The Structure and Persistence of Patriarchy

Spatial and Temporal Dynamics in the United States, 1880–1940

Mateusz Grzyb and Mikołaj Szołtysek

Cardinal Stefan Wyszyński University in Warsaw

Abstract

Historians have traced the decline of family patriarchy in the United States and linked it to the spread of wage labor (Ruggles) and to gender norms formed on the frontier (Bazzi and colleagues). Most of this work, however, treats patriarchy as a single dimension, usually gender inequality, or measures it with simple indicators. We treat patriarchy as inequality by both sex and age and measure it with the Patriarchy Index, computed from full-count census microdata for 1880, 1910 and 1940. As Ruggles's account suggests, the domination of the old over the young declined faster than the domination of husbands over wives. Yet older-generation domination was only weakly associated with the earlier share of men in agriculture. It was male domination that was tied to farming, and more closely than to the labor-force participation of married women; in the South, married women's work went with lower male domination only among Black families, and only before 1910. In line with earlier work, counties with a longer frontier history had more male domination twenty and fifty years after the frontier closed, but they also had less older-generation domination. Between 1880 and 1940 American patriarchy declined only slightly, mainly through the weakening of generational authority, and so changed its structure: its dimensions changed at different paces and had different correlates.

Keywords: patriarchy; family systems; historical demography; census microdata; frontier; United States

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1. Introduction

Between 1880 and 1940 the United States moved from a farm-based family economy to a wage economy (Ruggles 2015). The frontier closed (Turner 1893; Bazzi et al. 2020), mass immigration remade the industrial North (Hirschman and Mogford 2009), and fertility fell steeply (Hacker and Roberts 2019). Steven Ruggles reads this transition as the unravelling of patriarchy in stages: first the authority of parents over their adult children, later the authority of husbands over their wives (Ruggles 2015). Most quantitative work has asked how much patriarchy declined (Szołtysek et al. 2026a). We ask a different question: did its dimensions move together, or did American patriarchy change its make-up as well as its level?

1.1 Family-based patriarchy

The word patriarchy is often used as a synonym for gender inequality in general, so we should first say what we mean by it. We use the term in three restricted senses. First, we are concerned with the family, not with inequality in politics, law or the labor market. Second, family-based patriarchy is a property of a population, a group of people bounded in time and place, such as a county or a village, rather than of a single household. Third, it involves inequality by age as well as by sex. In Therborn's words, "patriarchy has two basic intrinsic dimensions. The rule of the father and the rule of the husband, in that order. In other words, patriarchy refers to generational and to conjugal family relations or, more clearly, to generational and to gender relations" (Therborn 2004: 13). Kaser and Halpern similarly describe patriarchy as "a value embedded in a social structure system which emphasizes both gender and age as the formation factors" (Kaser and Halpern 1997: 63), and Hunt defines it as a system of power imbalances between men and women and between some men and others (Hunt 2018: 3).

Not everyone accepts that patriarchy has two sides. In the tradition of Le Play (1866), the rule of the father is the heart of the matter. Walby, from the opposite direction, argues that "this inclusion of generation into the definition [of patriarchy] is confusing. It is a contingent element and best omitted" (Walby 1990: 20). We do not try to settle whether patriarchy is "really" about men over women or about the old over the young. Following Ruggles (2015) and Gruber and Szołtysek (2016), we treat it as a multidimensional phenomenon and measure its dimensions separately.

This matters because the dimensions need not go together. In historical Europe, where the Patriarchy Index was first developed, early marriage of women, husbands much older than their wives, extended households, patrilocal residence and son preference tended to occur in the same places, so that gender and generational inequality reinforced each other (Gruber and Szołtysek 2016; Szołtysek et al. 2017). The United States was different. Across American counties in 1880, male domination and older-generation domination were negatively correlated, and by 1910 the relationship had almost disappeared (Szołtysek et al. 2026a). Patriarchy in the United States declined at the turn of the century, but we do not know whether its dimensions declined at the same pace, in the same places, or in response to the same social and economic changes. There are good reasons to think that the gender axis and the generational axis followed separate paths.

1.2 Economic change and two phases of decline

Ruggles tells a story of patriarchal decline in two acts, each driven by a different economic change. He argues that "more than anything else, the changes in families reflect changes in work" (Ruggles 2015: 1799). In the farm economy of the early nineteenth century, a young man who wanted to marry and set up a farm usually had to stay on his father's land, under his father's authority, and wait to inherit it (Ruggles 2015: 1801–1802). "The growth of well-paying wage labor jobs for men undermined the economic underpinnings of patriarchal authority. As young men took jobs off the farm, they moved away from home and out of the control of the patriarch" (Ruggles 2015: 1803). The decline of paternal authority followed the decline of farm work with a lag: "A generation after agricultural employment began to decline, multigenerational coresidence followed suit" (Ruggles 2015: 1804; see also Ruggles 2003, 2007).

New jobs for young men did little for women (Ruggles 2015: 1804). As late as the 1950s, many married women could not obtain credit without a husband's signature (Coontz 1992, 2005; May 1990). The second act came with the growth of wage work for women. "The twentieth-century rise of wage labor for women undermined the authority of husbands and fathers. New economic opportunities enabled some women to delay or forgo marriage, and the availability of paid work also provided a means of escape from bad marriages" (Ruggles 2015: 1805). Before 1950 most women left paid work when they married, in part because of formal and informal marriage bars (Goldin 1991). After the Second World War the demand for female labor grew and the marriage

bars fell away (Oppenheimer 1970; Goldin 1990; Costa 2000; Cotter et al. 2001). The authority of husbands over wives weakened in turn (Ruggles 2015: 1806).

The result is a two-phase model. Generational authority declined first, as men left agriculture. Male authority declined later, as married women entered paid work. Ruggles tested this model mainly with national time series and with simple measures such as the share of the elderly living with adult children. Apart from his work on divorce and separation (Ruggles 1997) and a state-level analysis of coresidence in 1950–2000 (Ruggles 2007), the model has not been examined across places, and never at the county level before 1940. A national series cannot tell us whether counties where men left farming early also saw generational authority weaken early, or whether places where married women worked for wages had more equal marriages.

The model also leaves race aside. Ruggles's account rests largely on the experience of white families, and it may fit Black families less well. Black and white families differed in structure long before 1940. Between 1880 and 1960 Black children were two to three times as likely as white children to live without one or both parents, and in 1880 elderly Black people were less likely than elderly whites to live with relatives (Ruggles 1994; see also Morgan et al. 1993). Both differences bear on the domains we study: households headed by women lower the measured level of male domination, and elderly people living apart from their kin lower generational domination. Measured with the Patriarchy Index, Black populations were less patriarchal than white ones in both 1880 and 1910, and the gap narrowed as patriarchy declined faster among whites (Szołtysek et al. 2026a). The paid work of married women also differed by race. In Southern cities in 1870 and 1880, married Black women were almost six times as likely as married white women to be in the labor force, and differences in income, wealth and number of children do not explain the gap (Goldin 1977). Before 1950, much of the paid work of married women, which Ruggles places at the center of the second phase, was done by Black women in the South, where nearly 90 percent of the Black population still lived in 1910 (Collins 2021). For this reason, when we relate patriarchy to the labor market, we also examine Black and white families separately in Southern counties.

1.3 The legacy of the frontier

Ruggles explains change over time through the labor market. Bazzi, Brodeur, Fiszbein and Haddad (2023) offer a cultural explanation of differences across places. The frontier, in the sense first used by the Census Office and popularized by Turner (1893), was the thinly settled edge of American settlement, with fewer than two people per square mile. Frontier life combined a harsh environment and abundant land with a peculiar demography: many more men than women, high fertility, and isolation from markets, government and, often, extended kin. Under these conditions "the demands of childcare, compounded with isolation from extended family, markets, and social infrastructure, constrained female opportunities outside the home" (Bazzi et al. 2023: 1). Because the frontier moved west at uneven speed, some counties spent decades on it and others only a few years. Bazzi et al. show that counties with longer total frontier experience (TFE) developed stronger norms of female domesticity, which were passed down the generations. A century later these counties still had higher fertility, lower female labor-force participation and fewer women in public office.

Their analysis leaves two questions open for the history of the family. First, it concerns the public and economic side of gender inequality. High fertility and low female employment are not direct measures of power within the family, and a sharper test would use a measure of male domination built from family and household structure. Second, if patriarchy has a generational dimension, we do not know whether frontier history raised it too. There are reasons to expect the opposite. Frontier settlers were selected for individualism and self-reliance (Bazzi et al. 2020), and Bazzi et al. (2023: 12) themselves report that frontier counties had fewer extended-family households and fewer households with more than two generations. Neolocal residence on the frontier may have produced norms that weakened parental authority. If so, a long frontier history should go with more male domination but less older-generation domination.

1.4 Questions and approach

Taken together, these two literatures suggest that the gender and generational sides of American patriarchy may have changed at different times, for different reasons and in different places. Frontier history may have pushed the two domains apart across space, raising male authority while

weakening the authority of the old. Economic change may have eroded them one after the other: the decline of farm work first undermining paternal authority, the rise of married women's paid work later undermining the authority of husbands. If this reading is right, the decline of patriarchy was uneven, and each component had its own correlates. We examine three questions:

- **RQ1.** How did the level and the structure of family-based patriarchy in the United States change between 1880 and 1940?
- **RQ2.** How were the share of men in agriculture and the labor-force participation of married women associated with later levels of male and older-generation domination? (after Ruggles 2015)
- **RQ3.** How was frontier history associated with male and older-generation domination in 1910 and 1940? (after Bazzi et al. 2023)

We answer them with the Patriarchy Index (PI) of Gruber and Szołtysek (2016), a measure of family structure and behavior that is comparable across time and space, computed from the full-count censuses of 1880, 1910 and 1940 distributed by IPUMS (Ruggles et al. 2024, 2025). To describe the change in the level of patriarchy (RQ1), we follow all four domains of the index and show how much each contributed to its decline. For the analysis of structure, of where the domains changed and of their correlates, we focus on two of its four domains, male domination and older-generation domination. These are the two dimensions at the center of Ruggles's argument and of Therborn's definition. They are also the only two with enough variation in the United States to analyze: patrilocality and son preference were low everywhere between 1880 and 1940, and together they account for only 11 to 13 percent of the index. Our study is a first step from the level of patriarchy to its structure, and the two weaker domains can be taken up in future studies.

The rest of the paper proceeds as follows. Section 2 describes the data, the index and the covariates. It also sets out the empirical strategy. Section 3 presents the results for each research question, and closes with robustness checks. Section 4 discusses the findings, their limits, and ends with conclusions.

2. Data, measures and methods

2.1 Census data

We use the full-count United States censuses of 1880, 1910 and 1940 distributed by IPUMS (Ruggles et al. 2024, 2025). The 1880 census is the first American census to record both marital status and relationship to the household head, and the PI cannot be computed without them. It is also widely regarded as the first modern enumeration in coverage and accuracy (Ruggles and Menard 1990; Anderson 2015). We end in 1940. IPUMS released a full count of the 1950 census in 2024, but describes that release as preliminary; it still contains some duplicate records and is being corrected in successive versions (IPUMS 2026). The three census years are thirty years apart, roughly one generation, for three reasons. First, in Ruggles's account family change followed economic change with a lag of about a generation: multigenerational coresidence declined a generation after agricultural employment began to fall (Ruggles 2015: 1804). A thirty-year interval lets us relate the economy of one census to the family patterns of the next. Second, the population of the counties became more settled over the period. Western state and county boundaries stabilized soon after 1880, by 1910 county populations were less affected by frontier migration and immigrant communities were more firmly established (Bazzi et al. 2020; Szołtysek et al. 2026a), and by 1940 immigration had been restricted for sixteen years (Ruggles 2015). Third, the period brackets the end of the frontier and the first phase of Ruggles's transition. The 1880 census is the last taken while the frontier was still open, so 1910 and 1940 show family patterns twenty and fifty years after it closed. In 1940 the male-breadwinner family was at its peak, accounting for 57 percent of marriages, and the large-scale entry of married women into paid work had not yet begun (Ruggles 2015). As in earlier applications of the index, we consider only persons living in family households (Szołtysek et al. 2026a).

2.2 Harmonized counties

The unit of analysis is the county. Our county data come from three census years and from several other sources, including the measures of frontier history and the controls described in Sections 2.6 and 2.7. To bring them together we use the counties of 2010, the units for which Bazzi et al. (2020, 2023) report their frontier and geographic measures. For each historical county and census year

we first counted the numerators and denominators of all indicators and economic variables, then moved these counts to 2010 boundaries, and only then computed the indicators, the domains and the index. We move counts rather than shares because shares cannot be added up across the parts of a county (Ferrara et al. 2024: 8–9).

We use the population-based weights of the fourth model (M4) in Ferrara et al. (2024). Area-based weights assume that people are spread evenly over a county, so that a part covering a tenth of its area also holds a tenth of its population. The population-based weights instead give each part of a county its share of the county's estimated population, taken from historical population grids of 1 × 1 kilometer cells (Fang and Jawitz 2018). In M4 these grids divide each county into urban and rural areas, with urban population concentrated around city centers, exclude uninhabitable land such as water bodies and protected areas, and further adjust the population for topographic suitability measured by elevation. Population-based weights reproduce official figures more closely than area-based weights, by almost 20 percent on average (Ferrara et al. 2024). Because the parts of a historical county divided among several 2010 counties inherit nearly identical values, harmonization can also make standard errors too small (Section 2.8.4); we therefore repeat the main analyses on counties whose boundaries were at least 99 percent stable between 1880 and 1940 (Section 3.4).

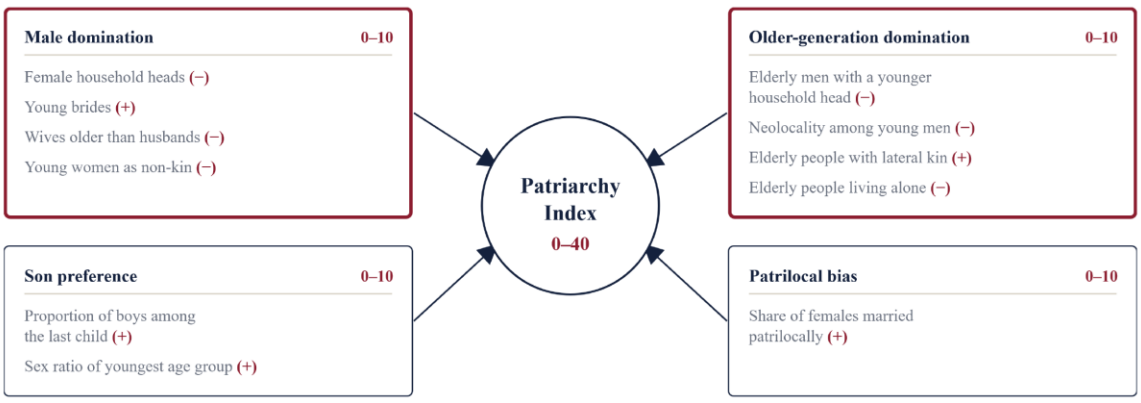
2.3 The Patriarchy Index and its domains

The Patriarchy Index was developed by Gruber and Szołtysek (2016) to compare family-based patriarchy across historical Europe. It has since been used across Europe (Szołtysek et al. 2017; Szołtysek and Poniat 2018, 2025), adapted for India and sub-Saharan Africa (Tandrayen-Ragoobur 2021; Singh et al. 2022), extended to Asia (Szołtysek et al. 2025, 2026b) and, most recently, applied to American counties in 1880 and 1910 (Szołtysek et al. 2026a). The index has four domains: male domination, older-generation domination, patrilocality and son preference. Together they comprise eleven indicators that can be computed from census microdata.

Census microdata contain no direct measures of power, but they record who lived with whom, in what relationship to the household head, at what age and in what marital status. Gruber and Szołtysek (2016) therefore translated the literature on family patriarchy into eleven imperatives of

patriarchal family organization that leave traces in such data: women do not head households; they marry early; they are younger than their husbands; they stay with their own families until marriage; young men do not become household heads while their seniors are alive; sons of living fathers do not set up independent households; some relatives remain in the family household for good; the elderly are not left to care for themselves; brides move into the household of the husband or his parents; parents prefer to raise sons; and girls receive less care than boys. Each imperative is captured by one indicator (Figure 1). Male domination is measured by the share of women among household heads aged 20 and over, the share of women aged 15–19 who have ever married, the share of couples in which the wife is older than the husband, and the share of women aged 20–34 living as non-kin of the household head. Older-generation domination is measured by the share of men aged 65 and over living in a household headed by a younger male relative, the share of ever-married men aged 20–29 heading a household with no relatives other than their wife and children, and the shares of persons aged 65 and over living with lateral kin and living without relatives. Patrilocality is measured by the share of ever-married women aged 15–30 living with an adult male relative of the husband or with his mother. Son preference is measured by the share of boys among last-born children aged 10–14, which rises where parents who have had a daughter try again for a son, and by the sex ratio at ages 0–4, which rises where girls die more often than boys or go unrecorded (Gruber and Szołtysek 2016).

Figure 1. Structure of the Patriarchy Index.



Source: adapted from Gruber and Szołtysek (2016).

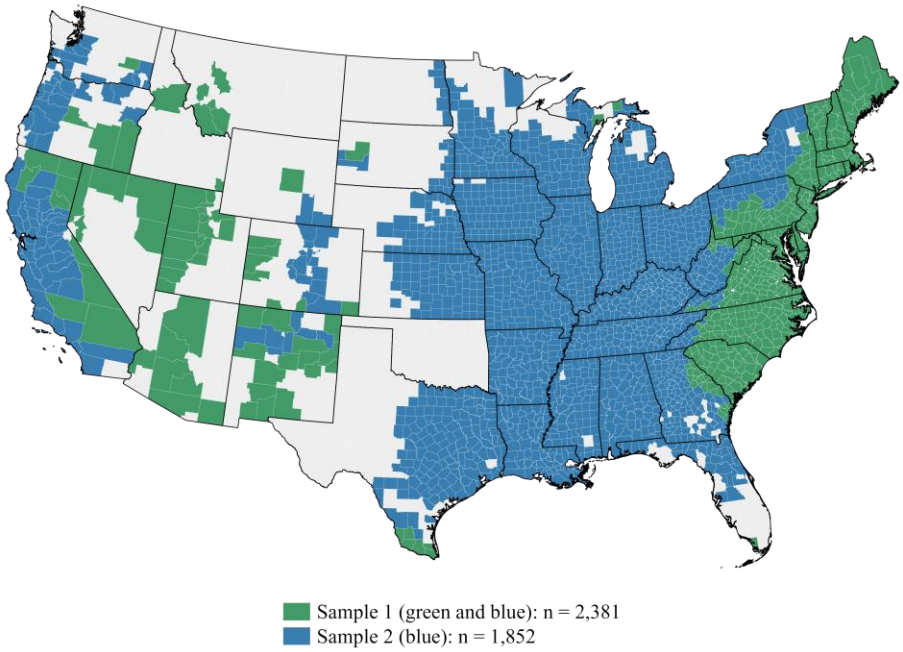
The PI is the sum of the four domains and runs from 0 to 40. The domains receive equal weight because each captures a different and non-interchangeable side of patriarchy (Gruber and Szołtysek 2016). The indicators on female heads, older wives, women living as non-kin and neolocal men are standardized by age to a common stable population, so that differences in age structure produced by migration or mortality do not mechanically raise or lower the scores. Following Szołtysek et al. (2026a), we use a standard suited to the faster-growing and longer-lived American population (Model West, mortality level 10, growth rate 10 per 1,000).

We compute the domain scores for each harmonized county in each census year. Our dependent variables are the scores for male domination and older-generation domination. We focus on these two domains for both theoretical and empirical reasons. They correspond to Therborn's rule of the husband and rule of the father, and to the two phases of Ruggles's argument. They are also the only domains with substantial variation in the United States. In our sample, patrilocality averaged 1.0–1.3 points and son preference 0.3–0.5 points on the 0–10 scale, while male domination averaged about 6 and older-generation domination about 5 (Table 1). Patrilocal co-residence and sex-selective practices were rare in the United States, so these domains contribute little to differences between counties (Szołtysek et al. 2026a). We report them in the descriptive analysis to show the full index, but we do not model them. For the analyses by race, we compute the domain scores separately for Black and white families in Southern counties. Following Szołtysek et al. (2026a), we assign each household to a group by the race of its head and compute the indicators from all members of that household. Households headed by persons of other races are left out of these analyses. We use the same age standard for both groups.

2.4 Analytic samples

Earlier applications of the index required each regional population to have at least 2,000 inhabitants, so that the indicators rest on enough cases (Szołtysek et al. 2017, 2026a). We apply the same minimum and keep counties with more than 2,000 inhabitants in each of the three censuses. After harmonization and listwise deletion of cases with missing covariates, Sample 1 contains 2,381 counties. Because the threshold drops many small counties, we also repeat the main models without it (2,859 counties for the economic models and 2,111 for the frontier models; Section 3.4). We use it for the descriptive analysis and for RQ2.

Figure 2. Analytic samples



For RQ3 we restrict Sample 1 to the counties for which Bazzi et al. (2023) measure frontier experience, those lying between the frontier lines of 1790 and 1890, together with the Pacific coast counties that their sample also covers (77 counties in our data); we also drop nine counties without a year of frontier entry. This leaves 1,852 counties (Sample 2). The excluded counties are mainly on the Atlantic seaboard, settled before 1790, and in the interior West, beyond the 1890 line. Figure 2 maps both samples. Without the Pacific coast counties the frontier estimates are practically unchanged (Appendix Table A21).

For the analyses by race, we apply the same minimum to each group and keep the Southern counties of Sample 1 that had at least 2,000 Black and 2,000 white inhabitants in each of the three censuses (N = 583). These are mainly counties with large Black populations in the plantation regions of the Deep South. Counties with small Black populations, such as those in Appalachia, drop out, so the estimates for white families describe white families in biracial counties rather than the white South as a whole.

2.5 Economic variables

For RQ2 we construct two economic measures from the same censuses, harmonized to 2010 counties as counts in the same way as the indicators. Agriculture is the share of men aged 18–64 whose occupation is in agriculture, based on the IPUMS harmonized occupation variable OCC1950. Married women's labor-force participation (married FLFP) is the share of married women aged 15–65 living with their husbands who are in the labor force according to the IPUMS variable LABFORCE. In the main models the economic measures enter only as predictors measured thirty years before the outcome, so we use them for 1880 and 1910 only. For these years the census did not ask about labor-force status in a reference week. IPUMS classifies a person as in the labor force if the census recorded a gainful occupation for him or her, so LABFORCE follows the older gainful-worker concept. This concept undercounts the work of married women on farms, in boarding and in family businesses (Goldin 1990). Because the definition is the same in 1880 and 1910, the undercount matters for our comparisons mainly if it varied across counties (Section 4.3). In the analyses by race, both measures are computed separately for each group, from each person's own race: the share of Black or white men in agriculture and the labor-force participation of Black or white married women.

2.6 Frontier history

For RQ3 we use the frontier measures of Bazzi et al. (2020, 2023). They trace the frontier line every year from 1790 to 1890 as the contour that separates counties with more than two people per square mile from more sparsely settled land. A county is on the frontier in a given year if it lies within 100 kilometers of that line and has fewer than six people per square mile, the density at which the 1890 census report placed the beginning of settled conditions (Bazzi et al. 2023: 9–10). The two-person threshold thus locates the line; the six-person threshold decides which counties near it still count as frontier. Total frontier experience (TFE) is the number of years a county spent on the frontier between 1790 and 1890. We report its effects per ten years. We also use the year in which the frontier line first came within reach of the county (year of frontier entry), which separates the duration of frontier life from the date of settlement.

2.7 Controls

All models include the geographic and agro-climatic controls used by Bazzi et al. (2020, 2023): latitude and longitude of the county centroid, mean annual temperature and rainfall, mean elevation, distances from the centroid to the nearest coast, river and lake, and average potential agricultural yield. Temperature, rainfall, elevation and yield come from the FAO Global Agro-Ecological Zones project (IIASA/FAO 2012), and the yield measure averages attainable yields of 22 crops under rain-fed conditions and intermediate inputs. Locations and distances are computed from NHGIS county boundary files (Manson et al. 2019). The economic models add two further controls. The share of the population enslaved in 1860 captures the legacy of slavery in the South (Manson et al. 2019). An index of age heaping among men in the baseline year captures differences in numeracy and in the quality of age reporting, which could affect indicators built on age (A'Hearn, Baten and Crayen 2009). We use Spoorenberg's (2007) total modified Whipple index (Wtot), computed from the reported ages of men aged 23–62. It sums the deviations of the digit-specific modified Whipple indices (Noumbissi 1992) from 1 over all ten terminal digits. It is 0 when no digit is preferred or avoided and reaches 16 when every reported age ends in 0 or 5. Unlike the classic Whipple index, it reflects preference for and avoidance of every digit, not only 0 and 5. We leave these two variables out of the frontier models, which follow the baseline specification of Bazzi et al. (2023). Both could partly reflect the history of settlement itself.

2.8 Empirical strategy

2.8.1 Describing level and structure (RQ1)

We first describe the level of each domain and of the PI in 1880, 1910 and 1940. All means give each county equal weight, so large urban counties count no more than small rural ones. To see whether the domains changed in the same places, we compare their distributions across the four Census macro-regions (Northeast, Midwest, South and West) and classify each county by the direction of change in each domain between 1880 and 1940. A county's change counts as an increase or a decrease if it exceeds 0.25 points on the 0–10 scale and as little change otherwise. The threshold is arbitrary, and we show results for thresholds of 0.10 and 0.50 points in the appendix. We measure the cross-county association between the two domains in each year with

Pearson's correlation coefficient. Its 95 percent confidence interval comes from a bootstrap that resamples whole grid cells (999 replications, percentile method), because neighboring counties are not independent. Finally, we test whether the changes cluster in space with Moran's I, using queen contiguity, row-standardized weights and 9,999 permutations.

2.8.2 Economic structure (RQ2)

To examine Ruggles's argument we regress each domain on the economic measures of thirty years earlier, one generation before. For county c in state s, domain D and outcome year t (1910 or 1940), we estimate:

$$D_{cs,t} = \alpha + \beta_1 Agri_{cs,t-30} + \beta_2 MFLFP_{cs,t-30} + \rho D_{cs,t-30} + \delta_1 Slave_{cs,1860} + \delta_2 Whipple_{cs,t-30} + \mathbf{X}'_{cs}\gamma + \theta_s + \varepsilon_{cs,t}$$

Here Agri is the share of men in agriculture, MFLFP is married women's labor-force participation, X is the vector of geographic controls and θ are state fixed effects. This gives four models: older-generation domination in 1910 (M1) and 1940 (M2), and male domination in 1910 (M3) and 1940 (M4). The models include the level of the same domain thirty years earlier. Counties differed in many persistent ways that are hard to measure, and the earlier level absorbs much of that difference. The coefficients on the economic variables can therefore be read as associations with the later level among counties that started from the same point. State fixed effects restrict comparisons to counties within the same state and absorb state laws, such as married women's property acts, as well as state differences in census enumeration.

In the South, we also estimate the models separately for Black and white families, with domain scores computed as described in Section 2.3. These models use the economic measures of each group (Section 2.5) and leave out Wtot, which we did not compute by race.

2.8.3 Frontier history (RQ3)

For the frontier we extend the baseline specification of Bazzi et al. (2023), which includes total frontier experience, the geographic controls and state fixed effects, with the year of frontier entry:

$$D_{cs,t} = \alpha + \beta TFE_{cs} + \lambda Entry_{cs} + \mathbf{X}'_{cs}\gamma + \theta_s + \varepsilon_{cs,t}$$

where TFE is total frontier experience and Entry is the year of frontier entry. Again we estimate four models, for older-generation domination in 1910 (M5) and 1940 (M6) and male domination

in 1910 (M7) and 1940 (M8). Unlike the economic models, these do not include the earlier level of the domain. Frontier experience was over by 1890 and had already shaped family patterns in 1880, so the 1880 level is itself in part an outcome of frontier history; controlling for it would remove part of the association we want to measure. Models without the year of frontier entry, which reproduce the baseline specification of Bazzi et al. (2023), are reported in Appendix Tables A8 and A13.

2.8.4 Inference and interpretation

All models are estimated by ordinary least squares with counties weighted equally. Counties are not independent observations: neighbors share climate, markets, migration streams and enumerators. Following Bester, Conley and Hansen (2011) and Bazzi et al. (2023), we cluster standard errors on 60 × 60 mile grid cells, which gives 432 clusters in Sample 1 and 358 in Sample 2. Confidence intervals use the t distribution with G − 1 degrees of freedom, where G is the number of clusters. As diagnostics we report Moran's I for the residuals of each model and variance inflation factors (VIF) for the focal predictors. Harmonization adds a further source of dependence. When one historical county was later divided among several 2010 counties, the parts inherit similar values from the same source, which could make standard errors too small. We therefore repeat the main models on counties whose boundaries were at least 99 percent stable between 1880 and 1940 (Section 3.4).

To make the coefficients easy to read, we scale each predictor by a substantively meaningful amount: 10 percentage points for agriculture, 5 percentage points for married FLFP, ten years for TFE and ten years later for frontier entry. All coefficients are differences in domain points on the 0–10 scale. Where it helps comparison across domains, we also give standardized coefficients, the difference in standard deviations of the outcome associated with a one-standard-deviation difference in the predictor.

3. Results

3.1 The level and structure of patriarchy, 1880–1940

The average county became less patriarchal between 1880 and 1910 and changed little afterward (Table 1). The PI fell from 13.4 to 12.3 points and was 12.4 in 1940. On the 0–40 scale these are low values, though in a European comparison the United States was a middle case, less patriarchal than Eastern and Southeastern Europe but more patriarchal than Scandinavia and the British Isles (Szołtysek et al. 2026a).

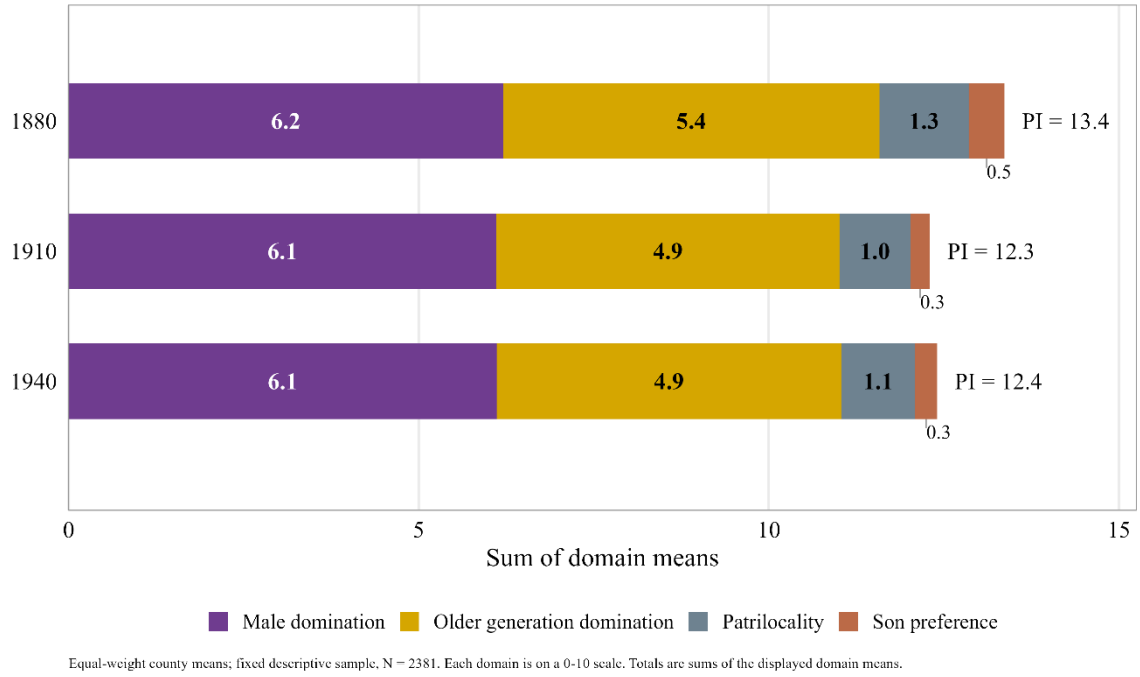
Table 1. Mean domain scores and Patriarchy Index, 1880–1940

Domain	1880	1910	1940
Male domination	6.2	6.1	6.1
Older-generation domination	5.4	4.9	4.9
Patrilocality	1.3	1.0	1.1
Son preference	0.5	0.3	0.3
Patriarchy Index (0–40)	13.4	12.3	12.4

Notes: Sample 1 (N = 2,381 counties). Equal-weight county means. Each domain is on a 0–10 scale; the PI is the sum of the four domains (0–40).

The fall of about one point (1.1 points by 1910 and 1.0 by 1940) was not spread evenly over the domains (Figure 3). Older-generation domination fell by about half a point, from 5.4 to 4.9; patrilocality and son preference together fell by about the same amount, from levels that were already close to zero. Male domination fell by only 0.1 point, from 6.2 to 6.1, and did not change at all between 1910 and 1940. As a result, male domination made up a larger share of the index at the end of the period than at the beginning, 49 percent in 1940 against 46 percent in 1880. Means weighted by county population, which give more weight to the larger counties, show the same pattern: older-generation domination fell more than male domination, and most of the change took place before 1910 (Appendix Table A16).

Figure 3. Mean domain scores, 1880–1940



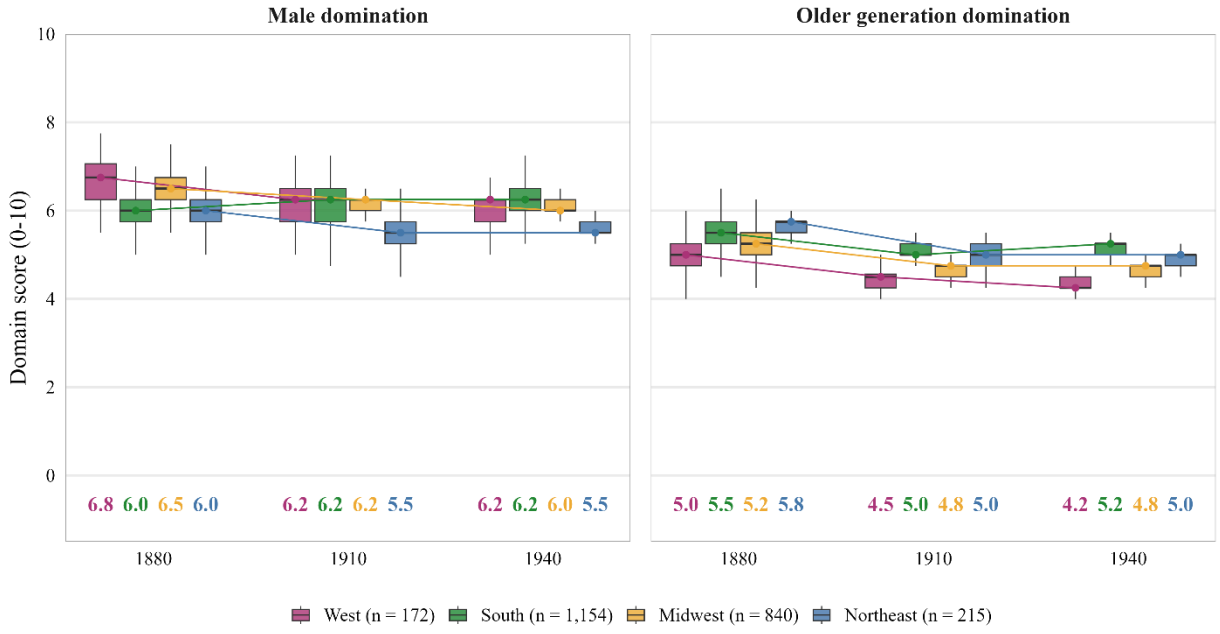
Notes: Equal-weight county means; Sample 1 (N = 2,381). Each domain is on a 0–10 scale. Totals are sums of the displayed domain means.

The small change in male domination hides changes in its indicators that ran in opposite directions (Appendix Figure A7). Between 1880 and 1910 fewer households were headed by women and fewer wives were older than their husbands, which raised male domination. At the same time fewer women married in their teens and more young women lived as non-kin in other people's households, which lowered it. The fall in older-generation domination came mostly from one change: more older people lived without relatives. The contribution of this indicator fell from 2.17 to 1.75 points between 1880 and 1940, almost as much as the domain as a whole (from 5.38 to 4.92).

Across the four macro-regions, the two domains followed different paths (Figure 4). Older-generation domination fell in every macro-region between 1880 and 1910. The median county score dropped from 5.8 to 5.0 in the Northeast, from 5.2 to 4.8 in the Midwest, from 5.5 to 5.0 in the South and from 5.0 to 4.5 in the West. After 1910 it continued to fall in the West, to 4.2, held steady in the Northeast and Midwest, and rose slightly in the South, to 5.2. Male domination did not move in the same way. In 1880 it was highest in the West (median 6.8) and the Midwest (6.5) and lowest in the South and Northeast (6.0). By 1910 it had fallen in the West, Midwest and

Northeast but risen in the South, where the median county rose by one step of the scale, from 6.00 to 6.25. In 1940 the South and the West had the highest median scores, 6.2, and the Northeast the lowest, 5.5. The decline of generational authority was a national process. The fate of male authority depended on the region, and in the South it rose slightly, mainly before 1910.

Figure 4. Male and older-generation domination by macro-region, 1880–1940

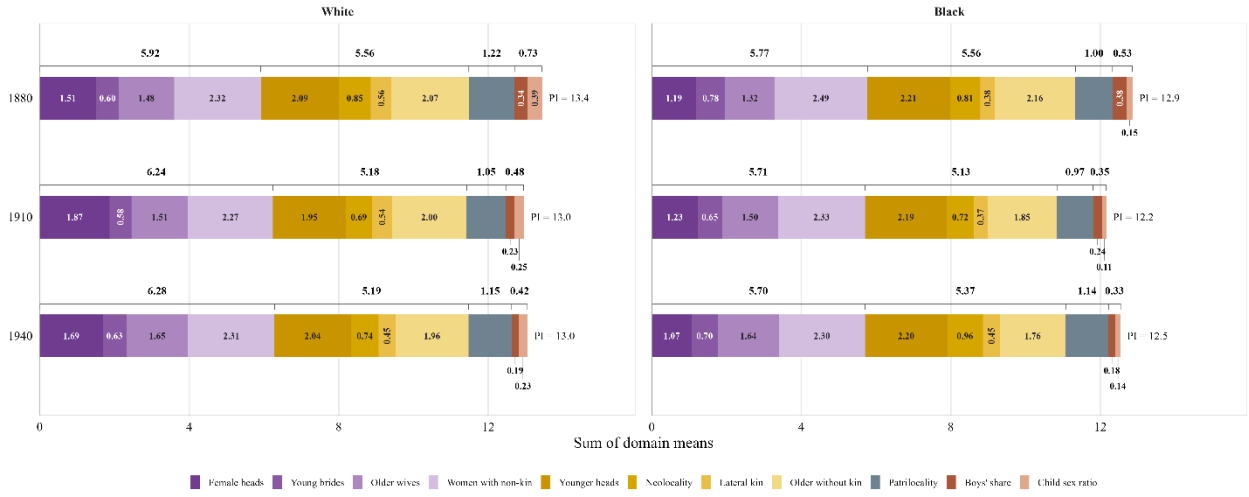


Notes: Boxes compare the four macro-regions within each year. Labels show the number of counties (n) and the median (M); lines connect each region's medians. Domain scores move in steps of 0.25; the medians in the labels are rounded to one decimal.

The rise in the South was not shared by all Southern families. Nearly 90 percent of the Black population still lived in the South in 1910 (Collins 2021), so we also compared white and Black families in Southern counties (Figure 5). In the 583 Southern counties with at least 2,000 white and 2,000 Black inhabitants in each census, male domination among white families rose from 5.92 in 1880 to 6.24 in 1910 and stayed at this level in 1940 (6.28), while among Black families it changed little (5.77, 5.71 and 5.70). Almost all of the rise among whites before 1910 came from fewer households headed by women: the contribution of this indicator rose from 1.51 to 1.87 points. By 1940 it had fallen back to 1.69, as more white women again headed households, but male domination did not decline, because fewer white wives were older than their husbands

(contribution from 1.51 in 1910 to 1.65 in 1940). Among Black families fewer wives were older than their husbands (contribution from 1.32 in 1880 to 1.64 in 1940), but fewer teenage brides, more young women living as non-kin and, by 1940, more households headed by women lowered male domination by about as much. Older-generation domination fell in both groups between 1880 and 1910, by 0.38 points among whites and 0.43 among Blacks, but in different ways. Among whites it fell mainly because more young married men headed households of their own and more older men lived in households headed by a younger relative; among Blacks it fell mostly because more older people lived without relatives (contribution from 2.16 to 1.85). After 1910 it did not change among whites (5.18 and 5.19), but it rose among Blacks, from 5.13 to 5.37, mainly because fewer young married men headed households of their own. This may reflect the doubling-up of families during the Depression or the departure of young Black adults to the North, but our data do not allow us to tell these explanations apart. As Szołtysek et al. (2026a) found, white families were more patriarchal than Black families in all three years (PI 13.4 against 12.9 in 1880, 13.0 against 12.2 in 1910 and 13.0 against 12.5 in 1940), and Black households were much more often headed by women[1].

Figure 5. Domain and indicator scores among white and Black families in the South, 1880–1940

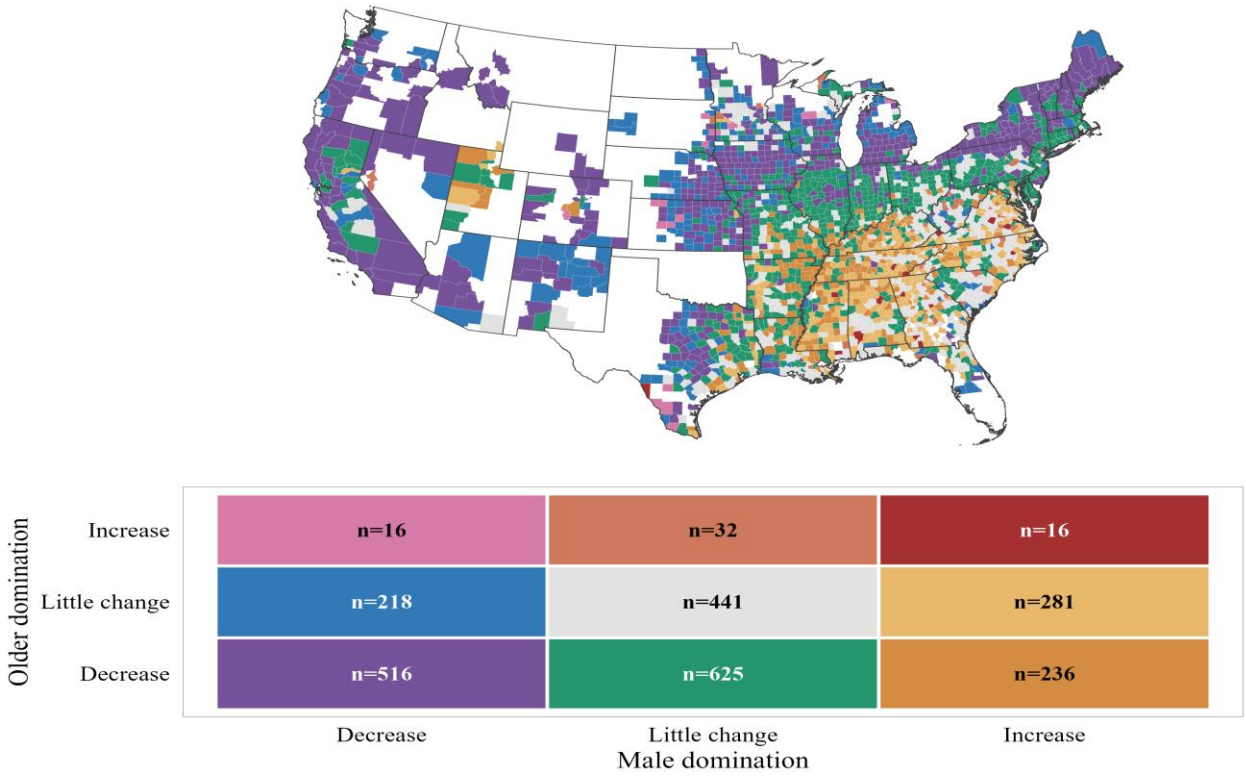


Notes: Same 583 Southern counties with at least 2,000 white and 2,000 Black inhabitants in each census. Households are assigned to a group by the race of the household head. Equal-weight county

[1] These differences describe household composition, which earlier work links to higher adult mortality, widowhood and economic hardship (Morgan et al. 1993; Ruggles 1994), and should not be read as evidence about the authority of women within Black families.

means; segment labels show the contribution of each indicator to its domain score, and the PI is the sum of the four domain means.

Figure 6. Joint changes in the two domains, 1880–1940



Notes: Little change: within ±0.25 points in each 0–10 domain; white counties lie outside the sample.

Across all counties of the sample, the two domains also changed in different ways (Figure 6). Between 1880 and 1940 older-generation domination fell by more than a quarter of a point in 1,377 counties (58 percent) and rose by that much in only 64 (3 percent). Male domination fell in 750 counties (31 percent), changed little in 1,098 (46 percent) and rose in 533 (22 percent). Only 516 counties, about one in five, saw both domains decline. The most common pattern, found in 625 counties, was a decline in generational authority with little change in male authority, and in a further 236 counties generational authority fell while male authority rose. Counties where male

domination rose were concentrated in the South, from Arkansas and Louisiana east to Virginia and the Carolinas. Counties where both domains fell were most common in the Northeast, the Plains and Great Lakes states, Texas and the Pacific states. The categories depend on where we draw the line between change and no change, but the asymmetry between the domains holds with thresholds of 0.10 and 0.50 points (Appendix Figures A4–A5).

The changes were strongly clustered in space. For the whole period, Moran's I is 0.650 for the change in male domination and 0.375 for the change in older-generation domination (both $p < 0.001$). Clustering was stronger in the first thirty years (0.560 and 0.220) than in the second (0.283 and 0.194). Changes in male domination thus came in large regional blocks, while changes in generational authority were more local. Similar values appear in counties with stable boundaries (Appendix Table A11), so the clustering is not an artifact of harmonization.

The relationship between the two domains also differed by region (Appendix Figure A9). In the Northeast and the West they were unrelated in all three years: the correlations were close to zero and not significant. In the Midwest the correlation was negative in 1880 (−0.39) and weakly positive afterward. Only in the South was it negative throughout, and it became stronger over time (−0.34 in 1940). There it came mostly from differences between states (Appendix Figure A10; Table A14) and mainly from white families (Appendix Figure A8). Changes in the two domains were also only weakly related: across counties, the correlation between the change in male domination and the change in older-generation domination between 1880 and 1940 was 0.18 (0.34 in counties with at least 100 men aged 65 and over), and it came almost entirely from differences between states (Appendix Table A22).

3.2 Economic structure and patriarchal domains

Table 2 and Figure 7 report the economic models. The share of men in agriculture thirty years earlier was more closely related to male domination than to older-generation domination. Among counties in the same state with the same 1880 level of male domination, ten percentage points more men in farming in 1880 went with 0.078 more points of male domination in 1910 (95 percent CI 0.067 to 0.088). The estimate for 1940, using agriculture in 1910, was 0.061 (0.053 to 0.069). In standardized terms, a one-standard-deviation difference in agriculture went with about a third

of a standard deviation of male domination in both years (β = 0.34 and 0.31). For older-generation domination the association was weaker and less consistent. Ten more points of agriculture in 1880 went with 0.018 more points in 1910 (0.009 to 0.027; β = 0.10). The estimate for agriculture in 1910 and older-generation domination in 1940 was small and its confidence interval included zero (0.005; −0.002 to 0.011).

This pattern differs from what Ruggles's argument would lead us to expect. In his account, the departure of men from agriculture undermined the authority of fathers over sons; it did little for wives. Across American counties, farming was linked to both domains in 1910, but its association with generational authority was smaller and less consistent, while its association with male authority was larger and held in both years.

Table 2. Economic structure thirty years earlier and later domain scores

	M1 Older 1910	M2 Older 1940	M3 Male 1910	M4 Male 1940
Agriculture 1880 (+10 pp)	0.018*** [0.009, 0.027]	–	0.078*** [0.067, 0.088]	–
Agriculture 1910 (+10 pp)	–	0.005 [−0.002, 0.011]	–	0.061*** [0.053, 0.069]
Married FLFP 1880 (+5 pp)	−0.020*** [−0.028, −0.011]	–	−0.031*** [−0.041, −0.021]	–
Married FLFP 1910 (+5 pp)	–	−0.007 [−0.015, 0.000]	–	−0.010* [−0.018, −0.001]
Same domain 1880 (+1 point)	0.116*** [0.076, 0.155]	–	0.405*** [0.366, 0.445]	–
Same domain 1910 (+1 point)	–	0.177*** [0.134, 0.220]	–	0.413*** [0.375, 0.450]
Controls	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes

	M1 Older 1910	M2 Older 1940	M3 Male 1910	M4 Male 1940
Counties (grid clusters)	2,381 (432)	2,381 (432)	2,381 (432)	2,381 (432)
Adjusted R^2	0.473	0.693	0.633	0.672
Residual Moran's I	0.062	0.088	0.095	0.096
Maximum VIF, focal predictors	2.44	3.72	2.44	3.84

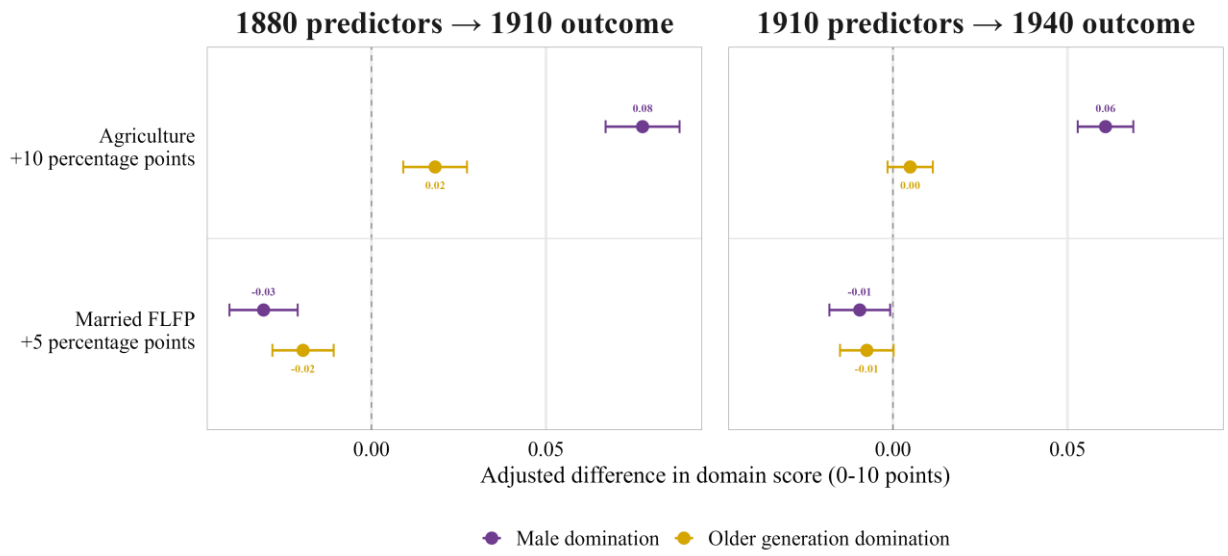
Notes: OLS estimates; coefficients in domain points (0–10); 95 percent grid-clustered confidence intervals in brackets. Controls: latitude, longitude, mean annual temperature, mean annual rainfall, mean elevation, distance to the coast, to the nearest river and to the nearest lake, average potential agricultural yield, share of the population enslaved in 1860, and Spoorenberg's total modified Whipple index (Wtot) for men in the baseline year. * $p < .05$; ** $p < .01$; *** $p < .001$. All residual Moran's I values have $p < 0.001$ (classical test).

Married women's labor-force participation was negatively associated with both domains; Ruggles's second phase implies such an association for male domination. Five more percentage points of married women in the labor force in 1880 went with 0.031 fewer points of male domination (−0.041 to −0.021) and 0.020 fewer points of older-generation domination (−0.028 to −0.011) in 1910. The estimates for 1940 were smaller: −0.010 for male domination (−0.018 to −0.001) and −0.007 for older-generation domination (−0.015 to 0.000). However, married women's work was poorly recorded in 1880 and 1910, and because the undercount probably differed by region and race, the direction of any resulting bias is unclear (Section 4.3). In the South, the association with male domination was confined to Black families, as we show at the end of this section.

These estimates should not be read as causal. Measuring the economic predictors thirty years before the outcome, as Ruggles's account implies, rules out only the most direct form of reverse influence. We therefore also ran the models the other way round, predicting the share of men in agriculture and the labor-force participation of married women from the domain scores thirty years earlier (Section 3.4; Appendix Table A12). Male domination predicted later economic structure as well: counties with more male domination later had more men in farming and fewer married

women in the labor force. Older-generation domination predicted neither. The relationship between farm economies and male authority may therefore run in both directions, and disentangling it requires further research.

Figure 7. Economic structure and later domain scores



Notes: N = 2,381. Models include agriculture, married FLFP and the earlier level of the outcome domain, with state fixed effects, geographic controls, slave share in 1860 and baseline male Wtot. 95 percent grid-clustered confidence intervals (G = 432). Maximum focal VIF 3.84; residual Moran's I 0.062–0.096.

The national estimates may also hide differences between groups. In the South, where married women's work was closely tied to race, we therefore estimated the models separately for white and Black families in the same 583 counties (Appendix Table A17). The association between agriculture and male domination was positive in both groups and in both periods (0.091 and 0.051 among white and 0.098 and 0.094 among Black families), though among white families it was about half as large after 1910; it does not reflect the racial composition of Southern counties. The association with married women's work differed by race and period. Among Black families, five more percentage points of married women in the labor force in 1880 went with 0.025 fewer points

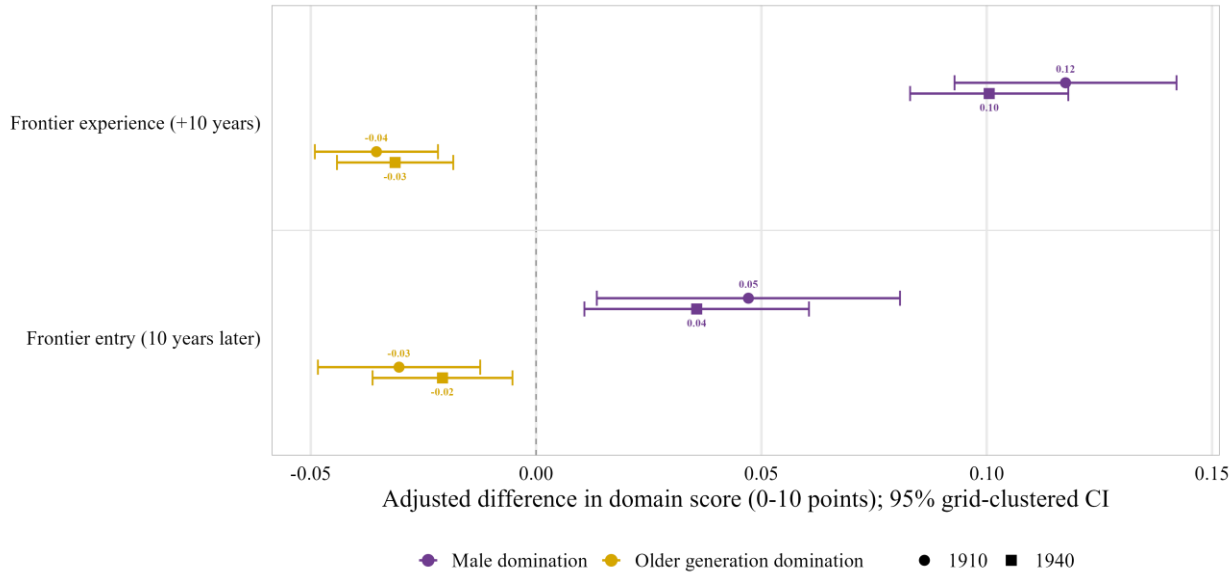
of male domination in 1910 (−0.038 to −0.012). Among white families the estimate was slightly positive (0.018; 0.001 to 0.035) and was not significant once we kept only counties with at least 100 older persons in each group (Section 3.4). Between 1910 and 1940, married women's work was not associated with either domain in either group. The association of agriculture with older-generation domination had no stable sign: before 1910 it was negative among white and positive among Black families, and after 1910 it was positive only among white families.

Our results do not overturn Ruggles's account of the national trend, but they cast doubt on a simple reading in which one economic change undid each side of patriarchy. What does fit his account is the order of decline: generational authority weakened first, while male authority had barely begun to change by 1940. In the South, the one association that fits his second phase, between married women's work and lower male domination, was found only among Black families, for whom married women's work was common (Goldin 1977), and only between 1880 and 1910.

3.3 Frontier history

Frontier history was associated with the two domains in opposite directions (Table 3, Figure 8). Among counties in the same state with similar geography, those that spent ten more years on the frontier had 0.117 more points of male domination in 1910 (0.093 to 0.142) and 0.101 more in 1940 (0.083 to 0.118). The same ten years went with 0.035 fewer points of older-generation domination in 1910 (−0.049 to −0.022) and 0.031 fewer in 1940 (−0.044 to −0.018). In standardized terms, the association with male domination ($\beta = 0.32$ and 0.29) was more than twice as strong as the association with older-generation domination ($\beta = -0.13$ and -0.11). The difference between a county that lay on the frontier for ten years and one that lay on it for thirty corresponds to about a quarter of a point more male domination and less than a tenth of a point less generational domination. These differences were present twenty years after the end of the frontier era and were still there fifty years after it, though somewhat weaker. In 1940 both estimates were smaller than in 1910: 0.101 against 0.117 for male domination and −0.031 against −0.035 for older-generation domination.

Figure 8. Frontier history and domain scores, 1910 and 1940



Notes: N = 1,852. TFE and year of frontier entry are included together, with state fixed effects and geographic controls. 95 percent grid-clustered confidence intervals (G = 358). Circles: 1910; squares: 1940.

The TFE estimates are stable whether or not the year of frontier entry is included in the model (Section 3.4). In models without the year of frontier entry, which follow the baseline specification of Bazzi et al. (2023), ten more years on the frontier went with 0.086 more points of male domination in 1880, 0.101 in 1910 and 0.088 in 1940, and with 0.028, 0.025 and 0.024 fewer points of older-generation domination (Appendix Table A13). The associations did not fade over sixty years; because total frontier experience counts years up to 1890, the 1880 estimates are descriptive. Controlling for the Black population share reduces the association with male domination by 11 to 28 percent but leaves it clearly positive (0.070 to 0.078; Appendix Table A13).

Table 3. Frontier history and domain scores in 1910 and 1940

	M5 Older 1910	M6 Older 1940	M7 Male 1910	M8 Male 1940
Total frontier experience (+10 years)	−0.035*** [−0.049, −0.022]	−0.031*** [−0.044, −0.018]	0.117*** [0.093, 0.142]	0.101*** [0.083, 0.118]
Year of frontier entry (+10 years)	−0.030*** [−0.048, −0.012]	−0.021** [−0.036, −0.005]	0.047** [0.013, 0.081]	0.036** [0.011, 0.061]
Controls	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes
Counties (grid clusters)	1,852 (358)	1,852 (358)	1,852 (358)	1,852 (358)
Adjusted R^2	0.359	0.597	0.330	0.380
Residual Moran's I	0.048	0.098	0.177	0.082
Maximum VIF, focal predictors	16.82	16.82	16.82	16.82

Notes: OLS estimates; coefficients in domain points (0–10); 95 percent grid-clustered confidence intervals in brackets. Controls: latitude, longitude, mean annual temperature, mean annual rainfall, mean elevation, distance to the coast, to the nearest river and to the nearest lake, and average potential agricultural yield. * $p < .05$; ** $p < .01$; *** $p < .001$. The high VIF concerns the year of entry; the VIF for TFE is 1.83. Because of this collinearity, the estimates for the year of frontier entry should be interpreted with caution.

To conclude, our results confirm the finding of Bazzi et al. (2023) that frontier history is associated with greater gender inequality, and show that this holds for inequality within the family as well. They also extend it: on the generational dimension of patriarchy, a longer frontier experience went with less, not more, patriarchy.

3.4 Robustness checks

Several robustness checks were conducted to test whether the main results depend on the choice of sample, controls or model form. Tables 4 and 5 summarize the estimates for agriculture and for TFE; the full tables are in the appendix.

Table 4. Agriculture thirty years earlier (+10 pp) under alternative specifications

Specification	Older 1910	Older 1940	Male 1910	Male 1940
Main models (Table 2)	0.018***	0.005	0.078***	0.061***
No state fixed effects	0.033***	0.025***	0.081***	0.058***
No same-domain baseline	0.018***	0.008*	0.112***	0.109***
No 2,000-person threshold (N = 2,859)	0.023***	0.009**	0.064***	0.054***
Reduced controls, with railroad access	0.021***	0.005	0.064***	0.055***
Stable-boundary counties (N = 1,777)	0.015**	0.003	0.087***	0.066***
At least 100 men aged 65+ (N = 1,679)	0.012*	0.001	0.085***	0.064***

The association between agriculture and male domination is the most stable result in the paper. It is positive and large in every specification, and it grows when the earlier level of male domination is left out. The association between agriculture and older-generation domination is positive and small in 1910 in every specification. For 1940 it depends on the specification: it is clearly positive only when we drop the state fixed effects, and weakly positive when we drop the baseline or the population threshold. What link there was between farming in 1910 and generational authority in 1940 therefore ran mainly between states rather than between neighboring counties.

The negative associations of married women's labor-force participation are less robust. For 1910 both are negative and clearly different from zero in all specifications. For 1940 the estimate for male domination stays negative but becomes smaller and less precise when we drop the population threshold (−0.006) or restrict the sample to stable counties (−0.008); with reduced controls it is −0.013 ($p < .01$). The estimate for older-generation domination is clearly negative only without state fixed effects or without the baseline.

Table 5. Total frontier experience (+10 years) under alternative specifications

Specification	Older 1910	Older 1940	Male 1910	Male 1940
Main models (Table 3)	−0.035***	−0.031***	0.117***	0.101***
TFE without year of entry	−0.025***	−0.024***	0.101***	0.088***

Specification	Older 1910	Older 1940	Male 1910	Male 1940
No state fixed effects	−0.041***	−0.023**	0.079***	0.055***
No 2,000-person threshold (N = 2,111)	−0.038***	−0.033***	0.118***	0.097***
Reduced controls, with railroad access	−0.033***	−0.024***	0.061***	0.060***
Stable-boundary counties (N = 1,481)	−0.028**	−0.029**	0.135***	0.107***
At least 100 men aged 65+ (N = 1,250)	−0.023*	−0.033***	0.100***	0.079***

The frontier results hold in every specification. TFE is positively associated with male domination and negatively with older-generation domination in both years, whether or not we include the year of entry, drop the state fixed effects, relax the population threshold, reduce the controls or restrict the sample to counties with stable boundaries. Adding years of railroad access halves the estimate for male domination, while dropping latitude, longitude and climate alone changes it little (0.110 and 0.096); because railroad access by 1890 partly reflects the timing of settlement, this model probably over-controls. The estimate nevertheless stays well above zero.

Many counties had few older people, especially in 1880, so there the indicators of older-generation domination rest on small numbers[2]. We therefore repeated the main models in the counties with at least 100 men aged 65 and over in each census (Tables 4 and 5; Appendix Tables A18 and A19). The results change little. The weak and inconsistent link between agriculture and generational authority is therefore not an artifact of small numbers. The frontier estimates for male domination are somewhat smaller, probably because the restriction drops many of the most recently settled counties, but they keep their direction in both domains. In the models for white and Black families in the South, the same restriction (384 counties) leaves the association between married women's work and male domination among Black families unchanged, while among white families it is not significant (Appendix Table A20).

To check the direction of the economic associations, we also estimated reverse-direction models, in which the share of men in agriculture and married FLFP are predicted from both domain scores

[2] In 1880 the median county had 183 men aged 65 and over, and 28 percent of counties had fewer than 100, so the older-generation scores for that year are noisier than the others. The 1880–1910 persistence of older-generation domination rises with county size (0.05, 0.13 and 0.21 across terciles of men aged 65 and over), so part of the gap with male domination (0.25, 0.42 and 0.48) reflects measurement (Appendix Table A15).

thirty years earlier, with the earlier economic measures and the same controls. If family patterns shaped the local economy, earlier domain scores should predict later economic structure. This was the case only for male domination: one more point in 1880 went with 5.0 percentage points more men in agriculture in 1910 (95 percent CI 3.1 to 7.0) and 1.5 points lower married FLFP (−2.6 to −0.3), and the corresponding figures for 1910 to 1940 were 2.3 and −3.8 points. Older-generation domination predicted neither (Appendix Table A12). The association between farming and male authority may therefore run in both directions. Residual Moran's I ranges from 0.048 to 0.098 in seven of the eight main models and reaches 0.177 in the frontier model for male domination in 1910 (M7; Appendix Figure A3). These values are low but statistically significant, so some spatial dependence remains, which is why we use grid-clustered inference throughout.

4. Discussion and conclusion

4.1 Two axes, two histories

The decline of family patriarchy in the United States between 1880 and 1940 was not a single process. The authority of the old over the young weakened in all four macro-regions and in most counties, mostly before 1910. The authority of men over women weakened little on average, and its geography changed: it declined in the Northeast, the Midwest and the West and grew slightly stronger in the South.

In the South, male domination rose mainly between 1880 and 1910 (Section 3.1). In the counties where we could compare white and Black families, the rise was confined to white families, and almost all of it came from fewer households headed by women. One plausible contributor is the demographic aftermath of the Civil War. About one in five white Southern men of military age died in the war, and in 1880 nearly one in three white Southern women over 40 was a widow (Hacker, Hilde and Jones 2010). As these widows aged and died, fewer households were headed by women, and the score would rise without any change in the authority of husbands. Between 1880 and 1910 the other indicators of male domination among white families hardly changed, so the rise came mainly through widowhood. This effect was temporary: by 1940 households headed by women had again become more common among white families. Male domination nevertheless did not decline, because fewer white wives were older than their husbands, a change that came

mostly after 1910. This may also be a delayed legacy of the war, which left more young Southern women married to younger men (Hacker, Hilde and Jones 2010); as these couples died out, older wives became less common. However, older wives also became less common among Black families and in the country as a whole (Appendix Figure A7), so we cannot separate this effect from a general trend. Future studies could test both mechanisms directly by following the marital status and birth cohorts of female household heads and of wives older than their husbands.

In 1880 the negative correlation between the two domains was strongest in the Midwest (Section 3.1). It is consistent with the frontier results: counties that spent longer on the frontier combined more male domination with less generational domination (Table 3). A long period of sparse settlement, with abundant land and distance from markets and kin, may have strengthened the authority of husbands while weakening that of the old, because young couples lived apart from their extended families and could set up farms of their own. As frontier populations aged and settled, this contrast weakened, and the associations of frontier history with both domains were somewhat smaller in 1940 than in 1910 (Section 3.3). By 1910 the negative correlation in the Midwest had disappeared. In the South, by contrast, it persisted and became stronger by 1940, mainly among white families; our data do not show why. From 1880 onward, the first year we can observe, American patriarchy was not a coherent system in the European sense.

The results also bear on the order of events in Ruggles's account. He argues that generational authority declined first and the authority of husbands only later, mainly after 1950 (Ruggles 2015). Our data are consistent with the first half of this argument. Older-generation domination fell in every macro-region between 1880 and 1910, and male domination barely moved between 1880 and 1940. If male authority was to decline, the decline had not yet begun on any scale by 1940. Both Ruggles (2015) and Goldin (1990, 1991) date the large-scale movement of married women into paid work to the years after the Second World War, when the marriage bars fell away. Data from the 1950 and later censuses could show whether male domination began to decline then.

4.2 Farming, frontier and male authority

The economic results do not match Ruggles's two-phase model as neatly. In his account, the shift of men from farm work to wage work undermined the authority of fathers. Across counties, however, the share of men in agriculture was more consistently associated with male domination than with generational domination, whose association with farming was small in 1910 and less

consistent in 1940. One reason may be migration: when the young left farming counties for wage work elsewhere, the elderly they left behind more often lived without their children, which works against Ruggles's mechanism in county-level data. Another is measurement, since the 1880 older-generation scores rest on few elderly people in many counties, although the results change little when we keep only counties with more of them (Section 3.4). In addition, the share of men in agriculture is only a rough proxy for the family economy, and later work could use a more direct measure such as Ruggles's (2015) share of corporate families. The link may also run mainly between states rather than within them (Section 3.4).

The strong link between farming and male domination is easier to explain. Three of the four indicators of male domination, early marriage of women, few households headed by women and few young women living among non-kin, describe how women entered and lived in marriage. In a farm economy with abundant land, a household needed a wife, and women married young (Easterlin 1976). In towns and cities, young women could work as servants, in mills or in shops before marriage, and widows and single women could head their own households. Farming counties offered few such openings. Male domination as the PI measures it was thus built into the family economy of agriculture, and it lasted as long as farming did. In the South this link held among both white and Black families until 1940, though among white families it was weaker after 1910, so it does not depend on the racial composition of Southern counties.

Married women's labor-force participation fits Ruggles's account less neatly. In his model, wage work for married women undermined the authority of husbands. In our data it went with lower values in both domains, more clearly in 1910 than in 1940. In the South its association with male domination was confined to Black families, among whom married women's work was common long before the period Ruggles describes (Goldin 1977), and only between 1880 and 1910. Among white Southern families, where married women seldom worked for pay, it went with somewhat lower generational authority before 1910 and not with lower male domination. Within the South, then, the link that Ruggles expected appeared only where married women's work was already widespread.

The frontier results point in the same direction. In line with Bazzi et al. (2023), counties with a longer frontier history had more male domination in 1910 and 1940, decades after the frontier had passed. Their evidence came from fertility, female employment and political representation. Ours

comes from the structure of households and marriages, closer to power within the family itself. Frontier history was also associated with less generational domination, as the historical evidence on extended households on the frontier would suggest (Bazzi et al. 2023: 12). The frontier left behind a particular kind of patriarchy: strong authority of husbands, in nuclear households from which the older generation was largely absent. The same conditions that weakened the rule of the father, distance from kin and the independence of young couples, appear to have strengthened the rule of the husband.

The reverse-direction models suggest that the relationship between farming and male authority was not a one-way street. Counties with more male domination in 1880 had more men in agriculture and fewer married women in the labor force in 1910, net of their earlier economic structure. This fits the argument of Bazzi et al. (2023) that norms of female domesticity held back women's entry into paid work, and it is consistent with the possibility that agriculture, frontier history and male authority reinforced one another over time.

4.3 Limitations

Four limits of measurement and interpretation should be kept in mind. First, our results are observational, county-level associations. The models do not establish causal effects or the mechanisms at work within individual families. Second, population composition and the availability of kin may shape the measured patterns. Race, migration and the presence of relatives nearby all affect the indicators, and outside the South the index is computed for all groups together. PI values differed between Black and white populations (Szołtysek et al. 2026a). In the South the domains, their change and their correlates differed between white and Black families (Sections 3.1 and 3.2), but our race-specific results cover only counties with large white and Black populations, and the indicators for Black families rest on fewer cases. Immigrants and the native-born may also have differed, which we have not examined. Third, married women's market work in 1880 and 1910 was probably underreported (Goldin 1990). Because we compare counties and years, this matters mainly if underreporting varied systematically across counties, which is likely, since it differed by race and region (Goldin 1977). Fourth, some spatial dependence remains. We use grid-clustered standard errors throughout, but residual Moran's I in the main models still ranges from 0.05 to 0.18.

4.4 Conclusion

Between 1880 and 1940 American patriarchy changed its structure as well as its level. The authority of the older generation weakened across the whole country, mostly before 1910. The authority of men over women changed little, persisted from one generation to the next, and remained highest in the South and in places with a long history of farming and frontier settlement. The two domains, negatively related in 1880, had become unrelated in most of the country by 1940, but not in the South.

The two explanations we examined fit these domains differently. Agricultural employment, which Ruggles linked to the authority of fathers, was more closely and more durably associated with the authority of husbands, and in the South this held for both white and Black families. Married women's work went with lower values in both domains, though the association weakened by 1940; in the South, its association with male domination was confined to Black families and to the years before 1910. Frontier history pulled the domains apart: it went with more male domination and less generational domination half a century after the frontier closed.

Seen through the separate domains of the index, the American story between 1880 and 1940 is one of change in the form of the patriarchal family rather than a simple retreat. In a period when young men left farms for wage work and settled new land in the West, the authority of the old over the young weakened in most of the country. The authority of husbands held on, above all in the rural South and in places with a long frontier past, and on the eve of the Second World War it was still largely intact. The next steps are to follow Black and white families beyond the South and after the Great Migration, to distinguish the experience of immigrants and to extend the analysis to 1950, when the second phase of Ruggles's transition should become visible. In the United States between 1880 and 1940, the weakening of generational authority did not imply an equivalent weakening of male domination.

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APPENDIX

Table A1. Economic models without state fixed effects

	M1: Older, 1910	M2: Older, 1940	M3: Male, 1910	M4: Male, 1940
Agriculture 30 years earlier (+10 pp)	0.033*** [0.025, 0.041]	0.025*** [0.018, 0.031]	0.081*** [0.071, 0.090]	0.058*** [0.050, 0.066]
Married FLFP 30 years earlier (+5 pp)	−0.031*** [−0.041, −0.020]	−0.020*** [−0.028, −0.012]	−0.040*** [−0.050, −0.030]	−0.016*** [−0.024, −0.007]
Same domain 30 years earlier	0.137*** [0.100, 0.175]	0.266*** [0.215, 0.316]	0.392*** [0.350, 0.434]	0.436*** [0.398, 0.474]
Adjusted R^2	0.437	0.597	0.583	0.625
Residual Moran's I	0.117	0.270	0.208	0.227
Max. focal VIF	2.02	2.73	2.01	2.78

Notes: N = 2,381; G = 432. Controls as in Table 2 (latitude, longitude, mean annual temperature, mean annual rainfall, mean elevation, distance to the coast, to the nearest river and to the nearest lake, average potential agricultural yield, share enslaved in 1860 and baseline male Wtot), without state fixed effects. OLS estimates; coefficients in domain points (0–10); 95 percent grid-clustered confidence intervals in brackets (HC1, t distribution with G − 1 degrees of freedom). * p < .05; ** p < .01; *** p < .001. Moran's I refers to model residuals (classical test); VIF refers to the focal predictors.

Table A2. Frontier models without state fixed effects

	M5: Older, 1910	M6: Older, 1940	M7: Male, 1910	M8: Male, 1940
TFE (+10 years)	−0.041*** [−0.054, −0.028]	−0.023** [−0.040, −0.007]	0.079*** [0.057, 0.101]	0.055*** [0.034, 0.076]
Year of frontier entry (+10 years)	−0.029*** [−0.042, −0.017]	−0.015 [−0.032, 0.001]	0.001 [−0.019, 0.021]	−0.015 [−0.035, 0.006]

Notes: N = 1,852; G = 358. Controls as in Table 3 (latitude, longitude, mean annual temperature, mean annual rainfall, mean elevation, distance to the coast, to the nearest river and to the nearest lake and average potential agricultural yield), without state fixed effects. OLS estimates;

coefficients in domain points (0–10); 95 percent grid-clustered confidence intervals in brackets (HC1, t distribution with G − 1 degrees of freedom). * p < .05; ** p < .01; *** p < .001.

Table A3. Economic models without the earlier level of the outcome domain

	M1: Older, 1910	M2: Older, 1940	M3: Male, 1910	M4: Male, 1940
Agriculture 30 years earlier (+10 pp)	0.018*** [0.009, 0.027]	0.008* [0.001, 0.015]	0.112*** [0.099, 0.124]	0.109*** [0.100, 0.118]
Married FLFP 30 years earlier (+5 pp)	−0.021*** [−0.030, −0.012]	−0.010* [−0.018, −0.002]	−0.034*** [−0.046, −0.023]	−0.026*** [−0.037, −0.016]
Adjusted R^2	0.463	0.680	0.556	0.588
Residual Moran's I	0.070	0.103	0.160	0.151
Max. focal VIF	2.44	3.69	2.44	3.69

Notes: N = 2,381; G = 432. State fixed effects, geographic controls, average potential agricultural yield, share enslaved in 1860 and baseline male Wtot; the earlier level of the outcome domain is omitted. Other details as in Table A1.

Table A4. Economic models without the 2,000-person threshold

	M1: Older, 1910	M2: Older, 1940	M3: Male, 1910	M4: Male, 1940
Agriculture 30 years earlier (+10 pp)	0.023*** [0.014, 0.031]	0.009** [0.003, 0.015]	0.064*** [0.053, 0.074]	0.054*** [0.045, 0.063]
Married FLFP 30 years earlier (+5 pp)	−0.018*** [−0.028, −0.008]	−0.005 [−0.013, 0.002]	−0.032*** [−0.043, −0.021]	−0.006 [−0.015, 0.002]
Adjusted R^2	0.534	0.706	0.568	0.617
Residual Moran's I	0.099	0.099	0.138	0.110
Max. focal VIF	2.29	3.45	2.29	3.57

Notes: N = 2,859; G = 455. Same specification as Table 2 (earlier level of the outcome domain, state fixed effects, geographic controls, share enslaved in 1860 and baseline male Wtot). Other details as in Table A1.

Table A5. Frontier models without the 2,000-person threshold

	M5: Older, 1910	M6: Older, 1940	M7: Male, 1910	M8: Male, 1940
TFE (+10 years)	−0.038*** [−0.052, −0.025]	−0.033*** [−0.045, −0.020]	0.118*** [0.094, 0.141]	0.097*** [0.080, 0.115]
Year of frontier entry (+10 years)	−0.046*** [−0.065, −0.027]	−0.043*** [−0.059, −0.027]	0.059*** [0.030, 0.088]	0.037** [0.015, 0.060]
Adjusted R^2	0.393	0.598	0.339	0.349
Residual Moran's I	0.067	0.101	0.176	0.079
Max. focal VIF	16.97	16.97	16.97	16.97

Notes: N = 2,111; G = 383. Same specification as Table 3 (state fixed effects, geographic controls and average potential agricultural yield). Other details as in Table A1.

Table A6. Economic models with reduced controls

	M1: Older, 1910	M2: Older, 1940	M3: Male, 1910	M4: Male, 1940
Agriculture 30 years earlier (+10 pp)	0.021*** [0.011, 0.030]	0.005 [−0.002, 0.012]	0.064*** [0.053, 0.074]	0.055*** [0.046, 0.063]
Married FLFP 30 years earlier (+5 pp)	−0.014*** [−0.021, −0.007]	−0.002 [−0.009, 0.005]	−0.041*** [−0.050, −0.031]	−0.013** [−0.022, −0.005]
Adjusted R^2	0.467	0.682	0.640	0.667
Residual Moran's I	0.067	0.112	0.084	0.104
Max. focal VIF	2.21	2.84	2.47	3.09

Notes: N = 2,381; G = 432. Controls: earlier level of the outcome domain, average potential agricultural yield, baseline male Wtot, years of railroad access and state fixed effects; latitude, longitude, climate, elevation, the distances to the coast, rivers and lakes, and the share enslaved in 1860 are omitted. Other details as in Table A1.

Table A7. Frontier models with reduced controls

	M5: Older, 1910	M6: Older, 1940	M7: Male, 1910	M8: Male, 1940
TFE (+10 years)	−0.033*** [−0.046, −0.019]	−0.024*** [−0.037, −0.011]	0.061*** [0.041, 0.082]	0.060*** [0.042, 0.079]
Year of frontier entry (+10 years)	−0.029*** [−0.044, −0.014]	−0.020** [−0.035, −0.005]	0.016 [−0.006, 0.039]	0.004 [−0.016, 0.023]
Adjusted R^2	0.356	0.593	0.446	0.434
Residual Moran's I	0.055	0.111	0.122	0.090
Max. focal VIF	12.73	12.73	12.73	12.73

Notes: N = 1,852; G = 358. Controls: average potential agricultural yield, baseline male Wtot, years of railroad access and state fixed effects. Unlike the main frontier models (Table 3), these include baseline male Wtot; latitude, longitude, climate, elevation and the distances to the coast, rivers and lakes are omitted. Other details as in Table A1.

Table A8. Frontier models with TFE only

	M5: Older, 1910	M6: Older, 1940	M7: Male, 1910	M8: Male, 1940
TFE (+10 years)	−0.025*** [−0.037, −0.012]	−0.024*** [−0.036, −0.012]	0.101*** [0.080, 0.122]	0.088*** [0.072, 0.104]
Adjusted R^2	0.355	0.596	0.325	0.377
Residual Moran's I	0.052	0.099	0.181	0.084
VIF (TFE)	1.40	1.40	1.40	1.40

Notes: N = 1,852; G = 358. Year of frontier entry omitted; state fixed effects, geographic controls and average potential agricultural yield. Other details as in Table A1.

Table A9. Economic models in counties with stable boundaries

	M1: Older, 1910	M2: Older, 1940	M3: Male, 1910	M4: Male, 1940
Agriculture 30 years earlier (+10 pp)	0.015** [0.005, 0.025]	0.003 [−0.005, 0.010]	0.087*** [0.075, 0.099]	0.066*** [0.057, 0.076]
Married FLFP 30 years earlier (+5 pp)	−0.023*** [−0.033, −0.014]	−0.007 [−0.016, 0.003]	−0.031*** [−0.042, −0.019]	−0.008 [−0.019, 0.003]
Adjusted R^2	0.462	0.661	0.657	0.677
Residual Moran's I	0.038	0.078	0.124	0.064
Max. focal VIF	2.48	3.89	2.57	4.03

Notes: N = 1,777; G = 382. Same specification as Table 2. Other details as in Table A1.

Table A10. Frontier models in counties with stable boundaries

	M5: Older, 1910	M6: Older, 1940	M7: Male, 1910	M8: Male, 1940
TFE (+10 years)	−0.028** [−0.047, −0.010]	−0.029** [−0.047, −0.012]	0.135*** [0.104, 0.165]	0.107*** [0.086, 0.128]
Year of frontier entry (+10 years)	−0.032* [−0.057, −0.008]	−0.017 [−0.037, 0.003]	0.064** [0.024, 0.104]	0.031* [0.001, 0.061]
Adjusted R^2	0.361	0.577	0.354	0.400
Residual Moran's I	0.023	0.096	0.177	0.078
Max. focal VIF	20.96	20.96	20.96	20.96

Notes: N = 1,481; G = 317. Same specification as Table 3. Residual Moran's I has $p < 0.001$ in all models except M5 ($p = 0.007$). Other details as in Table A1.

Table A11. Moran's I for county-level changes in the four domains, main sample and counties with stable boundaries

Domain	Period	Main sample (N = 2,378)	Stable boundaries (N = 1,760)
Male domination	1880–1910	0.560	0.556
	1910–1940	0.283	0.293
	1880–1940	0.650	0.642
Older-generation domination	1880–1910	0.220	0.268
	1910–1940	0.194	0.167
	1880–1940	0.375	0.366
Patrilocality	1880–1910	0.434	0.428
	1910–1940	0.144	0.170
	1880–1940	0.459	0.465
Son preference	1880–1910	0.107	0.093
	1910–1940	0.041 (p = 0.002)	−0.002 (p = 0.907)
	1880–1940	0.141	0.117

Notes: Queen contiguity, row-standardized weights, 9,999 permutations. All values have $p < 0.001$ unless shown otherwise; p-values are adjusted with the Benjamini–Hochberg procedure for 12 tests within each sample.

Table A12. Reverse-direction models: domain scores thirty years earlier and later economic structure

	R1: Agriculture, 1910	R2: Agriculture, 1940	R3: Married FLFP, 1910	R4: Married FLFP, 1940
Male domination 30 years earlier (+1 point)	5.019*** [3.062, 6.977]	2.347** [0.920, 3.774]	−1.453* [−2.573, −0.333]	−3.758*** [−4.502, −3.014]
Older-generation domination 30 years earlier (+1 point)	−0.236 [−2.005, 1.532]	0.715 [−0.882, 2.312]	0.056 [−0.970, 1.082]	0.106 [−0.643, 0.854]
Agriculture 1880 (+10 pp)	6.998*** [6.471, 7.525]	–	0.573*** [0.290, 0.856]	–

	R1: Agriculture, 1910	R2: Agriculture, 1940	R3: Married FLFP, 1910	R4: Married FLFP, 1940
Agriculture 1910 (+10 pp)	–	7.436*** [7.096, 7.775]	–	−0.905*** [−1.082, −0.728]
Married FLFP 1880 (+5 pp)	0.164 [−0.231, 0.558]	–	1.882*** [1.471, 2.293]	–
Married FLFP 1910 (+5 pp)	–	0.174 [−0.217, 0.565]	–	0.606*** [0.407, 0.805]
Adjusted R^2	0.705	0.805	0.753	0.562
Residual Moran's I	0.184	0.249	0.226	0.209
Max. focal VIF	2.65	2.46	2.65	2.46

Notes: N = 2,381; G = 432. Outcomes in percentage points. State fixed effects, geographic controls, share enslaved in 1860 and baseline male Wtot. The census definition of labor-force participation changed in 1940, so comparisons of married FLFP over time should be made with caution. 95 percent grid-clustered confidence intervals in brackets. * p < .05; ** p < .01; *** p < .001.

Table A13. Total frontier experience (+10 years) and domain scores in 1880, 1910 and 1940, models without the year of frontier entry

	Male, TFE only	Male, with Black population share	Older, TFE only	Older, with Black population share
1880	0.086*** [0.066, 0.106]	0.070*** [0.050, 0.089]	−0.028*** [−0.045, −0.012]	−0.022* [−0.038, −0.005]
1910	0.101*** [0.080, 0.122]	0.073*** [0.054, 0.091]	−0.025*** [−0.037, −0.012]	−0.025*** [−0.037, −0.012]
1940	0.088*** [0.072, 0.104]	0.078*** [0.062, 0.095]	−0.024*** [−0.036, −0.012]	−0.021** [−0.033, −0.008]

Notes: N = 1,852 (1,830 in the 1940 models with the Black population share); G = 358. State fixed effects, geographic controls and average potential agricultural yield, as in Table A8; the Black population share is measured in the outcome year. Because total frontier experience counts years

up to 1890, the 1880 estimates are descriptive. Outside the South, the TFE estimates are 0.104, 0.100 and 0.100 for male domination and −0.053, −0.025 and −0.026 for older-generation domination. Other details as in Table A1.

Table A14. Correlation between male and older-generation domination: within and between states and by region

	1880	1910	1940
All counties	−0.37	−0.07	0.02
Within states	−0.12	−0.03	−0.09
Between states (means of 47 states)	−0.74	−0.24	0.02
Excluding the West	−0.35	−0.06	0.02
Northeast	−0.02	−0.07	0.03
Midwest	−0.39	0.15	0.08
South	−0.18	−0.20	−0.34
West	−0.02	0.00	−0.05

Notes: Pearson's r between county domain scores in each year; Sample 1 (N = 2,381). Within states: correlation of deviations from state means. Between states: correlation of unweighted state means.

Table A15. Persistence of domain scores by the number of men aged 65 and over in the baseline year

	Smallest tercile	Middle tercile	Largest tercile
Older-generation domination, 1880–1910	0.054	0.129	0.214
Male domination, 1880–1910	0.250	0.422	0.480
Older-generation domination, 1910–1940	0.199	0.165	0.131
Male domination, 1910–1940	0.300	0.417	0.385

Notes: Coefficient of the same domain thirty years earlier in the specification of Table 2, estimated within terciles of the number of men aged 65 and over in the baseline year (1880: up to 119, 119–277, more than 277; 1910: up to 303, 303–597, more than 597). In 1880 the median county had

183 men aged 65 and over; 13 percent of counties had fewer than 50 and 28 percent fewer than 100. Excluding counties with fewer than 100 such men in 1880 (N = 1,722), the coefficients are 0.158 for older-generation and 0.469 for male domination; agriculture goes with 0.015 (0.004 to 0.025) more points of older-generation and 0.085 (0.072 to 0.099) more points of male domination in 1910, and married FLFP with −0.025 (−0.036 to −0.013) and −0.033 (−0.045 to −0.020).

Table A16. Mean domain scores and Patriarchy Index, 1880–1940: county means and population-weighted means

Domain	1880	1910	1940
Male domination	6.2	6.1	6.1
Older-generation domination	5.4	4.9	4.9
Patrilocality	1.3	1.0	1.1
Son preference	0.5	0.3	0.3
Patriarchy Index (0–40)	13.4	12.3	12.4
Male domination, population-weighted	6.0	5.7	5.7
Older-generation domination, population-weighted	5.5	4.9	4.9
Patriarchy Index, population-weighted	13.0	11.7	11.8

Notes: Sample 1 (N = 2,381 counties). Equal-weight county means. Each domain is on a 0–10 scale; the PI is the sum of the four domains (0–40). The last three rows weight each county by its population in the census year.

Table A17. Economic structure and domain scores thirty years later among white and Black families in the South, 1880–1910 and 1910–1940

	White: Older	White: Male	Black: Older	Black: Male
1880 → 1910				

	White: Older	White: Male	Black: Older	Black: Male
Agriculture (+10 pp)	−0.026** [−0.043, −0.009]	0.091*** [0.072, 0.109]	0.019** [0.007, 0.031]	0.098*** [0.072, 0.123]
Married FLFP (+5 pp)	−0.026* [−0.050, −0.003]	0.018* [0.001, 0.035]	−0.010* [−0.018, −0.002]	−0.025*** [−0.038, −0.012]
Same domain 30 years earlier (+1 point)	0.168*** [0.096, 0.240]	0.302*** [0.232, 0.371]	0.047 [−0.027, 0.121]	0.442*** [0.344, 0.541]
Adjusted R^2	0.296	0.574	0.291	0.429
1910 → 1940				
Agriculture (+10 pp)	0.016** [0.004, 0.027]	0.051*** [0.034, 0.068]	0.005 [−0.007, 0.017]	0.094*** [0.069, 0.120]
Married FLFP (+5 pp)	0.001 [−0.014, 0.017]	−0.001 [−0.016, 0.014]	−0.005 [−0.013, 0.004]	−0.009 [−0.021, 0.004]
Same domain 30 years earlier (+1 point)	0.210*** [0.139, 0.281]	0.375*** [0.285, 0.465]	0.149** [0.053, 0.245]	0.516*** [0.427, 0.605]
Adjusted R^2	0.457	0.584	0.391	0.659

Notes: N = 583 Southern counties with at least 2,000 white and 2,000 Black inhabitants in 1880, 1910 and 1940; G = 147. Households are assigned to a group by the race of the household head; agriculture and married FLFP refer to men and married women of the same group and are measured in the baseline year (1880 or 1910). Controls: geographic controls as in Table 2, share of the population enslaved in 1860 and state fixed effects; Wtot is not included. OLS estimates; coefficients in domain points (0–10); 95 percent grid-clustered confidence intervals in brackets. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table A18. Economic models in counties with at least 100 men aged 65 and over

	M1: Older, 1910	M2: Older, 1940	M3: Male, 1910	M4: Male, 1940
Agriculture 30 years earlier (+10 pp)	0.012* [0.002, 0.023]	0.001 [−0.007, 0.008]	0.085*** [0.072, 0.098]	0.064*** [0.055, 0.074]

	M1: Older, 1910	M2: Older, 1940	M3: Male, 1910	M4: Male, 1940
Married FLFP 30 years earlier (+5 pp)	−0.024*** [−0.035, −0.013]	−0.006 [−0.014, 0.003]	−0.032*** [−0.045, −0.020]	−0.009 [−0.019, 0.002]
Same domain 30 years earlier	0.156*** [0.105, 0.207]	0.167*** [0.110, 0.224]	0.474*** [0.425, 0.523]	0.395*** [0.353, 0.438]
Adjusted R^2	0.456	0.685	0.665	0.697

Notes: N = 1,679 counties of Sample 1 with at least 100 men aged 65 and over in each of the three censuses; G = 357. Same specification as Table 2. OLS estimates; coefficients in domain points (0–10); 95 percent grid-clustered confidence intervals in brackets. * p < .05; ** p < .01; *** p < .001.

Table A19. Frontier models in counties with at least 100 men aged 65 and over

	M5: Older, 1910	M6: Older, 1940	M7: Male, 1910	M8: Male, 1940
TFE (+10 years)	−0.023* [−0.043, −0.003]	−0.033*** [−0.052, −0.015]	0.100*** [0.066, 0.134]	0.079*** [0.057, 0.101]
Year of frontier entry (+10 years)	−0.035** [−0.062, −0.009]	−0.014 [−0.032, 0.005]	0.017 [−0.029, 0.062]	−0.011 [−0.041, 0.020]
Adjusted R^2	0.371	0.607	0.287	0.368

Notes: N = 1,250 counties of Sample 2 with at least 100 men aged 65 and over in each of the three censuses; G = 283. Same specification as Table 3. The 602 counties of Sample 2 excluded by this restriction had on average 23.3 years of frontier experience and a mean year of frontier entry of 1836, against 18.2 years and 1819 in the counties kept. OLS estimates; coefficients in domain points (0–10); 95 percent grid-clustered confidence intervals in brackets. * p < .05; ** p < .01; *** p < .001.

Table A20. Married women's work and domain scores thirty years later among white and Black families in the South, counties with at least 100 persons aged 65 and over in each group

	White: Older	White: Male	Black: Older	Black: Male
1880 → 1910				
Married FLFP (+5 pp)	−0.031 [−0.072, 0.010]	0.020 [−0.005, 0.045]	−0.020*** [−0.030, −0.010]	−0.025** [−0.044, −0.006]
Same domain 30 years earlier (+1 point)	0.171** [0.068, 0.273]	0.321*** [0.231, 0.410]	0.070 [−0.022, 0.163]	0.464*** [0.305, 0.624]
Adjusted R^2	0.271	0.529	0.354	0.410
1910 → 1940				
Married FLFP (+5 pp)	0.004 [−0.014, 0.021]	−0.004 [−0.024, 0.017]	−0.005 [−0.016, 0.005]	0.001 [−0.012, 0.014]
Same domain 30 years earlier (+1 point)	0.192*** [0.104, 0.280]	0.348*** [0.228, 0.467]	0.121 [−0.002, 0.245]	0.533*** [0.434, 0.632]
Adjusted R^2	0.397	0.557	0.381	0.688

Notes: N = 384 of the 583 counties in Table A17 with at least 100 persons aged 65 and over in each group in 1880, 1910 and 1940; G = 117. Same specification as Table A17; agriculture is included as a control but not shown. OLS estimates; coefficients in domain points (0–10); 95 percent grid-clustered confidence intervals in brackets. * $p < .05$; ** $p < .01$; *** $p < .001$.

Table A21. Frontier models without the Pacific coast counties

	M5: Older, 1910	M6: Older, 1940	M7: Male, 1910	M8: Male, 1940
TFE (+10 years)	−0.037*** [−0.051, −0.022]	−0.032*** [−0.046, −0.019]	0.121*** [0.095, 0.147]	0.102*** [0.084, 0.121]
Year of frontier entry (+10 years)	−0.034*** [−0.053, −0.014]	−0.022* [−0.038, −0.005]	0.063*** [0.028, 0.098]	0.042** [0.016, 0.067]
Adjusted R^2	0.328	0.552	0.337	0.385

Notes: N = 1,775 counties of Sample 2 outside California, Oregon and Washington; G = 348. Same specification as Table 3. The 77 excluded counties are the Pacific coast counties included in the frontier sample of Bazzi et al. (2023). OLS estimates; coefficients in domain points (0–10); 95 percent grid-clustered confidence intervals in brackets. * p < .05; ** p < .01; *** p < .001.

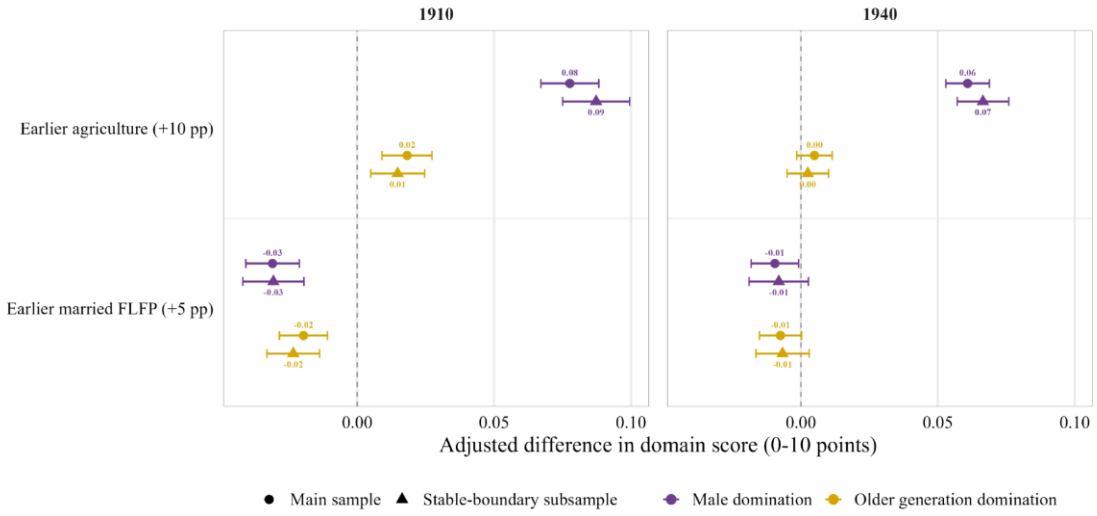
Table A22. Correlation between the changes in male and older-generation domination, 1880–1940

	1880–1910	1910–1940	1880–1940
All counties	0.11 [0.05, 0.16]	0.07 [0.02, 0.12]	0.18 [0.13, 0.24]
Within states	0.04	0.01	−0.01
Between states (means of 47 states)	0.30	0.07	0.34
Northeast (N = 215)	0.12 [−0.02, 0.25]	0.13 [−0.04, 0.28]	0.31 [0.15, 0.45]
Midwest (N = 840)	−0.14 [−0.22, −0.04]	0.17 [0.09, 0.25]	−0.13 [−0.21, −0.03]
South (N = 1,154)	0.08 [0.02, 0.13]	−0.04 [−0.10, 0.02]	0.02 [−0.05, 0.09]
West (N = 172)	0.09 [−0.01, 0.22]	−0.05 [−0.21, 0.11]	−0.03 [−0.16, 0.13]

	1880–1910	1910–1940	1880–1940
At least 100 men aged 65 and over (N = 1,679)	0.21 [0.16, 0.26]	0.10 [0.05, 0.15]	0.34 [0.29, 0.39]

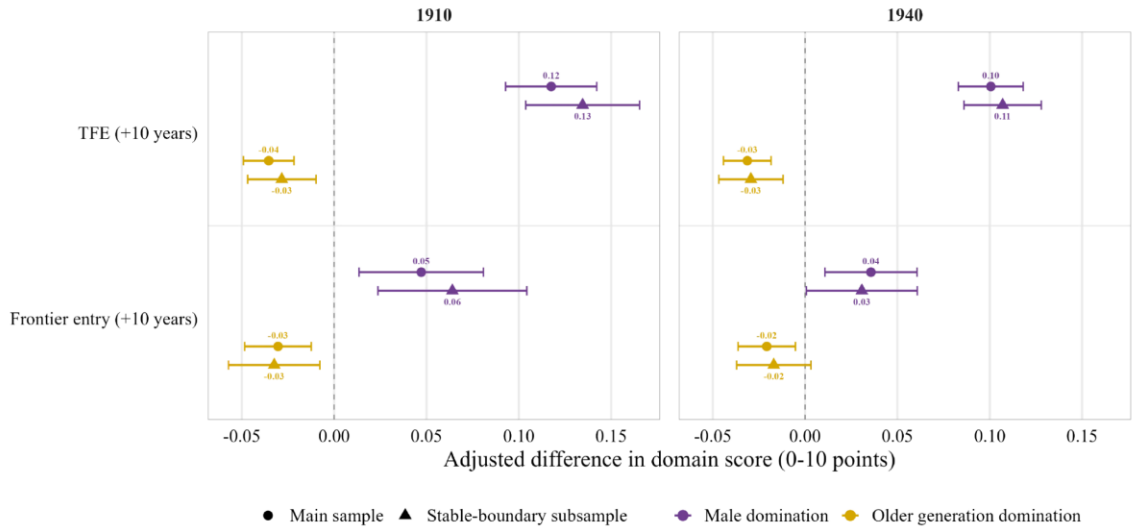
Notes: Pearson's r between county-level changes in the two domain scores over each period; Sample 1 (N = 2,381). 95 percent percentile grid-bootstrap confidence intervals in brackets (999 replications). Within states: correlation of deviations from state means. Between states: correlation of unweighted state means. The last row keeps the counties with at least 100 men aged 65 and over in each of the three censuses (G = 357).

Figure A1. Economic associations in the main sample and in counties with stable boundaries, 1910 and 1940



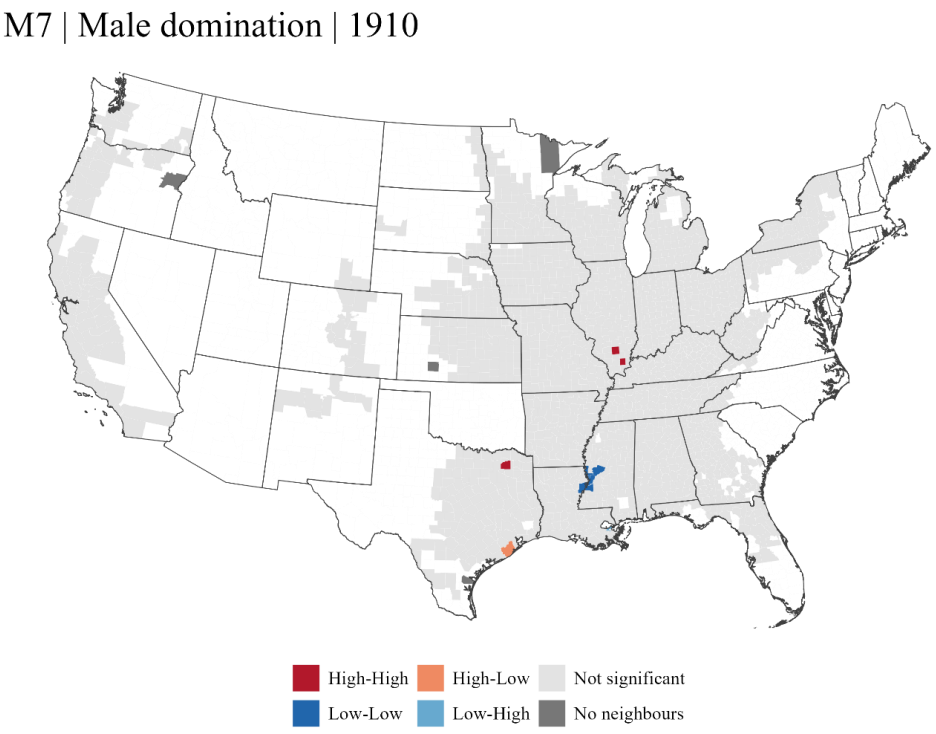
Notes: Circles: main sample (N = 2,381); triangles: counties with stable boundaries (N = 1,777). Same specifications as Table 2. 95 percent grid-clustered confidence intervals. Full estimates in Table A9.

Figure A2. Frontier associations in the main sample and in counties with stable boundaries, 1910 and 1940



Notes: Circles: main sample (N = 1,852); triangles: counties with stable boundaries (N = 1,481). Same specifications as Table 3. 95 percent grid-clustered confidence intervals. Full estimates in Table A10.

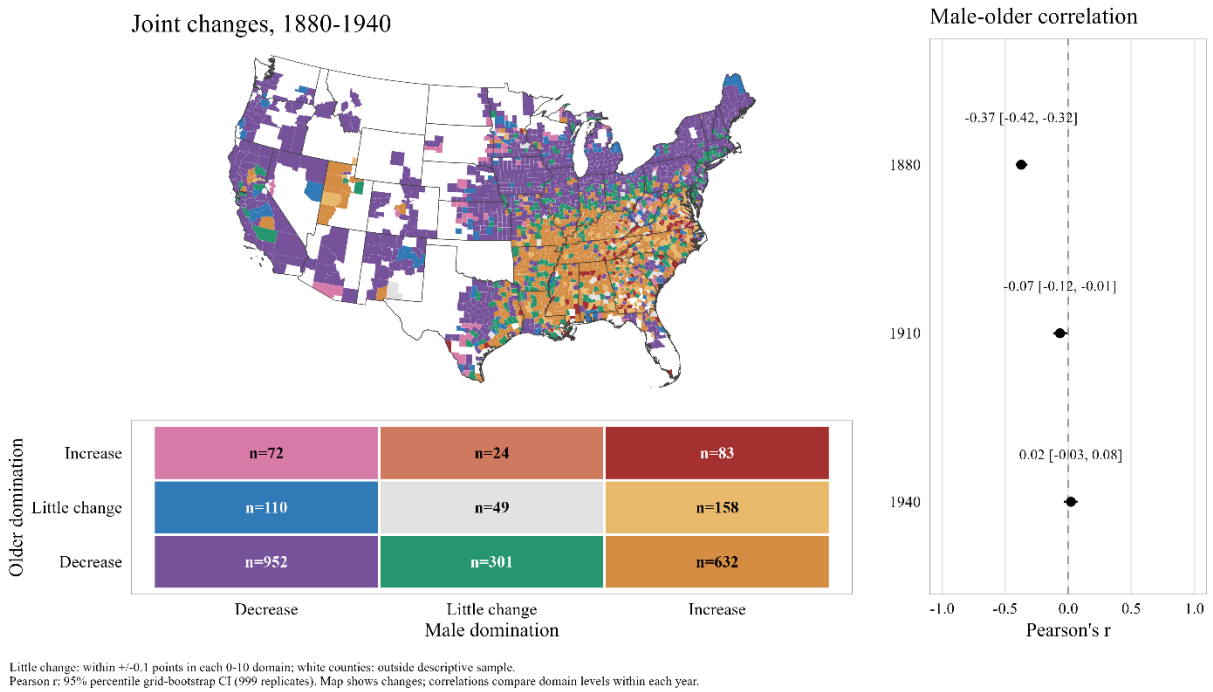
Figure A3. Local clusters of residuals in the frontier model for male domination in 1910 (M7)



Notes: Global residual Moran's I = 0.177 ($p < 0.001$; N = 1,852). Local Moran's I (LISA) with queen contiguity, row-standardized weights and neighbors defined within the estimation sample

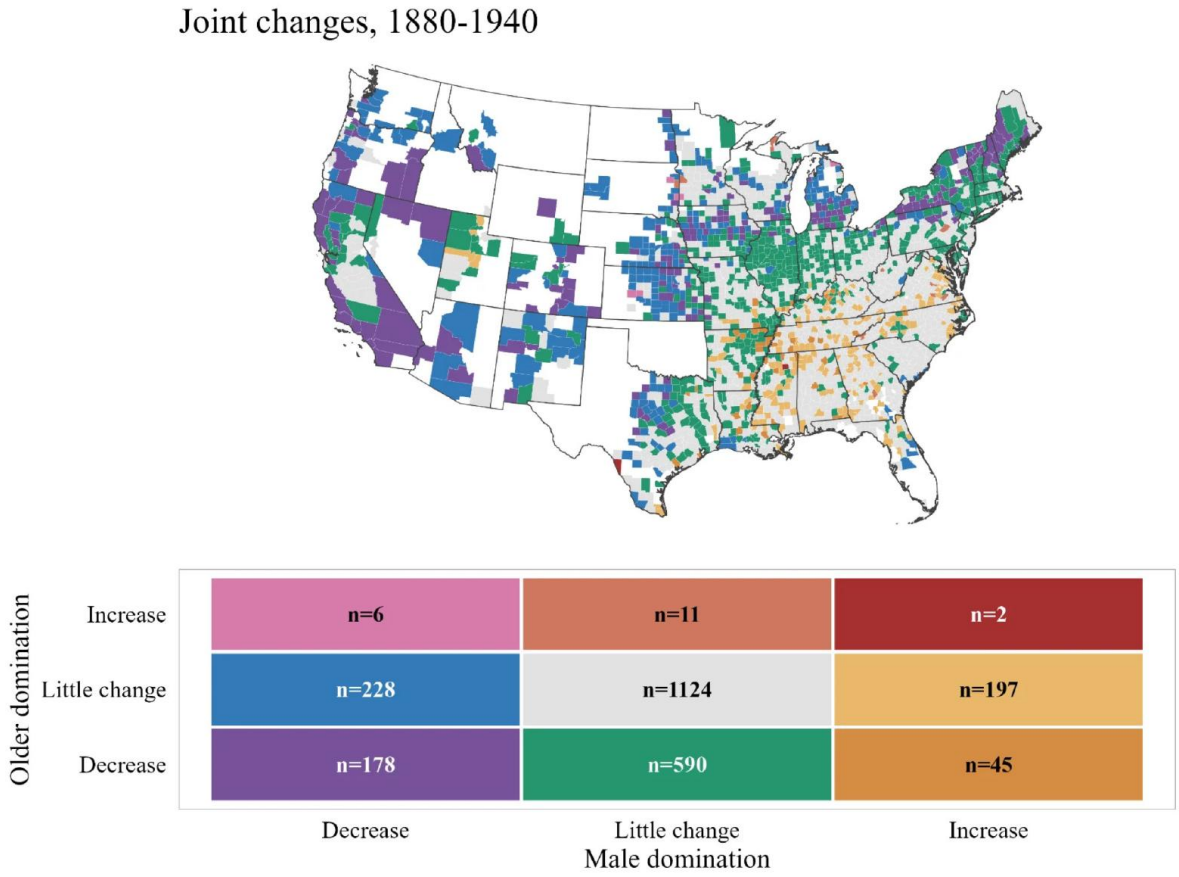
(four counties have none); 9,999 conditional permutations, two-sided, Benjamini–Hochberg-adjusted $p \leq 0.05$ within the model. High-High: clusters of positive residuals; Low-Low: clusters of negative residuals. White counties lie outside the sample. The map shows regression residuals, not changes in the domains.

Figure A4. Joint changes in male and older-generation domination, 1880–1940, with a threshold of ±0.10 points



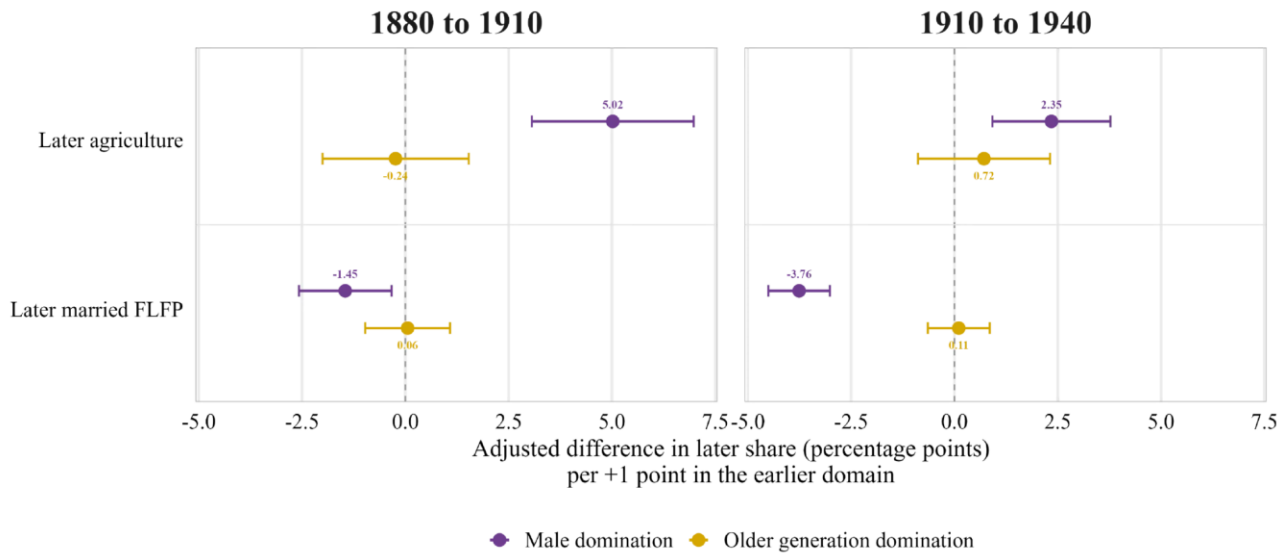
Notes: Little change: within ±0.10 points in each 0–10 domain; white counties lie outside the sample. Pearson's r with 95 percent percentile grid-bootstrap confidence intervals (999 replications). The map shows changes; the correlations compare domain levels within each year. Because domain scores move in steps of 0.25 points, this threshold in effect separates any change from none, and the ±0.50 threshold in Figure A5 requires a change of at least 0.75 points.

Figure A5. Joint changes in male and older-generation domination, 1880–1940, with a threshold of ±0.50 points



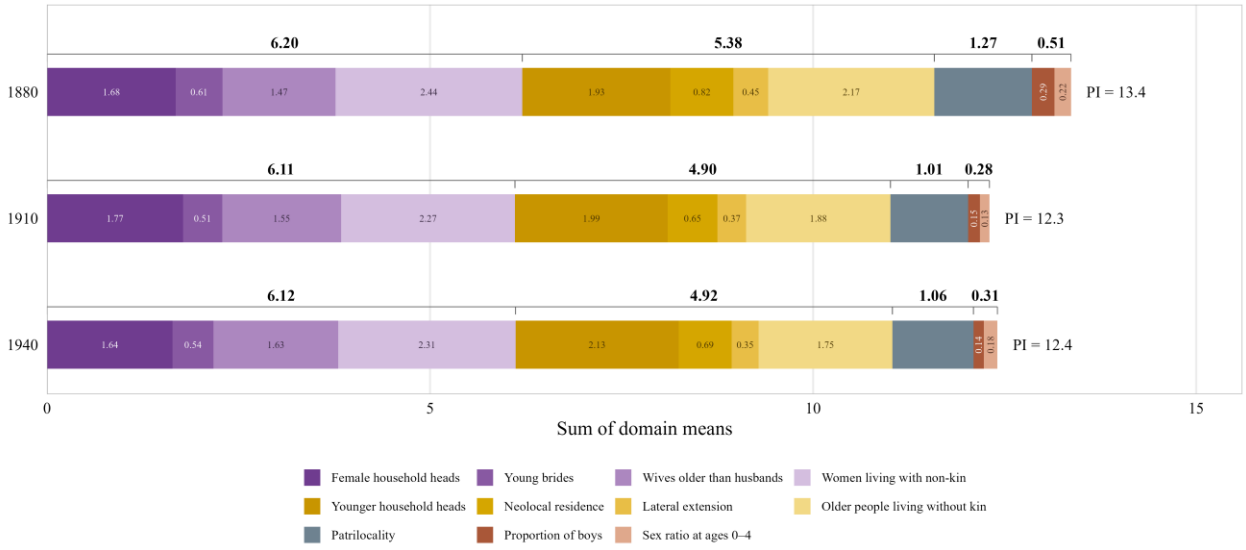
Notes: Little change: within ±0.50 points in each 0–10 domain; otherwise as in Figure A4.

Figure A6. Domain scores thirty years earlier and later economic structure



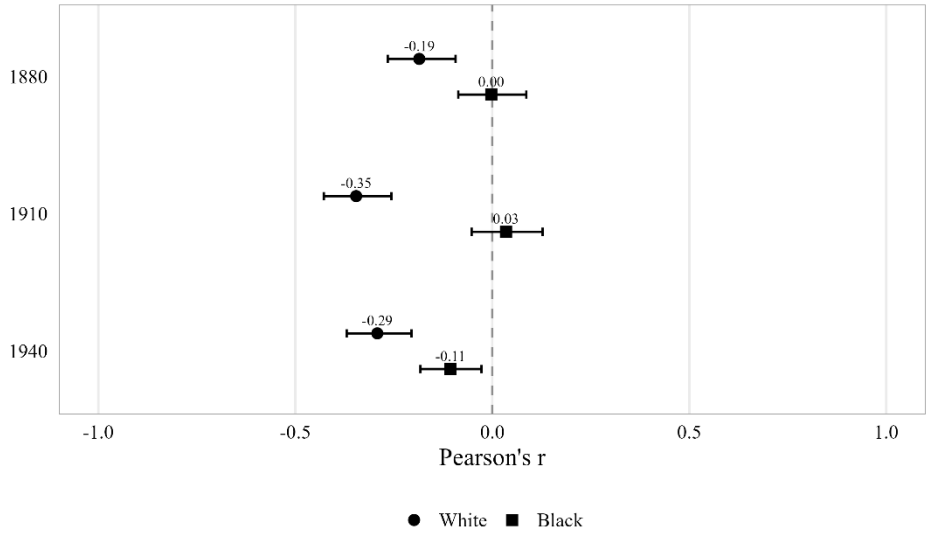
Notes: Adjusted difference in the later share (percentage points) per one-point higher score in the earlier domain. N = 2,381; 95 percent grid-clustered confidence intervals (G = 432). Full estimates in Table A12.

Figure A7. Contributions of the eleven indicators to the domain scores, 1880–1940



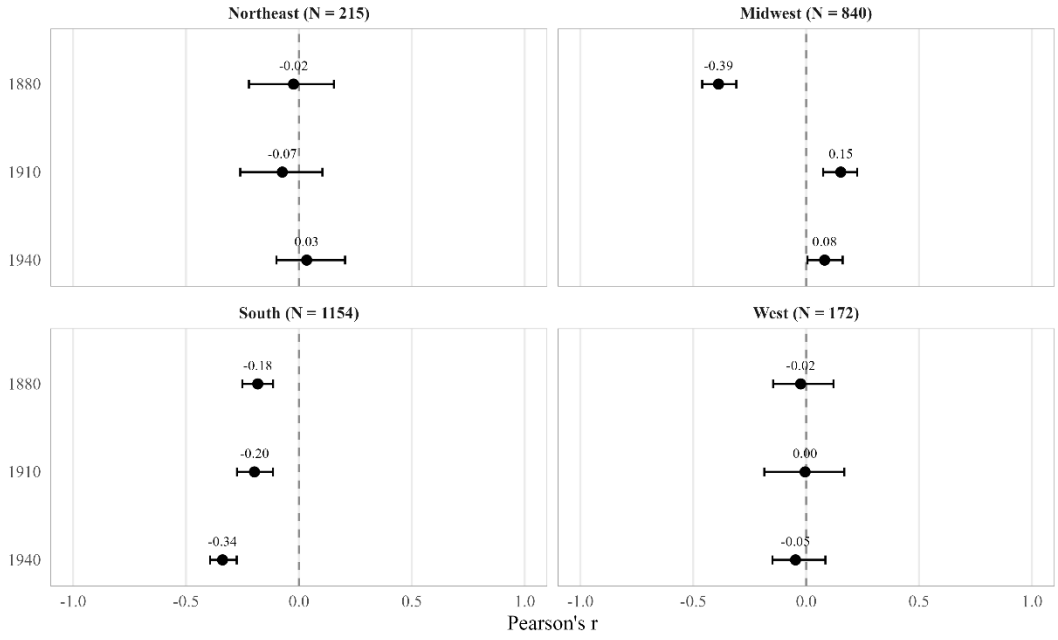
Notes: Equal-weight means; Sample 1 (N = 2,381). Segment labels show the contribution of each indicator to its domain score (0–10); the bracketed totals are the domain means, and the PI is the sum of the four domain means. Higher scores mean more patriarchal values: for example, a higher score for female household heads means fewer households headed by women.

Figure A8. Correlation between male and older-generation domination among white and Black families in the South, 1880–1940



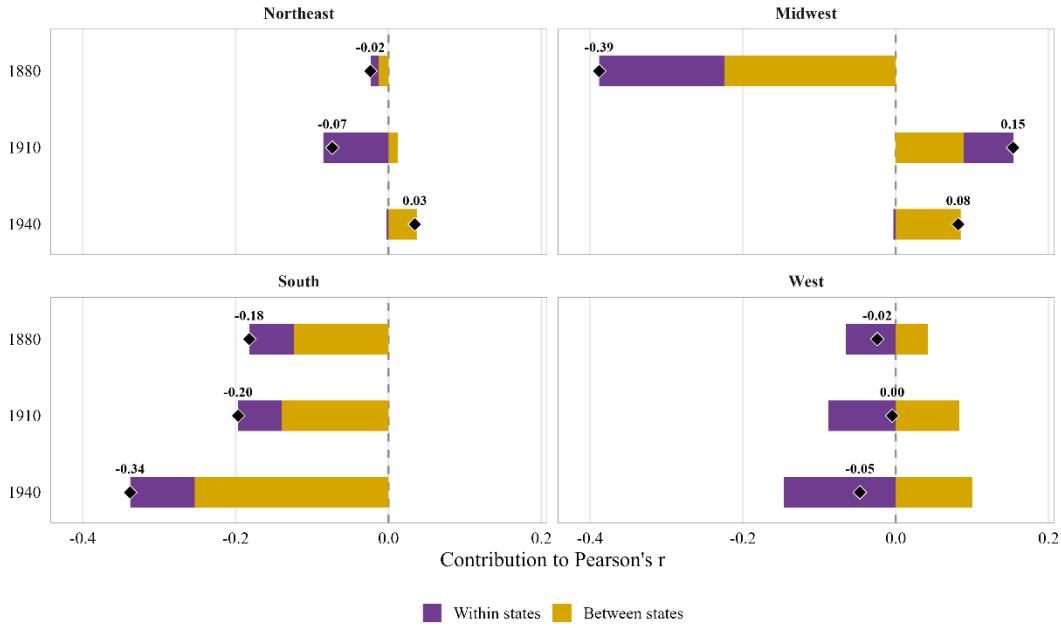
Notes: Same 583 Southern counties with at least 2,000 white and 2,000 Black inhabitants in 1880, 1910 and 1940. Households are assigned to a group by the race of the household head. Pearson's r with 95 percent percentile grid-bootstrap confidence intervals (999 replications). The indicators for Black families rest on fewer cases, which may weaken their correlation.

Figure A9. Correlation between male and older-generation domination by macro-region, 1880–1940



Notes: Sample 1 (N = 2,381; Northeast 215, Midwest 840, South 1,154, West 172 counties). Pearson's r with 95 percent percentile grid-bootstrap confidence intervals (999 replications).

Figure A10. Correlation between male and older-generation domination by macro-region, 1880–1940: contributions within and between states



Notes: Sample 1 (N = 2,381). Diamonds show Pearson's r for each region and year; bars show the contributions of variation within states and between states, which sum to r.