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Ellen Munroe, Anastasiia Nosach, Moisés Pedrozo, Eleonora Guarnieri, Juan Felipe Riaño, Ana Tur-Prats, Felipe Valencia Caicedo

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Ellen Munroe[†] Anastasiia Nosach[‡] Moisés Pedrozo[§]
LSE Statistics Canada UCA

Eleonora Guarnieri[¶] Juan Felipe Riaño^{||} Ana Tur-Prats^{**}
University of Exeter, CESifo Stanford UC Merced

Felipe Valencia Caicedo^{††}
UBC, IZA, CEPR

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Abstract

This survey article reviews the literature on the multifaceted consequences of historical conflict. We revisit three key topics, which are especially relevant for the current Ukrainian context. 1) The negative long-term impact of bombing campaigns and political repression against civilians. 2) The interplay between forced migration, refugees and conflict. 3) The role of gender and war, with a special focus on sex ratios and conflict-related sexual violence. We conclude with an empirical investigation of the ongoing Russian-Ukrainian conflict, including historical determinants such as ethnic populations, historical political repression and voting outcomes.

Keywords: Conflict, Bombing, Political Repression, Forced Migration, Gender, Sexual Violence, Ukraine

JEL Codes: D74, N10, O10

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[†]Department of Economics, London School of Economics

[‡]Producer Prices Division, Statistics Canada

[§]Department of Economics, Universidad Católica de Asunción

[¶]University of Exeter Business School, E-mail: e.guarnieri@exeter.ac.uk

^{||}King Center on Global Development, Stanford University, E-mail: jfrianor@stanford.edu

^{**}Department of Economics, University of California at Merced, E-mail: atur-prats@ucmerced.edu

^{††}Vancouver School of Economics, University of British Columbia, E-mail: felipe.valencia@ubc.ca

1 Introduction

Given the current geopolitical and security situation in Ukraine, in this article we revisit the evidence on the legacies of conflict. We focus on three broad topics which are both relevant in the academic literature and for the current conflict. First, we look at the aftereffects of bombing campaigns and political violence against civilians. We then analyze the interplay between forced migration and conflict. Next, we move to examine the role of gender, and in particular sex ratios and war, concluding with an inquiry of conflict-related sexual violence. We draw parallels from these academic literatures to the Ukrainian context and proceed with an empirical analysis of the current conflict, starting with some stylized facts. We examine both modern conflict dynamics, as well as historical determinants highlighted in the conflict literature. First, we document an overall decline of attacks and describe regional patterns of violence. In our empirical analysis, we find a negative correlation between recent political participation and modern attacks. We also find a strong positive correlation between the historical presence of ethnic Russians and current conflict, as well as a negative one between modern conflict and Holodomor famine deaths (an extreme form of repression), both within Ukraine. We conclude the piece with some policy lessons that could inform the conflict resolution process.

2 Long-Term Impact of Bombing Campaigns and Political Violence

2.1 Bombing Campaigns and Economic Development

The evidence on the destructive nature of conflict in the short run is hard to overemphasize (Ray & Esteban, 2017; M. Bauer et al., 2016; Blattman & Miguel, 2010), especially when it involves military operations and bombing campaigns by international actors (Kocher, Pepinsky, & Kalyvas, 2011). Yet, the economic consequences of these conflicts in the long-run have proven more elusive to assess empirically. Several studies, stressing postwar recovery, have found no long-lasting economic impacts after the bombings in Japan, Germany, and Vietnam (Davis & Weinstein, 2002; Brakman, Garretsen, & Schramm, 2004; Miguel & Roland, 2011; Vonyó, 2018). In the very long term, historian Charles Tilly postulated that war made the state, and that states made war, through enhanced fiscal capacity (see, Gennaioli and Voth (2015) and Dincecco and Onorato (2018)).

A series of papers have recently revisited the existing evidence on the long-term impacts of bombing campaigns with new data, econometric tools, and in different contexts. For Vietnam, Dell and Querubin (2018) show that US bombing reduced the collection of local taxes, led to more anti-American sentiment, and hindered access to primary schools, using both an Instrumental Variables (IV) strategy and a spatial Regression Discontinuity Design (RDD) based on military strategies. Adena, Enikolopov, Petrova, and Voth (2020) find that Allied bombing and propaganda undermined German morale during WWII, exploiting

exogenous variation in weather conditions.¹ For that same conflict, [Harada, Ito, and Smith \(2020\)](#) show that neighborhoods in Tokyo more affected by the air raids have lower social capital today. Bombing appears a first order topic in the conflict literature as well as a relevant element for the Ukrainian context.

Building on this literature, [Riaño and Valencia-Caicedo \(2020\)](#) evaluate the enduring effects of the US government’s ‘Secret War’ in Laos (1964 -1975). As a result of one of the most intensive aerial bombing campaigns in human history, Laos is now severely contaminated with Unexploded Ordnance (UXO), which has impaired Laotians’ health, education, and migration choices. These factors have in turn hindered the structural transformation and economic growth of the country, which remains one of the world’s poorest. These findings for Laos—especially with regards to the role of UXO contamination after bombing —extend to other war-torn countries. For example, [Lin \(2020\)](#) studies the problem of UXOs in Cambodia, finding that agricultural land has become less productive due to UXO contamination. It appears that the negative effects of bombing on modern growth are particularly salient in more rural environments.

As a flipside, [Chiovelli, Michalopoulos, and Papaioannou \(2018\)](#) stress the large economic benefits of clearing the landmines—another UXO type war legacy—left after the Mozambican Civil War (1977-1992) through the subsequent impact of this on increasing market-access of impacted communities. Similarly, [Prem, Purroy, and Vargas \(2021\)](#) show that demining campaigns in Colombia were also key for economic development. However, they show that these campaigns work better if conducted after conflict ends as demining campaigns during military operations could exacerbate extractive activities. These papers are relevant to inform an eventual demining process in Ukraine.

In terms of policy implications, we believe that the demining agenda should take a center stage in a post-conflict Ukraine. The empirical evidence on the negative long-term impacts of UXO contamination is clear, and so are the key benefits of demining after conflict. However, the effects of the short-term clearance are still hard to assess. As Karen Chandler from the US Bureau of Political-Military affairs recently explains ([United States Department of State, 2022](#)):

“Unexploded ordnance, landmines, and other explosive remnants of war will exacerbate global food insecurity by impacting Ukraine’s food production and supply chain, block humanitarian aid workers from accessing Ukraine’s hardest hit areas, and hinder the restoration of critical civilian infrastructure. Additionally, returning refugees will stream back into communities contaminated by explosive remnants of war. [They] and many returning civilians may feel compelled to clear explosive remnants of war themselves, causing casualties from these dangerous items to spike.”

¹[Redding and Sturm \(2016\)](#) and [Dericks and Koster \(2018\)](#) use the blitz of London during World War II to study spatial sorting, neighborhood effects, and agglomeration which are all key to understand urban economic growth.

According to Ukraine’s Ministry of Foreign Affairs and Agriculture, as of April 2022, approximately 80,000 square kilometers of land – 13% of Ukraine’s territory – was suspected to be contaminated by landmines and UXOs, while 10% of the country’s farmland is tainted by some form of explosive hazard. Before Russia’s invasion of Ukraine in February 2022, only 3.4 square kilometers of contaminated land in the Donbas region had been cleared of landmines. This is less than 1% of the current estimate of suspected hazardous areas in the region (United States Department of State, 2022). There is a tension here with regards to potential demining operations. On the one hand, one would want to wait to start clearing operations. Yet, given the current contamination involved and the possibility of tracking the bombing operations in real-time, there is a pressing need to assess the risk of clearance of the most contaminated areas. Overall, one would not want to wait until the situation resembles the Cambodian or Laotian one, entering a Conflict Trap (Collier et al., 2003), further hampering the health and human capital of the Ukrainian population in the long run.

2.2 Cultural and Political Legacies of Political Repression Against Civilians

The issue of violent repression against civilians during war is particularly relevant to the current context. Existing work in political science and economics has already examined the long-lasting impact of Soviet repression. Lupu and Peisakhin (2017) find that political violence shapes political identities among Crimean Tatars. Descendants from those that suffered the most during Soviet times identify more strongly with their ethnic group and hold more hostile views towards Russia today. Rozenas, Schutte, and Zhukov (2017) also stress the inter-generational impact of indiscriminate violence on political behavior. In a tragically relevant case—involving deportations to Siberia—they document that where Stalinist repression was strongest in western Ukraine, people are less likely to vote for “pro-Russian” parties later on. For identification they use both an instrumental variables strategy (based on railway networks) and a fuzzy RDD across Soviet rayons. In a follow up paper, Rozenas and Zhukov (2019) show that indiscriminate and “credible” repression can induce political obedience. Namely, they show that Ukrainian communities that were more exposed to Stalin’s “terror by hunger” behaved more loyally towards Moscow later on. Their identification strategy exploits exogenous variation in local famine mortality due to weather shocks. In a very recent contribution Yaremko (2022), looks at the long-term negative impact of the blacklisting or targeting of the “kulak” entrepreneurial peasantry by Stalin. All of these papers show the negative impact of historical political repression in Ukraine.

Unfortunately, there are already reports of civilian repression and even mass graves in the current Russian-Ukrainian conflict. The news stories of civilian massacres received from Bucha and the mass graves exhumations in Izyum—both Ukrainian cities occupied by the Russian army during the first months of the conflict—depict a tragic scenario.² If the

²See, for instance, <https://foreignpolicy.com/2022/04/19/bucha-ukraine-russia-war-crimes-collective-memory/> or <https://www.bbc.com/news/world-europe-62922674>.

results from other major confrontations are any guide, the impact of these wounds could be felt for generations to come.

The findings for Soviet repression extend to other contexts as well. [Fontana, Nannicini, and Tabellini \(2018\)](#) study the impact of the Nazi occupation of Italy at the end of WWII. They find that where this occupation was stronger, the Communist party—which was active in the resistance movement—gained more votes during the postwar period. These long-term effects are at the expense of centrist parties. For identification, the authors use a RDD along the Gothic Line, an important defensive line that crossed northern Italy. [Cannella, Makarin, and Pique \(2021\)](#) reach similar conclusions for northern Italy, along with lower political participation. [Bühler and Madestam \(2022\)](#) examine the long-term political effects of the Khmer Rouge in Cambodia. They find that in places closer to the Killing Fields people vote more and do so for the opposition party. For identification, they use exogenous shocks to rice productivity, a keystone of the authoritarian regime. [Bautista, González, Martínez, Muñoz, and Prem \(2021\)](#) show that in places closer to military bases people voted against Pinochet’s dictatorship in Chile. For more recent conflicts, [Bellows and Miguel \(2009\)](#) find that exposure to conflict during Sierra Leone’s Civil War led to more political participation, while in Uganda it led to increased voting ([Blattman, 2009](#)). Later, we examine empirically political participation in the current context.

[Tur-Prats and Valencia Caicedo \(2020\)](#) examine the political and cultural legacies of the Spanish Civil War, focusing on civilian repression. They find long-lasting results on voting during the democratic period from 1977 to 2019, corresponding to the sided political repression carried out in the Aragon region, consistent with the results above on credible repression and targeted political violence. They also find a significant and negative relationship between political violence and generalized trust, which extends to trust in institutions associated with the Civil War. For identification, the authors exploit deviations from the initial military plans of attack in an IV framework and a geographical RDD along the battlefield of Aragon. In terms of mechanisms of persistence, the authors find lower levels of political engagement and differential patterns of collective memory about this traumatic historical event, using observational data and a survey conducted in the Aragon region.

The results on trust echo those found in other settings, or for shorter time periods. [Rohner, Thoenig, and Zilibotti \(2013a\)](#) find that conflict in Uganda decreased generalized trust and increased ethnic identity. Using experimental evidence from Tajikistan, [Cassar, Grosjean, and Whitt \(2013\)](#), show that exposure to violence undermined trust and participation in market transactions. [Alacevich and Zejcirovic \(2020\)](#) also find that individuals living in more violent areas during the Yugoslavian War in Bosnia and Herzegovina are less trusting and politically active today. At a broader scale, [Grosjean \(2014\)](#) also finds an erosion of trust. These results are at odds with the war fosters cooperation literature summarized in ([M. Bauer et al., 2016](#)).

In the Ukrainian case, we observe an erosion of support for pro-Russian parties that started already before the Russian invasion in February 2022. Figure 1 shows that the share of votes for pro-Russian parties, which varies widely across regions but had remained relatively stable for the period 2002-2012. According to the Figure 1, we can conclude that oblasts that voted pro-Russian were located mostly in the Eastern region including Donetsk, Dnipropetrovsk and Odessa. However, we can observe a dramatic drop in pro-Russian votes in 2014 which can be associated with the Revolution of Dignity and further annexation of Crimea region. This dramatic decline has been even more significant in the Southeastern oblasts of Donetsk, Dnipropetrovsk and Odessa, that had traditionally been pro-Russian regions. The support for pro-Russian parties continued decreasing into the 2015 elections. In April-May 2014 referendums were held by the pro-Russian leaders and self-proclaimed regions of Donetsk People’s Republic (DNR) and Luhansk People’s Republic (LNR) were established. As reflected in Figure 1, voters including Ukrainian-controlled Eastern region voters (e.g. Dnipropetrovsk, Odessa etc.) started to lose their trust in pro-Russian opposition leaders. These political realities are relevant for the current conflict, as examined next.

Figure 2 shows a negative relationship between 2022 violence and 2014 voter turnout. That is, higher voter turnout in 2014 elections is correlated with lower war violence in 2022. Additionally, the Eastern regions including Donetsk, Luhansk and Odessa had the lowest 2014 voter participation in the country ([Central Election Commission of Ukraine, 2014](#)), this is consistent with our findings about higher 2022 violence in the Eastern oblasts of Ukraine, shown later in Section 5.1. Existing literature has found that violence fosters political participation in the aftermath of conflict ([Bellows & Miguel, 2009](#)), here we see that lower political participation in the earlier period is correlated with increased conflict later on. We acknowledge, however, that the results could still be driven by third factors.

The main lesson from the studies analyzed is that political repression can have long-lasting consequences that go well beyond the conflict years. Work conducted in this topic stresses the key role of collective memory as a mechanism of transmission of these legacies. A nuanced and balanced construction of the events is fundamental for victims from all sides. Avoiding in-depth research such as the one conducted by truth and reconciliation commissions in the short term, could bring problems in the long run. Two policy lessons that we draw from our reading of the literature are the importance of encouraging citizens to vote and be part of the democratic process, as well as to work on the healing of the social fabric. Regaining citizens trust is fundamental for long-term social cohesion and economic prosperity. Again, the main goal is to end the cycles of war and mistrust ([Rohner, Thoening, & Zilibotti, 2013b](#)).

3 Conflict and Migration

As of July 4, 2022, it is estimated that 12 million Ukrainians were displaced due to the Russian invasion. Of these, approximately 7 million are thought to be internally displaced,

while 5 million have fled Ukraine to seek refuge in other nations, mostly European countries.³ Following [S. Becker and Ferrara \(2019\)](#), we divide our summary into four parts: refugee selection, the effect of forced migration on migrants, the effect on sending regions, and the effect on receiving regions.⁴ [S. Becker and Ferrara \(2019\)](#) define forcibly displaced individuals as people who moved due to threats of violence, psychological distress, or extreme economic conditions.

3.1 Refugee Selection

Research shows that forced migrants' earnings are consistently lower than those of people native to receiving regions ([Peters, 2017](#); [Brell, Dustmann, & Preston, 2020](#)). However, the economic outcomes of refugees relative to voluntary migrants or economic migrants are a priori ambiguous. On the one hand, refugees typically experience a more abrupt and traumatic removal from their homeland. Refugees may have lower levels of education and access to capital if they were targets of violence due to their socioeconomic status ([Ibáñez & Vélez, 2008](#)). Using data from 2008, [Dustmann, Fasani, Frattini, Minale, and Schönberg \(2017\)](#) find that refugees who migrated to the EU had worse employment outcomes than economic migrants, even if they arrived from the same country and had similar levels of education. [Brell et al. \(2020\)](#) show that in Scandinavian countries, Canada, Australia, the US and the UK, refugees have on average lower wages and lower employment rates than voluntary migrants. Moreover, they show that female refugees are particularly adversely impacted, with a lower male-to-female employment ratio compared to other migrants.

On the other hand, refugees may have higher education and skills than other types of migrants if they fled when there were high barriers to leaving, so only the wealthiest or most connected could leave ([Abramitzky, Ager, Boustan, Cohen, & Hansen, 2022](#)). Moreover, [Aksoy and Poutvaara \(2021\)](#) show that refugees fleeing violence may have higher levels of education compared to their home population if the risk of violence in their home country sufficiently reduces the returns from human capital. They find that if women face high gender discrimination in their home country, their returns to education will be lower than for men, which explains why female migrants from these countries might also be on average more educated than women in their home country. Similarly, [Abramitzky et al. \(2022\)](#) find that migrants fleeing persecution from the Soviet Bloc were positively selected in terms of education. These findings point to the theory that persecution can disproportionately induce highly educated people to leave even if the returns to their human capital is higher in their home country in the absence of persecution.

³BBC 07/04/ 2022. <https://www.bbc.com/news/world-60555472>.

⁴For comprehensive analyses of this literature refer to [S. O. Becker \(2022\)](#), [Verme and Schuettler \(2021\)](#), [S. Becker and Ferrara \(2019\)](#), and [Chin and Cortes \(2015\)](#).

3.2 How Migration Impacts Forced Migrants

Forced migration can have detrimental effects on migrants, yet it can also improve economic outcomes of individuals under certain conditions. These conditions are related to the migrant's pre-existing income and to the investment in human capital brought upon by the migrant's relocation. These potentially counterintuitive findings deserve further explanation. [T. Bauer, Giesecke, and Janisch \(2017\)](#) find positive effects of forced migration with respect to overall mortality rates for people leaving for West Germany after WWII when the German borders were redrawn, but only for those in the top income quintile. [S. O. Becker, Grosfeld, Grosjean, Voigtländer, and Zhuravskaya \(2020\)](#) find that forced migrants can also be more likely to invest in education if forced migration generates a higher preference for mobile human capital relative to stationary physical capital. They show the migration of Poles from the Kresy Territory after WWII had persistent positive impacts on education levels for several generations as a result of shifting preferences to invest in human rather than physical capital. In more modern times, after WWII, expellees into West Germany fared worse than the native population with the exception of people who worked in the agricultural sector and re-educated to work in new sectors ([T. K. Bauer, Braun, & Kvasnicka, 2013](#)). In the context of a natural disaster, forced migration due to a volcanic eruption in Iceland positively impacted the educational and earnings outcomes for people younger than 25 but had a negative impact on earnings for those who were older than 25 ([Nakamura, Sigurdsson, & Steinsson, 2021](#)).

Finally, how forced migrants are integrated into a new region affects their socioeconomic outcomes too. High concentrations of refugees give rise to worse integration outcomes, and refugees are best integrated when they are relocated to urban centers, as [Braun and Dwenger \(2017\)](#) show in the context of West Germany post-WWII. Moreover, [Black, Liepmann, Remigereau, and Spitz-Oener \(2022\)](#) show that government aid to refugees positively impacted education for all eligible young adults. However, for eligible children, benefits were only seen for males and not females, which stresses the importance of considering differential outcomes for women and girls when designing refugee aid programs.

3.3 Impacts on Sending Regions

The impact of forced migration on sending regions is less well understood than the impact of forced migration on receiving regions ([S. Becker & Ferrara, 2019](#)), and the effects of forced migration can be difficult to disentangle from the effects of the conflict or unrest that caused people to flee. However, the literature is nearly unanimous in its findings that forced migration is detrimental for sending regions. We categorize the causal channels of these detrimental effects into two groups. First, forcing swaths of a population to leave can dramatically erode trust and institutions. Second, when populations flee they take their human capital and skills with them, which can leave a vacuum that may not be able to be

replaced by the remaining population.

In the context of institutions and trust, the conditions that precede forcible migration events can degenerate inter- and intra-group trust. From a historical perspective, [Nunn \(2008\)](#) shows that Slave Trades in Africa significantly decreased sending countries' present-day economic output. One of the mechanisms for this result is likely the degradation of trust generated by the slave raids ([Nunn & Wantchekon, 2011](#)). This also holds in the context of Post-WWII, where areas with higher historical forced migration in Hungary have lower levels of trust that have persisted to the present-day ([Borbely & McKenzie, 2022](#)).

Expelling populations changes the human capital composition of a region. When highly educated people are expelled, the following generations of people who remain can have significantly lower educational outcomes, as [Yuksel and Yuksel \(2013\)](#) show in the context of post-war Germany. Regions that experienced a greater outflow of migrants in the partitioning of India and Pakistan saw literacy rates fall due to migrants having on-average higher levels of education ([Bharadwaj & Ali Mirza, 2019](#)). German expulsion of Jews from academia, specifically in the context of mathematicians, resulted in lower outcomes for PhD students remaining in Germany ([Waldinger, 2010](#)). Another effect of the human capital deficit left by forced migration is the effect on firms of losing workers. [Huber, Lindenthal, and Waldinger \(2021\)](#) show that firms that had Jewish managers in Germany suffered significantly due to the loss of their managers during the Nazi Regime.

3.4 Effects of Forced Migration on Receiving Regions

The most populated migration literature in economics pertains to the impacts of migration on receiving populations. Whether an influx of forced migrants generates positive or negative impacts on receiving population is highly context-specific ([S. Becker & Ferrara, 2019](#)).⁵ If refugees have relatively high levels of human capital, there can be positive effects on human capital, skill, and knowledge transfer for a receiving region ([Hornung, 2014](#); [Moser, Voena, & Waldinger, 2014](#); [Mirza, 2022](#); [Toews & Vézina, 2021](#)). The presence of refugees can also stimulate economic activity by creating new jobs and increasing demand for local goods. In Kenya, increased numbers of refugees are associated with higher economic activity and increased consumption for locals living near refugee camps ([Alix-Garcia, Walker, Bartlett, Onder, & Sanghi, 2018](#)). On the other hand, refugees can draw resources away from the native population. For example, [Baez \(2011\)](#) found that exposure to refugees had negative impacts on Tanzanian children's health and educational outcomes during the influx of refugees from Rwanda and Burundi in 1994.

One of the major concerns about receiving forced migrants voiced in media and politics is the impact on the labour market. If new forced migrants compete directly with the

⁵In a meta-analysis, [Verme and Schuettler \(2021\)](#) find that often the literature on forced migration shows no significant effect on the labor market outcomes. [S. Becker and Ferrara \(2019\)](#) describe the literature as providing mixed results.

native population for jobs, they can have negative impacts on native labour market outcomes (Braun & Mahmoud, 2014; Morales, 2018; Black et al., 2022). However, if the new migrants do not compete directly with the native population or step into jobs that are complements to existing native jobs then there can be negligible (Card, 1990) or even positive (Peters, 2017; Black et al., 2022) impacts on native employment. In some cases, firm productivity in receiving regions can increase if forced migrants have skill matches to existing firms. In these circumstances, there can be wage increases for employees in these firms. Positive firm-level productivity impacts are documented by Altindag, Bakis, and Rozo (2020), Hornung (2014), Braun and Kvasnicka (2014), and Peters (2022). Moreover, forced migrants can have positive impacts on receiving regions by transferring skills and knowledge to locals (Murard & Sakalli, 2018; Toews & Vézina, 2021).

One concern for policymakers is civilian sentiment about how influxes of refugees may impact demand for housing. If forced migrants have sufficient capital, a large enough flow of migrants into one area could raise the price of housing rental units in both high- and low-income areas. If forced migrants are capital constrained, it is possible that rental prices increase in low-income but not high-income areas (Balkan, Tok, Torun, & Tumen, 2018). However, negative attitudes to refugees can increase demand for high-quality housing for the native population while not significantly changing low-quality house prices, as Depetris-Chauvin and Santos (2018) show for internally displaced persons in Colombia.

Inflows of forced migrants can also change a region's political outcomes. Dustmann, Vasiljeva, and Piil Damm (2018) find that refugees change voter behaviour of the native population. They show that in the most rural areas, increased presence of refugees decreases vote shares for right-wing politicians. Whereas in all other areas increased refugee populations coincide with higher right party vote shares. Steinmayr (2021) found similar effects in Upper Austria. Initial influxes of refugees increased far-right votes in the region, but when native people interacted with refugees the far-right vote share fell. Assessing the 2015 mass migration of refugees into Europe, findings show that more exposure to migrants increases anti-immigrant sentiment and reduces trust in government (Ajzenman, Aksoy, & Guriev, 2022). However, other research shows that the large influx of refugees into Germany in 2014 and 2015 did not substantially change support for anti-immigrant politicians (Gehrsitz & Ungerer, 2022).

From the literature, we garner three policy lessons. First, the literature shows that refugees do better if they are able to invest in education or skill training (S. O. Becker et al., 2020; T. K. Bauer et al., 2013). But policies themselves, for instance with regards to residence requirements, could also have major effects (Adda, Dustmann, & Görlach, 2021). Nations receiving refugees from Ukraine should focus their efforts on providing language courses, education, and labor training (see Lochmann, Rapoport, and Speciale (2019)). Moreover, female and older refugees of working age typically have worse employment outcomes than male and young refugees (Brell et al., 2020). Successful refugee integration programs need to

focus on improving access to education for these groups. Second, research has shown that refugees do better when they are integrated into urban centers (Braun & Dwenger, 2017; Abramitzky & Boustan, 2022). Refugees should be integrated into areas with bigger job markets, and more options for education and transportation. This is something that is often avoided for political reasons, such as backlash from urban electorates. Third, mass forced migration creates a human capital deficit in the sending regions (Bharadwaj & Ali Mirza, 2019; Yuksel & Yuksel, 2013). Therefore, stressing the need to make human capital a major focus for rebuilding Ukraine, especially in a post-COVID-19 context.

4 Conflict and Gender

Wars and civil conflicts often generate sex ratio imbalances among the nations involved in the struggles. In an extreme example, the War of the Triple Alliance (1864-1870) killed around 75% of Paraguayan men (Alix-Garcia, Schechter, Valencia Caicedo, & Zhu, 2022). These imbalances, even when less extreme, impact economic variables through different mechanisms. In the last years, the number of studies focusing on this subject has increased, focusing on different outcome variables that can give us some lessons for the Ukrainian case.⁶

4.1 Labor Market Participation and Gender Norms

Wars mobilize men to the armed forces, independently of their labor status – although some exceptions are made regarding age, farmers, ethnicity, or disabilities. Thus, in periods of conflict, the number of men in the labor market drops. One of the conflicts that has generated more research on this topic is the Second World War (WWII), which mobilized 16 million men to serve in the US Military and caused the male labor force participation in the country to drop from 84.2% in 1940 to 67.7% in 1945. The decline in male labor force participation may generate an increase in the number of women in the labor market. In fact, between 1940 and 1945, female labor force participation (FLFP) increased from 27.8% to 33.8% (Acemoglu, Autor, & Lyle, 2004). Moreover, FLFP rates decreased after 1945 but did not go back to prewar levels. These labor shifts can generate both short and longer term effects in employment and beyond.

One of the first attempts to evaluate the causal effect of WWII on FLFP was Goldin (1991), who finds a positive effect, though modest. In particular, the author shows that about half of the women that enter the labor force during WWII left again after the struggle. Acemoglu et al. (2004) also finds a positive association between conflict and female labor force participation in the US – but find a more permanent effect. The authors argue that, after the war, FLFP increased permanently because women’s preferences changed as a result of their experiences working during the war. This is a good example of how, even though the economic shock might be short-lived, its cultural and socioeconomic impact might be

⁶See Bochenkova, Buonanno, and Galletta (2022), Dube and Harish (2020), and Eslava (2020) for a detailed discussion on the impact of women as leaders on conflict.

long-lasting, permanently affecting gender norms.

Other papers that analyze the effects of WWII using US data offer more nuanced results. [Goldin and Olivetti \(2013\)](#) find that the shift in labor supply appears to have occurred for women who entered white-collar positions during the war. Moreover, they discuss that the persistent impact loads on higher-educated women. [Fernández, Fogli, and Olivetti \(2004\)](#) find that wives of men who grew up with a working mother were more likely to work. The authors argue that a new family model developed: one in which children, especially male children, see their mother going to work. This new type of family positively influenced men's preferences towards a working wife or improved their abilities as a companion for working women. The family transformed gradually and changed women's role through generations. These findings hold in other settings. Using WWI as an exogenous event, [Boehnke and Gay \(2022\)](#) find that FLFP increased in France, and that this effect persisted during the interwar period. The authors claim that this might have occurred as a consequence of the negative income shock that households and widows experienced. They also find that single women were more likely to delay marriage, which in turn induced them to enter the labor force. [Gay \(2021\)](#) documents a persistent change of attitudes and beliefs towards FLFP generated by WWI in France.

The potential longer-term implications of war on FLFP through imbalanced sex ratios can be analyzed in the context of the Triple Alliance War in Paraguay (1864-1870). Using modern census data, [Alix-Garcia et al. \(2022\)](#) find that, within Paraguay, the probability of being employed today is higher for women living up to 30km away from battles or marches than those living farther. They also find that war areas are more associated with female-headed households and women being unmarried and living with a child, and point to gender norms as the mechanism behind this persistence. They find a positive effect on both men's and women's attitudes towards female employment which, in turn, can potentially lead to a higher female labor force participation. These gender-equal norms are related to the war: the positive perception toward women's participation is higher the closer the individual is to march lines.

[Boggiano \(2021\)](#) also exploits the Triple Alliance War and finds similar results to [Alix-Garcia et al. \(2022\)](#). Although the main focus of [Boggiano \(2021\)](#) is on intimate-partner violence (IPV), the results on FLFP echo those previously found in the literature. Despite the positive effect of employment on empowerment (independence, income), [Boggiano \(2021\)](#) notices that it can also have negative and unintended consequences on IPV, pointing out another dimension of the conflict's consequences. The author argues of the existence of a backlash effect. That is, labor participation and income of women might pose a threat for the role of men to which they might respond with violence against their partners.

The implications of conflicts for female empowerment is also studied by [Rogall and Zárate-Barrera \(2020\)](#) in the context of the Rwandan Genocide (1994). The authors find that

women living in villages that faced high-intensive violence experience better living conditions 15 to 20 years after the genocide. In particular, they find that women are wealthier, healthier, better educated, less likely to accept and be victims of domestic violence, have better jobs, experience more decision power in their households, and enjoy more financial and sexual autonomy. The authors claim that the militia’s strategy of targeting adult men allowed women to take crucial positions in both the household and the government. Some of these results are at odds with the papers examined in Section 4.4.

4.2 Marriage and Out-of-wedlock Births

[Abramitzky, Delavande, and Vasconcelos \(2011\)](#), using WWI as a source of exogenous variation, analyze the effects of male scarcity on the marriage market in France. The authors find that, after the war, a larger fraction of men married women of higher social class, thus improving men’s status. Moreover, they find that the age gap within newlywed couples decreased after the war. According to the authors, this is a consequence of women delaying marriage after the war, similar to the results discussed in [Boehnke and Gay \(2022\)](#). Furthermore, [Abramitzky et al. \(2011\)](#) show that women were less likely to marry, but men were more likely to do so.

[Bethmann and Kvasnicka \(2013\)](#) analyze the effects of WWII in Bavaria, Germany. They find that scarcity of men in the aftermath of WWII led to an increase in out-of-wedlock childbearing. According to the authors, this might be consequence of excess supply of women in the marriage market, leading to a higher bargaining power of men. Another explanation could be that women went to the labor force during the war, increased their income and worried less about the cost of bearing a child on their own. [Bethmann and Kvasnicka \(2013\)](#) also focus on women’s expectations. In particular, they use prisoners of war (POW) information to evaluate women’s expectation about the marriage market. Their argument is that the probability of returning home for soldiers who go missing in action (who are severely injured or are killed) is almost zero. But, as the authors claim, POWs have a high positive probability of return. Hence, the number of men per woman is likely to increase in the near future in counties with a high proportion of POW and the marriage market for women is likely to be better. In line with this prediction, [Bethmann and Kvasnicka \(2013\)](#) find that, in counties with a higher proportion of POW, the effect of sex ratio imbalances on out-of-wedlock childbearing was attenuated. They state that the effect might be driven by women’s prospects on the marriage market. That is, if women expect that in the near future the supply of men will increase, they might wait for the market to “get better”.

[Brainerd \(2017\)](#) uses the same event but focuses on Russia. The author shows that the war, by generating sex ratios imbalances, reduced marriages for both women and men (cf. [Abramitzky et al. \(2011\)](#)). While out-of-wedlock births increased after the war, marital fertility rates declined, which might be explained by preferences for children, female participation in the labor force, unstable marriages, and men’s higher bargaining power.

4.3 Lessons from History

The short term sex ratio shocks can have longer term economic impacts, especially if they change gender norms in a society. Current FLFP in former Soviet countries, including Ukraine, might be influenced by communist legacies (see [Campa and Serafinelli \(2019\)](#) and [Boelmann, Raute, and Schönberg \(2022\)](#)). Though the imbalances estimated for Ukraine by the beginning of 2022 (before the war started) were not as extreme as for the wars covered before, they may be exacerbated by male-biased migration shocks (see [Donato, Wagner, and Patterson \(2008\)](#) and [Nobles and McKelvey \(2015\)](#)). The estimated sex ratio is 116 women per 100 men, but it differs by age group.⁷ The Martial Law in Ukraine prohibits men aged 18-60 to leave the country.⁸ Hence, this group might be the most affected by the conflict. The sex ratio in this group is close to unity (104 women per 100 men). Next, we divide this group into two categories: those affected by the Martial Law still in reproductive years (18 to 49, [World Health Organization \(2006\)](#)) and older individuals affected by the Law but not in reproductive years (50 to 60). The sex ratio for the former is 99 women per 100 men. For the latter, 120 per 100. In the oldest cohort it is 180 to 100 (Figure 3(a)).

Right before the war started, in 2021, FLFP in Ukraine was 68% for working-age women (between 15-59 years old), according to the 2021 Labor Force Survey in Ukraine. FLFP differed significantly by age group, being the highest for women aged 40-49 (83%) and the lowest for young women between 15 and 24 (28%). These rates are lower than those observed for men for all age groups (Figure 3(b)).

This information from the Ukrainian population and labor market allows us to tie this reality to the existing literature. History shows us that women took men's place in the labor market as men went to the armed forces. We might expect higher participation of women in the labor market; in particular, for younger women. In addition, as we have seen in previous research, this may reshape gender norms for younger individuals, both females and males. The effect on the marriage market might be less foreseeable. If the sex ratio in the aftermath of the war is biased towards women, we could expect to see more out-of-wedlock births, lower marriage rates and higher female headed households. As women participate more in the labor force, marrying age will be delayed and financial independence will increase. Despite these positive impacts on women's employment and income, the overall impact on female well-being—in terms of their physical and mental health, and their education—might be negative as we review in the next section.⁹

⁷This estimation is as of January 1, 2022. The estimation is retrieved from [State Statistics Service of Ukraine](#).

⁸See [Deutsche Welle](#).

⁹See [Ramos-Toro \(2019\)](#) for a discussion of the impact of conflict on other dimensions of female well-being.

4.4 Conflict-Related Sexual Violence

Conflict-related sexual violence is a pervasive phenomenon, whose intensity can vary from isolated events to widespread and systematic use. Rape and gang rape are the most common forms, but it can also include sexual torture, sexual mutilation, sexual slavery, forced prostitution, forced pregnancy, forced sterilization, and forced abortion. The brutality and scale of these incidents, observed in conflicts fought all around the world, has pushed this issue into the public agenda. In 2018, the Nobel Peace Prize went to Doctor Denis Mukwege and activist Nadia Murad for their “contribution to focusing attention on, and combating, such war crimes.”

Since the Russian invasion in February 2022, there have been multiple allegations of sexual violence. Although the actual numbers are still unclear, by early June 2022 the United Nations (UN) High Commissioner for Human Rights had received 124 reports of sexual violence committed in the Ukrainian war zone. The Armed Conflict Location & Event Data (ACLED) Project reported 14 conflict-related sexual violence events between February and July 2022. As described in Figure 4, these acts were mostly perpetrated by Russian soldiers against Ukrainian civilians, predominantly women and girls, and against Ukrainian female soldiers.

Why do soldiers rape? The literature highlights two main motivations: strategic and expressive. Sexual violence can be used strategically to achieve military or organizational goals; for instance, as an effective weapon to terrorize or punish the targeted group (Wood, 2006). Sexual violence can also be used expressively to satisfy soldiers’ private motivations, such as their sexual desire or their wish for power or dominance over other individuals (Goldstein, 2003). A recent paper by Guarnieri and Tur-Prats (2022) sheds new light on the fundamental determinants of conflict-related sexual violence, focusing on the role of deep-rooted gender norms. Guided by the anthropological literature, the authors construct an index capturing armed actors’ degree of patriarchy based on information on ethnic groups’ ancestral family arrangements and subsistence activities. The study finds that actors with patriarchal norms (as opposed to those with more gender-equal norms) are more likely to perpetrate sexual violence. Moreover, the cultural distance between the gender norms of the combatants matters: sexual violence increases when the perpetrator has relatively more patriarchal norms than the opponent.

These results can be extrapolated to the ongoing Ukrainian-Russian conflict. Guarnieri and Tur-Prats (2022)’s ethnic patriarchy index, whose distribution is displayed in Figure 5, ranges between zero and one, with one denoting the maximum degree of patriarchal constructs of gender. Based on their ancestral characteristics, ethnic Russians would be classified as a group with a degree of patriarchy of 0.89.¹⁰ Only 2 percent of ethnicities in the

¹⁰To our knowledge, there is no publicly available data on the ethnic composition of the Armed Forces of the Russian Federation. Our discussion assumes that ethnic Russians constitute the majority, but we

global sample display more patriarchal cultural norms than ethnic Russians. The latter are also relatively more patriarchal than the ethnic Ukrainians, whose index, based on the same ancestral traits, is 0.78 (at the 88th percentile of the global distribution of ethnic groups).

Why do patriarchy and the cultural distance in gender norms between warring parties matter in explaining the emergence of sexual violence? On the one hand, more patriarchal soldiers and commanders face lower costs of exerting sexual violence, both in terms of the psychological toll and the legal or social punishment of committing those acts. On the other hand, the benefits of sexually assaulting women might be higher when the opponent is gender equal. When sexual violence is used strategically, it can be a more effective weapon if directed against women who are the backbone of their communities. Cultural distance in gender norms might matter also when sexual violence is used expressively, for private purposes. If soldiers with patriarchal constructs disapprove of the relatively more prominent position of women in the enemy's society, they might resort to sexual violence to alleviate the discomfort of what they perceive as an insult to their ideals.¹¹

The consequences of wartime sexual violence are long-lasting and detrimental not only for the victims—who might face trauma and permanent damages to their reproductive capacity, among other physical and psychological aftereffects—but also to their families and communities (Ba & Bhopal, 2017). Especially when committed in public, sexual violence can deeply affect the collective memory of the victim's community and undermine solidarity, particularly in contexts where rape is highly stigmatized (Mukwege & Nangini, 2009). From a policy perspective, urgent priority should be given to providing immediate medical care—both physical and psychological—to survivors of sexual violence to mitigate as much as possible the lingering negative consequences.

The UN has declared that all forms of sexual violence “can constitute war crimes, crimes against humanity or a constitutive act with respect to genocide” (United Nations Security Council, 2008). To increase armed actors' costs of committing these abuses, these crimes should be thoroughly investigated and severely prosecuted. Crucial to enforcing punishment and providing timely support is the development of tools to collect accurate information on the perpetrators and survivors of sexual violence in war. Given the importance of gender norms in explaining the pattern of sexual violence, observers should carefully monitor the situation of women and girls exposed to wars where one of the sides involved is highly patriarchal, and even more if there is a difference in gender norms between the two belligerents, as in the Ukrainian-Russian conflict. Sexual violence remains an underreported phenomenon: only

acknowledge that ethnic minorities may have been disproportionately involved in the most recent recruitment campaign, especially for the rank-and-file section of the army. Therefore, compared to their share in the Russian population, ethnic minorities such as the Buryat might be overrepresented in the state military (unfortunately, the ethnographic information on the Buryat ethnic group is not sufficiently rich for computing the patriarchy index). Moreover, according to the ACLED project, members of the Chechen Battalion of Ramzan Kadyrov have been alleged to have committed sexual abuses against Ukrainian civilians alongside Russian soldiers. The Chechen ethnic group patriarchy index is 0.83.

¹¹For a detailed exploration of these mechanisms, refer to Guarnieri and Tur-Prats (2022).

a few of the multiple allegations received by the UN since the Russian invasion have been recorded in the ACLED database, one of the most reliable sources of real-time information on violent events. As highlighted in the Murad Code project, a code of conduct for documenting and investigating conflict-related sexual violence, any data collection effort on sexual violence should be guided by ethical practices to guarantee confidentiality and protect survivors' safety.¹² Further research should focus on how to design effective interventions to *prevent* conflict-related sexual violence and to revert those societal conceptions about gender that support it.

5 Empirical Analysis of the Russian-Ukrainian Conflict

Having covered the literature on post-conflict scenarios in economics and related social sciences, we now provide an empirical analysis of the Russian-Ukrainian conflict. The Russo-Ukrainian War is an ongoing military conflict between these two countries, which can be dated to February 2014, with the annexation of Crimea and the war in Donbas after the Euromaidan protests and Revolution of Dignity, in Kyiv. The Russian occupation of the Donetsk and Luhansk oblasts in May 2014, in Eastern Ukraine, was followed by an all-scale invasion of the country by Russian military forces in February 2022, including bombings of military and civilian targets. It is now estimated that almost 5,718 civilians have died and 8,199 have been injured in the confrontation, while approximately 9,000 Ukrainian soldiers have died.¹³ Both bombings (UXOs specifically) and civilian repression (including mass graves) have been important features of the struggle.

We first start showing some trends in the current conflict, regarding the evolution of violence over time and by regions, and the presence of Russian forces. Next, we move to analyze the correlation of the current conflict with some historical factors, such as the presence of ethnic Russians in Ukraine in 1926 and the severity of the Holodomor famine (1932-1936), following the historical literature described before.

For our empirical analysis, we use geo-localized data from the ACLED project, geolocated data from Zhukov (2022) on the ongoing struggle, and data from Rozenas et al. (2017) on historical ethnicities and modern voter participation—originally from the 1926 Census—and historical Soviet repression, including the Holodomor famine. We also employ a large set of potentially relevant controls such as elevation, agricultural suitabilities for wheat, potato, maize, flax, and barley, forest cover and distance to the Russian border from FAO and the aforementioned sources. Results are updated daily, so we report here regressions for data up to August 30, 2022.

¹²For an overview of the Murad Code project, see <https://www.muradcode.com>.

¹³See, Office of the High Commissioner for Human Rights, UN (2022), Forbes (2022)

5.1 Trends in the Current Conflict

In Figure 6 we plot the number of military-involved violent events per day from the start of the invasion on February 24, 2022 to August 30, 2022. First, we see an overall decline in violence. When we disaggregate the data into regions, we observe that the majority of the violence is in the Eastern region. We also notice see that violence started out high in the Northern region but decreased by the late spring of 2022 (Figure 7). These empirical observations are in line with news reporting on the war. Second, we observe a discontinuity of the region Russia controlled when the frontier of the war shifted from the North to the East on March 29, 2022, the day that Putin announced a change in Russian strategy (Figure 8). Russian attacks in the North substantially decreased after this announcement. Although we do observe a spike in violent events in the Eastern region after this date, this spike in violence did not persist, and we see an overall downward trend in violence in the Eastern region too. The only region for which we observe an upward trend in violence is the Southern region, which includes the oblast of Crimea.

5.2 Correlations with Historical Variables

An important determinant of the current conflict could be ethnic identity. In line with this hypothesis, as shown in Figure 9, we find a positive, significant and robust correlation between ethnic Russians in Ukraine in 1926 and current attacks. This relationship is also visible in the map on the right panel, where areas with more attacks and higher historical Russian ethnic populations appear in purple. These include border areas, such as Donbas and Luhansk, as well as districts at the South (Mariupol and Odessa) and the center of the country. The relationship with this historical correlate is striking, but we recognize that other omitted factors could be driving the result. Politically, invading territories with Russian population has been used as motivation by the Russian propaganda. Targeting places where ethnic Russians reside could be a tactical strategy to garner support and eventual territorial control.¹⁴ Lastly, the findings are consistent with a Russian nationalist doctrine of irredentism.¹⁵ Namely, the Russian government targets and attacks areas with ethnic nationals, perhaps hoping to garner local support to their invasion.

Second, we examine the correlation between the Holodomor famine, a measure of historical repression, and modern conflict. The Great Famine or Holodomor occurred between 1932 and 1933, and killed approximately 3.9 million people (see [Naumenko \(2021\)](#)). Results are reported in Figure 10. Areas where famine severity was higher correspond with those that have had less confrontations in the modern struggle and where opposition to the invasion has been stronger. As noted before, this could be related to a higher historical presence of ethnic Russians in these areas, in line with the findings of [Markevich, Naumenko, and Qian \(2021\)](#). These are also places where resistance has been stronger.

¹⁴We thank Dominic Rohner for this point

¹⁵We thank Shanker Satyanath for guiding us towards this interpretation.

We acknowledge the lack of a proper identification strategy, though several have been suggested in the literature (Rozenas & Zhukov, 2019). We note, however, that our empirical results are robust to controlling for the large set of controls described above, including distance to Russia, hold for areas at 200 kilometers from the Ukrainian border, and for different types of violence classified in the modern data, such as airstrikes, anti-air defense, tank battles, arrests and Russian initiated attacks. Notably, the correlations do not hold for other ethnic minorities, such as the Germans, in a placebo-type exercise. In a horserace with the two historical covariates, we find that both coefficients are of similar magnitude, but are marginally stronger for the Russian ethnicity results.

6 Discussion and Policy Lessons

Naturally, not enough time has passed for a long-term analysis of the current struggle, but the findings from the historical bombing and political repression literatures surveyed above suggest a bleak future for the affected areas, beyond the current humanitarian catastrophe. We focus here on bombing and civilian repression, migration and gender, but acknowledge that there are other historical and modern elements at play in the current war, such as cyber-attacks and financial sanctions.

Related to the above, and without aiming to be comprehensive, we highlight recent research related to the ongoing conflict with respect to trade disruptions, international sanctions and nuclear war. Korovkin and Makarin (2021) show how the 2014 Russian-Ukrainian conflict led to a decrease in trade between these two countries. This decline was concentrated in Ukrainian areas with fewer ethnic Russians, and can be explained by an erosion of inter-group trust. Korovkin and Makarin (2022) document propagation effects of conflict using railway shipments data. Both papers document how conflict can affect non-conflict areas, speaking to the negative externalities of conflict. On the sanctions side, Nigmatulina (2021) documents how these restrictions distorted the Russian economy. The author documents a misallocation between state and private owned firms that prevented labor and capital input to flow towards the more productive firms. Counter intuitively, sanctioned firms gained capital inputs, as the government moved to protect targeted firms. Since the threat of nuclear war has been used in the current conflict, we briefly note some of the academic literature on this topic. We already mentioned (Davis & Weinstein, 2002) on the bombing of Hiroshima and Nagasaki. The lack of impact from a long-run population structure perspective contrasts with the findings for the Chernobyl disaster for in utero babies in Sweden. Given the magnitude of the topic, this area of research deserves more academic attention.

Having covered the relevant conflict literatures we close with five policy lessons from the three main topics analyzed. From the long-term consequences of bombing, the demining agenda should become a priority in a postwar scenario, to avoid a Conflict Trap

situation where human capital and other key investments are halted. With regards to political repression, we learn that the consequences can be long-lasting, as the social cohesion and trust between the citizenry and the state can be deeply eroded. The collective memory of historical events is also a powerful mechanism that could end up providing the necessary closure after a traumatic occurrence. With respect to migration and conflict, refugees should be integrated into regions with more promising labor market outcomes, something which is sometimes not possible or desirable due to more political considerations. Historically wealthier and younger people might have an easier time integrating, whilst women have a harder time, on average. Human capital and training programs could take into account these realities to maximize their impact and minimize socioeconomic vulnerabilities. Gender emerges as an important component in the conflict literature. Sex ratios imbalances can also have a long-term effect if they change the cultural norms with respect to work and leisure. Conflict can impact female labor force participation and marriage patterns, not only in the short run, and even in developing countries. Though the sex ratio imbalances are not as extreme as in other conflicts, policymakers can help mitigate their negative consequences while encouraging the positive ones. Perhaps the most important one to avoid is the plight of conflict related sexual violence, a war crime that should be prosecuted in local and international courts, while bringing full assistance and support to the affected victims.

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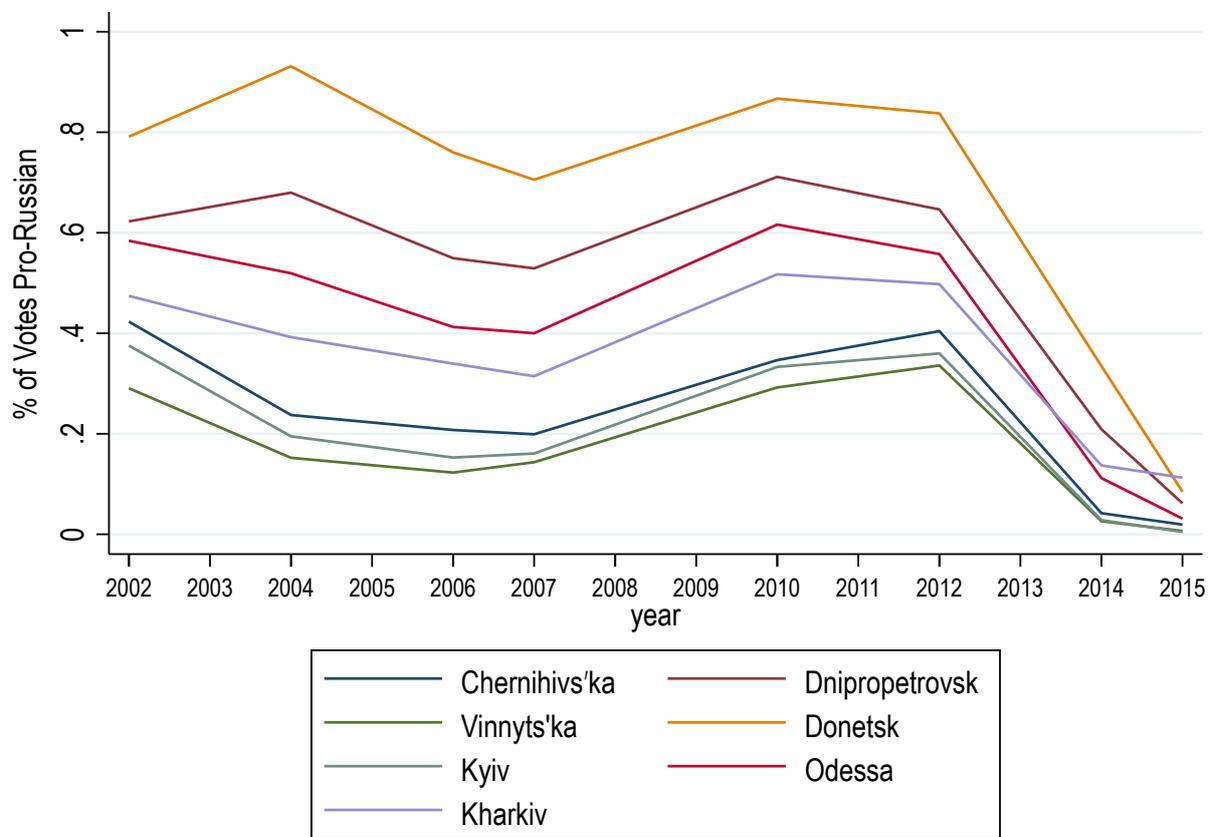
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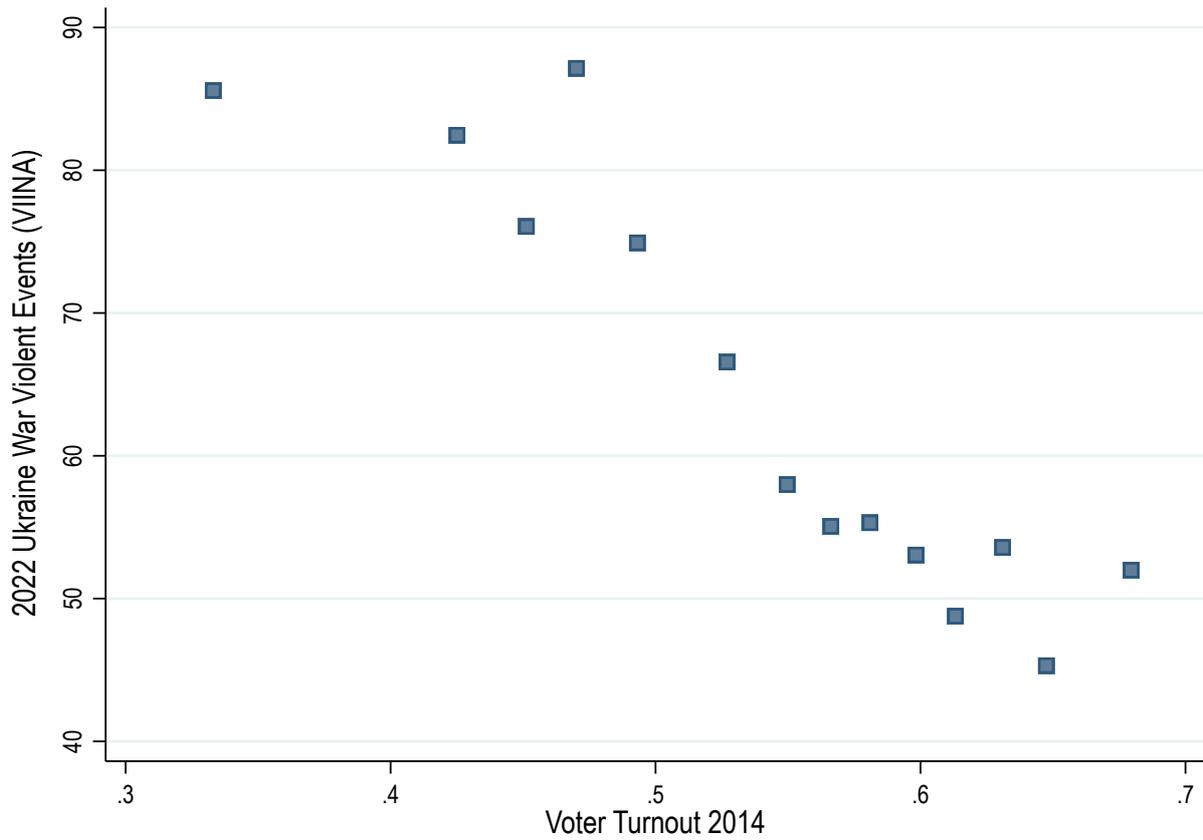
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Figure 1: Pro-Russian Votes Over Time



NOTES: Data retrieved from [Rozenas and Zhukov \(2019\)](#).

Figure 2: Political Participation and Conflict

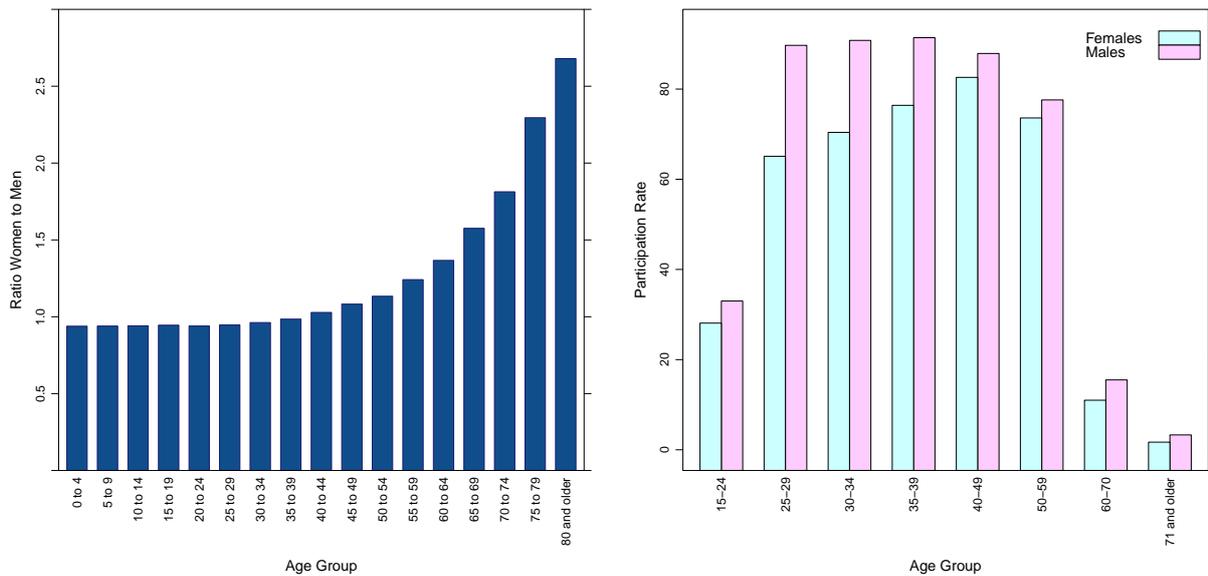


NOTES: Binsreg of 2022 Ukraine War events regressed % voter turnout in 2014, geographic controls, distance to Russia (quadratic), and region fixed effects (N=380). Violence data up to Aug. 30, 2022. Data from Rozenas and Zhukov (2019) and Zhukov (2022).

Figure 3: Estimated sex ratio and labor force participation

(a)

(b)



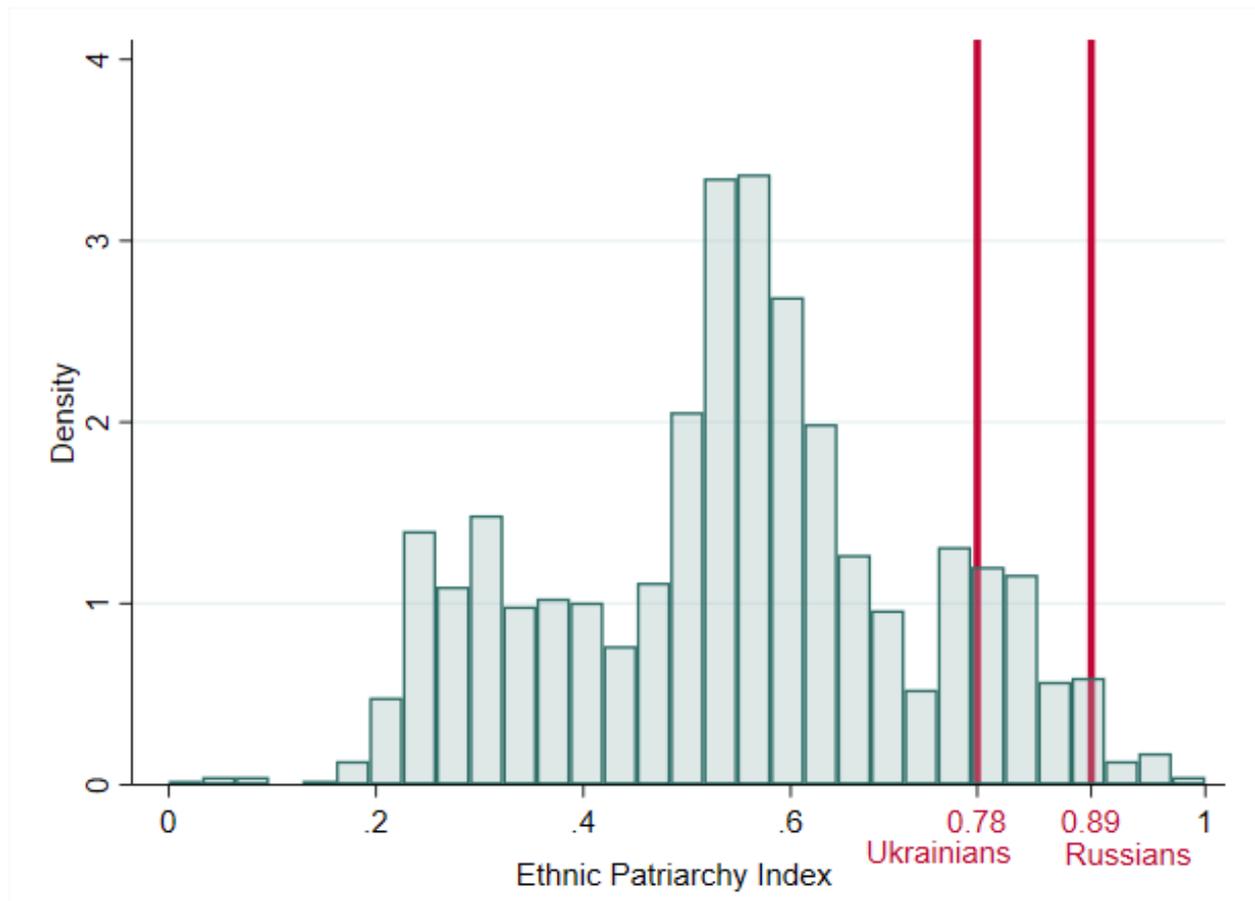
NOTES: Panel (a) shows the Women-to-Men ratio by age group. Source: State Statistics Service of Ukraine. Estimates as of January 1, 2022. Panel (b) shows female and male labor force participation by age group. Source: State Statistics Service of Ukraine, Labor Force Survey 2021.

Figure 4: Conflict-Related Sexual Violence Events (February - July 2022)



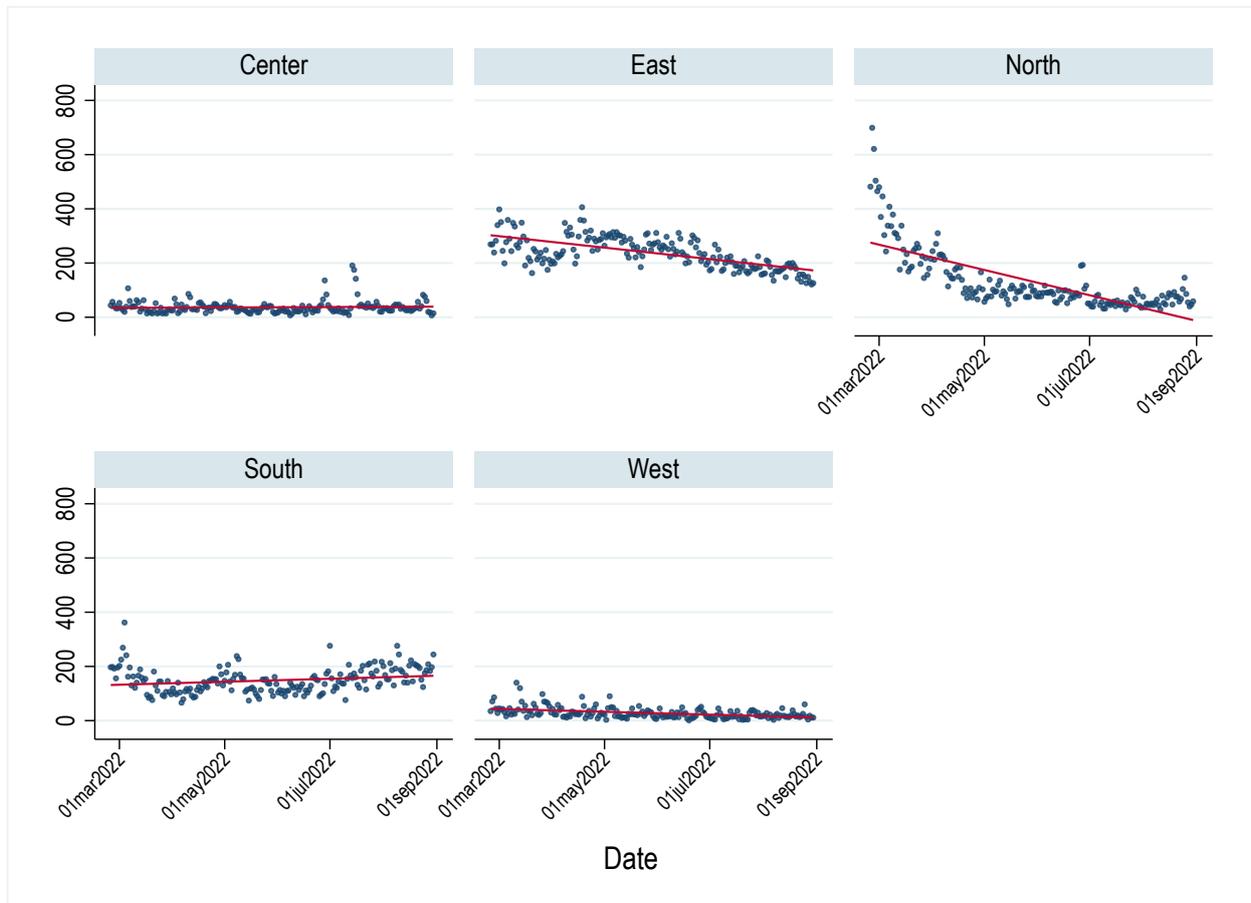
EVENTS DESCRIPTION: **1:** On 28 February 2022, a Russian soldier raped a 28-year-old woman in Bucha, Kyiv. **2:** On 7 March 2022, Russian soldiers, including Russian Chechen fighters, raped a woman in Kyiv region and killed her husband. **3:** On 13 March 2022, a Russian soldier beat, tortured, and repeatedly raped 31-year-old woman in Mala Rohan, Kharkiv. **4:** Around 15 March 2022, Ukrainian female soldiers taken as prisoners by Russian forces to Bryansk were stripped naked in the presence of men, forced to squat, had their hair cut off, and were constantly interrogated in an attempt to break their morale. **5:** Around 15 March 2022, Russian forces raped a 16-year old girl and a 78-year-old woman in the Kherson region. **6:** Around 15 March 2022, a Russian soldier repeatedly raped a 29-year-old woman in Kharkiv region, and killed her old mother, when the daughter refused to go to Russia with the soldier. **7:** Around 15 March 2022, five Russian soldiers raped a 20-year-old woman in Irpin, Kyiv. **8:** Around 15 March 2022, Russian forces, including Russian Chechen fighters, systematically raped around 25 women and girls aged 14-24 in the basement of one house Bucha, Kyiv, while the town was under Russian occupation. Nine of the women got pregnant. **9:** Around 15 March 2022, Russian soldiers raped a woman in Bashtanka district, Mykolaiv. **10:** Around 25 April 2022, Russian forces raped a woman in Orlianske, Zaporizhia. **11:** On 6 June 2022, a Russian serviceman raped a Ukrainian woman in Berdiansk, Zaporizhia region. **12:** On 15 June 2022, Russian soldier raped a woman in occupied Mykhailivka, Zaporizhia. **13:** Around 13 July 2022, a 13-years-old girl was raped and killed in Melitopol, Zaporizhia region. The body was found on July 27. The victim's family suspects Russian soldiers. **14:** Around 20 July 2022, a Russian soldier or a group of soldiers raped and killed 8 civilian women in Luhansk, Luhansk region. Source: ACLED Project (Raleigh, Linke, Hegre, & Karlsen, 2010).

Figure 5: Global Distribution of the Ethnic Patriarchy Index



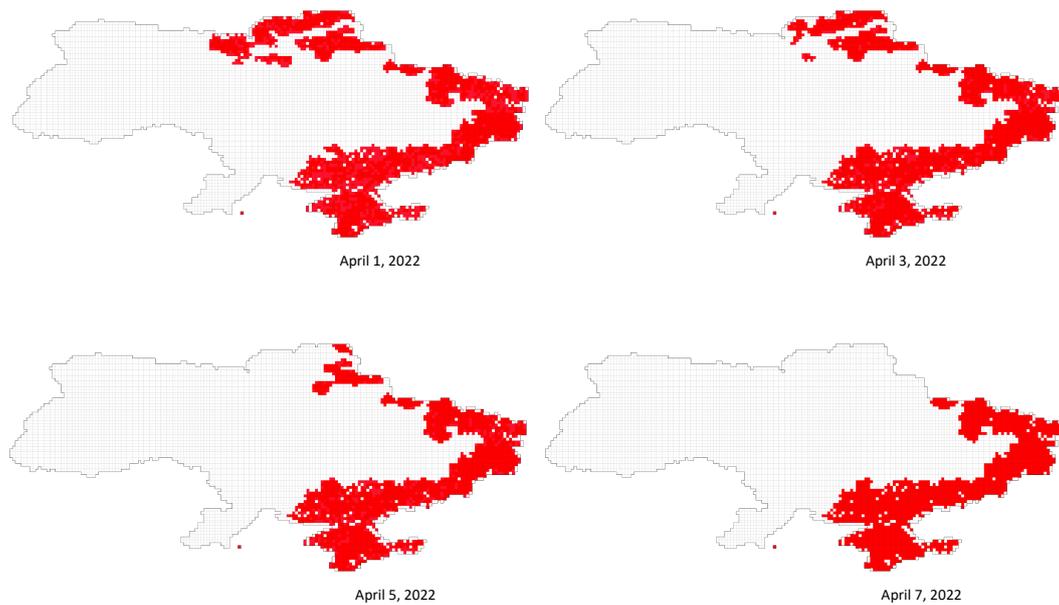
NOTES: Distribution of the ethnic patriarchy index across ethnic groups around the world. Source: Murdock Ethnographic Atlas and [Guarnieri and Tur-Prats \(2022\)](#).

Figure 7: Ukraine Daily Violence over time by Region



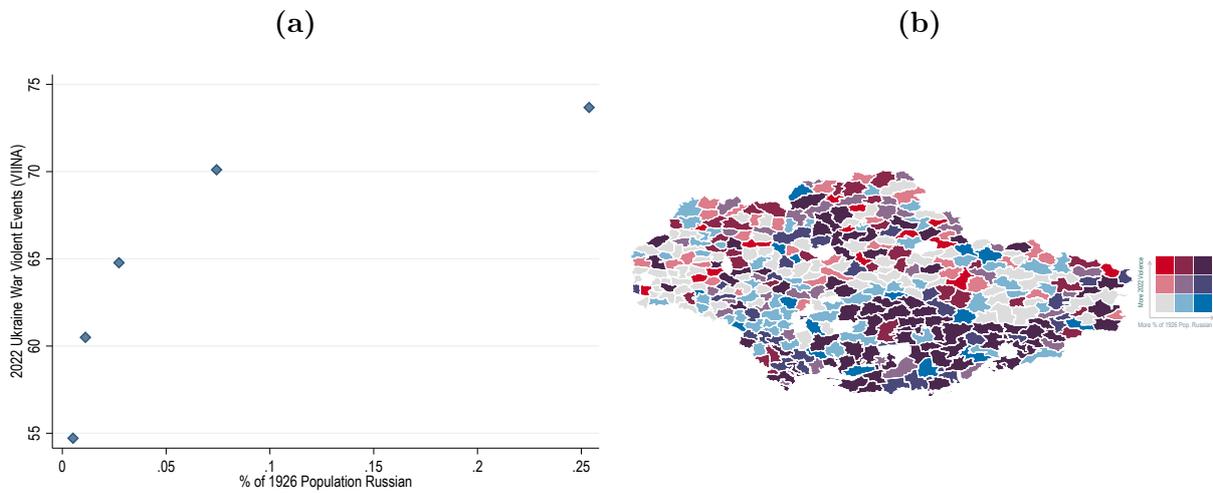
NOTES: Data from Feb. 23 to Aug. 30, 2022. VIINA database (Zhukov, 2022).

Figure 8: Russia Controlled Areas



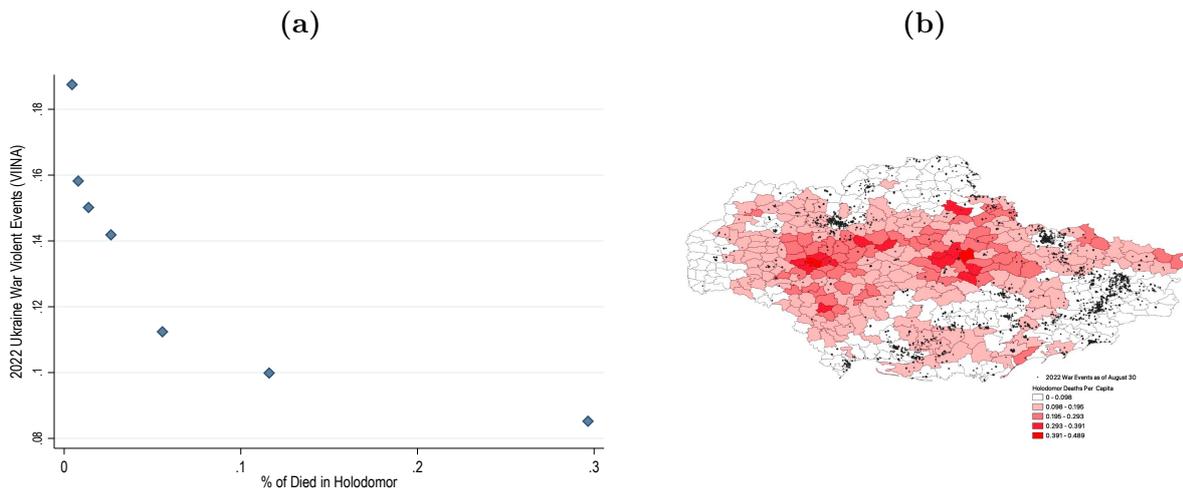
NOTES: Data retrieved from VIINA database (Zhukov, 2022).

Figure 9: Ukraine Violence and 1926 Russian Population



NOTES: Notes: Panel (a) shows a binsreg plot (N=380), with controls for historical Soviet violence, geographic variables, distance to Russia (quadratic) and region fixed effects. Panel (b) is a bivariate map, with purple regions depicting areas with more 2022 Ukrainian violence and a higher proportion of Russians historically. Ukraine conflict data until August 30, 2022. Data Sources: [Rozenas and Zhukov \(2019\)](#) and [Zhukov \(2022\)](#).

Figure 10: Ukraine Violence and Holodomor Severity



NOTES: Notes: Panel (a) is binsreg of 2022 Ukraine War events regressed percent of the rayon's population that died in the Holodomor famine, geographic controls, distance to Russia (quadratic), and region fixed effects (N=380). Panel (b) is a heatmap with darker red depicting higher proportion of famine deaths, and the black dots represent Ukraine war events in 2022. Ukraine conflict data is from August 30, 2022. Data Sources: [Rozenas and Zhukov \(2019\)](#) and [Zhukov \(2022\)](#).