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Great Depression, WWII and the College Gender Gap^{*}

Abstract

This paper examines the short- and long-run effects of the Great Depression on college attainment by gender in the United States for cohorts born 1906–1920. Using state-level variation in Depression severity, we find that harsher conditions in the early 1930s are associated with small increases in educational attainment by 1940, with similar responses for men and women. Following these cohorts to 1960, more severe Depression exposure is linked to modest increases in men's college attainment at the one- and two-year margins, with little effect on four-year completion. Women's responses are more heterogeneous and generally imprecisely estimated. We further show that these patterns are stronger in areas with greater WWII mobilization: male attainment rises more strongly in highly mobilized states, while women's responses remain limited and mixed. Overall, the results suggest that early-life exposure to the Depression, combined with wartime opportunities, may have contributed to modest gender differences in college attainment in the mid-twentieth century.

JEL classification

J1, N3, I0

Keywords

Great Depression, college gender gap, WWII mobilisation, GI Bill

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1. Introduction

Educational attainment in the United States rose rapidly in the early twentieth century, with important differences emerging across cohorts and between men and women. Individuals born just before the turn of the century experienced near gender parity in college enrollment and completion (Goldin, Katz, and Kuziemko, 2006). Starting with cohorts born after 1908, however, men's college attainment relative to women's increased sharply, and gender parity took decades to restore. Although much of this divergence is often attributed to World War II and the GI Bill (Bound and Turner, 2002; Jaworski, 2014; Lennon, 2021), these same cohorts made key schooling decisions during the Great Depression, the most dramatic economic downturn of the twentieth century in the United States.

Unlike typical business cycle fluctuations, the Great Depression was an extreme and prolonged economic collapse, marked by sharp declines in income and persistently high unemployment—reaching about 25 percent at its peak in 1933 and remaining above 15 percent through much of the decade (Lebergott, 1957). This paper examines how exposure to this episode shaped educational investments over the short- and long-run, focusing on cohorts born between 1906 and 1920. For these cohorts, schooling decisions were influenced by multiple, potentially offsetting forces: reduced household resources and earlier labor market entry may have constrained education, while weak labor market conditions lowered the opportunity cost of schooling and may have encouraged continued enrollment. Importantly, these cohorts were also exposed to World War II and its aftermath, raising the question of how the combined influence of the Depression and wartime mobilization contributed to changes in educational attainment and the evolution of gender differences in college education.

To answer these questions, we first link 1940 educational outcomes to local Depression conditions, measured by changes in state-level business failure rates between 1929 and 1932. We find that harsher conditions are associated with small increases in high school completion for several cohorts of men and higher college enrollment for younger men. The estimates for women follow a similar pattern but

are somewhat smaller in magnitude and noisier. Given that the confidence intervals overlap with those for men, we cannot conclude that there was a gender gap in the educational response to the Great Depression by 1940.

Overall, these responses are quantitatively small and robust to controls for division-by-birth cohort fixed effects, early-1920s economic conditions, state education laws, New Deal projects, post-Depression recovery, and pre-Depression state characteristics. Nevertheless, they should be interpreted as documenting differential responses to variation in Depression severity conditional on a rich set of covariates rather than as strictly causal effects. They are also broadly confirmed using a linked 1930–1940 Census sample with county-level per capita retail sales as an alternative severity measure.

We follow these cohorts to 1960 to examine the long-run impacts of the Depression on college attainment. Several patterns emerge. First, the Depression is associated with modest increases in men’s attainment at the one- and two-year margins, even after accounting for WWII mobilization. The estimates for women are noisier and more heterogeneous. Second, some evidence of a gender gap favoring men appears at the two-year margin, largely reflecting rising attainment among men rather than sharp declines among women. There are no significant effects on four-year college completion.

Most notably, the relationship between the Depression and later educational outcomes depends on its interaction with WWII mobilization. In areas more intensely mobilized, men’s one- and two-year college attainment increased further for cohorts born after 1909, while women’s attainment declined for some cohorts born before 1915. Although these differences are modest in magnitude and not uniformly precisely estimated, they suggest that combined exposure to the Depression and WWII may have contributed to the rise of mid-century gender differences in higher education.

Taken together, our findings suggest that the Great Depression is associated with increased educational attainment among exposed cohorts by 1940, possibly reflecting lower opportunity costs of schooling and the expansion of two-year institutions that facilitated enrollment. These early gains may have better positioned individuals to take advantage of the GI Bill in the postwar period, further raising

college attainment. Because access to these benefits depended on military service, the interaction with wartime mobilization primarily operated through men, helping explain the stronger interaction effects observed for men relative to women. This interpretation is consistent with the absence of an education gender gap in 1940 and its emergence by 1960.

Our findings contribute to several strands of literature. First, they add to the economic history literature on the determinants of educational investment and the college gender gap in the United States during the first half of the twentieth century (Goldin and Katz, 1997, 1999; Goldin, 1998; Lleras-Muney, 2002 & 2005; Schmick and Shertzer, 2019). More specifically, we contribute to the literature on the high school movement between 1910 and 1940 and the role of the Great Depression in increasing educational attainment during this period (Goldin and Katz, 1997; Janas, 2024; Yamashita, 2008; Kisswani, 2008; Baran et al., 2024). Using both state- and county-level measures of Depression severity and alternative identification strategies, we complement evidence of short-run increases in high school completion and college attendance among younger cohorts during the 1930s.

We then track these cohorts over the long run and show that the Depression had modest but persistent effects on college attainment at the one- and two-year margins, which emerge most clearly when the Depression is considered jointly with WWII mobilization.¹ These novel insights contribute to the literature on the long-term socioeconomic consequences of the Great Depression and WWII (Goldin and Olivetti, 2013; Bellou and Cardia, 2016; Jaworski, 2014; Lennon, 2021; Stanley, 2003; Acemoglu et al., 2004; Bound and Turner, 2002; Fetter, 2013; Duque and Schmitz, 2023; Arthi, 2018; Aizer et al., 2024).

Finally, this paper speaks to the broader literature on education and economic downturns.

¹ Kisswani (2008) and Yamashita (2008) use the 1960 1% IPUMS and variation in state employment indices to study the impact of the Great Depression on average education for cohorts born between 1912 and 1926, finding small or null effects. Our analysis extends to earlier cohorts born as early as 1906, allowing us to use individuals who had largely completed their education by the onset of the Depression as a control group. We also rely on alternative measures of labor market conditions that more directly capture labor demand shocks and complement the state-level analysis with a county-level identification strategy. Finally, we examine high school graduation and college attendance at various margins rather than average years of schooling and explicitly discuss short- and long-run mechanisms, highlighting how the Depression interacted with wartime mobilization.

Although the estimated effects are modest in magnitude, they are broadly consistent with the role of opportunity costs: as labor market conditions deteriorate, recessions may increase educational investment through a substitution effect (Black et al., 2005; Charles et al., 2018; Stuart, 2022; Cascio and Narayan, 2019; Kovalenko, 2023). Taken together, our results suggest that the Depression alone did not generate meaningful immediate gender differences in educational attainment. Rather, gender differences in higher education among these cohorts appear to have emerged over the longer run largely from the interaction between early-life exposure to the Depression and subsequent wartime mobilization.

The paper is organized as follows. Section 2 presents stylized historical facts on education. Section 3 describes the data and methodology. Section 4 presents the main findings using the 1940 and the 1960 Censuses. Section 6 concludes.

2. Historical trends in educational attainment by gender

Figures 1 to 3 plot average years of education, high school completion, and college attendance by gender and birth cohort for individuals born between 1900 and 1930 using the 1960 IPUMS 5% sample. Figure 1 shows that women born in the early part of the century had more years of schooling than men, a pattern that reversed starting with the 1916 cohort. Figures 2 and 3 indicate that this shift is mainly driven by rising male college attendance.

Figure 2 reports college attendance rates. Cohorts born between 1900 and 1908 exhibit near gender parity, while cohorts born after 1908 show a sharp widening of the gap. This was driven by increasing male enrollment and stagnant or slightly declining female attendance. Goldin, Katz, and Kuziemko (2006) attribute the female decline to marriage bars that limited teaching opportunities for married women and reduced the value of post-secondary education. They also note that early-20th-century women disproportionately attended two-year teacher-training colleges, while men enrolled in four-year universities preparing for broader careers, contributing to a lag in bachelor's attainment. At the same time, widespread Depression-era unemployment likely lowered men's opportunity cost of

college, encouraging enrollment (Goldin and Katz, 1997; Janas, 2024). WWII further reinforced these trends: the GI Bill enabled men to continue education post-war (Collins and Zimran, 2025; Stanley, 2003; Bound and Turner, 2002), and roughly three-quarters of the school-age boys in the 1930s served in the armed forces (Blau and Duncan, 1967). Goldin et al. (2006) show it took several decades for the college gender gap to narrow and return to parity.

Figure 3 shows rising high school graduation rates for both genders, with female rates higher overall. Areas with larger unemployment increases or smaller manufacturing sectors saw the greatest secondary education expansion, as the opportunity cost of schooling declined (Goldin and Katz, 1997, 1998; Janas, 2024). Policies such as the N.I.R.A. (1933–1935), which restricted youth employment in manufacturing, kept adolescents in school and helped narrow the gender gap (Goldin and Katz, 1997; Wood, 2020; Moehling, 1999).² High school completion offered substantial returns: it increased the likelihood of clerical employment for women and raised earnings in manufacturing for men (Goldin and Katz, 1995). Compulsory schooling laws likely also contributed, though evidence suggests their overall effect on high school graduation was modest (Schmidt, 1996; Lleras-Muney, 2002).

3. Data and Methodology

For our main analysis, we use individual data from the 1940 full count and the 1960 5% IPUMS USA samples (Ruggles et al., 2023; 2024). IPUMS reports the highest grade of school completed (*higrade*), which we use to construct various attainment measures such as high school completion and college attendance (defined as having completed at least one year of college). Appendix Table 1 presents means of the above by gender, birth cohort and census year.

We focus on white individuals born in the United States between 1906 and 1920, excluding those in institutional group quarters.³ Earlier cohorts were older in 1930 and likely had largely completed

² NIRA's labor codes essentially amplified existing state youth labor restrictions (minimum working age, hours limits and hazardous work bans).

³ These cohorts are relatively young (oldest individuals are aged 34 in 1940) and therefore we expect our estimates not to be significantly biased by mortality selection. This refers to the potential problem that older individuals who have survived by the given Census year are better educated than the average individual in their cohort.

their schooling (pre-treatment cohorts). Cohorts born from 1909 onward experienced the downturn at different life stages. For the relatively older, decisions to enter or remain in college had to be weighed against work opportunities and changes in the market value of higher education. For younger cohorts, education may have been affected by reduced parental resources and declines in the quantity and quality of local school resources—such as shorter school years, fewer teachers, lower salaries, and larger class sizes. Compulsory education laws may have further influenced retention in school.

To capture the severity of the Great Depression, we use the ratio of industrial and commercial failures to business concerns collected yearly by *Dun and Bradstreet Inc.*, NY and provided through the U.S Census Bureau. Our measure is the rapid change in the business failure rate between 1932 (year of highest business failure rate) and 1929. Business failures increase in response to large and persistent shocks. They are also more akin to labor demand shifts that lead to layoffs than to labor supply shifts. This data is available annually and by state since the late 19th century. Business failures include concerns involved in court proceedings or voluntary actions likely to end in losses to creditors. They cover manufacturers, wholesalers, retailers, building contractors, and certain types of commercial service, but do not include finance, insurance, and real estate companies, nor railroads and steamship lines or amusement enterprises (Bellou and Cardia, 2021). Table 1 presents summary statistics of our measure across the country and by region.

We estimate versions of the following baseline specification separately by gender:

$$ED_{icst} = \sum_c \beta_c GD_s d_c + f_s + f_D(c) + h_{s,pre-Depr} \cdot d_c + \varepsilon_{ics} \quad (1)$$

ED_{icst} is a measure of education for individual i born in year c in state s and observed in year t ($t=1940$ or 1960). The variable GD_s captures the severity of the Great Depression at the individual's state of birth and is interacted with birth cohort dummies d_c (excluded category are cohorts born in 1906). $h_{s,pre-Depr}$ is a vector of pre-Depression state characteristics (interacted with birth cohort fixed effects) that could be correlated with GD_s while also determining education. It includes: the growth rate in infant mortality between 1917 and 1918 and its level in 1917; the growth rate in education expenditures

per capita between 1920 and 1927 as well as their level in 1920; indicators for the presence of state compulsory schooling laws when the respondent was of age 14; the total number of universities in 1927; 1920 socioeconomic covariates (share nonwhites, share foreign born, share of farm households, employment shares across various industries).⁴ Finally, we control for state of birth fixed effects f_s , and birth division D -by birth-cohort fixed effects $f_D(c)$. These controls are meant to account for fixed state characteristics as well as cohort-varying division-specific and plausibly confounding factors affecting educational outcomes. In specifications relying on the 1960 Census, we further control for the individual’s quarter of birth (not available in the 1940 sample) and for WWII mobilization rates captured by the share of registered men 18 to 44 years old who were drafted or enlisted in the war in a given state (Acemoglu et al., 2004; Angrist and Krueger, 1991; Selective Service System, 1956). Increased mobilization could be biasing our results if it is systematically correlated with the severity of the Depression.⁵ We return to this in Section 4.2. Standard errors are clustered at the individual’s birth state.

Each coefficient of interest in (1), β_c , captures the differential impact of Depression severity on education outcomes for a given cohort c , relative to the reference 1906 cohort, and comparing more versus less severely affected states within the same division. Our analysis relies on the identifying assumption that, in the absence of the shock, educational outcomes would have trended similarly across states and cohorts. This, in practice, needs to hold conditional on an extensive set of controls.

To assess the validity of this assumption and to more generally address concerns related to the causal interpretation of β_c estimates, we take the following approaches. First, to facilitate exposition, we group states into terciles of Depression severity (based on our baseline measure) and subsequently assess balance in pre-Depression characteristics. In Table 2, we report coefficients from regressions of these state characteristics on indicators for medium and high Depression severity, controlling for

⁴ Information on state-level education expenditures, infant mortality and compulsory attendance laws are publicly available through the website of Adriana Lleras-Muney. Information on the number of universities in 1927 was digitized by the authors from the *Biennial Survey of Education, 1926–1928* published by the U.S. Bureau of Education.

⁵ The unconditional correlation between our measure of the severity of the Depression and WWII mobilization is 0.31.

division fixed effects. States that experienced more severe economic distress during the Great Depression differed systematically prior to the downturn, including having lower nonwhite population shares, higher manufacturing employment, higher infant mortality during the Spanish flu, and a greater number of universities. These patterns indicate that Depression severity was not randomly assigned across states. Our empirical specifications therefore flexibly control for these pre-Depression characteristics (vector $\mathbf{h}_{s,\text{pre-Depr}}$), along with cohort-by-division fixed effects and, in robustness analyses, early-1920s economic conditions.⁶ In Section 4.1 we further conduct a number of sensitivity exercises and discuss the role of New Deal policies.

In addition to the above, the inclusion of older birth cohorts, whose formal schooling (especially high school) was largely completed by 1930, provides a natural falsification check: estimated effects for these cohorts are small, jointly insignificant and lack a systematic pattern. Nevertheless, we cannot fully rule out that unobserved state-specific trends in education, labor markets, or other dimensions remain correlated with both Depression severity and subsequent schooling outcomes. Accordingly, our estimates should be interpreted as suggestive rather than strictly causal, capturing differential educational responses across cohorts exposed to more versus less severe economic contractions, conditional on a rich set of observed controls.

We also note that our main approach assumes that the relevant state at the time of the downturn is the individual's state of birth. As the 1930s was a period of high mobility, this assumption could introduce attenuation bias if our measure of Depression severity is correlated with migration across states. We will address this issue in subsection 4.1.1.

Finally, in subsection 4.1.1, we conduct a robustness analysis using a linked Census sample together with a county-level measure of the severity of the Great Depression: the change in per capita retail sales between 1929 and 1933 in the county of residence in 1930 (Fishback, Kantor, and Wallis,

⁶ Appendix Figure 1 presents estimates of β_c from (1) with and without the inclusion of pre-Depression state covariates. Including these controls alters some point estimates and narrows the width of some confidence intervals, which suggests that part of the variation in outcomes is explained by observable pre-Depression differences. The qualitative patterns, however, remain broadly similar across specifications.

2003). To locate this, we link cohorts born between 1906 and 1920 in the 1940 Census backwards to 1930 using the Census Tree crosswalks (Buckles et al., 2024; Price et al., 2023). This indicator is widely used to capture local variation in the severity of the early-1930s downturn and is highly correlated with personal income at the state level (Fishback, Haines, and Kantor, 2007; Hill, 2015; Janas, 2024; Bellou, Cardia, and Lewis, 2025).

We have subsequently estimated regressions similar to (1) which include the measure of the severity of the shock described above and its interaction with birth-year fixed effects, 1930 county of residence fixed effects, a set of 1910 county-level socioeconomic covariates and state of residence in 1930-by-birth-cohort fixed effects. Hence, in this case, we compare differential education outcomes for a given cohort relative to the reference one (1906) *across counties within the same state* that experienced larger versus smaller declines in per capita retail sales during the Great Depression. Standard errors are clustered by county.

4. The impact of the Great Depression on educational attainment

4.1 Short run effects

Figure 4 presents estimates (along with 95% confidence intervals) from (1) by gender for two outcomes measured in 1940: high school completion and having completed at least one year of college. Appendix Table 2 shows the actual estimates. For men, positive effects on high school completion begin to emerge for cohorts born around 1911 and become stronger for cohorts born after 1914. While a small number of earlier cohorts exhibit marginally significant coefficients – which could be suggestive of some pre-trends –, these estimates are small in size and adjacent cohorts born in 1909–1910 show no detectable effects. The timing of these effects suggests that they should not be interpreted as reflecting responses exclusively at the typical school-leaving age, but rather broader adjustments in educational trajectories over a wider range of ages, including delayed completion or continued enrollment during a prolonged downturn.

In contrast, the postsecondary estimates are more sharply timed. Positive effects on college

attendance appear only for cohorts born from approximately 1915 onward, and are statistically significant for several of these cohorts.⁷ Quantitatively, the gains are small. Among men born after 1915, the estimates imply an increase in high school completion by 3 per cent and in college attendance by 3.4 per cent relative to the respective rates for older men born between 1906-1908.⁸

For women, positive effects on high school completion emerge only for cohorts born from 1914 onward. These estimates imply an increase in high school completion of approximately 2.4% (relative to female cohorts born between 1906-1908), similarly to men. The effects for college attendance are noisier.⁹ Importantly, confidence intervals overlap with those for men, and formal statistical tests cannot reject equality of coefficients across genders for both outcomes, indicating no meaningful gender differences in educational responses to the Depression by 1940.

These short-run impacts on education align with several plausible explanations. For women, delayed or foregone marriages—resulting from men’s diminished economic prospects during the 1930s—heightened the importance of financial independence (Hill, 2015). Clerical work, offering stability, social acceptability, and compatibility with family life, emerged as a particularly attractive career path, providing a substantial wage premium (Goldin and Katz, 1995; Goldin, 2006). Teaching and nursing were also among the most popular professional occupations. Clerical-type and professional jobs typically required at least a high school diploma, specialized vocational training or teaching certificates/nursing degrees giving women a strong incentive to further their education to access such employment opportunities. Men, by contrast, could earn wage premiums in a broader set of sectors, including manufacturing (Goldin and Katz, 1995; Goldin, 2006). Overall, a weaker labor market with persistently high unemployment throughout the 1930s in response to this deep economic

⁷ For high school completion, the coefficients from the 1907 through the 1911 cohorts are jointly insignificant. For college attendance, the coefficients from the 1907 through 1913 cohorts are jointly insignificant.

⁸ The calculations for high school and college attendance respectively are as follows: $0.441 \text{ (average Depression severity, see Table 1)} \times 0.022 \text{ (average high school estimate among 1916-1920 cohorts)} = 0.01/0.326 \text{ (average high school completion rate among 1906-1908 male cohorts)} = 2.9\%$; $0.441 \times 0.012 \text{ (average college estimate among 1916-1920 cohorts)} = 0.005/0.149 \text{ (average college attendance among 1906-1908 male cohorts)} = 3.4\%$.

⁹ For high school completion, the coefficients from the 1907 through the 1913 cohorts are jointly insignificant. For college attendance, the coefficients from the 1907 through 1914 cohorts are jointly insignificant.

contraction may have encouraged younger individuals to remain in school longer. Social spillovers could have reinforced these patterns: higher enrollment during the downturn may have shifted peer norms and expectations, sustaining schooling decisions across cohorts. Finally, increased attendance was likely facilitated by the expansion of two-year colleges, which provided a relatively low-cost and locally accessible pathway to post-secondary education. Enrollment in such institutions rose substantially during the 1930s, offering vocational and transferable academic training to a broader population (Snyder, 1993).

We have subjected these results to several sensitivity exercises. These can be found in Appendix Figures 1-6 (along with 95% confidence intervals). First, we have replaced our continuous measure of Great Depression severity with a discrete one defined as an indicator variable for whether the state has experienced a greater than the mean increase in its business failure rate between 1929 and 1932 (Appendix Figure 2). Our baseline conclusions remain.¹⁰ Second, we conduct a sensitivity analysis accounting for farm failures during the Great Depression. As agriculture is a sector that is not covered by the baseline business failure variable, changes in the farm failure rate between 1929 and 1932 is an additional potential measure of the severity of the shock specific to this sector.¹¹ Our estimates remain nearly unchanged when we account for the latter (Appendix Figure 3). Furthermore, the estimates are robust to accounting for the cohorts' size in 1930. The latter is measured as the number of men over the number of women born in a given state and year who were present in the 1930 Census (Appendix Figure 4). This is intended to address potential selection concerns due to survivor bias linked to the Great Depression.¹² We have also explored the potential role of the 1920-1921 recession on education by controlling for the increase in the business failure rate between 1920 and

¹⁰ This addresses concerns related to treatment effect heterogeneity potentially present in difference-in-differences designs with continuous treatment (Callaway et al., 2024a and 2024b).

¹¹ Farm foreclosure rates by state in 1929 and 1932 were obtained from the U.S. Department of Agriculture publications.

¹² The results are robust to controls for cohort size in 1940 and changes in cohort size between 1920–1930 and 1930–1940. Existing evidence on the mortality effects of the Great Depression is mixed. Stuckler et al. (2012) find little link between economic shocks and mortality overall, though mortality rose in cities with higher illiteracy, consistent with the education–health gradient. Fishback et al. (2007) show that New Deal relief reduced mortality, while Granados and Rioux (2009) document a decline from 1930–1933 followed by an increase thereafter, using more aggregated data. We find no evidence that our Depression measure predicts absolute or relative cohort sizes in 1940 or their changes between 1930 and 1940.

1922 (year when the business failure rate peaks). These conditions could have affected the education decisions of older (control) cohorts. Our main estimates remain unaffected, which suggests that the role of the early 1930s economic conditions in the acquisition of human capital was unique (Appendix Figure 5).

We subsequently examine the implications of post-Depression recovery for our findings. First, we consider explicitly the role of the New Deal. While the latter focused on major public work projects, some of its programs directly or indirectly affected education. We used data between 1933 and 1939 for overall relief payments but also across different types of programs assembled by Fishback and Kantor (2018) and Fishback and Kachanovskaya (2015): Federal Emergency Relief Admin. Grants (FERA), Civil Works Admin. Grants (CWA), Works Progress Admin. Grants (WPA) and Civilian Conservation Corps Grants (CCC).¹³ Second, we consider a more general measure of the recovery defined as the difference in the business failure rate between 1934 and 1939. None of our baseline conclusions is substantially changed regardless of the way we account for post-Depression conditions. These results are presented in Appendix Figures 6A, 6B and 6C respectively.

4.1.1 Short-run effects on education: robustness using evidence from linked Census data

In this subsection, we present estimates from a specification analogous to the baseline, using men born between 1906 and 1920 observed in 1940 and linked backward to 1930 using the Census Tree Project linking procedure (see Section 3). Exposure to the Great Depression is measured at the individual's county of residence in 1930, and local economic severity is proxied by the change in per capita retail sales between 1929 and 1933 (Fishback, Kantor, and Wallis, 2003).

The results are presented in Table 3. As can be seen, the main patterns established using state-

¹³ The New Deal, launched in 1933, comprised programs aimed at both economic relief and structural reform. The Civilian Conservation Corps (CCC) and the National Youth Administration (NYA) provided work assistance for out-of-school youth and part-time employment for high school and college students. The CCC, which targeted men, may have lowered their opportunity cost of higher education; Aizer et al. (2024) find modest effects on men's years of schooling. Other initiatives—including the Public Works Administration's school construction, the Works Progress Administration's employment of teachers, and the Department of Agriculture's school lunch and surplus crop programs—may have affected education indirectly, including through increased demand for college-level skills.

level data are broadly confirmed, despite some differences in the timing these effects emerge. Cohorts born after 1913 residing in more severely affected counties were more likely to have completed high school in 1940. Moreover, men born after 1912 were more likely to have attended college. In addition, there is no evidence of pre-trends for older cohorts for any of the outcomes.

Overall, the two approaches are best viewed as complementary. The state-level measure captures broader economic distress and structural decline that shaped expectations about future labor market opportunities and lowered the opportunity cost of schooling, generating earlier and more sustained gains across several cohorts. The county-level measure may reflect more localized demand and household income shocks in the early 1930s which likely affected the immediate cost of schooling. Moreover, the county-based measure captures economic conditions at the individual's place of residence in 1930, providing a closer mapping between local shocks and schooling outcomes. The state-level measure instead, assigned by state of birth, is more prone to measurement error and averages over substantial within-state heterogeneity, likely attenuating estimated effects and limiting the detection of short-run, age-specific responses. Together, they reinforce the robustness of the baseline findings across alternative measures of economic distress, geographic aggregation, and identification strategies.¹⁴

4.2. Long run effects

The results based on the 1940 sample suggest that the 1930s downturn is associated with some initial educational gains for both men and women. To examine whether these patterns persisted and to assess WWII's role in shaping college decisions, we follow the same cohorts in 1960 and estimate an augmented version of specification (1), accounting for WWII mobilization rates. To facilitate

¹⁴ Estimates based on the Census Tree linked sample are not directly comparable to those from the full-count cross-sectional data, as they rely on a selected subset of individuals successfully linked across censuses. Corresponding estimates for women are presented in Appendix Table 3. Female estimates are broadly consistent with our prior findings that the downturn is associated with increased education for younger cohorts. Nevertheless, these longitudinal estimates should be interpreted more cautiously, as linkage for women is especially sensitive to marriage-related name changes and differential mobility (see Bailey et al., 2023). If the Depression affected marriage timing or geographic movement, linkage rates may vary systematically with downturn severity, generating differential selection into the linked sample - especially for older cohorts at prime marriage age around 1930. Such selection concerns are less pronounced for men.

interpretation, we use this variable to construct a binary indicator for being born in a high mobilization state. The latter is defined as belonging to the top 25% of most mobilized states.¹⁵ This binary variable is interacted with birth cohort fixed effects.

We consider three college completion margins defined as indicators for having completed at least one, two and four years of college (college graduation). Figure 5 presents the main estimates (and 5% confidence intervals) by gender, while Appendix Tables 4 and 5 report the actual estimates. The Great Depression is associated with modest increases in college attainment among men born after 1909, primarily at the one- and two-year margins. The effects for college graduation are overall insignificant. The estimates for women are noisier and more mixed. For cohorts born before 1914, there is some evidence of negative effects. For later cohorts, point estimates are smaller, less precisely estimated, and generally not statistically distinguishable from those of men. One exception is the completion of at least two years of college, where there is some evidence of a gender gap favoring men, primarily reflecting rising male attainment. Quantitatively, the estimates imply a modest increase in men's likelihood of completing at least two years of college by 6.3%, and an increase in the associated gender gap of roughly 34%.¹⁶

In Figure 6, we plot the coefficients from the main specification where the effects of the Great Depression are allowed to vary differentially based on exposure to WWII mobilization. WWII exposure is associated with stronger Depression-related schooling effects across both genders for outcomes related to the completion of at least one or two years of college. For men, the amplified gains extend to all cohorts born after 1909. For women, greater exposure to WWII is linked to declines in college attainment among some cohorts born before 1915, while effects for later cohorts are smaller

¹⁵ By accounting for several pre-Depression (and therefore pre-WWII) state covariates, we intend to account for factors that might also predict both mobilization rates and education. This makes the residual variation in mobilization more plausibly exogenous. Estimates of the Depression on college attendance are similar in specifications with and without controls for WWII mobilization (see Appendix Tables 4 and 5).

¹⁶ This calculation is done as follows: 0.023 (average effect across cohorts of men born between 1909 and 1920) $\times 0.441$ (average change in the business failure rate between 1929 and 1932, see Table 1) $/ 0.160$ (share of white men from 1909-1920 cohorts who have completed at least 2 years of college). For women, the average respective estimate is -0.005 and average two-year college completion is 0.124 suggesting a gender gap of 0.036 .

and less precisely estimated. These patterns are consistent with the possibility that labor market participation, family formation and marriage bars during the 1930s and 1940s limited educational investment for some women (Bellou & Cardia, 2021; Jaworski, 2014; Goldin, 1991 and 2006; Rose, 2018).

Overall, these patterns are consistent with a modest widening of gender differences in one- and two-year college completion for cohorts born after 1909 in more intensively mobilized states. For men, the estimates imply that the likelihood of completing at least one and two years of college increases by approximately 9.4 and 10.6 per cent, respectively, while for women it decreases by about 7 and 5.4 per cent.¹⁷

What could explain the persistent effects of the Great Depression on male college attainment and their amplification through WWII? One interpretation is that the Depression may have led some individuals to enter the 1940s with higher levels of schooling – and especially a high school diploma – than they otherwise would have attained (see Section 4.1). Lower opportunity costs of education during a prolonged period of weak labor market conditions, together with the expansion of junior colleges, likely facilitated these gains (Hershbein and Stuart, 2024; Snyder, 1993). This additional schooling may have better positioned cohorts to take advantage of the educational benefits of the GI Bill, contributing to further increases in educational attainment (Bound & Turner, 2002; Stanley, 2003; Mettler, 2005; Altschuler and Blumin, 2009; Giorcelli, 2024).¹⁸ In this sense, WWII mobilization may have acted as an amplifying force, reinforcing Depression-related differences in schooling. The stronger effects observed for men are consistent with the fact that access to these benefits depended on

¹⁷ Formal tests suggest that the male vs female estimates for these two outcomes and for most of the cohorts born after 1909 are statistically different (see hollow circles in Figures 5 and 6). Calculations of the stated effects are analogous to those described in footnote 16 for cohorts born between 1910 and 1920. Average estimates for at least one year of college are 0.042 (men) and -0.026 (women) and for at least two years of college 0.039 (men) and -0.015 (women).

¹⁸ Based on our calculations from the 1960 5% Census, the WWII veteran share was 24% for cohorts born between 1906 and 1910, 37% for cohorts born between 1911 and 1915, and 64% for men born between 1916 and 1920. Bound and Turner (2002) report that about 50% of veterans born 1923–1928 used GI Bill benefits, while among men born 1915–1920, 27–40% leveraged the program to further their education. The referenced studies also highlight that older veterans used the GI Bill flexibly to balance work and family obligations, often opting for shorter, job-oriented programs, part-time enrollment, or night classes rather than full four-year degrees.

military service.

To provide additional context, we also examine whether Depression exposure is associated with wartime service. We find that men born after 1914 from more severely affected areas were more likely to serve in WWII, suggesting that the Depression may have influenced access to GI Bill benefits through differential military participation (Appendix Figure 7).¹⁹ Consistent with this, these men were less likely by 1940 to be married, have children, or work in agriculture—factors relevant for draft deferments (Appendix Figure 8).²⁰ While these patterns point to one potential pathway linking early-life conditions to wartime exposure, they do not fully account for the interaction effects, which persist after controlling for mobilization.

5. Conclusion

This paper examines the short- and long-run effects of the Great Depression in the United States on educational attainment by gender, focusing on cohorts born between 1906 and 1920. In the short run, the Depression is associated with small increases in high school completion and college attendance among younger cohorts, with similar patterns for men and women. Over the longer run, some divergence emerges. For men born after 1909, exposure to more severe economic conditions is associated with modest increases in college attainment at the one- and two-year margins, with little effect on four-year completion. For women, the estimates are smaller, less precise, and more heterogeneous, with some evidence of a modest gender gap at the two-year margin driven primarily by rising male attainment.

We further show that these patterns appear stronger in areas with greater WWII mobilization. For men, college attainment increases more in highly mobilized states, consistent with expanded access to

¹⁹ There was a sharp decline in unemployment rate and an increase in labor force participation (including military as part of the labor force) in the early 1940s (Fujita et al., 2024). Aizer et al. (2024) find that men participating in the CCC training program were more likely to serve in WWII. Collins and Zimran (2025) document lower pre-war employment rates and higher education levels for veterans vs nonveterans born between 1910 and 1921.

²⁰ The Army used the Army General Classification Test to classify recruits, determining whether a man would be rejected, retained, or accepted into specialized training programs. Literacy—reading and writing at a fourth-grade level—was a minimum requirement, and intelligence was defined as the ability to learn and perform military duties within a year. Men failing both criteria were rejected, though by spring 1943, literacy was no longer a disqualification, as the military developed training programs for these draftees as the war intensified (Collins & Zimran, 2025; Goldstein, 1915). Men with a high school degree or higher were more likely to be admitted to medical and technical training, often through accelerated college courses (Fry, 2015).

postwar educational opportunities such as the GI Bill. For women, the corresponding effects are limited and, for some cohorts, negative, though generally imprecisely estimated.

Taken together, the results point to modest but persistent associations between the Great Depression and educational attainment, which appear stronger in the presence of WWII mobilization. These findings are consistent with the view that early-life exposure to a large economic shock shaped educational trajectories in ways that likely influenced later responses to postwar opportunities, contributing to the gradual emergence of modest gender differences in college attainment in the mid-twentieth century.

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Tables and Figures

Figure 1: Years of schooling by birth cohort and gender

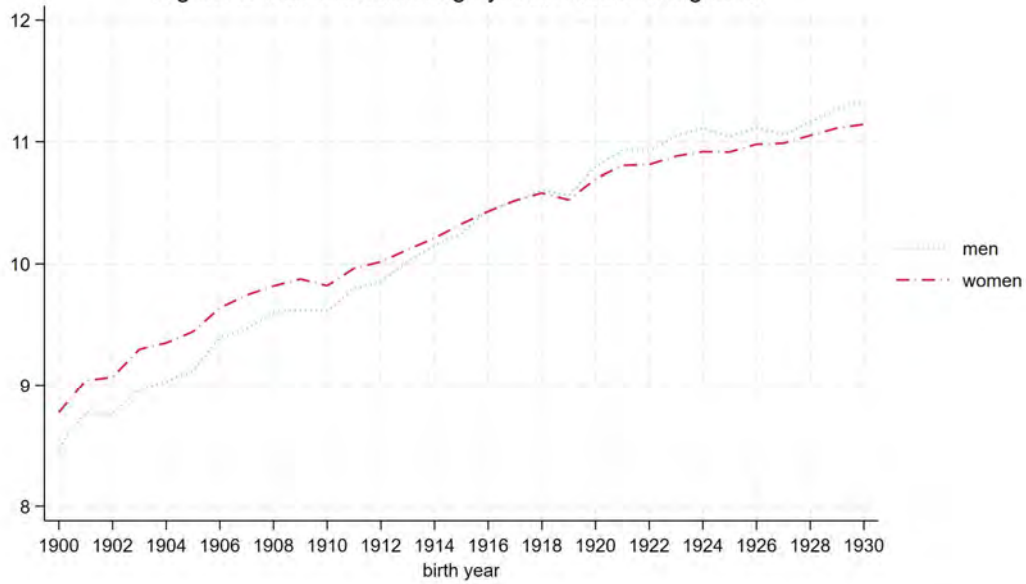


Figure 2: Share with at least one year of college by birth cohort and gender

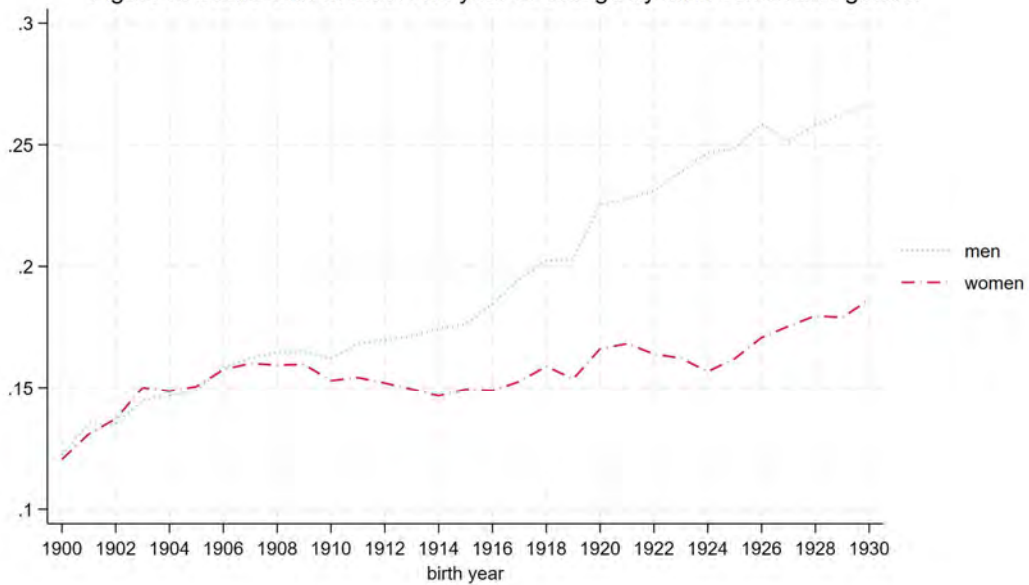


Figure 3: Share high school graduates by birth cohort and gender

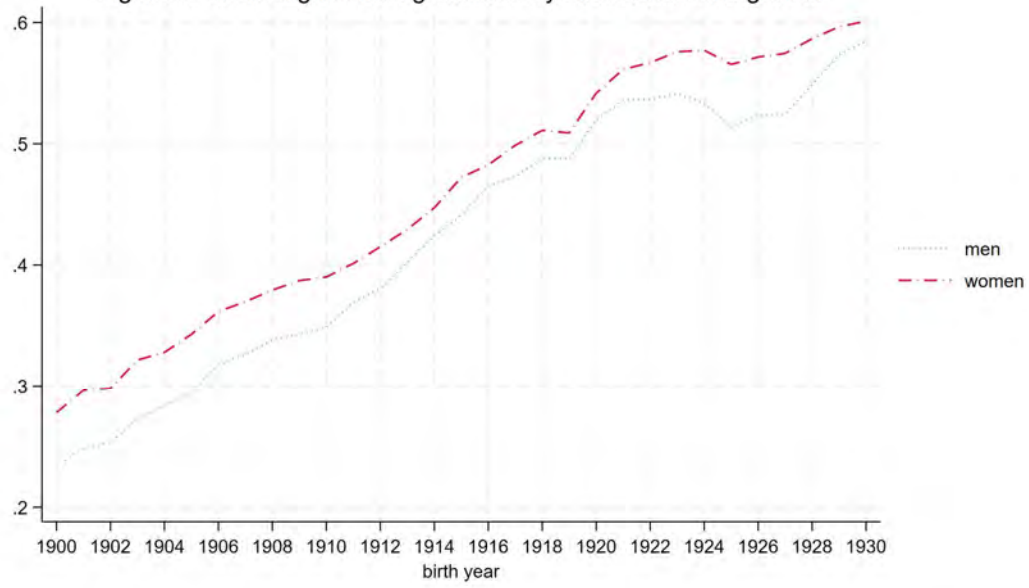


Figure 4: Impact of the Great Depression on education (1940)

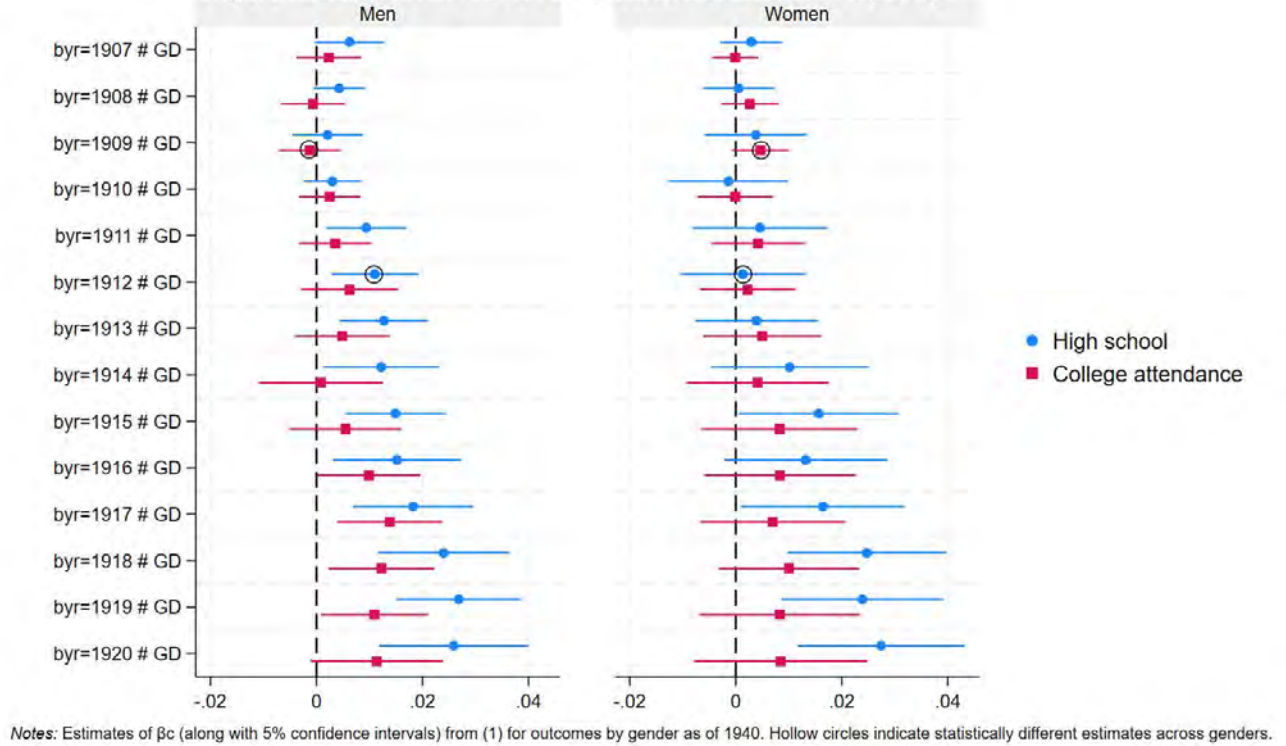


Figure 5: Great Depression and college attainment (1960)

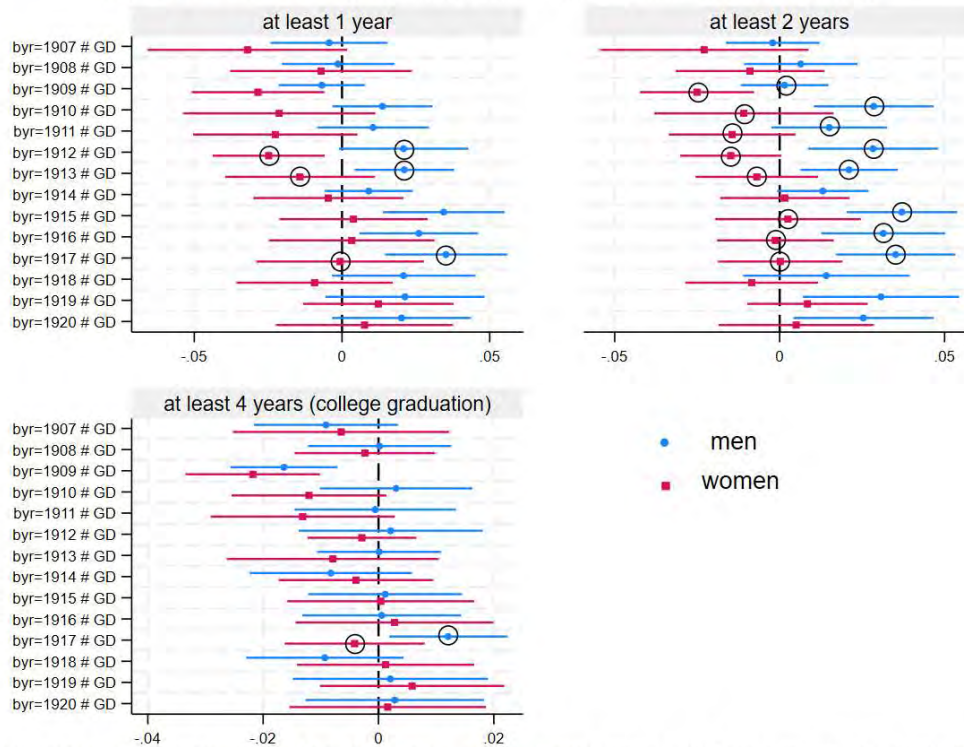
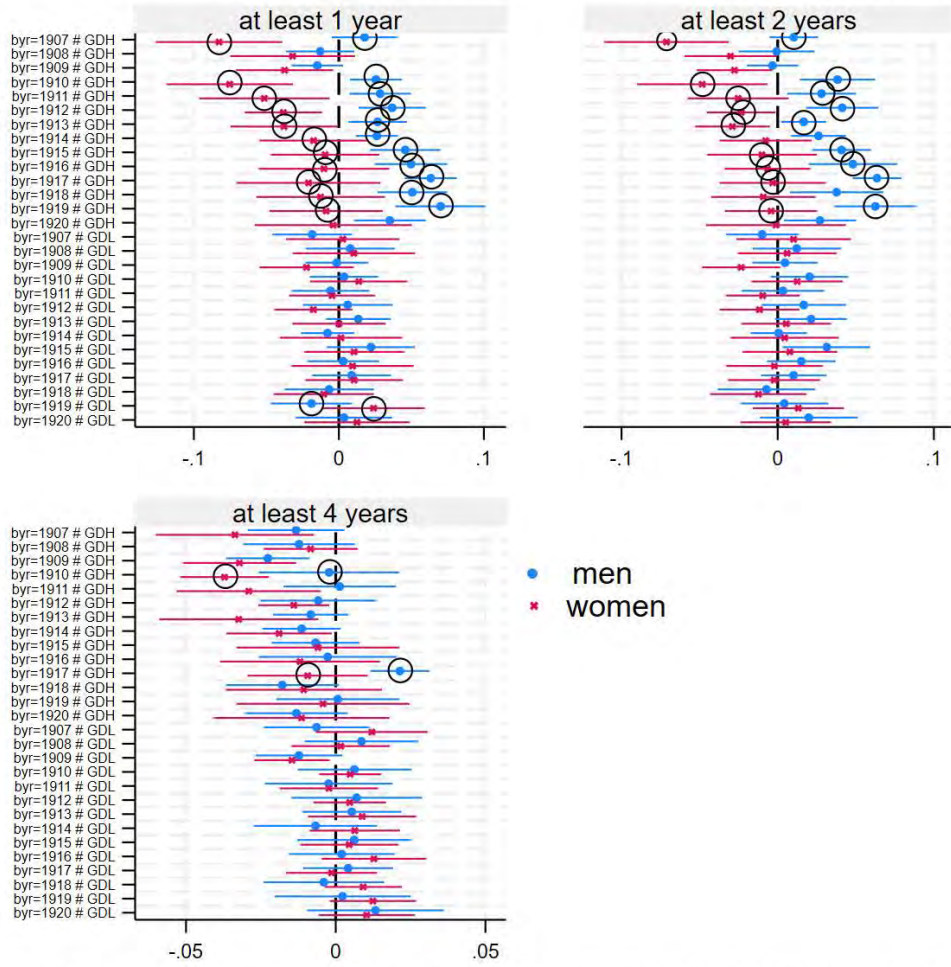


Figure 6: Great Depression, WWII and college attainment (1960)



Notes: Estimates of β from (1). Coefficients vary across states with WWII mobilisation above the 75th percentile vs below. Statistical differences across genders indicated by hollow circles.

Table 1: Great Depression severity - Summary Statistics
(change in the business failure rate 1932 vs 1929)

Mean	Std. dev.	Min	Max
<i>Nation wide</i>			
0.441	0.386	-0.324	1.437
<i>Northeast</i>			
0.66	0.427	0.15	1.437
<i>Midwest</i>			
0.32	0.165	0.132	0.64
<i>South</i>			
0.327	0.423	-0.324	1.078
<i>West</i>			
0.568	0.392	0.039	1.419

Note: Authors' calculations. Source: Statistical Abstracts of the United States.

Table 2: 1920 state characteristics, by Great Depression severity

Dep. Variable: 1920 state characteristic	Means (stand. dev.)	Relative to Low Severity	
		Medium Severity	High Severity
	(1)	(2)	(3)
share foreign born	0.163 (0.118)	0.006 (0.028)	0.022 (0.028)
share nonwhites	0.123 (0.161)	-0.093 (0.035)**	-0.041 (0.031)
employment share - manufacturing	0.205 (0.141)	0.044 (0.026)*	0.032 (0.024)
employment share - trade	0.110 (0.030)	-0.007 (0.009)	0.012 (0.010)
employment share - services	0.140 (0.032)	-0.016 (0.013)	-0.003 (0.010)
employment share - finance	0.182 (0.067)	-0.021 (0.017)	-0.035 (0.014)
employment share - utilities	0.091 (0.027)	0.007 (0.010)	0.008 (0.008)
share farms	0.332 (0.180)	-0.017 (0.055)	-0.043 (0.050)
change business failure rate (1922 vs 1920)	0.764 (0.376)	-0.234 (0.150)	-0.162 (0.147)
number of universities (1927)	21.86 (19.29)	0.638 (5.886)	11.366 (6.261)*
growth rate infant mort. 1917 vs 1918	0.016 (0.059)	-0.009 (0.015)	0.014 (0.018)
infant mortality rate (1917)	91.22 (22.37)	6.877 (4.813)	11.724 (6.248)*
growth rate per cap. education expend. (1920 vs 1927)	0.924 (0.634)	-0.138 (0.231)	-0.092 (0.08)
per cap. education expend. (1920)	68.278 (83.848)	14.349 (17.000)	35.511 (37.790)

Note: Coefficients from single regressions of each pre-Depression characteristic on medium- and high-severity indicators, controlling for division fixed effects. States are grouped into terciles of Great Depression severity using the baseline measure. ** and * indicate significance at 5% and 10% respectively.

Table 3: Great Depression severity & education in 1940 (County analysis)

<i>Dep. Variable:</i>	<u>Men</u>	
	<i>=1, if high school graduate</i>	<i>=1, if completed at least one year of college</i>
<i>GD*d(1907)</i>	0.001 (0.001)	-0.000 (0.001)
<i>GD*d(1908)</i>	-0.001 (0.001)	-0.001 (0.001)
<i>GD*d(1909)</i>	0.001 (0.001)	0.000 (0.001)
<i>GD*d(1910)</i>	-0.001 (0.001)	0.001 (0.001)
<i>GD*d(1911)</i>	0.000 (0.001)	0.001 (0.001)*
<i>GD*d(1912)</i>	0.000 (0.001)	0.001 (0.001)
<i>GD*d(1913)</i>	0.000 (0.001)	0.002 (0.001)**
<i>GD*d(1914)</i>	0.002 (0.001)*	0.002 (0.001)***
<i>GD*d(1915)</i>	0.004 (0.001)***	0.003 (0.001)***
<i>GD*d(1916)</i>	0.004 (0.001)***	0.003 (0.001)***
<i>GD*d(1917)</i>	0.003 (0.001)***	0.003 (0.001)***
<i>GD*d(1918)</i>	0.003 (0.001)***	0.004 (0.001)***
<i>GD*d(1919)</i>	0.005 (0.001)**	0.005 (0.001)***
<i>GD*d(1920)</i>	0.002 (0.001)**	0.003 (0.001)***
<i>Mean (sd) of GD</i>	<i>2.028 (1.355)</i>	
<i>N</i>	<i>8956849</i>	

Notes: Coefficients (standard errors) from regressions of indicated outcomes on the change in per capita retail sales between 1929 and 1933 in a county (*GD*) interacted with birth year fixed effects, county fixed effects, state of 1930 residence and state-by-birth cohort fixed effects. The 1910 county covariates include: share nonwhites, share foreign born, share farms, share employed in manufacturing, log-population. The sample includes white individuals born between 1906 and 1920, not in institutional group quarters. All county variables are matched based on the individual's county and state of residence in 1930. Standard errors are clustered by county. ***, **, * denote significance at 1%, 5%, and 10% significance levels respectively. The Census Tree Project is used to generate the 1930 - 1940 linked sample.

Appendix

Tables and Figures

Appendix Table 1: Average educational attainment by gender, cohort and census year

	Men				Women			
	High school	At least X years of college			High school	At least X years of college		
	(1940)	$X=1$ (1940)	$X=1$ (1960)	$X=2$ (1960)	(1940)	$X=1$ (1940)	$X=1$ (1960)	$X=2$ (1960)
<i>Birth cohorts:</i>								
1906	0.316	0.147	0.172	0.14	0.371	0.15	0.177	0.139
1907	0.328	0.151	0.177	0.145	0.381	0.151	0.178	0.140
1908	0.335	0.15	0.177	0.145	0.387	0.149	0.176	0.137
1909	0.351	0.156	0.177	0.147	0.402	0.153	0.176	0.137
1910	0.349	0.149	0.178	0.145	0.408	0.149	0.171	0.132
1911	0.359	0.148	0.179	0.145	0.411	0.142	0.168	0.129
1912	0.367	0.144	0.181	0.147	0.418	0.137	0.165	0.125
1913	0.383	0.144	0.181	0.147	0.434	0.136	0.159	0.121
1914	0.401	0.141	0.185	0.152	0.446	0.13	0.156	0.119
1915	0.42	0.14	0.185	0.149	0.46	0.126	0.159	0.119
1916	0.43	0.136	0.194	0.159	0.476	0.123	0.157	0.118
1917	0.439	0.138	0.205	0.17	0.485	0.121	0.161	0.120
1918	0.453	0.143	0.215	0.178	0.501	0.125	0.168	0.124
1919	0.455	0.142	0.216	0.178	0.511	0.127	0.163	0.119
1920	0.452	0.131	0.24	0.199	0.51	0.12	0.177	0.130

Notes: Variable means. Authors' calculations using the 1940 full count and 1960 5% IPUMS samples. The sample includes white individuals born in the US between 1906 and 1920 and not in institutional group quarters.

Appendix Table 2: Great Depression severity & education by gender (1940)

<i>Dep. Variable:</i>	Men		Women	
	=1, if high school graduate	=1, if at least one year of college	=1, if high school graduate	=1, if at least one year of college
<i>GD*d(1907)</i>	0.006 (0.003)*	0.002 (0.003)	0.003 (0.003)	-0.000 (0.002)
<i>GD*d(1908)</i>	0.004 (0.002)*	-0.001 (0.003)	0.001 (0.003)	0.003 (0.003)
<i>GD*d(1909)</i>	0.002 (0.003)	-0.001 (0.003)	0.004 (0.005)	0.005 (0.003)*
<i>GD*d(1910)</i>	0.003 (0.003)	0.003 (0.003)	-0.001 (0.006)	-0.000 (0.004)
<i>GD*d(1911)</i>	0.009 (0.004)**	0.004 (0.003)	0.005 (0.006)	0.004 (0.004)
<i>GD*d(1912)</i>	0.011 (0.004)**	0.006 (0.005)	0.001 (0.006)	0.002 (0.004)
<i>GD*d(1913)</i>	0.013 (0.004)**	0.005 (0.004)	0.004 (0.006)	0.005 (0.006)
<i>GD*d(1914)</i>	0.012 (0.005)**	0.001 (0.006)	0.010 (0.007)	0.004 (0.007)
<i>GD*d(1915)</i>	0.015 (0.005)**	0.005 (0.005)	0.016 (0.007)**	0.008 (0.007)
<i>GD*d(1916)</i>	0.015 (0.006)**	0.010 (0.005)**	0.013 (0.008)*	0.008 (0.007)
<i>GD*d(1917)</i>	0.018 (0.006)**	0.014 (0.005)**	0.016 (0.008)**	0.007 (0.007)
<i>GD*d(1918)</i>	0.024 (0.006)***	0.012 (0.005)**	0.025 (0.007)**	0.010 (0.007)
<i>GD*d(1919)</i>	0.027 (0.006)***	0.011 (0.005)**	0.024 (0.008)**	0.008 (0.008)
<i>GD*d(1920)</i>	0.026 (0.007)***	0.011 (0.006)*	0.027 (0.008)**	0.008 (0.008)
<i>N</i>	13070463		13499593	

Notes: Coefficients (standard errors) from regressions of indicated outcomes of a measure of Great Depression severity interacted with birth cohort fixed effects, state of birth fixed effects, division of birth-by-birth cohort fixed effects, a vector of pre-Depression state socioeconomic covariates, indicators for the presence of compulsory schooling laws when at age 14. Great Depression severity is measured by the change in the state business failure rate between 1929 and 1932. The sample includes white men and women, born in the US between 1906 and 1920 and not in institutional group quarters. The 1906 birth cohort is the reference group. The sample is drawn from the 1940 full count Census. Standard errors are clustered by birth state. ***, **, * denote significance at 1%, 5% and 10% levels respectively.

Appendix Table 3: Great Depression severity & education in 1940 (County analysis)

<i>Dep. Variable:</i>	<u>Women</u>	
	<i>=1, if high school graduate</i>	<i>=1, if completed at least one year of college</i>
<i>GD*d(1907)</i>	0.001 (0.001)	0.000 (0.001)
<i>GD*d(1908)</i>	-0.001 (0.001)	-0.001 (0.001)
<i>GD*d(1909)</i>	-0.003 (0.001)**	-0.003 (0.001)**
<i>GD*d(1910)</i>	-0.004 (0.001)***	-0.002 (0.001)**
<i>GD*d(1911)</i>	-0.005 (0.001)***	-0.002 (0.001)*
<i>GD*d(1912)</i>	-0.004 (0.001)**	-0.000 (0.001)
<i>GD*d(1913)</i>	-0.005 (0.001)***	0.000 (0.001)
<i>GD*d(1914)</i>	-0.001 (0.001)	0.001 (0.001)
<i>GD*d(1915)</i>	0.003 (0.001)**	0.003 (0.001)**
<i>GD*d(1916)</i>	0.001 (0.001)	0.003 (0.001)**
<i>GD*d(1917)</i>	0.004 (0.001)**	0.005 (0.001)***
<i>GD*d(1918)</i>	0.002 (0.001)*	0.005 (0.001)***
<i>GD*d(1919)</i>	0.004 (0.001)**	0.006 (0.001)***
<i>GD*d(1920)</i>	0.000 (0.001)	0.005 (0.001)***
<i>Mean (sd) of GD</i>	<i>2.028 (1.355)</i>	
<i>N</i>	<i>6545826</i>	

See notes of Table 3.

Appendix Table 4: Great Depression severity, WWII mobilisation & college education by gender

Dep. Variable:	Men			
	<i>=1, if respondent has completed at least X years of college</i>			
	<i>X=1</i>	<i>X=1</i>	<i>X=2</i>	<i>X=4</i>
<i>GD*d(1907)</i>	-0.009 (0.009)	-0.004 (0.010)	-0.002 (0.007)	-0.009 (0.006)
<i>GD*d(1908)</i>	-0.001 (0.009)	-0.001 (0.009)	0.006 (0.009)	0.000 (0.006)
<i>GD*d(1909)</i>	-0.008 (0.006)	-0.007 (0.007)	0.001 (0.007)	-0.016*** (0.005)
<i>GD*d(1910)</i>	0.010 (0.008)	0.014 (0.008)	0.029*** (0.009)	0.003 (0.007)
<i>GD*d(1911)</i>	0.006 (0.009)	0.010 (0.009)	0.015* (0.009)	-0.001 (0.007)
<i>GD*d(1912)</i>	0.011 (0.011)	0.021* (0.011)	0.028*** (0.010)	0.002 (0.008)
<i>GD*d(1913)</i>	0.017** (0.007)	0.021** (0.008)	0.021*** (0.007)	0.000 (0.005)
<i>GD*d(1914)</i>	0.007 (0.008)	0.009 (0.007)	0.013* (0.007)	-0.008 (0.007)
<i>GD*d(1915)</i>	0.035*** (0.010)	0.034*** (0.010)	0.037*** (0.008)	0.001 (0.007)
<i>GD*d(1916)</i>	0.018* (0.010)	0.026** (0.010)	0.031*** (0.009)	0.001 (0.007)
<i>GD*d(1917)</i>	0.029*** (0.010)	0.035*** (0.010)	0.035*** (0.009)	0.012** (0.005)
<i>GD*d(1918)</i>	0.015 (0.011)	0.021* (0.012)	0.014 (0.013)	-0.009 (0.007)
<i>GD*d(1919)</i>	0.020 (0.012)	0.021 (0.013)	0.031** (0.012)	0.002 (0.008)
<i>GD*d(1920)</i>	0.015 (0.011)	0.020* (0.012)	0.025** (0.011)	0.003 (0.008)
<i>N</i>	<i>641552</i>			
WWII mobilization	No	Yes	Yes	Yes
pre-Depression state covariates	Yes	Yes	Yes	Yes
division-by-birth year fixed effects	Yes	Yes	Yes	Yes
state of birth fixed effects	Yes	Yes	Yes	Yes

Notes: Coefficients (standard errors) from regressions of indicated outcome on a measure of Great Depression severity interacted with birth cohort fixed effects. Regressions also include indicators for the presence of compulsory schooling laws when at age 14. Great Depression severity is measured by the change in the state business failure rate between 1929 and 1932. The sample includes white individuals, born in the US between 1906 and 1920 and not in institutional group quarters. The 1906 birth cohort is the reference group. The sample is drawn from the 1960 5% Census. Standard errors are clustered by birth state. ***, **, * denote significance at 1%, 5% and 10% levels respectively.

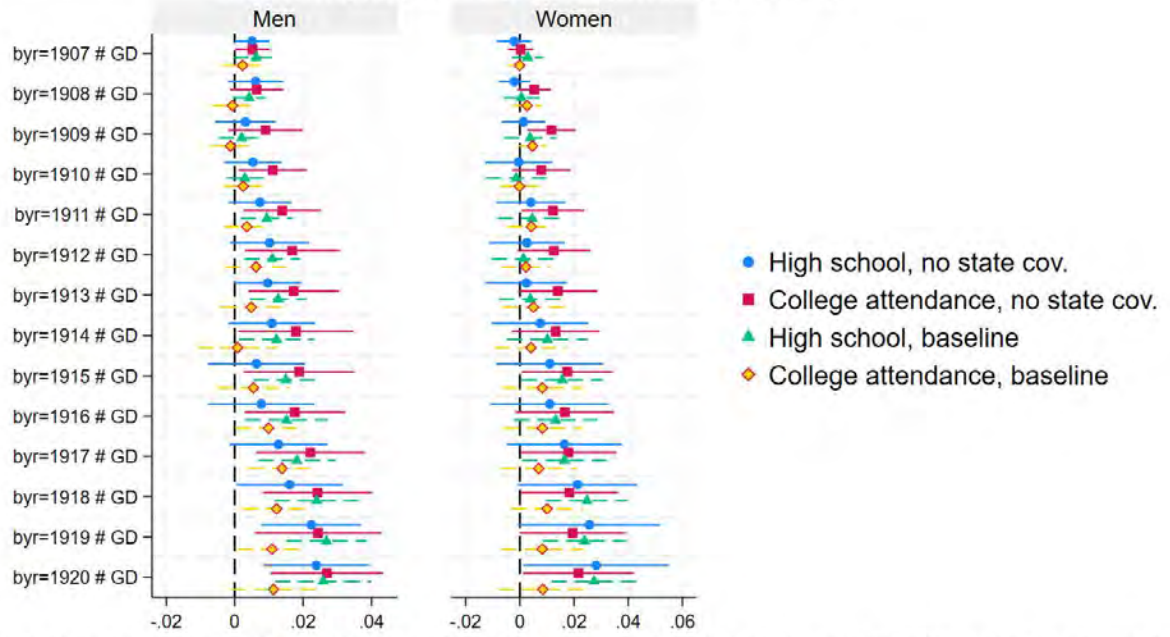
Appendix Table 5: Great Depression severity, WWII mobilisation & college education by gender

Dep. Variable:	Women			
	<i>=1, if respondent has completed at least X years of college</i>			
	<i>X=1</i>	<i>X=1</i>	<i>X=2</i>	<i>X=4</i>
<i>GD*d(1907)</i>	-0.034* (0.017)	-0.032* (0.017)	-0.023 (0.016)	-0.006 (0.009)
<i>GD*d(1908)</i>	-0.003 (0.013)	-0.007 (0.015)	-0.009 (0.011)	-0.002 (0.006)
<i>GD*d(1909)</i>	-0.027** (0.011)	-0.028** (0.011)	-0.025*** (0.009)	-0.022*** (0.006)
<i>GD*d(1910)</i>	-0.015 (0.016)	-0.021 (0.016)	-0.011 (0.014)	-0.012* (0.007)
<i>GD*d(1911)</i>	-0.021 (0.014)	-0.023 (0.014)	-0.014 (0.010)	-0.013 (0.008)
<i>GD*d(1912)</i>	-0.024*** (0.008)	-0.025** (0.009)	-0.015* (0.008)	-0.003 (0.005)
<i>GD*d(1913)</i>	-0.011 (0.012)	-0.014 (0.013)	-0.007 (0.009)	-0.008 (0.009)
<i>GD*d(1914)</i>	0.002 (0.013)	-0.005 (0.013)	0.002 (0.010)	-0.004 (0.007)
<i>GD*d(1915)</i>	0.008 (0.012)	0.004 (0.012)	0.003 (0.011)	0.000 (0.008)
<i>GD*d(1916)</i>	0.008 (0.014)	0.003 (0.014)	-0.001 (0.009)	0.003 (0.009)
<i>GD*d(1917)</i>	0.004 (0.014)	-0.001 (0.014)	0.000 (0.009)	-0.004 (0.006)
<i>GD*d(1918)</i>	-0.005 (0.013)	-0.009 (0.013)	-0.008 (0.010)	0.001 (0.008)
<i>GD*d(1919)</i>	0.015 (0.012)	0.012 (0.013)	0.008 (0.009)	0.006 (0.008)
<i>GD*d(1920)</i>	0.011 (0.014)	0.008 (0.015)	0.005 (0.012)	0.002 (0.008)
<i>N</i>	<i>670152</i>			
WWII mobilization	No	Yes	Yes	Yes
pre-Depression state covariates	Yes	Yes	Yes	Yes
division-by-birth year fixed effects	Yes	Yes	Yes	Yes
state of birth fixed effects	Yes	Yes	Yes	Yes

Notes: Coefficients (standard errors) from regressions of indicated outcome on a measure of Great Depression severity interacted with birth cohort fixed effects. Regressions also include indicators for the presence of compulsory schooling laws when at age 14. Great Depression severity is measured by the change in the state business failure rate between 1929 and 1932. The sample includes white individuals, born in the US between 1906 and 1920 and not in institutional group quarters. The 1906 birth cohort is the reference group. The sample is drawn from the 1960 5% Census. Standard errors are clustered by birth state. ***, **, * denote significance at 1%, 5% and 10% levels respectively.

Appendix Figure 1

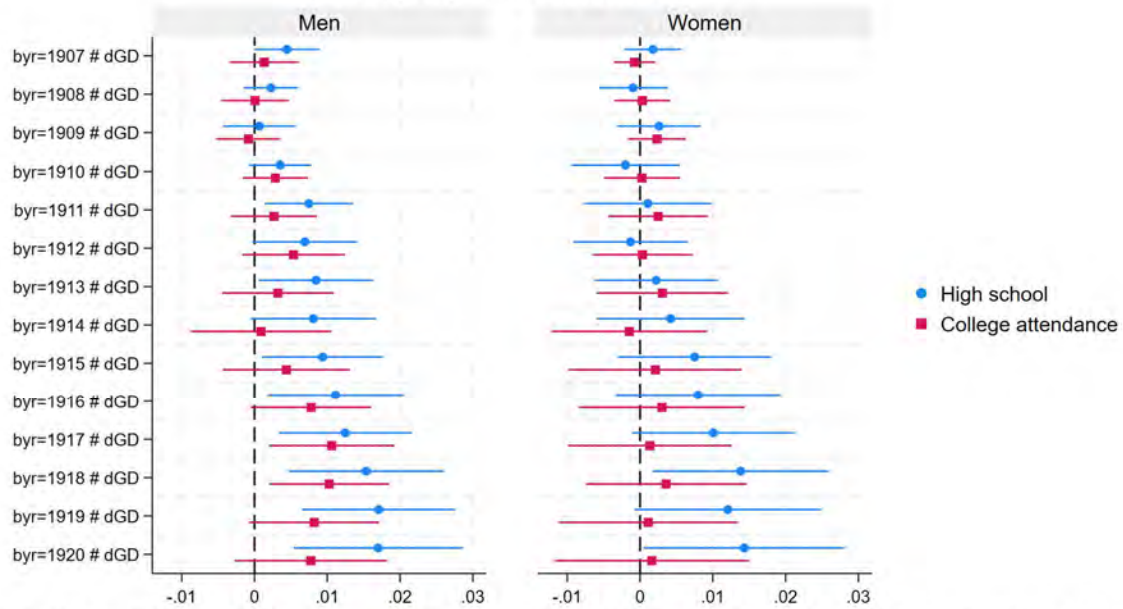
Robustness (1940): sensitivity to pre-Depression state covariates



Notes: The figure reports estimates of β_c from (1) along with 95% confidence intervals. Dependent variables are indicators for the education outcomes above.

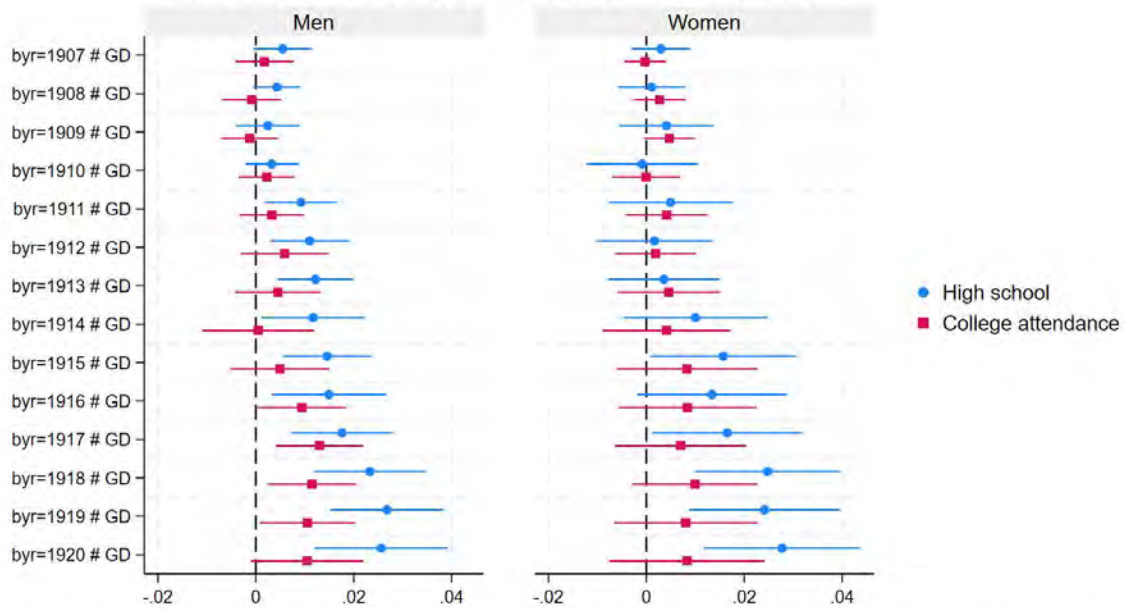
Appendix Figure 2

Robustness (1940): Indicator for GD severity



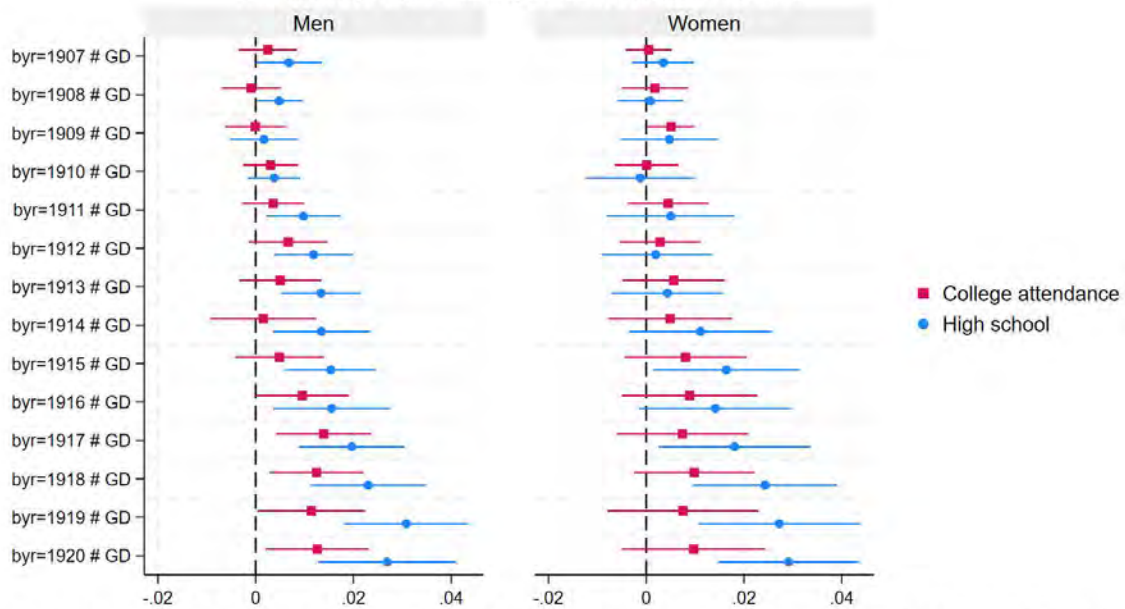
Notes: The figure reports estimates of β_c from (1) along with 95% confidence intervals. Dependent variables are indicators for the education outcomes above.

Appendix Figure 3
Robustness (1940): controlling for changes in farm failures 1932 vs 1929



Notes: The figure reports estimates of β_c from (1) along with 95% confidence intervals. Dependent variables are indicators for the education outcomes above.

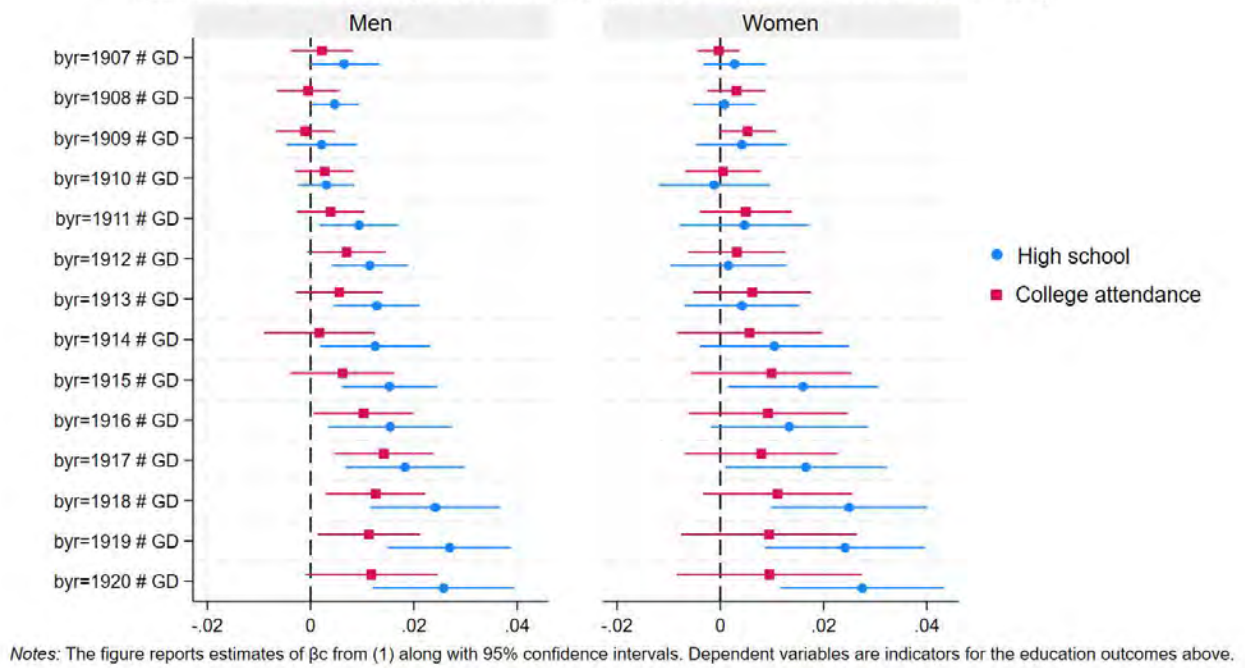
Appendix Figure 4
Robustness (1940): accounting for relative cohort size in 1930



Notes: The figure reports estimates of β_c from (1) along with 95% confidence intervals. Dependent variables are indicators for the education outcomes above.

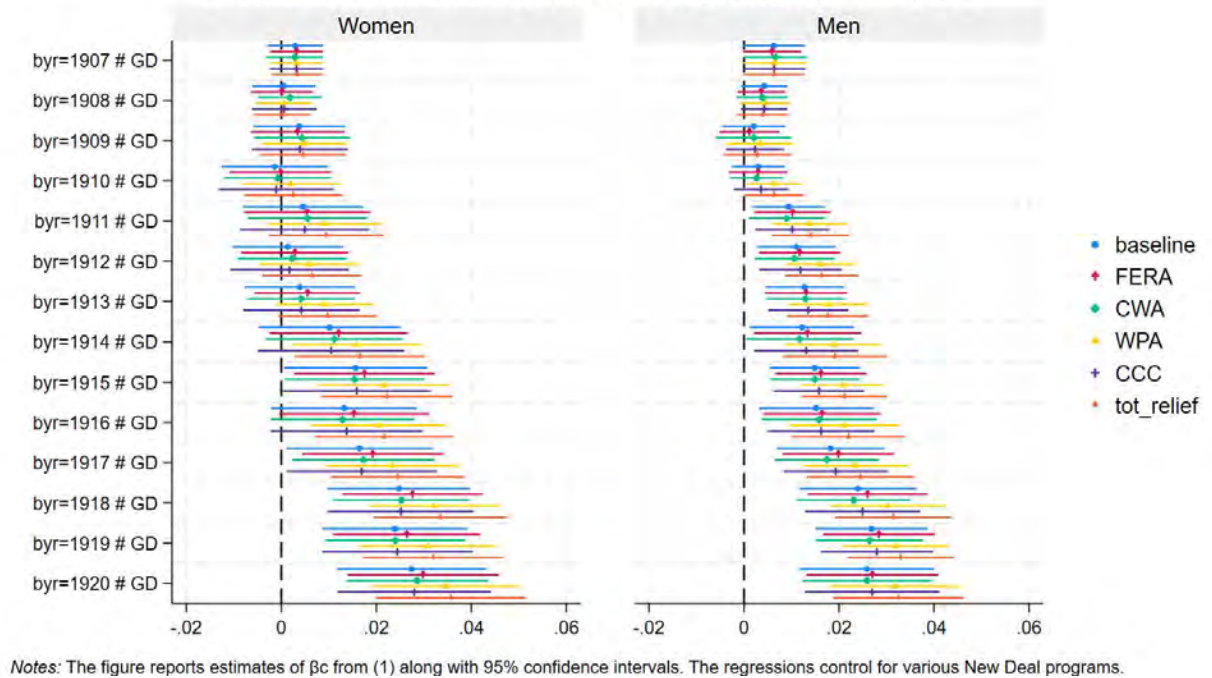
Appendix Figure 5

Robustness (1940): accounting for past conditions (change in business failure rate 1920 vs 1921)



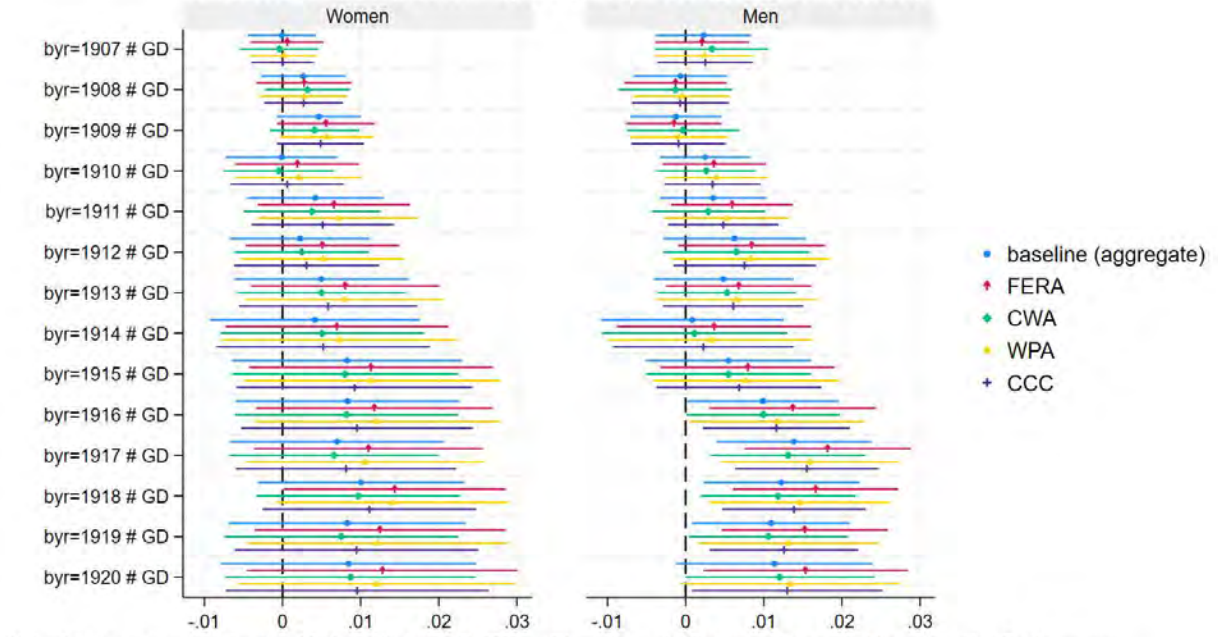
Appendix Figure 6

A. Robustness (1940): accounting for New Deal - High school completion (1940)



Appendix Figure 6

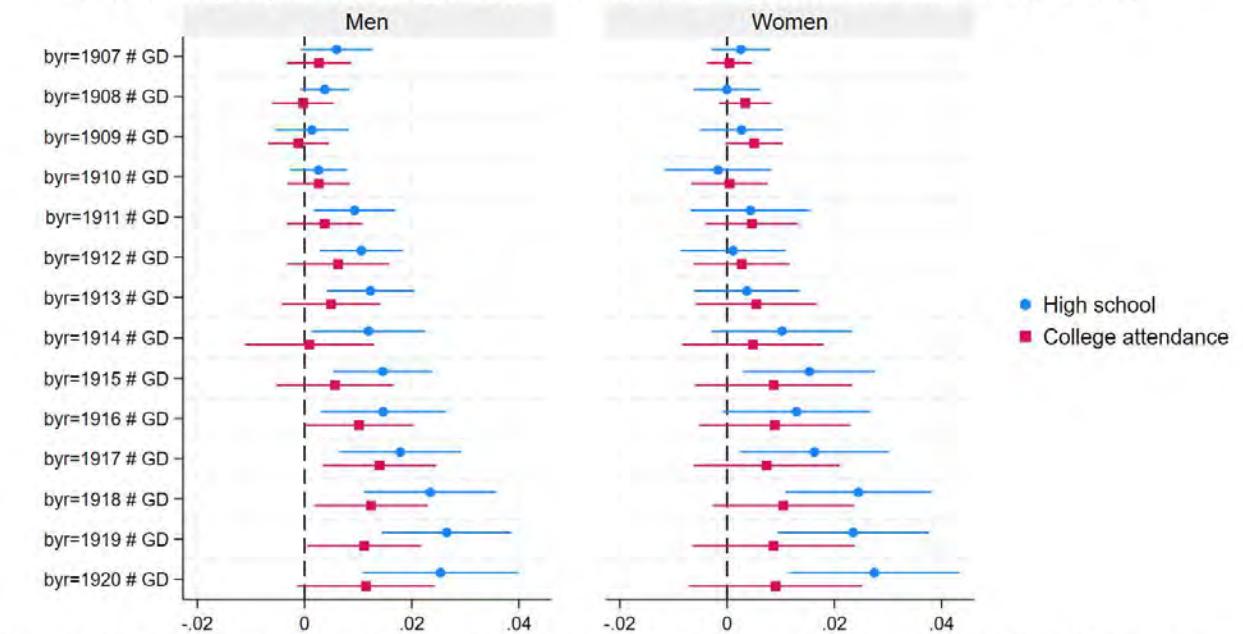
B. Robustness (1940): accounting for New Deal - College attendance (1940)



Notes: The figure reports estimates of β_c from (1) along with 95% confidence intervals. The regressions control for various New Deal programs.

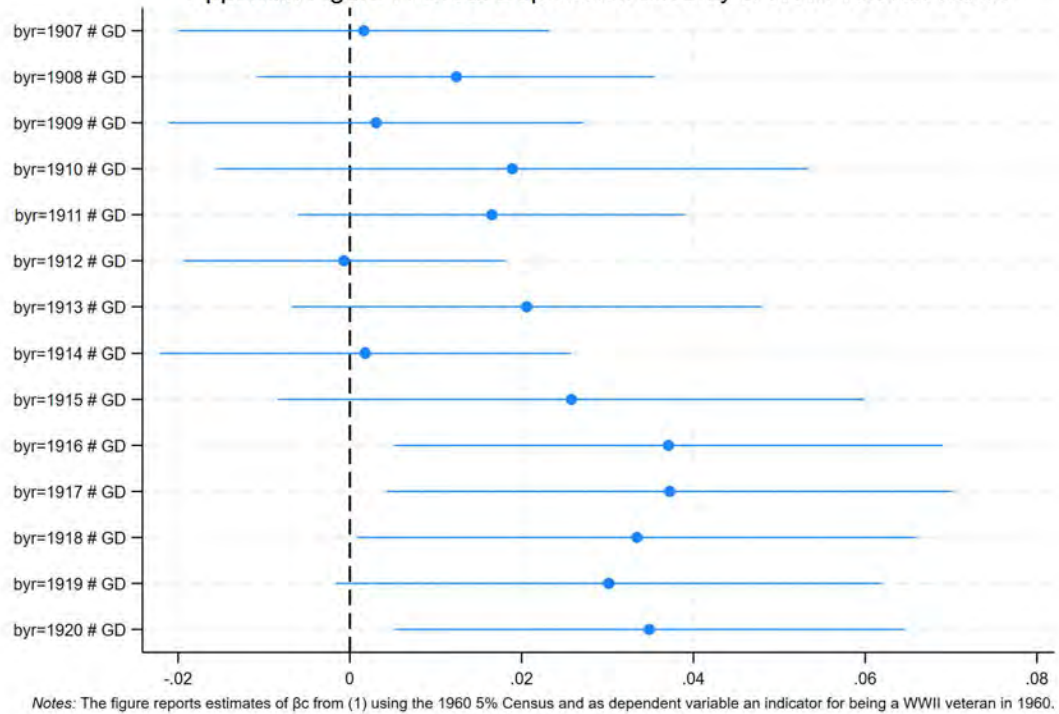
Appendix Figure 6

C. Robustness (1940): accounting for post-Depression conditions (change in business failure rate 1934 vs 1939)



Notes: The figure reports estimates of β_c from (1) along with 95% confidence intervals. Dependent variables are indicators for the education outcomes above.

Appendix Figure 7: Great Depression severity & WWII veteran status



Appendix Figure 8: Great Depression and men's outcomes in 1940

