependent Variable: Incoming migrant propensity minus resident propensity (regression title headings)

	(1) Agri on owned land	(2) Agri on un-owned land	(3) Cultivating Laborers	(4) Ownership of Land	(5) Production of raw materials	(6) Commerce	(7) Transport	(8) Misc
Difference	-36.755	30.792	1.188	4.446	-13.197	10.282	0.754	2.161
	[1.612]**	[1.927]**	[0.604]	[0.695]**	[0.783]**	[0.790]**	[0.322]*	[0.870]*
Observations	234	234	234	234	234	234	234	234

Std Errors in brackets. * significant at 5%; ** significant at 1%, + significant at 10%

This table tests whether migrants were more likely to enter various occupations compared to residents. This detailed information was not collected for Pakistan. Propensity of a certain group in occupation x is simply defined as (people of a certain group in occupation x)/(total number of labor force particiapants in that group). To the best of our knowledge, one can imagine "Agri on owned land" as workers working on land that they are responsible for, but that which is not self owned. "Agri on un-owned land" implies people working not on self owned lands, but lands whose ownership is unclear. "Cultivating laborers" implies day laborers on farms. The other categories are self explanatory. All regressions are weighted by inflows to account for areas with very low migrants by very high percentage of migrants engaging in any one occupation. Weighting gives more importance to those areas with more migrants.

WHERE DID INCOMING MIGRANT AGRICULTURISTS MOVE?

Dependent Variable: % Displaced Engaged in Agriculture

	(1)	(2)	(3)	(4)	(5)	(6)
	India		Pakistan		Bangladesh	
Distance	-0.083	-0.126	0.306	-0.208	-0.782	-1.242
	[0.016]**	[0.025]**	[0.241]	[0.268]	[1.936]	[2.385]
Distance Sq	0.0000746	0.00018306	-0.0016692	0.00159152	-0.0094839	-0.00217878
	[0.0000181]**	[0.00005798]**	[0.0009283]+	[0.00192986]	[0.0310085]	[0.04319989]
District Outflow as % of Total Outflow	4.797	3.836	4.429	3.505	0.905	1.135
	[0.782]**	[0.420]**	[2.009]*	[1.158]**	[0.923]	[0.801]
City Dummy	-9.594	-27.916	-48.056	-44.872	-42.529	-42.826
	[3.587]**	[2.635]**	[18.996]*	[6.820]**	[14.623]*	[15.416]*
Constant	21.921	30.213	26.638	44.959	70.819	76.466
	[2.512]**	[2.353]**	[16.134]	[12.629]**	[21.574]**	[26.166]*
Observations	233	233	35	35	17	17
R-squared	0.37	0.57	0.34	0.61	0.73	0.78
Weight	None	Inflow	None	Inflow	None	Inflow

Std Errors in brackets. * significant at 5%; ** significant at 1%, + significant at 10%

This table examines the impact of distance, outflows and the presence of a city in that district on the proportion of agriculturists in the inflow in that district. Computation of outflow is discussed in the Appendix. Inflows are people moving into a given district due to partition, outflows are those moving out. Distance is measured as the straight line to the border from the center of a district. City dummy was created from the 24 largest cities (in terms of population) from 1931. This data was obtained from the Historical Atlas of South Asia (Schwartzberg, 1978). Weights are used to give more importance to those areas with more migrants. Some areas that receive few migrants who are all engaged in agriculture (say) could affect results even though they are not important in terms of overall inflows. Weighting takes care of this problem.

WHERE DID MEN GO?

Dependent Variable: Percent Men in Inflow

	(1)	(2)	(3)	(4)	(5)	(6)
	India		Pakistan		Bangladesh	
Distance (in miles)	0.013	-0.011	0.073	-0.026	-0.425	0.411
	[0.009]	[0.002]**	[0.055]	[0.023]	[1.006]	[0.409]
Distance Sq	0.00001574	0.00002738	-0.00008678	0.00037139	0.00639919	-0.00625098
	[0.00000993]	[0.00000474]**	[0.00019668]	[0.00015189]*	[0.01608074]	[0.00740578]
District Outflow as % of						
Total Outflow	0.142	0.06	-0.023	-0.092	0.005	-0.053
	[0.471]	[0.037]	[0.402]	[0.093]	[0.479]	[0.134]
Minority-Majority Ratio	-0.003	-0.026	0.032	-0.006	-0.093	0.064
	[0.057]	[0.009]**	[0.112]	[0.038]	[0.229]	[0.075]
City Dummy	-4.458	0.523	2.483	2.416	6.165	4.764
	[1.919]*	[0.208]*	[3.713]	[0.512]**	[7.660]	[2.587]+
Constant	52.577	54.414	50.244	54.677	63.887	47.38
	[1.678]**	[0.340]**	[4.499]**	[1.462]**	[11.891]**	[5.463]**
Observations	233	233	35	35	17	17
R-squared	0.34	0.17	0.35	0.58	0.08	0.64
Weights	None	Inflow	None	Inflow	None	Inflow

Std Errors in brackets. * significant at 5%; ** significant at 1%, + significant at 10%
This table examines the impact of distance, outflow, minority-majority ratio and the presence of a city in a district on the proportion of men in the inflow population. Computation of outflow is discussed in the Appendix. Inflows are people moving into a given district due to partition, outflows are those moving out. Distance is measured as the straight line to the border from the center of a district. Minorities in India are Muslims. In Pakistan and Bangladesh minorities are Hindus and Sikhs. The remaining populations in each country is considered the majority while computing the minority-majority ratio. City dummy was created from the 24 largest cities (in terms of population) from 1931. This data was obtained from the Historical Atlas of South Asia (Schwartzberg, 1978).