Unexpected Compression of the Life Course: Family Formation in the United States during and after the Second World War

Lei Yan[A], Junyang Zhang[B], Guy Stecklov[C]

31 October 2025

Draft Manuscript Submitted to EPC 2026

Abstract: When time is subtracted from the life course, can individuals compress their remaining years to catch up to normative demographic speed, or does lost time translate into permanently foregone opportunities? We examine this question using World War II military service of US males as a natural experiment in temporal contraction. Drawing on linked 1930-1950 full-count U.S. census data, we employ sibling fixed effects to compare family formation patterns between veteran and non-veteran brothers. Our preliminary findings reveal partial elasticity in the life course: veterans demonstrate clear compression behaviors—accelerated post-war fertility and reduced birth spacing—yet remain disadvantaged five years after war's end. Veterans show significantly delayed age at first birth (1.8 years), lower probability of having children (9 percentage points), and fewer total children (0.5). However, post-war fertility increased by 0.71 children among veterans compared to non-veteran brothers, and birth spacing compressed by two-thirds of a year, demonstrating catch-up effort. These patterns suggest the life course can be at least partially compressed in response to temporal shocks. Our results shed light on life course plasticity and extend demographic theories of timing by examining temporal contraction as the inverse of longevity-driven life course expansion.

A: Research Assistant, University of British Columbia
B: Undergraduate Student, Peking University, China
C: (corresponding author) Professor, Department of Sociology, University of British Columbia

Acknowledgements. This work has benefitted from funding from the Social Science and Humanities Research Council of Canada.

World War II removed over 16 million American men from civilian life during what demographers recognize as the peak years for marriage and family formation. On average, soldiers served 2.5 years, primarily overseas, effectively removing this time from their life course before returning to civilian life. In hindsight, we know that not long after their return the US along with many other countries post-WW2 entered the Baby Boom, with veterans and many non-veterans achieving high rates of marriage and ultimate family size. This is even more impressive given the disruption of the war. Our focus is on how the pace of demographic life is altered over the life course when time is taken away. We examine the case of soldiers and non-soldiers during and after the war to assess whether individuals compress their remaining reproductive years to catch up, or does lost time translate into permanently foregone reproductive potential?

Important work in demography has emphasized how increases in longevity stretch the life course, creating more time for individuals to accomplish life transitions (Goldstein and Schlag 1999; Goldstein & Lee 2003). Their contributions focus on understanding the relationship between the pace of life when the biological length of life is increased. Our paper aims to shed light on the life course from the opposite perspective: what happens when "time" is compressed—forcibly removed from the life course? Unlike the case of increasing life expectancy and theories of life course stretching, our work explores how the virtual removal of a portion of one's life course alters marriage and family formation.

We use data on for men's military service during World War II to study the life course dynamics during and after the war. Approximately 15 million men were called to join the armed forces in the United States during WWII (Modell & Steffey 1988). Their birth years range from 1918 to 1927, and three out of four American adult males ultimately served in the military in this period. The totality of the war, the removal of soldiers to remote destinations, made this war particularly useful as an approximation of a temporal contraction in the lives of soldiers who returned after 1945. Upon return, soldiers faced a compressed timeline: the same biological constraints and social expectations, but with an average of 2.5 fewer years to accomplish normative life course goals. To what extent can the life course can be compressed to absorb such losses? Can individuals accelerate marriage, compress birth spacing, and extend fertility to fit normative outcomes into a shortened timeline? Or are there biological, social, and demographic rigidities that make lost time irretrievable?

In the 1940s, social and biological norms created relatively tight windows for family formation. Men typically married in their mid-20s (median age at first marriage was approximately 24-26), and their wives were typically 2-3 years younger. Combined with declining female fertility after age 35 and social expectations around appropriate age gaps between spouses, men entering service in their early 30s faced substantially compressed viable windows compared to those serving in their early 20s. World War II provides an ideal setting to explore these issues as military service imposed mostly similar temporal contractions on men at relatively different life stages.

Using military service as a treatment in this case has to be done carefully. First, not all men returned but those that did were not simply removed but were likely changed by their experience of war service in many fundamental ways. Still, in terms of family formation it is reasonable to consider the time for most soldiers as time "lost." Another major challenge is that understanding these patterns requires accounting for selection—not all men served, and those who did may have differed in unmeasured ways from those who stayed home. To address this particular challenge, we employ sibling fixed effects using linked 1930-1950 full count census data from IPUMS. We compare brothers within the same family—some of whom served and others who did not—providing controls for both observed and unobserved family background factors. The full count data from the 1950 US census allows us to observe family formation patterns five years after war's end, while linkage with the 1930 census identifies siblings and background information from their shared childhood homes.

Our findings offer to illuminate fundamental properties of life course structure and the limits of temporal elasticity. Do individuals compress family formation in response to temporal contractions? Does their response depend on their stage in the life course? More broadly, our results speak to questions about how increasing lifespans may create influences that reverberate through the demographic life course. Our findings will hopefully provide a better understanding for when individuals can successfully compress the life course versus when lost time becomes irrecoverable.

Theory and Context

Among the most consequential transformations of the demographic transition is the dramatic increase in life span. With increasing life spans, each and all stages of the life course may change or may stay anchored. Research – both theoretical and empirical – has explored these questions (Goldstein and Schlag 1999; Goldstein and Lee 2003). A key proposition has been to question whether increases in life expectancy are associated with "proportional rescaling," whereby one expects proportional delays for life cycle stages, as well as potential increases in the spread. Indeed, increased longevity is related to delays in childbearing and Lee & Carter projected that life expectancy reaching 86.05 years by 2065 would be accompanied by an increase in average childbearing age to 30, compared with 26.4 years in 1990, although the evidence does not suggest increasing variances and rather points to what they term weak proportionality (Goldstein and Lee 2003, pp.184).

There are many reasons this research is so fundamental to demography. One is in the ability formulize relationships between life span and other life course behavior. Another is that it sheds light on these actual empirical relationships. Of course, the causal nature of these empirical findings is not the key focus, as life expectancy, fertility, education are all likely highly intertwined. Our work aims to build from the broader questions posed here and to explore what happens life course time is contracted. We focus on increasing or decreasing time in the social life course rather than the actual life spans.

This distinction between actual lifespan—the total chronological time individuals live—and social lifespan, which we define as the culturally bounded time windows within which specific life transitions are normatively expected and biologically viable. Whereas Goldstein and Lee (2003) demonstrate how increases in actual longevity stretch the life course, creating more time for transitions, we focus on the complementary perspective that demographic behavior is not governed solely by biological lifespan but by "social clocks" (Neugarten 1965; Neugarten et al. 1976). These social clocks create bounded time windows that operate independently of total lifespan. In the 1940s, despite life expectancies in the 60s-70s, the socially viable window for family formation was much narrower—constrained by age norms around marriage timing, acceptable spousal age gaps, and female fertility decline. These have been described as 'cultural age deadlines'—flexible but consequential guidelines for the timing of life transitions (Settersten and Hagestad 1996, pp.179).

WWII military service created a unique natural experiment in social life course contraction: it removed time not from men's biological lifespans but from their socially viable windows for family formation. A 25-year-old soldier returning in 1945 had the same biological life expectancy as his non-veteran brother, but crucially, had lost 2.5 years from the narrow social window during which marriage and fertility were normatively expected and biologically optimal. This is temporal contraction within social lifespan, not actual lifespan. Our contribution is to examine whether compression occurs within these socially structured life course windows when time is removed—conceptually the inverse of Goldstein and Lee's question about what happens when time is added through longevity gains.

This approach builds on an extensive sociological literature examining military service as a life course disruption. Beginning with Elder's (1987) pioneering work on World War II veterans, life course scholars have documented how military service fundamentally alters family formation trajectories, with effects varying systematically by age at entry and life stage. Elder's seminal study demonstrated that the timing of age of military entry shaped post-service life courses in distinct ways: men entering service in their late teens and early twenties experienced delayed family formation but often achieved greater subsequent educational and occupational mobility; in contrast, those entering in their late twenties or early thirties faced disruption to already-established careers and relationships, with more limited opportunities for recovery (Elder 1987; Elder & Bailey 1988).

This age-dependent pattern suggests that life course plasticity—the capacity to reorganize and compress life's transitions—varies systematically with the amount of social time remaining when disruption occurs. Elder's framework focused primarily on whether and when veterans eventually married and had children, documenting delays and disruptions. Subsequent research has confirmed these patterns across multiple cohorts. Teachman (2007) found that active-duty military service increases the probability of first marriage for both whites and blacks, but delays marriage timing, with effects mediated by selectivity, income, and economic stability. Call and Teachman (1991) demonstrated that military service affects family stability across the life course, while more recent work has examined how service impacts childbearing decisions for both men and women (Teachman, Tedrow & Anderson 2015).

Existing research has examined whether veterans eventually achieve family formation milestones, but not whether they demonstrate compression behaviors—actively accelerating family formation and reducing birth spacing to compensate for lost time. Nor has research systematically tested whether compression capacity varies with age at service entry, as our theoretical framework predicts and as implied in the literature though based on selective cohorts from the Bay Area (Elder 1987). In addition to examining general patterns of possible compression, we ask whether men entering service at 22 versus 32 faced dramatically different remaining social time windows for family formation. In the 1940s demographic regime, men typically married in their mid-twenties and their wives were 2-3 years younger. Combined with declining female fertility after age 35 and social expectations around appropriate age gaps, men entering service in their early thirties had substantially less viable time remaining than those entering in their early twenties, which could on the one hand constrain their capacity for post-war compression, but more likely also would create additional pressure to achieve those goals in a reduced amount of time.

The immediate post-war period provides an ideal context for examining compression behaviors because of the dramatic fertility increase known as the Baby Boom. Between 1946 and 1964, birth rates in the United States rose substantially, with total fertility rates peaking at 3.68 in 1957 (Easterlin 1987). While popular narratives often attribute the Baby Boom simply to returning soldiers, demographic research has shown the phenomenon was more complex. The boom was not merely a catch-up of pregnancies averted during the war, nor was it limited to countries involved in WWII (Chabe-Ferret & Gobbi 2018). Rather, it reflected a combination of factors including rising marriage rates, economic prosperity, as well as changing opportunity costs for women – particularly younger women who struggled to enter the labour market (Doepke, Hazan & Maoz 2015).

For our purposes, the Baby Boom provides important context: veterans returned to a social and economic environment conducive to family formation. However, they still faced a key challenge in terms of recovering lost family and reproductive time. While non-veterans could take advantage of favorable conditions on their own timetable, veterans had to compress their family formation into shortened windows. The question is whether they succeeded in doing so through accelerated fertility pacing and reduced birth spacing, or whether lost time translated into permanently foregone opportunities.

We test for compression behavior among WWII veterans by comparing them to their non-veteran brothers, including accelerated post-war fertility rates and compressed birth spacing. However, this compression will be incomplete—five years after war's end, veterans will remain disadvantaged in terms of marriage probability, likelihood of having children, and total fertility.

We further test whether the degree of compression that is observed varies systematically by age at service entry. While Elder (1987) presented a picture of younger men benefitting far more from their service experience, it is possible that because of the increased pressure to achieve certain family formation outcomes, older men may show to have greater social life course compression. This would be expected if they have more remaining social time within viable windows for family formation.

These hypotheses extend demographic theories of life course timing by examining temporal contraction as the inverse of longevity-driven life course expansion, while contributing to demographic understanding of how individuals respond to biographical disruptions within age-structured opportunity windows.

Research Design

Our study builds on full count census data from both the 1930 and 1950 census rounds available from IPUMS. The 1950 round has a question on veteran status, which is included for only a fraction (1 in 5) of the respondents. This question provides information, though minimal, on whether the respondent is a veteran of the US military as well as whether they served during WW2. We use this information on veteran status in order to identify individuals that served in WW2 versus those that did not. [1]

Our effort to understand how veteran status impacts household formation in later years is complicated by the fact that individuals are raised in different households with different approaches to service, uncertainty about their background SES, and other unknown factors. Some of these factors are observable and potentially available as controls. However, others, like

[1] We dropped 31,500 veterans who served during periods other than World War II to maintain a homogeneous treatment group and keep only the individuals with non-missing values of veteran status.

nationalism, religiosity and potentially family conditions in one's childhood, are difficult to identify. For this reason, we use sibling fixed-effects models, which enable us to estimate the effects based on the differences between soldiers with their own siblings that did not serve.

Our analytical sample derives from multiple linking and restriction steps. First, we identified male heads aged 20-45 in 1950 (n=19,885,336), representing men who would have been most likely to have been eligible for military service in the prime service ages of 18-35 in 1941-1945. Then, we excluded men not asked about whether they were veterans and had served in WWII – only 1 out of 5 men in our core target sample (n=3,728,699) were asked the question.
As our next step, using the Census Linkage Project crosswalk (Abramitzky et al. 2020), we linked 29.15% of these men back to their 1930 census households of residence. This number, n=1,087,033, were then identified to see if were matched with siblings. Obviously, this matching process means losing a majority of our cases, but the benefit is that we are then able to recreate sibships. This procedure led us to identify 96,298 men from the 1950 core sample who could be matched with siblings in 1930, whereas n=990,735 could not be matched. The smaller number – 96,298, are the subgroup we focus our primary efforts in this analysis. In Table 1, we show both the distribution of sibling group sizes in our core sample as well as for the full sample of 1930 males ages 0-25.

Table 1. Distribution of sibships in 1950 and 1930

sibsize_1930	count	sibling_proportion	0-25 full-count	0-25 full-count in proportion
0	301255	27.71351	7050738	28.35855
1	689480	63.4277	296269	1.19161
2	90162	8.29432	7443354	29.93768
3	5808	0.5343	4959753	19.94847
4	308	0.02833	2798120	11.25423
5	20	0.00184	1392600	5.60113
5+	-	-	921996	3.70832

The linkage rate is consistent with other studies using historical census linkage and reflects challenges including name changes, migration, mortality, and enumeration errors. Importantly, Abramitzky et al. (2020) demonstrate that linkage success is not strongly correlated with most socioeconomic characteristics once basic demographic factors are controlled, reducing concerns about systematic selection bias in our linked sample.

Our first-stage OLS models utilize a broader sample of [n=1,035,393] men for whom we observe veteran status and family formation outcomes, providing population-level estimates before applying sibling fixed effects restrictions. Our final analytical samples are: [n=1,035,393] for OLS models examining overall veteran effects without limiting to those 1950 adults that are linked to 1930 census, and (2) [n=88,024] brothers in 43,088 sibling groups for fixed effects models (linked to 1930).

Our main outcomes of interest are marriage, fertility and birth spacing. The marriage information is based on whether or not our respondents in 1950 are ever-married (n=1,057,124). We consider individuals who are married, separated, divorced, or widowed as ever married. While this provides a basic impression of marriage patterns, like many censuses measures it is admittedly limited in that we do not know when the marriage began. Fertility data is based on children living in the household that are listed as children of the head. This is a limited indicator of actual fertility, but is the best we are able to do using census data. We include all children and their ages at the time of the census provide us both an estimated year of birth as well as the gap between children in terms of number of years so that we can also estimate the birth spacing. The birth spacing variable has several serious limitations in this context. For one, we are limited to one-year intervals. This fertility estimate will be an under-estimate, as children not living with their fathers will be excluded. Another is that the only intervals that are measurable are those from one birth to more than one birth (we would calculate the interval from marriage to birth but marriage dates are unknown). That said, both the birth count and the birth spacing variables are particularly useful because they allow us to focus on births during the WWII (1941-1945) as well as those that occurred after the war (1946-1950).

We primarily use linear probability fixed effects models in our analysis. We also adjust standard errors to obtain heteroskedasticity-corrected errors using Huber-White as well as for auto-correlation due to clustered standard errors. We have two sets of models. A first set of models focus only on sibling fixed-effects and we both estimate the overall effect of being a veteran on fertility as well as try and estimate whether the effect varies during the war and after the war. Here we focused on estimating whether the effect varies during the war years (1941-1945) versus the post-war period (1946-1950). This temporal split allows us to distinguish between fertility that occurred despite service (concurrent with deployment) versus catch-up fertility after return. A second set of models examines heterogeneity by age at service entry, testing whether compression capacity varies among younger and older veterans across their life course as our theoretical framework predicts.

Results

We present a table of descriptive statistics for the full sample of men identified in 1930, including those that did not link with siblings in 1930. We observe that among 88,024 veterans and non-veterans in our working sample, most have been married, had children, are native-born, and are white. Furthermore, veterans are more likely to live in urban areas, have fewer children, and be younger at the birth of their first child, with slightly higher personal and fathers' incomes compared to non-veterans.

Table 2: Descriptive statistics for our full sample of both veterans and non-veteran males ages 20-45 from the IPUMS full count 1950 US Census in our working sample.

	Not a Veteran	Veteran	Total
Count	45,123 (51.3%)	42,901 (48.7%)	88,024 (100.0%)
Married			
Not married	870 (1.9%)	947 (2.2%)	1,817 (2.1%)
Ever married	44,253 (98.1%)	41,954 (97.8%)	86,207 (97.9%)
Children			
Never had a child	6,599 (14.6%)	10,638 (24.8%)	17,237 (19.6%)
Ever had a child	38,524 (85.4%)	32,263 (75.2%)	70,787 (80.4%)
Nativity			

Native Born	44,301 (98.2%)	42,488 (99.0%)	86,789 (98.6%)
Foreign Born	822 (1.8%)	413 (1.0%)	1,235 (1.4%)
Race			
White	44,162 (97.9%)	42,406 (98.8%)	86,568 (98.3%)
Non-white	961 (2.1%)	495 (1.2%)	1,456 (1.7%)
Residence			
rural	25,340 (56.2%)	18,580 (43.3%)	43,920 (49.9%)
urban	19,783 (43.8%)	24,321 (56.7%)	44,104 (50.1%)
age	34.998 (5.663)	30.499 (4.866)	32.805 (5.748)
Age at First Birth	23.642 (3.485)	22.727 (3.003)	23.547 (3.437)
Fertility	2.161 (1.609)	1.416 (1.208)	1.798 (1.476)
Occscore	25.256 (9.824)	26.648 (9.369)	25.927 (9.632)
Father Occscore	21.267 (9.754)	23.337 (10.239)	22.283 (10.048)

In Table 3, we show the estimated Sibling FE estimates for the relationship between veteran status and four indicators of family formation: ever-married, any children, age at first birth, and number of children. These results cover all men in our working sample (n=88,024). We find that veterans have a slightly lower probability of being ever-married in 1950, though this effect is modest and the difference is less than 1%. The low magnitude of difference is not surprising given the high rates of marriage and low levels that never marry in this US at this time (US Census Bureau 2018), it is not surprising that veteran status has little impact. Among those that are ever-married (n=87921), we find that veterans also have a lower probability of having a child, but this effect is quite substantial with veterans overall showing a nearly 9 percentage point lower probability than non-veterans. The very large rise in age at first birth among those that do have children (n=70,091) emphasizes the large temporal cost veterans experienced with age at first birth higher by 1.8 years. Thus, for the whole period we find minor differences in marriage probabilities and slightly larger effects of having any children, but clearly delayed onset of having kids. We also note that for this whole period veterans who had children ended up with almost one-third less than non-veterans.

Table 3: Estimates of the effect of WWII veteran status for men aged between 20 and 45 years old on multiple measures of family formation from 1950 using sibling fixed-effects. Data based on full-count census of 1950 with linkage to the full-count census of 1930 from IPUMS.

	(1) Ever married	(2) Ever had child	(3) Age at first birth	(4) Number of children
ww2-vet	-0.006**	-0.088***	1.804***	-0.347***
	(0.002)	(0.006)	(0.075)	(0.025)
urban	0.003	-0.050***	0.037	-0.215***
	(0.002)	(0.007)	(0.084)	(0.028)
foreign_born	-0.002	0.030	-0.088	-0.022
	(0.013)	(0.032)	(0.450)	(0.129)
first_born	0.001	0.007	-0.114	0.021
	(0.002)	(0.006)	(0.076)	(0.026)
High School	0.005*	-0.008	0.181*	-0.077**
	(0.002)	(0.007)	(0.081)	(0.026)
College and higher	0.004	-0.028**	0.718***	-0.091*
	(0.004)	(0.011)	(0.130)	(0.040)
_cons	0.966***	0.539***	18.642***	1.332***

	(0.027)	(0.076)	(0.879)	(0.309)
N	87921	86107	70091	70663
pseudo R^2				

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
* *Our model includes veterans and non-veterans from 1950. We exclude men that were veterans but not from WWII service; men who were younger than 14 at the birth of their first child; sibling size smaller than 5.*

In Table 4 we separate estimates for the period during the war and the period after the war and until the 1950 census. This separation allows us to consider whether catch-up behavior varies between the wartime period (1941-1945) and post-war years (1946-1950). The Sibling FE Post-War model shows overall fertility of veterans increased after the war (0.48, p<0.001), comparing with the Sibling FE Post-War model (0.37, p<0.001).

The entire period sibling fixed effects model, which controls for unobserved family background factors, reveals an even more striking pattern. Non-veterans show maximal post-war fertility change (0.08, n.s.), which makes sense given they faced fewer wartime constraints. Veterans, however, show a substantial post-war fertility increase of 0.91 children (p<0.001) compared to their non-veteran brothers—compelling evidence of catch-up behavior in response to time lost during military service.

Table 4: Effect of veteran status during and after WWII on the number of children for men aged 20 to 45 in 1950, estimated using sibling fixed-effects. Data based on the full-count census of 1950 with linkage to the full-count census of 1930 from IPUMS.

	(1) Sibling FE during War	(2) Sibling FE Post-War	(3) Sibling FE Period Interaction
ww2-vet	-0.37367***	0.47883***	-0.39882***
	(0.016)	(0.029)	(0.010)
Post-war			-0.07902***
			(0.009)
ww2-vet x Post-War			0.90910***
			(0.015)
_cons	0.90424***	0.97043***	0.96462***
	(0.007)	(0.011)	(0.005)
N	70322	47375	117697

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
* *Our model excludes men who were younger than 14 at the birth of their first child and includes only men with siblings whose children were born between 1941 and 1950. If a child was born between 1946 and 1950, we consider it as birth after WWII.*

Table 5 provides additional evidence of life course compression through birth spacing patterns. We compare effects across the entire 1941-1950 period (column 3) versus during-war (column 1) and post-war only (column 2), using sibling fixed effects model. The results demonstrate strong compression behavior. Veterans reduced birth spacing by approximately two-third of a year (0.38 years) across the entire period, with even more dramatic compression in the post-war years alone. Column 2 shows that post-war birth spacing among veterans was reduced by nearly two-thirds of a year (0.66 years, p<0.001) compared to non-veteran brothers. This substantial reduction in inter-birth intervals represents powerful evidence that veterans were actively compressing their fertility schedules to make up for lost time.

Table 5: Effect of veteran status for entire period (1941-1950) and only during and after WWII (1946-1950) on birth spacing for men aged 20 to 45 in 1950, estimated using sibling fixed-effects. Full count census files from IPUMS from 1950 and 1930.

	(1) Sibling FE during War	(2) Sibling FE Post-War	(3) Sibling FE Period Interaction
ww2-vet	-0.16390	-0.65723***	-0.38197***
	(0.134)	(0.089)	(0.067)
Post-war			0.48095***
			(0.038)
ww2-vet x Post-War			-0.18064**
			(0.062)
Constant	3.89276***	4.21760***	3.73724***
	(0.094)	(0.098)	(0.047)
N	27887	42432	70319

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
** Our model excludes men who were younger than 14 at the birth of their first child and includes only men with siblings whose children were born between 1941 and 1950. If a child was born between 1946 and 1950, we consider it a birth after WWII. Models include additional controls including dummies for individual age of head in 1950.*

In Table 6, we present the separate models of fertility for the two cohorts: the younger cohort aged 20 to 30 (column 1) and the older cohort aged 31 to 45 (column 2). The models themselves are estimated using a sibling fixed effects model, similar to earlier models. We also applied a stricter approach that includes only sibling groups larger than two, and all brothers aged either below 30 years or above 30 years (available up on request).

Our findings veteran fertility during the war is lower than non-veterans. However, we see the difference is much large for older solders, where fertility is lower by 0.42 whereas the difference is only 0.16 for young soldiers. Furthermore, we find that generally fertility increased for young non-veterans with the end of the war, whereas it actually declined for older non-veterans. For older soldiers, we see that the fertility difference after the war, relative to non-soldiers, was more than one-half child (0.52). Thus, the lower fertility during the war appears more than compensated for by the accelerated fertility after the war. For young soldiers, they also demonstrate higher fertility following the war, which is nearly the same size as their slower fertility during the war. However, for young soldiers both differentials are very modest, highlighting that older men were already more in the centre of their reproductive lives and had more to catch up.

Overall, our fertility predictions for veterans are more strongly associated with the older group than the younger group, as shown by the stronger evidence in both columns 3 and 5, which indicate higher incentives for fertility compression among older veterans in the post-war period.

Table 6: Younger versus older: Fertility predictions of veteran status after WWII for two age groups, 20 to 30 and 31 to 45 in 1950, estimated using sibling fixed-effects. Data are based on the 1950 full-count census linked to the 1930 full-count census from IPUMS.

	(1) sfe_younger	(2) sfe_older
WW2-vet	-0.15505***	-0.41873***
	(0.017)	(0.013)
Post-War	0.62116***	-0.24997***
	(0.019)	(0.008)
WW2-vet x Post-War	0.10760***	0.51811***
	(0.022)	(0.013)
_cons	-0.01847	1.03423***
	(0.044)	(0.019)
N	32006	77932

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Conclusions

This research examines a fundamental question about the structure and pacing of the human life course: when time is forcibly removed, can individuals compress their remaining years to recover, or does lost time become permanently irretrievable? World War II military service provides a unique opportunity to explore this question, as it imposed an average 2.5-year contraction on over 16 million American men during peak years of their family formation.

Our findings reveal that veterans show clear evidence of compression behavior—higher post-war marriage rates, accelerated fertility, and compressed birth spacing—yet also persistent delays. Five years after war's end, veterans remained significantly less likely to be married or have children than their non-veteran brothers, and among those married, had fewer children and delayed first births. This pattern of simultaneous catch-up effort and incomplete recovery demonstrates partial elasticity in the life course. While we are unable to determine whether they would have fully caught up (or exceeded) fertility patterns of non-veterans were they to followed past 1950, we can feel confident that they did at least partially recoup their lost time. Interestingly, our results show sharp divergence in the response by age. Younger men who served did not experience large shifts in their life course patterns relative to siblings that did not serve. This is presumably because delay was a very realistic option for them. In contrast, older men seemed to lose more during the war while also appear to demonstrate a stronger pattern of accelerated childbearing after the war.

These findings illuminate fundamental properties of the social life course structure. The life course is neither perfectly rigid nor infinitely flexible. Rather, it operates in what might be described as "bounded plasticity"—the capacity to absorb and adapt to temporal disruptions, but within biological, social, and demographic constraints. Veterans could accelerate certain transitions and compress certain intervals, but it appears for the time window we observe they could not fully eliminate the deficit created by their absence.

Our theoretical contribution extends demographic work on life course timing in an important direction. While prior scholarship has examined how increases in longevity stretch the life course, creating additional time for individuals to accomplish transitions (Goldstein & Lee 2003), we demonstrate that their arguments also have implications for the opposite processes: when the life course experiences contraction there is evidence of a faster pace of demographic behavior although this acceleration also has limits. Whether the contraction will be fully accounted for in future years is impossible to determine. There are clearly minimum durations required for certain life course processes, thresholds beyond which compression becomes impossible to counteract.

The age-dependent nature of compression capacity further sheds light on these constraints. We find that men who served in older years demonstrated greater post-war fertility acceleration than those who served under thirty. The older men had less time to catch up, and actually appear to have lost more "fertility" during the war, apparently forcing them to respond more forcefully. Men in the 1940s typically married in their mid-twenties and had wives 2-3 years younger. Combined with declining female fertility after age 35, this created relatively narrow windows for completing family formation. A 22-year-old veteran returning from service could still marry within normative age ranges and complete his desired family size. A 33-year-old veteran faced substantially tighter constraints, with less viable time to both marry and achieve his fertility goals before biological and social windows closed.

These patterns have broader implications for understanding demographic behavior under temporal constraint. Our findings suggest that individuals respond rationally to compressed timelines—they accelerate when possible, attempting to recover lost time. But their capacity to do so depends critically on life stage. This has relevance beyond the historical context of World War II. Contemporary disruptions—lengthy educational investments, economic recessions, migration, incarceration, or caregiving responsibilities—similarly have the potential to remove time from individual life courses. Our results suggest that the demographic consequences of such disruptions will vary substantially depending on when in the life course they occur.

We mention several limitations that should be considered. First, our data come from 1950, just five years after war's end. Veterans may have continued catching up in subsequent years, potentially closing gaps we observe. Longer-term follow-up would clarify whether compression continues or whether deficits persist. It will ultimately tell us whether the compression is fully accounted for or whether it is truly only partially elastic. Second, our fertility measures capture only children living with fathers, likely underestimating total fertility and potentially introducing bias if veterans were differentially likely to have non-resident children. Lastly, we cannot observe marriages that ended before 1950, potentially missing important dynamics in relationship formation and dissolution.

Despite these limitations, our preliminary findings establish that temporal contraction has lasting demographic consequences, mediated by compression behaviors that are substantial but at least within our window of observation are insufficient to fully recover lost time. The life course can bend, but it cannot be indefinitely compressed. Understanding these limits—when individuals can successfully compress life courses versus when lost time becomes irrecoverable—represents an important frontier for demographic research. As societies grapple with lengthening lifespans, delayed family formation, and various sources of biographical disruption, the question of temporal elasticity becomes increasingly salient. Our findings provide initial evidence that while the demographic life course is far more flexible than rigid, there are nonetheless limits to its flexibility. Thus, a life course can compress in the face of temporal shocks, but there are still boundaries set by biology, and social norms, that would still impose constrain the extent of this flexibility.

References

Call, V. R. A. & Teachman, J. D. Military Service and Stability in the Life Course. *Military Psychology* **3**, (1991).

Doepke, M., Hazan, M., & Maoz, Y.D. 2015. The baby boom and World War II: A macroeconomic analysis. *Review of Economic Studies*, 82(3), 1031-1073.

Elder, G. H. War Mobilization and the Life Course: A Cohort of World War II Veterans. *Sociological Forum* **2**, (1987).

Lee, R., Goldstein, J. R. & 2003. Rescaling the life cycle: Longevity and proportionality. *Population and Development Review*.

Goldstein, J. R. & Schlag, W. 1999. Longer life and population growth. *Population and Development Review* **25**.

MacLean, A. & Jr., G. H. E. Military Service in the Life Course. *Annu Rev Sociol* **33**, 175–196 (2007).

Teachman, J., Tedrow, L. & Anderson, C. The Relationship between Military Service and Childbearing for Men and Women. *Sociol. Perspect.* **58**, 595–608 (2015).

Teachman, J. Race, Military Service, and Marital Timing: Evidence from the NLSY-79. *Demography* **44**, (2007).

US Census Bureau. https://www.cdc.gov/nchs/data/hestat/marriage_rate_2018/marriage_rate_2018.pdf