The Intergenerational Transmission of World War I on Female Labour

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March 2023

Forthcoming at *The Economic Journal*

Abstract

Demographic shocks tied to World War I's high death toll induced many women to enter the labour force in the immediate postwar period. I document a positive impact of these newly employed women on the labour force participation of subsequent generations of women until today. I also find that the war permanently altered attitudes toward the role of women in the labour force. I decompose this impact into three channels of intergenerational transmission: transmission from mothers to daughters, transmission from mothers-in-law to daughters-in-law via their sons, and transmission through local social interactions.

Keywords: female labour, intergenerational transmission, gender norms, World War I

Classification: J16, J22, N34, Z13

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1. Introduction

Over a million French men never came back from World War I (WWI) trenches. This unprecedented demographic shock induced many women to enter the labour force in the immediate postwar period to make ends meet (Boehnke and Gay, 2022). What implications, if any, did these new working women have on the French society? I show that women induced to work by the war affected the working behaviours of subsequent generations of women until today. I hypothesize three channels of intergenerational transmission underpinning this result: these women's impact on their daughters, on their daughters-in-law via their sons, and on their surrounding communities. These mechanisms of intergenerational transmission have been pointed out as instrumental in explaining the dramatic growth in female labour force participation rates that occurred across industrialized economies throughout the twentieth century (Hazan and Maoz, 2002; Fernández et al., 2004; Fogli and Veldkamp, 2011; Fernández, 2013; Hiller and Baudin, 2016).[1] Yet, empirical evidence for these is still scarce. This article shows that all three mechanisms were simultaneously at work in France throughout the second half of the twentieth century, long after sex ratios had reverted to balance.

To identify intergenerational transmission independent from confounding changes to local labour market structures induced by the war, I use an empirical strategy that relies on the working behaviours of women who make decisions under similar local labour market conditions but whose geographic origins differ in their exposure to the war. This approach implies comparing women born in counties (*départements*) that experienced different military death rates during the war—the ratio of deceased soldiers to the size of the drafted population—and therefore different historical shocks to female labour supply, but who reside in the same county and therefore face similar local institutional constraints when making decisions.[2] To assess the long-run effect of WWI on female labour force participation through intergenerational transmission, I apply this approach to individual-level census data

[1] Olivetti and Petrongolo (2016) describe the unprecedented increase in female labour force participation across industrialized economies during the twentieth century. See Goldin (1990; 2006; 2014) for a focus on the United States and Maruani and Meron (2012) for a focus on France.

[2] Départements represent the second level of subnational government. France was divided into 87 départements before the war, 90 during the interwar period, and 95 today. Throughout this article, I use the term *county* to designate *départements*.

from 1962 to 2012, complemented with labour force survey data from 1982 to 2012. I find that women born in counties that experienced military death rates of 20% rather than 10%—equivalent to switching from the 25th to the 75th percentile of the distribution—were 5 percentage points more likely to be working. This explains half of the overall long-run impact of WWI on female labour force participation.

To account for this finding, I explore three channels: transmission through parents, through marriage, and through local social interactions. To identify parental transmission, I use the extended labour force surveys 2005–2012 and compare women born and residing in the same county but whose parents were born in counties that experienced different military death rates. I find evidence for a strong mother-to-daughter transmission channel. Next, to identify transmission through marriage, I compare women born and residing in the same county but whose husbands were born in different counties. I find that women married to men born in counties that experienced greater military death rates are more likely to work. Consistent with this result, I further find evidence for a strong mother-in-law to daughter-in-law transmission channel. Finally, using municipality-level variation in the exposure to WWI, I find that this historical shock to female labour transmitted through local social interactions as well. Comparing estimates' magnitudes suggests that mothers and mothers-in-law were primary agents in the transmission of the legacy of the war.

To provide a rationale for the long-run impact of WWI on female labour force participation, I argue that women induced to enter the labour force during the interwar period altered attitudes toward female labour of their daughters, sons, and neighbours, and that these changes translated into the working behaviours of women in subsequent generations. Since individuals form preferences and beliefs early in life from learning and socializing with their parents and peers (Bisin and Verdier, 2011; 2023), men and women who grew up with a working mother, or in an environment in which many women worked, should form more progressive attitudes toward female labour.[3] Consistent with this argument, using the Generation and

[3]Many studies find a correlation between both beliefs toward female labour and the working behaviours of mothers and their daughters', of mothers-in-law and their daughters-in-laws', and of mothers and their daughters' peers. Farre and Vella (2013) show that US mothers' attitudes toward gender roles and their working behaviours are correlated with their daughters' attitudes when young and working behaviours when adults, a phenomenon corroborated for the United States (Morrill and Morrill, 2013), Great Britain (Johnston et al., 2014), and Mexico

Gender Survey of 2005, I find that men and women born in counties that experienced greater military death rates hold more progressive attitudes toward the role of women in the labour force today.

Related Literature and Contributions. To account for the revolution of female labour that occurred during the twentieth century (Goldin, 2006), models of intergenerational transmission typically highlight one specific mechanism—e.g., transmission from mothers to daughters (Fernández, 2011), from mothers-in-law to daughters-in-law (Fernández et al., 2004), or through local social interactions (Fogli and Veldkamp, 2011).[4] This article is the first to provide comprehensive empirical evidence that these mechanisms were simultaneously at work throughout the revolutionary period, over three generations. For instance, Fernández et al. (2004) argue that one explanation for the revolution of female labour is the increasing number of men who grew up with a working mother. They show that women's wartime employment during World War II (WWII) in the United States, which they proxy by wartime mobilization, propagated to their daughters-in-law after the war—though Rose (2018) nuances these findings.[5] Consistent with Fernández et al. (2004), I find evidence for a mother-in-law to daughter-in-law transmission channel. But this mechanism constitutes only one among those I am able to identify. Importantly, in contrast to Fernández et al. (2004) and the broader literature, the empirical strategy I use enables me to identify intergenerational transmission independent from

(Campos-Vazquez and Velez-Grajales, 2014), though not for Egypt (Miyata and Yamada, 2016). Transmission from mothers-in-laws' labour choices to their daughters-in-laws' has been found for Japan (Kawaguchi and Miyazaki, 2009), Switzerland (Bütikofer, 2013), the United States (Morrill and Morrill, 2013), China (Chen and Ge, 2018; Li and Liu, 2019), and West Germany (Schmitz and Spiess, 2022). Olivetti et al. (2020) show that the working behaviours of the mothers of a woman's friends when growing up affect her own working behaviour later in life.

[4] Traditional explanations for the growth in female labour force participation rates generally focus on the role of technological change such as the greater availability of labour-saving consumer durable goods (Greenwood et al., 2005), oral contraceptives (Bailey, 2006), the fall in child care cost induced by the marketization of home production (Attanasio et al., 2008), improvements to maternal health (Albanesi and Olivetti, 2016), and the structural transformation (Ngai and Petrongolo, 2017).

[5] A large empirical literature suggests that wartime mobilization in WWII U.S. generated an increase in female labour supply after the war (Acemoglu et al., 2004; Goldin and Olivetti, 2013; Doepke et al., 2015; Brodeur and Kattan, 2022). Using more accurate measurement, Rose (2018) nuances these findings and shows that manpower mobilization and WWII military fatalities had limited effects on post-war female labour force participation.

confounding changes to local labour market conditions. Furthermore, using WWI rather than WWII as a source of variation provides the opportunity to investigate the diffusion dynamics of women's working behaviours across three generations, from the beginning to the end of the revolution of female labour. The case of WWI in France is also particularly advantageous to explore these mechanisms compared to the case of WWII in the U.S. because American black male labour alleviated the consequences of the war on female labour force participation (Ferrara, 2022).

This article also uncovers mechanisms of historical persistence for which the evidence is still scarce. Due to the methodological focus of the literature on a location-based approach to history—how historical events in a location shape long-run outcomes in that location—domestic institutions have been pointed out as primary channels of historical persistence (Acemoglu et al., 2005; Nunn, 2014; Michalopoulos and Papaioannou, 2017). Partly because of a lack of appropriate data, a crucial vehicle of historical persistence has received less attention: individuals. Understanding how individuals transmit legacies of history across generations requires moving from a location-based to a lineage-based approach. Applying this methodology, Michalopoulos et al. (2019) show that pre-modern economic lifeways in Africa still affect individuals' economic outcomes today.[6] Alesina et al. (2013, p. 524) find that half of the overall impact of historical plough use on contemporaneous gender-role attitudes is due to the transmission of cultural norms from ancestors to descendants rather than to long-run changes to institutional structures. Using a more systematic approach, I show that lineage aspects also account for half of the long-run impact of WWI on female labour force participation. This implies an important role for individuals relative to local institutional structures in generating historical persistence. My results further suggest that local social interactions are not to be neglected to understand how history transmits through individuals. Another novelty of this article is the use of a lineage approach within a country's regions to study the transmission of a historical shock. For instance, some specifications compare second-generation internal migrants that originate from neighbouring counties. This reduces potential biases that might arise when comparing movers to stayers, which is often an issue for studies using a lineage approach.

Finally, this article complements the literature that investigates how cultural

[6]Nunn and Wantchekon (2011) and Teso (2019, p. 26–28) use a similar approach.

norms emerge and change over time (Giuliano and Nunn, 2021). Various studies show that historical shocks alter the economic roles of women in subsequent generations, particularly shocks to sex ratios (Giuliano, 2017, p. 20–23). Teso (2019) finds that sex ratio imbalances generated by the transatlantic slave trade induced current generations of women to enter the labour force in Sub-Saharan Africa. Grosjean and Khattar (2019) show that the scarcity of women in nineteen-century Australia due to the arrival of predominantly male British convicts had adverse long-run consequences for women's position in the labour force and for attitudes toward gender roles today. A strand of recent studies further explores the long-run consequences of historical shocks to sex ratios on gender roles today, such as the repercussions of the Triple Alliance War of 1864–1870 in Paraguay (Boggiano, 2020; Alix-Garcia et al., 2022) or of the Portuguese Colonial War of 1961–1974 (Cardoso and Morin, 2018). I similarly find that historical sex ratio imbalances had permanent implications for the economic roles of women. However, in contrast to these studies, the historical shock I consider is sharper—it was generated over a period of four years—which enables me to rule out alternative channels through which it might have translated over the long run. More importantly, two elements differ substantially in the analysis offered in this article compared to the broader literature. First, the empirical strategy based on contrasting the roles of geographic origins from that of incentives arising from local labour market structures helps disentangle the role of culture from that of institutions. Second, by examining outcomes continuously from the early 1960s to the present, the analysis makes it possible to assess the nature of the persistence of intergenerational effects over time. In particular, results imply that the persistence of the implications of the war has been constant and is not dependent upon the time-point selected for the analysis.[7]

In the remainder of this article, I first provide an overview of the impact of WWI on female labour during the interwar period (Section 2). I then describe the datasets used in the analyses (Section 3) and show that this shock persisted (Section 4) through mechanisms of intergenerational transmission (Section 5). Finally, I show that this shock also altered attitudes toward female labour (Section 6).

[7]Several recent studies have highlighted how the past might have time-dependent implications on the present (see, e.g., Ochsner and Roesel, 2017; Cantoni et al., 2020; Fouka and Voth, 2022).

2. World War I and Female Labour in the Interwar Period

In this section, I first describe the county-level measure of military death rates used throughout this article and analyse its sources of geographic variation (Section 2.1). I then discuss the short-run effects of the war on female labour force participation (Section 2.2).

2.1. World War I Military Fatalities

Measuring Military Death Rates My empirical strategy exploits the war as a severe exogenous shock to the adult sex ratio. Of the 8 million French men drafted throughout the conflict, 1.3 million died because of the war—a military death rate of 16%. As a result, it was not until the 1950s that the adult sex ratio recovered its balance (Figure 1).[8] To measure the local intensity of this shock, I construct a county-level measure of WWI military death rates using the individual military records of all 1.3 million French soldiers who died because of the war.[9] The military death rate in a county is then defined as the ratio of deceased soldiers born in the county to the size of its drafted population, which I capture by its male population aged 15 to 44 in the census of 1911, the last census before the war, as conscription was universal for all men aged 20 to 48.[10] The distribution of the resulting county-level military death rates is displayed in Figure 2. Military death rates are 15% on average and range from 6% in Belfort to 29% in Lozère. Throughout the analysis, I interpret regression coefficients by comparing differences in outcomes across counties that experienced military death rates of 20% rather than 10% during the war, which corresponds to switching from the 25th to the 75th percentile of the distribution. Echoing national trends displayed in Figure 1, disruptions to sex ratios caused by WWI military fatalities remained circumscribed to the interwar period (Appendix Figure A1).

[8] World War II affected the adult sex ratio in France only marginally as 115 thousand French soldiers died because of the war, a military death rate of 1.5% (Lagrou, 2002).

[9] Military records are from the *Mémoire des Hommes* (MDH) archive held by the Ministère des Armées. Appendix H.1 provides more details on the construction of this dataset. See also Boehnke and Gay (2022) and the associated data (Boehnke and Gay, 2020).

[10] While conscription was universal, 21% of men aged 15 to 44 were initially exempted due to poor health conditions (Huber, 1931, p. 93). Nevertheless, local health conditions are entirely captured by the measures of rurality controlled for throughout the analysis in this article (see Boehnke and Gay, 2022, Appendix F).

Sources of Variation in Military Death Rates Two elements explain the systematic part of the variation in military death rates across counties: the territorial organization of military recruitment and the industrial war effort. The territorial organization of the military structured both recruitment and army corps, which initially comprised soldiers from the same military region.[11] Soldiers from the same region were therefore sent to the same battlefields at the onset of the war.[12] However, as military fatalities soon accumulated, the military command changed its allocation policy: after five months into the war, soldiers were allocated to depleted army corps by priority, effectively pooling soldiers from different regions (Boulanger, 2001, p. 253). As a result, military death rates varied greatly across counties, even within regions—military region fixed effects explain only 16% of the variation in military death rates across counties.

As the war lingered, the military command's plan to supply troops with war equipment proved dramatically insufficient (Porte, 2005; Bostrom, 2016).[13] To cope with the ongoing war effort, the Ministry of War recalled soldiers with manufacturing skills so that up to 12% of soldiers were employed in war factories during the conflict and an additional 8% were employed in the military administration.[14] As a result, soldiers from industrial and urban areas were less likely to die in combat than those from rural areas. This pattern clearly emerges when regressing military death rates on pre-war county characteristics (Table 1): rural counties experienced greater military death rates, where rurality is captured by the share of rural population and the share of population born in the county.[15] Rurality explains 75% of the variation in military death rates (Column 1). Determinants of subsequent female

[11]This territorial structure was inherited from the reorganization of the army after the Franco-Prussian War of 1870. The structure in place in 1914 was defined by the law of December 22, 1913 (Boulanger, 2001, p. 16–24).

[12]The mobilization plan—the *Plan XVII*—designed in 1912, assigned each army corps to a specific area upon invasion by German troops. The structure of this plan was constrained by the railway network (Gonzalez-Feliu and Parent, 2016).

[13]For example, the Plan XVII procured 13,600 75mm shells per day. Nearly 40,000 were used daily during the Race to the Sea in October 1914. By then, half of the stock of 75mm shells had been depleted (Bostrom, 2016, p. 264). See also Porte (2005, p. 73–82).

[14]This allocation policy was enacted by the Dalbiez law of August 17, 1915. Soldiers were also allocated to steel production and harvesting from 1917 onward.

[15]The census of 1911 defines the share of rural population as the share of population that resides in municipalities with fewer than 2,000 inhabitants. The share of population born in the county is tied to fundamental aspects of French rurality as a measure of the intensity of the rural exodus during the late nineteenth century.

labour force participation available in historical statistics—pre-war female labour force participation, female education, total fertility, personal wealth per inhabitant—as well as additional characteristics do not appear correlated with military death rates, and only explain an additional 8% of their variation (Column 2).[16] Including 20 military region fixed effects explains an additional 5% (Column 3). I further show in Appendix B that pre-war attitudes toward gender roles are not correlated with military death rates, although measuring these accurately remains challenging. Throughout the analysis, I rely on the residual variation in military death rates following the specification in Column 3. I interpret this residual variation as non-systematic and related to the randomness at which soldiers encountered violence on the battlefield. Panel A of Table 2 provides summary statistics for these pre-war county-level characteristics.

2.2. Female Labour during the Interwar Period

To assess the short-run effect of WWI military death rates on women's working behaviours during the interwar period, Boehnke and Gay (2022) exploit differential changes in female labour force participation rates before and after the war across counties that experienced different military death rates. Their results imply that in counties that experienced military death rates of 20% rather than 10%, female labour force participation rates were 4 percentage points higher during the interwar period, an increase of 12% relative to pre-war levels.

This inflow of women into the labour force occurred after rather than during the war, as counties with greater female wartime employment did not experience a post-war rise in female labour force participation. It was instead driven by increased labour supply of war widows, whose pensions remained limited until the early 1930s (Bette, 2017), as well as of young single women, who had to enter the labour force and become secondary earners in their families while searching longer for a husband (Abramitzky et al., 2011).[17] In contrast, labour demand factors were of second-

[16] These additional characteristics include the share of active population in the industrial sector, average height, total population, the share of literate population, and average direct taxes per inhabitant.

[17] Perturbed conditions on the marriage market were however temporary and circumscribed to the interwar period: using the family survey of 1954 and the census of 1968, Boehnke and Gay (2022, Appendix H) show that while women of the cohorts 1899–1908 in counties with higher military death rates married older and had slightly less children, they had similar rates of definitive

order importance: comparing female wages across sectors with different degrees of substitutability between male and female labour, Boehnke and Gay (2022) find that substitution of firms from male labour to female labour was likely limited.

3. Data

To assess the long-run implications of WWI beyond the interwar period, I combine several datasets that capture female labour force participation and beliefs toward female labour throughout the second half of the twentieth century: the population censuses 1962–2012, the labour force surveys 1983–2012, the extended labour force surveys 2005–2012, and the Generation and Gender Survey 2005. I describe these datasets below and provide summary statistics in Table 2. Appendix H provides extensive details on the construction of these datasets.[18]

The Population Censuses 1962–2012. The main analyses in this article rely on the combination of eight individual-level population censuses, from 1962 to 2012.[19] These censuses represent 20–25% samples of the population, except those of 1962 and 1999, which are 5% samples. They provide respondents' city of residence, county and year of birth, position in the labour force, occupation, educational attainment, and marital status. The availability of household identifiers further makes it possible to proxy for fertility through the number of children present in the household.

The population of interest consists in married women aged 30 to 49, born and residing in France—close to 7 million respondents in the censuses 1962–2012. I focus on this age group to ensure that human capital investments are completed and to abstract from retirement decisions. I restrict the sample to married women

singlehood by the end of their lives, suggesting that they only delayed marriage due to the war.

[18] Beyond the data described in this section, the analysis in this article relies on the following additional sources and datasets, all described in Appendix H: Flaus (1947), the Commission Consultative des Dommages et des Réparations (1951), INSEE (1953; 2008; 2010; 2012*d*; 2018; 2019), Boehnke and Gay (2020) and Gay (2020*a*; 2020*b*).

[19] The census of 1962 is the earliest for which individual-level data are available in computer format. Censuses files are produced by INSEE and are available for 1962, 1968, 1975, 1982, 1990, 1999, 2006, and 2012. From 2004 onward, censuses are conducted annually on a rotating basis for a fifth of the French population. Rigorous comparisons across censuses after 2004 can therefore only be made five years apart (Brilhault and Caron, 2016).

because their entrance in the labour force represented the core of the revolution of female labour: the share of working women in this sample increased from 30% in the early 1960s to 80% in the late 2000s. Panel B of Table 2 provides summary statistics and Appendix Figure A2 displays sample means for labour, fertility, and education outcomes over time.

The Labour Force Surveys 1982–2012. To corroborate results obtained with the censuses, I further combine thirty-one annual labour force surveys from 1982 to 2012.[20] Labour force surveys present both drawbacks and advantages over the censuses. On the one hand, information about respondents' counties of birth is not available in the surveys prior to 1982, while it is available from 1962 onward in the censuses. Moreover, the sample size of the surveys is smaller than that of the censuses: while most censuses are 20–25% samples of the population, the surveys represent 1.5–3% samples. On the other hand, the labour force surveys provide a broader range of labour market outcomes: weekly hours worked, ever worked status, time since in current firm, and monthly wage rate. Therefore, the use of the labour force surveys makes it possible to extend the main analysis thanks the richer labour information they provide.

The Extended Labour Force Surveys 2005–2012. To explore intergenerational transmission from parents to children, I use INSEE's extended annual labour force surveys 2005–2012. Compared to the regular labour force surveys, starting in 2005, their extended versions further contain the counties of birth of respondents' parents as well as other parental information, including the labour status of respondents' parents during their childhood. This provides a unique opportunity to analyse the role of parental origins in the intergenerational diffusion process of the war. Panel C of Table 2 provides summary statistics.

The Generation and Gender Survey 2005. Finally, to assess the long-run implications of WWI on attitudes, I use the Generation and Gender Survey of 2005 (INSEE and INED, 2005; Régnier-Loilier, 2016). It provides information about respondents' attitudes toward gender roles, religion, the family, and marriage, as well

[20]Labour force surveys are produced by INSEE and are available in three waves: 1982–1989, 1990–2002, and 2003–2012.

as information about the distribution of household tasks and child care within the family. Importantly, it is the only survey available that provides both respondents' counties of birth and of residence, which is necessary to implement the empirical strategy.[21] Details of survey questions and summary statistics are discussed in Section 6.

4. The Overall Intergenerational Effects of WWI on Female Labour

I now explore the overall long-run effect of WWI on female labour force participation. I first describe the empirical strategy, which relies on contrasting the working behaviour of women residing in the same county but born in counties that experienced different military death rates (Section 4.1). I then discuss the results based on census data (Section 4.2) as well as their robustness (Section 4.3). Finally, I provide further results based on the richer outcomes from the labour force surveys (Section 4.4). Later on, in Section 5, I decompose these overall effects into three mechanisms: transmission through parents, marriage, and local social interactions.

4.1. Empirical Strategy

To assess the long-run effect of WWI military death rates on female labour force participation, a first approach is to compare labour force participation rates of married women aged 30 to 49 across counties and estimate the following specification separately for each census between 1962 and 2012:

$$\texttt{employed}_{irt} = \beta\, \texttt{death\_rate}_{r} + \boldsymbol{\alpha}\mathbf{X}'_{1911,r} + \boldsymbol{\theta}_{i;1914,r} + \boldsymbol{\varepsilon}_{irt}, \tag{1}$$

where $\texttt{employed}_{irt}$ is an indicator variable that denotes whether woman i residing in county r in year t is employed. $\mathbf{X}_{1911,r}$ is a set of county-level pre-war controls that capture the systematic determinants of military death rates and subsequent female labour force participation.[22] To make tighter comparisons within groups of

[21] Two other datasets with information on attitudes toward gender roles are the opinion barometer of the DRESS and the International Social Survey (ISSP), but they do not provide respondents' counties of birth.

[22] $\mathbf{X}_{1911,r}$ contains the share of rural population, the share of population born in the county, female labour force participation, a measure of female education, total fertility, and personal wealth per inhabitant, all measured in 1911.

women with similar characteristics and reinforce the credibility of the conditional independence assumption, I further include a set of cohort by military region fixed effects, $\boldsymbol{\theta}_{i;1914,r}$, as soldiers from the same military region were initially sent to the same battlefields, making the distribution of military death rates more likely to be idiosyncratic within these regions.[23] I cluster standard errors at the level of counties. In this specification, β is identified from variations in the working behaviours of married women of the same cohort and residing in neighbouring counties that experienced different military death rates.

Differences in female labour force participation rates across counties identified through the above strategy could be resulting from two channels: intergenerational cultural transmission, which is the focus of this article, but also changes to local labour markets structures. Indeed, interwar changes in female labour force participation were driven by increased female labour supply, which slightly depressed female wages in counties that were relatively more affected by the war (Boehnke and Gay, 2022, p. 21–23). Lower female wages might have incentivized firms to specialize in female labour-intensive activities. Had these changes persisted, the incentive structure faced by women would differ systematically across counties that experienced different military death rates, explaining why labour force participation rates of women are higher in these counties.

To isolate the role of intergenerational cultural transmission from such institutional factors, I use an empirical strategy that relies on the working behaviours of women who make decisions under similar local labour market conditions but whose geographic origins differ in their exposure to the war.[24] I implement this strategy by comparing internal migrant married women women aged 30 to 49 residing in the same county but born in counties that experienced different military death rates:

$$\texttt{employed}_{ibrt} = \beta\, \texttt{death\_rate}_b + \boldsymbol{\alpha}\mathbf{X}'_{1911,b} + \boldsymbol{\theta}_{i;r;1914,b} + \varepsilon_{ibrt}, \tag{2}$$

where $\boldsymbol{\theta}_{i;r;1914,b}$ are cohort by military region of birth by county of residence fixed ef-

[23] There were 20 military regions in 1914, containing 5 counties on average—they would be fairly close-by, if not strictly neighbouring in most cases (Figure 2). This strategy generates 400 comparison groups with 450–2,800 observations per group on average, depending on the census.

[24] This approach is sometimes called the "epidemiological approach" to culture (Fernández, 2011). It has been used for instance to identify the role of culture for labour choices of immigrant women to the U.S. (Fernández and Fogli, 2009; Blau et al., 2011; Gay et al., 2018).

fects.[25] I use two-way clustering and cluster standard errors at the levels of counties of birth and of residence. Here, β is identified from variations in the working behaviours of women of the same cohort and residing in the same county, but born in different neighbouring counties. By fixing variations arising from differences in local labour market structures, β solely captures intergenerational cultural transmission channels.

4.2. Results

The initial cross-county approach following Equation 1 implies that women residing in counties that experienced military death rates of 20% rather than 10% were 6–10 percentage points more likely to be working between 1962 and 2012 (Figure 3). Now, focusing on internal migrant women and holding constant their counties of residence following Equation 2 reveals that intergenerational transmission channels account for half of this overall effect: estimates reported in Figure 4 imply that women residing in the same county but born in neighbouring counties that experienced military death rates of 20% rather than 10% were 4–5 percentage points more likely to be working between 1962 and 2012. These estimates are significant at the 1% level, stable across time, and represent 47–69% of overall cross-county estimates of Figure 3. Since base rates increased from 34% in 1962 to 84% in 2012, their relative size declined from 15% of the mean to 5% over the period (Appendix Figure A5).

4.3. Robustness

I now perform a series of robustness checks that support the credibility of baseline estimates reported in Figure 4. The full set of results summarized below is discussed in details in Appendix C. I also show in Appendix D that military fatalities and destruction from WWII do not affect the results.

Alternative Specifications. Estimates are robust to alternative regression models: marginal coefficients from probit and logit models are similar to coefficients from a linear probability model (OLS). They are also similar when the outcome is a

[25] This strategy generates 36,800 comparison groups with 4–17 observations per group on average, depending on the census year.

labour force participant indicator, when widening age bounds to 25–59, and when including women of all marital statuses in the regression sample.

Selective Migration Patterns. Because coefficients are identified from behaviours of internal migrants, selective migration might account for part of the results if out-migration patterns were correlated with both military death rates and labour market outcomes. This it is unlikely. First, half of married women aged 30 to 49 were internal migrants as of 2012.[26] Moreover, trends in the proportion of married women among internal migrant women are identical to trends in the proportion of married women among all women (Appendix Figure A4). Importantly, internal migrant and non-migrant women are broadly alike along observable characteristics: regressing observable characteristics on a migration status indicator reveals that internal migrant women are equally likely to be working, were born in counties with similar military death rates, and have the same number of children. They are, however, slightly positively selected in terms of education. This source of selection might bias the results if it was operating differently across individuals originating from counties that experienced low and high military death rates. Including an interaction term between the internal migrant indicator and the military death rate of respondents' counties of birth reveals that selection along all observable characteristics—including education—does not operate systematically differently across counties of birth.

Beyond selection through out-migration patterns, results might be biased through selective in-migration patterns, that is, through the destination location of internal migrants. In particular, individuals born in counties that experienced greater military death rates might settle in more dynamic labour markets—though removing the ten most urban counties of destination from the sample leaves the results unchanged. Moreover, in-migration selection might operate within destination counties, with those born in counties that experienced greater military death rates sorting systematically into the more dynamic local labour markets within these counties. Comparing internal migrants within their local labour market of resi-

[26]Counties are relatively small, with a median radius of 43 kilometres. The median migration distance is 150 kilometres. The *Geographic Mobility and Urban Concentration* study of 1961 reports that among married women aged 30 to 49, the primary migration motive was family related for two-fifths of them and work related for another two-fifths (Girard et al., 1964).

dence through employment zones and municipality fixed effects also leaves baseline estimates unchanged.

To further alleviate potential issues of selective migration patterns, I control for the relative attractiveness of origin and destination counties through dyadic measures that capture pull and push forces between each pair of counties, together with the distance between them. I also restrict the sample to individuals who migrated at least a decade earlier—the one-and-a-half generation—since they might be subject to less biases due to recent migration. Both strategies generate estimates that are slightly lower than the baseline, though not statistically different. Overall, these robustness checks suggest that selective migration cannot account for the results.

Inaccurate Assignment of Military Death Rates. The empirical strategy used throughout this article requires regressors to be assigned at the level of geographic origin, i.e., the county in which internal migrants' ascendants were residing during the interwar period. However, censuses do not provide ascendants' counties of birth. I am therefore constrained to assume that counties of birth and of origin are identical. Here, I relax this assumption by repeating the analysis on the extended labour force surveys 2005–2012, which provide parental counties of birth. I restrict the regression sample to internal migrants born before the mid-1960s in the same county as both their parents. These restrictions ensure that these individuals' parents were likely born in the 1920s and mid-1930s and that their counties of birth trace to the interwar period.[27] Estimates are slightly larger than the baseline—though not significantly different—suggesting that inaccurate assignment of military death rates creates some attenuation bias through measurement error. A related concern is that counties of birth and childhood might differ. Comparing women with similar migration histories generates results identical to the baseline.

Education and Fertility. Labour market outcomes are endogenous to human capital investment and fertility choices. As a result, these decisions might mediate

[27]The share of French men born in France that remained in their county of birth was 75.0% in 1921, 74.7% in 1926, 74.2% in 1931, and 73.2% in 1936 according to the censuses, suggesting limited migration movements between the end of the war and the mid-1930s. For women, these figures are 75.2, 74.9, 73.5, and 73.2, respectively.

the relationship between women's working behaviours and WWI military death rates. Controlling for educational attainment and number of children leaves results unchanged, suggesting that the long-run impact of WWI military death rates was direct rather than mediated by education and fertility choices.

4.4. Further Results

Further results are reported in Appendix E. Herein, I show that women born in counties that experienced greater military death rates do not make different fertility or education choices, corroborating that these decisions are not mediators of the effect identified above. Moreover, they do not hold more male-biased occupations, suggesting that the war did not have long-lasting implications on gender occupational segregation. Also, these women do not marry at different rates, and when they marry, their husbands do not differ along observable characteristics. This suggests that marriage market desequilibria due to the war highlighted by Abramitzky et al. (2011) remained circumscribed to the interwar period. I also find little heterogeneity across women with different number of children, education, age, or marital status. In particular, life-cycle patterns in labour force participation are not affected by WWI military death rates. I further provide cohort-specific estimates from the cohort 1910 to the cohort 1970, as well as a placebo test using the male sample.

Next, I combine the thirty-one annual labour force surveys from 1982 to 2012 and run a reproduction exercise that corroborates results obtained with the censuses.[28] The analysis of labour force surveys further reveals that women born in counties that experienced greater military death rates are more attached to the labour force, but that this influence on the extensive margin does not translate to the intensive margin, as they work shorter hours. A final concern is that although there is no evidence of a mediating role of observable educational attainment, results might still be driven by unobserved heterogeneity in human capital. Should this be the case, it would be reflected in wage rates. However, I find that women born in counties that experienced greater military death rates do not earn higher wages.

[28] I run the same specification as the baseline on a different sample of the same underlying population—in this sense, it is a reproduction test (Clemens, 2017, p. 327).

5. Intergenerational Transmission Mechanisms

To account for the overall intergenerational effect of the war on female labour identified above, I explore three mechanisms of intergenerational transmission: transmission through parents (Section 5.1), transmission through marriage (Section 5.2), and transmission through local social interactions (Section 5.3).

5.1. Transmission Through Parents

5.1.1. Empirical Strategy

To isolate intergenerational transmission from parents to daughters, I use the same empirical strategy but one generation earlier: I compare the working behaviours of women who make decisions under similar local labour market conditions but whose parents' geographic origins differ in their exposure to the war. I now focus on the sample of second-generation internal migrant married women aged 30 to 59 in the extended labour force surveys 2005–2012, which provides the counties of birth of respondents' parents.[29] In particular, I restrict second-generation internal migrants to women who reside in their county of birth but whose mothers and fathers were both born in another county.[30] Focusing on second- rather than first-generation internal migrants improves the credibility of identification as a typical respondent in the sample has parents born in the 1930s. Their counties of birth therefore plausibly trace to the war (see Footnote 27). Moreover, since the location of second-generation internal migrants was determined prior to their birth, results are further less likely to be driven by selective migration.[31]

I first explore the role of mothers' origins. To that end, I compare second-

[29] I widen the upper bound of the age restriction to 59 compared to 49 for analyses using large-scale census data because extended labour force surveys have limited sample sizes, which might create issues of low statistical power in specifications that include parental region of birth fixed effects.

[30] In the extended labour force surveys, 19% of married women aged 30 to 59 who reside in their county of birth have mothers born outside their county of birth, 20% have fathers born outside their county of birth, and 9% have both parents born outside their county of birth.

[31] Second-generation migrants and natives are broadly alike: they are equally likely to be employed, have the same number of children, and their mothers were born in counties with similar military death rates. Second-generation migrants are slightly more educated in general, but not differentially so when from counties that experienced greater military death rates (Appendix Table A1).

generation immigrant women whose mothers were born in different counties:

$$(3)\quad \texttt{employed}_{imfr} = \beta\, \texttt{death\_rate}_m + \boldsymbol{\alpha}\mathbf{X}'_{1911,m} + \boldsymbol{\gamma}_i + \boldsymbol{\delta}_r + \boldsymbol{\mu}_{1914,m} + \boldsymbol{\omega}_f + \boldsymbol{\varepsilon}_{imfr},$$

where military death rates $\texttt{death\_rate}_m$, historical controls $\mathbf{X}_{1911,m}$, and military region fixed effects $\boldsymbol{\mu}_{1914,m}$ are assigned at the level of mothers' counties of birth. $\boldsymbol{\gamma}_i$ is a set of year of birth and survey year indicators. Consistent with the empirical strategy, I include county of residence fixed effects, $\boldsymbol{\delta}_r$. To neutralize the influence of fathers' origins, I further include fathers' county of birth fixed effects $\boldsymbol{\omega}_f$ so as to compare women whose fathers were born in the same counties.[32] I cluster standard errors at the levels of counties of residence and mothers' counties of birth. In this specification, β is identified from variations in the working behaviours of second-generation internal migrant married women of the same cohort, born and residing in the same county, whose fathers were born in the same county, but whose mothers were born in neighbouring counties that experienced different military death rates.

I then explore the role of fathers by estimating a specification analogous to Equation 3 in which variables are assigned at the level of fathers' counties of birth, and where I include mothers' county of birth fixed effects instead of fathers'.

Finally, to assess the relative role of each parent directly, I estimate Equation 3 without parental origins fixed effects but including historical variables relative to both parents, distinguishing between women whose parents were born in the same county from those whose parents were born in different counties through the indicators $\texttt{same}_{mf}$ and $\texttt{different}_{mf}$, where m indexes mothers, and f, fathers:

$$\begin{aligned}(4)\quad \texttt{employed}_{imfr} &= \beta_1\, \texttt{same}_{mf} \cdot \texttt{death\_rate}_m + \beta_2\, \texttt{different}_{mf} \cdot \texttt{death\_rate}_m \\ &+ \beta_3\, \texttt{different}_{mf} \cdot \texttt{death\_rate}_f \\ &+ \boldsymbol{\alpha}_1\mathbf{X}'_{1911,m} + \boldsymbol{\alpha}_2\mathbf{X}'_{1911,f} + \boldsymbol{\gamma}_i + \boldsymbol{\delta}_r + \boldsymbol{\varepsilon}_{imfr},\end{aligned}$$

where I use three-way clustering and cluster standard errors at the levels of counties of residence and mothers' as well as fathers' counties of birth.

[32] Because the sample size for the extended labour surveys is rather limited—15,091 second-generation internal migrant married women aged 30 to 59—I do not include interacted fixed effects. Doing so would generates more than 3,000 comparison groups, leaving too little residual variation for identification.

5.1.2. Results

I report results for the mother-to-daughter transmission channel in Table 3.[33] In Column 1, the estimate is significant at the 1% level and implies that women whose mothers were born in counties that experienced military death rates of 20% rather than 10% were 11 percentage points more likely to be working, which represents 13% of the outcome mean. Including fathers' county of birth fixed effects to further isolate the role of mothers' origins decreases the estimate only slightly, suggesting a primary role of maternal relative to paternal transmission (Column 2). Restricting the identifying variation to mothers born in neighbouring counties through mothers' military region of birth fixed effects similarly has little impact on the estimate (Column 3). Finally, I include controls for husband and household characteristics, parental characteristics, as well as respondents' education and number of children (Column 4).[34] Again, the estimate seldom changes, which increases the credibility that economic factors potentially correlated with mothers' origins are not driving the results.

In Column 5, I reproduce the estimate of Column 3 using an alternative definition of second-generation internal migrants: I include women whose mothers were born in another county, but not necessarily their fathers. The resulting estimate is slightly lower than the baseline. Given that more than half of women in this sample had fathers born in their own county of birth, these "half-natives" probably assimilated the local culture of their county, making the impact of their mothers' origins less influential.

Next, I reproduce the above analysis with paternal origins and find that women whose fathers were born in counties that experienced military death rates of 20% rather than 10% were 8 percentage points more likely to be working (Appendix Table A3, Column 1). Once fixed effects for maternal origins are included along with fathers' military regions of birth fixed effects and parental, individual, and household characteristics, the estimate is still positive but declines substantially

[33]Results are similar when the outcome is a labour force participant indicator (Appendix Table A2).

[34]Husband and household characteristics consist of husbands' incomes, age, age squared, education, an indicator for home ownership, and the number of rooms in the home; parental characteristics include indicators for parents' occupational status and mothers' labour status; education controls consist of indicators for educational attainment.

and is rather imprecise (Columns 2–4). The lesser role of paternal relative to maternal origins can be rationalized by the fact that while fathers are primary role models for their sons, they are less so for their daughters, especially when it comes to gender roles (Farre and Vella, 2013).

The role of fathers nevertheless obtains to some extent once both parental origins are simultaneously considered (Appendix Table A4). Estimates in Column 1 imply that women with both parents born in a county that experienced military death rates of 20% rather than 10% were 12 percentage points more likely to be working. Coefficients on mothers' and fathers' independent origins add up to the coefficient when both were born in the same county, suggesting that the impact of each parental origin cumulates linearly, with maternal origins being more important. Including parental regions of birth fixed effects along with various controls does not alter the results much (Columns 2 and 3).

The analysis in this section highlights the primary role of mothers in transmitting the legacy of the war to their daughters. Although there are many potential channels through which this mother-to-daughter transmission might have operated, a likely candidate is that mothers who entered the labour force because of the war provided a progressive role model to their daughters when growing up, which in turn altered their working behaviours when adult. Consistent with this idea, and focusing on the same sample of women as before, I find that mothers born in counties that experienced military death rates of 20% rather than 10% were 13–19 percentage points more likely to have been working when their daughters were growing up (Appendix Table A5).[35]

[35]If this was the only channel through which the mother-to-daughter transmission operated, one could use a 2SLS strategy to explore directly whether war-induced changes to mothers' working behaviours transmitted to their daughters—which I do in Appendix Table A6, finding that a 10 percentage points increase in mothers' labour force participation rates induced by WWI military fatalities generates a 5–8 percentage points increase in the likelihood of their daughters working. However, the exclusion restriction might be violated, for instance if the war changed men and women's beliefs toward female labour more broadly, thereby affecting those of younger women in these counties (see Section 6 for implications of the war on attitudes).

5.2. Transmission Through Marriage

5.2.1. Empirical Strategy

After parental transmission, I explore a second channel: transmission through marriage, that is, from husbands to wives, and by extension, from mothers-in-law to daughters-in-law. Fernández et al. (2004) argue that sons of working mothers hold more progressive attitudes toward female labour than sons of stay-at-home mothers, making these men less averse to having a working wife, thereby incentivising their wives to enter the labour force. Following this line of reasoning, since men born in counties that experienced greater military death rates are more likely to have grown up with a working mother, they should be more likely to have a working wife. Women whose mothers-in-law were born in counties that experienced greater military death rates should also be more likely to work.

Two alternative mechanisms could account for these implications beyond the transmission from husbands' preferences to their wives' working behaviours through a process of joint labour supply decision. First, assortative matching: women from counties that experienced greater military death rates might be more likely to marry men from similar counties because of their higher initial propensity to work and these men's preference toward having working wives. Although I provide evidence of some degree of homogamy in military death rates in Appendix F, in the analysis below I make sure to compare wives who reside and were born in the same county through wives' county of birth fixed effects. This ensures that I am comparing women who carry a similar legacy of the war in their initial propensity to work. Second, these men might assume a larger share of household production, thereby freeing some time for their wives to enter the labour force. However, in Appendix G, I use data from the Generation and Gender Survey of 2005 to show that married men born in counties that experienced greater military death rates do not perform more household and childcare tasks.[36]

Concretely, to assess the role of husbands' origins, I regress women's working

[36]This finding is consistent with those in other contexts. For instance, focusing on West Germany, Schmitz and Spiess (2022) find that while 'men who grew up with a working mother develop different social norms and attitudes towards working women than other men, [...] these men still do not spend more time on unpaid work, such as housework or childrearing' (Schmitz and Spiess, 2022, p. 283).

behaviours on the military death rates exposure of their husbands' counties of birth. Importantly, I isolate the role of husbands' origins from that of their wives' by including wives' county of birth fixed effects so as to compare women born in the same county but whose husbands were born in different counties. Using the censuses 1962 to 2012, I restrict the sample to women aged 30 to 49 married to first-generation internal migrant men and estimate:

$$\texttt{employed}_{ihbrt} = \beta\, \texttt{death\_rate}_{h} + \boldsymbol{\alpha}\mathbf{X}'_{1911,h} + \boldsymbol{\theta}_{i;r;b} + \boldsymbol{\varepsilon}_{ihbrt}, \tag{5}$$

where $\texttt{death\_rate}_h$ denotes the military death rates exposure of the county of birth of husband h with wife i. $\boldsymbol{\theta}_{i;r;b}$ are cohort by wives' county of birth by county of residence fixed effects. Here, β is identified from variations in the working behaviours of married women of the same cohort who reside and were born in the same county, but whose husbands were born in counties that experienced different military death rates.

Next, to explore the relative role of a woman's origins vis-à-vis her husband's directly, I distinguish between women whose husbands were born in the same county from those whose husbands were born in a different county through indicator variables $\texttt{same}_{bh}$ and $\texttt{different}_{bh}$. Because this analysis applies the empirical strategy to both husbands and wives, I estimate the following specification on the sample of internal migrant women aged 30 to 49 married to internal migrant men:

$$\begin{aligned} \texttt{employed}_{ibhrt} &= \beta_1\, \texttt{same}_{bh} \cdot \texttt{death\_rate}_{h} + \beta_2\, \texttt{different}_{bh} \cdot \texttt{death\_rate}_{b} \\ &+ \beta_3\, \texttt{different}_{bh} \cdot \texttt{death\_rate}_{h} \\ &+ \boldsymbol{\alpha}_1\mathbf{X}'_{1911,b} + \boldsymbol{\alpha}_2\mathbf{X}'_{1911,h} + \boldsymbol{\theta}_{i;r} + \boldsymbol{\varepsilon}_{ibhrt}, \end{aligned} \tag{6}$$

where $\boldsymbol{\theta}_{i;r}$ are cohort by county of residence fixed effects. I use three-way clustering and cluster standard errors at the levels of counties of residence and each spouse's county of birth.

Finally, I explore the role of mothers-in-law in transmitting the legacy of the war to their daughters-in-law through their sons by reproducing the analysis of parental transmission and estimating Equation 3 on the sample of second-generation internal migrant married women aged 30 to 59. To further isolate the role of mothers-in-law from that of own parents and husbands, I augment Equation 3 with fixed effects for both parents' and husbands' counties of birth so as to compare women who

reside and were born in the same county, whose husbands and parents were born in the same county, but whose mothers-in-law were born in counties that experienced different military death rates.

5.2.2. Transmission from Husbands to Wives

I report coefficients from estimating Equation 5 in Figure 5.[37] First, I do not include wives' county of birth fixed effects. Estimates are significant at the 1% level and imply that women whose husbands were born in counties that experienced military death rates of 20% rather than 10% were 4–7 percentage points more likely to be working between 1962 and 2012. Including wives' county of birth fixed effects to further compare women with identical origins decreases the estimates by 11–44%, suggesting a limited role for homogamy in military death rates and assortative matching. Including husband and household controls as well as fertility and education barely affects the results (Appendix Figure A7). Moreover, restricting the sample to internal migrant women married to internal migrant men generates similar estimates (Appendix Figure A8).

Next, I explore the relative role of a woman's origins vis-à-vis her husband' and estimate Equation 6. I report estimates in Appendix Figure A9. Focusing on estimates when spouses' origins are different reveals that women's own origins are quantitatively twice as important as those of their husbands'.

5.2.3. Transmission from Mothers-In-Law to Daughters-In-Law

I now explore directly the role of mothers-in-law by reproducing the analysis of maternal transmission on the sample of second-generation internal migrant married women aged 30 to 59 along with fixed effects for both parents' and husbands' counties of birth. I report results in Table 4. The coefficient in Column 1 implies that women whose mothers-in-law were born in counties that experienced military death rates of 20% rather than 10% were 13 percentage points more likely to be working. Including own parents' counties of birth fixed effects and restricting the identifying variation to mothers-in-law born in neighbouring counties slightly increases the estimate to 1.5 (Columns 2 and 3). Including controls for husband and

[37]Results are similar when the outcome is a labour force participant indicator (Appendix Figure A6).

household characteristics, parental characteristics, as well as respondents' education and number of children further increases the estimate to 1.6 (Column 4).

Estimates in Tables 3 and 4 suggest that mothers and mothers-in-law were equally important agents of intergenerational transmission of the war. Comparing their relative roles more directly by including military death rates of mothers' and mothers-in-law's origins together through a specification analogous to that of Appendix Table A4 confirms this interpretation. I report results in Appendix Table A7. Estimates in Column 1 imply that women with mothers and mothers-in-law born in the same county that experienced military death rates of 20% rather than 10% were 25–31 percentage points more likely to be working. Coefficients on mothers' and mothers-in-law's independent origins add up to the coefficient when both come from the same county, suggesting again that the impact of each maternal origin cumulates linearly. While both maternal origins appear important, estimates for mothers-in-law are slightly larger than those for own mothers, although they are not significantly different.[38] This result complements those of Fernández et al. (2004), who find that mothers-in-law rather than own mothers explain the impact of WWII mobilization rates on female labour force participation in the United States.

To conclude, although I use a strategy that isolates the role of husbands' and mothers-in-law's origins, these results remain only suggestive that they are driven by transmission from husbands' preferences to their wives' working behaviours through a process of joint labour supply decision. Indeed, assortative matching could still explain part of these results, whereby women who have a higher baseline propensity to work might be more likely to marry men from counties that experienced greater military death rates because of their preferences toward having working wives. Results in the literature nevertheless suggest that the former mechanism is more likely to be at play.[39] It would also be consistent with research showing the predominant role of husbands in household decision making, for instance for residence location

[38]The difference between both coefficients in Column 1 is 0.08 with a standard error of 0.89; the difference in Column 3 is 0.33 with a standard error of 0.75.

[39]In particular, in the context of West Germany, Schmitz and Spiess (2022) find that husbands' preferences toward working women due to the labour status of their own mothers directly affect their wives' working behaviours rather than an assortative matching mechanism. They establish this result in two ways: examining 'whether single women who later have a partner who grew up with a working mother already exhibit different labour market outcomes before matching with their future partner' (p. 295) and observing the same women with different partners over time.

decisions (Løken et al., 2013; Brandén and Haandrikman, 2019).

5.3. Transmission Through Local Social Interactions

5.3.1. Empirical Strategy

The third set of mechanisms I explore is horizontal and oblique transmission through local social interactions. Culture is a locally embedded process and social interactions in culture might materialize in two ways: first, the cultural composition of a neighbourhood might affect the relative importance of an individual's own culture as individuals surrounded by many with identical origins might find it easier—or feel pressured—to preserve their culture of origin. Conversely, the cultural composition of a neighbourhood might affect individuals' beliefs through a process of cultural assimilation.

I first explore whether the legacy of the war diffused through cultural assimilation at the local level. For each census and municipality, I construct a measure of cultural composition in military death rates.[40] It is the weighted average military death rates exposure of counties of birth among residents in a municipality: $\texttt{death\_rate}_m = \sum_o \texttt{sh\_res}_{o,m} \times \texttt{death\_rate}_o$, where $\texttt{sh\_res}_{o,m}$ denotes the share of residents in municipality m born in county o. Then, I estimate the following specification on the sample of first-generation internal migrant married women aged 30 to 49:

$$\texttt{employed}_{ibmlt} = \beta\, \texttt{death\_rate}_m + \boldsymbol{\alpha}\mathbf{X}'_{1911,m} + \boldsymbol{\gamma}_i + \boldsymbol{\delta}_l + \boldsymbol{\omega}_b + \boldsymbol{\varepsilon}_{ibmlt}, \tag{7}$$

where $\mathbf{X}_{1911,m}$ contains pre-war characteristics and is constructed in the same way as $\texttt{death\_rate}_m$. To compare individuals across neighbouring municipalities and alleviate potential issues of spatial sorting, I include local labour market fixed effects $\boldsymbol{\delta}_l$.[41] I further include county of birth fixed effects $\boldsymbol{\omega}_b$ to ensure that correlated

[40] Censuses contain information on individuals in up to 26 thousand municipalities—there are 36 thousand municipalities in France but the remaining 10 thousand municipalities are too small to be sampled in the censuses as they contain less than 200 residents.

[41] Because the independent variable varies at the municipality level, I can use a narrow definition of local labour markets, with the identifying variation restricted to neighbouring municipalities. Specifically, I use *canton* fixed effects. Cantons represent the fourth level of subnational government, between *arrondissements* and *communes*. There were about four thousand cantons before 2013, containing nine municipalities on average.

differences in cultural origins are not driving the results. I cluster standard errors at the levels of counties of birth and residence. Here, β is identified from variations in the working behaviours of first-generation internal migrant married women of the same cohort, born in the same county, but residing in neighbouring municipalities characterized by different cultural compositions in military death rates.

Next, I analyse whether the legacy of the war was culturally preserved because of geographic clustering of individuals with similar origins. Again, I restrict the identifying variation to neighbouring municipalities and estimate:

$$\begin{aligned} \texttt{employed}_{ibmlt} &= \beta\, \texttt{sh\_res}_{b,m} \times \texttt{death\_rate}_{b} + \alpha\, \texttt{sh\_res}_{b,m} \\ &+ \boldsymbol{\gamma}_i + \boldsymbol{\delta}_l + \boldsymbol{\omega}_b + \boldsymbol{\varepsilon}_{ibmlt}, \end{aligned} \tag{8}$$

where $\texttt{sh\_res}_{b,m}$ denotes the share of residents in municipality m born in county b, the same as the respondent's. This specification includes county of birth fixed effects $\boldsymbol{\omega}_b$ so that the coefficient on the interaction term β is identified from variations in the working behaviours of first-generation internal migrant married women of the same cohort, born in the same county, but residing in neighbouring municipalities. It indicates whether the impact of WWI military death rates was relatively stronger among women surrounded by more individuals from their own county of birth.

5.3.2. Results

I report results for the cultural diffusion channel in Panel a of Figure 6. Estimates imply that women who reside in a municipality in which the average military death rates composition was one percentage point higher were 2–4 percentage points more likely to be working between 1968 and 2012.[42] Including controls for husband and household characteristics as well as respondents' education and number of children barely affects the estimates (Appendix Figure A10, Panel a).

I report results for the cultural preservation channel in Panel b of Figure 6. Estimates imply that women born in the same county who reside in a municipality in which the share of residents from their own counties of birth was one percentage

[42]The coefficient is close to zero and not significant for the census of 1999, the census that contains the least observations in the sample—it is a 5% sample of the population. Because preferences and beliefs are formed while growing up, I assign the cultural composition using the previous census, so the census of 1962 is not part of the analysis.

point higher were 1–2 percentage points more likely to be working. Again, including controls barely affects the estimates (Appendix Figure A10, Panel b).

Results in this section highlight the role of local social interactions for long-run historical processes.[43] While cultural assimilation affects the diffusion aspect of history, cultural preservation affects its persistence. Both channels empirically work toward the manifestation of the legacy of the war in the long run. But these channels need not oppose each other: merging Equations 7 and 8 results in estimates that change little, suggesting some degree of orthogonality between both processes (Appendix Figure A11). This shed a new light on the dichotomy between culture and institutions: given the local embeddedness of culture and mechanisms of horizontal transmission through local social interactions, estimates from a naïve cross-county approach might partly capture implications of the local embeddedness of culture rather than solely differences in inherited institutional structures.

6. Changes to Preferences and Beliefs Toward Female Labour

To account for the above results on working behaviours, I argue that women induced to enter the labour force during the interwar period because of WWI altered preferences and beliefs toward female labour of their daughters, sons, and social relationships, and that these changes translated into the working behaviours of women in subsequent generations. Since individuals form preferences and beliefs early in life from learning and socializing with their parents, peers, and neighbours (Bisin and Verdier, 2011; 2023), men and women who grew up with a working mother, or in an environment in which many women worked, should form more progressive attitudes toward female labour. To explore the validity of this argument, I analyse the long-run implications of WWI military death rates for attitudes toward gender roles.[44]

[43] One caveat to the interpretation of the results in this section is that despite comparing women from the same county of birth, it might still be possible that those with greater baseline labour force participation rates might have moved to municipalities of the same labour market with a greater local exposure to WWI military death rates within the resident population. Asserting this possibility would require information on pre-migration labour force participation, which is not available in the censuses.

[44] Before delving into contemporaneous data, it is worth noting that there were no pre-WWI differences in attitudes toward female labour across counties that experienced different military death rates (see Appendix B for details).

6.1. Data and Empirical Strategy

Respondents to the Generation and Gender Survey of 2005 were proposed three statements related to the role of women in the labour force and asked whether they "agree," "somewhat agree," "do not agree nor disagree," "somewhat disagree," or "disagree." Statements were (1) "If a woman earns more than her partner, it is bad for their relationship," (2) "Women should not be able to decide how to spend the money they earned without asking their partners," and (3) "In an economic crisis, men should keep their jobs in priority." I assign 0 to "agree" and 1 to "disagree," and use 0.25-point increments for responses in between, so that higher values indicate more progressive attitudes toward gender roles. Then, I aggregate statements using a three-point scale, which I standardize to a one-point scale. Since I study preferences and beliefs rather than behaviours, I do not place age or gender restrictions on the regression sample, though I still focus on internal migrant respondents.[45] I report average responses for men and women separately in Appendix Table A9. According to the above coding scheme, respondents "somewhat disagree" with the statements on average with an index at 0.75, with no difference between men and women. The survey also contains questions related to preferences and beliefs about religion, marriage, and family. I report average responses relative to these statements in Appendix Tables A10 to A12.

Applying the same approach as before, I isolate intergenerational cultural transmission by comparing respondents who reside in the same county but were born in counties that were differentially affected by the war:

$$
\begin{aligned}
\texttt{values}_{ibr} &= \beta_1 \, \texttt{death\_rate}_b + \beta_2 \, \texttt{female}_i + \beta_3 \, \texttt{death\_rate}_b \times \texttt{female}_i \\
&+ \boldsymbol{\alpha} \mathbf{X}'_{1911,b} + \boldsymbol{\gamma}_i + \boldsymbol{\delta}_r + \boldsymbol{\varepsilon}_{ibr},
\end{aligned} \tag{9}
$$

where $\texttt{values}_{ibr}$ denotes the one-point scale gender values index for respondent i, born in county b, and residing in county r. Historical controls $\mathbf{X}_{1911,b}$ are assigned at the level of counties of birth. Consistent with the empirical strategy, I include

[45] As with the censuses, there is no correlation between migration status and origin county military death rates, employment status, or fertility. However, internal migrants are more educated than non-migrants, as well as slightly more progressive. As before, including an interaction term between the internal migrant indicator and the military death rate of respondents' counties of birth reveals that selection along all observable characteristics does not operate differently across counties of origin (Appendix Table A8).

county of residence fixed effects $\boldsymbol{\delta}_r$. I cluster standard errors at the levels of counties of birth and residence. Here, β_1 is identified from variations in attitudes held by respondents of the same cohort, who reside in the same county, but were born in counties that experienced different military death rates.

6.2. Results

I report results in Table 5. When the interaction term is not included, the coefficient of interest is significant at the 1% level and implies that respondents born in counties that experienced military death rates of 20% rather than 10% hold more progressive attitudes toward female labour (Column 1): the index is 10 percentage points higher in this case, which corresponds to 13% of the mean. Adding the interaction term only slightly reduces and reveals a somewhat stronger response of women's attitudes, though the coefficient is not significant (Column 2). Adding parental and household controls and controlling for respondents' employment status, education, and fertility, does not change the results substantially (Columns 3–5).

Estimating Equation 9 separately for each component of the gender values index reveals that the effect of military death rates on preferences and beliefs is driven by two of its three components (Appendix Table A13): whether respondents disagree with the statements according to which "if a woman earns more than her partner, it is detrimental for their relationship"—a strong marker of gender identity norms in relation with female labour supply (Bertrand et al., 2015)—and "in an economic crisis, men should keep their jobs in priority"—another important marker of gender norms (Alesina et al., 2013, p. 524–527).

Finally, to assess whether these results simply reflect more progressive attitudes in general, I reproduce the analysis for attitudes toward religion, marriage, and the family (Appendix Table A14). Consistent with my argument, WWI military death rates did not impact attitudes beyond those specifically related to the role of women in the labour force.

To take stock of the set of findings in this article and put their magnitudes in perspective, I report the main estimates of the analysis altogether in Table 6, where I display their median whenever there are multiple estimates over time for a given

specification. Finding a common ground for comparison is challenging as samples and sources of identification differ throughout. One possibility is to standardize estimates in terms of residual standard deviations to compute residual magnitudes. That is, rely on the effective variation in the treatment variable used for identification once fixed effects are taken into account, multiply raw estimates with these residual standard deviations, then divide them with the residual standard deviation of the outcome variable calculated in the same way (Mummolo and Peterson, 2018). To make this exercise meaningful, I compare regression coefficients estimated across samples of the same generation: first-generation internal migrants in Panel A and second-generation internal migrants in Panel B.

Focusing first on results relying on first-generation internal migrants (Panel A), marriage appears as an important mechanism of persistence, as the residual magnitude of coefficients identified through husbands' origins is close to the residual magnitude of the overall effect. Both mechanisms of social interactions also appear important for persistence—though their sources of variation is markedly different from that of other analyses in this article, as they rely on variation in cross-city population composition. Finally, the residual magnitude on preferences and beliefs is large, suggesting that changes to attitudes of both men and women are an important precondition for changes to behaviours. Turning to analyses relying on second-generation migrants (Panel B), residual magnitudes of estimates on mothers and mothers-in-law confirm that they were equally important agents in the transmission of the legacy of the war, echoing results in Fernández et al. (2004).[46] In contrast, fathers appear to play a limited role in this transmission process.

7. Conclusion

One century after the First World War, its legacy on female labour in France is still vivid. Comparing women who reside under similar institutional conditions but were born in counties that experienced different military death rates, I provide empirical evidence for a persistent and continued impact of World War I on women's working behaviours throughout the second half of the twentieth century. I uncover three channels of intergenerational transmission: transmission through

[46]The fact that these are larger the overall effects might be the result of the smaller amount of measurement error in these analyses, as results in Appendix Table C2 attest.

parents, transmission through marriage, and transmission through local social interactions. Consistent with models of intergenerational transmission, I find that men and women born in counties that experienced greater military death rates hold more progressive attitudes toward the role of women in the labour force today.

Findings in this article elucidate the intergenerational diffusion pathways of women's labour market involvement over the long run. They suggest that the entrance of women in the labour force in the period directly preceding revolution of female labour paved the way for subsequent generations of women. I interpret them as evidence for a process of cultural diffusion and change by which women induced to enter the labour force during the interwar period because of the war altered preferences and beliefs about female labour of their daughters, sons, and social relationships, and that these changes translated into the working behaviours of women in subsequent generations. Providing direct empirical evidence for this feedback process is challenging as no survey traces back to the interwar period. Finding innovative ways to build measures of preferences and beliefs toward female labour far back in the past to explore further this process of cultural change is a promising avenue of research.

References

Abramitzky, Ran, Adeline Delavande, and Luis Vasconcelos. 2011. "Marrying up: the role of sex ratio in assortative matching." *American Economic Journal: Applied Economics*, 3(3): 124–57.

Acemoglu, Daron, David H. Autor, and David Lyle. 2004. "Women, war, and wages: the effect of female labor supply on the wage structure at midcentury." *Journal of political Economy*, 112(3): 497–551.

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2005. "Institutions as a fundamental cause of long-run growth." In *Handbook of Economic Growth*, Volume 1, edited by Philippe Aghion and Steven N. Durlauf, 385–472. Amsterdam: Elsevier.

Albanesi, Stefania, and Claudia Olivetti. 2016. "Gender roles and medical progress." *Journal of Political Economy*, 124(3): 650–95.

Alesina, Alberto, Paola Giuliano, and Nathan Nunn. 2013. "On the origins of gender roles: women and the plough." *The Quarterly Journal of Economics*, 128(2): 469–530.

Alix-Garcia, Jennifer, Laura Schechter, Felipe Valencia Caicedo, and S. Jessica Zhu. 2022. "Country of women? Repercussions of the Triple Alliance War in Paraguay." *Journal of Economic Behavior & Organization*, 202: 131–167.

Attanasio, Orazio, Hamish Low, and Virginia Sánchez-Marcos. 2008. "Explaining changes in female labor supply in a life-cycle model." *The American Economic Review*, 98(4): 1517–52.

Bailey, Martha J. 2006. "More power to the pill: the impact of contraceptive freedom on women's life cycle labor supply." *The Quarterly Journal of Economics*, 121(1): 289–320.

Bertrand, Marianne, Emir Kamenica, and Jessica Pan. 2015. "Gender identity and relative income within households." *The Quarterly Journal of Economics*, 2(130): 571–614.

Bette, Peggy. 2017. *Veuves de la grande guerre. Itinéraires et combats.* Berine: Peter Lang.

Bisin, Alberto, and Thierry Verdier. 2011. "The economics of cultural transmission and socialization." In *Handbook of Social Economics*, Volume 1, edited by Jess Benhabib, Alberto Bisin and Matthew O. Jackson, 339–416. Amsterdam: North-Holland.

Bisin, Alberto, and Thierry Verdier. 2023. "Advances in the economic theory of cultural transmission." *Annual Review of Economics*, 15.

Blau, Francine D., Lawrence M. Kahn, and Kerry L. Papps. 2011. "Gender, source country characteristics, and labor market assimilation among immigrants." *The Review of Economics and Statistics*, 93(1): 43–58.

Boehnke, Jörn, and Victor Gay. 2020. *Replication Data for: The Missing Men. World War I and Female Labor Force Participation [database].* Harvard Dataverse. `https://doi.org/10.7910/DVN/AP1HZ8`.

Boehnke, Jörn, and Victor Gay. 2022. "The missing men. World War I and female labor force participation." *Journal of Human Resources*, 57(4): 1209–1241.

Boggiano, Barbara. 2020. "Long-term effects of the Paraguayan War (1864–1870): from male scarcity to intimate partner violence." ZEW Discussion Paper 20–024.

Bostrom, Alex. 2016. "Supplying the front French artillery production during the First World War." *French Historical Studies*, 39(2): 261–86.

Boulanger, Philippe. 2001. *La France devant la conscription: géographie historique d'une institution républicaine, 1914–1922.* Paris: Economica.

Brandén, Maria, and Karen Haandrikman. 2019. "Who moves to whom? Gender differences in the distance moved to a shared residence." *European Journal of Population*, 35: 435–458.

Brilhault, Gwennaëlle, and Nathalie Caron. 2016. "Le passage à une collecte par sondage: quel impact sur la précision du recensement ?" *Economie et Statistique*, 483–5: 23–40.

Brodeur, Abel, and Lamis Kattan. 2022. "World War II, the baby boom, and employment: county-level evidence." *Journal of Labor Economics*, 40(2): 437–71.

Bütikofer, Aline. 2013. "Revisiting 'Mothers and Sons' preference formation and the female labor force in Switzerland." *Labour Economics*, 20: 82–91.

Campos-Vazquez, Raymundo Miguel, and Roberto Velez-Grajales. 2014. "Female labour supply and intergenerational preference formation: evidence for Mexico." *Oxford Development Studies*, 42(4): 553–69.

Cantoni, Davide, Felix Hagemeister, and Mark Westcott. 2020. "Persistence and activation of right-wing political ideology." ZBW Discussion Paper 143.

Cardoso, Ana Rute, and Louis-Philippe Morin. 2018. "Can economic pressure overcome social norms? The case of female labor force participation." IZA Working paper 11822.

Chen, Xi Chen, and Suqin Ge. 2018. "Social norms and female labor force participation in urban China." *Journal of Comparative Economics*, 46(4): 966–87.

Clemens, Michael A. 2017. "The meaning of failed replications: a review and proposal." *Journal of Economic Surveys*, 31(1): 326–42.

Commission Consultative des Dommages et des Réparations. 1951. *Dommages subis par la France et l'Union Française du fait de la guerre et de l'occupation ennemie (1939–1945).* Paris: Imprimerie nationale.

Doepke, Matthias, Moshe Hazan, and Yishay D. Maoz. 2015. "The baby boom and World War II: a macroeconomic analysis." *The Review of Economic Studies*, 82(3): 1031–73.

Farre, Lidia, and Francis Vella. 2013. "The intergenerational transmission of gender role attitudes and its implications for female labour force participation." *Economica*, 80(318): 219–47.

Fernández, Raquel. 2011. "Does culture matter?" In *Handbook of Social Economics*, Volume 1, edited by Jess Benhabib, Alberto Bisin and Matthew O. Jackson, 481–510. Amsterdam: North-Holland.

Fernández, Raquel. 2013. "Cultural change as learning: the evolution of female labor force participation over a century." *The American Economic Review*, 103(1): 472–500.

Fernández, Raquel, Alessandra Fogli, and Claudia Olivetti. 2004. "Mothers and sons: preference formation and female labor force dynamics." *The Quarterly Journal of Economics*, 119(4): 1249–99.

Fernández, Raquel, and Alessandra Fogli. 2009. "Culture: an empirical investigation of beliefs, work, and fertility." *American Economic Journal: Macroeconomics*, 1(1): 146–77.

Ferrara, Andreas. 2022. "World War II and black economic progress." *Journal of Labor Economics*, 40(4): 1053–1091.

Flaus, Lucien. 1947. "Les destructions d'immeubles d'habitation et d'usines en France au cours de la Guerre 1939–1945." *Journal de la Société Française de Statistique*, 88: 353–81.

Fogli, Alessandra, and Laura Veldkamp. 2011. "Nature or nurture? Learning and the geography of female labor force participation." *Econometrica*, 79(4): 1103–38.

Fouka, Vasiliki, and Hans-Joachim Voth. 2022. "Collective remembrance and private choice: German-Greek conflict and consumer behavior in times of crisis." *American Political Science Review*, forthcoming.

Gay, Victor. 2020*a*. *TRF-GIS Départements (1870–1940) [database].* Harvard Dataverse. `https://doi.org/10.7910/DVN/ULQYM5`.

Gay, Victor. 2020*b*. *TRF-GIS Military Regions (1874–1940) [database].* Harvard Dataverse. `https://doi.org/10.7910/DVN/SQPEUW`.

Gay, Victor. 2021. "Mapping the Third Republic. A geographic information system of France (1870–1940)." *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, 54(4): 189–207.

Gay, Victor, Daniel L. Hicks, Estefania Santacreu-Vasut, and Amir Shoham. 2018. "Decomposing culture: an analysis of gender, language, and labor supply in the household." *Review of Economics of the Household*, 16(4): 879–909.

Girard, Alain, Henri Bastide, and Guy Pourcher. 1964. "Mobilité géographique et concentration urbaine en France. Une enquête en province." *Population*, 19(2): 227–66.

Giuliano, Paola. 2017. "Gender: a historical perspective." In *The Oxford Handbook of Women and the Economy*, edited by Susan L. Averett, Laura M. Argys and Saul D. Hoffman, 645–672. New York: Oxford University Press.

Giuliano, Paola, and Nathan Nunn. 2021. "Understanding cultural persistence and change." *Review of Economic Studies*, 88: 1514–81.

Goldin, Claudia. 1990. *Understanding the Gender Gap: An Economic History of American Women.* New York: Oxford University Press.

Goldin, Claudia. 2006. "The quiet revolution that transformed women's employment, education, and family." *American Economic Review*, 96(2): 1–21.

Goldin, Claudia. 2014. "A grand gender convergence: its last chapter." *The American Economic Review*, 104(4): 1091–119.

Goldin, Claudia, and Claudia Olivetti. 2013. "Shocking labor supply: a reassessment of the role of World War II on women's labor supply." *The American Economic Review*, 103(3): 257–62.

Gonzalez-Feliu, Jesus, and Antoine Parent. 2016. "Clio-combinatorics: a novel framework to analyze military logistics choices using operations research techniques." In *Handbook of Research on Military, Aeronautical, and Maritime Logistics and Operations*, edited by Alberto Ochoa-Zazzatti, Jöns Sánchez, Miguel G. Cedillo-Campos and Margain de Lourdes, 79–101. Hershey, PA: IGI Global.

Greenwood, Jeremy, Ananth Seshadri, and Mehmet Yorukoglu. 2005. "Engines of liberation." *The Review of Economic Studies*, 72(1): 109–33.

Grosjean, Pauline, and Rose Khattar. 2019. "It's raining men! Hallelujah? The long-run consequences of male-biased sex ratios." *The Review of Economic Studies*, 86(2): 723–54.

Hazan, Moshe, and Yishay D. Maoz. 2002. "Women's labor force participation and the dynamics of tradition." *Economics Letters*, 75(2): 193–8.

Hiller, Victor, and Thomas Baudin. 2016. "Cultural transmission and the evolution of gender roles." *Mathematical Social Sciences*, 84: 8–23.

Huber, Michel. 1931. *La population de la France pendant la guerre.* New Haven, CT: Yale University Press.

INSEE. 1953. *Résultats statistiques du recensement général de la population du 10 mars 1946. Volume II Population présente totale.* Paris: INSEE.

INSEE. 1962. *Recensement de la population 1962: fichier détail au 1/20 [database].* Paris: INSEE [producer]; Paris: ADISP [distributor].

INSEE. 1968. *Recensement de la population 1968: fichier détail au 1/4 [database].* Paris: INSEE [producer]; Paris: ADISP [distributor].

INSEE. 1975. *Recensement de la population 1975: fichier détail au 1/5 [database].* Paris: INSEE [producer]; Paris: ADISP [distributor].

INSEE. 1982. *Recensement de la population 1982: fichier détail au 1/4 [database].* Paris: INSEE [producer]; Paris: ADISP [distributor].

INSEE. 1989. *Enquêtes emploi 1982–1989 [database].* Paris: INSEE [producer]; Paris: ADISP [distributor].

INSEE. 1990. *Recensement de la population 1990: fichier détail au 1/4 [database].* Paris: INSEE [producer]; Paris: ADISP [distributor].

INSEE. 1999. *Recensement de la population 1999: fichier détail au 1/20 [database].* Paris: INSEE [producer]; Paris: ADISP [distributor].

INSEE. 2002. *Enquêtes emploi 1990–2002 [database].* Paris: INSEE [producer]; Paris: ADISP [distributor].

INSEE. 2006. *Recensement de la population: fichier détail 2006 [database].* Paris: INSEE [producer]; Paris: ADISP [distributor].

INSEE. 2008. *Table d'appartenance géographique des communes au 1er janvier 2008 [database].* Paris: INSEE.

INSEE. 2010. *Données historiques de la Statistique générale de France. SGF 1800–1925. T226 – Recensements de 1911 [database].* Paris: INSEE.

INSEE. 2012*a*. *Enquêtes emploi 2003–2012 [database].* Paris: INSEE [producer]; Paris: ADISP [distributor].

INSEE. 2012*b*. *Enquêtes emploi en continu (version FPR) 2005–2012 [database].* Paris: INSEE [producer]; Paris: ADISP [distributor].

INSEE. 2012*c*. *Recensement de la population: fichier détail 2012 [database].* Paris: INSEE [producer]; Paris: ADISP [distributor].

INSEE. 2012*d*. *Table d'appartenance géographique des communes au 1er janvier 2012 [database].* Paris: INSEE.

INSEE. 2018. *Transformation coefficient from one year's Euro or French Franc to another year's Euro or French Franc – Base 2015 [database].* Paris: INSEE.

INSEE. 2019. *Structure de la population active de 25 à 54 ans selon la catégorie socioprofessionnelle, selon le niveau de diplôme, selon le sexe ou le secteur d'activité (1968 à 2019) [database].* Paris: INSEE.

INSEE, and INED. 2005. *Étude des relations familiales et intergénértionelles (ERFI) [database].* Paris: INSEE, INED [producers]; Paris: ADISP [distributor].

Johnston, David W., Stefanie Schurer, and Michael A. Shields. 2014. "Maternal gender role attitudes, human capital investment, and labour supply of sons and daughters." *Oxford Economic Papers*, 66(3): 631–59.

Kawaguchi, Daiji, and Junko Miyazaki. 2009. "Working mothers and sons' preferences regarding female labor supply: direct evidence from stated preferences." *Journal of Population Economics*, 22(1): 115–30.

Lagrou, Pieter. 2002. "Les guerres, les morts et le deuil: bilan chiffré de la Seconde Guerre Mondiale." In *La Violence de guerre, 1914–1945. Approches comparées des deux conflits mondiaux*, edited by Stéphane Audouin-Rouzeau, Annette Becker, Christian Ingrao and Henry Rousso, 313–27. Bruxelles: Complexe; Paris: IHTP-CNRS.

Li, Zhongda, and Lu Liu. 2019. "Preference or endowment? Intergenerational transmission of women's work behavior and the underlying mechanisms." *Journal of Population Economics*, 32(4): 1401–1435.

Løken, Katrine V., Kjell Erik Lommerud, and Lundberg Shelly. 2013. "Your place or mine? On the residence choice of young couples in Norway." *Demography*, 50(1): 285–310.

Maruani, Margaret, and Monique Meron. 2012. *Un siècle de travail des femmes en France: 1901–2011.* Paris: La Découverte.

Michalopoulos, Stelios, and Elias Papaioannou. 2017. *The Long Economic and Political Shadow of History.* London: CEPR Press.

Michalopoulos, Stelios, Louis Putterman, and David N. Weil. 2019. "The influence of ancestral lifeways on individual economic outcomes in Sub-Saharan Africa." *Journal of the European Economic Association*, 17(4): 1186–231.

Miyata, Sachiko, and Hiroyuki Yamada. 2016. "Do female gender role attitudes affect labour market participation in Egypt?" *The Journal of Development Studies*, 52(6): 876–894.

Morrill, Melinda Sandler, and Thayer Morrill. 2013. "Intergenerational links in female labor force participation." *Labour Economics*, 20: 38–47.

Mummolo, Jonatha, and Erik Peterson. 2018. "Improving the interpretation of fixed effects regression results." *Political Science Research and Methods*, 6(4): 829–35.

Ngai, Rachel L., and Barbara Petrongolo. 2017. "Gender gaps and the rise of the service economy." *American Economic Journal: Macroeconomics*, 9(4): 1–44.

Nunn, Nathan. 2014. "Historical development." In *Handbook of Economic Growth*, Volume 2, edited by Philippe Aghion and Steven N. Durlauf, 347–402. Amsterdam: Elsevier.

Nunn, Nathan, and Leonard Wantchekon. 2011. "The slave trade and the origins of mistrust in Africa." *American Economic Review*, 101(7): 3221–52.

Ochsner, Christian, and Felix Roesel. 2017. "Activated history—The case of the Turkish sieges of Vienna." CESifo Working Paper 6586.

Olivetti, Claudia, and Barbara Petrongolo. 2016. "The evolution of gender gaps in industrialized countries." *Annual Review of Economics*, 8: 405–34.

Olivetti, Claudia, Eleonora Patacchini, and Yves Zenou. 2020. "Mothers, peers, and gender-role identity." *Journal of the European Economic Association*, 18(1): 266–301.

Porte, Rémy. 2005. *La mobilisation industrielle: 'premier front' de la Grande Guerre?* Paris: 14–18 Éditions.

Régnier-Loilier, Arnaud. 2016. *Parcours de familles: l'enquête Etude des Relations Familiales et Intergénérationnelles.* Paris: INED.

Rose, Evan K. 2018. "The rise and fall of female labor force participation during World War II in the United States." *The Journal of Economic History*, 78(3): 673–711.

Schmitz, Sophia, and C. Katharina Spiess. 2022. "The intergenerational transmission of gender norms—Why and how adolescent males with working mothers matter for female labour market outcomes." *Socio-Economic Review*, 20(1): 281–322.

Teso, Edoardo. 2019. "The long-term effect of demographic shocks on the evolution of gender roles: evidence from the transatlantic slave trade." *Journal of the European Economic Association*, 17(2): 497–534.

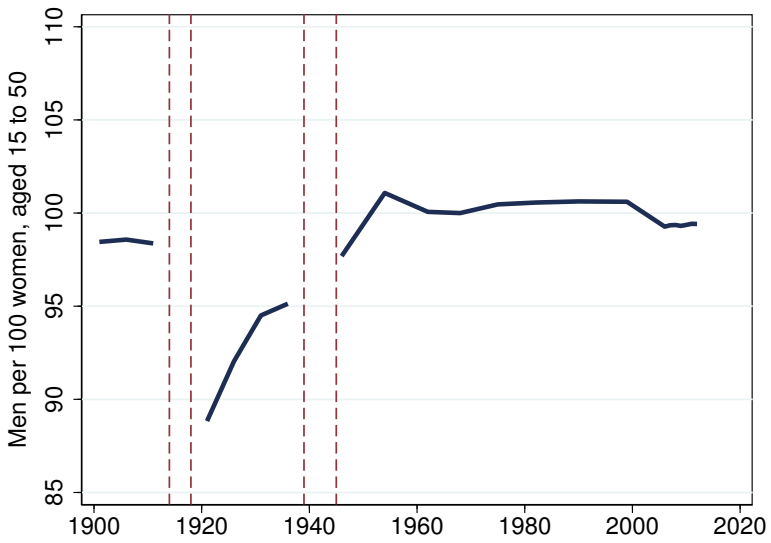


Figure 1. Adult Sex Ratio (1900–2012)

Notes: This figure displays the sex ratio among French adults aged 15 to 50. Data are from the censuses 1901–2012. Vertical lines indicate WWI (1914–1918) and WWII (1939–1945).

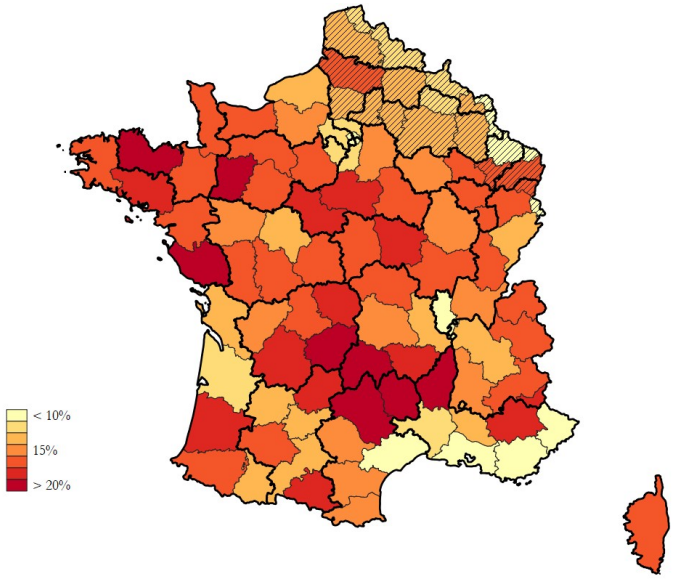


Figure 2. Distribution of Military Death Rates Across Counties

Notes: This figure displays military death rates across counties in 1914 geography. Shaded areas indicate counties where war combats occurred. Darker lines indicate military region boundaries. Shapefiles for counties and military regions are from Gay (2020*a*) and Gay (2020*b*), respectively (Gay, 2021).

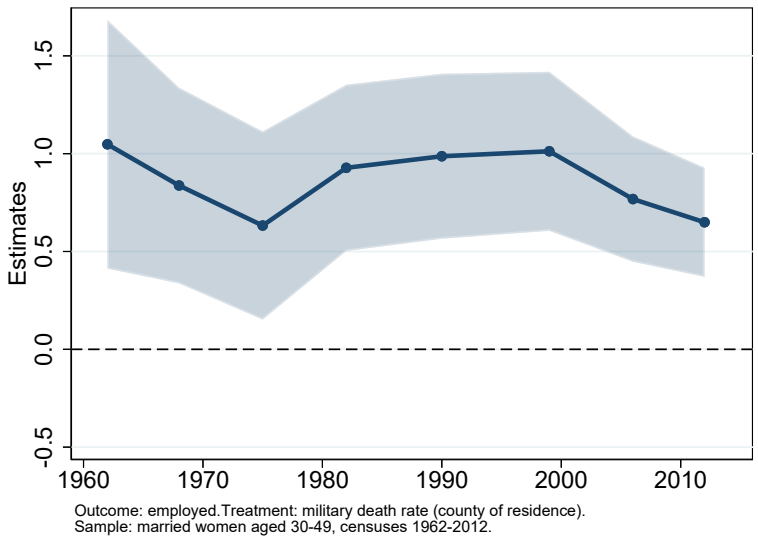


Figure 3. The Effect of WWI Military Death Rates on Female Labour Force Participation Across Counties

Notes: This figure displays OLS coefficients from estimating Equation 1 along with 95% confidence intervals on the sample of married women aged 30 to 49 in the censuses 1962–2012. They result from regressing an employed indicator on the military death rate of respondents' counties of residence, along with county-level pre-war controls and cohort by military region fixed effects. Estimates are computed using sample weights provided in the censuses. Standard errors are clustered at the level of counties of residence.

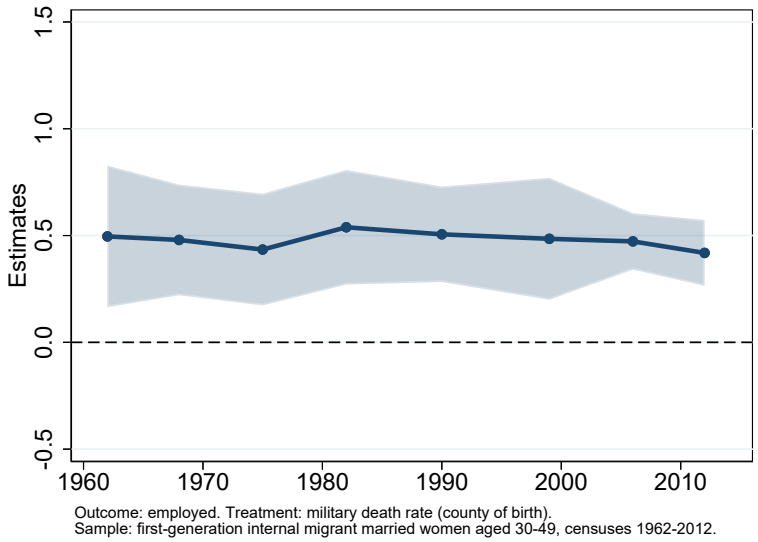


Figure 4. The Effect of WWI Military Death Rates on Female Labour Force Participation Across Counties of Birth, Holding Counties of Residence Constant

Notes: This figure displays OLS coefficients from estimating Equation 2 along with 95% confidence intervals on the sample of internal migrant married women aged 30 to 49 in the censuses 1962–2012. They result from regressing an employed indicator on the military death rate of respondents' counties of birth, along with county-level pre-war controls and cohort by military region by county of residence fixed effects. Estimates are computed using sample weights provided in the censuses. Standard errors are clustered at the level of counties of residence and birth.

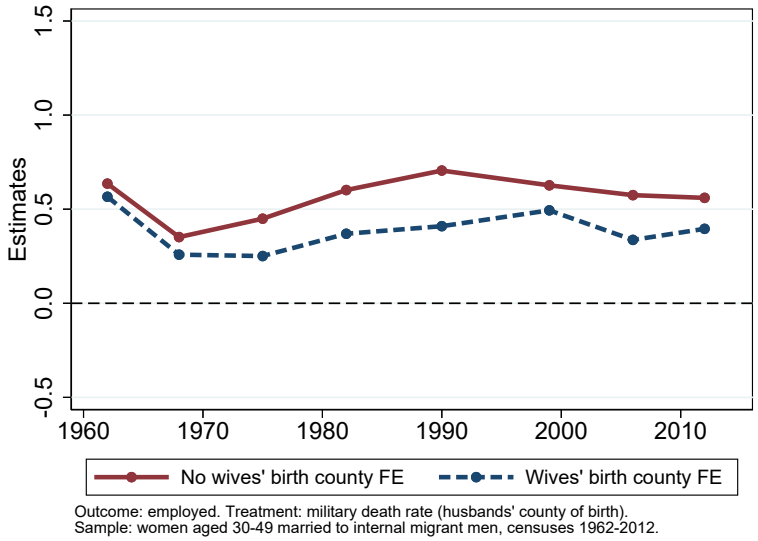
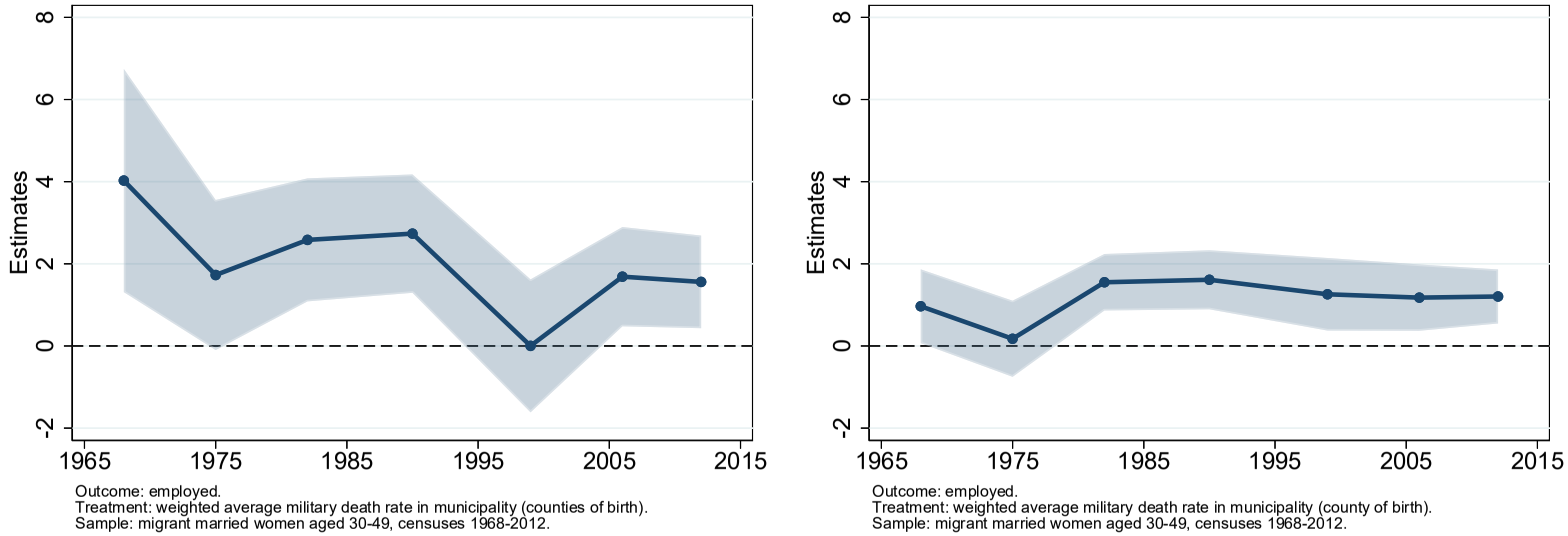


Figure 5. The Effect of Husbands' Birth County Military Death Rates on Their Wives' Labour Force Participation

Notes: This figure displays OLS coefficients from estimating Equation 5 on the sample of women aged 30 to 49 that are married to internal migrant men in the censuses 1962–2012. They result from regressing an employed indicator on the military death rate of respondents' husbands' counties of birth, along with county-level pre-war controls and cohort by wives' county of birth by county of residence fixed effects. Estimates are computed using sample weights provided in the censuses. Standard errors are clustered at the level of counties of residence and birth. All estimates are significant at the 1% level.



(a) Diffusion Through Assimilation

(b) Diffusion Through Preservation

Figure 6. The Local Effects of WWI Military Death Rates on Female Labour Force Participation

Notes: Panel a reports OLS coefficients on $\texttt{death\_rate}_m$ from estimating Equation 7, and Panel b, OLS coefficients on the interaction $\texttt{sh\_res}_{b,m} \times \texttt{death\_rate}_b$ from estimating Equation 8, along with 95% confidence intervals on the sample of internal migrant married women Equation the censuses 1968–2012. Standard errors are clustered at the level of respondents' counties of birth and residence. Estimates are computed using sample weights provided in the censuses.

Table 1. Military Death Rates and Pre-War County Characteristics

Dependent variable	Military death rate		
	(1)	(2)	(3)
Share rural population	0.12***	0.12***	0.14***
	[0.01]	[0.03]	[0.03]
Share born in county	0.12***	0.13***	0.15***
	[0.03]	[0.03]	[0.04]
Female labour force participation		−0.03	−0.02
		[0.03]	[0.04]
Share girls aged 5–19 in school		0.09	0.04
		[0.07]	[0.07]
Total fertility rate		0.01*	0.02
		[0.01]	[0.01]
Personal wealth (10,000 francs)		0.04**	0.06*
		[0.02]	[0.04]
Other characteristics	No	Yes	Yes
Military region FE	No	No	Yes
Counties	87	87	87
R^2	0.745	0.827	0.875

Notes: This table reports OLS coefficients from regressing military death rates on various pre-war county characteristics measured in 1911. *Other characteristics* include average height, population, the share of men working in industry, in agriculture, the share of the literate population, and the average direct taxes per inhabitant. Robust standard errors are in brackets.
*** Significant at the 1% level. ** Significant at the 5% level. * Significant at the 10% level.

Table 2. Summary Statistics Across Datasets

A. Pre-war county characteristics (87 counties)				
	Mean	S.d.	Min.	Max.
Military death rate	0.16	0.04	0.06	0.29
Share rural population	0.67	0.18	0.00	0.89
Share born in county	0.80	0.12	0.27	0.94
Female labour force participation	0.52	0.09	0.34	0.69
Share girls 5–19 in school	0.58	0.05	0.47	0.73
Total fertility rate	2.42	0.44	1.56	3.73
Personal wealth (10,000 francs)	0.16	0.04	0.06	0.29

B. Census respondents characteristics (1962–2012)								
	Non-migrants (3,818,911 respondents)				1st gen. migrants (3,213,921 respondents)			
	Mean	S.d.	Min.	Max.	Mean	S.d.	Min.	Max.
Active	0.65	0.48	0	1	0.68	0.46	0	1
Employed	0.61	0.49	0	1	0.63	0.48	0	1
High school +	0.22	0.42	0	1	0.37	0.48	0	1
Number of children	1.93	1.36	0	14	1.80	1.25	0	14

C. Extended labour survey respondents characteristics (2005–2012)								
	Non-migrants (117,331 respondents)				2nd gen. migrants (15,091 respondents)			
	Mean	S.d.	Min.	Max.	Mean	S.d.	Min.	Max.
Active	0.81	0.39	0	1	0.85	0.36	0	1
Employed	0.78	0.42	0	1	0.81	0.39	0	1
High school +	0.36	0.48	0	1	0.50	0.50	0	1
Number of children	1.27	1.11	0	13	1.34	1.09	0	9

Notes: This table reports summary statistics across datasets: pre-war characteristics across counties in Panel A, characteristics of married women aged 30–49 in censuses 1968–2012 in Panel B, and characteristics of married women aged 30–59 in extended labour force surveys 2005–2012 in Panel C. *S.d* denotes standard deviation, *Min.*, minimum, and *Max.*, maximum. In Panel B, non-migrants are individuals who reside in their county of birth, while 1st generation migrants are those who reside outside their county of birth. In Panel C, non-migrants are individuals who reside in the same county as their county of birth as well as the county of birth of both their parents, while 2nd generation migrants are individuals who reside in their county of birth but whose mothers and fathers were both born in another county. Summary statistics are computed using sample weights provided in the censuses and in the labour force surveys. *Employed* and *Active* are indicator variables for whether the respondent is working or in the labour force, respectively. *Number of children* corresponds to the number of children of the respondent's family in the household. *High school +* corresponds to an indicator variable for whether the respondent achieved at least high school.

Table 3. The Effect of Mothers' Birth County Military Death Rates on Their Daughters' Labour Force Participation

Dependent variable	Employed				
	(1)	(2)	(3)	(4)	(5)
Military death rate (mother)	1.05***	0.93**	1.11***	1.25***	0.83**
	[0.36]	[0.38]	[0.40]	[0.34]	[0.37]
Father birth county FE	No	Yes	Yes	Yes	Yes
Mother birth region FE	No	No	Yes	Yes	Yes
Other controls	No	No	No	Yes	No
Clusters					
Own birth-residence county	95	95	95	95	95
Mother birth county	95	95	95	95	95
Observations	15,091	15,091	15,091	15,091	32,081
Outcome mean	0.81	0.81	0.81	0.81	0.79
Outcome s.d.	0.39	0.39	0.39	0.39	0.40

Notes: This table reports the OLS coefficients from estimating Equation 3 on the sample of non-migrant married women aged 30 to 59 whose mothers and fathers were born in another county in Columns 1–4, and whose mothers (but not necessarily fathers) were born in another county in Column 5. They result from regressing an employed indicator on the military death rate of respondents' mothers' counties of birth, including cohort, own county of birth and residence, and survey-year fixed effects, as well as the set of historical controls measured at the level of respondents' mothers' counties of birth. *Other controls* include parental, husband, and household characteristics, and the respondent's education and number of children. Standard errors are clustered at the level of counties of residence and mothers' counties of birth. Estimates are computed using sample weights provided in the extended labour force surveys 2005–2012.
*** Significant at the 1% level. ** Significant at the 5% level.

Table 4. The Effect of Mothers-In-Law's Birth County Military Death Rates on Their Daughters-In-Law's Labour Force Participation

Dependent variable	Employed			
	(1)	(2)	(3)	(4)
Military death rate (mother-in-law)	1.32*	1.24*	1.50**	1.64**
	[0.77]	[0.64]	[0.68]	[0.68]
Own parents birth county FE	No	Yes	Yes	Yes
Mother-in-law birth region FE	No	No	Yes	Yes
Other controls	No	No	No	Yes
Clusters				
Own birth-residence county	94	94	94	94
Mother-in-law birth county	94	94	94	94
Observations	13,387	13,387	13,387	13,387
Outcome mean	0.81	0.81	0.81	0.81
Outcome s.d.	0.39	0.39	0.39	0.39

Notes: This table reports the OLS coefficients from estimating Equation 3 on the sample of non-migrant married women aged 30 to 59 whose mothers and fathers were born in another county. They result from regressing an employed indicator on the military death rate of respondents' mothers-in-law's counties of birth, including cohort, own county of birth and residence, husband county of birth, and survey-year fixed effects, as well as the set of historical controls measured at the level of respondents' mothers-in-law's counties of birth. *Other controls* include parental, husband, and household characteristics, and the respondent's education and number of children. Standard errors are clustered at the level of counties of residence and mothers-in-law's counties of birth. Estimates are computed using sample weights provided in the extended labour force surveys 2005–2012.
** Significant at the 5% level. * Significant at the 10% level.

Table 5. The Effect of WWI Military Death Rates on Beliefs About Female Labour

Dependent variable	Gender values index (one-point scale)				
	(1)	(2)	(3)	(4)	(5)
Military death rate	1.01***	0.90***	0.83***	0.85***	0.84***
	[0.20]	[0.29]	[0.31]	[0.31]	[0.32]
Female	0.02**	−0.00	−0.01	−0.01	−0.01
	[0.01]	[0.03]	[0.03]	[0.03]	[0.03]
Military death rate × Female		0.17	0.21	0.19	0.24
		[0.21]	[0.21]	[0.21]	[0.22]
Controls					
Parental	No	No	Yes	Yes	Yes
Household	No	No	No	Yes	Yes
Individual	No	No	No	No	Yes
Clusters					
Residence counties	92	92	92	92	92
Birth counties	88	88	88	88	88
Observations	2,822	2,822	2,822	2,822	2,822
Outcome mean	0.75	0.75	0.75	0.75	0.75
Outcome s.d.	0.21	0.21	0.21	0.21	0.21

Notes: This table reports the OLS coefficients from estimating Equation 9 on the sample of internal migrant respondents in the GGS 2005. All regressions contain cohort and county of residence fixed effects, as well as the set of historical controls measured at the level of respondents' counties of birth in 1911. Household controls include an indicator for whether the respondent's home is a house rather than an apartment, the number of rooms in the home, an indicator for whether the respondent owns her housing, and an indicator for whether the respondent has a partner present in the household. Parental controls include the labour status of the respondent's mother, and educational attainment indicators for both parents. Individual controls include employment status, educational attainment, and the number of children in the household. Standard errors are clustered at the level of counties of birth and of residence. Estimates are computed using sample weights provided in the GGS.

*** Significant at the 1% level. ** Significant at the 5% level.

Table 6. Estimates Magnitudes

A. First-Generation Internal Migrants							
				Estimate			
Analysis	Dataset	Year	Source of variation	Raw	Standardized	Residual	Reference
Baseline	Censuses	1962–2012	Birth county	0.48***	0.044***	0.011***	Figure 4
Baseline	Labour surveys	1982–2012	Birth county	0.69***	0.065***	0.018***	Table E.3, Column 1
Husbands	Censuses	1962–2012	Husband birth county	0.38***	0.035***	0.011***	Figure 5
Assimilation	Censuses	1968–2012	Residence city	1.73***	0.108***	0.006***	Figure 6, Panel a
Preservation	Censuses	1968–2012	Residence city	1.20***	0.035***	0.008***	Figure 6, Panel b
Attitudes	GGS	2005	Birth county	0.90***	0.167***	0.058***	Table 5, Column 2
B. Second-Generation Internal Migrants							
				Estimate			
Analysis	Dataset	Year	Source of variation	Raw	Standardized	Residual	Reference
Mother	Labour surveys	2005–2012	Mother birth county	1.11***	0.120***	0.030***	Table 3, Column 3
Father	Labour surveys	2005–2012	Father birth county	0.26	0.029	0.007	Table A.3, Column 3
Mother-in-law	Labour surveys	2005–2012	Mother-in-law birth county	1.50**	0.146**	0.029**	Table 4, Column 3

Notes: This table reports the main estimates in this article. *Standardized estimates* correspond to raw estimates multiplied by the sample standard deviation in the independent variable, then divided by the sample standard deviation in the dependent variable. *Residual estimates* correspond to raw estimates multiplied by the residual standard deviation in the independent variable, then divided by the residual standard deviation in the dependent variable. Variables are residualized with respect to specification-specific fixed effects. When multiple estimates are available for a given specification, due to multiple time points, estimates correspond to the median.
*** Significant at the 1% level. ** Significant at the 5% level.