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FORCED DISPLACEMENT AND HUMAN CAPITAL:
EVIDENCE FROM SEPARATED SIBLINGS

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ABSTRACT

We examine the impact of conflict-driven displacement on human capital. We focus on the Mozambican civil war (1977–1992), during which more than four million civilians fled to the countryside, cities, and refugee camps and settlements in neighboring countries. We leverage the full post-war census to compare siblings separated during the war, using those who stayed behind as a counterfactual to one’s displacement path. Uprooted children register higher investments in education. Second, we quantify the relative importance of place-based and displacement effects. The latter increases education and decreases attachment to agriculture by the same rate as being exposed to an environment approximately one standard deviation more developed than one’s birthplace. Third, we conduct a survey in Nampula, whose population doubled during the civil war. Those who fled to the city have significantly higher education than their siblings who remained in the countryside and they converged to the levels of schooling of non-mover urban-born individuals. However, those displaced exhibit significantly lower social/civic capital and have worse mental health, even three decades after the war. These findings reveal that displacement shocks can trigger human capital investments, breaking links with subsistence agriculture, but at the cost of long-lasting, social, and psychological traumas.

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A data appendix is available at <http://www.nber.org/data-appendix/w29589>

1 Introduction

At the end of 2020, more than 82 million people had been forcibly displaced from their homes. Protracted conflict in Syria, Yemen, Libya, Afghanistan, and civil violence in Myanmar and Venezuela have contributed to a doubling of this figure since 1990. One person becomes displaced every three seconds (UNHCR 2020); just in 2020 about 11 million were forced to flee. With worsening conflict in many parts of the world, the number of displaced seeking shelter across the developing world is expected to rise, particularly in Africa. Besides the lasting conflicts in Congo, Sudan, and the Sahel, there is an escalation of violence in the Tigray region in Ethiopia and in Northern Mozambique.

Forced displacement can take many forms. The most common (about 60%, 48 million in 2020) is internal displacement (IDPs) to either rural or urban areas. The remaining share (40%) corresponds to individuals fleeing to neighboring countries and residing in UN-managed camps or in informal settlements. Yet, despite the increasing salience of this phenomenon, there is limited empirical evidence on its short and long-term impacts. Often constrained by detailed but small surveys, the literature (discussed below) usually studies a single type of displacement. Moreover, most case studies zoom into advanced economies, even though 85% of those displaced live in the developing world.¹ There are also formidable challenges to identification: conflict is not random and several household and locality characteristics may shape both displacement and economic choices.

This paper advances on these issues by examining the impact of displacement on schooling and sectoral employment in the context of one of the most devastating post-WWII civil wars: the displacement of about a third of Mozambique's population during a protracted civil war (1977-1992). During this period, at least seven hundred thousand Mozambicans sought shelter in camps managed by the United Nations High Commission for Refugees (UNHCR 1998) in Zimbabwe and in Malawi. Thousands more fled to Zambia, Swaziland, and Tanzania, settling in villages and in informal settlements. However, similar to conflicts today, the majority were internally displaced. Roughly 1.8 million rural-born sought protection across Mozambique's

¹The UN estimates that 36 of the most fragile countries in the world account for less than 3% of global GDP but host over a third of the world's forcibly displaced.

vast countryside and its few urban centers, while about 700,000 urban-born were reshuffled across other towns. The government’s villagization and food production policies moved about 50,000 city-dwellers to the countryside during the war period.

The impact of forced displacement on human capital is ambiguous. On the one hand, disruption magnified by insecurity and poverty, may force children out of school. On the other hand, displacement may spur human capital investments, as it represents a mobile asset that cannot be expropriated. This idea goes back to [Stigler and Becker \(1977\)](#), who credit Reuben Kessel and earlier scholars on the *uprootedness hypothesis* (see [Becker et al., 2020](#)). Many have argued, for example, that the expulsions of Jews were instrumental in fostering human capital (see [Botticini and Eckstein, 2012](#)). Nevertheless, the destination is likely to have first-order effects. Fleeing to areas with more opportunities may incentivize educational investments, while displacement into poorer, more violent districts may nullify (exacerbate) any positive (negative) uprootedness effects. While there is growing evidence on the impact of regions and neighborhoods, empirical studies focus on movements during peaceful times, rather than conflict-driven displacement (e.g., [Chetty and Hendren, 2018a,b](#); [Nakamura et al., 2021](#)).

1.1 Results Preview

We reconstruct the movements of the full Mozambican population (about 12 million) during the civil war to study the consequences of multiple displacement trajectories in a single setting. Our analysis proceeds in four steps. First, we present correlational evidence linking the displacement paths of more than four million Mozambicans to schooling during the civil war and sectoral employment five years after its end. Compared to rural non-displaced from the same district, IDPs completed higher levels of schooling, particularly those who fled to cities and towns. In contrast, those who flee to rural areas experience smaller gains in schooling relative to those staying behind. The analysis for the urban-born mirrors these patterns. Urban dwellers forcibly displaced to the countryside are less educated than those staying or moving into other cities. Educational gains move in tandem with a shift out of agriculture into services, suggesting that conflict-driven human capital accumulation might spur structural transformation (see [Porzio et al., 2020](#)).

Second, to tighten identification we focus on families with siblings separated from each other during the war. Comparing brothers and sisters with different trajectories accounts for household characteristics, related to exposure to violence, aspirations and preferences for education, religious and ethnic background, among others. Looking at split siblings is important in itself, as it is a devastating though defining feature of contemporary conflicts (Gluck and Alalem, 2020). Displaced into cities and towns have a higher propensity to attend school and work in services, compared to their brothers and sisters who stayed behind. Even displacement to other rural areas, often destitute, increases schooling, albeit to a lesser extent. The within-family estimates are smaller in magnitude than the cross-sectional ones, suggesting that sorting is present, even in a fairly unpredictable civil war.

Third, we measure uprootedness and place-based effects in a single framework. To capture place effects we exploit origin-destination differences in development (stock of human capital, population density, school availability) and conflict intensity (battles, landmines). Both forces are at play. Individuals displaced into worse (better) places lose (gain) compared to their staying-behind siblings. At the same time, IDPs to areas comparable to their birthplace are significantly more likely to attend school and shift into services after the war. The uprootedness effect is sizeable and comparable to moving to a district that is roughly one standard deviation more developed than one's birth district.

Fourth, we report on a self-administrated survey of 208 residents of Nampula, Mozambique's most populous Northern city, whose population surged during the war. In line with the short-run Census-based patterns, three decades after the war, IDPs in Nampula have significantly higher education compared to their siblings in the countryside. IDPs' education is similar to those born and raised in the city, despite large urban-rural educational gaps at the time and today. However, IDPs report much lower social capital, civicness, and community trust than urban-born never displaced. Moreover, IDPs score significantly worse on mental health and appear more pessimistic than urban-born respondents. This survey highlights both the upside and the considerable long-run social and psychological downsides of forced displacement.

1.2 Related Literature

Our paper is part of the literature examining the economic impact of refugee flows. This work has overwhelmingly looked at resettlement in advanced economies (e.g., [Friedberg, 2001](#); [Borjas, 2003](#); [Borjas and Monras, 2017](#); [Foged and Peri, 2016](#)) or at historical episodes, such as the relocation of Germans after WWII ([Peters, 2019](#)), Poles resettlement from the East to the West in 1945 ([Becker and Ferrara, 2019](#)), and the population exchange between Turkey and Greece in the mid 1920s ([Benos et al., 2021](#)).² Our contribution to this research agenda is sixfold. First, we focus on a low-income environment, comparable to contemporary civil war settings. Second, we provide a comprehensive account of population movements’ impact during conflict using the universe of the Mozambican population, against a literature that mostly works with surveys and small samples.³ Third, the Mozambican civil war allows us to study different experiences in a unified framework, understanding their relative impact on human capital investments and occupational choices, against a literature that invariably looks at a single trajectory.⁴ Fourth, we sharpen identification comparing about 135,000 siblings (from 45,000 families) with different displacements. Fifth, we estimate in a single framework both exposure and uprootedness effects, quantifying their relative importance. Sixth, we document the long-term consequences of forced displacement: the lasting positive impact on education, but also chief downsides, worse mental health and social disengagement.

Our paper connects to a broader literature on civil wars (see [Blattman and Miguel, 2010](#), for a survey). The impact of conflict on human capital is not well-understood as some studies document a negative correlation (e.g., [Saing and Kazianga, 2020](#); [Chamarbagwala and Morán, 2011](#); [Fergusson et al., 2020](#)), while others a positive one ([Chen et al., 2007](#)). We uncover a link between displacement, human capital, and a shift out of (subsistence) agriculture, as a potential mechanism of post-conflict recovery that appears heterogeneous. Our focus on a specific aspect of civil wars also relates to studies “unbundling” conflict, looking, for example,

²See [Becker and Ferrara \(2019\)](#); [Verme and Schuettler \(2021\)](#); and [Devictor et al. \(2020\)](#) for reviews.

³[Verwimp et al. \(2020\)](#), for example, analyze data from 4,523 Burundian women to examine the impact of conflict-induced displacement on fertility.

⁴[Sieverding et al. \(2018\)](#) look at educational enrollments of Syrian refugees in Jordan. [Fransen et al. \(2018\)](#) compare the education of externally displaced Burundians to locals after their return. [Ginn \(2020\)](#) compares Syrian refugees in Jordan, Iraq and Lebanon.

at child-soldiering (Blattman and Annan, 2010), landmines (e.g., Chiovelli et al., 2019), and bombardment (Miguel and Roland, 2011; Dell and Querubin, 2018; Riaño and Valencia, 2020).

Our paper relates to research trying to isolate the causal impact of places from spatial sorting (Chetty and Hendren, 2018a,b; Bazzi et al., 2019; Alesina et al., 2021a). Rather than looking at internal migration in peaceful times, we look at conflict-induced displacement, bringing two new results. First, exposure matters for human capital accumulation, even in poverty-stricken settings. Second, individuals who are forcibly displaced invest more in human capital, above and beyond any exposure effects, revealing the upside of disruption.

Structure. Section 2, discusses forced population movements during the war. Section 3 presents correlational evidence in the full census linking educational investments and sectoral employment to the different displacement trajectories. Section 4 reports the within-family estimates. Section 5 isolates exposure and uprootedness effects, comparing siblings with different displacement paths. Section 6 presents the survey results. Section 7 concludes.

2 Historical Background and Data

2.1 Civil War

Mozambique gained independence from Portugal in 1974, after a decade-long war that ended with the rise to power of Mozambique’s Liberation Front (FRELIMO). FRELIMO provided shelter to the African National Congress and the Zimbabwean African National Union that fought the apartheid regimes in South Africa and Rhodesia, respectively. In response, the Rhodesian Secret Service backed the Mozambican National Resistance (RENAMO), an initially small rebel group, to destabilize the country.

In the first phase of the war (1977 – 1980), RENAMO attacked military bases and infrastructure in central provinces, close to the Zimbabwean border. The conflict took a violent turn in 1980, when South Africa took over RENAMO’s patron role after the fall of Ian Smith’s regime in Rhodesia. In the second phase (1980 – 1986), the war spread throughout Mozambique, as RENAMO’s operational capacity improved. With efforts to bring South Africa and Mozambique closer failing, the war entered its third phase (1986 – 1990) marked by REN-

AMO’s “terror” against civilians. Village burning, killings, child soldiering raids, and looting became widespread ([Gersony, 1988](#)) and the (limited) state apparatus collapsed. In the fourth phase (1990 – 1992), FRELIMO introduced a new constitution safeguarding civil and political rights, which together with South Africa’s shift away from supporting RENAMO led to the end of the war, with the signing of the Rome Treaty in October of 1992. At the end of the war, Mozambique was the second poorest country in the world with more than 85% engaged in (subsistence) agriculture and more than 60% of its population illiterate ([World Bank, 2020](#)).

2.2 Displacement

Population reshuffling was a defining feature of the conflict. Civilians fled to neighboring countries, mostly Malawi and Zimbabwe, to other rural areas, and to cities. The UN led an unprecedented repatriation assisting millions to return home between 1992 and 1994.

Our primary data source is the Mozambican decennial Census of 1997, the first post-war and effectively the first post-independence, as the the 1980 Census only recorded population counts. This Census allows us to reconstruct the displacement trajectories of the universe of the surviving population. Specifically, it provides information on an individual’s location during three key points in time: place of birth (at the admin-2 level, 216 districts); residence in 1992 prior to the end of the war (also at the district level); and residence in 1997 (at the admin-4 level, 1,187 localities). With this information, we reconstruct the movements for the universe of 12 million individuals five years and older in 1997.⁵

[Table 1](#) reports the number and share of displaced, by trajectory, distinguishing between urban and rural born.⁶ Besides the full population figures, columns (3) and (4) report the distribution for 5,625,327 Mozambicans between 12 and 32 years of age in 1997, whose primary schooling decisions were made during the civil war. [Appendix B](#) provides further evidence, summary statistics, and descriptive statistics.

⁵We also drop 768,784 individuals with missing information of residence in either 1997, or 1992, or at birth.

⁶The National Institute of Statistics classifies as urban 23 cities and 68 towns with median populations in 1980 of 56,718 and 7,740, respectively.

Table 1: Refugees, Internally Displaced, and Non-Movers

	Full Sample (5+)		Sample (12-32)	
	Observations (1)	Proportion (2)	Observations (3)	Proportion (4)
Refugees	783,105	0.07	363,542	0.06
Born Abroad	182,217	0.23	53,616	0.15
Refugee, Rural	537,323	0.69	275,393	0.76
Refugee, Urban	63,565	0.08	34,533	0.09
Internally Displaced	2,470,986	0.21	1,193,207	0.21
Internally Displaced, Rural	1,785,338	0.72	852,808	0.71
Internally Displaced, Urban	685,648	0.28	340,399	0.29
Non Displaced	8,730,392	0.73	4,068,578	0.72
Non Movers, Rural	6,614,035	0.76	3,012,113	0.74
Non Movers, Urban	2,116,357	0.24	1,056,465	0.26
Total	11,984,483		5,625,327	

Notes: The table shows the number and share of refugees (externally displaced), internally displaced, and non-displaced individuals as recorded in the 1997 Census. In each category, we distinguish between individuals born in rural districts and urban localities, using the Census classification. Columns (1)-(2) provide tabulations for individuals aged 5 and older (full sample), while columns (3)-(4) show the statistics for individuals aged 12-32 in 1997.

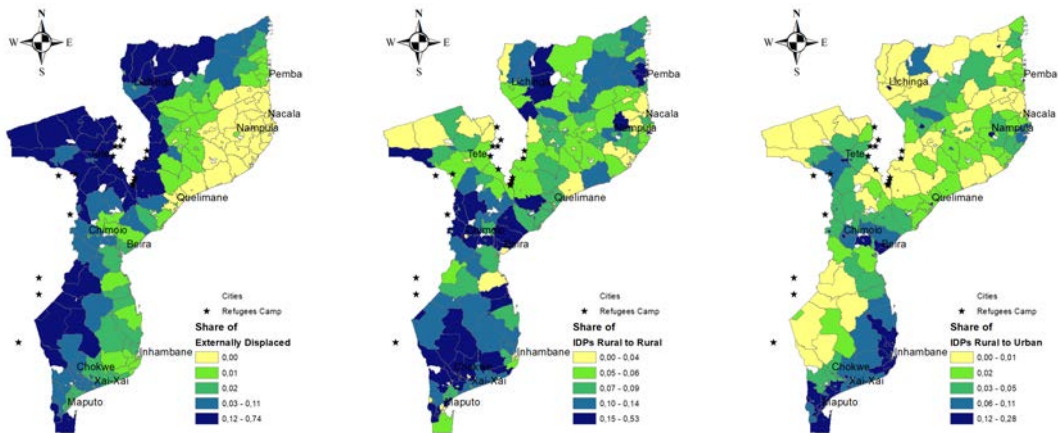
2.2.1 Non-Displaced

“Non-Movers” denote Mozambicans residing at the end of the civil war (in 1992) in their district of birth. Roughly 2.1 million urban-born are non-movers (half in the 12 – 32 sample) and close to 6.6 million rural-born (3 million aged 12 – 32). [The Census does track the timing of the displacement nor temporary moves. Moreover, we cannot track within-district movements.]

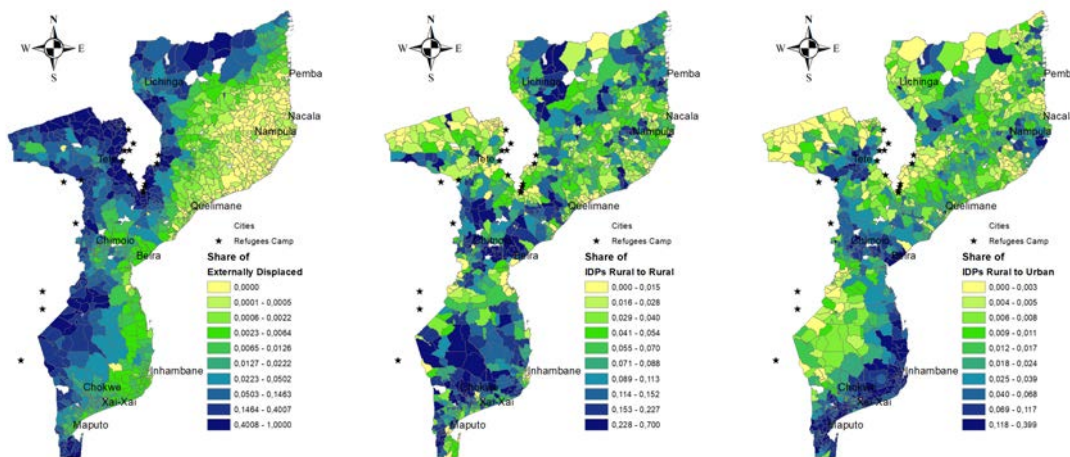
2.2.2 External Displacement

Close to 600,000 civilians were externally displaced during the war and 180,000 were born abroad. Over 550,000 resided in Malawi in 1992 and about 125,000 in Zimbabwe; with 60,000 Mozambicans found in Tanzania, Zambia, and Swaziland, alongside local communities at the end of the war. About 50,000 refugees were in South Africa ([Table B.1.](#)) The Census does not record whether people settled in a camp. But, almost all Mozambicans in Zimbabwe settled in five UNHCR camps. In Tanzania, Zambia, and Swaziland, Mozambicans moved into villages and informal settlements. In Malawi, refugees settled in twelve UN-run camps and in small towns.⁷ Refugee flows accelerated in the mid 1980s, during RENAMO’s terror.

⁷The country-specific numbers roughly coincide with UN estimates (UNHCR 1992). The Census misses about 15% who stayed in the country of displacement; those returning before 1992; temporary moves; and returning refugees deceased before 1997.



Panel A: Forced Displacement by District of Birth
 Refugees IDPs Rural → Rural IDPs Rural → Urban



Panel B: Forced Displacement by Residence Locality in 1997
 Refugees IDPs Rural → Rural IDPs Rural → Urban

Figure 1: The figures plot the spatial distribution of the share of rural-born displaced Mozambicans across 216 birthplace districts and 1,197 residence localities, as recorded in the 1997 Census. There are three displacement categories: (i) Externally displaced (refugees) residing or born in a neighboring country in the end of the war (1992). (ii) Internally displaced people found at the end of the war (1992) in a town or city. (iii) Internally displaced people (IDPs) residing in 1992 in another than their birthplace rural district. [Table 1](#) provides the totals for each trajectory.

Figure 1, panels (A)-(B) plot the share of externally displaced across birth districts (admin-2) and residence localities in 1997 (admin-4). It was mostly civilians born in border areas who fled the country. Refugees did not have the right to work and given the scarcity of employment opportunities, they largely depended on UN transfers. The UNHCR funded schools, both in areas with a large number of refugees and in camps (Azevedo, 2002, p. 47). Refugees lacked “any psychological assistance, beyond basic medical care (...)” (Brennan, 1986).

Azevedo (2002, p. 70) estimates that *at least 43% of refugees had nothing to do in the camp, 12% were drunk, 19% engaged in some farming activity, 6% spent time cutting wood and selling it and 8% traded items inside and outside the camp as a daily occupation.* Most refugees returned to their place of birth (over 85%) after the war (UNHCR 1994).

2.2.3 Internal Displacement

Given the considerable heterogeneity in internal displacement, we classify the 2.5 million IDPs by birth origin and displacement destination (Table B.2 provides details).

Rural to Urban Displacement: During the civil war, small and big towns experienced a significant inflow of IDPs. Half of the rural-born IDPs (about 900,000) sought protection in urban centers. Maputo-Matola, Beira, and Nampula, the three largest (coastal) cities, received close to half a million IDPs. 190,000 (21%) rural-born moved to ten smaller cities and towns (Chimoio, Nacala-Porto, Quelimane, Tete, Xai-Xai, Maxixe, Lichinga, Pemba, Dondo, and Angoche) and 200,000 (22%) moved to 81 smaller towns. Urban households grew, as many accommodated displaced relatives.⁸ Living conditions in the cities were challenging, with food shortages and insecurity. However, schools and hospitals were functional. Figure 1 illustrates the spatial distribution of rural to urban displacement. It was mostly those born close to the cities on the coast who managed to reach them. The mean share of individuals ending in cities/towns is small (4%), as the fragmented transportation network, contaminated by landmines, and rebel attacks made it hard to reach the coastal cities.

Rural to Rural Displacement: About 900,000 rural-born Mozambicans resided in a rural area other than their birth region during the war. Such rural-to-rural movement is uncommon during peaceful times. Internal rural-to-rural displacement was widespread as the civil war hotspots changed and civilians tried to adapt to the constantly changing circumstances. Besides, RENAMO forcibly moved peasants into forced labor villages in controlled territories to produce food and carry goods [see Appendix A].

Urban to Rural Displacement The Census records a non-negligible movement of about 186,000 people from urban places to the countryside. First, FRELIMO's villagization

⁸By 1991, the average urban household comprised 5.7 persons, compared to 4.4 in the countryside.

scheme pushed some urban dwellers into communal villages, as one of the program’s objectives was to populate areas that could fall to RENAMO. Second, in the mid-1980s, FRELIMO relocated urban-dwellers to the countryside to boost food production.

Urban to Urban Displacement: The census reveals the urban to urban movement of half a million IDPs. Two-thirds reflect movements into the largest cities (Maputo, Beira and Nampula) from smaller, often-attacked by RENAMO, towns in the interior.

Post-War Repatriation: In 1992, UNHCR initiated one of its largest repatriation efforts. Rates of return by 1997 ranged from 5% for those who had moved from an urban area to another urban area, to 27% for rural-born dislocated to another rural district. Rates of return for rural to urban moves were about 12%. [Table B.3](#) provides details on repatriation patterns by birth district, residence in 1992, and in 1997.

2.3 Data

The Mozambican decennial Census of 1997 provides information on our key outcomes: educational attainment and sectoral employment. The Census also provides individual and family-level characteristics, like gender, age, household size and offspring mortality.

We combine the 1997 Census with additional data. First, we digitized archival railroad and road maps in 1973, just before independence. Second, we processed and geo-coded data from the Ministry of Education on the location of primary schools from 1963 until 1992. Third, we digitized maps of colonial trade hubs – *cantinas* that alongside population density we use to proxy local development (Portuguese Colonial Yearbooks, 1965). Fourth, we extend the Uppsala Conflict Data Program Georeferenced Event Dataset (UDCP-GED) that covers 1989–1992 with information on the main civil war battles from [Domingues \(2011\)](#), [Robinson \(2006\)](#), and [Weinstein \(2002\)](#). Fifth, as an alternative conflict proxy, we use the extent of landmine and unexploded ordinance contamination from [Chiovelli et al. \(2019\)](#).

2.4 Drivers of Displacement

While our focus is on the implications of the various forced displacement trajectories, we also explored its drivers as this helps gauge the type of selection that underpins population

movements. We run linear probability (and multinomial logit) models linking displacement (types) to regional and family characteristics for rural and urban born. The results, reported in [subsection B.4](#), reveal the importance of conflict; in contrast, differences in development are uncorrelated with displacement. [Figure 1\(a\)-\(f\)](#) illustrate geography’s role: distance to the border is the most significant correlate of external displacement, while distance to cities correlates with displacement to urban centers. However, the economic significance of the prediction models are low. Warfare and location explain a tiny portion of the variation in displacement, as the civil war entailed many idiosyncratic features and unpredictable dynamics.

3 Correlational Evidence

This section reports correlational evidence linking education and sectoral employment to different displacement patterns across the full population.

3.1 Specification

Given the considerable differences between rural and urban born, we run separate specifications for the two groups. To isolate educational investments during the civil war (1977 – 1992), we focus on Mozambicans aged 12 to 32 in 1997.

$$Y_{il} = \alpha + \beta_1 EDP_{il} + \beta_2 IDP(R - U)_{il} + \beta_3 IDP(R - R)_{il} + \nu X_i + \mu_l + \epsilon_{il} \quad (1a)$$

$$Y_{il} = \alpha + \beta_4 IDP(U - R)_{il} + \beta_5 IDP(U - U)_{il} + \nu X_i + \mu_l + \epsilon_{il} \quad (1b)$$

Y_{il} denotes education and employment sector for individual i , born in locality l . EDP identifies those who are externally displaced or born in a neighboring country. $IDP(R - U)_{il}$ corresponds to rural-born displaced to an urban district. $IDP(R - R)_{il}$ equals one for rural born, who at the end of the war resided in another rural district. $IDP(U - R)_{il}$ and $IDP(U - U)_{il}$ denotes urban-born displaced to a rural or to another urban district, respectively. X_i reflects individual controls, gender and age dummies. Birthplace fixed effects, μ_l , absorb differences in the socioeconomic environment in the region of birth. Standard errors are double clustered at

the district of birth and residence in 1992, to accounts for spatial correlation.⁹

3.2 Results

Table 2 reports LS estimates for rural born in Panel A and urban born in Panel B. Columns (1)-(2) and (3)-(4) report OLS estimates on the association between the different displacement trajectories and the probability of completing at least one year of primary school and years of schooling, respectively.¹⁰ Columns (5)-(8) give linear probability model (LPM) estimates looking at agriculture and service employment, respectively.¹¹ Odd-numbered columns provide a test of means across displacement paths (as there are no controls), while even-numbered columns condition on gender, age, and birth-district fixed effects.

3.2.1 Rural Born [Panel A]

The estimates on the externally displaced are close to zero, revealing that refugees' educational outcomes are quite similar to that of non-movers, the omitted category. Once we condition on age, gender, and birthplace the estimates are nil. In contrast, IDPs from the countryside to cities/towns have, on average, higher human capital, when compared to non-movers of the same age, gender, and birth district. The difference in primary school attainment is considerable, 24 – 30 percentage points (pps), which is significantly larger than the mean value of non-movers, 13pps. Rural-born IDPs to cities have a 1.7 – 2.0 extra years of schooling, against a non-movers baseline of 0.7 years. Rural-born IDPs to another rural district also have more schooling compared to non-movers from the same birth district: the propensity to attend at least one year of school is 7pps higher and IDPs an extra half year of extra schooling by 1997.

In columns (5)-(8) we explore whether the various displacement paths correlate with a shift out of agriculture towards services. On the one hand, displacement may facilitate occupational shift, as IDPs and refugees lost access to land. And there may be more opportunities in retail and other services in towns. On the other hand, the transition to services may have been

⁹Clustering at the admin-3 level or adjusting errors with Conley's method yields similar inference.

¹⁰As schooling years is highly nonlinear with many zeros, Table C.1 reports Negative Binomial ML and Poisson ML estimates. The implied magnitudes are similar to LS.

¹¹The drop in observations is due to missing information that may reflect underemployment and/or imperfectly recorded employment status.

challenging, as education levels were low, poverty was endemic, and Mozambicans had been working in agriculture for generations. The cross-sectional estimates reveal significant sectoral employment shifts for the internally displaced. IDPs into urban areas are more likely to work in services five years after the end of the war. The coefficient is sizable (34pps) and drops modestly with the introduction of controls (29pps). We also observe some modest sectoral employment shifts of 5 – 6pps for IDPs moving to another than their birthplace rural area. For refugees the sectoral employment patterns appear no different than those of rural non-movers from the same birth district.

Table 2: Forced Displacement, Schooling, and Employment - Cross-Sectional Estimates

	Schooling (Dummy)		Years of Schooling		Agriculture Employment		Service Sector Employment	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Born Rural								
Externally displaced	-0.020*** [0.004]	-0.003 [0.006]	-0.087*** [0.023]	-0.031 [0.044]	0.012*** [0.004]	-0.011 [0.007]	-0.006*** [0.002]	0.005 [0.004]
Intern. Displ. Rural → Urban	0.297*** [0.020]	0.243*** [0.016]	1.984*** [0.141]	1.677*** [0.116]	-0.396*** [0.038]	-0.327*** [0.027]	0.335*** [0.033]	0.289*** [0.025]
Intern. Displ. Rural → Rural	0.074*** [0.010]	0.069*** [0.013]	0.503*** [0.073]	0.471*** [0.089]	-0.071*** [0.010]	-0.056*** [0.012]	0.059*** [0.008]	0.048*** [0.010]
Mean Omitted	0.130	0.130	0.723	0.723	0.900	0.900	0.055	0.055
Observations	4,185,268	4,185,268	4,185,268	4,185,268	2,716,853	2,716,853	2,716,853	2,716,853
Adj. R-squared	0.060	0.136	0.072	0.147	0.101	0.204	0.107	0.161
Panel B: Born Urban								
Intern. Displ. Urban → Rural	-0.090** [0.042]	-0.087*** [0.030]	-0.586* [0.298]	-0.581*** [0.220]	0.168** [0.083]	0.175*** [0.066]	-0.134* [0.072]	-0.142** [0.059]
Intern. Displ. Urban → Urban	0.142*** [0.017]	0.155*** [0.029]	1.158*** [0.084]	1.244*** [0.224]	-0.261*** [0.018]	-0.212*** [0.048]	0.241*** [0.015]	0.206*** [0.048]
Mean Omitted	0.413	0.413	2.556	2.556	0.543	0.543	0.337	0.337
Observations	1,416,124	1,416,124	1,416,124	1,416,124	574,164	574,164	574,164	574,164
Adj. R-squared	0.015	0.217	0.020	0.236	0.055	0.386	0.048	0.267
Omitted Category	Non-Mover	Non-Mover	Non-Mover	Non-Mover	Non-Mover	Non-Mover	Non-Mover	Non-Mover
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Age FE	No	Yes	No	Yes	No	Yes	No	Yes
District of Birth FE	No	Yes	No	Yes	No	Yes	No	Yes

Notes: The table reports estimates associating schooling and employment outcomes with various displacement trajectories for individuals aged between 12 and 32 in 1997. The dependent variable in columns (1)-(2) is an indicator variable that takes the value of one for individuals who have completed at least one year of formal education and zero otherwise. The dependent variable in (3)-(4) is years of schooling. The dep. var. in columns (5)-(6) and (7)-(8) are indicator variables that take the value of 1 for employment in agriculture and the service sector, respectively, and zero otherwise. Even-numbered columns additionally control for gender and include age and district-of-birth fixed effects. Panel A shows trajectories for rural-born Mozambicans and panel B focuses on urban born Mozambicans. The externally displaced indicator identifies those who in 1992 resided in neighboring countries; the category includes those born in rural areas in Mozambique or those born in neighboring countries. IDP R-U is an indicator that takes the value of one for rural-born individuals who reside in 1992 in urban regions and zero otherwise. IDP R-R is an indicator that takes on the value of one for rural-born individuals residing in 1992 in some rural district different from their own region of birth. IDP U-R is an indicator that takes the value of one for urban-born individuals who reside in 1992 in rural regions and zero otherwise. IDP U-U is an indicator that takes on the value of one for urban-born individuals residing in an urban area that is not their district of birth. The omitted category in panel A are rural-born Mozambicans residing in the same district in 1992 and the omitted category in panel B are urban-born Mozambicans residing in the same district in 1992. The rural-urban classification follows the 1997 Mozambican Census. Heteroskedasticity-adjusted standard errors clustered on two dimensions (admin-2 region of birth and admin-2 region of residence in 1992) are reported below the coefficients. *, **, and *** indicate statistical significance at the 90%, 95%, and 99%, confidence level, respectively.

3.2.2 Urban Born

Turning to urban-born (Panel *B*), those found in rural areas at the end of the war have lower education compared to those who stayed in cities and in towns. Average years of schooling for urban-born non-movers was 2.56, with 41.3% having completed at least one year of schooling. The unconditional drop in the likelihood of attending schooling for those displaced in the countryside is about 9 percentage points and 0.6 years. Accounting for birth place, gender, and age does not much change the estimates. Movers to other urban hubs experienced higher levels of schooling; 15.5 pps increase in attending primary school and 1.24 years of schooling.

Columns (5)-(8) show that urban-born displaced into rural areas are more likely to work in agriculture (by 0.175 pps), as compared to services. The sign of the correlations are reversed for those moving during the war to another urban area. The coefficient on service employment (out of agriculture) is 0.21 pps higher (lower), compared to a baseline of 0.34 (0.54).

3.3 Interactions

We report in [Appendix C](#) that those with higher levels of schooling are more likely to shift into service employment. This suggests that human capital investments can go hand in hand with structural transformation (see also [Porzio et al., 2020](#)).

4 Sibling Analysis

While the Mozambican civil war entailed several unpredictable and idiosyncratic aspects, the full Census estimates do not yet capture causal relationships. Families and individuals may have sorted into different environments and incurred in educational investments based on hard-to-observe individual, household, and locality characteristics. To sharpen identification, we exploit the fact that in the chaos of the war, attacks by militias and rebels often resulted in families separation.¹² The Mozambican war was ripe with instances of abductions, child-soldiering raids, and the forced relocation of thousands. UNICEF estimated that by 1989, there were

¹²Recognizing the pervasiveness of this phenomenon, UNICEF and the International Committee of the Red Cross (ICRC) have set up programs to reunite families in post-conflict settings.

about 250,000 separated children from either their parents or their siblings.¹³

In this Section, we compare (close to age) siblings that experienced different displacement paths during the war. This setting allow us to account for regional characteristics at birth and residence in 1977 at the most granular level, and family attributes, household size, preferences, aspirations, and networking capital. The within-family design also accounts for religion, ethnicity, culture, and social practices, which are strong correlates of education in Africa (Alesina et al., 2021b). We first provide an overview of households with separated siblings. Second, we lay down the sibling-pair empirical specification. Third, we present the within-family results. Fourth, we summarize the sensitivity checks. Fifth, we go over the heterogeneity analysis. Appendix D gives descriptives and presents the sensitivity and heterogeneity analysis.

4.1 Split Households. Patterns and Characteristics

4.1.1 Patterns

Table 3 plots the distribution of 45,445 households with at least two 12 – 32 year-old siblings residing in different districts in 1992 but together in the same household in 1997.¹⁴ Approximately 10,000 rural-born families had one sibling moving to a city by 1992, while the remaining sibling(s) were in their birthplace. 5,970 households had (at least) one sibling in a neighboring country and another in the region of birth. About 9,000 rural households had a son or daughter residing in another rural district in 1992, with a sibling staying at birthplace. 8,000 urban-born households had siblings experiencing different displacement trajectories. More than 5,000 households had siblings internally displaced into different regions (e.g., city and other rural districts). There are 4,195 households with siblings facing three types of displacement.

¹³In Appendix A, we review accounts and testimonies of children separated from their families during the war using at the time reports and surveys (Gersony, 1988; Human Rights Watch, 1991; Boothby et al., 1991).

¹⁴Siblings are sons or daughters of the household head. In the Appendix we also compare all young individuals in the same household with different displacement paths during the war to account for those that in 1997 had not reunited with their siblings. These non-reunited young individuals appear in the census in some other relationship to the household head (nephew, niece, etc).

Table 3: Displacement Patterns of Split Households

	Split Household (12-32 yo)			
	Households	Proportion	Siblings	Proportion
NM Rural and IDP Rural → Urban	10,020	0.22	28,663	0.21
NM Rural and IDP Rural → Rural	9,132	0.20	25,853	0.19
NM Rural and Externally Displaced	5,970	0.13	17,552	0.13
NM Rural and IDP Urban → Urban	170	0.00	440	0.00
NM Rural and IDP Urban → Rural	188	0.00	504	0.00
NM Urban and IDP Urban → Rural	2,448	0.05	6,877	0.05
NM Urban and IDP Urban → Urban	4,294	0.09	13,763	0.10
NM Urban and Externally Displaced	1,243	0.03	4,112	0.03
NM Urban and IDP Rural → Urban	451	0.01	1,436	0.01
NM Urban and IDP Rural → Rural	256	0.01	658	0.00
Ext. Displ. and IDPs	1,736	0.04	4,934	0.03
Various Trajectories of IDPs	5,342	0.12	13,979	0.10
More than 3 displacement trajectories	4,195	0.09	17,717	0.13
Total	45,445	1.00	136,488	1.00

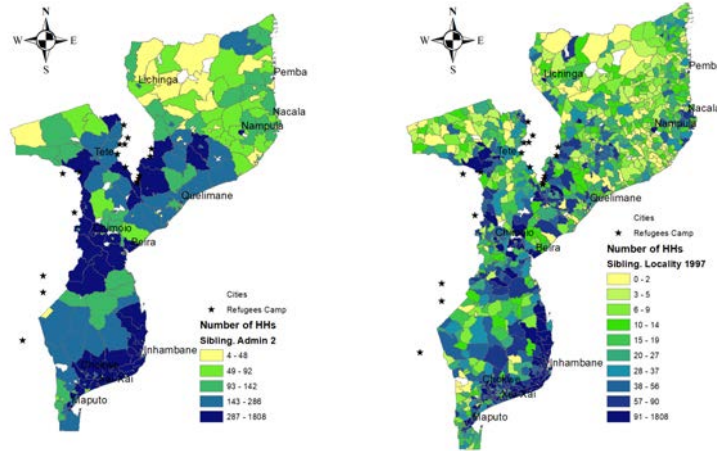
The table reports in columns (1) and (2) the number and percentage of split households, defined as those where at least two 12-32 year-old individuals in 1997 with different displacement trajectories. Columns (3) and (4) give the number and percentage of separated siblings of households with different trajectories. For rural-born and urban individuals there are four possibilities: (1) non-displaced (NM rural and NM urban); (2) internally displaced people (IDP) to an urban locality; (3) IDPs displaced to a rural area; (4) Externally displaced outside Mozambique.

Figure 2, panels (A)-(D) plot the spatial distribution of separated households at the end of the civil war. Panels (A)-(B) portray the number of split households across birth districts (admin-2 units) and residence locality in 1997 (admin-4 units). Panels (C)-(D) reflect the share of split households to total households across districts and localities of residence during the 1997 Census, respectively. There are more split households in areas proximate to Maputo/Matola, Beira, Xai Xai, Inhambane, and Chimoio, the main (coastal) cities in the South and Center. Separated households are somewhat less likely in the Northern provinces, as the civil war there spread after the mid-1980s. Once we standardize by population (number of households), regions more heavily affected by the civil war including those South of the Zambezi river (just north of Beira) have a higher density of split households.

4.1.2 Households with and without Separated Siblings

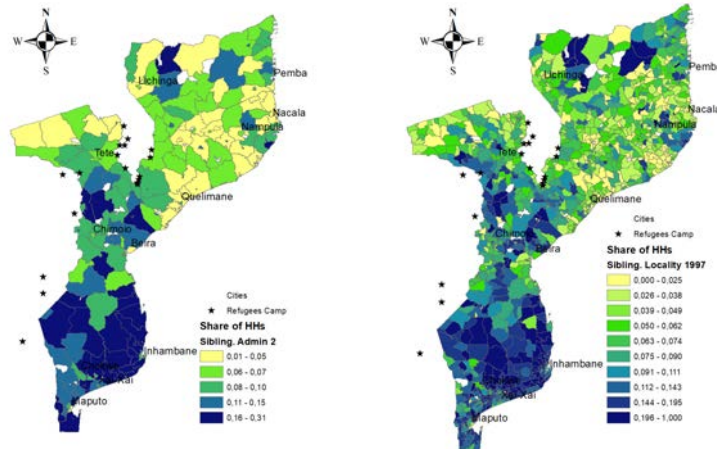
Our analysis rests on the comparison between households with separated siblings and households in which siblings remained together. The latter category consists of families that moved together and households that remained in their birthplace. Table D.2 and Table D.3 in the Appendix show that household heads and grandparents of families with separated siblings have

Number of Households in Separated Sibling Sample



Panel A: District of Birth Panel B: Locality in 1997

Share of Households in Separated Sibling Sample



Panel C: District of Birth Panel D: Locality in 1997

Figure 2: Panels (A) and (B) plot the spatial distribution of the number of households where at least two siblings, aged 12-32 in 1997, have followed different displacement trajectories across 216 birth regions (admin-2 units) and 1,195 localities of residence in 1997 (admin 4 units). Panels (C) and (D) plot the distribution of households with separated siblings across birth regions and residence localities as a share of birth district and residence households with at least two siblings, aged 12-32 in 1997.

similar education levels to non-split households. Given that these investments were made prior to the war, it suggests that the two sets of families are likely comparable on other non-observable dimensions to begin with. Households with separated siblings are, on average, larger and the mother (spouse of the household head or the female head) reports more children born alive. Larger families may have found it harder to stay put or to move together during a protracted war. Split households compared to families that never moved also experienced more adverse

conditions, as reflected in child mortality.¹⁵ This is not the case when we compare separated families to families that were displaced together. As we do not know the time of children’s death, we cannot conclude whether displaced families faced higher mortality before or during displacement. However, the simple tabulations reveal that separated families have experienced more deprivation and adversity compared to households that were not displaced, reinforcing the involuntary nature of displacement.

4.2 Specification

In our baseline within-family specification the unit of analysis is a pair of siblings i, j with different displacement trajectories.

$$\Delta Y_{ij} = \alpha + \beta_1 \Delta EDP_{ij} + \beta_2 \Delta IDP(R - U)_{ij} + \beta_3 \Delta IDP(R - R)_{ij} + \delta_i X_i + \delta_j X_j + \phi \Delta Age_{ij} + \mu_{li} + \mu_{lj} + \epsilon_{ij} \quad (2a)$$

$$\Delta Y_{ij} = \alpha + \beta_4 \Delta IDP(U - R)_{ij} + \beta_5 \Delta IDP(U - U)_{ij} + \delta_i X_i + \delta_j X_j + \phi \Delta Age_{ij} + \mu_{li} + \mu_{lj} + \epsilon_{ij} \quad (2b)$$

ΔY_{ij} denotes the difference in outcomes between siblings i and j . X_i and X_j denote sibling-specific controls, age constants, gender, and an indicator for the eldest child in the household.¹⁶ We also include siblings’ age difference fixed-effects, ΔAge_{ij} . As siblings may have been born in different places, we include birth-district fixed effects, μ_{li} and μ_{lj} .

4.3 Results

Table 4 reports the sibling-pair estimates for differences in schooling in columns (1)-(4), and sectoral employment in columns (5)-(8). Panel A presents results for rural born, while Panel B examines urban born.

¹⁵We construct family child mortality by subtracting from the number of born-alive children those not alive in 1997. For these comparisons we omit 5.5% of families with multiple wives.

¹⁶Birth order may impact selection into displacement and schooling. Signing the bias is, however, unclear. On the one hand, households may relocate the eldest sibling to the cities or safer rural areas to secure a safe-haven for the rest of the family to follow. On the other hand, families may prefer that the eldest sibling stays behind to protect the house and ancestral farmland.

Table 4: Forced Displacement, Schooling, and Employment - Separated Sibling Analysis

	Δ Schooling $_{ij}$		Δ Years of Schooling $_{ij}$		Δ Agriculture Employment $_{ij}$		Δ Service Sector Employment $_{ij}$	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Born Rural								
Δ Externally Displaced $_{ij}$	0.018 [0.024]	0.013 [0.008]	0.070 [0.160]	-0.003 [0.065]	-0.078*** [0.016]	-0.050*** [0.014]	0.028*** [0.008]	0.011 [0.008]
Δ Intern. Displ. Rural \rightarrow Urban $_{ij}$	0.077*** [0.010]	0.073*** [0.007]	0.544*** [0.066]	0.530*** [0.052]	-0.046*** [0.011]	-0.039*** [0.009]	0.045*** [0.009]	0.043*** [0.009]
Δ Intern. Displ. Rural \rightarrow Rural $_{ij}$	0.030*** [0.005]	0.028*** [0.005]	0.240*** [0.029]	0.235*** [0.030]	-0.001 [0.005]	-0.003 [0.005]	-0.002 [0.004]	-0.001 [0.004]
Non-Mover Mean	0.197	0.197	1.095	1.095	0.848	0.848	0.081	0.081
Observations	102,426	102,426	102,426	102,426	32,860	32,860	32,860	32,851
R-squared	0.006	0.074	0.009	0.084	0.008	0.086	0.005	0.052
Panel B: Born Urban								
Δ Intern. Displ. Urban \rightarrow Rural $_{ij}$	-0.075*** [0.018]	-0.087*** [0.016]	-0.393*** [0.110]	-0.492*** [0.099]	0.004 [0.010]	0.006 [0.011]	0.011 [0.011]	0.014 [0.011]
Δ Intern. Displ. Urban \rightarrow Urban $_{ij}$	0.030*** [0.011]	0.022* [0.012]	0.357*** [0.096]	0.283*** [0.094]	-0.019 [0.013]	-0.017 [0.012]	0.021 [0.014]	0.023 [0.014]
Non-Mover Mean	0.425	0.425	2.526	2.526	0.527	0.526	0.335	0.335
Observations	45,576	45,576	45,576	45,576	6,966	6,951	6,966	6,951
R-squared	0.004	0.114	0.005	0.121	0.001	0.140	0.001	0.074
Sample Age	12-32	12-32	12-32	12-32	12-32	12-32	12-32	12-32
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Own District of Birth FE	No	Yes	No	Yes	No	Yes	No	Yes
Sibling District of Birth FE	No	Yes	No	Yes	No	Yes	No	Yes
Age Difference FE	No	Yes	No	Yes	No	Yes	No	Yes

The table reports linear model (LM) estimates associating the difference between siblings on an indicator variable that takes the value of 1 if the individual has completed one year of formal education and zero otherwise [models (1)-(2)], years of schooling [models (3)-(4)], an indicator variable that takes the value of 1 if an individual is employed in agriculture and zero otherwise [models (5)-(6)] and an indicator variable that takes the value of 1 if an individual is employed in the service sector and zero otherwise [models (7)-(8)]. The sample consists of siblings, aged 12-32 years old in 1997, who come from split households (i.e., at least one brother and sister experienced a different displacement trajectory). Panel A gives estimates across rural born. Δ Externally Displaced $_{ij}$ measures the difference between siblings on externally displaced status (those who in 1992 resided in neighboring countries and those born in neighboring countries). Δ Intern. Displ. Rural \rightarrow Urban $_{ij}$ is a variable that measures the difference between siblings on rural to urban displacement status (rural-born individuals who reside in 1992 in urban regions) and Δ Intern. Displ. Rural \rightarrow Rural $_{ij}$ is a variable that measures the difference between siblings on rural to rural displacement status (rural-born individuals residing in a rural area outside their region of birth in 1992). Panel B gives estimates across urban-born individuals. Δ Intern. Displ. Urban \rightarrow Rural $_{ij}$ is a variable that measures the difference between siblings on urban to rural displacement status (urban-born residing in 1992 in rural regions) and Δ Intern. Displ. Urban \rightarrow Urban $_{ij}$ is the difference between siblings on urban to urban displacement status (urban-born residing in an urban region in 1992 outside their region of birth). The rural-urban classification follows the 1997 Mozambican Census. Heteroskedasticity-adjusted standard errors clustered on two dimensions (admin-2 region of birth of sibling i and admin-2 region of residence in 1992 of sibling i) are reported below the coefficients. *, **, and *** indicate statistical significance at the 90%, 95%, and 99%, confidence level, respectively.

4.3.1 Rural Born [Panel A]

Externally Displaced: Refugees have similar levels of schooling to non-mover siblings, a pattern that echoes the cross-sectional patterns across all 12-32 year olds in [Table 2](#). Even though the UN built primary schools in camps, villages and towns in Zimbabwe and Malawi with Mozambican refugees, there is not much evidence that this translated into significantly higher investments in education. This is likely driven by the dearth of employment opportunities leading, potentially, to low perceived returns to education. Specifications (5)-(8) suggest

however a small occupational shift of refugees out of agriculture, possibly due to the loss of land during the period of displacement. Compared to their non-moving siblings, externally displaced have 5pps lower likelihood of working in agriculture, five years after the end of the war.

IDPs to Urban: Turning now to IDPs in cities and towns, the education specifications reveal substantial gains. Namely, a 7.3 percentage points increased likelihood of attending some primary schooling and 0.53 more years of schooling, compared to their siblings staying behind in rural areas. The magnitudes are considerable, roughly a third of the mean for their non-displaced brothers and sisters (with primary school access of about 20% and one year of formal schooling on average). The within-family estimates are smaller than the cross-sectional ones, revealing considerable selection. Columns (5)-(8) look at occupational shifts. Rural-to-urban IDPs have 4 pps higher likelihood of non-agricultural (service) employment.

IDPs to Other Rural The sibling-pair comparisons show that displacement to other than birthplace rural areas also increases education. The estimates imply a 3pps higher likelihood of attending school and an increase of 0.24 years. These estimates, while not large, are supportive of the *uprootedness hypothesis* as rural Mozambique was at the time one of the most impoverished and most insecure parts of the world. We return to this issue in the next Section. IDPs into other rural areas have employment similar to their staying behind siblings. This finding accords with the historical narratives, as IDPs in the countryside continued working in agriculture. for example, in RENAMO’s notorious forced-labor camps or in FRELIMO’s communal villages [see [Appendix A](#)].

4.3.2 Urban Born [Panel B]

IDPs to Rural: Urban-born displaced to the countryside have about 9pps lower likelihood of attending primary school and about 0.5 less years of schooling, as compared to their brothers and sisters who stayed in their cities and towns of birth. These results suggest that FRELIMO’s forced relocation of urban dwellers in the countryside during “operation production” and the move of dissidents into “development villages” had adverse consequences for human capital. IDPs displaced to the countryside do not seem to have a differential attachment to agriculture

compared to their siblings (albeit in a considerably smaller sample and starting from a lower baseline). The within-family estimates for the urban-born are much smaller in absolute value as compared to the cross-sectional ones, revealing selection.

IDPs to Other Urban: Urban-born moving to other cities and towns have similar education and sectoral employment to their staying-behind brothers and sisters. The marginally significant within-family correlation (0.02) is 5-7 times smaller than the cross-sectional highly significant estimates, illustrating spatial sorting.

4.4 Sensitivity Analysis

We conduct several sensitivity checks that, for brevity, we report in [subsection D.2](#). First, we simply add family fixed effects to the cross-sectional specifications (equations 1a and 1b). While we cannot control for sibling-pair features, these simpler specifications are directly comparable to the cross-sectional estimates in [Table 2](#). These results are similar to the sibling-pair specifications. Second, we rerun the sibling pair specifications among individuals 12 and 18 years in 1997, as co-habitation rates with parents drop for older children. Results are stable. Third, we expand the comparisons to extended family members, such as cousins or other relatives, in the same household. Fourth, we drop the oldest (male) sibling to minimize concerns of parents' favoritism. Fifth, rather than controlling for gender, we only consider boy-to-boy and girl-to-girl comparisons. Sixth, we zoom on siblings four, three, and even two years apart. Across all permutations, we obtain similar results to [Table 4](#). *(i)*: Schooling of refugees is similar to their siblings, of similar age and gender, staying in the countryside. *(ii)*: There are considerable benefits for rural-born IDPs displaced to urban centers; about 5 – 6*pps* higher likelihood of attending any primary school, 0.35 – 0.5 extra years of schooling; and a 30*pp* increased propensity to work outside agriculture. *(iii)*: Rural IDPs displaced to another rural area other than their birthplace district also enjoy small-to-modest higher schooling attainment and years. *(vi)*: Urban-born displaced into the countryside have lower schooling and are more likely to work in agriculture after the end of the war.

4.5 Heterogeneity

We also explored heterogeneity, reported in [subsection D.3](#). First, we look at siblings moving with an older household member, without detecting significant differences. Second, we examine whether split but reunited in the birthplace siblings fare differently compared to separated siblings who reunited in a different location after the civil war. The estimates are similar across the two groups. Third, we test whether refugees in countries with different integration strategies (e.g., Zimbabwe hosted UN camps while in Zambia, Tanzania, and Swaziland refugees gathered in informal camps and villages) fare any differently when compared to their siblings staying behind. There is again not much heterogeneity.

5 Place-Based vs. Uprootedness Effects

The within-household estimates are in line with both the importance of place-based effects (as IDPs into cities and towns invest in education the most) and the uprootedness hypothesis, as even rural to rural displacement generates some educational improvements. In this section, we further unpack these mechanisms and estimate jointly place-based and uprootedness effects. [Appendix E](#) reports robustness checks.

5.1 Approach

To capture the role of regions, we first compile for each displaced measures reflecting differences between the destination (displacement) region d and (birth) origin district (o) in development and civil war intensity. Given noise and imprecision in the regional data, we aggregate via principal components proxies of development and conflict.¹⁷ We aggregate six proxies of regional development: (i) log population density in 1997, excluding individuals born after 1992¹⁸; (ii) share of (non-displaced) grandparents that speak Portuguese or have some schooling; (iii) offspring mortality of non-displaced women older than 35; (iv) log road density in 1973; (v) log number of colonial agricultural markets (cantinas) per sq. km. in 1965; and (vi) log number

¹⁷[subsection 2.3](#) gives variable sources. [Appendix B](#) provides summary statistics, the correlation structure, and mappings of the spatial distribution of all development and conflict proxies.

¹⁸The correlation between population density in 1997 and density at the birth district is 94%.

of schools opened by 1992 per sq. km.¹⁹ The use of factor-analysis appears appropriate, as we have many noisy variables proxying aspects of local economic activity. The first principal component explains approximately half of the common variance of the six measures. All measures but offspring mortality load positively on the first principal component, with an eigenvalue greater than two. Similarly, to measure regional conflict intensity we take the first principal component of log conflict events per capita and the log of landmines and unexploded ordnance per capita. Both measures load positively on the first principal component, which explains 62% of the common variance, with an eigenvalue of 1.24.

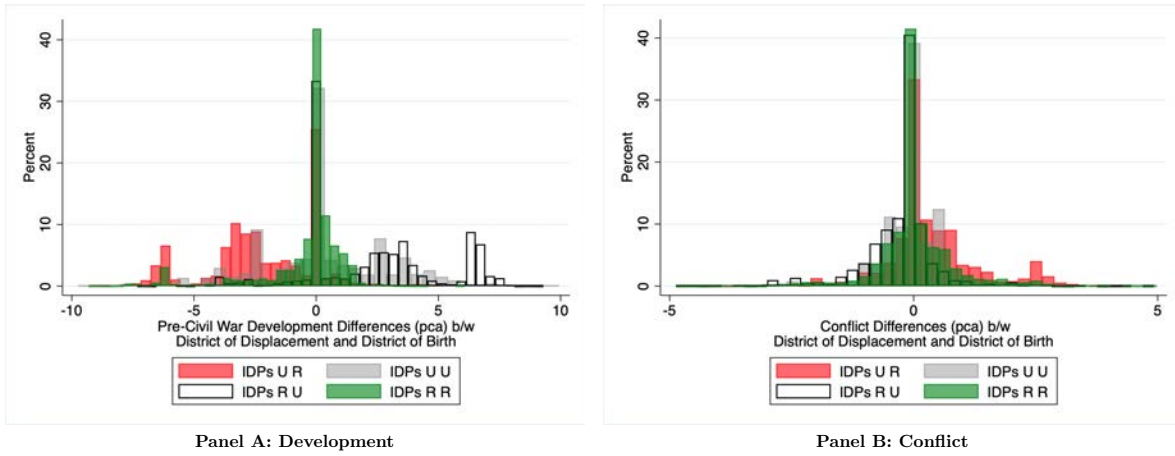


Figure 3: Destination-Origin Differences in Development and Conflict Intensity
The figure depicts the distribution of the differences between destination district (d) and birth-origin district (o) in Development (Panel A) and Civil Conflict (Panel B) for displaced Mozambicans aged 12-32 years at the time of the 1997 Census. The figures plot destination (in 1992) - birth-origin differences in regional development and conflict distinguishing between four displacement trajectories of IDPs: (i) Red: Urban-born individuals displaced to rural regions. (ii) Grey: Urban-born individuals displaced into different urban areas. (iii) White: Rural-born individuals displaced to urban areas. (iv) Green: Rural-born individuals displaced to other than their birthplace rural regions. The regional development measure is the first principal component of six proxies of development (population density, road density, schools per capita, education of the older generation, and trading hubs). The regional conflict measure is the first principal component of log number of civil war events per capita and log number of landmines and unexploded ordnance per capita.

Figure 3 plots the distribution of destination-origin differences in development, Δ_{od}^{dev} (Panel A), and conflict, Δ_{od}^{conf} (Panel B), for 55,238 IDPs, highlighting the four main trajectories. (i) Urban-born displaced into the countryside (red bars) experienced the biggest drop in regional development and increase in conflict. The mean drop in population density between destination and origin is 2.74. (ii) Urban-born moving to other urban districts (grey bars), which are, on average, more developed, but not more peaceful. (iii) Rural-born displaced to

¹⁹School data are imprecise as many schools closed during the civil war or operated intermittently.

cities destination-origin differences in regional development are on average positive and in some cases large. The average increase in population density is 3.17. (iv) Rural-born displaced to other rural areas (green bars) face on average similar to their birthplace economic and conflict conditions at destination. Some get displaced into moderately more prosperous and peaceful destinations; others find themselves in more conflict prone and less developed regions.

5.2 Within-Household Specification

To jointly estimate place-based and general uprootedness effects of displacement, we modify the sibling-pair specifications (Equation 2) adding destination-origin differences in regional development and conflict and pooling across both rural-born and urban-born 12-32 year old.²⁰

$$\Delta Y_{ij} = \alpha + \underbrace{\gamma \Delta DISPL_{ij}}_{\text{Uprootedness}} + \underbrace{\pi_1 \Delta_{od}^{dev}_{ij} + \pi_2 \Delta_{od}^{confl}_{ij}}_{\text{Place-Based Effects}} + \delta_i X_i + \delta_j X_j + \phi \Delta Age_{ij} + \mu_{li} + \mu_{lj} + \epsilon_{ij} \quad (3)$$

The π_1 and π_2 coefficients on destination-origin differences in development and civil conflict capture exposure effects of forced displacement on the siblings' attainment gap. Therefore, the γ coefficient on the change in displacement status isolates the role of *uprootedness*, irrespective of the relative destination characteristics. The specifications condition on birth-region fixed effects for each sibling, age, gender, eldest-sibling indicator, and age difference constants.

5.3 Results

5.3.1 LS Estimates

Table 5 - Panel A reports the LS estimates.

²⁰The sample comprises of 38,880 families with separated siblings that had at least one child who was either an IDP (55,238) or was born abroad (796). For the foreign born returning to Mozambique after the war, we set differences between end-of-war conditions (destination) - origin to zero. We exclude the externally displaced siblings born in Mozambique because we cannot assign them destination characteristics while displaced in a foreign country. We also include families of IDPs only in 1997 leveraging variation in place-based effects. Excluding the latter and/or dropping the foreign born does not alter the estimates.

Table 5: OLS and 2SLS Sibling-Pair Estimates. Place-Based and Displacement Effects on Schooling

	$\Delta \text{Schooling}_{ij}$				
	(1)	(2)	(3)	(4)	(5)
Panel A: OLS. Actual Changes in Destination-Origin					
$\Delta \text{Displaced}_{ij}$	0.036*** [0.005]	0.021*** [0.004]	0.031*** [0.005]	0.020*** [0.004]	0.020*** [0.004]
$\Delta_{92-Birth}$ Development (PC) $_{ij}$		0.011*** [0.002]		0.010*** [0.002]	0.008*** [0.002]
$\Delta_{92-Birth}$ Conflict (PC) $_{ij}$			-0.019*** [0.003]	-0.007** [0.003]	-0.008** [0.003]
Panel B: OLS. Predicted Changes in Destination-Origin					
$\Delta \text{Displaced}_{ij}$	0.036*** [0.005]	0.040*** [0.003]	0.039*** [0.004]	0.040*** [0.003]	0.037*** [0.003]
$\Delta_{92-Birth}$ Pred. Development (PC) $_{ij}$		0.012*** [0.001]		0.012*** [0.001]	0.011*** [0.001]
$\Delta_{92-Birth}$ Pred. Conflict (PC) $_{ij}$			-0.011** [0.005]	-0.000 [0.004]	-0.002 [0.004]
Panel C: 2SLS					
$\Delta \text{Displaced}_{ij}$	0.036*** [0.005]	0.014** [0.006]	0.032*** [0.005]	0.014** [0.006]	0.013** [0.006]
$\Delta_{92-Birth}$ Development (PC) $_{ij}$		0.016*** [0.002]		0.016*** [0.002]	0.014*** [0.002]
$\Delta_{92-Birth}$ Conflict (PC) $_{ij}$			-0.013** [0.006]	0.001 [0.005]	-0.002 [0.005]
Mean Non-Displaced	0.276	0.276	0.276	0.276	0.236
Observations	125,587	125,587	125,587	125,587	104,602
Weak Identification (KP F-Stat)	.	94.206	471.074	42.848	44.593
Sample Age	12-32	12-32	12-32	12-32	12-18
Individual and Sibling Pair Controls	Yes	Yes	Yes	Yes	Yes
District of Birth FE	Yes	Yes	Yes	Yes	Yes
Comparison Sibling District of Birth FE	Yes	Yes	Yes	Yes	Yes
Age FE	Yes	Yes	Yes	Yes	Yes
Comparison Sibling Age FE	Yes	Yes	Yes	Yes	Yes
Age Difference FE	Yes	Yes	Yes	Yes	Yes

The table reports OLS [Panels A and B] and 2SLS [Panel C] estimates associating the difference between siblings on an indicator variable that takes the value of one if an individual has completed one year of formal education with displacement trajectories and differences in development and conflict intensity between the place of residence at the end of the war (destination, d) and birthplace (origin, o). The sample in columns (1)-(4) consists of siblings, aged 12-32 years and in column (5) aged 12-18 in 1997. All specifications include gender and eldest-offspring indicators for each sibling, age difference fixed effects, age fixed effect and district of birth fixed effects for each sibling in the pair. $\Delta \text{Displaced}_{ij}$ is the difference in displacement of any type (external, internal to cities or other rural areas) within a pair of siblings. $\Delta_{92-Birth}$ Development (PC) $_{ij}$ denotes the difference between destination and origin district for the displaced as a proxy of regional development. $\Delta_{92-Birth}$ Conflict (PC) $_{ij}$ denotes the differences between destination and origin in civil conflict. The Predicted (100km) $\Delta_{92-Birth}$ Development (Civil Conflict) $_{ij}$ PC in the reduced-form estimates in Panel B is computed by averaging the Development (Civil Conflict) PC at the destination districts within 100 kilometers from one's district of birth and subtracting the Development (Civil Conflict) PC at district of birth. In Panel C actual differences in development and civil conflict between destination and origin district are instrumented with predicted measures. Heteroskedasticity-adjusted standard errors clustered on two dimensions (admin-2 region of birth of sibling i and admin-2 region of residence in 1992 of sibling i) are reported below the coefficients. *, **, and *** indicate statistical significance at the 90%, 95%, and 99%, confidence level, respectively.

Column (1) shows that displaced siblings have a 3.6pps higher likelihood of attending primary schooling than their brothers and sisters staying in their region of birth. This estimate

reflects both a generic displacement impact and place-based exposure effects. In columns (2)-(3) we account for economic and conflict differences between the destination of displacement and a child’s birthplace adding Δ_{od}^{dev} and Δ_{od}^{conf} , respectively.²¹ Both terms enter with significant estimates. Place effects are strong even during a devastating and destructive civil war: children displaced to a district that is one standard deviation more (less) developed, about 2.7 units, increases (decreases) the likelihood of schooling by 3*pps*. Likewise, displacement to a more conflict-prone destination district than one’s origin (by one standard deviation, about 0.91) lowers significantly educational attainment by about 1.9*pps*).

In column (4), we account jointly for differences in development and conflict. The displacement indicator now captures differences in attainment between a non-moving individual and his/her sibling fleeing to a district with similar conflict and development. The estimate suggests that the independent impact of displacement is raising school attainment by about 2*pps*. The displacement impact and the place-based estimates on development and conflict are similar in the 12-18 year old in 1997 (column (5)). Appendix [Table E.1](#) reveals similar patterns with years of schooling, while [Table E.2](#) and [Table E.3](#) show that exposure and uprootedness effects matter also for sectoral employment. The generic 2*pps* increase in schooling for the displaced is comparable to fleeing to a district one standard deviation more developed than one’s birthplace. This estimate is in the ballpark of the displacement effect from a rural to another rural area ([Table 4](#)), which should not come at surprise as such movements are associated with small differences in development and conflict.

5.4 2SLS

While displacement was triggered by various unpredictable conflict features, one may still have selection concerns, as the destination may be correlated with unobserved sibling features. To allay this concern, we rely on the fact that Mozambique’s rudimentary and heavily mined transportation network placed significant restrictions to civilian movement. As shown in [Figure 1](#), geographic proximity to cities and the border are the strongest correlates of displacement. The median displaced sibling found herself in a district roughly 97 kilometers away from birthplace.

²¹The mean (median) of Δ_{od}^{dev} is -0.33 (0), the standard deviation 2.7, and the p90-p10 range $-3.74 - 2.69$. The mean (median) of Δ_{od}^{conf} is 0.055 (0), the standard deviation 0.91, and the p90-p10 range $-0.70 - 0.93$.

We, therefore, estimate 2SLS specifications instrumenting actual differences between destination and origin in development and war intensity with predicted ones based on districts 100km from one’s birthplace. The 2SLS specifications, thus, capture the place-based effects determined by geographic proximity. We compute “predicted” exposure for displaced from origin, o , as the proximity-weighted analog: $\hat{\Delta}_o = \sum_{d=1}^D \Delta_{od}/D$, where D comprises of districts inside a 100 kilometers of origin radius, for development, $\hat{\Delta}_o^{dev}$, and civil conflict, $\hat{\Delta}_o^{conf}$.

First-Stage. Figure 4 shows a binned scatter associating actual (Δ_{od}) and proximity-predicted differences ($\hat{\Delta}_o$) between the destination and origin in development (Panel A) and civil conflict intensity (Panel B). The elasticity between actual and proximity-predicted differences in development (conflict) is 0.86 (0.88) and is precisely estimated.

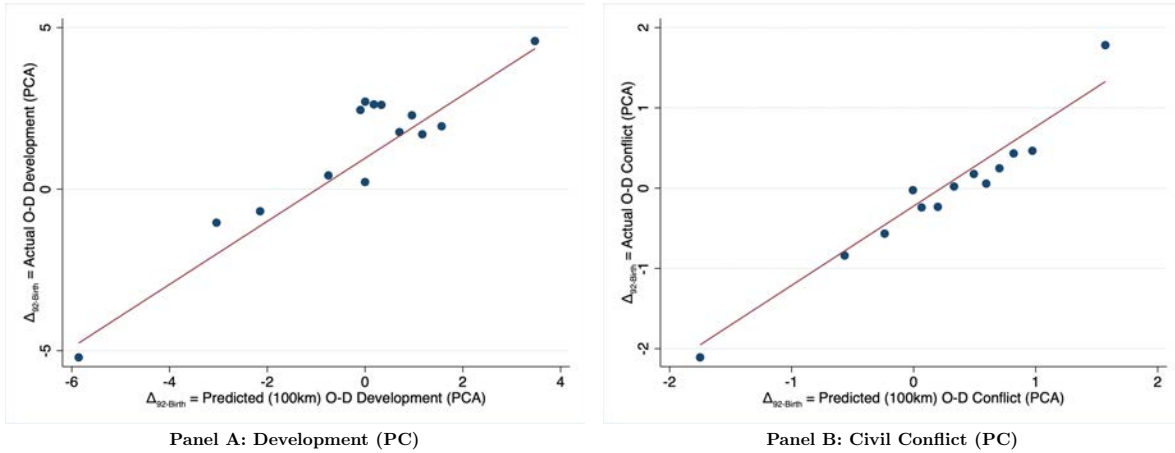


Figure 4: The graphs report binned scatterplots associating actual destination-minus-origin differences in Development (Panel A) and Civil Conflict (Panel B) and geography-predicted displacement-destination based on averaging Development and Civil Conflict of districts within 100 km from the district of origin. The regressions yield the following coefficients (standard errors): $\Delta_{od}^{dev} = 1.35(0.14) + 0.86(0.091)\hat{\Delta}_o^{dev}$ and $\Delta_{od}^{conf} = -0.38(0.028) + 0.88(0.039)\hat{\Delta}_o^{conf}$.

Reduced-Form. Table 5 - Panel B reports “reduced-form” estimates associating differences in educational attainment between siblings to displacement status and proximity-based differences between destination and origin in development and conflict. The specifications are otherwise identical to Panel A, but replacing Δ_{od}^{dev} and Δ_{od}^{conf} with the corresponding proximity-predicted differences in equation Equation 3. Displacement to a district that is one-standard-deviation more developed than one’s birthplace increases schooling by 5pps. The coefficient on civil conflict exposure is smaller and becomes marginally insignificant. The estimate on the displacement index that isolates *uprootedness effects* remains precisely estimated at 4pps.

2SLS Estimates. Panel *C* of [Table 5](#) gives the 2SLS estimates, instrumenting actual differences between destination and origin in development and civil conflict with the proximity-predicted ones.²² The 2SLS estimate for the role of destination-origin differences in development estimate is similar to the corresponding LS estimate. While the coefficient on development differences is precisely estimated, the estimate on civil conflict differences is smaller than the LS and statistically insignificant. The estimate on the displacement index is now smaller, reflecting selection, but it retains significance.

6 Long-Term Impact of Forced Displacement. Survey Evidence

There are three follow-up questions. First, are the educational gains of internal displacement lasting? Second, how do individuals displaced into cities fare compared to never displaced urban-dwellers? Third, are there any long-term socioeconomic and psychological costs of displacement? In this Section, we provide some tentative answers to these questions, reporting on a survey we conducted in Nampula, Mozambique’s second-largest urban hub (after the capital Maputo and its satellite city Matola), whose population went from 139,000 in 1977 to 250,000 in 1992, as civilians sought protection.²³ [Appendix F](#) gives additional results.

6.1 Survey

We conducted the survey between January and March of 2020, covering all administrative boroughs. Through door-to-door in field-sampling, we randomly surveyed residents, older than 35 years old, to ensure that their primary schooling decisions had taken place during the civil war. 77 respondents moved from the countryside during the civil war, confirming that the move was due to conflict and 131 were born in Nampula and did not move during the war.²⁴ In line with the historical accounts, most of these IDPs report moving during and after the mid 1980s, when RENAMO’s terror strategies spread to the North and state’s power in the countryside collapsed. We obtained information on educational attainment, employment,

²²Given the strong association between actual and distance-projected differences in conflict and development, the Kleibergen-Papp *F* stat is well above conventional levels, underscoring the instrument’s.

²³The 1997 Census tabulations suggest that out of 303,000 inhabitants, about 90,000 moved during the war.

²⁴Note that the 1997 census reveals that approximately 60% of rural-born moving to cities -and to Nampula-remained there even after the war had ended.

beliefs, values, and social norms. Besides, we inquired on mental health (e.g., depression, loneliness, pessimism).

6.2 Long-Run Effects of Displacement on Education

To explore the lasting legacy of forced displacement, we asked respondents about their siblings' education and experience during the civil war. With this information, we estimate within-family specifications comparing primary schooling completion between (77) IDPs displaced in Nampula during the war and their siblings (265), who stayed in their locality of birth.²⁵ The LPM specifications in Table 6 reveal that IDPs to Nampula have a 10*pps* higher likelihood to complete primary schooling as compared to their brothers and sisters, who stayed in the countryside. This pattern applies to boys, girls, and siblings of similar age (results not shown). While the sample is arguably small, these estimates are consistent with our findings in the previous sections, relying on thousands of separated siblings (section 4). The majority of IDPs (73%) report that they followed friends' and extended relatives' advice who hosted them to attend school once in the city. They further mention that they believed education was necessary to find a job in the city [results not shown].

Table 6: Displacement to Nampula and Primary School Completion - Cross-Sectional and Within-Family Estimates

	Completed Primary Schooling Indicator			
	(1)	(2)	(3)	(4)
Displaced	0.148** [0.058]	0.140** [0.055]	0.124* [0.064]	0.104* [0.061]
Observations	361	361	361	361
Non-Mover Siblings Mean	0.279	0.279	0.279	0.279
Individual Controls	No	No	Yes	Yes
Family Fixed Effects	No	Yes	No	Yes
R-squared	0.020	0.499	0.048	0.510

The table reports linear probability model estimates associating an indicator that takes on the value of one for individuals with (at least) completed primary schooling. The Displaced variable identifies respondents born in the countryside who moved to Nampula during the civil war. The omitted category, Non-Mover Siblings, denotes survey respondent's siblings, born in the countryside, who stayed in the countryside. Columns (1) and (3) report cross-sectional specifications. Columns (2) and (4) give within-household estimates (family-specific constants not reported). Columns (3) and (4) control for age, gender, and an eldest-offspring indicator. *, **, and *** indicate statistical significance at the 90%, 95%, and 99%, confidence level, respectively, based on heteroskedasticity-adjusted standard errors.

²⁵The sibling comparison with the Census data (in section 4) compares brothers and sisters reunited after the civil war. Here, we compare IDPs in Nampula to their siblings that stayed behind.

6.3 Economic Differences. Displaced vs Urban-Born

We then examine the degree of “economic” convergence of IDPs in Nampula comparing them urban-born, never displaced residents.²⁶ Table 7 suggests convergence on educational attainment (columns (1)-(2)), despite the fact that urban – rural differences in education were, and still are, considerable in (Northern) Mozambique.²⁷

We then explore differences in employment, using a binary index that switches to one for individuals with paid work. There are no major differences between the two groups. In (5)-(6) we look at log wages in a smaller sample as many respondents did not report employment income. Despite educational convergence, IDPs appear to earn lower wages when compared to the urban-born though given the small sample these estimates are purely suggestive.

Table 7: Education and Employment: Displaced vs Non-Movers

	Primary Schooling		Paid Work		Ln Monthly Wages	
	(1)	(2)	(3)	(4)	(5)	(6)
Displaced	0.032 [0.071]	0.014 [0.073]	-0.009 [0.069]	-0.013 [0.069]	-1.064** [0.492]	-1.019** [0.495]
Observations	208	208	208	208	89	89
Non-Mover Nampula-born Mean	0.397	0.397	0.412	0.412	8.357	8.357
Controls	No	Yes	Yes	Yes	Yes	Yes
Schooling Control	-	-	No	Yes	No	Yes
R-squared	0.001	0.017	0.119	0.174	0.083	0.099

The table reports OLS estimates associating schooling, paid employment, and log wages to a Displaced indicator that identifies respondents born in the countryside and displaced to Nampula during the civil war. The omitted category consists of residents of Nampula, born in the city. The dependent variable in columns (1)-(2) is an indicator that takes on the value of one for individuals with (at least) completed primary schooling and zero otherwise. The dependent variable in columns (3)-(4) is an indicator for respondents with paid employment. The dependent variable in columns (5)-(6) is the natural logarithm of monthly wages. Odd-numbered specifications give unconditional estimates. Even-numbered specifications control for age, gender, and a first born indicator. Columns (4) and (6) also control for a variable that equals one for respondents with completed primary schooling. *, **, and *** indicate statistical significance at the 90%, 95%, and 99%, confidence level, respectively, based on heteroskedasticity-adjusted standard errors.

6.4 Social Capital and Trust

Many policy debates on displacement regard the social integration of refugees and IDPs to the local communities as crucial as the economic one. To shed light on this issue, we obtained

²⁶We cannot tease apart exposure from uprootedness effects as we observe IDPs only in Nampula and do not have much information of birthplace conditions. Overall, works on place-based effects find educational catch-up of migrants in peaceful times to that of permanent residents at destination. However, neither educational convergence (e.g. [Alesina et al., 2021a](#)) nor income convergence are full (e.g., [Chetty and Hendren, 2018a](#))

²⁷For example, primary completion rate in 1997 for older than 15 years old urban residents (in Northern Mozambique) was 21% (15%), while for rural residents just 3% (2%). The preliminary tabulations of the 2017 census reveal that primary school dropout rates in the countryside were double that in cities (29% to 14%).

measures of inter-community trust, social capital, participation in political life, and civiness. Our analysis is also motivated by a fast-growing literature showing that social/civic capital and trust are associated with income, education, and public goods (see [Algan and Cahuc, 2013](#) and [Guiso et al., 2011](#) for reviews).

Table 8: Social/Civic Capital, Attitudes, and Mental Health: Displaced vs Non-Movers

Panel A: Social/Civic Capital				
	Trust	Social Capital	Political Participation	Civic Attitudes
	(1)	(2)	(3)	(4)
Displaced	-0.469** [0.224]	-0.223 [0.198]	-0.261* [0.151]	-0.441** [0.177]
Observations	208	207	208	208
Non-Mover Nampula-born Mean	0.288	0.083	0.080	0.258
Individual Controls	Yes	Yes	Yes	Yes
R-squared	0.049	0.082	0.028	0.141

Panel B: Mental Health and Optimism				
	Loneliness	Group Belonging	Optimism	Mental Health
	(1)	(2)	(3)	(4)
Displaced	-0.075 [0.081]	-0.114 [0.106]	-0.222*** [0.071]	0.326*** [0.102]
Observations	208	208	208	208
Non-Mover Nampula-born Mean	0.051	-0.006	0.573	-0.085
Individual Controls	Yes	Yes	Yes	Yes
R-squared	0.072	0.055	0.085	0.134

The table reports OLS estimates associating proxies of social capital, trust and civic attitudes (Panel A) and optimism and mental health (Panel B) to a Displaced indicator variable that identifies respondents born in the countryside and moving to Nampula during the civil war. The omitted category consists of residents of Nampula, born in the city. The dependent variables in Panel A are: in column (1) a Trust Index constructed by aggregating via principal components the respondent's answers on whether he/she feel comfortable with a neighbor looking after keys and looking after children; agree that the respondent belongs to neighborhood; trust people in neighborhood. In column (2) a Social Capital Index is constructed by aggregating via principal components respondent's answers on his/her willingness to give to good causes without return; Unpaid work for community in last 12 months; Importance of solving community problems; Agree or disagree exchange favours with neighbors. In column (3) a political participation index is based on respondent's answers on the importance of voting and whether they discuss political matters. In column (4) a Civic Attitudes index is constructed by aggregating via principal components the respondent's answers on whether it is justified to claim benefits, avoid taxes, and pay bribes. In Panel B the dependent variables are: in column (1) a Loneliness Index constructed by aggregating via principal components a respondent's answer on whether they feel lack of companionship, there is no one to turn to, they feel alone, don't feel close to anyone, don't share interests with people, and they feel isolated. In column (2) a Group Belonging Index is constructed by aggregating via principal components the respondent's answers on whether they feel in tune with people, belong to a group of friends, have things in common with people, outgoing, can talk to people, and there are people he/she can turn to. In column (3) an Optimist index reflects respondent's answers on the likelihood that their children would be richer than at his/her age. In column (4) a Mental Health Index is constructed using respondent's answers on whether in the previous two weeks, they had little interest in doing things, felt depressed, had trouble sleeping, felt tired, had too little or too much appetite, felt like a failure/disappointed, had difficulty concentrating, speaking/moving too slowly or too fast, felt nervous, could not stop worrying, worried too much, had trouble relaxing, felt restless, was easily annoyed, felt afraid. All specifications control for age, gender, an eldest-offspring indicator, and an indicator for completed primary school. *, **, and *** indicate statistical significance at the 90%, 95%, and 99%, confidence level, respectively, based on heteroskedasticity-adjusted standard errors.

Table 8, Panel A examines differences between IDPs' and non-mover urban dwellers across civic/social capital proxies, reflecting: (1) willingness to contribute to good causes, working voluntarily for community projects, and favoring exchanges with neighbors; (2) trust towards neighbors; (3) political participation and importance of voting; (4) civicness, as in whether it is justifiable to avoid taxes and pay bribes.²⁸ All specifications yield negative coefficients on the displacement indicator. Three decades after the war ended, IDPs report lower levels of trust, political participation, and civicness, as compared to their urban born cohort that was never displaced.²⁹

We cannot compare IDPs to those staying in the countryside during the war, as we run the survey in Nampula. However to shed some light on this issue, we tabulated urban-rural differences on trust and social capital from the Afrobarometer Surveys, conducted periodically across dozens of African countries. Both when we look across 34 Sub-Saharan African countries, across Mozambique, even zooming in its Northern provinces, we find that rural-residents exhibit *higher* trust and social capital, as compared to urban-dwellers (subsection F.2). In light of the higher trust of rural residents, the correlations in Table 8-Panel A, therefore, suggest that forced displacement considerably lowered IDPs trust, social and civic capital.

6.5 Mental Health

Forced displacement is a deeply traumatic experience for survivors. While hard to measure, the psychological trauma of being displaced from one's homeland, often separated from brothers, sisters, and parents, is considerable [see Appendix A for some descriptive evidence collected during the war]. And, while there is a generalized sense of the deep emotional scars of displacement during warfare, there is little work quantifying these effects. In an effort to gauge the psychological impact, we inquired on how lonely respondents feel, how strongly they connect with other people, and how optimistic they are about the future. We also construct a mental health index relying on the standard and validated measures of clinical depression research, following the administration of the PHQ-9 module.

²⁸We condition on education that correlates with the outcome variables. The estimates are similar omitting it.

²⁹These estimates are in line with Rohner et al. (2013), Nunn and Wantchekon (2011), and Besley and Reynal-Querol (2014) documenting lasting impacts of warfare and coercion on distrust across Africa.

Table 8 Panel *B* reports OLS estimates comparing IDPs to urban-born on these dimensions. In columns (1) and (2) we examine differences in loneliness and group belonging, respectively.³⁰ IDPs appear more lonely and less connected than urban-born, but the estimates are noisy. Column (3) uncovers a sizable and significant gap between IDPs and urban-born on how optimistic they are that their children will be richer than them. This intriguing difference highlights displacement’s adverse consequences, as IDPs and urban born have similar education levels. In column (4) we explore differences in adverse mental health using an index that averages responses on whether in the past two weeks the individual felt depressed, worried, nervous, restless, disappointed, easily annoyed, afraid, tired, without much appetite, had trouble relaxing, not much interested in doing things, without getting much sleep, and ability to concentrate. Higher values indicate a higher stress and worse mental health. The IDP indicator enters with a highly significant estimate, revealing a considerable mental health gap between IDPs displaced during the war and those born in the city and never displaced. The estimate, while not causal, is quite large (0.326).

6.6 Taking Stock

Our findings from a random sample of IDPs and non-movers in Mozambique’s largest Northern city complement the analysis of the 1997 Census across three dimensions. First, the survey uncovers the lasting legacy of displacement on education. IDPs’ education is considerably higher than their siblings who stayed in the countryside. Besides, IDPs’ education converged to that of urban-born residents, a noteworthy pattern given the large urban-rural educational gaps prevalent in Mozambique -and Africa. Second, IDPs have lower community trust, civic participation, and social capital than urban-born. As both across (Northern) Mozambique and Sub-Saharan Africa rural residents have higher trust, social and civic capital, the survey hints at considerable social costs of forced displacement. Third, compared to urban-born, IDPs are less optimistic and report higher levels of mental stress, almost three decades after the civil war, revealing forced displacement’s long-lasting scars.

³⁰Loneliness is an index that averages responses on lack of companionship, feelings that there is no one to turn to, isolation, not close to anyone, and without sharing interests with other people. Group belonging is an index that aggregates respondents’ views of whether they feel they can talk to people, have things in common and can turn in to others, and whether they belong to some group.

7 Conclusion

We examine the impact of different conflict-induced displacement trajectories on schooling investments during the Mozambican civil war (1977 – 1992), associated with the dislocation of about four million civilians.

Besides reporting correlational patterns using the full population census, conducted five years after the end of hostilities, we advance on identification exploiting within-family variation across thousands of separated siblings, experiencing different trajectories. Rural-born IDPs who found refuge in Mozambican cities and towns have considerably higher schooling compared to their brothers and sisters who stayed in their birthplace. But even IDPs displaced into other than their birthplace rural districts invest more in education compared to their staying behind siblings, an intriguing regularity as rural Mozambique was at the time one of most impoverished and insecure places in the world. Mirroring these patterns, urban-dwellers, forcibly moved into state farms and development villages in the countryside, have lower schooling as compared to their brothers and sisters in the cities. In contrast, refugees in neighboring countries have similarly low to their staying behind brothers and sisters, despite international community’s efforts to build schools in camps and informal settlements in Malawi and Zimbabwe. Displacement goes hand in hand with employment shifts out of (subsistence) agriculture into services, telling of a novel link between forced dislocation and structural transformation.

The diverse trajectories of displacement, coupled with the large sample of households with separated siblings (close to 50,000), allows us to develop a framework to tease apart the role of the two key channels linking displacement to schooling and employment decisions: *Place-based effects*, arising for displaced into safer and more developed districts than birthplace. A generic *uprootedness effect* of expatriation, which may create incentives to invest in portable and non-expropriable human capital. Studying the two mechanisms in a single framework, reveals that both are at play. Displacement into relatively more developed and less conflicts districts increases schooling and lowers agriculture employment, telling of place-based effects. However, even IDPs finding refuge in less developed and more violent places invest more in schooling, potentially driven by “uprootedness”.

We complement the census-based results, with a self-administrated survey in Mozambique's largest Northern city to shed light on the long-run effects of forced displacement. IDPs in Nampula have significantly higher education as compared to their brothers and sisters who stayed in the countryside three decades after the war. Strikingly, IDPs' education is similar to urban-born non-displaced despite large urban-rural educational gaps, both at the time and now. However, compared to urban-born Nampula residents, IDPs exhibit lower community trust, social capital, and civiness, telling of the challenges of social integration. Alarmingly, IDPs report much higher levels of mental stress and appear pessimistic on the future.

Overall, our findings reveal how forced displacement can act as a devastating mobility shock that triggers investments in education and employment shifts. Our results from a low-income country where a third of the population got displaced has relevance for the applied policy agenda on the fragility trap (Cameron et al., 2018). While there is need for more research on forced displacement from frontier and fragile countries, the population-wide and within-family results from a 15-year long devastating civil war with a variety of displacement trajectories can help understand developments in the Sahel, South Sudan, Eastern Congo, Ethiopia, and Northern Mozambique, where millions have been displaced in the past years. Our research suggests rethinking the refugee camp paradigm, perhaps investing not only in schools, but also in security and employment. Besides, policy-makers and international agencies should consider refocusing attention and resources on the integration of displaced individuals into urban environments with more opportunities. Forced displacement comes with non-negligible psychological costs and our results further reveal sizable costs of social integration, much needed to heal the wounds of violence, human loss, and forced displacement after civil wars. Strategies that address mental stress and enable the social coalescing of displaced into the new communities are priorities. Combined, these strategies may leverage forced displacement as an opportunity for lasting structural transformation. The educational investments of refugees and IDPs can be a pillar for post-war reconstruction and recovery.

References

- Alesina, Alberto, Sebastian Hohmann, Stelios Michalopoulos, and Elias Papaioannou**, “Intergenerational Mobility in Africa,” *Econometrica*, 2021, 89 (1), 1–35.
- Alesina, Alberto, Stelios Michalopoulos, Papaioannou Elias, and Hohmann Sebastian**, “Religion and Educational Mobility in Africa,” *NBER Working Paper 28270*, 2021.
- Algan, Yann and Pierre Cahuc**, “Trust and Growth,” *Annual Review of Economics*, 2013, 5 (1), 529–549.
- Azevedo, Mario Joaquim**, *Tragedy and Triumph: Mozambique Refugees in Southern Africa, 1977-2001*, Greenwood, 2002.
- Bazzi, Samuel, Arya Gaduh, Alexander D Rothenberg, and Maisy Wong**, “Unity in Diversity? How Intergroup Contact Can Foster Nation Building,” *The American Economic Review*, 2019, 109 (11), 3978–4025.
- Becker, Sascha O and Andreas Ferrara**, “Consequences of Forced Migration: A Survey of Recent Findings,” *Labour Economics*, 2019, 59, 1–16.
- Becker, Sascha O, Irena Grosfeld, Pauline Grosjean, Nico Voigtländer, and Ekaterina Zhuravskaya**, “Forced Migration and Human Capital: Evidence from Post-WWII Population Transfers,” *The American Economic Review*, 2020, 110 (5), 1430–1463.
- Benos, Nikos, Elias Papaioannou, Stelios Karagiannis, Elie Murard, and Seyhun Sakalli Orcan**, “Refugees in the Mediterranean: Economic Consequences,” *Brown University*, 2021.
- Besley, Timothy and Marta Reynal-Querol**, “The Legacy of Historical Conflict: Evidence from Africa,” *American Political Science Review*, 2014, 102 (2), 319–336.
- Blattman, Christopher and Edward Miguel**, “Civil War,” *Journal of Economic literature*, 2010, 48 (1), 3–57.
- Blattman, Christopher and Jeannie Annan**, “The Consequences of Child Soldiering,” *The Review of Economics and Statistics*, 2010, 92 (4), 882–898.
- Boothby, Neil, Abubacar Sultan, and Peter Upton**, “Children of Mozambique: The Cost of Survival,” *U.S. Committee for Refugees, Washington, DC*, 1991.
- Borjas, George J**, “The Labor Demand Curve is Downward Sloping: Reexamining the Impact of Immigration on the Labor Market,” *The Quarterly Journal of Economics*, 2003, 118 (4), 1335–1374.
- Borjas, George J and Joan Monras**, “The Labour Market Consequences of Refugee Supply Shocks,” *Economic Policy*, 2017, 32 (91), 361–413.
- Botticini, M. and Zvi Eckstein**, “The Chosen Few: How Education Shaped Jewish History, 70-1492,” *Princeton University Press*, 2012.
- Brennan, Tom**, “Refugees from Mozambique: Shattered Land, Fragile Asylum: US Committee for Refugees,” 1986.

- Cameron, David, Donald Kaberuka, Adnan Khan, Collier Paul, Besley Tim, Burgess Robin, Fearon James, Krasner Stephen, Mehyar Nourah, Shafik Minouche, Soyoye Babatunde, Widner Jennifer, and Woods Ngaire**, “Escaping the Fragility Trap,” *Commission on State Fragility, Growth and Development*, 2018.
- Chamarbagwala, Rubiana and Hilcías E Morán**, “The Human Capital Consequences of Civil War: Evidence from Guatemala,” *Journal of Development Economics*, 2011, *94* (1), 41–61.
- Chen, Siyan, Norman V Loayza, and Marta Reynal-Querol**, “The Aftermath of Civil War,” *World Bank Policy Research Working Paper No. 4190*, 2007.
- Chetty, Raj and Nathaniel Hendren**, “The Impacts of Neighborhoods on Intergenerational Mobility I: Childhood Exposure Effects,” *The Quarterly Journal of Economics*, 2018, *133* (3), 1107–1162.
- Chetty, Raj and Nathaniel Hendren**, “The Impacts of Neighborhoods on Intergenerational Mobility II: County-Level Estimates,” *The Quarterly Journal of Economics*, 2018, *133* (3), 1163–1228.
- Chiovelli, Giorgio, Stelios Michalopoulos, and Elias Papaioannou**, “Landmines and Spatial Development,” *NBER Working Paper 24758*, 2019.
- Dell, M. and P Querubin**, “Nation Building Through Foreign Intervention: Evidence from Discontinuities in Military strategies,” *Quarterly Journal of Economics*, 2018, *133* (2), 701–764.
- Devictor, Xavier, Quy-Toan Do, and Andrei A Levchenko**, “The Globalization of Refugee Flows,” *Policy Research Working Paper No. 9206. World Bank, Washington, DC*, 2020.
- Domingues, Patrick**, “A Database on the Mozambican Civil War,” *Peace Economics, Peace Science, and Public Policy*, 2011, *17* (1).
- Fergusson, Leopoldo, Ana María Ibáñez, and Juan Felipe Riaño**, “Conflict, Educational Attainment, and Structural Transformation: La Violencia in Colombia,” *Economic Development and Cultural Change*, 2020, *69* (1), 335–371.
- Foged, Mette and Giovanni Peri**, “Immigrants’ Effect on Native Workers: New Analysis on Longitudinal Data,” *American Economic Journal: Applied Economics*, 2016, *8* (2), 1–34.
- Fransen, S, C Vargas-Silva, and M Siegel**, “The Impact of Refugee Experiences on Education: Evidence from Burundi,” *IZA Journal of Development and Migration*, 2018, *8* (1), 1–20.
- Friedberg, Rachel M**, “The Impact of Mass Migration on the Israeli Labor Market,” *The Quarterly Journal of Economics*, 2001, *116* (4), 1373–1408.
- Gersony, Robert**, “Mozambique Refugee Accounts of Principally Conflict-Related Experiences in Mozambique,” *State Department, Washington*, 1988.

- Ginn, T.D.**, “Prison or Sanctuary? An Evaluation of Camps for Syrian Refugees,” *Center for Global Development*, 2020. Retrieved from <https://economics.stanford.edu/events/prison-orsanctuary-evaluation-camps-syrian-refugees>.
- Gluck, Caroline and Mohamed Alalem**, “The Challenge of Helping Child Refugees in Libya Overcome Trauma,” 2020. Retrieved From <https://www.unhcr.org/news/stories/2020/1/5e3008ed4/>.
- Guiso, Luigi, Paola Sapienza, and Luigi Zingales**, “Chapter 10 - Civic Capital as the Missing Link,” *Handbook of Social Economics*, 2011, 1, 417–480.
- Human Rights Watch**, “Conspicuous Destruction: War, Famine and the Reform Process in Mozambique,” 1991. Retrieved From <https://www.hrw.org/reports/pdfs/m/mozambq/mozambi.927/mozam927full.pdf>.
- Miguel, Edward and Gérard Roland**, “The Long-Run Impact of Bombing Vietnam,” *Journal of Development Economics*, 2011, 96 (1), 1–15.
- Nakamura, Emi, Jósef Sigurdsson, and Jón Steinsson**, “The Gift of Moving: Inter-generational Consequences of a Mobility Shock,” *The Review of Economic Studies*, 2021, rdab062.
- Nunn, Nathan and Leonard Wantchekon**, “The Slave Trade and the Origins of Mistrust in Africa,” *The American Economic Review*, 2011, 101 (7), 3221–3252.
- Peters, Michael**, “Market Size and Spatial Growth - Evidence from Germany’s Post-33 War Population Expulsions,” *Econometrica*, 2019. Conditionally Accepted.
- Porzio, Tommaso, Federico Rossi, and Gabriella Santangelo**, “The Human Side of Structural Transformation,” *CEPR Discussion Paper No. DP15110*, 2020.
- Riaño, Juan Felipe and Felipe Valencia**, “Collateral Damage: The Legacy of the Secret War in Laos,” *CEPR Discussion Paper No. DP15349*, 2020.
- Robinson, Alexander**, “Curse on the Land: A History of the Mozambican Civil War,” 2006. University of Western Australia Crawley.
- Rohner, Dominic, Mathias Thoenig, and Fabrizio Zilibotti**, “Seeds of distrust: conflict in Uganda,” *Journal of Economic Growth*, 2013, 18 (3), 217–252.
- Saing, Chan Hang and Harounan Kazianga**, “The Long-Term Impacts of Violent Conflicts on Human Capital: US Bombing and, Education, Earnings, Health, Fertility and Marriage in Cambodia,” *The Journal of Development Studies*, 2020, 56 (5), 874–889.
- Sieverding, Maia, Caroline Krafft, Nasma Berri, Caitlyn Keo, and Mariam Sharpless**, “Education Interrupted: Enrollment, Attainment, and Dropout of Syrian Refugees in Jordan,” *Working Papers 1261, Economic Research Forum*, 2018.
- Stigler, G. and G Becker**, “De Gustibus Non Est Disputandum,” *The American Economic Review*, 1977, 67 (2), 76–90.

Verme, Paolo and Kirsten Schuettler, “The Impact of Forced Displacement on Host Communities: A Review of the Empirical Literature in Economics,” *Journal of Development Economics*, 2021, *150*, 102606.

Verwimp, Philip, Davide Osti, and Gudrun Østby, “Forced Displacement, Migration, and Fertility in Burundi,” *Population and Development Review*, 2020, *46* (2), 287–319.

Weinstein, J.M., “Mozambique: A Fading U.N. Success Story,” *Journal of Democracy*, 2002, *13* (1), 141–156.

World Bank, “World Bank Development Indicators,” 2020. Retrieved From <https://databank.worldbank.org/source/world-development-indicators>.