The Intergenerational Transmission of War*

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Abstract

We study whether war service by one generation affects service by the next generation in later wars, in the context of the major U.S. theaters of the 20th century. To identify a causal effect, we exploit the fact that general suitability for service implies that the closer to age 21 an individual's father happened to be at a time of war is a key determinant of the father's likelihood of participation. We find that a father's war service has a positive and significant effect on his son's likelihood of service in the next generation's war. Across all wars, we estimate an intergenerational transmission parameter of approximately 0.1. Quantitatively, our estimates imply that each individual war had a substantial impact on service in those that followed. This effect cannot be explained by broader occupational choice or labor market opportunity channels: father's war service increases sons' educational achievement and actually reduces the likelihood of military service outside of wartime. Instead, we find evidence consistent with cultural transmission from fathers to sons. Taken together, our results indicate that a history of wars helps countries overcome the collective action problem of getting citizens to volunteer for war service.

Keywords: War; Conflict; Military Service; Intergenerational Links; Cultural Transmission; Occupational Choice.

JEL Classification: D90, I20, J12, J13, O15, Z10.

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1 Introduction

Wars are immensely costly endeavors, both from an economic and a human perspective, and very often bring about important consequences for the countries and societies that engage in them. It is thus unsurprising that a long literature in the social sciences has focused on studying the determinants of war, mostly looking at the issue from the perspective of leaders or policy-makers.[1]

Yet if countries go to war, it is individuals who actually do the fighting, at obviously enormous risk and cost even for those who survive physically unscathed.[2] It follows that a full understanding of the determinants of war has to be microfounded on the decisions of individuals on whether to serve in a time of war.

Indeed, participation in war is a classic case of a collective action problem, where the benefits accrue to the general population while a lot of the risks and costs are borne by the relativey few who fight (Olson 1971). While part of the answer has often involved compulsion, the fact is that individual decisions are ultimately at the heart of the matter, not least because conscription is typically unpopular (Simon and Abdel-Moneim 2011). As such, political leaders must take those decisions into account, in weighing the costs of going to war: the greater the individual willingness to fight, the cheaper it is to recruit soldiers, the smaller is the need to conscript individuals against their will, and presumably the easier it will be to maintain support from the public.[3]

This paper studies one key element in those individual decisions: is war service transmitted across generations? In other words, does a father's war experience affect the likelihood that his sons will also serve in subsequent wars?[4] This is a natural question to ask, as the idea that military service "runs in the family" has intuitive appeal, and accords with anecdotal evidence as well as more systematic data (Faris 1981, Stander and Merrill 2000). This could well apply to wartime service in particular.

However, any such correlation does not imply a causal effect: an increased likelihood of service among the sons of veterans could reflect, for instance, a physical or psychological aptitude or inclination that correlates across generations, perhaps due to genetic factors. It could even mask a negative causal effect, say, if the horrors of war or the challenges of growing up in a military family (Chartrand et al 2008) would generate an aversion to following that path oneself.

We study this question in the context of the four major U.S. theaters of the 20th century –

[1] For overviews of the literature and issues involved, see for instance Vazquez (2000) and Van Evera (2013), from the perspective of international relations, or Jackson and Morelli (2011), from a political economy perspective.

[2] See, for instance, Tanielian and Jaycox (2008) on psychological and cognitive injuries affecting war veterans.

[3] More broadly, as we will discuss in greater detail, many conscripted individuals avoid going to war (Kasinsky 1976; Rotsker 2006), conscription typically involves many exceptions, and volunteers have historically been a major part of war efforts involving conscription.

[4] We refer to "fathers" and "sons" in light of the fact that miltary service (especially at wars) was overwhelmingly male over the 20th century.

World War I, World War II, Korea, and Vietnam.[5] Our strategy for causal identification relies on the fact that whether someone's father is a war veteran depends on the father's age at the time of war. In particular, because suitability for service and draft eligibility vary with age, the likelihood that the father participated in a war peaks for 21-year old individuals, and declines in essentially monotonic fashion as the distance to age 21 increases. To see this, Figure 1 plots the likelihood of wartime service across birth cohorts of the 20th century, using US Census data. Across all wars, cohorts born around 21 years before the midpoint of the war have the highest likelihood.

[FIGURE 1 HERE]

Since there is no reason why individuals born around 21 years before wartime would have particular characteristics directly affecting the likelihood of war service by their offspring, we can use the distance from a father's year of birth to the relevant peak-age cohort as a source of variation to estimate the effect of a father's war service on the son's likelihood of going to the subsequent generation's war.

Applying this strategy to US Census micro data linking the behavior and outcomes of fathers and sons, we establish that one's father's participation in the previous generation's war had a positive and significant effect on one's likelihood of service.[6]

We first show the reduced-form effect across all four wars, whereby the father's year-of-birth distance to the peak year strongly reduces the likelihood of the son's serving in war: on average, an additional five years of distance implies that sons are 1.5 percentage point less likely to go to war, a 13% drop relative to the mean likelihood in the sample. Similarly, the first-stage relationship shows that the additional five years would reduce the probability of a father having gone to war by 15 percentage points, corresponding to a decline of just over one-third with respect to the mean.

In the 2SLS context, these magnitudes imply that, across all wars, we find an intergenerational transmission parameter of around 0.1. In other words, when a father has gone to war because he happened to be around peak military age, the likelihood of his military-age son serving in the next generation's war goes up by about 10 percentage points.

The positive relationship holds for each of the four major wars taken separately, suggesting a persistent and robust phenomenon. While the size of the estimated parameter declined over the 20th century, the relatively smaller scale of the war efforts post-World War II implies that the aggregate effects are always non-trivial, and rather stable: for instance, our estimates would imply

[5]We will also examine the intergenerational effects over Gulf War service, separately from the four major wars. This is because the Census asked war-specific questions about veteran status when it comes to each of the latter, but not for the post-Vietnam era. Instead, the post-Vietnam questions refer to service over different time periods, thereby introducing measurement error regarding wartime service. We will discuss these data limitations in greater detail, as well as other important differences in the post-Vietnam era.

[6]Linking fathers and sons is only feasible for a non-random subsample of the Census. We will discuss issues of external validity with respect to the population in depth.

that the service of World War I fathers explains up to 12% of World War II service members in our sample, while World War II fathers account for about 20% of Vietnam veterans, who in turn account for around 14% of Gulf War soldiers. This indicates that intergenerational transmission remained an important factor explaining war service throughout the century.

Our finding has immediate implications for the dynamics of war. In particular, it helps us understand why, as often pointed out by observers of international politics (Singer and Small 1974, Maoz 2004), war may beget war: fighting a war today helps countries solve the collective action problem in finding volunteers in the future. In fact, calibrating our estimates into the demographic trajectory of the US male population indicates that US wars over the 20th century provided a sizable boost in terms of available manpower for subsequent wars – in the cases of World War II, Korea, and Vietnam, the wars turned out to be well-timed to seize that boost. These aggregate estimates should be interpreted cautiously, as the very existence of intergenerational effects could well imply the presence of general equilibrium and political economy forces affecting the scale and duration of future wars. Still, they illustrate the potential dynamic links between wars over time, and how they are affected by the size and spacing of those wars.

We then look at the specific nature of the mechanism behind that intergenerational transmission. One natural hypothesis is that it constitutes an example of a broader kind of occupational choice decisions, affecting whether sons choose military careers. In other words, it could be that military careers "run in the family," as many other professions might, and our results could simply express that wartime service triggers military careers, which could be transmitted across generations and thereby raise the likelihood of war service by the next generation.

The evidence strongly indicates that this "occupational choice" channel is not what drives our results. First, and quite remarkably, there is a negative effect on the likelihood of service outside of wartime. As it turns out, on net, we find no effect of father's war service on the overall likelihood of sons having been in the military. In other words, our results speak to the intergenerational transmission of war, not of military service in general.

We also find evidence against what we may call a purely economic, "opportunity cost" channel. In principle, war service could have an effect on parents' decisions in ways that worsen the economic opportunities available to their progeny, thereby increasing the latter's likelihood of war service. However, we find a positive causal effect of father's war service on sons' education, consistent with the intergenerational transmission of the achievement induced by the many programs supporting veterans' educational pursuits (Angrist 1993; Bound and Turner 2002). This finding is of independent interest, in that it underscores the long-run, cross-generational effects of the war experience. It also helps us understand the negative effect on non-wartime service by the sons of veterans.

We then consider the possiblity of a "cultural transmission" channel. The war service expe-

rience could affect individual beliefs and attitudes, which a father could then choose to transmit to his sons, and which could induce them to serve in war. While we do not have direct evidence on individual attitudes, a simple model of purposeful transmission of cultural traits, in the spirit of Bisin and Verdier (2001), would predict that such changes in attitudes would induce changes in parenting strategies, in line with the acquired traits.

Consistent with this mechanism of cultural transmission at the individual level, we document reduced-form evidence, in the context of the National Longitudinal Survey of Youth (NLSY), of an effect of war service on parenting strategies, as perceived by sons – and not by daughters. Specifically, sons become more likely to report that their fathers adopted an authoritative parenting style. This is especially interesting because authoritative parenting has been shown to be advantageous in preparing children for military environments (Mayseless, Scharf, and Sholt 2003), and more likely to be adopted by military parents (Speck and Riggs 2013). While it is plausible that this cultural transmission could ultimately increase the propensity to join the military in general, it seems that it takes the call of war for that impulse to trump the improved labor market prospects.

More broadly, we look at our finding as a vivid example of intergenerational transmission of life experiences. This point is important, for instance, if we are interested in the economic effects of culture. If, following Guiso, Sapienza and Zingales (2006, p.24), we define culture as "those customary beliefs, values, and social constraints that [...] groups transmit fairly unchanged from generation to generation," then understanding its evolution requires understanding this dynamic process of intergenerational transmission. In particular, the extent to which whatever changes emerge in that process can be attributed to the accummulation of individual experiences – as opposed to, say, genetic drift – matters a great deal for policy and for whether we should expect it to affect the evolution of culture. We provide individual-level evidence on how this evolution takes place across generations.[7]

Our paper relates directly to the literature that has investigated the intergenerational links in economic decisions and outcomes, such as education (Currie and Moretti 2003, Holmlund, Lindahl, and Plug 2011), earnings (Solon 1999), or welfare dependence (Dahl, Kostol, and Mogstad 2014). In particular, we also speak to the literature that has looked at the intergenerational transmission of occupational choices, especially in sociology (see Erikson and Goldthorpe 2002) but also in economics (Dal Bó, Dal Bó, and Snyder 2009). Our paper underscores, in the context of a stark and consequential decision, that life experiences have effects that are transmitted across generations, while showing evidence for a specific channel related to parental attitudes and strategies.

We also contribute to the literature on the determinants of participation in conflict, which has

[7] A complementary strand within the literature on the evolution of culture has studied the long-term effects of individual experiences (e.g. Malmendier and Nagel 2011; Giuliano and Spilimbergo 2014), but with a within-generation focus.

mostly been concerned with civil war (Humphreys and Weinstein 2008, Blattman and Miguel 2010). One of the central themes in this literature has to do precisely with the mechanisms for solving the collective action prolem inherent in that participation. This literature has focused on the impact of economic circumstances affecting the relative material costs and benefits of individuals from engaging in war, and on elements of intrinsic motivation (e.g. grievances, in the context of civil war) or social sanctions. Along similar lines, a literature on the determinants of miltary enlistment has also mostly focused on the socio-economic environment at the time of the decision (Kleykamp 2006). We add to these strands a perspective on the cultural aspect of that decision, and its transmission across generations, which also underscores the dynamic effects of conflict. To the extent that our findings would extend to other contexts, this may also help us understand the possibility of "conflict traps" (Collier 2003).

In addition, we speak to the strand of literature that has studied the effects of military service, in the US, on a number of outcomes, ranging from earnings (Angrist 1990; Angrist and Krueger 1994) and education (Angrist 1993; Bound and Turner 2002) to health-related outcomes (Dobkin and Shabani 2009; Lillard and Fahringer 2014) or political attitudes (Jenning and Markus 1977).[8] This literature has not focused on intergenerational transmission, which is our main object of analysis.

The paper is organized as follows. Section 2 provides background on US war service over the 20th century. Section 3 describes the data and the empirical strategy. Section 4 shows the key results on intergenerational transmission of war, and Section 5 presents the results broken down by war, to examine the linkages between different wars over time. Section 6 then provides evidence on the mechanisms behind the intergenerational transmission. Section 7 concludes.

2 Background: US War Service in the 20th Century

In addition to numerous troop deployments for combat all over the world, the US fought in four major wars over the 20th century: World War I, World War II, Korea, and Southeast Asia (Vietnam). The period of involvement, number of service members involved, and casualties in each of these conflicts, along with the briefer but also important Gulf War ("Desert Shield / Desert Storm") are displayed in Table 1.[9] The number of service members refers to all who served during the time of war, as distinct from those who actually saw combat. This is also what the Census data on veteran status, which we will use in our empirical analysis, refers to. (This means that our results should be interpreted as speaking broadly to the effects of wartime service.)

[8] A related literature has studied the effects of conscription avoidance on various outcomes, from education (Card and Lemieux 2001) to political attitudes (Erikson and Stoker 2011). Yet another strand has focused on the effect of forced recruitment in the context of developing countries (e.g. Blattman and Annan 2010).

[9] We exclude the Spanish-American War, which lasted between 1898 and 1902, since it will not be part of our empirical analysis.

[TABLE 1 HERE]

The first observation coming out of this table is the sheer scale of the engagements: more than 37 million Americans were engaged in war service over the 20th century. The personal risk involved in that service is also of note: about 5% of those service members ended up dead or wounded – a number that does not account for psychological effects that are now known to be very important (Tanielian and Jaycox 2008). While a risk of this magnitude is most likely to weigh heavily in the average individual decision to go to war, it is worth mentioning that the numbers are small from the standpoint of sample attrition due to war deaths.

Not surprisingly, in light of the scale of US involvement, the four major wars involved a component of conscription (Simon and Abdel-Moneim 2011). In World War I, the Selective Service Act of 1917 authorized a draft of all male citizens between 21 and 31 years of age (later expanded to 18 to 45). Later, the 1940 Selective Training and Service Act ("Burke-Wadsworth Act") imposed peacetime conscription, meaning that men between the ages of 21 and 35 were required to register with local draft boards so that the military could fill their personnel needs via a draft lottery. Entry into World War II expanded the registration age range to age 18 to 65, with those aged 18 to 45 being immediately liable for service. In 1948, the peacetime draft was revised to cover ages 18 to 26, establishing a system that would survive (with amendments) until the end of conscription and the move to an all-volunteer military, in 1973, in the aftermath of the Vietnam War.[10]

In spite of the role of conscription, individual decisions regarding whether to serve or not have always been a central element in determining wartime service. First and foremost, a large component of all war efforts was voluntary, as can be readily seen by contrasting the figures in Table 1 with those depicted in Figure 2, which compiles the number of draft inductees for all years in which conscription was in place. Even in the case of the largest of them all, namely World War II, when one may have expected the need for conscripted soldiers to have been at its highest, just under 40% of service members were classified as volunteers. By the time of Vietnam, a significant majority of service members were in fact volunteers (Rotsker 2006).

[FIGURE 2 HERE]

In addition, all conscription episodes involved exceptions – ranging from "conscientious objector" or dependency or "essential occupation" exemptions, to medical and general fitness exemptions – which naturally afforded leeway to avoid service.[11] In the limit, draft evasion was always

[10] There still is mandatory registration with the Selective Service System, for men aged 18 to 25, for possible conscription. In practice, while most do register, many do not or fail to comply with mandates such as registering changes of address; such violations have typically not been prosecuted at least since 1986 (see http://hasbrouck.org/draft/prosecutions.html). That said, the last men to be conscripted were brought into the military in June 1973 (born in 1952), and the last draftee on active duty retired in November 2014 (Brown 2014).

[11] As a particularly salient example, in the Vietnam era a draftee could obtain deferment as long as he was a full-time student working towards a degree.

an option that, albeit costly, was taken by a non-negligible number of individuals: the number of "apparent draft offenders" in the Vietnam era is estimated in excess of half-a-million individuals (Rotsker 2006), and most were eventually pardoned (Simon and Abdel-Moneim 2011).

For all these reasons, it makes sense to study war service as an individual decision that can be affected by factors such as a family history of service.

Still, the possibility of conscription should naturally affect the decisions even of those who were not drafted and thus choose whether to volunteer. Since data issues lead us to focus on the four major wars, our main analysis will keep uniformity with respect to the presence of conscription. It follows that our main results should be interpreted as quantifying the importance of intergenerational transmission of war service under a system where fathers may well be induced to serve largely because they are drafted, and sons later decide whether to volunteer or whether to comply with a conscription order. We will then look separately at the post-Vietnam data, to assess whether a father's service in the conscription era has an impact on his son's decision to serve in war during the all-volunteer era.[12]

Another salient aspect of war service in the conscription era of the four major 20th-century wars is that it was in essence, though not entirely, a male endeavor. In World War II, for instance, there were just under 400,000 women in service – all volunteers, since there has never been female conscription in the US. In addition, up until 1973, after the end of the Vietnam War, women were not allowed in the field of combat, and had a very limited role in combat zones in general (Holm 1993). In the post-Vietnam era, and with the all-volunteer model, the role of women in war, and in the military in general, has been increasing. While on balance this means that we can for the most part focus, for the purposes of our study, on the links between fathers and sons, we still have variation that lets us explore potential differences across genders in our results.

3 Empirical Framework

3.1 Data

Our primary analysis is based on micro data from the decennial US Census of 1950-2000, acquired through IPUMS-USA.[13] For the main US theaters we will study – namely, World War I, World War II, the Korean War, and the Vietnam War – the Census contains veteran status information on

[12] On the other hand, the wars that have occurred in the all-volunteer era have not been sufficiently spaced over time to allow us to identify an intergenerational effect within that era: very few children of Gulf War veterans would have been old enough to choose to fight in Iraq or Afghanistan a decade or so later.

[13] We obviously cannot use earlier censuses, since they would only cover participation in World War I. In Section 6.3 we describe an additional dataset – the National Longitudinal Survey of the Youth –that we will use to investigate the mechanisms behind our main effect.

whether each individual served in the U.S. Armed Forces during each war.[14] In contrast, likely as a result of the smaller scale of the Gulf War compared to its predecessors, the subsequent Censuses did not ask about wartime service specifically: the questions related to veteran status were instead framed in terms of time periods. This introduces additional measurement error, in that some of the respondents will not have served during wartime. For this reason, we will focus our analysis on the four major wars, and then look separately at Gulf War-era service by looking at the 1990-1995 period, which is the available range covering the period of the war.[15]

A key challenge is to match data across fathers and sons. Unfortunately, the Census does not provide data on the universe of father-son relationships, but rather only for those cases where fathers and sons are in the same household. Since the vast majority of adult sons do not live with their fathers, our sample is, unsurprisingly, not representative of the overall population. For instance, the likelihood of being in our sample is strongly and negatively related with age. This can be seen very clearly in the density functions depicted in Figure A1, in the Appendix, aggregating all Census years in our time range.

This selection into cohabitation would be particularly problematic if it were related to the willingness to serve in wars. To probe for this, in Figure A2 we plot the likelihood of being a war veteran for each cohort in the population, versus in the matched sample. Consistently, across all censuses, the likelihood is approximately similar, suggesting that selection based on latent willingness to serve in war is not a key concern.[16]

We can repeat this visual exercise for other demographic characteristics. As it turns out, sample and population are largely similar, across all censuses, as can be seen in Figure A3 in the Appendix. The one exception is single status: in short, it is essentially the young and single who are disproportionately likely to be living with their fathers.

We can use this wealth of available demographic characteristics in more systematic fashion, to further check the determinants of selection into the sample. Specifically, we run a set of bivariate regressions in the full sample, with a dummy indicating son living with father as the dependent

[14] Obviously, each Census only contains information on service in wars that preceded it. The censuses do not contain information on the branch of the armed forces, or what type of battles the individuals experienced, if any at all.

[15] We will not consider the effect of Vietnam veteran fathers on service in the later, 21st-century wars in Afghanistan and Iraq. This is because the available sample size is rather small: the length of time between Vietnam and these conflicts is long enough that there are few 21st-century soldiers who have Vietnam-era fathers. In addition, among those who do, the distribution of father years of birth is quite asymmetric around the Vietnam peak year of 1947 – quite naturally, a lot more fathers of Afghanistan and Iraq veterans were born after 1947 than before. Needless to say, the time between the Gulf War and the later wars is much too short for there to be many children of those veterans fighting in Iraq or Afghanistan.

[16] Note that the 1950 Census is an outlier when it comes to the likelihood of service, both for our sample and the overall population. This is due to the inconsistent implementation of the census, where many enumerators did not ask the veteran status question. It is unclear what bias this would introduce in our context, since any random measurement error in son veteran status will primarily lead to larger standard errors, and random measurement error in father veteran status will be purged by the instrument. Nevertheless, our results are robust to dropping the 1950 Census altogether.

variable, and different observable characteristics on the right-hand side. The resulting (standardized) coefficients are plotted in Figure A4.[17] They confirm that age and single status are the key correlates of the likelihood of living with one's father. A couple of other variables (socio-economic status, unemployed status) are also relevant predictors, though on a much smaller scale. We will later exploit these predictors to assess the external validity of our key findings.

3.2 Identification Strategy

The key idea behind our empirical strategy is that, due to features such as draft eligibility and general suitability for service, the likelihood of war service peaks around age 21, and declines as distance to that age increases. Since there is no obvious reason why individuals born around 21 years before a war breaks out will have particular observable or unobservable characteristics that directly affect the likelihood of war service by their offspring, it follows that a father's year of birth – or more precisely, its absolute distance to the closest year that happens to be 21 years before the midpoint of a subsequent war – is a plausibly exogenous source of variation for the likelihood of the father serving in a war. This strategy thus allows us to estimate the effect of a father going to war on the son's likelihood of going to the subsequent generation's war.

This is best understood with a simple example. Consider three individuals, A, B and C, all born in the same year. Individual A's father was born in 1896, and was 21 years-old at the time of World War I; Individual B's father, in contrast, was born five years earlier, in 1891; and Individual C's father was born five years later, in 1901. The key idea is that the distance of their fathers' year of birth relative to 1896 should not systematically affect A's decision to serve in World War II, relative to B and C, other than through the likelihood of the fathers serving in World War I. The same is true, *mutatis mutandis*, for 1922 (21 years before the mid-point of US involvement in World War II), 1931 (Korea), or 1947 (Vietnam).

To implement the strategy, we study the following (first-stage) relationship, in the matched subsample of fathers and sons:

$$(1) \quad FatherWarService_{ict} = \beta_{FS} * FatherYOBdist_{ict} + f(FatherYOB_{ict})\theta + X'_{ijct}\gamma + \varepsilon_{ijct},$$

where $FatherWarService_{ict}$ is a dummy indicating whether the father of individual i born in cohort c, observed in Census year t, reported to have served in any of the wars under analysis, $FatherYOB_{ict}$ is the father's year of birth, and X_{ijct} is a vector of additional control variables.

The main independent variable of interest is $FatherYOBdist_{ict}$: the absolute distance between the father's year of birth and the closest year that happens to be 21 years before the midpoint of a subsequent war. This variable is depicted in Figure 3, in which the key peak-age cohort years are

[17] The corresponding regression results are in Table A1 in the Appendix.

marked. By contrasting the figure with Figure 1, we see that they are essentially mirror images of one another: the likelihood of war service by cohort peaks in those key years. In short, our variable represents the distance of the father's year of birth from the closest war peak cohort, and the main idea of our empirical strategy is that the likelihood of war service is strongly decreasing in that distance: $\beta_{FS} < 0$.

[FIGURE 3 HERE]

We flexibly control for father's year of birth by including a third-order polynomial $f(\cdot)$. This addresses concerns of broad changes in the determinants of war service across cohorts over the long time span we study. The vector X_{ijct} includes Census year fixed effects and son birth-year fixed effects. This means that our variation is comparing sons who were born in the same year, controlling for any cohort effects.[18] Finally, for additional robustness, we will also show specifications that include demographic controls and state fixed effects in X_{ijct}.

To focus on the relevant variation, our baseline sample will restrict the sample to cohorts that were born in the relevant time period. Specifically, since young children and elderly men are highly unlikely to serve in wars, we restrict the sample to fathers born after 1880, and to cohorts of sons no younger than age 16 by the end of the Vietnam war.

After estimating the first-stage relationship, we estimate the reduced-form equation:

$$(2) \qquad WarService_{ict} = \beta_{RF} * FatherYOBdist_{ict} + f(FatherYOB_{ict})\theta + X'_{ijct}\gamma + \nu_{ijct},$$

where $WarService_{ict}$ is a dummy indicating whether individual i (i.e. the son) actively served in any of the wars under analysis, using the same set of covariates and fixed effects as in (1). Note that, when we include son birth-year fixed effects and control for the year of birth of fathers, we effectively control for the difference in age between fathers and sons; by the same token, the combination of birth-year fixed effects and Census year fixed effects also implies that we effectively control for the age of the sons at the time of the censuses.

The reduced form identifies the effect of an exogenous variation in the father's likelihood of war service over the son's decision to serve in war. Adding the assumption that the distance in the father's year of birth to the peak cohorts only influences the likelihood of the son's war service through its effect on whether the father served in war, we can scale the reduced-form effect, β_{RF}, by estimating the following equation, via IV/2SLS:

$$(3) \qquad WarService_{ict} = \beta_{IV} * FatherWarService_{ict} + f(FatherYOB_{ict})\theta + X'_{ijct}\gamma + \tilde{\varepsilon}_{ijct}.$$

[18] It is not obvious that one should include son cohort fixed effects, since it may be endogenous to whether the father went to war: for example, veteran fathers could choose to delay when to have children. However, as we will show, the estimates are very similar with and without these fixed effects, indicating this is not a concern in practice.

Under the exclusion restriction, β_{IV} captures the parameter for the intergenerational transmission of war.[19] In other words, it captures the difference in the likelihood of war service between sons whose fathers went to war, and sons whose fathers did not go to war.

Our instrument estimates the intergenerational transmission parameter for individuals whose fathers were induced to serve because of their appropriate age at the time of war (the "compliers"). If treatment effects are heterogenous, the local average treatment effect we estimate may therefore be different from the average treatment effect. In other words, we cannot estimate the effect among those fathers who never serve regardless of their age at the time of war (the "never-takers"), or fathers who always serve regardless of their age ("always-takers"). The latter group is arguably non-existent, since it is extremely rare for very old people or young children to serve in war; the group of never-takers is likely to be substantially larger, but of limited policy interest.[20]

4 Main Results: The Intergenerational Transmission of War

We start off by pooling together all the available data from the four major war theaters. Because sons effectively only serve in subsequent wars relative to their fathers, this estimation will exploit variation arising from fathers serving in the first three wars – World War I, World War II, and Korea – and the effects on service by sons in later wars: World War II, Korea, and Vietnam. It will therefore be a weighted average of the intergenerational transmission parameter across the wars during the 20th century. This parameter will provide an estimate of the overall importance of the intergenerational mechanism during the long time period of the major U.S. wars of the 20th century, covering the conscription era.

4.1 First-Stage and Reduced-Form Results

Table 2 first displays the first-stage estimates from a linear specification, linking our instrument to the likelihood that the father is a war veteran. Column 1 shows that each additional year of distance from the father's birth relative to the closest peak year for war service implies a decrease of 3 percentage points in that likelihood. Column 2 adds son year-of-birth fixed effects, so that we identify the effect off the comparison between individuals born in the same year, and shows that the effect is essentially unchanged. Columns 3 and 4 show that this is also the case when we exclude from the sample the fathers who are very unlikely to have gone to war, because they are

[19] In our baseline specification, the IV-estimate is estimated under a linear instrument, i.e. under the assumption of a linear relationship between the distance in years to the peak cohort of fathers and the outcomes. We investigate alternative functional forms below.

[20] We use these terms loosely, in the spirit of the LATE framework (Angrist, Imbens, and Rubin 1996). For example, strictly speaking, the "always-takers" are defined for a dummy instrument, but in our main specification the instrument is continuous.

far removed from peak age at the time of conflict, or when we control for state fixed effects and race. It is rather clear, from inspection, that the first stage is very strong.

[TABLE 2 HERE]

The second part of the table then focuses on the reduced-form effect. Again the estimates are very stable across specifications, and show that an individual is about 0.3 percentage points less likely to go to war than another comparable individual whose father happened to be born one year closer to the peak. In other words, when comparing sons born in the same year (as in Columns 6-8), a five-year difference in terms of father distance to peak year of birth induces a 1.5 percentage-point decrease in the probability of war service, which corresponds to a decline of about 13% relative to the sample mean.

The last column in Table 2 considers a simple placebo test, in which we also introduce the mother's year-of-birth distance to the peak war year. Since very few mothers would have been war veterans – and even those who are would have had a very different wartime experience, as discussed in Section 2 – it is reassuring that the mother's distance has no independent effect. This provides further confidence that the results we find are not linked to parental cohort effects, although any such effects could only be a confounding factor if they happened to consistently find their peak precisely 21 years before the midpoint of a war.[21]

The specifications in the table assume a linear effect in distance to peak year, but we can also estimate a more flexible specification with dummies for each number of years of distance. The results from this alternative are depicted in Figure 4. The first stage effect is essentially monotonic in distance (as would have been suggested by Figure 1). The reduced form in turn shows that the effect on sons is being driven essentially by fathers born more than four years away from the peak, which is reassuring in that we would not expect so much of a difference between 21- and 22-year-olds, as opposed to the contrast between 21 and 16, or 26.[22]

[FIGURE 4 HERE]

4.2 IV/2SLS Results

Given our exclusion restriction, we can then consider the IV/2SLS results, for causal estimates of the "intergenerational transmission of war" parameter. This is what we show in Table 3. The estimate is very stable, around 0.1, no matter whether the IV is a linear function of father's distance

[21] Note that mother and father year of birth are highly correlated with one another, which is unsurprising but entails that a placebo specification including mother year of birth only would be very hard to interpret.

[22] Figure A5 (Appendix) adds the "placebo" reduced-form effect estimated using mother's year of birth in lieu of father's. We see essentially no effect, underscoring that the effect we find is driven by the impact on the likelihood of father's war service.

to peak year (Column 1), or else a 2nd- or 3rd-order polynomial (Columns 2-3), or even a simple dummy for whether the father was born within three years of the peak year (Column 4). In short, when a father has been induced to go to war because he happened to be around peak military age, the likelihood of his son serving in the next generation's war goes up by about 10 percentage points.

[TABLE 3 HERE]

The next few columns further test the sensitivity of the basic result. Column 5 restricts the sample of sons to those who were between the ages of 16 and 30 at wartime, to make sure that the result is not driven by individuals outside prime military age. Column 6 further drops observations where the father was born within a one-year distance from the peak years, to make sure that our estimate is not overly affected by aggregate shocks that happen to occur for those specific cohorts. Reassuringly, the estimated coefficient remains very stable across all specifications. Finally, Column 7 includes controls for fathers' educational achievements. We do not include them in the baseline specifications because education may be endogenous with respect to war service. That said, Column 7 shows that the estimate is unaffected by these controls, indicating that pre-determined socio-economic conditions are not confounding our results.[23]

4.3 External Validity

We now turn to the question of external validity of our estimates. In particular, since our sample is not randomly drawn, we want to assess the extent to which our estimates would translate into a local average treatment effect for the population as a whole.

For that we rely on the observable demographic characteristics that we have shown, in Section 3.1, to predict the likelihood of living with one's father. Specifically, we estimate, for each of the demographic variables, the following specification, via IV/2SLS:

$$\begin{aligned} WarService_{ict} &= \beta_{1H} * FatherWarService_{ict} + \\ +\beta_{2H} * FatherWarService_{ict} &\times \widehat{Demo}_{ict} + f(FatherYOB_{ict})\theta + X'_{ijct}\gamma + \tilde{\varepsilon}_{ijct}, \end{aligned} \tag{4}$$

where $\widehat{Demo}_{ict}$ stands for the demographic variable in question, demeaned at the sample mean. In other words, the coefficient β_{1H} now captures the intergenerational transmission parameter evaluated at the sample mean for the demographic variable, while β_{2H} captures the potentially heterogeneous effect according to the level of that variable. We then use those estimates to project what the effect would be if evaluated at the population mean of the variable.

[23] The results are also robust to many different ways of clustering the standard errors – by state, father year of birth, and son cohort, as well as two-way combinations of those. These can be seen in Table A2 in the Appendix.

The results from this exercise are depicted in Figure 5, where the first bar represents, for ease of comparison, the baseline intergenerational transmission coefficient estimated in Table 3 (Column 1). The subsequent shaded bars in turn display the results from estimating the heterogeneous treatment effect for each of the five variables for which we found the strongest predictive power over the likelihood of selection into our sample – namely, age, single status, socio-economic index, unemployed status, and poverty status. (The estimation results underlying these results are presented in Table A3 in the Appendix.)

[FIGURE 5 HERE]

The central message from the picture is that, for all the variables in question, the estimated coefficient is rather similar to the baseline effect. For a couple of them, such as age, it is actually slightly larger – the estimated effect actually increases with age, so that the higher mean age in the population translates into a bigger effect. This means that, if anything, our results may slightly underestimate the strength of intergenerational transmission in the population.

We can also summarize the effect of all the demographic characteristics from Section 3.1, in a multivariate context. For that, we first estimate, over the full Census of the male population, a probit regression with a dummy for living with father as the dependent variable, and the full set of demographic variables on the right-hand side. This allows us to create a new variable capturing the predicted likelihood of living with one's father, for each individual, based on these demographics. We then run a regression like (4) with that constructed variable playing the role of $Demo_{ict}$. The last bar on the right represents the estimated intergenerational transmission parameter, as evaluated at the population mean. The result is again very similar to the baseline estimate, and if anything, slightly larger.

In sum, after taking into account the observable differences between sample and population, we still end up with an estimated effects that is very close to our baseline. While unobservable differences cannot be ruled out, this evidence suggests that the baseline estimates have a good approximation of – and most likely do not overestimate – the treatment effect in the broader population.

5 War-by-War Results

5.1 From World War I to Vietnam

Our baseline results represent an average effect over all four major wars. As shown in Figure A6 in the Appendix, which displays the size of father birth cohorts in our sample, we have more

observations with fathers who served in the more recent wars.[24] This means that, in practice, the baseline results implicitly give more weight to those more recent wars. In doing so, they may mask important heterogeneities in the strength of the intergenerational transmission over time and across wars.

We thus look at the patterns of the intergenerational transmission of war service over time, by estimating IV/2SLS results for each of the major war theaters separately. To estimate the effects on the relevant population for each war, we use the three censuses following the end of each (outcome) war, and restrict the sample to sons that were at least age 16 by the end of the war and at most age 30 by the beginning of it, and to fathers born within ten years of the peak cohort of the preceding war.[25]

These patterns are interesting for two reasons: first, they will let us assess whether that intergenerational transmission changed substantially over the century. Second, and no less important, they will open a window into the links between the different wars, by considering each war's effect on the likelihood of service in the subsequent generation's war effort.

The results of the exercise are in Table 4. The first two columns show that World War I had a substantial impact on World War II service, with an estimated parameter for intergenerational transmission that is considerably larger than the average for the full sample. While the sample size is small relative to that from subsequent wars – and the standard errors correspondingly large – we can still conclude that there was a strong intergenerational transmission of war service between World War I and World War II.

[TABLE 4 HERE]

Note that, as shown by Columns 3-4, the intergenerational transmission parameter is substantially smaller when it comes to the link between World War I and Korea, though still positive and statistically significant at the 5% level. The small sample issue is even more prominent here, as relatively few Korean War veterans had World War I-era fathers, given the time elapsed between the two events.

There is also a significant effect of both World War II and Korea veterans on Vietnam-era service (Columns 5-8). The intergenerational transmission parameter here is more precisely estimated, and substantially smaller when compared to World War I: of the order of 0.04 for the World War II-Vietnam link, and 0.015 for Korea-Vietnam. In other words, having a father who served in World War II or Korea increases the likelihood of a son being a Vietnam veteran by about 4 percentage points and 1.5 percentage points, respectively.

[24] This is largely as a result of the fact that we look at the censuses from the second half of the century, as well as Census sample sizes increasing over time.

[25] We follow the U.S. Census definition of each war period.

While the intergenerational transmission parameter thus seems to have decreased over time through the 20th century, one should keep in mind that it speaks to the individual likelihood of transmission of the war service experience from fathers to sons. However, the aggregate implications for any given parameter value will obviously be vastly different if a large-scale war precedes a smaller-scale one, or vice-versa. It follows that, for a better sense of the quantitative implications of our results, it is important to benchmark the effect using the scale of the war efforts in question.

The last line of the table displays the benchmarked results, as the percentage of the total number of veterans involved in a war, within our sample, that our corresponding estimates would ascribe to the previous generation's war. Specifically, taking the example of Columns 1-2, we do a back-of-the-envelope calculation multiplying the estimated coefficient by the share of fathers in our sample who are World War I veterans, and dividing the resulting figure by the share of sons who are World War II veterans. For that case, it turns out that about 12% of the latter can be estimated to have served because their fathers had previously been induced to serve in World War I.

The effects post-World War I are also very substantial when we benchmark it by the scale of the war efforts in question. This can be seen from the fact that a 4 percentage-point estimated effect, when considering the massive scale of World War II, translates into just under 20% of Vietnam veteran sons in our sample being accounted for by World War II fathers. Adding the 5% attributable to Korean War fathers, one can wonder how much harder it would have been for the US government to sustain the relatively unpopular Vietnam war effort, at least on the scale it reached, in the absence of the boost in numbers coming from the "Greatest Generation" wars.

This latter point underscores a note of caution in interpreting the aggregate numbers. In particular, the very existence of an important intergenerational transmission mechanism can give rise to general equilibrium and political economy effects that affect subsequent wars. It follows that the effects we estimate are not a comparison between, say, a world in which World War II happened, and fathers served in it, against a world in which it did not: the response by sons of fathers who did not serve in World War II can be different than what it would have been if no fathers served in World War II at all. They will be different, for example, in the presence of dynamic incentives for the US government that we hinted at in the previous paragraph. In short, what we estimate is the effect of having a father go to war, rather than the father not going to war, in a world where many fathers did go to war. Our aggregate numbers should be seen as benchmarking the size of the intergenerational parameter we estimate, rather than as quantitative predictions in their own right.

5.2 Post-Vietnam: All-Volunteer Force

We can also inquire about the effect of Vietnam on the subsequent generation, which we have hitherto left aside from the analysis because of the aforementioned measurement issues. Bearing

those issues in mind, we should nevertheless note that studying this effect is of additional interest, because it might be rather different from what came before.

This is for at least two reasons: first, the one major war in the last quarter of the 20th century was the relatively brief Gulf War in 1990-1991. Aside from being smaller, it was a rather different kind of war, as illustrated by the much lower casualty rates displayed in Table 1. Second, but just as important, the US military was now a fully professional, all-volunteer force, whereas before the possibility of conscription would likely have affected the choices even of the individuals who eventually chose to volunteer.

Table 5 shows, in Columns 1-2, that the first-stage relationship for Vietnam is, if anything, slightly stronger than the average coefficient in Table 2. However, the reduced-form effect (Columns 3-4) is about an order of magnitude smaller than for the main sample. This still translates into a significant estimated intergenerational transmission, but its size became considerably smaller relative to previous wars, namely of the order of 0.012 (Columns 5-6).[26]

[TABLE 5 HERE]

Interestingly, Columns 5-6 also show that, in spite of the smaller intergenerational transmission parameter linking Vietnam to the Gulf War, the smaller size of the military in the latter era implies an aggregate effect that is very much on a par with what we report, in Table 6, for the four major 20th century wars. This suggests that the intergenerational transmission mechanism remained as important as ever in understanding wartime service in the all-volunteer era.

In sum, there is evidence of a significant intergenerational transmission of war service throughout the 20th century, though it seems to have declined, in absolute terms, over the century. While on average we estimate that inducing someone to go to war increases the likelihood of his sons serving by 10 percentage points, that boost was around 4 percentage points between World War II and Vietnam, and 1 percentage point between Vietnam and the all-volunteer Gulf War. Notably, however, this reduced effect at the individual level seems to have been compensated, from a quantitative perspective, by the fact that the scale of later, post-World War II wars was also declining. As a result, intergenerational transmission remained an important component explaining war service throughout the 20th century.

5.3 Aggregate Dynamics

The quantitative benchmarks we have obtained in the previous subsections provide a useful illustration of the continued relevance of the intergenerational transmission of war service. They also

[26] We could also consider the effect of Vietnam veteran fathers in the wars in Afghanistan and Iraq. The estimate (available upon request) turns out to be insignificant, but due to the sample issues we have discussed, we consider this result to be relatively unreliable.

hint at the links between wars across generations, as exposure to a given war induces some descendants of those exposed to join future war efforts. We can exploit those links in greater depth, by jointly considering the intergenerational transmission of war service and its interaction with demographic trends, in order to paint a more complete picture of the aggregate dynamics of wars over time.

To do that in the simplest possible fashion, we first compute the size of each year-of-birth cohort, based on the full Census sample, as opposed to our subsample of matched sons and fathers.[27] (This is shown in Figure A7 in the Appendix.) We then obtain for each war, from our pooled sample, the share of "treated" sons for each year-of-birth cohort (Figure A8) – that is, for any given year, we compute the fraction of sons, across all Censuses, who were born in that year and whose father went to the war in question.[28]

We use these two pieces of data to generate an estimate of the total number of sons "treated" by each individual war. The result can be seen in Figure 6. The figure makes clear that different wars generated vastly different numbers of sons of veterans, in accordance with the number of people involved in each war, as well as with the size of the cohorts born in the years after. In particular, the sheer size of World War II, plus the famous "baby boom" that followed, means that it generated by far the largest "wave" of sons of veterans. The figure also makes clear that the length of an individual war also matters for the shape of the wave that follows: the sons of Vietnam veterans are spread out over a wider range of years.

[FIGURE 6 HERE]

We can then apply our estimated intergenerational transmission effect in order to predict the evolution over the years of the number of individuals that would potentially be induced to serve by each war. We impose the following structure for that prediction, for war w started in year t^w:

$$N_t^w = \beta^w * \sum_{\tau=20}^{22} S_{t-\tau} + 0.75\beta^w * \sum_{\tau=23}^{25} S_{t-\tau}, \tag{5}$$

for all $t \geq t^w + 20$. N_t^w is the number of sons induced to serve in year t by war w, S_t is the size of the cohort born in year t, and β^w is the intergenerational transmission coefficient estimated for war w, as per Tables 4 and 5.[29] We focus attention on the individuals between ages 20 and

[27] For that we look at Censuses starting in 1930, as the year-of-birth data in previous Censuses was not as reliable, and for each year we take the three subsequent Censuses and average the number of individuals reported to have been born in that year.

[28] We adjust the figures from the 1950 Census, to account for its unusually low response rate to the questions on veteran status.

[29] Specifically, the numbers for World War I, World War II, Korea, and Vietnam come from Table 4 (Column 2), Table 4 (Column 6), Table 4 (Column 8), and Table 5 (Column 6), respectively.

25, because estimating the intergenerational transmission separately by age groups shows that the effect is significant only for individuals within that range (Appendix Table A4). We then introduce the factor 0.75 for the individuals between 23 and 25, because the age specific regressions show that the effect over that range is about three-quarters of the effect for 20- to 22-year-olds.

Figure 7 plots the evolution of N_t^w over the years, for all four major wars. We see a massive effect of World War II, driven essentially by the scale of the war, whereas the effect of World War I is large mostly because of the strong intergenerational transmission coefficient we estimate for that war. The smaller size of the demographic waves of potential volunteers induced by Korea and Vietnam is, by the same token, due to the declining estimate for that coefficient.

[FIGURE 7 HERE]

The figure displays vertical lines marking the timing (midpoint) of World War II, Korea, Vietnam, and the Gulf War. From that we can see that World War II and Korea were in fact well-timed to seize the wave of potential soldiers induced by World War I. While the peak of the World War II wave was actually in the mid-1970s, the sheer size of that wave meant that Vietnam could use a boost of a similar size. The Gulf War, in contrast, was poorly timed in that regard: it came too late to seize the Korea wave, but too early to fully benefit from the service members potentially induced by Vietnam.

While the specific numbers we present are obviously based on rather rough back-of-the-envelope calculations, a few central messages come out of this exercise. First and foremost, it is clear that the interaction between intergenerational transmission and demographic forces means that a war can have a substantial impact on the availability of volunteers for future wars. Second, this impact obviously depends on the scale of the war in question, but also on the distance between the wars in time. A war that occurs about thirty years after another war – that is, the space of one generation – would be ideally positioned to enjoy a boost in the number of individuals volunteering.

Needless to say, in practice wars are not timed deliberately in order to maximize that impact, but the lesson is that, to the extent that it is easier to sustain a war effort when a large number of people are willing to volunteer, an important factor in understanding or predicting for how long a given war can be sustained is the time elapsed since the last comparable war.

6 What Drives the Intergenerational Transmission of War?

Our findings establish a causal effect of fathers' war service experience over their sons' propensity to serve in future wars. Still, they beg the question of what drives the intergenerational transmission of those experiences.

We thus turn our attention to three possible mechanisms. First, we consider whether our results exemplify a mechanism of *occupational choice*, as might have been the case with other professions. Second, we will consider an *opportunity cost* channel, in which the set of economic opportunities available to sons is affected by their fathers' war experience. Finally, we will look for direct evidence on the possibility of war service affecting preferences that are then transmitted across generations, in what we may call *cultural transmission*.

6.1 Occupational Choice

It is intuitive to think that individual career choices are affected by one's family. As such, the intergenerational transmission of war could be but an example of a more general phenomenon of intergenerational transmission of professional careers, applied to military service.

To check for this possible mechanism, we can revisit the effect of father's war experience over sons' choice of military service, but outside the context of wartime. Fortunately, the Census did ask (in 1980, 1990, and 2000) about veteran status with reference to some periods over which there was no major war.

The IV/2SLS results are displayed in Table 6. Since the information regarding non-wartime service is available only for the 1980-2000 Censuses, we start by reestimating, for the sake of comparison, the intergenerational transmission of war parameter for the four major 20th century wars, but restricted to those Census years only. This yields the coefficient in Column 1; unsurprisingly, in light of the declining parameter over the course of the century, the coefficient is smaller than in the baseline (Table 3), since the Census years in question naturally place greater weight on the more recent wars. It is nevertheless positive and sizeable, indicating the persistently significant intergenerational transmission of war service.

[TABLE 6 HERE]

But how about the impact of war service on military service outside of war? Column 2 displays the result considering the available non-wartime periods in the years surrounding the major 20th-century wars, namely 1954-64, and 1975-80. Remarkably, we estimate a significantly *negative* effect: inducing fathers to go to war made their sons *less* likely to serve in the military outside of wartime. This effect also holds for each of the two specific sub-periods taken separately (Columns 3 and 4). This is true even though the data show a positive correlation, at the individual level, between wartime and non-wartime service: individuals who serve in war are more likely to have served outside of war, as was to be expected from the fact that some people choose to stay in the military.[30]

[30]Specifically, regressing a dummy for non-wartime service on a dummy for the same individual's having served

Columns 5 and 6 then show that there is no effect of an individual's father's war service on the likelihood of that individual having ever served in the military in both wartime and non-wartime, or of his having ever served at all. This is consistent with the two opposite effects on wartime and non-wartime essentially canceling each other out when it comes to the broader likelihood of military service.

Last but not least, we see in Column 7 that the negative effect on the likelihood of non-wartime service holds also for the 1980-1990 period, that is to say, after the all-volunteer force was firmly established. This means that father's war service did not induce broader military service over the period for which the choice of service would have most resembled other types of occupational choice decisions.

In sum, we find no evidence that the intergenerational transmission of war service is matched by an effect of fathers' war service on the likelihood of military service as such for their sons. This suggests, rather emphatically, that our key results are not a manifestation of a broader mechanism of intergenerational transmission of occupational choice. It also leaves us with the puzzle of why war service would induce war service in the next generation, while at the same time having a negative effect on the likelihood of military service outside of war.

6.2 Opportunity Cost

A second possibility to explain the intergenerational transmission of war service would be that the experience of war service might affect individual decisions in ways that change the economic environment facing the subsequent generation. This could in turn affect the set of economic opportunities available to their children, and how enlisting for war service compares with whatever outside options are available.

We can check directly whether a father's war service has an impact on the set of labor market opportunities available to their children. The most natural factor to consider in that regard is education, which is a key determinant of those opportunities.

Table 7 considers whether there is a causal impact of father's war service on sons' education. What we find is that there is a clear positive effect. Columns 1-3 show the results measuring educational achievement by total years of education, while Columns 4-6 consider the likelihood of attending college. We find a strong reduced-form effect of father's year of birth distance to war peak on both measures (Columns 1 and 4). The IV/2SLS estimates indicate that the sons of fathers induced to go to war have just under an extra half-year of education (Column 2), and are about 5 percentage points more likely to attend college (Column 5) – a strong effect compared to a baseline

in one of the major wars (as well as birth year fixed effects) produces a positive coefficient of 0.063, with a t-statistic over 42.

mean of 36%. Columns 3 and 6 show that the effect is slightly stronger if we limit the sample to the Census years used in Table 6.

[TABLE 7 HERE]

This is very much in line with the many policies designed to increase the opportunities for war veterans to acquire education – best exemplified by the G.I. Bill of 1944 and its many successors – as well as with the evidence linking human capital accumulation across generations (Currie and Moretti 2003; Holmlund, Lindahl, and Plug 2011).[31] The broader literature has found that the benefits had a positive impact on educational achievement (Angrist 1993; Bound and Turner 2002), and our sample confirms that result: Columns 7-10 show evidence of a causal effect of fathers' wartime service on their own educational achievement.[32]

The evidence thus suggests that wartime service had a positive impact on the educational achievements of those who were induced to serve. This impact, in turn, was transmitted to their sons, who ended up with higher educational achievements as well.

We must then conclude that the intergenerational transmission of war service occurred in spite of the fact that war service actually improved the set of economic opportunities available to the next generation. In other words, that transmission cannot be understood as the outcome of a channel in which the sons of veterans are induced to choose war service because of a lower opportunity cost of foregone options in the labor market.

In particular, this evidence helps us make sense of the finding that father's war service has a negative impact on military service by sons outside of wartime. The comparative economic appeal of a military career is actually weaker, in light of the better opportunities bequeathed to these sons in the broader labor market.

6.3 Cultural Transmission

Another possibility is that the intergenerational transmission works not through its effects on an individual's outside options, but rather on his preferences regarding war service. In other words, war service could have an impact on an individual that affects what he chooses to transmit to his sons, in ways that increase the utility (or equivalently, reduce the disutility) that they derive from serving in war.

[31] The G.I. Bill, officially known as the Servicemen's Readjustment Act of 1944, included provisions for cash payments of tuition and living expenses for university, high school or vocational education, for every veteran who had been on active duty during the war years for at least ninety days and had not been dishonorably discharged. A similar bill was enacted in 1952 for Korea veterans, and in 1966 the benefits were extended to peacetime veterans as well. In the post-Vietnam era, the Veterans Educational Assistance Program (VEAP) was introduced in 1976, followed by the Montgomery G.I. Bill of 1985, which brought benefits to a comparable level to the Korean-era bill.

[32] Quantitatively, the effect we find is quite consistent with the literature – Bound and Turner (2002), for instance, find an effect in the range of 5-8 percentage points on the likelihood of completing college.

Broadly speaking, we can borrow the framework developed by Bisin and Verdier (2001) to analyze the transmission of cultural traits across generations. Let us assume, for simplicity, that cultural traits are binary – $i \in \{a, b\}$, say, "pro-service" and "anti-service" – and leave aside what Bisin and Verdier (2001) call "oblique socialization" (from society at large), in order to focus on the "direct vertical socialization" from parents to children. Individual preferences are captured by a utility function $u^i(x)$, which depends on which traits the individual happens to possess. We think of $u^i(x)$ as defined over a binary set of outcomes – $x \in \{A, B\}$, say, "serve" and "not serve". Parents of type i can choose to invest in transmitting traits to their children: they can choose an investment $d^i \in [0, 1]$, which increases (concavely) the probability P^i that the children will hold the same traits, paying some convex cost $C(d^i)$ that is increasing in d^i.

The key point for our purposes is that "imperfectly altruistic" parents of type i will evaluate the intergenerational transmission probem according to the following expected utility function (leaving aside intergenerational discount rates):

$$u^i(x) - C(d^i) + \left(P^i(d^i) u^i(x^i) + (1 - P^i(d^i)) u^i(x^{-i}) \right), \tag{6}$$

where $x^j \equiv argmax_{x \in X} u^j(x)$ is the choice that a type-j child will make.

We can conceptualize the shock of being exogenously exposed to wartime service as shifting fathers from type-b (anti-service) to type-a (pro-service).[33] It is evident from (6) that, all else equal, type-a parents will choose a higher d^a, as they have an additional incentive to invest in increasing the probability that their children are type-a individuals as well.

In sum, this simple framework illustrates that, in the presence of a link between the preferences of parents and children, a shock to the preferences of the former will have an impact on their investment in the transmission of cultural traits. In other words, we would have a link between the shock to a father's preferences induced by wartime service, and his choice of parental strategies. Parental strategies in turn would affect the preferences of his sons, and thereby their choices regarding war service.

While the Census does not include questions about preferences or parental strategies, we can resort to other data sources to provide evidence for this cultural transmission mechanism. As it turns out, the National Longitudinal Survey of the Youth of 1997 (NLSY97) asks directly about parenting, as perceived from the standpoint of the young respondents (aged between 13 and 18 as of the survey) regarding their own parents. We can thus investigate whether father's war service has an impact on (his children's perception of) his parental strategies.

In particular, we create a dummy equal to one if the respondent replies that his (or her) fa-

[33] Note that in principle the labels could be reversed, if for instance exposure to war were to increase aversion to war. We choose the labels to be consistent with our empirical finding.

ther's parenting was "authoritative" in the standard Baumrind parenting typology widely used by psychologists.[34] This parenting style has been linked to a broad array of positive outcomes (e.g. Steinberg et al 1992), but of special note for our interests, it has been argued that it is advantageous in preparing children for military environments (Mayseless, Scharf, and Sholt 2003), and also more likely to be adopted by military parents, relative to civilian parents (Speck and Riggs 2013).

The results are in Table 8. In spite of the relatively small sample size as compared to the Census data, we find strong reduced-form evidence that father's year of birth distance to war peak is negatively related with boys' perception of an authoritative parenting style. The relationship holds whether we control for the mother's year of birth distance, as a placebo variable (Column 3), or whether we also control for the mother's reported parenting style (Column 4). This suggests that the effect is indeed working through the mechanism of father's increased likelihood of exposure to war service, as a result of their year of birth distance.

[TABLE 8 HERE]

Columns 5-8 then show that the results are entirely absent for the girls' subsample: fathers' year of birth distance from war peak has no impact on daughters' perception of their parenting style. In other words, it seems as if the effects of war service over parenting style are essentially restricted to the children for whom the decision regarding war service happen to loom larger, as is the case for boys even in the more gender-diverse all-volunteer era.

We interpret this evidence as directly consistent with the kind of cultural transmission mechanism we have discussed: war service seems to affect parental strategies, in the direction that one would have expected as long as the experience of service changes preferences in the direction of a greater appreciation for service.

Of course, parental strategies affect children's decisions insofar as they have an impact on children's preferences, via cultural transmission. What exactly is being transmitted could encompass a plethora of different traits. For instance, it could be that fathers transmit beliefs and attitudes – say, patriotism, or a sense of civic duty. Alternatively, but relatedly, it could be specific skills that are acquired as a result of war service – say, handling guns, survival skills, even grit or endurance – and that enhance one's ability in war. Or it could even be the case that fathers transmit information

[34]The Baumrind parenting typology, as proposed by Baumrind (1968) and extended by Maccoby and Martin (1983), distinguishes parenting styles according to whether they are responsive/unresponsive and demanding/undemanding. The different combinations produce "authoritative" (responsive and demanding), "authoritarian" (unresponsive and demanding), "permissive" (responsive and undemanding), and "uninvolved" (unresponsive and undemanding) parenting. The NLSY97 asks "In general, would you say that he is permissive or strict about making sure you did what you were supposed to do?," and codes the "Strict" response as a dummy for "Demanding" parenting; similarly, it asks "When you think about how your father acts towards you, in general, would you say that he is very supportive, somewhat supportive, or not very supportive?," and codes "Very Supportive" as a dummy for "Responsive". The product of these two dummies constitutes the dummy for "Authoritative" parenting.

– say, about the risks and potential future benefits associated with war – thereby affecting how their sons perceive war service. Distinguishing between these different possibilities seems to be a fruitful topic for future research.

Our evidence suggests that a father's war service triggers a mechanism of cultural transmission that eventually affects his son's decisions regarding future war service. On the other hand, it seems that most of the traits that one could imagine would increase the likelihood of war service would also increase the likelihood of military service in general. However, we found that not to be the case.

We are left with the following, rather plausible picture: war service induces the transmission of cultural attitudes that positively influence the inclination towards military service. However, in normal times this would be more than compensated by the fact that veterans' sons have better outside options in the labor market as a result of their fathers' service. It takes a war to trump that counteracting force, and tip the balance in favor of service.

7 Concluding Remarks

We have established causal evidence of intergenerational transmission of war service, in the context of the major US wars in the 20th century: inducing fathers to go to war, because of their distance to peak service age at the time of the war in question, increases the likelihood that their sons will serve in subsequent wars. While the size of the intergenerational transmission parameter declined over the century, the smaller scale of later war efforts implies that the effect remained quantitatively important throughout the period. It thus seems that fighting wars could well help countries in solving the collective action problem for fighting future wars.

We were able to shed light on the mechanism behind our key result. In particular, we presented evidence that a key mechanism works through cultural transmission, as we found an impact of war service on parenting decisions, consistent with standard models of cultural transmission. In other words, it seems that our results can be interpreted as indicative of a culture of war service, transmitted across generations. This provides a vivid example, in the context of a life-altering decision, of how life experiences can be "inherited" by future generations, which is at the heart of how cultural traits evolve over time.

Our findings also open promising avenues for future research. On the one hand, there is the question of what specific traits are being affected and transmitted. Progress in this direction would be valuable in further establishing the microfoundations underlying the individual decision over war service. On the other hand, more remains to be learned about how exactly it is that those individual decisions affect the constraints faced by political leaders when deciding whether to take their countries to war. Put simply, it would be interesting to understand the extent to which the fact

that war service begets war service could affect the extent to which war begets war.

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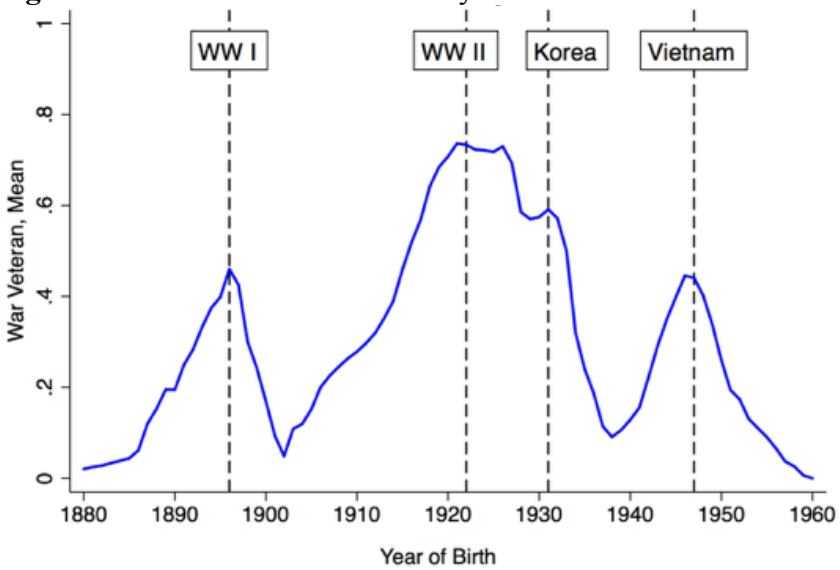
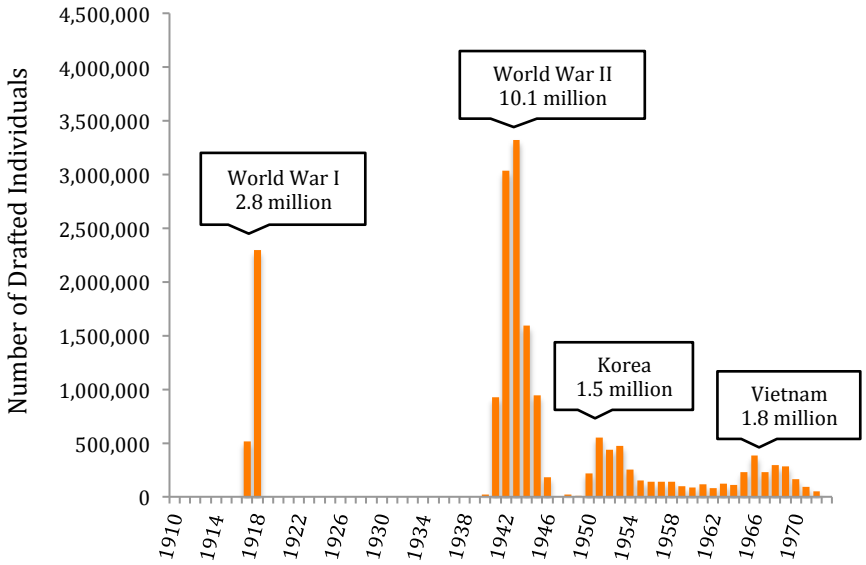
Figure 1. War Service Likelihood by Birth Cohort



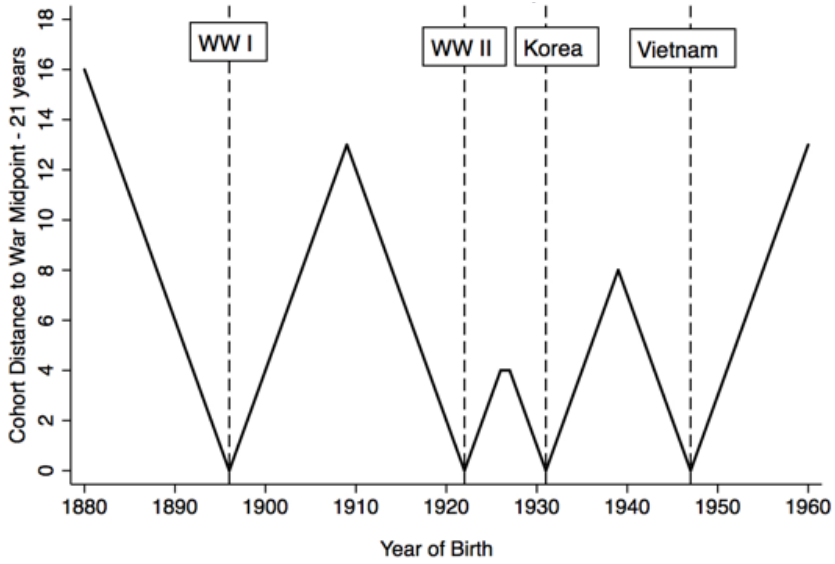
Note: The graph plots the likelihood that males served in at least one of the big four wars of the 20th Century. The vertical lines indicate cohorts born 21 years before the midpoint of each war (the "peak cohorts"). Source: U.S. Census data from IPUMS

Figure 2. Drafted Individuals, by Year and War



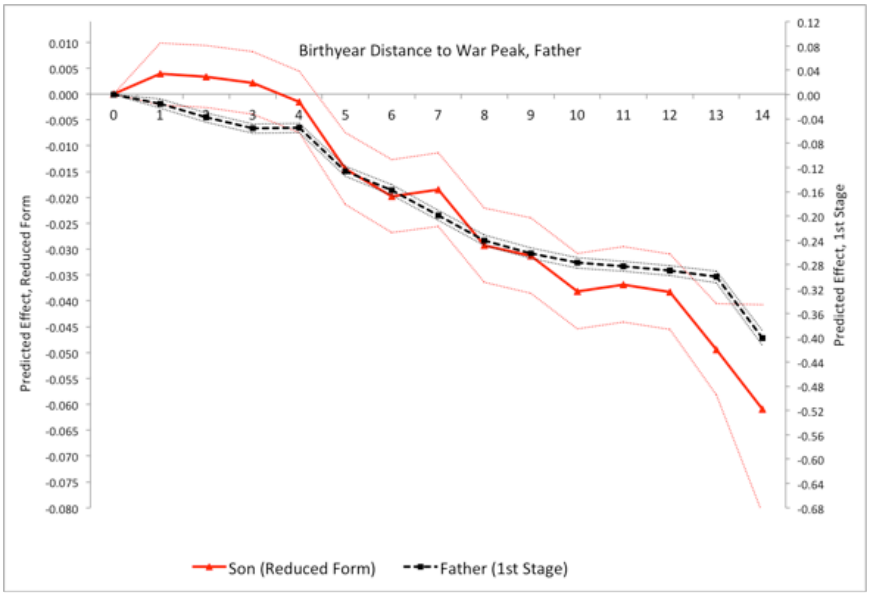
Note: The orange bars indicate the number of drafted individuals in any given year. The cumulative number for each war is given above. Source: Selective Service System (http://www.sss.gov/induct.htm).

Figure 3. The Instrument



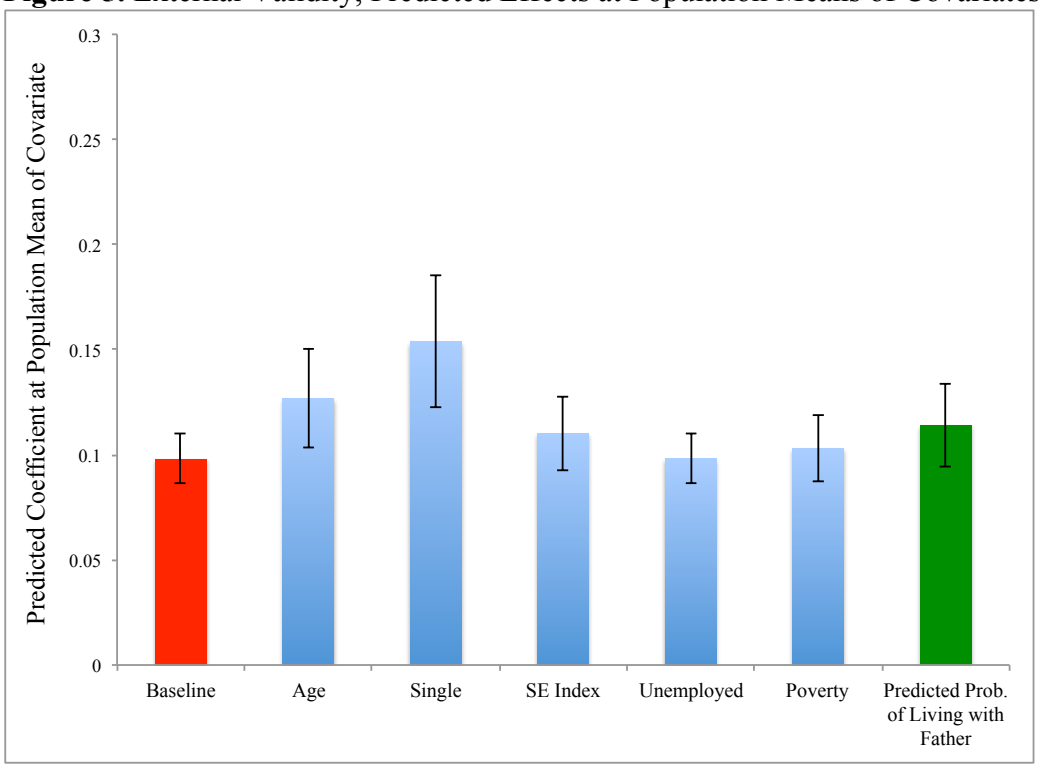
Note: The figure plots the value of the instrument across birth cohorts of fathers. The instrument is the number of years to the closest peak cohort, i.e. 21 years before the war midpoints (1896, 1922, 1931, 1947). It takes value zero for fathers of the peak cohorts, and monotonically increases in the distance to those cohorts.

Figure 4. 1st Stage and Reduced Form Effects: Flexible Specification



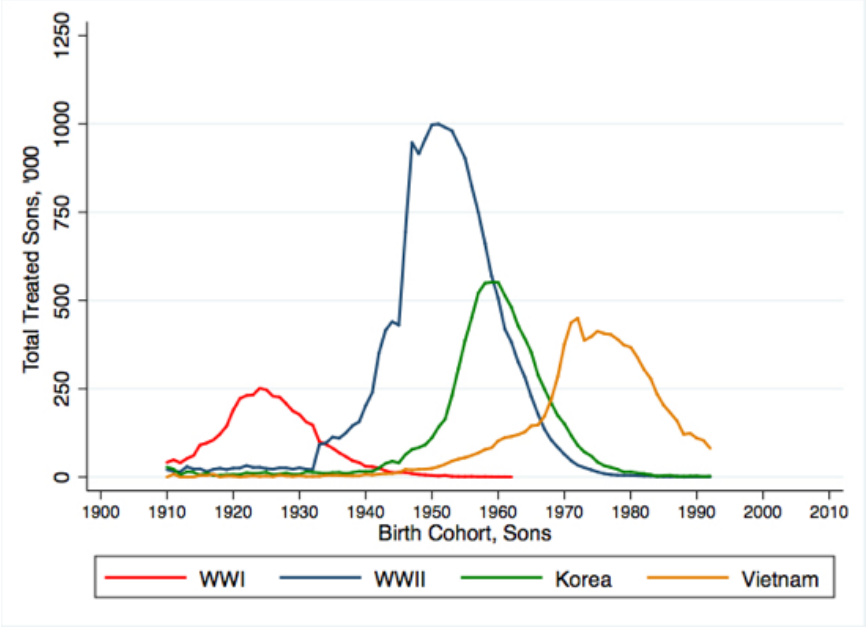
Note: The figure plots the point estimates and confidence intervals of the reduced form (in red) and the 1st stage (in black) from a flexible specification of the baseline sample, using dummy variables indicating the distance to the peak cohort. The left y-axis refers to the reduced form, and the right y-axis to the 1st stage. The graph shows that both effects essentially monotonically decrease in distance from the peak cohort, and that the ratio between the reduced form and the 1st stage is relatively constant.

Figure 5. External Validity, Predicted Effects at Population Means of Covariates



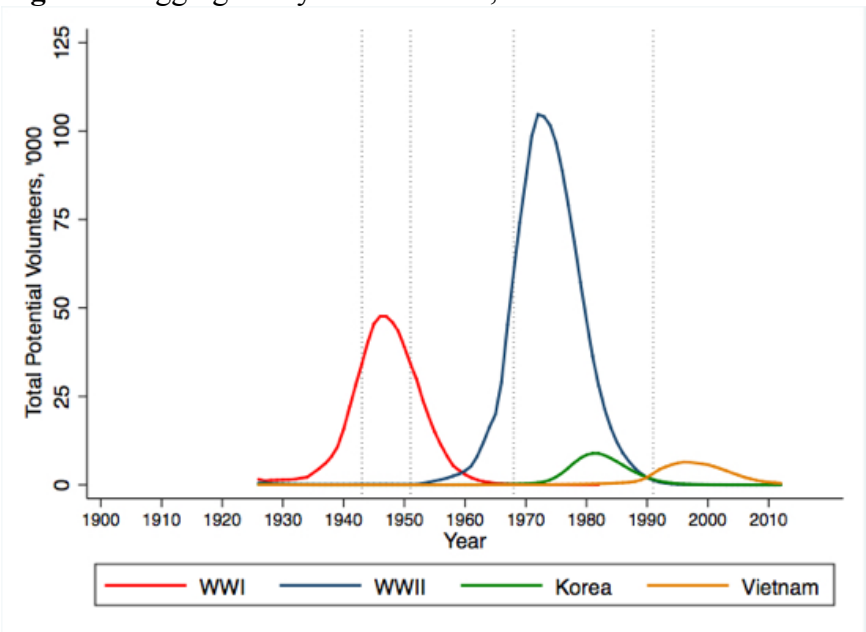
Note: The first bar represents the baseline IV/2SLS estimate of intergenerational transmission of war service, from table 3 column 1. The other bars show the predicted effects from table A.3, for the five strongest predictors of living with one's father. They represent the predicted effect at the mean value of the covariate in the population (full census). The last column refers to the mean likelihood of living with one's father, based on the predicted value from the probit regression in column 11 of table A.1. The table shows that, overall, the predicted effect in the population is similar in magnitude, if not larger.

Figure 6. "Treated" Cohorts



Note: The graph plots the number of "treated" males across birth cohorts, for each war of the previous generation. It is the product of the estimated number of males born in each cohort, times the share of fathers of that cohort that are war veterans in the sample. See Appendix Figures A4 and A5 for the underlying distributions. The data is from the U.S. Censuses.

Figure 7. Aggregate Dynamic Effects, Potential War Volunteers



Note: The graph plots the estimated number of potential war volunteers over time, induced by each war of the previous generation. The calculations are based on the number of treated sons and the estimated effects of intergenerational transmission. See Section 5.3 for the details. The gray vertical lines refer to the midpoints of WWII, Korea, Vietnam, and the Gulf War.

Table 1. US Wars in the 20th Century

	Number of service members	Deaths (%)	Deaths in Battle/Theater (%)	Wounded (%)
World War I (1917-1918)	4,734,991	116,516 (2.5%)	53,402 (1.1%)	204,002 (4.3%)
World War II (1941-1945)	16,112,566	405,399 (2.5%)	291,557 (1.8%)	670,846 (4.2%)
Korean War (1950-1953)	5,720,000	54,246 (0.9%)	36,574 (0.6%)	103,284 (1.8%)
Vietnam War (1964-1973)*	8,744,000	90,220 (1.0%)	58,220 (0.7%)	153,303 (1.8%)
Gulf War (1990-1991)	2,322,000	1,948 (0.1%)	383 (0.02%)	467 (0.02%)
Total	37,633,557	668,329 (1.8%)	440,136 (1.2%)	1,131,902 (3.0%)
Total (minus Gulf War)	35,311,557	666,381 (1.9%)	439,753 (1.2%)	1,131,435 (3.2%)

Source: U.S. Department of Veterans Affairs. * The Vietnam dates are based, in the absence of a formal declaration of war, on the Gulf of Tonkin resolution authorizing the use of military force in Southeast Asia, and on the Paris Peace Accords suspending hostilities. Casualty figures go up to 1975.

Table 2. First Stage and Reduced Form Effects, Main 20th Century Wars

	1st Stage: War Veteran, Father				Reduced Form: War Veteran, Son				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Birth Distance to War Peak, Father	-0.029**	-0.029**	-0.033**	-0.033**	-0.0038**	-0.0035**	-0.0032**	-0.0032**	-0.0031**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.0002)	(0.0001)	(0.0002)	(0.0002)	(0.0002)
Birth Distance to War Peak, Mother									-0.0004
									(0.0002)
Observations	510,653	510,653	458,181	458,181	510,653	510,653	458,181	458,181	383,944
R-squared	0.239	0.245	0.231	0.251	0.0815	0.1499	0.1580	0.1600	0.1457
Census FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Birthyear Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Son Birthyear FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
State FE	No	No	No	Yes	No	No	No	Yes	Yes
Race Controls	No	No	No	Yes	No	No	No	Yes	Yes
Sample Restriction, Father Birthyear	No	No	+/- 10 Year	+/- 10 Year	No	No	+/- 10 Year	+/- 10 Year	+/- 10 Year
Dependent Variable, Mean	0.417	0.386	0.386	0.449	0.119	0.119	0.114	0.114	0.100

Note: US Census Data from IPUMS, 1950-2000. War Veteran is a dummy indicating if the individual served in at least one of the major wars: World War I, World War II, Korea, or Vietnam. The sample consists of father cohorts born after 1880 and adult son cohorts no younger than age 16 by the end of the Vietnam War. Farther birthyear controls consist of a third order polynomial in the year of birth of the father. Race controls are dummies for race, as defined in the US Censuses. Robust standard errors in parentheses. ** p<0.01, * p<0.05.

Table 3. Main Effects, IV/2SLS

	War Veteran, Son						
Sample	Baseline Sample	Baseline Sample	Baseline Sample	Baseline Sample	Son Age is 16-30 at Time of War	Son Age + Excl. Peak Cohorts	Baseline Sample
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
War Veteran, Father	0.098**	0.101**	0.099**	0.092**	0.100**	0.108**	0.100**
	(0.006)	(0.006)	(0.006)	(0.008)	(0.006)	(0.008)	(0.006)
High School Graduate, Father							-0.004**
							(0.000)
Went to College, Father							-0.007**
							(0.001)
Years of Education, Father							-0.004**
							(0.001)
Observations	458,181	458,181	458,181	458,181	456,877	350,320	458,181
Census FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Birthyear Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Son Birthyear FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IV-variable	Linear	2-Polynomial	3-Polynomial	Dummy	Linear	Linear	Linear
Dependent Variable, Mean	0.114	0.114	0.114	0.114	0.114	0.119	0.119

Note: The sample and variables definitions are the same as Table 2. All samples restricts the father year of birth to +/- 10 years around the peak cohort. The instrument is: in column 1, it is baseline instrument and the same variable as in Table 2; in column 2, a second order polynomial; in column 3, a third order polynomial; in column 4, a dummy equal to one if the father is born within three years of a peak cohort, and; in columns 5-7 the baseline linear instrument. The sample in column 5 restricts the sons to at least age 16 by the end of at least one war, and younger than age 30 by the beginning of at least one war. In column 6 the additional sample restriction dropping fathers who are within three years of a peak cohort. Robust standard errors in parentheses. ** p<0.01, * p<0.05.

Table 4. War-by-War Effects, IV/2SLS

	Dep. Var.: War Veteran, Son							
	World War II		**Korean War**		**Vietnam War**			
U.S. Census Sample	1950/60/70		1960/70/80		1980/90/00			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
WW I Veteran, Father	0.280**	0.271**	0.056*	0.059*				
	(0.037)	(0.037)	(0.026)	(0.026)				
WW II Veteran, Father					0.038**	0.038**		
					(0.003)	(0.003)		
Korea Veteran, Father							0.013**	0.014**
							(0.003)	(0.003)
Observations	59,992	59,992	28,120	28,120	250,220	250,220	218,817	218,817
R-squared	0.150	0.156	0.151	0.156	0.105	0.107	0.117	0.120
Census FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Birthyear Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Son Birthyear FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	Yes	No	Yes	No	Yes	Yes	No
Race Controls	No	Yes	No	Yes	No	Yes	Yes	No
IV-variable	Linear	Linear	Linear	Linear	Linear	Linear	Linear	Linear
Dep. Var., Mean	0.138	0.138	0.209	0.209	0.091	0.091	0.065	0.065
Indep. Var. Mean	0.063	0.063	0.162	0.162	0.474	0.474	0.246	0.246
Total Effect, %	12.8%	12.4%	4.3%	4.6%	19.8%	19.8%	4.9%	5.3%

Note: All samples use the linear instrument, restricting the sample to sons to at least age 16 by the end of the war and younger than age 30 by the beginning of it, with fathers within the +/- 10 years window of father YOB distance to war peak cohort. Same variable definitions as before, except that the father birthyear control is a linear control and not a polynomial. Robust standard errors in parentheses. ** p<0.01, * p<0.05.

Table 5. The Effects of the Vietnam War on the Gulf War Era

	Vietnam Veteran, Father		Gulf War Era Veteran (90-95), Son			
	1st Stage	1st Stage	RF	RF	2SLS	2SLS
	(1)	(2)	(3)	(4)	(5)	(6)
Birth Distance to Vietnam Peak, Father	-0.039**	-0.039**	-0.00048**	-0.00049**		
	(0.000)	(0.000)	(0.00012)	(0.00012)		
Vietnam Veteran, Father					0.0124**	0.0127**
					(0.0032)	(0.0032)
Observations	165,241	165,241	165,241	165,241	165,241	165,241
R-squared	0.078	0.095	0.02034	0.02230	0.0226	0.0242
Census FE	Yes	Yes	Yes	Yes	Yes	Yes
Father Birthyear Controls	Yes	Yes	Yes	Yes	Yes	Yes
Son Birthyear FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	Yes	No	Yes	No	Yes
Race Controls	No	Yes	No	Yes	No	Yes
IV-variable	N/A	N/A	N/A	N/A	Linear	Dummy
Dep. Var., Mean	0.239	0.239	0.051	0.051	0.022	0.022
Indep. Var. Mean	4.465	4.465	4.465	4.465	0.239	0.239
Total Effect, %	N/A	N/A	N/A	N/A	13.4%	13.7%

Note: US Census data from 2000. All samples use +/- 10 years window of father YOB distance to war peak cohort. All outcome variables are dummies, equal to one if the son served in the Gulf War era, and zero otherwise. The Gulf War era refers to the 1990-95 period (not 1990-91), per the census-specified time periods of service. The sons are restricted to be at most age 30 by the beginning of the time period, and at least age 16 by the end of it. Control variables have the same definitions as in Table 6. In Robust standard errors in parentheses. ** p<0.01, * p<0.05.

Table 6. The Effects on Military Service Outside of War

	Dependent Variable: Military Service, Son						
	War Veteran	Non-War Veteran	Non-War Veteran, 1955-64	Non-War Veteran, 1975-80	Both War & Non-War Veteran	Never Served	Non-War Veteran, 1980-90
	IV/2SLS	IV/2SLS	IV/2SLS	IV/2SLS	IV/2SLS	IV/2SLS	IV/2SLS
	(1)	(2)	(3)	(4)	(5)	(6)	(6)
War Veteran, Father	0.054**	-0.053**	-0.040**	-0.014**	-0.004	-0.006	-0.014*
	(0.007)	(0.005)	(0.003)	(0.004)	(0.002)	(0.008)	(0.007)
Observations	319,556	319,556	319,556	319,556	319,556	319,556	96,556
Census Samples	80/90/00	80/90/00	80/90/00	80/90/00	80/90/00	80/90/00	90/00
Census FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Birthyear Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Son Birthyear FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IV-variable	N/A	Linear	Linear	Linear	Linear	Linear	Linear
Dependent Variable, Mean	0.100	0.058	0.014	0.045	0.010	0.853	0.024

Note: Census data from 1980/90/2000. In columns (1) - (6), the sample includes all three censuses. The outcome variables are dummies indicating the veteran status for different time periods. In column (1) it is the same as in Table 3; in column (2) it indicates having served in 1955-64 or 1975-80; in column (3) it indicates having served in 1955-1964; in column (4) it indicates having served in 1975-1980; in column (5) it indicates having served in both some war period and a non-war period; in column (6) it indicates never having served in a war period or a non-war period. In column (7), the outcome indicates having served in 1980-1990 and the sample includes the 1990 and 2000 censuses. Control variables are defined the same as in Table 3. Robust standard errors in parentheses. ** p<0.01, * p<0.05.

Table 7. The Effects on Education

	Education of Sons						Education of Fathers			
	Years of Education			Went to College			Years of Education		Went to College	
	RF	2SLS	2SLS	RF	2SLS	2SLS	2SLS	2SLS	2SLS	2SLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Birth Distance to War Peak, Father	-0.013**			-0.002**						
	(0.002)			(0.000)						
War Veteran, Father		0.406**	0.443**		0.050**	0.092**	0.595**	0.905**	0.075**	0.086**
		(0.073)	(0.081)		(0.010)	(0.012)	(0.079)	(0.088)	(0.008)	(0.010)
Observations	225,924	225,924	197,161	225,924	225,924	197,161	225,924	197,161	225,924	197,161
Census Samples	All	All	80/90/00	All	All	80/90/00	All	80/90/00	All	80/90/00
Census FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Birthyear Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Son Birthyear FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Race Controls	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes
IV-variable	Linear	Linear	Linear	Linear	Linear	Linear	Linear	Linear	Linear	Linear
Dependent Variable, Mean	12.04	12.04	12.22	0.36	0.36	0.38	10.13	10.38	0.19	0.21

Note: US Census Data, 1950-2000. Baseline sample, except that all individuals are at least 25 years old. Columns (3), (6), (8) and (10) restricts the sample to Census years 1980/90/2000, as in Table 8. Control variables are the same as before. Robust standard errors in parentheses. ** p<0.01, * p<0.05.

Table 8. The Effects on Parenting

	Dep. Var.: Father's Parenting is Authoritative, Dummy							
Sample	Boys				Girls			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Birth Distance to War Peak, Father	-0.012***	-0.014***	-0.012***	-0.009**	-0.001	-0.001	0.003	0.003
	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)
Birth Distance to War Peak, Mother			-0.002	-0.003			-0.002	-0.001
			(0.004)	(0.003)			(0.004)	(0.003)
Mother's Parenting is Authoritative, Dummy				0.486***				0.450***
				(0.020)				(0.021)
Observations	2,476	2,476	2,217	2,217	2,241	2,241	2,016	2,016
R-squared	0.04	0.05	0.05	0.27	0.04	0.04	0.04	0.23
Child Birthyear FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Birthyear Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race and geographic controls	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Mean Dependent Variable	0.61	0.61	0.62	0.62	0.55	0.55	0.57	0.57

Note: National Longitudinal Survey of the Youth 1997 (NLSY97) data. The outcome is a dummy equal to one if the father's parenting style is authoritative at any time during childhood, available for children during age 14-17. The controls are: father birthyear control is the year of birth of the father, dummies for race, and dummies for region and urban-rural. Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.

Online Appendix

Figure A1. Age Distribution, Full Census vs. Sample Living with Father

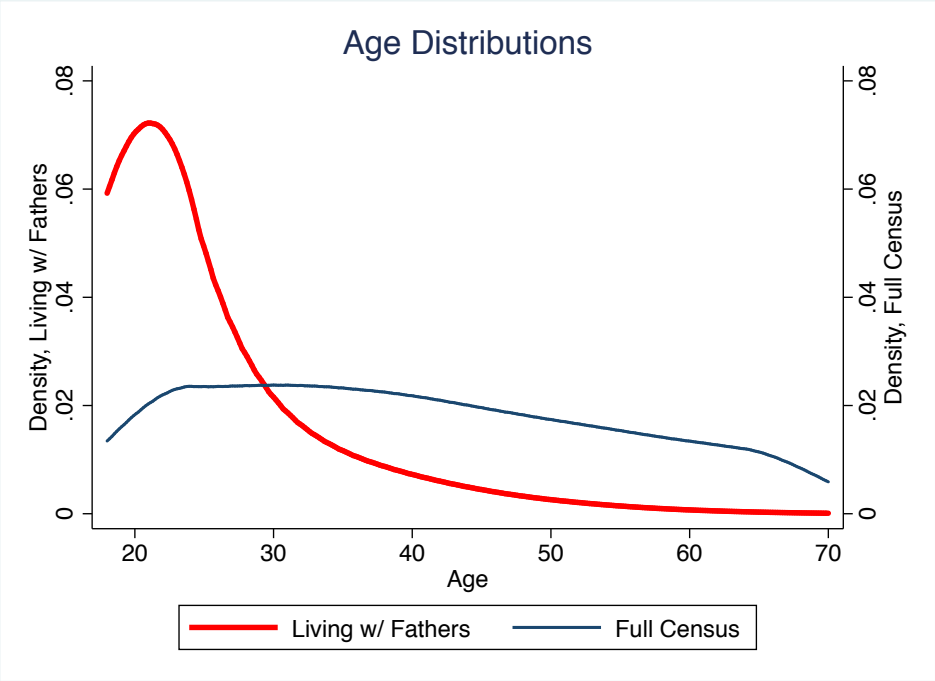
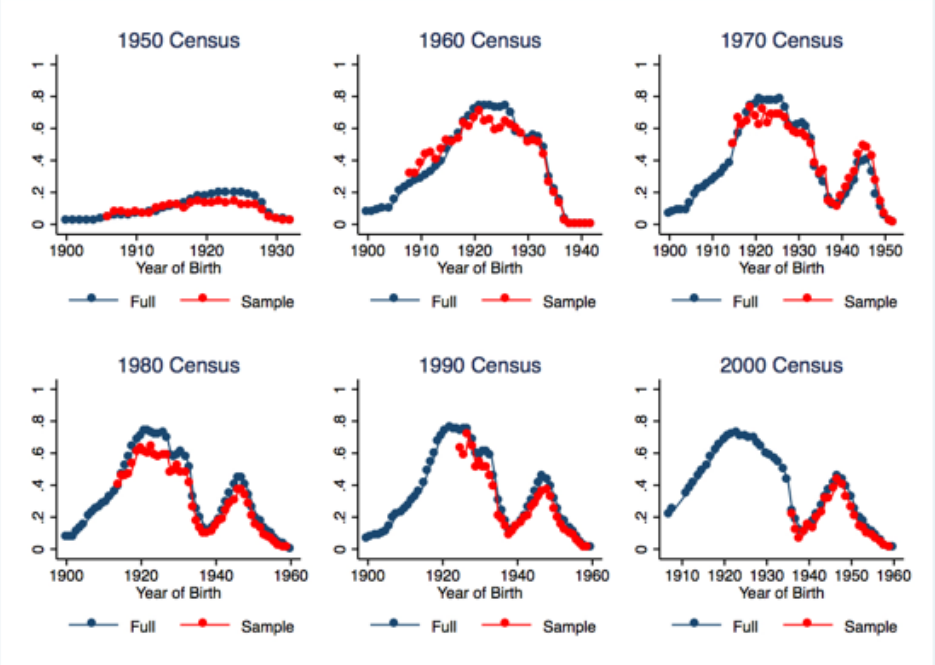


Figure A2. War Veteran Status, Full Census vs. Sample Living with Father



Note: The figure plots the mean of the war service dummy (WWII, Korea, Vietnam) in the full census data and our sample of sons living with their fathers. The blue dots refer to the full census means, and the red dots refer to the sample means. The data is restricted to cohorts with at least 100 observations.

Figure A3. Demographics and Socio-Economic Outcomes, Full Census vs. Sample, Means

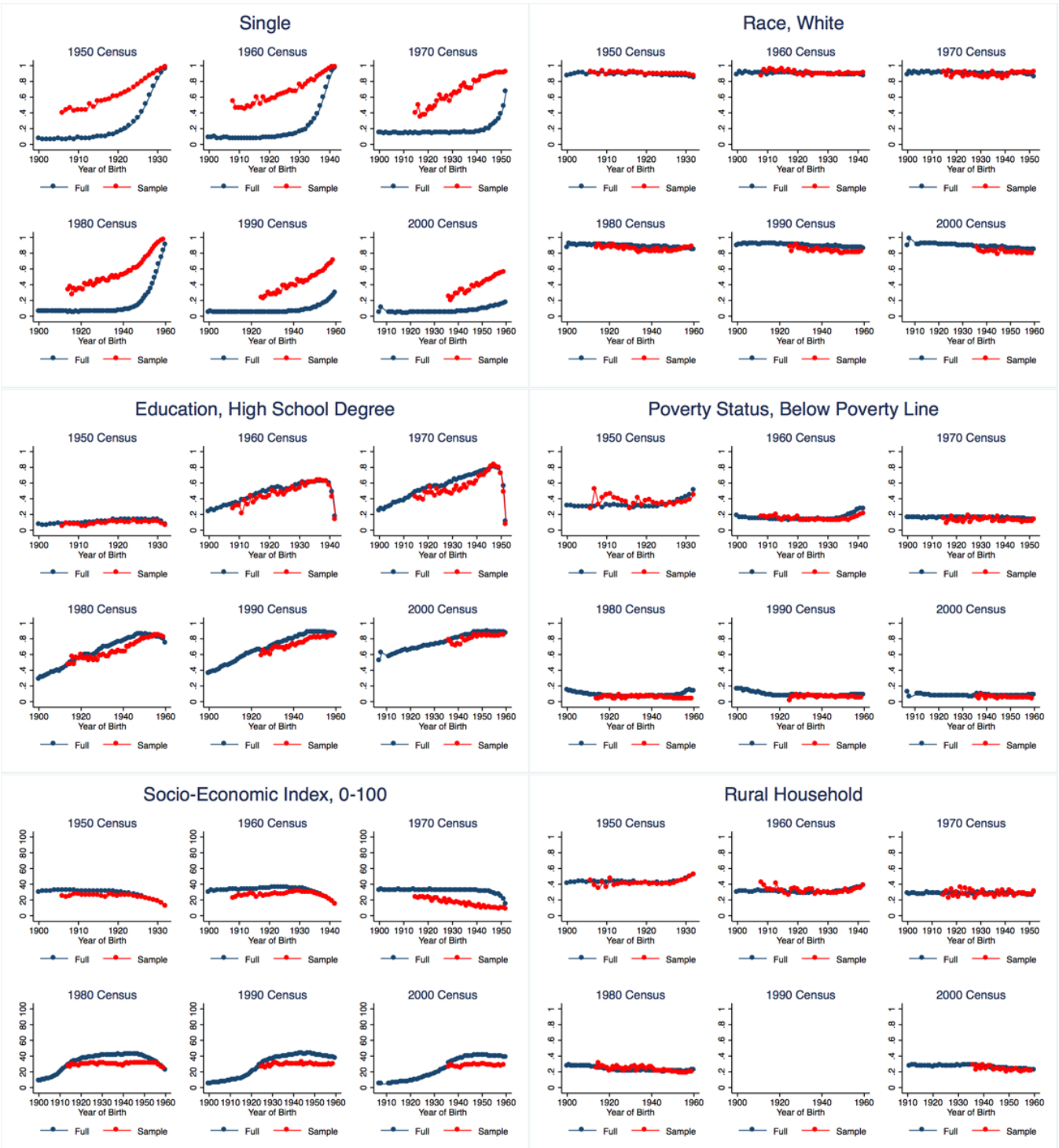


Figure A4. Predictors of Living with Father, Standardized Coefficients

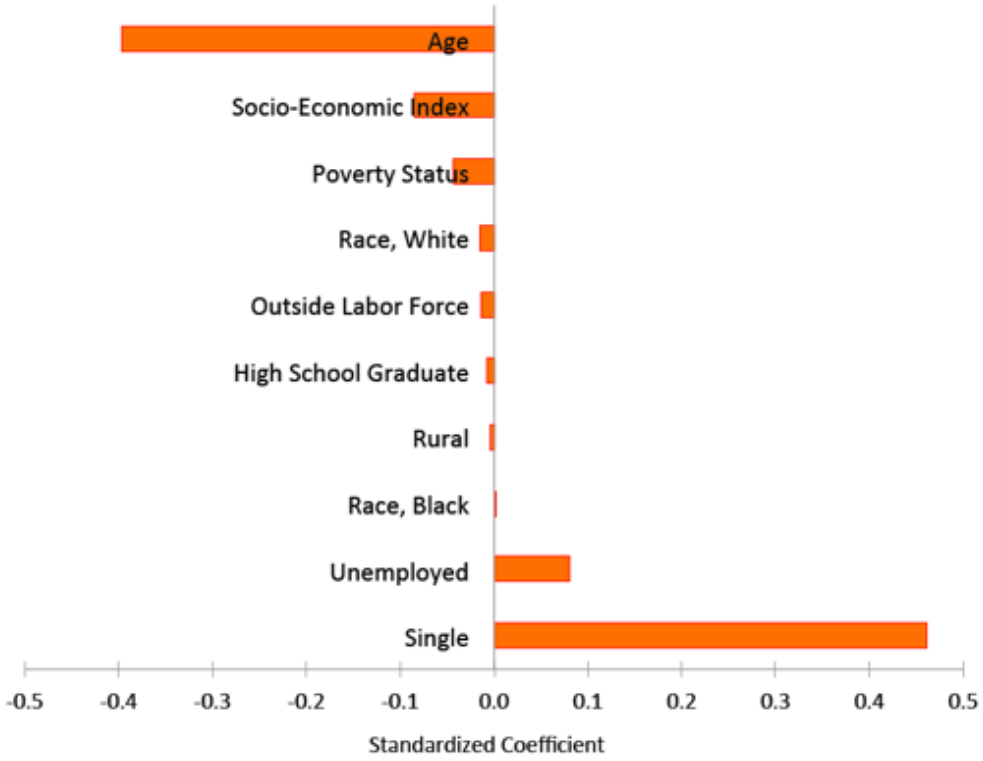
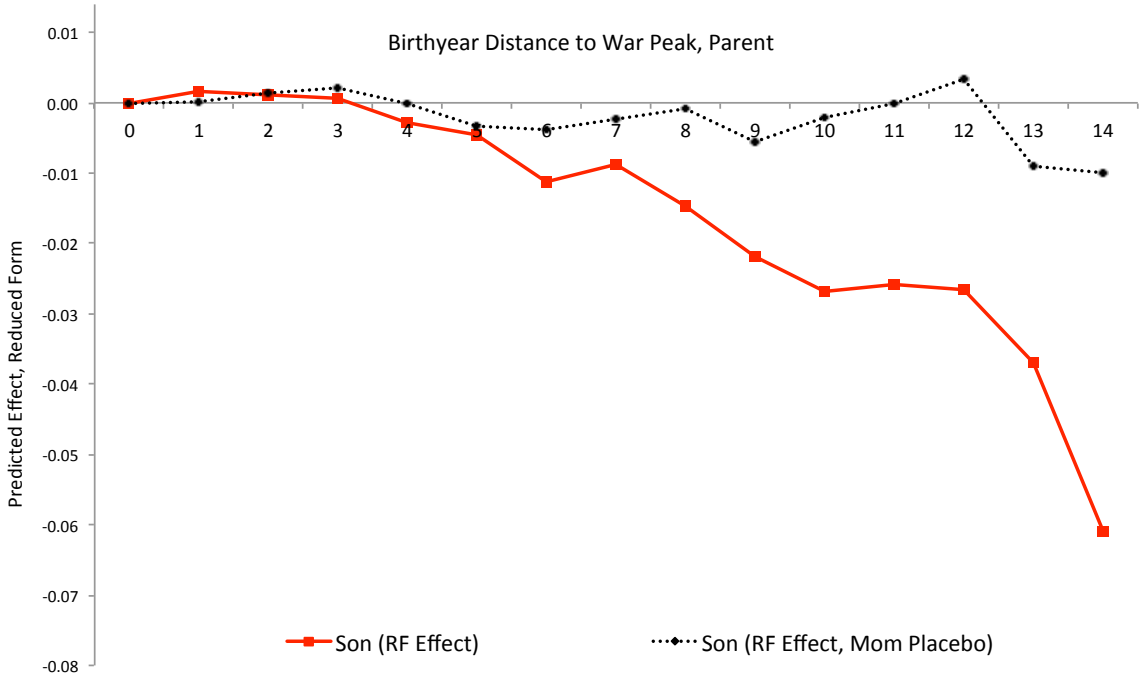
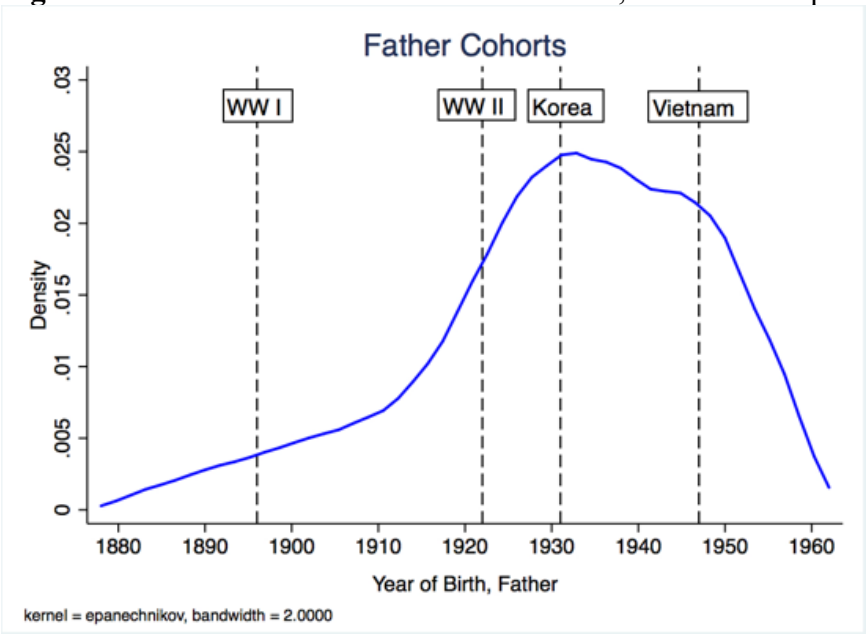


Figure A5. Reduced Form "Placebo" Effects of Mothers



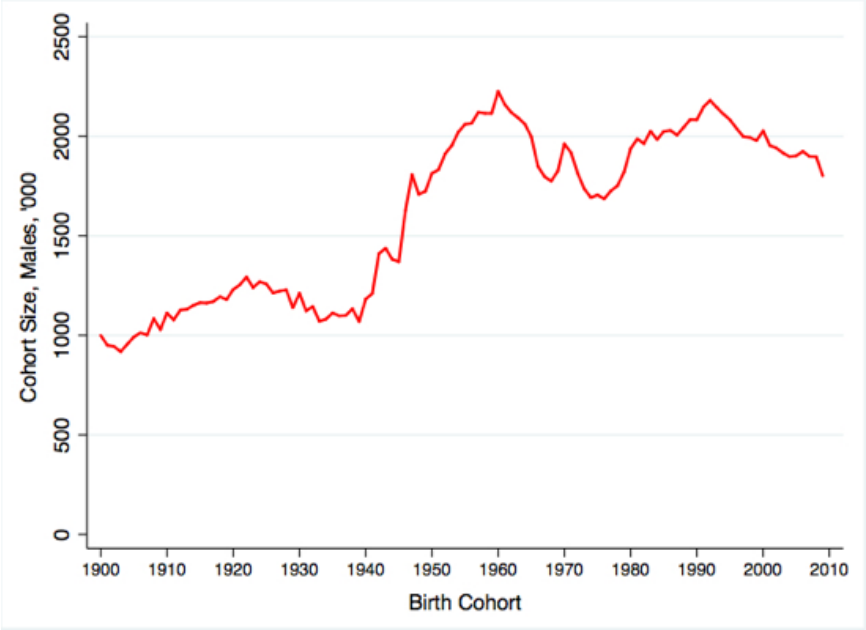
Note: The figure plots the coefficient estimates from the flexible specification using dummies to indicate the parent year of birth distance to the peak cohorts. The reduced form effect refers to the father, and the placebo to the mother. The figure shows that fathers - not mothers - drive the reduced form effects.

Figure A6. Distribution of Father Birth Cohorts, Matched Sample



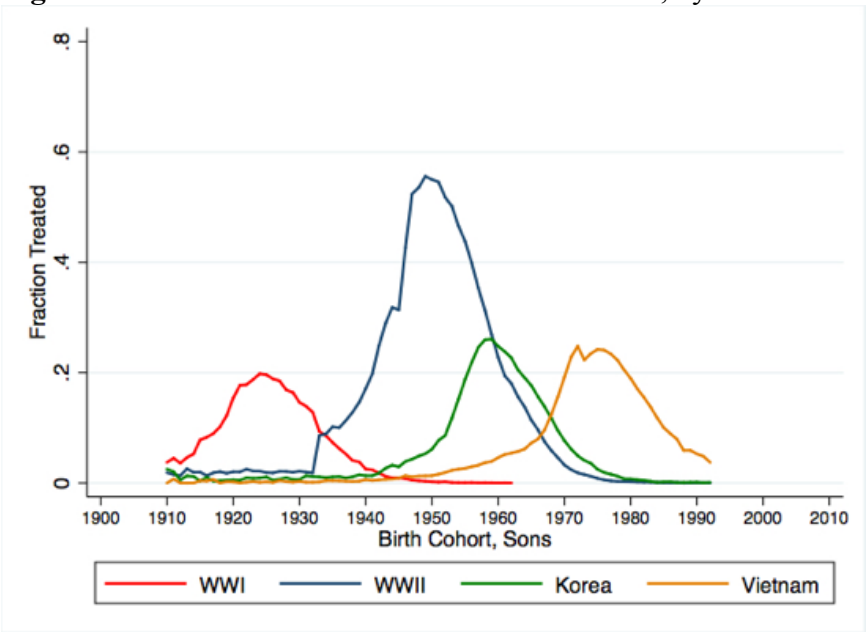
Note: The graph plots the distribution of father cohorts in the baseline sample.

Figure A7. Cohort Size of Males



Note: The graph plots the total number of males born in each cohort, using the full U.S. Census data.

Figure A8. Share of Fathers who are War Veterans, by Cohort



Note: The figure shows the share of fathers who served in each war, for each cohort among sons in the sample.

Table A1. Sample Selection, Predictors of Living with Father

Dependent Variable:	Living with Father, Dummy											
SAMPLE:	**Full Census**											
Estimation:	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	Probit	Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Age, Log	-0.274**										-0.00160**	
	(0.000)										(5.01e-06)	
Single		0.311**									0.0743**	0.0825**
		(0.000)									(0.000203)	(0.000255)
Race, White			-0.014**								-0.00774**	-0.0115**
			(0.000)								(0.000143)	(0.000190)
Race, Black				0.003**							-0.00853**	-0.0111**
				(0.000)							(5.75e-05)	(7.67e-05)
High School Graduate					0.002**						-0.00311**	0.000558**
					(0.000)						(5.35e-05)	(6.02e-05)
Poverty Status, Below Poverty Line						-0.042**					-0.0124**	-0.0162**
						(0.000)					(5.44e-05)	(7.90e-05)
Socio-Economic Index							-0.091**				-0.000157**	-0.000167**
							(0.000)				(1.00e-06)	(1.21e-06)
Unemployed								0.114**			0.00810**	0.00941**
								(0.001)			(0.000114)	(0.000141)
Outside Labor Force									-0.007**		0.0109**	0.0110**
									(0.000)		(8.90e-05)	(0.000100)
Rural										-0.005**		
										(0.000)		
Observations	14,901,322	14,901,322	14,901,322	14,901,322	14,901,322	13,940,463	14,901,322	14,901,322	14,901,322	9,527,601	13,939,518	13,939,518
R2	0.159	0.146	0.003	0.003	0.003	0.003	0.010	0.010	0.003	0.005	0.437	0.453
Age FE	No	No	No	No	No	No	No	No	No	No	No	Yes
Census FE	No	No	No	No	No	No	No	No	No	No	No	Yes
Standardized Effects	**-0.396**	**0.462**	**-0.017**	**0.003**	**0.003**	**-0.043**	**-0.085**	**0.080**	**-0.011**	**-0.008**	N/A	N/A

Note: Sample using full Census data from 1950-2000, on males age>=18. The coefficient refer to the marginal effects evaluated at the sample means of the independent variables. Robust standard errors in parentheses. ** p<0.01, * p<0.05.

Table A2. Main Effects, Alternative Standard Errors

	War Veteran, Son						
Sample	Baseline Sample	Baseline Sample	Baseline Sample	Baseline Sample	Son Age is 16-30 at Time of War	Son Age + Excl. Peak Cohorts	Baseline Sample
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
War Veteran, Father	0.098	0.101	0.099	0.092	0.100	0.108	0.100
Clustered SE: State	(0.006)**	(0.006)**	(0.006)**	(0.008)**	(0.008)**	(0.007)**	(0.007)**
Clustered SE: Father YOB	(0.015)**	(0.015)**	(0.015)**	(0.022)**	(0.017)**	(0.012)**	(0.015)**
Clustered SE: Father YOB + State	(0.015)**	(0.015)**	(0.015)**	(0.021)**	(0.017)**	(0.012)**	(0.015)**
Clustered SE: Father YOB + Son YOB	(0.017)**	(0.017)**	(0.019)**	(0.015)**	(0.017)**	(0.013)**	(0.017)**
Observations	458,181	458,181	458,181	458,181	456,877	350,320	458,181
Census FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Birthyear Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Son Birthyear FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Race Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Father Education Controls	No	No	No	No	No	No	Yes
IV-variable	Linear	2-Polynomial	3-Polynomial	Dummy	Linear	Linear	Linear
Dependent Variable, Mean	0.114	0.114	0.114	0.114	0.114	0.119	0.119

Note: This table is identical to table 3, except it uses alternative ways to calculate the standard errors, clustered at different levels. State refers standard errors clustered at the state level, Father YOB refers to clustering at the level of the father year of birth. Father YOB + State refers to two-way clustered standard errors at both levels, as does Father YOB + Son YOB. ** p<0.01, * p<0.05.

Table A3. Extrapolation of Effects to the Population, IV/2SLS

	Dependent Variable: War Veteran, Son											
SAMPLE:	**Baseline Sample**											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
War Veteran Father	0.090**	0.087**	0.088**	0.085**	0.084**	0.084**	0.083**	0.084**	0.084**	0.082**	0.088**	0.114**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)	(0.010)
War Veteran Father * Age, Log	0.190**											
	(0.017)											
War Veteran Father * Single		-0.092**										
		(0.011)										
War Veteran Father * Race, White			-0.116**									
			(0.014)									
War Veteran Father * Race, Black				0.103**								
				(0.015)								
War Veteran Father * High School Graduate					-0.118**							
					(0.009)							
War Veteran Father * Below Poverty Line						0.097**						
						(0.019)						
War Veteran Father * Socio-Economic Index							-0.137**					
							(0.016)					
War Veteran Father * Unemployed								0.017				
								(0.012)				
War Veteran Father * Outside Labor Force									0.045**			
									(0.009)			
War Veteran Father * Rural										0.017		
										(0.009)		
War Veteran Father * Predicted Prob(Living with Father)											-0.110**	-0.110**
											(0.018)	(0.018)
Observations	380,679	380,679	380,679	380,679	380,679	380,679	380,679	380,679	380,679	282,007	380,679	380,679
Baseline Controls and FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Predictor Demeaned at Mean of:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Population
Standardized Effect of Predictor on Prob(Living w/ Father)	-0.396	0.462	-0.017	0.003	0.003	-0.043	-0.085	0.080	-0.011	-0.008	N/A	N/A
Predicted ITOW Effect at Population Mean	0.127**	0.154**	0.098**	0.085**	0.063**	0.103**	0.110**	-	0.064**	-	0.114**	0.114**
	(0.012)	(0.016)	(0.008)	(0.006)	(0.005)	(0.008)	(0.009)	-	(0.005)	-	(0.010)	(0.010)
Effects Greater/Smaller among Sons Living w/ Fathers?	**Smaller**	**Smaller**	**Smaller**	Equal	*Greater*	**Smaller**	**Smaller**	Equal	*Greater*	Equal	**Smaller**	**Smaller**

Note: Sample using full Census data from 1950-2000, on males age>=18. The coefficient refer to the marginal effects evaluated at the sample means of the independent variables. Robust standard errors in parentheses. ** p<0.01, * p<0.05.

Table A4. The Effects by Son Age at War Midpoint, Main 20th Century Wars, IV/2SLS

	War Veteran, Son					
Sample: Son's age at War Midpoint	Age: 14-16	Age: 17-19	Age: 20-22	Age: 23-25	Age: 26-28	Age: 29-31
	(1)	(2)	(3)	(4)	(5)	(6)
War Veteran, Father	0.0205	0.0343	0.0792**	0.0600*	0.0194	-0.0372
	(0.0140)	(0.0192)	(0.0205)	(0.0246)	(0.0268)	(0.0206)
Observations	97,039	76,675	64,869	45,848	20,376	17,059
Census FE	Yes	Yes	Yes	Yes	Yes	Yes
Father Birthyear Controls	Yes	Yes	Yes	Yes	Yes	Yes
Son Birthyear FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Race Controls	Yes	Yes	Yes	Yes	Yes	Yes
IV-variable	Linear	Linear	Linear	Linear	Linear	Linear

Note: The variables definitions are the same as Table 3. Each sample is restricted to sons that were in the specified age range for at least one of the 20th Century wars. Robust standard errors in parentheses. ** p<0.01, * p<0.05.