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Abstract

If early childhood exposure to shocks influences educational outcomes, how long does the effect last, and does it differ among ethnic groups? This study answers these questions by presenting a theoretical model that explains the differentiated impact of a shock on different ethnic groups, and by exploiting the historical experiment of partition, i.e., the splitting of the British Raj into India and Pakistan. We use different rounds of Pakistan social and living standard measurement (PSLM) survey from 2007-08 to 2015-16 and compare, first, the educational outcomes for the cohorts that are born at partition time. Partition has had a negative impact on the probability of being educated, and this is even more marked for Sindhi-speaking people, revealing differentiated impacts across ethnic groups. Second, we analyze the data for the grandchildren of partition (i.e., whose grandparents were born during the partition). We show that the scar from partition lasts for long, as this generation is also impacted. Yet, if the disadvantage of being Sindhi remains, Punjabi-speaking people in Punjab are the relatively most affected ones in Punjab, a feature that reveals different strategies of adaptation of ethnic and cultural groups over the long run.

Key words: preference transmission; education; historical experiment; Pakistan.

JEL classification numbers: I25, J15, N45, N95, O12, O15, O53, P52

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1. Introduction

Large-scale events have immediate, obvious, consequences. Be they natural (like earthquakes, or tsunamis) or geopolitical (wars, for example), their impact cannot be disregarded. Mounting evidence documents that these types of events also have long-run impacts (see, e.g., Nunn and Wantchekon, 2011, Nunn and Puga, 2012, Grosjean, 2014, or Michalopoulos and Papioannou, 2016).

The literature tends to consider these events as natural experiments and, for social scientists, as the best alternative to field or laboratory experiments. Even though they may not be so "natural" (in the case of conflicts, for instance), such "experiments" are "historical episodes that provide observable, quasi-random variation in treatment subject to a plausible identifying assumption" (Fuchs-Schündeln and Hassan, 2016). The word natural itself indicates that the researcher has not designed this event or episode consciously, but is interested in the causal relationship(s) arising from events that can safely be considered as exogenous with regard to individual decisions. Some of these events, either being due to political events, or related to really natural disasters, have now been subject to important scrutiny. If the consequences of an episode such as the Chinese 'Leap Forward' have been considered (see, for example, Li and Yang, 2005), the German experiences of separation and reunification (in 1949 and 1989, respectively) have also been studied in depth (see, e.g., Alesina and Fuchs-Schündeln, 2007, Bönke and Neidhöfer, 2018, Chevalier and Marie, 2017, Peichl and Ungerer, 2017). And for what concerns natural disasters, the impacts of flood submersion in Pakistan have been considered (Kosec and Mo, 2017), as well as, for example, the consequences of earthquakes in Japan (Hanaoka et al., 2018), or of the 2004 tsunami (Cassar et al., 2017). Bernile et al. (2017) show how much these disasters can impact the behavior of agents (in their case, CEOs). However, there is still a lack of knowledge on the long-run impacts of disastrous events in the case of developing countries, which have also known large-scale traumatizing episodes, whose impacts can also be of determinant importance, in particular if education is impacted (Krueger and Lindhal, 2001, Sianesi and Van Reenen, 2003).

Here, we fill this gap, by considering the partition of British India into India and Pakistan, in 1947. More precisely, we investigate the long-run consequences of the partition on education in Pakistan, specifically looking at the relative educational performance of the children and grandchildren of partition that possess different ethnic and cultural traits. The "children of partition" (hereafter designed by CoP) are the cohorts born during the period of splitting British

India into India and Pakistan, while the grandchildren of partition are those born two generations after them. In other words, we analyze the impact of the partition on the first and third generations of people impacted by this event, differentiating them by their cultural and ethnic belonging. In itself, this delivers an important contribution, as it offers a longer perspective on the impact of large-scale event, using survey-data.[1]

That large events or disasters lead to income losses, with short term as well as long-term impact on household members, has been shown by Maccini and Yang (2009). The fact that children are in the front line of the impact of large-scale events, and that early life experiences have longer-term effect on educational and socioeconomic outcomes is now acknowledged (see, for instance, Akbulut-Yuksel, 2014, Akresh et al., 2012, Almond, 2006, Almond et al., 2011). Here, we look at children from the third generation to assess the duration of the impact and, importantly, we look if the impact differs across ethnic lines.

Another feature that makes the analysis of the partition case important is that it has forced people to move massively across (newly designed) borders. The partition episode has created one of the largest migration of its kind in human history, involving the displacement of about 18 million people, the slaughtering of thousands, the division of families, and other induced upheavals (Bharadwaj et al., 2008). And most of this occurred along ethnic fractures and religious affiliations. However, the impact on successive generations has not really been considered, and studies related to the Indian partition are generally qualitative or narrative (see, e.g., Bose and Jalal, 2017, Butalia, 2000, or Tan and Kudaisya, 2000). This is quite unfortunate as the Pakistani context and data can allow us to look at the differentiated impact of the event on "types" of people. Here, we use language as a proxy for the ethnic belonging, and we show that the different ethnicities are impacted differently overtime, revealing separated patterns of adaptation to the new contexts in which people are raised and educated. Although the importance of ethnicity is now a well-known feature for Pakistan (Ansari, 2005, Rashid and Shahhed, 1993), the influence of ethnic belonging on socio-economic attitudes and preferences is still an under-researched area.

Hence, not only do we provide evidence on the long-run impact of a large and traumatic historical event, but we also look at the situation from the perspective of cultural transmission across ethnic groups. In other words, we are studying how the historical event affects the

[1] Although Duncan et al. (2017), for example, look at the long-run educational perspectives of migrants to the US, these cannot be related to an historical shock equivalent to what the partition represents for India and Pakistan.

evolution of preferences through the endogenous socialization efforts of the various ethnicities. We therefore emphasize the role of socialization and the transmission of cultural preferences, following a strand of literature stemming from Bisin and Verdier (2001) that explores the role of intergenerational transmission of preferences to explain the persistence of educational differences across generations. Doepke and Zilibotti (2008) study the role of the intergenerational transmission of tastes for leisure and patience during the industrial revolution, while Farvaque et al. (2018) analyze how preference transmission can induce changes across economic systems. Here, we build on the model by Sáez-Martí and Sjögren (2008), to analyze the transmission of preference in a context where assimilating to the larger population can be desirable (even if it comes at the price of the loss of identity), depending on the belonging of a group to such or such ethnic group.

So, does childhood exposure to shocks (civil wars, conflicts, famines, partitions, reunifications and deep economic recessions) impact educational outcomes in the long run? If yes, then what are the possible reasons and consequences of such events from history? And how does it depend on ethnicity? This paper essentially brings new light to these questions, and is organized as follows: Section 2 provides a sketch of the historical background of British India partition. Section 3 details the model and its testable implications while Section 4 presents the data used. Section 5 introduces the empirical estimation methodology, and provides baseline results for the children of partition. Section 6 does the same for the grandchildren of partition. Section 7 provides several robustness checks, while section 8 concludes the analysis.

2. Historical background on the partition of the British Raj

Pakistan, formerly a part of British India (aka the Raj), became independent in 1947, in a process marked by massive migration and bloodsheds, leaving the country largely traumatized. The objective of this section is to provide some historical background on the process of partition and on the ways it has been implemented.

The aim of partition was to split colonial India into separate states, on the basis of religion: one new state would host a Hindu majority (India), while the other (Pakistan) would have a Muslim majority. The aim was to resolve the conflicts between the two religious groups as, after World War II, the British Empire found it next to impossible to keep peace between Hindus and

Muslims, nor to act as a broker for consensus between the respective political parties.[2] So it was decided to divide the region. British Prime Minister Attlee then warned the quarrelling political parties that the United Kingdom would cease to administer India after July 1948. Lord Mountbatten was delegated the task to end the British rule in India, and this was done almost a year prior to the agreed schedule (see, e.g., Wilcox, 1964). He asked Sir Radcliffe, a lawyer by profession, to chair the Bengal and Punjab boundary commission, which delivered the partition plan of June 3rd, 1947. Unfortunately, even though he was impartial and unbiased to any political party in British India, Radcliffe was not familiar with boundary drawing mechanism, nor was he fully aware about the geography and human characteristics of the region. Moreover, he had to act under a strict time deadline, being given only five weeks to perform the task (Khilnani, 1999).

The details of the partition were not made public until a few months prior to partition, making it an almost totally exogenous event for most people. In addition, it is now considered that the figures from the census of 1941 have been used to determine the different majorities, whereas, given that the notion of a separate Muslim state was raised as early as 1940, the 1941 census was probably rigged, with a biased reporting of certain religious groups. (Bharadwaj et al., 2008).

Pakistan thus emerged as a Muslim country out of the British-occupied Indian empire on August 14, 1947. At the time of inception, it had two parts: West Pakistan (now Pakistan) and East Pakistan (which became Bangladesh later on - see, Tan and Kudaisya, 2000). Unfortunately, when people came to know about the drawing of the boundary, a majority of the concerned people found themselves on the "wrong" side of border, in particular people from Punjab. The exchange of people was based upon religious background, i.e., Hindus and Sikhs moving from Pakistan to India while Urdu-speaking and Punjabi Muslims moved out of India to live in Pakistan. It was, alas, too late for affected people to make preparations or provisions for the evacuation. The violence among Hindus, Muslims and Sikhs resulted in probably more than half a million deaths, along with the forced migration of millions (see Wilcox, 1964, or Bharadwaj et al., 2008). As a consequence, as Cheema (2000) states, "no man-made boundary has caused so many troubles and effectively impeded the advent of peace in South Asia as the

[2] The campaign for an independent Muslim state became prominent in 1930s, as it was evident that Hindus and Muslims had contradicting interests that could not be reconciled.

Punjab boundary". Radcliffe himself declared, later on: "there will be roughly 80 million people with a grievance who will begin looking for me" (Khilnani, 1999).[3]

Precise estimates still lack, but it is generally estimated that around 18 million people migrated during this partition process. Examples of large inflows of migrants in Pakistan thus abound. In Karachi city (now the capital of the Sindh province), 28 % of the population had migrated in 1951 while, according to the 1931 census of India, 50 % of its population was non-Muslim. Hence, Karachi is one of the highly affected cities of Pakistan. Lahore (capital of the province of Punjab) also faced some severe consequences as a result of partition, due to the closure of factories and the relocation of corporate organizations, along with banks and other institutions (Tan and Kudaisya, 2000). Overall, the partition reduced the share of Muslims in India from 23.8 percent in 1941 to 9.8 percent, according to the 1951 census (Swenden, 2017).

Other consequences from the partition had an impact on our variable of interest, education. In the first years, many among Pakistan top leaders were Urdu migrants, due to their high level of skills and education, although they were not really able to intermingle with the native inhabitants. Simultaneously, literacy rates declined, due to the outflow of highly educated Hindus and Sikhs - not fully compensated by the arrival of (mostly Urdu) people that formed part of the backbone of the British army and administration. Also, the large-scale migrations resulted in a decline in male ratios in both Pakistan and India (Bharadwaj et al., 2009). If education is a necessary component of development, then the educational impact of the partition may explain the divergent growth paths. In other words, if the marginal returns on parental education are high, then their evolution across time is a policy-relevant issue. This is something towards which we now turn.

[3] At the time of independence, Pakistan and India were very much dependent upon each other: the share of India in the global imports and exports of Pakistan was equal to 50.6 percent and 23.6 percent, respectively, in 1948-49 which gradually shrunk to 0.06 percent and 1.3 percent respectively in 1975-76. Similarly, the share of Pakistan in India's global imports and exports reduced to 0.13 percent and 0.7 percent respectively in 2005-06 (from 1.1 percent and 2.2 percent respectively during 1951-52). Although it is recognized that trade should be higher among closer countries, even though borders may reduce flows (Anderson and van Wincoop, 2003), the border between Pakistan and India reinforces the paradox of less trade at very short distance.

3. A model of intergenerational preference transmission after the shock of partition

Our theory is based on Sáez-Martí and Sjögren's (2008) model, who consider a situation where children are immerged in a cultural context with several variants of cultural traits, and who have to pick the variant they prefer among their peers' ones, and under a parental effort to transmit their own family trait. The model thus covers the possibility of a direct, vertical, transmission of a cultural trait, or of an indirect, oblique, transmission (Bisin and Verdier, 2010). It is a useful framework to analyze cultural dynamics when parents agree on which cultural variant is desirable, while their own offspring is subject to their -and other's- influence. Sáez-Martí and Sjögren (2008) show that a variant that parents do not promote can survive if children adopt it, either because they like it or because they have a conformist bias and their environment is dominated by the cultural variant. As we will show, the model fits the situation of Pakistani relative minorities who have to decide upon the transmission of their cultural specificities.

3.1. Assumptions

Consider that there are two cultural variants, *k* and *u*. Each is related to a language, or ethnicity. In the context of Pakistan, one can think of, respectively, Sindhi, Punjabi (both of *k*-types) and Urdu languages (*u*-type), with the related degree of appetence for education that comes with the belonging to each ethnic group. Urdu language being the official language of Pakistan, Urdu-speaking people being (or considering themselves) at the origin of the sheer idea of Pakistan, and Urdu-speaking officers and administrative employees having reached an elite status in the new Pakistani society, the challenge for Sindhi and Punjabi people is thus to adopt a strategy and decide if they want to assimilate to the new national language (and associated dominant culture), or to try to defend and promote their cultural and ethnic trait. The difference between Sindhis and Punjabis, however, is that Sindhis were always considered as a minority (i.e., before and after the partition), while Punjabis can be considered as dominating before the partition, and forming a non-ruling large share of the population in Punjab today, relatively to Urdus.

Theoretically, there is a probability $\tau_i \geq 0$ ($i = k, u$) that a child adopts the parents-promoted cultural trait. In other words, this probability denotes the vertical transmission. With probability $(1 - \tau_i)$ the child will nevertheless adopt the trait, but through oblique transmission. Let $q \geq 0$ be the proportion of parents holding the *k*-variant. Then, the probability of a Sindhi

(respectively, Punjabi) child to adopt the Sindh-related (resp. Punjabi-related) cultural traits (in our context, language and education) is given by:[4]

$$S_k(\tau_k; q) = \tau_k + (1 - \tau_k)q. \quad (1)$$

Note that we have $S_u(\tau_u, q) \leq q \leq S_k(\tau_k, q)$. In other words, ex-ante, the transmission of the cultural trait promoted by parents is probabilistically superior to the transmission of the other trait, due to the fact that oblique and vertical transmission will add up in the first case, while only oblique transmission can have a role in the latter one.

Ex-post, transmitting a cultural trait is costly, and parents have to support a cost equal to $c_i(\tau)$ when transmitting their favored variant.[5] This can be written as a function of the probability of adoption, and we have:

$$C(S_k, q) = \begin{cases} c_k(S_k - q)(1 - q)^{-1} & if\ S_k \geq q \\ c_u(q - S_k)q^{-1} & if\ S_k < q \end{cases} \quad (2)$$

In other words, if the probability of an oblique transmission of a parent's trait is inferior to the share of this trait in the population ($S_k \leq q$), then the cost of transmission negatively depends on the share of this trait in the population (q), as parents have to go uphill to transmit their variant.

Parents care about their children's welfare, but with what is generally referred to as "imperfect empathy", meaning that they use their own preferences to evaluate their children's choices. Imperfectly empathic parents means that their welfare increases when children adopt the parents' cultural traits (Doepke and Zilibotti, 2017). Denoting by V^{ij} the utility a parent of type i attaches to nurturing a child of type j, the problem of parents of both k-types can be written the following way:

[4] For simplicity of exposition, we assume that the oblique transmission part (last term of equation (1)) is linear. See Sáez-Martí and Sjögren (2008) for a more general function. Note also that we consider the situation of Sindhi and Punjabi people viz. Urdu ones as a bilateral problem, as the issue for Sindhis is to either keep their trait or taking the Urdu one, while adopting Punjabi-related trait is not an option, from a rational point of view (and reciprocally for Punjabis).

[5] It is assumed that the cost function is positive, twice continuously differentiable and convex. In particular, $c_i(0) = 0$ and $\lim_{\tau \to 1} c_i(\tau) = +\infty$. The latter assumption ensures that no parent can completely determine the trait of her child.

$$max_{S_k \in [0;1]} \{ [S_k V^{ik} + (1 - S_k) V^{iu}] - C(S_k, q) \}. \quad (3)$$

3.2. Solution, dynamics, impacts of partition and ethnicity

Defining $\Delta V^i \equiv V^{ik} - V^{iu}$, the solution to the parents' problem is $S_k^*(q, \Delta V^i)$, which is the solution to the following:

$$[V^{ik} - V^{iu}] - C(S_k, q) = 0. \quad (4)$$

Take a parent of Sindhi ethnicity, living after partition in Sindh, while Urdu-speaking people are now the ruling elite of the country, and consider that this parent prefers her child to belong to the new dominating ethnic group than to be "stigmatized" (as belonging to a discriminated-minority group) by keeping the Sindhi-related cultural trait. In such a case, $\Delta V^i < 0$, and the cost of transmission will increase in q (the more prevalent the trait in the province of residence, the costlier it will be for the parent to get the child adopt the national variant) and decrease in ΔV^i. In the opposite case, if a Sindhi-type parent prefers the children to keep the Sindhi-related characteristics (language and level of education, in particular), instead of conforming to the majority, then $\Delta V^i > 0$, and $S_k^*(q, \Delta V^i)$ increases both in q and in ΔV^i. This is because the probability of transmission is also a reflection of the effort the parents exert for transmitting their favored trait.

To consider the dynamics of cultural traits, let's assume that births and deaths follow a Poisson process, and that the population is constant over time, as Hauk and Sáez-Martí (2002) and Sáez-Martí and Sjögren (2008) do. Following these authors, when denoting by λ the probability that an adult survives, and by (1-λ) the probability that this adult has a child that reaches adulthood the next period, the fraction of the population bearing the *k*-type can be written as:

$$q_{t+1} = \lambda q_t + (1 - \lambda)\left(q_t S_k^*(q_t, \Delta V^k) + (1 - q_t) S_k^*(q_t, \Delta V^u)\right) \quad (5)$$

What would be the effect of partition on the evolution of cultural traits? One can first think about an immediate consequence, which is the death (in the migration-related-to-partition process, see above) of part of the population bearing a specific trait. Here, this would mean an

abrupt reduction in λ. It appears that such a reduction has an ambiguous impact on the fraction of the population bearing the k-type, as we have $\frac{\partial q_{t+1}}{\partial \lambda} = q_t - \Big(q_t S_k^*(q_t, \Delta V^k) + (1 - q_t) S_k^*(q_t, \Delta V^u)\Big)$, the sign of which depends on the sign and value of the ΔV^i function.

Conjecture 1. The assimilation process in the newly formed country means that, for some ethnicities, their relative size, with regard to the whole population, decreases. In such a case, this is denoted by, for population of k-type, a reduction in the value of q. Then, from equation (5), this implies that $\frac{\partial q_{t+1}}{\partial q} = \lambda + (1 - \lambda)\Big(S_k^*(q_t, \Delta V^k) - S_k^*(q_t, \Delta V^u)\Big)$. If a Sindhi parent, for example, considers that assimilation is a bad thing, then we are in the case where $\Delta V^s > 0$ (see above, as well as below, for historical evidence), and it is thus all the more probable that the sign of the derivative becomes positive. In other words, the fact of becoming a (smaller than historically) minority reinforces the effort to transmit the valued cultural trait.

Conjecture 2. Finally, if the population does not benefit from the same opportunities it had in the former, pre-partition) province, it means that its relative socio-economic status has eroded, making it costlier to transmit the cultural trait (if only because of the need to allocate time to the transmission of language to children, or to direct money to education-related costs). In such a case, for any k-type parents, $C(S_k, q)$ increases. We thus have in this case: $\frac{\partial q_{t+1}}{\partial C(S_k, q)} = \lambda q_t + (1 - \lambda)\Big(q_t S_k^*\Big(q_t, \Delta V^k(C')\Big) + (1 - q_t) S_k^*\Big(q_t, \Delta V^u(C')\Big)\Big)$, where (C') indicates the derivative of the cost function. Here again, the sign is ambiguous, as it will depend upon the relative size of the minority, q, with regard to the sign of the ΔV^i. Nevertheless, it is all the more probable that, in small groups who consider that assimilation is a good thing, the increase in the cost of transmission will accelerate the extinction of the cultural trait, which can translate in, for instance, reduced use of the related language, or by lower efforts to improve upon the education of children.

We now turn to the consequences of the historical background of the partition in which we have considered our model of transmission, before delivering an empirical analysis of the impact of this particular event.

3.3. Partition and ethnicity: impacts on education and transmission

The partition has had differentiated impacts over Pakistan. The flow of refugees was not ethnically composed the same way in the different parts of the new country, and these were not welcomed at the same degree. As Bhavnani (2016, p. 791) frames it:

> *"It has become a Muhajir [migrant] legend that, during the difficult months of 1947–48, non-Punjabi [Urdu-speaking] Muslim refugees who attempted to disembark from trains at stations in West Punjab were told that Pakistan was further on. Thus, refugees from Punjab were privileged over other refugees in terms of popular sympathy, government willingness to accept and accommodate them, and the quantity and quality of resources allocated towards their rehabilitation."*

In the Sindh province, in particular, the partition has meant a massive inflow of migrants. If, in 1947, 95% of the population was of Sindhi ethnicity, four years later, 50% of the urban population in this province is composed of Urdu-speaking people. As Karachi was (then) the capital of the new country, a majority of migrants considered this city as their destination (Bhavnani, 2016). This soon created tensions, and the initial welcoming behavior quickly turned sour.

Even if the account of the historical events is still disputed, it is now quite consensual to state that the previous tendency was reinforced as both Sindhis and Punjabis were exposed to new occupation of land (previously belonging to people who had left to India) by other ethnic groups. They thus felt themselves as deprived of the land they had sometimes considered with envy (Rashid and Shahhed, 1993). Some of these people thus began to see themselves as "sons of the soil" (to use the expression of Fearon and Laitin, 2011). Moreover, while they could have expected to participate in the new government, the elite quickly came out to be Punjabi and, overall, Urdu-speaking, either from Punjab or from Mohajirs (often with experience in the British administration or army), at the detriment of Sindhis. They then began to feel and behave like a minority group, and this has been the case up to today, where they are still considering themselves as being discriminated against. In a nutshell, the initial feeling of the new migrants of being superior and having made the Pakistan existing due to their own sacrifice carries over to today, and the Sindhi culture is still viewed in a condescending way.

Relative poverty and the feeling of being discriminated fuels the intensity of the Sindhi identity, that members of the group want to protect and promote against the will of the governing majority. This inevitably translates into different fertility behavior, with Sindhi women having more children than other ethnic groups (and, in particular, the dominant ones - Muhammad, 1996). Should educational efforts being made by the group, then, they should be oriented towards the preservation of the Sindhi identity. In other words, we can expect Sindhis to reduce the use of (and parental investment in) the national, official, education system, promoting different languages and values than the ones of the minority.

Theoretically, then, we are in the case where Sindhi parents invest in their children to keep the Sindhi-related characteristics (language and level of education), instead of conforming to the majority. We thus are in the situation where $\Delta V^i > 0$, and $S_s^*(q, \Delta V^i)$ increases both in q and in ΔV^i, with q being small. From equation (5), we can assess that $\frac{\partial q_{t+1}}{\partial \lambda} = q_t - \left(q_t S_s^*(q_t, \Delta V^s) + (1 - q_t) S_s^*(q_t, \Delta V^p)\right)$ will be globally positive. In the Sindhi case, due to the partition-related deprivation, λ will decrease, meaning that the Sindhi specific trait(s) will disappear over time, except if people do try to fight the trend by reinforcing their effort to transmit it to the next generation(s). As seen above, the other derivative will also be positive, meaning a stronger effort to transmit the identifying traits over generations. However, the cost of transmission will increase over time, as can be derived from the above third derivative. Hence, empirically, we should expect, for Sindhi people, partition to have a negative impact on their use of the (official) educational system (this is Conjecture 1 restated in our context). For the next generations, the education could remain lower, comparatively, to the other ethnic groups, except if the Sindhi-related traits disappear over time. However, given that the fertility rate of Sindhi people is higher, this should not be the case (or the speed of decline should be low), and for the most recent generations, the national education system would still be under-used by Sindhi people.

For Punjabi-speaking people in Punjab, the situation is different: they thought they would be associated to the Urdu elite to rule the country, and that they were forming the majority of the new Pakistan. However, they quickly discovered, to their own disadvantage and discontent, that, would they be considered as part of the ruling elite, that would be in a second-tier position, and that there was now a non-zero risk of losing the majority (see the above quote, for an example of an early reaction to this state of fact). Hence, Punjabis are in the situation where

assimilation has a value, and where $\Delta V^i < 0$, with the opposite consequences (compared to Sindhi people in Sindh province) to be expected: the first generation should not particularly benefit from, or use, the national education system, but the next ones should use it more, with a lower degree of "defense" of the Punjabi-related cultural traits. However, this means that the feeling of cultural domination erodes over time by a lower presence in the population (due to, for example, lower fertility rates). In such a case, efforts could be reduced, and we can expect that this group to be confronted with lower educational efforts, ceteris paribus.[6] This sets Conjecture 2 in our empirical context.

We now turn to the data to see if these predictions (Conjectures 1 and 2) are backed by the evolution of the level of education of the different generations of ethnic groups in Pakistan, first detailing the sources of data used to estimate educational attainment across generations and groups.

4. Data: Household Integrated Economic Survey (HIES) and Pakistan Social and Living Standard Measurement Survey (PSLM)

The Household Integrated Economic Survey (HIES), led by the Pakistan Bureau of Statistics, has been conducted since 1963. The HIES questionnaire was revised in 1990 and used for the subsequent survey periods. Moreover, in 1998-99, the HIES questionnaire and methodology for the collection of data were modified to reflect the integration of HIES inside the Pakistan Integrated Household Survey (PIHS). The HIES was conducted in parallel with the PIHS for 1998-99 and 2001-02, followed by changes in both the questionnaire and data collection methods. In 2004, the program was renamed as Pakistan Social & Living standard measurement survey (PSLM), yet the HIES part remained intact. The PSLM/HIES has been conducted for 2004-05, 2005-06, 2007-08, 2010-11, 2013-14 and 2015-16. In this study, we use survey data released by the Pakistan Bureau of Statistics under HIES for all the datasets that are available and provide data on ethnicities (i.e., languages): 2007-08, 2010-11, 2011-12, 2013-14 and 2015-16. The HIES is the most suited data to analyze the impact of partition on socioeconomic outcomes, as it allows us to analyze the answers from respondents born during the partition

[6] Taking into account nation-building efforts, or quotas in favor of the discriminated minorities (as under the government of Benazir Butto) would only reinforce this conclusion.

time, as well as in the surrounding years. It provides information at the household level about key characteristics such as language, education, social indicators and consumption expenditure.

How can one identify the people directly affected by the partition process? It can of course be argued that the entire country was affected by the shock, and that no differentiated impact should be looked at. However, this would overlook that large parts of the population had to migrate, and that migrants have settled more largely in Punjab and Sindh provinces. As Table1 indicates, the proportion of migrants (or Muhajirs) in Pakistan, according to the 1951 census, is large, as almost ten percent of the whole population had to move, i.e., more than 7 million people. The highest number of migrants settled in the province of Punjab. In parallel, the province of Sindh, as well as the federal capital area of Karachi[7], received the second largest numbers of migrants. The third largest number of migrants moved to East Pakistan (which became Bangladesh later on). In other words, as can be seen in table 1, if the whole of Pakistan was affected by the partition shock and undergone (both voluntary and involuntary) migration processes, the shock was not homogeneously distributed. Hence, in what follows, we focus on the experience of Punjab and Sindh provinces, where we can expect the stronger long-term effects (Bharadwaj et al., 2008).

The majority of Pakistani people today speak several languages, among which Urdu, Punjabi, Sindhi and Pashtu are the most largely spoken. Moreover, some speak local languages (such as the Balochi, Saraiki and Kashmri). Urdu is the most spoken language, being also the country's official language. The other languages thus reveal the ethnic group to which one belongs, and the choice to speak a language inside the household is taken here as indicative of the ethnicity. Table 2 indicates the prevalence of the spoken languages in the different provinces, in our sample. Most people speak Urdu and Punjabi languages in Punjab, whereas the majority speaks Urdu and Sindhi in Sindh. There are tiny proportions of other languages spoken in both provinces but, in order to have clear reference categories in terms of languages, we have dropped them for the provincial analysis. As indicated by the fourth column of table 2, which details the situation in the others provinces, such a choice is innocuous with regard to our goal, but it allows us to sharpen the exposition of the results.

Table 1. Proportion of Muhajirs (Migrants) in the population of Pakistan, 1951

[7] Islamabad is currently the capital of Pakistan, albeit Karachi was the capital at the birth of the country.

Province and state	Population (000s)	Muhajirs (Migrants) (000s)	% of population
Pakistan	*73880*	*7226*	*9.8*
Baluchistan	1154	28	2.4
East Bengal*	41932	699	1.7
Federal Capital Area (Karachi)	1122	617	55
NWFP/KPK	3222	51	1.6
Punjab and Bahawalpur	20636	5281	25.6
Sindh and Khairpur state	4925	550	11.2

***** East Bengal became an independent country as Bangladesh in1971.
Source: Pakistan Census, 1951

Table 2. Statistics on Languages spoken, figures (and percentages of total)

Languages	Provinces			Total
	Punjab	Sindh	Others	
Urdu (and others)	14,162 (42.43)	7,368 (38.50)	23,272 (95.78)	44,802
Punjabi	19,189 (57.49)	127 (0.66)	111 (0.46)	19,427
Sindhi	27 (0.08)	11,645 (60.84)	914 (3.76)	12,586
Total	33,378	19,140	24,297	76,815

Source: Authors' calculation based on the pooled cross sections from PSLM for the years 2007-08, 2010-11, 2011-12, 2013-14 and 2015-16. Figures are for the sample that will be used afterwards.

In addition to the geographical and linguistic elements, the time dimension is important for our purpose. Here, we focus on the individuals (both male and female) born before, during and after partition, and their descendants. Given the sociological background of Pakistan, and the way decisions are taken in households, in what follows, we use the birth year of the household head as our reference for the whole household. The children born during the years 1947 and 1948 are the ones who have been directly exposed and are thus coined "Children of Partition" (COP). Even though the partition took place in 1947, we also consider the 1948 cohort as being the

Children of Partition, as at least part of them are most likely to have been exposed in womb to the partition (Almond, 2006). The cohorts born before and after this period are termed, respectively, the pre-partition and post-partition children (and, globally considered, they form the surrounding cohorts).

We restrict our sample to 1980 to define the post-partition cohorts, due to the high level of education attainment after that period. In addition, as the dataset includes the year of birth of the grandchildren starting from this period, going further than 1980 would both blur and bias the third generation estimates, as some grandchildren would also be household heads. Concerning the pre-partition, there are obviously fewer and fewer observations as we go back in time, which is the reason why we do not go beyond 1930. As can be seen from table 3, the partition process severely affected socioeconomic outcomes of the impacted generations. If the size of the households is larger for the CoP, their per-capita consumption, educational attainment (years of schooling) and educational status (defined as "at least completed five years of education") are lower, compared to the surrounding cohorts.

Table 3. Descriptive statistics: Partition viz. surrounding cohorts

Variables	Partition Cohort (COP) (1947)	Surrounding Cohorts (1930-1946) &(1948-1980)	Difference	SE	P-Value
Per Capita Consumption (Rupees - deflated)	7331.357	8239.802	908.445	145.610	0.000
Household Size	7.456	6.868	- .5883	.062	0.000
Educational Status	.411	.5271	.1162	.009	0.000
Educational Attainment	3.978	5.218	1.239	.102	0.000
Observations	2,862	73,953			

Source: Authors' calculation based on pooled data from various rounds of PSLM/HIES.

5. Empirical methodology

5.1. Children of Partition

The estimation strategy relies upon the comparison of educational attainment of the individuals born during the partition period and those born before or after the partition. More precisely, we focus on the provinces that are close to the India-Pakistan border, as they faced the largest inflows and outflows of migrants. The underlying assumption are (i) that the children born during partition and who grew up in the more exposed provinces (i.e., Punjab and Sindh) could have reached a lower educational attainment, compared to the children born before or after the partition period that are living in the same provinces and, (ii) that the disruption associated with the partition would have a larger impact on those speaking the local language (i.e., Punjabi and Sindhi), compared to Urdu (see table 2).

Our dependent variable is a measure of educational outcome. The "educational status" is a binary variable: if an individual has completed at least five years of education, then it is considered as educated and assigned a value "1", and "0" otherwise. The estimated equation by Logistic regression is the following:

$$\boldsymbol{Children\ of\ Partition\ Education} = \boldsymbol{\beta_1} * (\boldsymbol{household\ head\ birth\ cohort}) + \boldsymbol{\beta_2} * (\boldsymbol{language}) + \boldsymbol{\beta_3} * (\boldsymbol{household\ head\ birth\ cohort} * \boldsymbol{language}) + \boldsymbol{\lambda} * \boldsymbol{X} + \boldsymbol{\gamma} * (\boldsymbol{Survey\ year}) + \boldsymbol{\varepsilon}, \quad \textbf{(6)}$$

where β_1 captures the impact of partition on the educational outcome of the children who were born during the partition period (and, respectively, of those born during the pre- and post-partition periods), while β_2 measures the impact of partition on schooling of children who were born during the partition (or before, or after) and speak, for instance, Sindhi language. The coefficient β_3 measures the impact of the partition on schooling of children who speak, for instance, Punjabi language, depending upon their birth cohort.

The *X* vector includes household level characteristics. As for the latter, we consider household consumption, household size, gender of household head, location of household head (i.e., province), and language spoken at home. The "household consumption" variable reflects the household status, using the household consumption expenditures as a proxy of income (because self-reported income may result in a bias towards the revelation of a subjective status, as well

as inducing a classic endogeneity issues with regard to each household head's education level). This consumption variable is considered by quartiles. Furthermore, as data comes from different survey rounds, we have adjusted these variables for inflation (the average inflation rate was 10.49 per cent a year between 2007 and 2015 (Government of Pakistan, 2017). The household size variable indicates the number of people in a house (i.e., 1, 2, 3,… up to the maximum number of members). The household head gender is a dummy variable, being equal to 1 for males. Presently, there are five provinces in Pakistan: Punjab, Sindh, Khyber Pakhtunkhwa, Baluchistan and Gilgat Baltistan. The Gilgat Baltistan was introduced as a province in 2009. Given our focus, in what follows, we merge Khyber Pakhtunkhwa, Baluchistan and Gilgat Baltistan under the name of "others". The "province" variable represents the location of the household head. If a household head belongs to Punjab province it is coded as "1", and "2" is for Sindh province, "3" being for others. Language spoken at home is also a categorical variable. Languages are coded as 1, 2 and 3 for others (group of Urdu and other local languages), Punjabi and Sindhi, respectively.

The final variable is the indication of the year in which the survey was taken. As our data consists of different surveys, we include a vector of survey years to control for any changes in adulthood outcomes related to a specific survey year.

5.2. Grandchildren of Partition

Then, in order to know whether the impact of partition was limited to children (household heads) born before, during and after partition, or if it has been transferred to the next generations, we look at the educational attainment of the first generation whose grand-parents were born during the partition, whom we aim at comparing with those who were grew up with grand-parents born before or after the partition period. The related equation thus writes:

$$\boldsymbol{Grandchildren\ of\ Partition\ Education} = \boldsymbol{\beta'_1} * (\boldsymbol{grandparent\ birth\ cohort}) + \boldsymbol{\beta'_2} * (\boldsymbol{language}) + \boldsymbol{\beta'_3} * (\boldsymbol{grandparent\ birth\ cohort} * \boldsymbol{language}) + \boldsymbol{\beta'} * (\boldsymbol{grandparent\ education}) + \boldsymbol{\lambda} * \boldsymbol{X} + \boldsymbol{\gamma} * (\boldsymbol{Survey\ year}) + \boldsymbol{\varepsilon}, \quad \textbf{(7)}$$

We use data related to the grandchildren of age at least equal to 10 and we assume that, by 10, they should have at least completed the 8th class (i.e., middle education). The dependent variable is a binary variable: if an individual is considered as educated (i.e., if he/she has at least having

8 years of schooling), then the value "1" is attributed, and "0" otherwise. And this measure will be used in a Logistic regression.

Similarly, the coefficient of interest is β'_1. It relates to a dummy variable equal to "1" according to the cohort to which the grandparent belongs, and "0" otherwise. It captures the indirect impact of partition on the educational outcomes of grandchildren conditionally to the birth cohort of the grandparent.

β'_2 measures the impact of each language on schooling of the children, while the coefficient β'_3 relates to whose grandparent was born during partition (respectively, pre-and post-partition) and speaks a given language. The coefficient β'_4 measures the influence of a grandparent's education on the grandchildren's. We define it as a binary variable (equal to "1" if a grandparent is educated – i.e., has at least reached five years of schooling - and "0" otherwise). In equation (7), the set of control variables now also includes the gender of the grandchild (male versus female).

6. Results

We first present the results obtained for the first generation (CoP) and then turn to the ones related to the grandchildren of partition. Obviously, although the variables of interest are important in themselves, the interacted variables are of primary interest.

6.1. Children of Partition

In table 4, we present the baseline results, with column (1) displaying the results obtained for the generation who was born during the partition, while column (3) shows the results for the surrounding cohorts. Column (1) reports the average marginal effects of the Logistic regression, with education as a dichotomous variable.

The results indicate a 11.1 percent significantly lower probability that an individual born during the partition period would be educated, compared with the individuals born in the surrounding cohorts (pre- and post-partition periods). Hence, there is a clear negative impact of partition on education. The impact of partition on the pre- and post-partition cohorts degree of schooling, is given in column (2) of table 4. On average, children born before partition are 2.5 percent significantly less likely to be educated, whereas the children born after the partition have a 12.6

percent higher probability of being educated. This could be expected from table 3 although, in the context of an increasing trend towards more education in developing countries in general, the impact of partition with regard to the pre-partition cohort in particular is both sizeable and notable.

With regard to the vector of controls, *X*, it appears that consumption has a positive and significant effect on educational attainment, and that a male child outperforms a female child in educational outcome. The household size is found to be negatively associated with schooling. These results could be expected and confirm the validity of the basic model.

Concerning our topic, it has to be noted that people in Sindh province tend to be more educated than those in Punjab, while those in more remote provinces are at a disadvantage, compared to either Punjab or Sindh. However, looking at ethnicity (through language), it appears that, for any cohort, Sindhi-speaking people have a lower chance to be educated than Punjabi-speaking ones, and that both groups have a lower chance to reach the 5-year level of education than Urdu-speaking ones.

However, these effects are estimated on the whole sample, covering all of Pakistan, while the theoretical predictions depend on the (feeling of being a) relative majority in a given province. Hence, in tables 5 and 6, we estimate the impact of partition separately for the regions of Punjab and Sindh, respectively. If the results for the control variables are not changed, qualitatively speaking, it now clearly appears that, in Punjab, if speaking Punjabi implies an educational disadvantage, belonging to the partition cohort has no supplementary impact. This is not the case for Sindhi-speaking people in Sindh province (see table 6): if any Sindhi-speaking person has a lower chance to be educated than any Urdu-speaking person living in Sindh province, this is even truer for the members of the partition cohort. This reveals that Sindhi-speaking people have suffered even more form the partition period, as the historical evidence reviewed could lead us to expect. However, even more interesting is the result that Sindhi-speaking people belonging to the next cohorts (i.e., those born after the partition) have a higher chance to be educated than the other cohorts. Even though being Sindhi in Sindh creates a disadvantage (compared to Urdus), generations raised after the partition tend to use more the education system than other generations.

Table 4. Impact of partition on educational outcomes of household heads (Children of partition) across Pakistan

Explanatory Variables	Dependent variable for:	
	Partition cohort (1947-48)	Pre and Post Partition cohorts
	Educational Status	Educational Status
	[1]	[2]
Household head born before partition		-0.025** (0.010)
Household head born during partition	-0.111*** (0.009)	
Household head born after partition		0.126*** (0.009)
Household consumption	**2:** 0.230*** (0.005) **3:** 0.307*** (0.005) **4:** 0.480*** (0.005)	**2:** 0.230*** (0.005) **3:** 0.306*** (0.005) **4:** 0.481*** (0.005)
Household size	-0.021*** (0.001)	-0.020*** (0.001)
Household head gender Male (Ref)	-0.243*** (0.006)	-0.243*** (0.006)
Province **1. Punjab(Ref)** **2. Sindh** **3. Others**	**2:** 0.065*** (0.006) **3:** -0.108*** (0.005)	**2:** 0.063*** (0.006) **3:** -0.109*** (0.005)
Language **1. Urdu(Ref)** **2. Punjabi** **3. Sindhi**	**2:** -0.050*** (0.005) **3:** -0.078*** (0.007)	**2:** -0.048*** (0.005) **3:** -0.081*** (0.007)
Year of survey	-0.031*** (0.001)	-0.033*** (0.001)
Observations	76815	76815

Notes: Average marginal effects are reported. *, ** and *** indicates statistical level of significance at 10, 5 and 1 percent, respectively. We have used robust standard errors.

Table 5. Impact of partition convulsion among ethnicities in Punjab province

Dependent variable: Education Status				
	Baseline		Interaction with language	
	Partition cohort (1947-48)	Pre and Post Partition cohorts	Partition cohort (1947-48)	Pre and Post Partition cohorts
	[1]	[2]	[3]	[4]
Household head born before partition		-0.040*** (0.015)		-0.021 (0.024)
Household head born during partition	-0.084*** (0.013)		-0.084*** (0.021)	
Household head born after partition		0.100*** (0.013)		0.097*** (0.021)
Household consumption	**2:** 0.272*** (0.007)	**2:** 0.271*** (0.007)	**2:**0.272*** (0.007)	**2:**0.271*** (0.007)
	3: 0.329*** (0.007)	**3:** 0.325*** (0.007)	**3:**0.329*** (0.007)	**3:**0.325*** (0.007)
	4: 0.492*** (0.007)	**4:** 0.490*** (0.007)	**4:**0.492*** (0.007)	**4:**0.490*** (0.007)
Household size	-0.023*** (0.001)	-0.022*** (0.001)	-0.023*** (0.001)	-0.022*** (0.001)
Household head gender Male (Ref)	-0.215*** (0.009)	-0.215*** (0.009)	-0.215*** (0.009)	-0.216*** (0.009)
Language: Punjabi Urdu(Ref)	-0.052*** (0.005)	-0.050*** (0.005)	-0.052*** (0.005)	-0.051* (0.026)
Year of survey	-0.026*** (0.002)	-0.028*** (0.002)	-0.026*** (0.002)	-0.028*** (0.002)
Household head born before partition*Punjabi Language				-0.032 (0.031)
Household head born during partition*Punjabi Language			-0.000 (0.027)	
Household head born after partition*Punjabi Language				0.005 (0.027)
Observations	33351	33351	33351	33351

Notes: Average marginal effects are reported. *, ** and *** indicates statistical level of significance at 10, 5 and 1 percent respectively. We have used robust standard errors.

Table 6. Impact of partition convulsion among ethnicities in Sindh Province

Dependent variable: Education Status				
Results for :	**Baseline**		**Interaction with language**	
Cohorts	**Partition cohort (1947-48)**	**Pre and Post Partition cohorts**	**Partition cohort (1947-48)**	**Pre and Post Partition cohorts**
Explanatory Variables	**[1]**	**[2]**	**[3]**	**[4]**
Household head born before partition		-0.012 (0.021)		-0.036 (0.034)
Household head born during partition	-0.111*** (0.018)		-0.061** (0.029)	
Household head born after partition		0.123*** (0.018)		0.071** (0.029)
Household consumption	**2:** 0.211*** (0.009) **3:** 0.317*** (0.010) **4:** 0.505*** (0.009)	**2:** 0.211*** (0.009) **3:** 0.318*** (0.010) **4:** 0.506*** (0.009)	**2:** 0.211*** (0.009) **3:** 0.318*** (0.010) **4:** 0.505*** (0.009)	**2:** 0.211*** (0.009) **3:** 0.319*** (0.010) **4:** 0.507*** (0.009)
Household size	-0.020*** (0.001)	-0.020*** (0.001)	-0.020*** (0.001)	-0.020*** (0.001)
Household head gender Male (Ref)	-0.210*** (0.016)	-0.205*** (0.016)	-0.210*** (0.016)	-0.206*** (0.016)
Language: Sindhi Urdu(Ref)	-0.085*** (0.008)	-0.087*** (0.008)	-0.082*** (0.008)	-0.167*** (0.037)
Year of survey	-0.042*** (0.002)	-0.044*** (0.002)	-0.042*** (0.002)	-0.044*** (0.002)
Household head born before partition*Sindhi Language				0.040 (0.044)
Household head born during partition*Sindhi Language			-0.084** (0.037)	
Household head born after partition*Sindhi Language				0.085** (0.037)
Observations	19013	19013	19013	19013

Notes: Average marginal effects are reported. *, ** and *** indicates statistical level of significance at 10, 5 and 1 percent respectively. We have used robust standard errors.

Sindh and Punjab are very different from each other regarding language. The majority of migrants to Punjab were Punjabi speakers, while the majority of migrants to Sindh were Urdu speakers. And the (local) inhabitants of the Sindh province were globally Sindhi speakers. The migrants to Pakistan were more educated than the locals (Bharadwaj et al., 2009), if only due to the role of the British army as a formative institution (Swenden, 2017). Migrants to the Sindh settled in towns and took over the functions of the Hindus who departed from Sindh. It created a clear urban – rural divide. Almost 42 percent of the urban population from Sindh state Urdu as their mother language while just 2 percent state Urdu language as the mother language in rural areas (Pakistan Census, 1998).[8]

Summing up, the results signal, in general, a significant negative impact of partition on educational outcomes of the children of partition. However, in particular, children born during the partition, and who speak the Sindhi language at home, are most exposed to the negative impact of the partition, as they have a significantly lower probability of being educated. This first set of result tends to reveal Sindhi-speaking people as a minority overruled by the newly arriving people displaced by the partition process. In other words, the Sindhis have suffered relatively more from the partition, although the generations after the partition tend to have increased their educational effort. This confirms then that, in the assimilation process in the newly formed country, the fact of becoming a (smaller than historically) minority reinforces the effort to transmit the valued cultural trait. Data thus tends to support the theoretical Conjecture 1. The question is now to see if this reaction lasts over the next generations.

6.2. Grandchildren of Partition

Tables 7 and 8 successively display the results for the estimates related to the grandchildren's educational outcomes for each province. As above, logistic regressions are run, for which provide the average marginal effects.

In both provinces, the coefficient attached to the consumption variable indicates that an increase in declared consumption levels (by quartiles) results in a significantly higher probability of a grandchild's reaching the official reference in terms of level of schooling. Also, the household

[8] Of course, it would be preferable to know whether the respondent to the survey had been a migrant or resident (the people who did not migrated), but this information is not available. We have thus used the birth year as variable of interest and rely on the interactions to infer our interpretations from the estimated results.

size is negatively associated with a grandchild education. On the opposite, a higher level of education of any grandparent has a positive influence on the education of the grandchildren.

The differences between the two sets of estimates start with the impact of gender: a female grandchild has a significantly lower chance of being educated in Sindh province than in Punjab. This confirms results obtained by, e.g., Aslam and Kingdon (2008), and highlights the differences between the cultural traditions of the ethnic groups we consider.[9] A second difference appears when we look at the impact of language on education: in Sindh, people who speak Sindhi have on average a 10% lower chance to be educated than their Urdu peers (see table 8), while there is no significant difference in Punjab for Punjabis (see table 7). Moreover, in Sindh, having grandparents who were born during the partition period does not impact the educational level. Hence, among Sindhi-speaking people, the cultural disadvantage does not tend to be reduced over time. Nevertheless, the situation is different for Punjabi-speaking people in Punjab, compared to Urdu-speaking ones. In this province, having a grandparent who was born during the partition reduces education and, as can be seen by comparing the last two columns of table 7, this is only true for Punjabi-speaking grandchildren.

To sum up, everything happens as if, for the ethnic group who thought it would belong to the elite after the partition shock (Punjabis), the effort to educate is lower (in relative terms) than for the dominant group (Urdus). This validates Conjecture 2 for Punjabis. Things are different for the discriminated minority: for Sindhis, education tends to be lower on average, but the negative impact of the partition does not last (at least, it is no longer significant, compared to other determinants). At least, partition is no longer the main driving mechanism explaining the lower performance of Sindhis in Sindh, compared to Urdus. In theoretical terms, while for the first generation (children of partition), Conjecture 1 was verified for Sindhi people, the mechanism seems to vanish over time. In the terms of Sáez-Martí and Sjögren (2008), it appears that, while Punjabis tend to assimilate to the Urdu-speaking, Sindhis are maintaining the Pakistani "melting-pot" by defending their culture.

[9] Our results also reveal that one has to go deeper than country-level analyses to understand education and labor market gender-related gaps (Jayachandran, 2015).

Table 7. Impact of partition on the education of grandchildren - Punjab province

	Dependent variable: Educational Status			
Explanatory Variables	**(1)**	**(2)**	**(3)**	**(4)**
Household consumption	**2.** 0.083*** (0.028) **3.**0.082*** (0.029) **4.** 0.137*** (0.030)	**2.** 0.083*** (0.028) **3.** 0.082*** (0.029) **4.** 0.139*** (0.030)	**2.** 0.087*** (0.028) **3.** 0.084*** (0.029) **4.** 0.140*** (0.030)	**2.** 0.087*** (0.028) **3.** 0.084*** (0.029) **4.** 0.138*** (0.030)
Household size	-0.007*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.006*** (0.002)
Grandparent Education Non Educated = (Ref)	0.156*** (0.021)	0.154*** (0.021)	0.154*** (0.021)	0.155*** (0.021)
Gender of Grandchild Male = (Ref)	-0.031 (0.020)	-0.031 (0.020)	-0.029 (0.020)	-0.028 (0.019)
Year of survey	-0.015** (0.008)	-0.016** (0.008)	-0.016** (0.008)	-0.016** (0.008)
Language : Punjabi Urdu(Ref)		-0.017 (0.020)	-0.016 (0.020)	-0.001 (0.021)
Grandparent born during partition			-0.124*** (0.038)	-0.013 (0.055)
Grandparent born during partition*Punjabi language				-0.207*** (0.078)
Observations	2452	2452	2452	2452

Notes: Average marginal effects are reported. *, ** and *** indicates statistical level of significance at 10, 5 and 1 percent respectively. We have used robust standard errors.

Table 8. Impact of partition on the education of grandchildren - Sindh province

Dependent variable: Educational Status				
Explanatory Variables	**(1)**	**(2)**	**(3)**	**(4)**
Household consumption	**2.**0.128*** (0.036) **3.**0.156*** (0.038) **4.**0.237*** (0.044)	**2.**0.109*** (0.036) **3.**0.127*** (0.039) **4.**0.207*** (0.044)	**2.**0.109*** (0.036) **3.**0.129*** (0.039) **4.**0.209*** (0.044)	**2.**0.108*** (0.036) **3.**0.129*** (0.039) **4.**0.208*** (0.045)
Household size	-0.013*** (0.003)	-0.009*** (0.003)	-0.009*** (0.003)	-0.009*** (0.003)
Grandparent Education Non Educated = (Ref)	0.137*** (0.025)	0.128*** (0.025)	0.129*** (0.025)	0.129*** (0.025)
Gender of Grandchild Male = (Ref)	-0.126*** (0.026)	-0.130*** (0.026)	-0.129*** (0.026)	-0.130*** (0.026)
Year of survey	-0.027** (0.011)	-0.026** (0.011)	-0.027** (0.011)	-0.027** (0.011)
Language : Sindhi Urdu(Ref)		-0.099*** (0.029)	-0.100*** (0.029)	-0.104*** (0.031)
Grandparent born during partition			-0.038 (0.041)	-0.059 (0.069)
Grandparent born during partition*Sindhi language				0.033 (0.086)
Observations	1172	1172	1172	1172

Notes: Average marginal effects are reported. *, ** and *** indicates statistical level of significance at 10, 5 and 1 percent respectively. We have used robust standard errors.

7. Robustness checks

This section details several robustness checks, which are provided in the Appendix. First, since Pakistan's inception on the global map, there have been unsettled disputes between India and Pakistan, which resulted in several open wars (in 1945, 1965, 1971 and 1999). The second last one led to the emergence of a new country, Bangladesh. Hence, we introduce a dummy variable for the household heads who were born during the civil war of 1970-71, which led to the emergence of a new country, Bangladesh (formerly, it was part of Pakistan before this date). In other words, it can be termed as a second partition. As such, it could have the same impact on the people of Pakistan, although it can also be considered as occurring in a distant place, and as being less traumatic, at least for the people living in Punjab and Sindh. If anything, this event had in fact a positive impact on education levels, confirming its remoteness for the people living in both Punjab and Sindh.[10]

Second, we redefine the affected cohort by enlarging the children of partition cohort from 1947-48 to 1946-48, to consider potential prenatal affects as well (in the spirit of, e.g., Almond, 2006). If a household head is born during the 1946-48 period, then it is termed as partition cohort or children of partition, in order to make comparison with the pre- and post-partition cohorts. The results are qualitatively similar to the previous ones, which corroborates our findings.

Third, and for what concerns grandchildren, we have redefined our definition of the schooling level by considering an alternative measure, namely the percentage of children who have attended school (without necessarily reaching the 8 years of education level). Here again, the results are qualitatively the same, substantiating our findings for the grandchildren of partition.

8. Conclusion

This study measures the impact of the British-Indian partition on educational outcomes, using survey data collected by the Pakistan Bureau of statistics. The partition created one of the biggest migration movement in human history, concerning almost 18 million people. By analyzing the areas affected by the partition shock, we develop the hypothesis that households' heads born during that period and living in the provinces that are close to the Indian border have

[10] For space limitations, we do not provide these estimates, but full results are of course available upon request.

a higher probability to be influenced by the shock of partition. We find that the exposure to the shock in the affected areas (namely, the provinces of Sindh and Punjab) results in stronger long-term impacts on the education level of their residents. We find lower schooling outcomes for the children who were born during the partition period. Moreover, children of partition speaking the Sindhi language have an even lower probability of being educated.

Also, grandchildren whose grandparents were born during the partition have a lower probability of schooling, as compared with individuals whose grandparent from the surrounding cohorts (pre- and post-partition periods). Furthermore, grandchildren whose grandparent were born during the partition and who speak Punjabi are the relatively most affected ones, with a lower probability of being educated, relatively to Urdu-speaking people in Punjab. Our results thus validate the intergenerational persistence of educational gaps from the British Raj to contemporary Pakistan.

One important delimitation of this study is that, due non-availability of data, we only explored the impact of partition on an extensive measure of education (years of schooling), and not an intensive measure (quality of education). Undoubtedly, the quality of education is an dimension whose importance is more and more acknowledged. We leave as an avenue for further research the possibility that reaching different qualities of educational goods is also split across ethnic backgrounds.

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Appendix: Tables for robustness checks

Table A1: Introducing civil war dummy in case of Punjab province

Dependent Variable: Education Status		
Cohorts	**Partition cohort (1947-48)**	**Pre and Post Partition cohorts**
Reported coefficient type	**Average Marginal Effects**	**Average Marginal Effects**
Explanatory Variables	**[1]**	**[2]**
Household head born before partition		-0.041*** (0.015)
Household head born during partition	-0.081*** (0.013)	
Household head born after partition		0.098*** (0.013)
Household consumption	**2:** 0.272*** (0.007) **3:** 0.329*** (0.007) **4:** 0.492*** (0.007)	**2:** 0.271*** (0.007) **3:** 0.325*** (0.007) **4:** 0.491*** (0.007)
Household size	-0.023*** (0.001)	-0.022*** (0.001)
Household head gender **Male (Ref)**	-0.215*** (0.009)	-0.215*** (0.009)
Language: Punjabi **Urdu(Ref)**	-0.052*** (0.005)	-0.050*** (0.005)
Year of survey	-0.026*** (0.002)	-0.028*** (0.002)
Household head born during civil war (1971-72)	0.052*** (0.011)	0.035*** (0.011)
Observations	33351	33351

Table A2: Introducing civil war dummy in case of Sindh dummy

Dependent variable: Education Status		
Cohorts	**Partition cohort (1947-48)**	**Pre and Post Partition cohorts**
Reported coefficient type	**Average Marginal Effects**	**Average Marginal Effects**
Explanatory Variables	**[1]**	**[2]**
Household head born before partition		-0.012
		(0.021)
Household head born during partition	-0.107***	
	(0.018)	
Household head born after partition		0.119***
		(0.018)
Household consumption	**2:** 0.210***	**2:** 0.211***
	(0.009)	(0.009)
	3: 0.317***	**3:** 0.318***
	(0.010)	(0.010)
	4: 0.505***	**4:** 0.506***
	(0.009)	(0.009)
Household size	-0.020***	-0.020***
	(0.001)	(0.001)
Household head gender **Male (Ref)**	-0.209***	-0.205***
	(0.016)	(0.016)
Language: Sindhi **Urdu(Ref)**	-0.086***	-0.087***
	(0.008)	(0.008)
Year of survey	-0.042***	-0.044***
	(0.003)	(0.002)
Household head born during civil war (1971-72)	0.062***	0.051***
	(0.013)	(0.013)
Observations	19013	19013

Table A3: Redefining the partition cohort for Punjab Province

Dependent variable: Education Status		
Cohorts	**Partition cohort (1946-48)**	**Pre and Post Partition cohorts**
Reported coefficient type	**Average Marginal Effects**	**Average Marginal Effects**
Explanatory Variables	**[1]**	**[2]**
Household head born before partition		-0.025 (0.022)
Household head born during partition	-0.083*** (0.019)	
Household head born after partition		0.095*** (0.019)
Household consumption	**2:** 0.272*** (0.007) **3:** 0.329*** (0.007) **4:** 0.492*** (0.007)	**2:** 0.271*** (0.007) **3:** 0.325*** (0.007) **4:** 0.490*** (0.007)
Household size	-0.023*** (0.001)	-0.022*** (0.001)
Household head gender **Male (Ref)**	-0.215*** (0.009)	-0.216*** (0.009)
Language: Punjabi **Urdu(Ref)**	-0.052*** (0.005)	-0.047* (0.024)
Year of survey	-0.026*** (0.002)	-0.028*** (0.002)
Household head born before partition*Punjabi Language		-0.041 (0.029)
Household head born during partition*Punjabi Language	0.005 (0.025)	
Household head born after partition*Punjabi Language		0.001 (0.025)
Observations	33351	33351

Table A4: Redefining the partition cohort for Sindh Province

Dependent variable: Education Status		
Cohorts	**Partition cohort (1946-48)**	**Pre and Post Partition cohorts**
Reported coefficient type	**Average Marginal Effects**	**Average Marginal Effects**
Explanatory Variables	**[1]**	**[2]**
Household head born before partition		-0.064* (0.033)
Household head born during partition	-0.044 (0.028)	
Household head born after partition		0.055** (0.028)
Household consumption	**2:** 0.211*** (0.009) **3:** 0.318*** (0.010) **4:** 0.505*** (0.009)	**2:** 0.211*** (0.009) **3:** 0.319*** (0.010) **4:** 0.507*** (0.009)
Household size	-0.020*** (0.001)	-0.020*** (0.001)
Household head gender **Male (Ref)**	-0.210*** (0.016)	-0.206*** (0.016)
Language: Sindhi **Urdu(Ref)**	-0.082*** (0.008)	-0.171*** (0.036)
Year of survey	-0.042*** (0.002)	-0.044*** (0.002)
Household head born before partition*Sindhi Language		0.048 (0.044)
Household head born during partition*Sindhi Language	-0.088** (0.036)	
Household head born after partition*Sindhi Language		0.089** (0.036)
Observations	19013	19013

Table A5. Grandchildren of Partition in Punjab province: Alternative definition of grandchildren education

Dependent variable: Out of school children				
Estimation Method	**Logistic Regression**	**Logistic Regression**	**Logistic Regression**	**Logistic Regression**
Reported Coefficients Type	**Average Marginal Effects**	**Average Marginal Effects**	**Average Marginal Effects**	**Average Marginal Effects**
Explanatory Variables	**(1)**	**(2)**	**(3)**	**(4)**
Household consumption	**2.**0.100*** (0.012) **3.**0.117*** (0.012) **4.**0.151*** (0.012)	**2.**0.097*** (0.012) **3.**0.113*** (0.012) **4.**0.145*** (0.012)	**2.**0.097*** (0.012) **3.**0.113*** (0.012) **4.**0.145*** (0.012)	**2.**0.099*** (0.012) **3.**0.114*** (0.012) **4.**0.146*** (0.012)
Household size	-0.004*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)	-0.003*** (0.001)
Grandparent Education Non Educated = (Ref)	0.104*** (0.007)	0.109*** (0.007)	0.109*** (0.007)	0.109*** (0.007)
Gender of Grandchild Male = (Ref)	-0.031*** (0.007)	-0.032*** (0.007)	-0.032*** (0.007)	-0.032*** (0.007)
Year of survey	-0.010*** (0.003)	-0.008*** (0.003)	-0.008*** (0.003)	-0.008*** (0.003)
Language : Punjabi Urdu(Ref)		0.056*** (0.007)	0.057*** (0.007)	0.062*** (0.008)
Grandparent born during partition			-0.006 (0.012)	0.026 (0.019)
Grandparent born during partition*Punjabi language				-0.057** (0.024)
Observations	8137	8137	8137	8137

Table A6: Grandchildren of Partition in Sindh province: Alternative definition of grandchildren education

Dependent variable: Out of school children				
Estimation Method	**Logistic Regression**	**Logistic Regression**	**Logistic Regression**	**Logistic Regression**
Reported Coefficients Type	**Average Marginal Effects**	**Average Marginal Effects**	**Average Marginal Effects**	**Average Marginal Effects**
Explanatory Variables	**(1)**	**(2)**	**(3)**	**(4)**
Household consumption	**2.**0.146*** (0.019) **3**.0.200*** (0.020) **4**.0.321*** (0.020)	**2.**0.127*** (0.019) **3.**0.165*** (0.020) **4.**0.278*** (0.022)	**2.**0.127*** (0.019) **3.**0.166*** (0.020) **4.**0.277*** (0.022)	**2.**0.127*** (0.019) **3.**0.166*** (0.020) **4.**0.278*** (0.022)
Household size	-0.011*** (0.001)	-0.008*** (0.001)	-0.008*** (0.001)	-0.008*** (0.001)
Grandparent Education Non Educated = (Ref)	0.201*** (0.014)	0.185*** (0.014)	0.185*** (0.014)	0.185*** (0.014)
Gender of Grandchild Male = (Ref)	-0.126*** (0.014)	-0.128*** (0.013)	-0.128*** (0.013)	-0.128*** (0.013)
Year of survey	-0.036*** (0.006)	-0.032*** (0.005)	-0.032*** (0.005)	-0.032*** (0.005)
Language : Sindhi Urdu(Ref)		-0.142*** (0.017)	-0.143*** (0.017)	-0.140*** (0.018)
Grandparent born during partition			-0.024 (0.021)	-0.001 (0.047)
Grandparent born during partition*Sindhi language				-0.028 (0.053)
Observations	4361	4361	4361	4361

Notes:*, ** and *** indicates statistical level of significance at 10, 5 and 1 percent respectively. We have clustered standard errors at household level.