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Socio-Economic Advancement and Long-Term Trends in the Gender Gap in Early Career Occupational Status in France 1860–1960

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Abstract: The stark reduction in gender inequality on the labor market is one of the most profound social changes over the past century. However, little is known about the development of the gender gap in occupational status. This study provides new evidence on the gap in occupational status early in men's and women's careers during a phase of rapid socio-economic change. We use an exceptionally rich dataset that combines French marriage certificates containing data on almost 50,000 brides and grooms from 1860 to 1960 with time-varying data on socio-economic advancement for the hundred French departments. From 1910 onwards, the gender gap in occupational status at marriage declined. Around 1940, the gap turned around in favor of women. As expected, labor market opportunities as well as technological development were associated with a reduction of the gender gap in status. Reaching gender equity, however, depends on a specific interplay of socio-economic forces. Technological developments only reduce the gender status gap when paired with expanded occupational opportunities for women.

Keywords: gender inequality, occupational status, labor market, technological advancement, socio-economic modernization, France

Reproducibility Package: Code necessary to reproduce the results is available at: osf.io/6dsnt. The data used in this study are available in accordance with the access conditions specified on the respective websites: the TRA data were supplied to us by the Institut National de la Recherche Agronomique, MONA, that subsequently merged with the IRSTEA (Institut national de recherche en sciences et technologies pour l'environnement et l'agriculture) to create the INRAE (Institut national de recherche pour l'agriculture, l'alimentation et l'environnement), https://www.inrae.fr/. The TRA data are now available from the INED (Institut national d'études démographiques): https://tra.site.ined.fr/en/databases/getting-the-data/

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OVER the past century, socio-economic gender inequality has generally decreased (Charles 2011; Goldin 2021). This is often interpreted as support for an evolutionary perspective of declines in gender inequality with socio-economic advancement (Inglehart and Norris 2003; Jackson 2006). However, there is a lack of studies that empirically test the relationship between different aspects of socio-economic advancement and gender inequality. The idea that socio-economic advancement or modernization would affect inequalities always and everywhere in the same way is also heavily criticized (Marsh, 2014). But we do not know yet under what circumstances it decreases inequalities and under what circumstances it does not.

Compared to other types of gender inequality, the gender gap in occupational status (the "gender status gap") seems to have closed early. Using the Duncan

Socioeconomic Index (SEI), Featherman and Hauser (1976) show that women's average occupational status slightly exceeded men's in the United States by the mid-twentieth century, even though large inequalities in earnings and access to elite professions persisted. Similar patterns of convergence in occupational status have been documented for Sweden (Magnusson 2010) and France (Chauvel 2004). Little is known, however, about how the gender status gap developed and how this development can be explained. This is a glaring omission in itself, but also because the gender status gap relates to inequalities in other domains, such as health (Fujishiro, Xu, and Gong 2010), political participation (Paxton, Hughes, and Green 2006), and social networks (Van der Gaag and Snijders 2005).

We study how the gender gap in early career status developed in France between 1860 and 1960. We first ask at which point women caught up with men. And we provide a descriptive account of the occupations women and men worked in and how this distribution changed over time. Second, we assess whether and how changes in the gender status gap were linked to regional trends in socio-economic advancement, in particular technological development, structural changes in the labor market, educational opportunities, and the dissemination of egalitarian gender values. In line with previous research, we analyze cohort effects (e.g., Barone, Lucchini, and Schizzerotto 2011; Härkönen and Bihagen 2011). Men and women entering the labor market in socio-economically more advanced circumstances are expected to start their careers differently from those entering the labor market in less advanced circumstances. We therefore focus on status early in the individuals' careers, at the timepoint of their first marriage. Early occupational status is a strong predictor of status later in the career. One of the main conclusions that Barone and Schizzerotto (2011) draw from an international set of studies on career mobility is that career mobility does not reshape initial inequality, in any case, not for those who stay on the labor market. Many women, however, left the labor market after marriage. We will discuss the consequences of this for our conclusions.

We use data on almost 50,000 men and women culled from marriage records from the TRA database (Bourdieu, Kesztenbaum, and Postel-Vinay 2014)—a register-based sample of French marriages. We create a unique dataset that combines this rich individual-level information with indicators of economic and social developments in about 1,000 different contexts, that is, department-by-decade combinations, and estimate context-fixed-effects models that provide a robust test of variations in the gender status gap by regional socio-economic advancement. The French case is well suited to answer our research questions as there has been a long history of ideological support for women's labor force participation both for single and married women, and the French state was actively facilitating women's employment. In a context that is rather supportive of women's labor force participation, women should more readily benefit from opportunities offered by socio-economic advancement (Misra and Jude 2008).

We hope to make two main contributions. The first relates to the unique data sources. Taking advantage of long-term register data, we close the gap between historical and post-war research. Survey data are available only for the post-World War II period and thus do not reach back far enough to observe the closing of the gender status gap. Previous historical studies are almost all restricted to specific subpopulations (Boehnke and Gay 2020; Schulz 2015), small regions, or comparing

only a few years (for an overview, see van Leeuwen and Maas 2010). Another advantage of our data source is that at marriage, women had to state their occupation themselves. Our data, hence, suffer less from underreporting of female occupations than census data (Maruani and Meron, 2012). This comes at the expense, however, of not observing women and men at exactly the same age or at the same point in their occupational career (first occupation). Instead, we observe them at marriage. Most people enter this life stage when they can be sure about their own and their partner's future economic status, which is when they have obtained more or less stable employment (Oppenheimer 1988). As such, we avoid analyzing marginal first occupations.

Second, moving beyond the evolutionary perspective of declines in gender inequality being rooted in forces of socio-economic advancement, we will formulate hypotheses on the interplay of socio-economic processes. Specifically, we will argue that the best way forward from modernization theory is not to throw it out lock, stock, and barrel, but to make it more complex to suit historical long-term change (Pierson 2003), in particular to scrutinize the intricate constellation of technological change, value change, and educational expansion needed to narrow the gender gap in occupational status.

Theoretical Background

Technological Development and Structural Changes in the Labor Market

Classical modernization theory holds that with increasing socio-economic advancement, gender inequality declines (Inglehart and Norris 2003b; Jackson 2006). The nineteenth and twentieth centuries were characterized by huge technological developments. Central to the process of industrialization was the augmentation or substitution of human effort with mechanical, fossil fuels, and water-driven power sources (Davis 1955:255). This transformation led to a reduced reliance on physical manpower in the labor market (Burnette 2008). New occupations appeared that, compared to many traditional occupations (like farmer, construction worker, and sawyer), were of somewhat higher status and required less physical strength. The latter made them more accessible for women (Burnette 2008). During the early stages of industrialization, French women, for example, entered the garment industry (Boxer 1986). Nevertheless, women did not enter factories in great numbers because the work remained relatively unattractive and women working in factories were often looked down on (Goldin, 2014).

The growing scale and complexity of production, however, also necessitated additional administrative staff, and the enhanced productivity of labor allowed for a shift of manpower from the production of goods to the provision of services. This caused a great expansion of clerical, administrative, and other service positions, both in the nineteenth century (e.g., Knigge et al. 2014) and the twentieth century (e.g., Lersch et al. 2020). Besides becoming a servant, working on a farm, or doing unskilled factory work, women increasingly had the opportunity to become nurses, teachers, or secretaries (Braverman 1974; Schulz, Maas, and van Leeuwen 2014).

These new employment opportunities for women were of higher status than those of the occupations that women used to be confined to and also of higher status than those of many (industrial) male occupations.

Hence, it follows from modernization theory that technological change was related to a decline in the gender status gap because it made production work less heavy. But we expect that the reduction of the gender gap was strongest when technological development was accompanied by new employment opportunities that were attractive and acceptable for women.

> *Technological developments (hypothesis 1a) and increasing employment opportunities in clerical, service and professional jobs (hypothesis 1b) led to a decline in the gender status gap at marriage.*
> *The extent to which technological developments reduced the gender status gap at marriage depended on the availability of employment opportunities in clerical, service and professional jobs (hypothesis 1c).*

The Spread of Egalitarian Gender Values

Modernization theory also claims that technological development produced a change in values, leading to greater freedom for individuals to pursue their occupational aspirations. In pre-industrial societies, ascribed characteristics—such as gender—were prime determinants of attainment (Kerr et al. 1960). However, in competitive markets, discrimination is costly, and employers are inclined to avoid discrimination (Becker 1957). In industrial societies, therefore, employers increasingly embraced universalistic values. Such values stress that all individuals should be judged in terms of their efforts, skills, and talents, rather than in terms of ascriptive characteristics. The dissemination of universalistic values, and egalitarian gender values in particular, is expected to have decreased the importance of gender in the labor market.

The effect that gender values have on women's access to higher-status jobs is arguably a joint effect of individual women's values and values predominant in their social circles. Seen from the supply side, women with more egalitarian gender values were more likely to try to obtain the new non-traditional occupational positions and, if necessary, compete for them with men. From the demand side, employers who embraced egalitarian gender values were more likely to give female applicants job offers with long-term prospects, including training and possibilities to advance to higher-status levels.

Hence, we expect:

> *A rise in egalitarian gender values led to a decline in the gender status gap at marriage (hypothesis 2a).*

This effect may, however, be most pronounced if specific employment opportunities were available. Traditional gender values remained important until well after World War II and still have not completely disappeared (Cotter et al. 2011). For most of the nineteenth- and twentieth-century women were expected to be homemakers or secondary earners at most, and their educational training and occupational experience were often seen as investments making them suitable spouses and

competent mothers (Clark 1984; Worth, Reeves and Friedman, 2023). Moreover, gendered views of preferences and talents ("essentialism"), stating that men and women are different in terms of talents and preferences (Levanon and Grusky 2016), were widespread. In order for women to enter the labor market, employment should thus be compatible with women's role as homemakers and secondary earners and should include female-typed tasks.

These views are reflected in the policies of the French state. Egalitarian standards were adopted in the public sector, notably primary schooling, post office, and secretarial work. At the same time, women were officially barred from dangerous work, and this work was mostly, but not solely, lower-status factory work. Women's roles as both (potential) mothers and workers were acknowledged at the beginning of the twentieth century and led to support measures, for example, to prevent the dismissal of pregnant women and loss of their occupational investments (Hantrais 1993).

Outside of the public sector, the number of jobs comprising clean tasks that required female-deemed skills, such as finger dexterity, also increased. That was mostly the case in clerical and service work and in certain (semi)professional occupations, for example, in health services. Managerial work is also "clean" but seen as requiring male-typed talents and less compatible with women's role as homemakers. Hence, we expect that the influence of value change hinged on the availability of attractive and acceptable positions for women.

> *The extent to which egalitarian values reduced the gender status gap at marriage depended on the availability of employment opportunities in clerical, service and professional jobs (hypothesis 2b).*

Educational Expansion

According to modernization theory, industrialization increased the demand for educated personnel, and as a consequence, educational systems expanded (Treiman 1970). In particular, secondary education became increasingly available to larger parts of the population and increasingly free of charge. Opening up secondary education to women was one of the key changes that took place in the late nineteenth century. This development can be expected to reduce the gender status gap, because it offered women qualifications that enabled them to work in higher-status jobs, which were previously only available to men.

By the end of the nineteenth century, the French state actively engaged in educational policies (Hage, Garnier, and Fuller 1988). Before that, girls could only attend secondary education in private or religious schools. In 1879, it became compulsory for departments to create schools for girls (*école normale*), and their number increased from just 22 in that year to 62 by 1889 (Combes 1997). In 1880, the first *lycée* for girls was established (Troger and Ruano-Borbalan 2010). Women's enrollment in secondary schooling increased steadily from the second half of the nineteenth century onwards, and after World War II, enrollment was up to 20 percent of an age cohort (Garnier and Hage, 1991:235); yet, girls' school participation lagged behind boys' until the late twentieth century (Maynes 1985; Perrin 2013).

An additional factor contributing to the closing of the gender status gap may have been that the new schooling opportunities were more advantageous for women's occupations than for men's (Goldin 1995). Educational credentials were less important for routine factory work—the working domain of men (Fuller 1983; Walters 1984). The new occupations for women (secretary, nurse, primary school teacher), however, required schooling. We expect:

> *Educational expansion led to a decline in the gender status gap at marriage (hypothesis 3a).*

We argued that due to educational expansion, women had better chances of gaining qualifications for the new female occupations and were therefore more likely to work in higher-status jobs. This already suggests that the impact of educational expansion on the gender status gap was dependent on the availability of new employment opportunities. Furthermore, for women from the middle classes, who made up most of the inflow into secondary schooling up until World War II, educational investments also meant better chances of marrying high-status partners. Only when attractive, socially recognized, higher-status jobs were available did these women have an incentive to use their education to access such positions in the labor market (Garnier and Hage 1991; Worth et al. 2023).

> *The extent to which educational expansion reduced the gender status gap at marriage depended on the availability of employment opportunities in clerical, service and professional jobs (hypothesis 3b).*

Data and Methods

Data

We use individual-level data from the TRA dataset. The sample was explicitly designed to avoid regional and social-class bias in the initial selection of individuals. The data collection started by drawing a sample of persons marrying in mainland France, 1803–1839, whose surnames began with the letters Tra. All marriages of their descendants were added, as long as they also had a surname beginning with Tra (Bourdieu et al. 2014; Dupâquier and Kessler 1992). The letters Tra were chosen because all parts of France (with the exception of the Basque Country) and all social classes had such surnames. As a result, the TRA data cover the demographic and socio-economic structure of the general population (Bourdieu et al. 2014:200–3). The nineteenth-century data were culled directly from the publicly available marriage registers; data for the twentieth century were requested from the town halls. Although there was a drop in the number of marriage records retrieved in the twentieth century, the change in data collection was not related to systematic bias in regional coverage, with the exception of Paris that was somewhat overrepresented between 1900 and 1940 (Zijdeman et al. 2014). As an additional check of the representativeness of the data, we compared the mean age at marriage for the years 1946–1960 with official demographic data (Journal Population 2024). The numbers are very similar: marriage age for women differs on average by only 0.29 year between the two sources and marriage age for men by only 0.51 year. This gives

confidence that the data are largely representative of the population over time, a conclusion that was also drawn in other studies using the same data (Bonneuil and Rosental 1999).

The data contain the following information: age, place of birth and residence, occupation of bride and groom, and whether they signed the marriage act, as well as the occupation of their parents if alive. The proportion of women ever marrying in France was high: 81 percent in 1851, 85 percent in 1936 (Henry 1965:453), 89 percent in 1948, and around 81 percent up to 1960 (INSEE, 2020); it was only after 1960 that this share dropped (Mazuy, Barbieri, and d'Albis 2014). At marriage, selective labor force participation by occupational status was less of an issue than later in life, because many women worked up to their marriage, and only after marriage, a selective group of women left the labor market. More than half of brides reported an occupation from the mid-nineteenth century until about 1950, a level that was rather stable, before rising to a peak of over 80 percent around 1970 and then declining, though remaining above pre-World War II levels. Employment at marriage was more common among women in urban areas, those with fewer resources, and those who had migrated or left the parental home (Zijdeman et al. 2014:547). We discuss this issue further in the concluding section of this article.

Sample selection

The TRA dataset contains 78,357 marriages taking place between 1803 and 1986. We restrict the sample to the period 1860–1960 (N = 43,701) because of the availability of contextual data and the drop in marriage rates after 1960 (see Table A1 in the online supplement). In addition, we exclude marriages in which bride and groom were married before (4,643 grooms, 1,817 brides, N = 6,460)[1] and exclude marriages with men or women who married before the age of 15 (N = 2) or after the age of 40 (N = 544). These selections leave us with 36,460 marriages.

We restructured the data so that not each marriage, but every bride and every groom represents a single observation. Grooms and brides are included in the sample if the occupational information on the marriage certificate could be assigned an occupational status (see the online supplement for information on occupational information for brides and grooms, Figures A1/2). This restriction leaves us with 51,817 cases. In the last step, we select all grooms and brides for whom context information that we derive from the TRA dataset itself (see below) is available. Most analyses use these 49,820 cases (17,897 brides and 31,923 grooms). To make most use of the data, sample sizes in the analyses of the relationship between socio-economic processes and the gender gap vary because they are restricted to the periods for which measures of these processes are available (for details, see the measurement section).

Individual-level measures

Occupational status: Our dependent variable is occupational status measured at marriage. The occupational titles in the data have been classified using the Historical International Standard Classification of Occupations (HISCO) (van Leeuwen, Maas, and Miles 2004). HISCO is a detailed classification schema with 1676 different

categories, of which 711 were used to classify the occupations in the data. HISCO scores were recoded into HISCAM version 01, a historical status scale (Lambert et al. 2013). This scale, as well as its contemporary equivalent CAMSIS (Cambridge Social Interaction and Stratification) (Prandy and Lambert 2003), is designed assuming that patterns of social interaction (marriage, for instance) between people from different occupational strata are representative of the overall structure of occupational stratification. HISCAM was developed using 1.5 million marriage records from six different countries, including France, from 1800 to 1938. Occupations of brides, grooms, their mothers, and their fathers are used. The status of an occupation is thus not gender specific, but determined by the interactions of both men and women who have this specific occupation. The scale ranges from 10.6 to 99, with higher values indicating higher occupational status. Servants, for example, have a HISCAM score of 10.6. Teachers in primary education score 70.4 and midwives 51.3. Because HISCAM is based on patterns of social interaction such as marriage, status distances between closely linked but hierarchically unequal occupations (e.g., nurses and doctors, clerks and lawyers) may partly be compressed—tending to overstate women's relative status. Table A5 in the online supplement reports HISCAM scores and gender composition over time for the most common occupations and for a set of elite occupations (e.g., doctors, engineers, judges, legislators, military officers, and managers), showing that despite convergence in average status scores, elite positions remain male-dominated and there is an inflow of women into adjacent but hierarchically distinct occupations. Hence, our main estimates should be interpreted as a lower bound of gender inequality in occupational status. Note that homemakers do not receive an occupational status score. Technically, it is possible to include homemakers when deriving a social interaction status scale (e.g., Bakker 1993), but this has not been done for HISCAM. It is also sometimes suggested to give homemakers the status of their husbands. Although this could provide a good measure of their societal status, it would obscure the analyses of the occupational status gap between men and women. Theoretically, homemakers—although they certainly work—are in a different position compared to women on the labor market, for example, because there is no employer deciding about their hiring or promotion. We therefore focus our analyses on men and women who declare at marriage that they have an occupation. In addition, we provide additional analyses replacing missing occupational information of wives (see below).

We control for several variables at the individual level.

Experience/10: Men and women who married at a higher age likely acquired more labor market experience and had a higher occupational status. It is important to take this into account because men tend to marry at an older age than women. We assumed the starting age for work was 15 years and subtracted 15 years from the age at marriage. For ease of interpretation, we divide experience by 10. All models include a quadratic experience term to account for the fact that the returns to experience decrease at higher values of experience.

Occupational status of father: Numerous studies have shown an effect of the father's occupational status on that of his children. Father's status needs to be taken into account, because otherwise effects of socio-economic advancement on parental occupational status would show up as effects on status of the next generation

approximately 30 years later, and it would be impossible to disentangle these effects from the direct effects of socio-economic advancement on status of the marrying couple. The occupations of the fathers were coded into HISCO and then assigned a HISCAM score. Note that we did not include the mother's occupational status because of high numbers of missing values. Mother's status has been shown to affect especially the status of their daughter, but this effect strongly overlaps with that of father's status and hardly increases the explained variance (Kong, Maas and van Leeuwen 2020).

Bride's and groom's signatures: Some men and women did not attend or finish primary education. Marriage certificates contain an individual-level indicator for this: whether bride and groom signed the marriage certificate. Over the whole period, 85 percent of brides and 81 percent of grooms did so. The inability to sign showed a strong decrease over time (from 36.4 percent between 1860 and 1880 to 0.1 percent between 1941 and 1960).

Type of town: To account for local labor market opportunities (other than the socio-economic advancement mentioned in the hypotheses), we use information on whether the place of marriage had an important regional administrative function—whether it was the capital of a canton, the capital of an arrondissement, or the prefecture of a department. These different administrative contexts are entered as dummy variables with "rural" as the reference category. Descriptive information for all individual-level variables is presented in Table 1.

Contextual-level measures

The contextual measures either stem from external sources or are aggregations from the TRA data. Measures from both sources will suffer from measurement error, but the aggregated measures will also be biased if the TRA data are not representative of the population in a certain context. As discussed before, we cannot be completely certain about this, but we do not have reasons to expect the data to be strongly non-representative. The use of aggregations from individual data as indicators for modernization as such has been shown to perform well. Lippényi, Maas, and van Leeuwen (2015) report correlations of 0.69 (transport) and 0.66 (educational expansion) between indicators that were aggregations from the individual data and indicators from external sources. All contextual measures refer to a department/decade combination. The boundaries of the departments are as they were at the time (minor changes occurred over time). Ninety-five out of the current 100 departments are included in our data. The five not included departments are split-offs from older departments after the period under study. Time was divided into 10 decades, running from 1860–1869 to 1950–1960. The contextual variables were standardized to have a mean of zero and a standard deviation of one. Descriptive information on the variables (before standardization) can be found in Table 2.

Technological development: We measure technological development by two indicators. Both stem from the *Annuaire Statistique de la France*, harmonized in the HISCI-FR database.[2] The indicators closely relate to the definition of industrialization as the use of mechanical equipment and mechanized energy (Davis 1955). The first indicator measures the total capacity of steam power per 1,000 inhabitants in

Table 1: Descriptive information at the individual level.

	Mean	s.d.	Min	Max	*N*
Brides					
Occupational status	54.18	11.15	10.6	99.0	17,897
Experience/10	1.03	0.45	0.0	2.8	11,973
Literacy (1/0)	0.80	0.40	0.0	1.0	17,897
Status father	54.28	10.32	28.9	99.0	11,163
Type of town (marriage)					
Capital of canton	0.07	0.26	0.0	1.0	17,897
Capital of arrondissement	0.18	0.38	0.0	1.0	17,897
Prefecture of department	0.26	0.44	0.0	1.0	17,897
Rural	0.48	0.50	0.0	1.0	17,897
Grooms					
Occupational status	56.06	11.64	10.6	99.0	31,923
Experience/10	1.37	0.44	0.0	2.8	21,855
Literacy (1/0)	0.84	0.36	0.0	1.0	31,923
Status father	55.99	10.93	32.1	99.0	18,649
Type of town (marriage)					
Capital of canton	0.07	0.25	0.0	1.0	31,923
Capital of arrondissement	0.18	0.38	0.0	1.0	31,923
Prefecture of department	0.21	0.40	0.0	1.0	31,923
Rural	0.55	0.50	0.0	1.0	31,923

Source: TRA data. Own calculations.

kilowatts[3] in a department in a year. This indicator is available up to 1938. The second indicator is electricity consumption in kilowatt hours per 1,000 inhabitants per year and covers the years 1912–1943. We average both indicators over the years in a decade. The indicators do not highly correlate in the years in which they overlap, presumably because investments in industrial facilities using electricity replaced steam power. For that reason, we present separate analyses using both indicators. Both indicators of technological change are measured with a 5-year lag, as these processes might affect the gender gap only after some time.

Labor market structure: We use the occupational information of brides and grooms in the TRA data to measure the sizes of the labor market sectors. We calculated the share of brides and grooms marrying in a certain department in a period of 10 years, working in the HISCO major groups: 0–2 professional, administrative, and managerial; 3–5 clerical, sales, and service; 6 agriculture; and 7–9 manufacturing and transport (reference category). A growth of sector 3–5 and to a lesser extent of sector 0–2 means more attractive occupations for women.

Educational expansion: As far as we know, official statistics on boys' and girls' attendance in secondary education per department are only available for part of the period we observe. Therefore, we use an indirect indicator of secondary schooling opportunities: an estimate of the presence of teachers at the secondary education level (cf. Lippényi et al. 2015). We took all teachers in the TRA data marrying in a department and assumed they kept working in this department until the age of 60. To capture educational opportunities during childhood, the

Table 2: Descriptive information at the contextual level.

	Mean	s.d.	Min	Max	*N*
Technological development					
Steam power (kW) per 1,000 inhabitants	40.67	75.63	0.08	745.18	707
Electricity (kW) per 1,000 inhabitants	236.28	567.14	0.15	3714.67	302
Labor market structure (%)					
Professional, administrative, and managerial (%)	5.44	6.50	0.00	66.67	948
Clerical, sales, and service (%)	23.73	12.15	0.00	100.00	948
Agriculture (%)	29.65	19.83	0.00	100.00	948
Manufacturing and transport (%)	41.18	17.05	0.00	100.00	948
Educational expansion					
Secondary education teachers (%)	0.29	0.59	0.00	5.71	1,175
Egalitarian gender values					
Divorces per 1,000 inhabitants	0.30	0.25	0.00	2.44	705

Source: Own calculations for labor market structure and educational expansion using the TRA data, and *Annuaire Statistique de la France* for steam, electricity, and divorce.
Note: All variables are measured for department of marriage/decade combinations, except educational expansion, which is measured at the department of birth/decade combination for the decade in which the respondent was 12 years of age.

measure refers to brides' and grooms' department of birth when they were twelve years old. To relate this number to the size of the population, we divide it by the total number of marriages in the same context. We might underestimate the presence of teachers if female teachers did not state their occupation because they stopped working upon marriage or if the teaching occupation was mainly deemed suitable for unmarried women. However, this does not seem to be a severe problem, as various studies (cf. Harrigan 1998) report high marriage rates among female teachers in the mid-nineteenth to the early twentieth century, one reason being that married women were deemed suitable to replace nuns as teachers. Marriage was therefore encouraged by the Ministry of Education. Note that this indicator does not distinguish between girls' and boys' educational opportunities. Because in our models, we only estimate the effect of changes in educational opportunities in a specific department (and not of the overall trend or the absolute level), this is less problematic. Both the opportunities for secondary education and actual participation increased for both genders, and even somewhat faster for girls than for boys, although girls lagged behind boys for the whole period that we observe (Perrin, 2013). Our measure, therefore, slightly underestimates the increase in opportunities for girls and overestimates the increase for boys.

Egalitarian gender values: We use divorce rates, as published in the Annuaire Statistique de la France, as a proxy for the dissemination of egalitarian gender values. The indicator captures the period 1885–1960. Divorce is often interpreted as an indicator of gender norms, especially in relation to women's autonomy and the weakening of traditional family structures. Prior research has shown that higher divorce rates are associated with less restrictive values regarding individual behavior—regardless of one's own marital status (Stevenson and Wolfers 2007; Wolfinger 2003). In such contexts, women are generally less likely and less willing

to be dependent on men and more likely to invest in their own educational and occupational trajectories (Diekmann 1994; Goldin 2006). However, we acknowledge that divorce rates also reflect legal, institutional, and economic conditions. In the French context, divorce was abolished in 1816 and only reintroduced in 1884 (Naquet's Law), after which rates increased gradually but remained low well into the twentieth century (Braudel and Labrousse 1993a, 1993b). Moreover, we recognize that divorce captures only one dimension of gender values and is, at best, an imperfect proxy. As such, we treat it as a suggestive measure of shifting gender norms in the absence of measures directly capturing gender values. We expect that gender norms have a more or less immediate effect on the choices women make in the labor market and therefore measure it without a time lag. When the norms are less restrictive, young women are more likely to strive for and enter the newer occupations, which have, on average, a higher status. Figure 1 shows the trend in the five indicators. Although indicators of educational expansion, technological development, and egalitarian gender values have increased over time, the correlations between their temporal changes at the context level are relatively low and often not statistically significant (see Table A2 in the online supplement). This suggests substantial variation across contexts in the progression of these societal processes.

Methods

We use multilevel analyses, more specifically, context-fixed-effects regression models, to estimate the effect of socio-economic processes on the gender status gap. Individuals are nested within the departments in which they married in a 10-year period, for example, in Normandie, 1860–1870. Our main interest is to assess how the gender status gap—which is estimated by including a gender dummy "male"—varies with educational expansion, technological development, structural changes in the labor market, and gender values. We include context fixed effects as well as department * male fixed effects and period * male fixed effects in the regression model. Through this inclusion, our estimates are net of general and gender-specific trends in the mean status level and gender-specific time-constant regional differences. Also, department-specific time trends in status are taken into account. This also reduces the influence of possible over- or underrepresentation of specific regions (Paris) or periods in the data. We can still estimate the effect of contextual indicators by interacting these with the gender dummy. It is not feasible to estimate cross-classified fixed-effects models that also take into account that educational expansion is measured in the department of birth when the bride/groom was 12 years of age. That means that we treat educational expansion as individual-level variable, leading to an underestimation of the standard errors. As information stems from marriage records, the individual observations of men and women are nested within marriages, and we therefore cluster the standard error on the marriage level. All models include an interaction to take possible war effects into account (Goldin and Olivetti 2013). These effects are modeled as an interaction between gender and all the years since the onset of each of the World Wars.[4]

In total, the 49,820 observations are nested within 948 department/decade contexts and 33,680 marriages (see also Table A3 in the online supplement). To maximize sample size, we use multiple imputation for missing values on experience

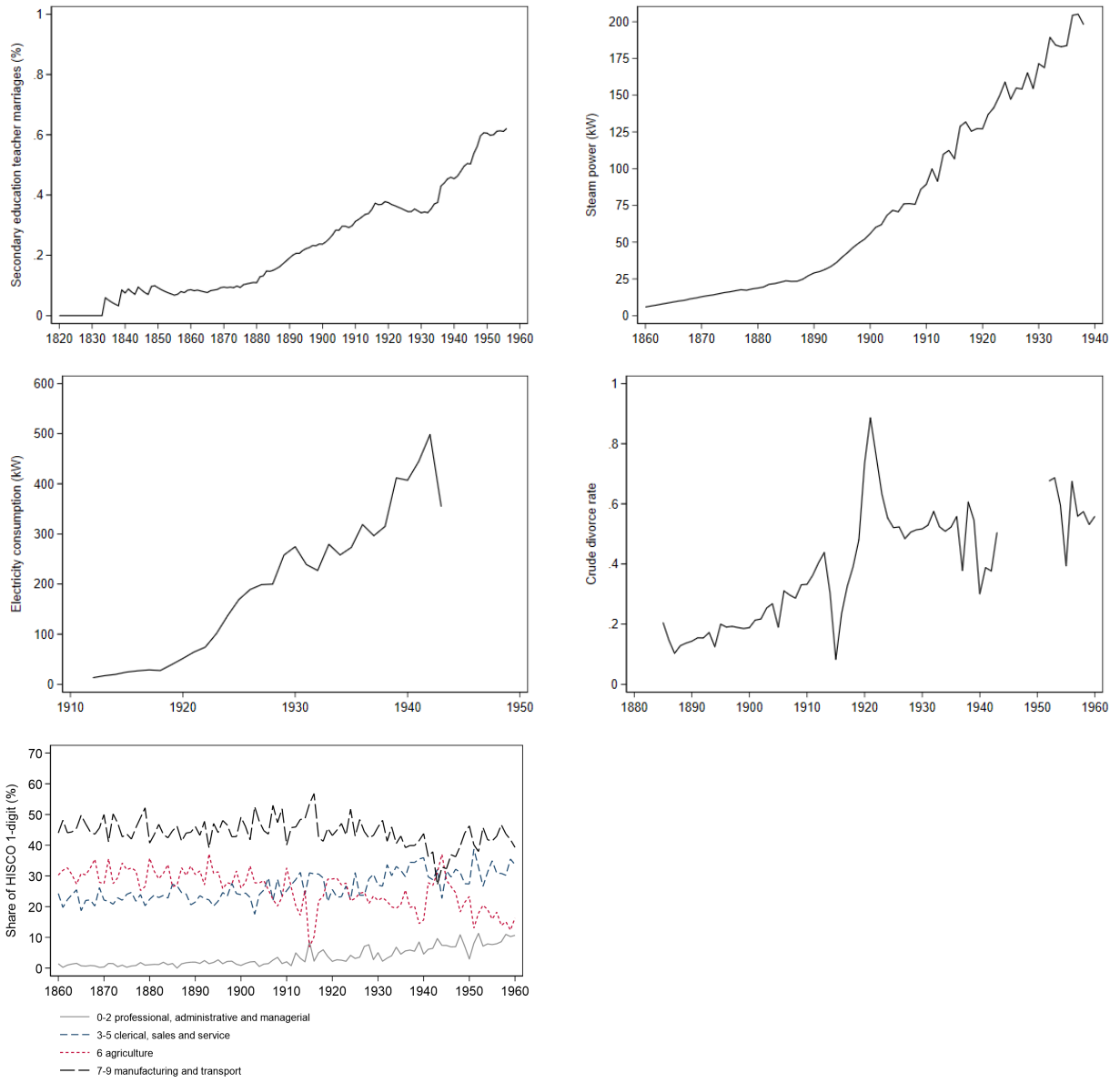

Figure 1: Contextual indicators by year. (Upper left) Educational expansion: presence of secondary education teachers as a percentage of all marriages (at age twelve, in the department of birth). *Source*: TRA data. (Upper right: Kilowatt of steam machinery per 1,000 inhabitants. (Upper middle left): Electricity consumption (kW) per 1,000 inhabitants. (Upper middle right): Egalitarian values: number of divorces per 1,000 inhabitants. *Source*: *Annuaire Statistique de la France*. (Lower left): Labor market structure (%). *Source*: TRA data.

and father's status. We created 20 imputations in Stata 16.2 with chained equations under the assumption of missingness at random.[5] All information on the respective spouse, and whether parents were deceased or present at the marriage, was used.[6] The missingness of information on father's occupation is largely due to fathers no longer being alive. By imputing the father's status, we assume that the father

lived long enough to affect his daughter's status, or alternatively, that the mother remarried to someone with a similar status. This may not always have been the case.

Results

Descriptive Findings

Figure 2 depicts the observed trend of the gender status gap in occupational status at marriage. In the first years of the observation period, up to the end of the nineteenth century, the gap slightly increases from two to three status points; from 1910 onwards, a steady decline of the gap starts. The expected trend toward a reduction and reversal of the gap is clearly visible. The war years stand out; there is a sharp temporary decline in the observed gap around the onset of World War I and another dip around World War II, after which the gap—now in favor of women—stabilizes. It is also obvious from Figure 2 that contextual differences in the gender status gap increased over time. This is in line with our theoretical argumentation that socio-economic advancement was a complex process, and its influence cannot be modeled as a universal trend.

Changes in the occupational distribution that are behind the narrowing of the gender status gap are shown in Figure 3. The figure shows the size of an occupational group as a share of the total employed male or female population in a given decade. Only those occupational groups that in any of the decades make up at least 3% of all employed men or women are depicted. Throughout the observation period, men worked in a larger number of occupations than women. Only after the start of the twentieth century, women work in an increasingly larger number of different occupations. An increasing share of women worked as typists, in retail, or as primary education teachers. These occupations were of higher status than maids and cooks, which were common occupations before. Men's occupational distribution changed as well. The largest single occupation for men was farming, but the share of farmers became smaller. Likewise, the group of men doing service work or unspecified labor decreased. The occupations men moved to, such as machinery fitters and assemblers and motor-vehicle drivers, did, however, not have a much higher status.

Main Analyses

Figure 4 shows model predictions of trends in the status gap at marriage between men and women from 1860 onwards, with and without individual controls (based on Table 3, model 1 and model 2). Because of the inclusion of context fixed effects, differences in mean status across contexts are omitted; that is, only differences in status between men and women and their variation over time are considered. The trend in the black line is very similar to the observed trend shown in Figure 2. Taking into account individual characteristics (gray solid line), such as experience and literacy, reduces the size of the gap, indicating that part of it is due to compositional effects. However, the trend in the gender status gap remains similar. In

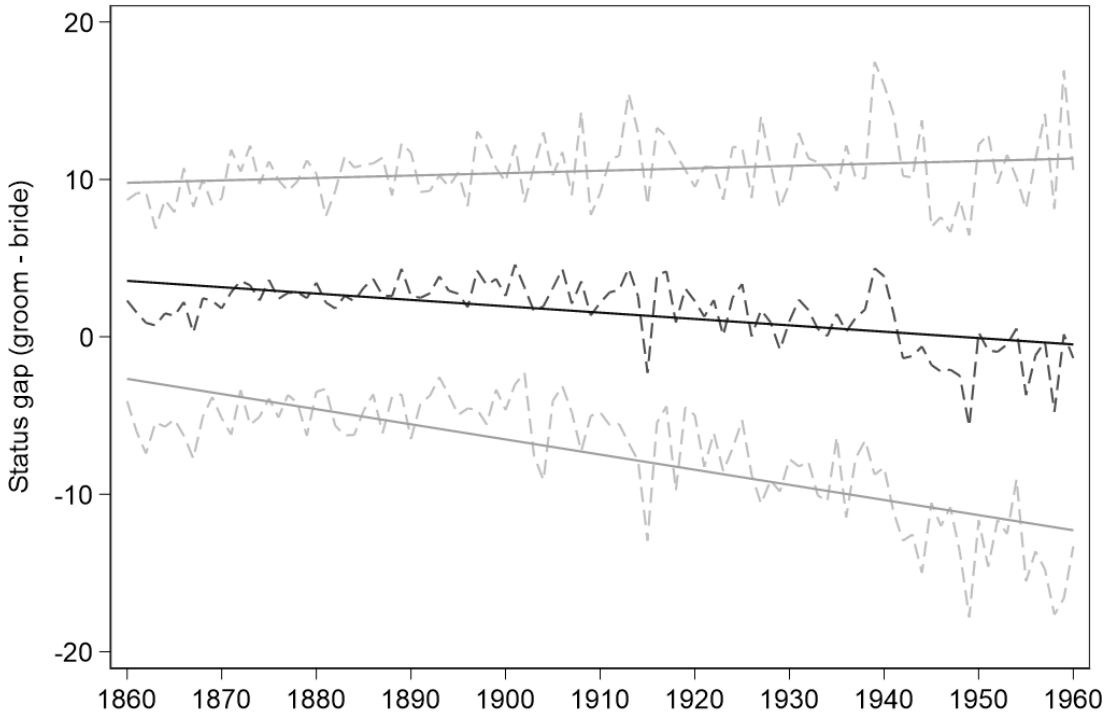

Figure 2: Gender status gap at marriage for each year from 1860 to 1960, along with a linear prediction line (black). In addition, the average gap plus and minus one standard deviation of the status gap is shown.

supplementary analyses (see Figures A3–A5 in the online supplement), we tested for the sensitivity of the trend in the status gap to missing occupational information of brides. We added an analysis giving brides who did not report an occupation the HISCAM status of maid (HISCAM 10.6) or cook (HISCAM 55.3) and giving farmers' wives farmer status (HISCAM 60.9). These supplementary analyses show that estimates of the gender status gap are sensitive to how women who are not in the labor force are treated. If all farmers' wives with missing occupational information were treated as farmers, the reversal of the gap would be more pronounced from 1920 onwards. Coding all missing occupational information as maids implies that inequality is understated in our main analyses, while coding as cooks suggests it is overstated in earlier periods. Historical evidence suggests that women who were not in the labor force were on average positively selected. Many of them did not do the tasks of a maid, but employed a maid. However, it is impossible to know the exact composition of this group. The supplementary analyses indicate that our baseline results likely represent a mid-range estimate.

Are the changes in regional socio-economic advancement associated with trends in the gender status gap? To answer this question, we first investigate the relationship between indicators of socio-economic advancement and the status gap separately, net of the overall time and regional variation in the gap and the individual-level control variables. We start with the measures available for almost the entire period—educational expansion, labor market opportunities (1860–1960),

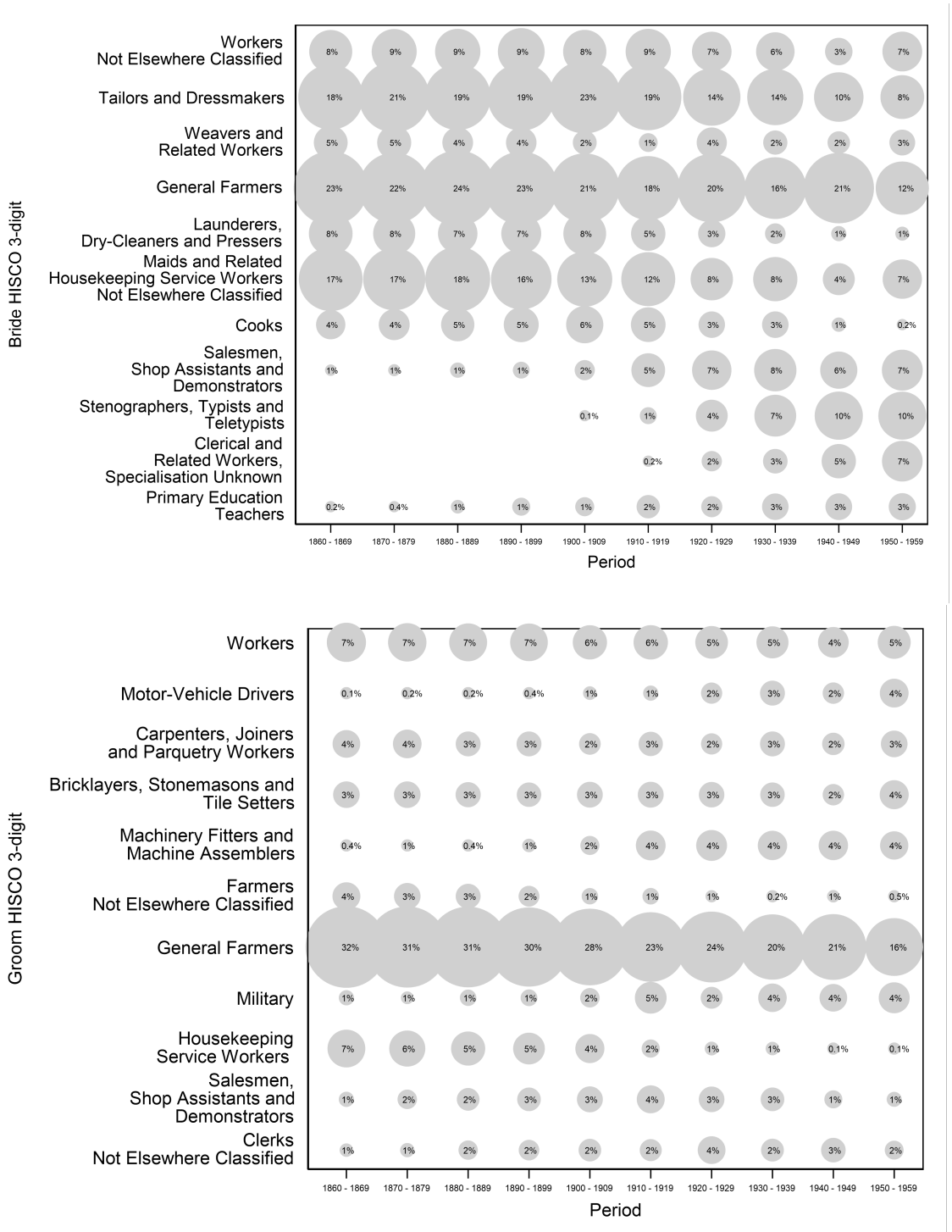

Figure 3: Distribution of brides and grooms across occupations (three-digit HISCO groups): bubbles show the size of an occupational group as a share of all employed men/women in the TRA data in a given decade. Only those occupational groups that in any of the decades make up at least 3% of the employed population are depicted. *Source:* TRA data (N = 17,897/31,923).

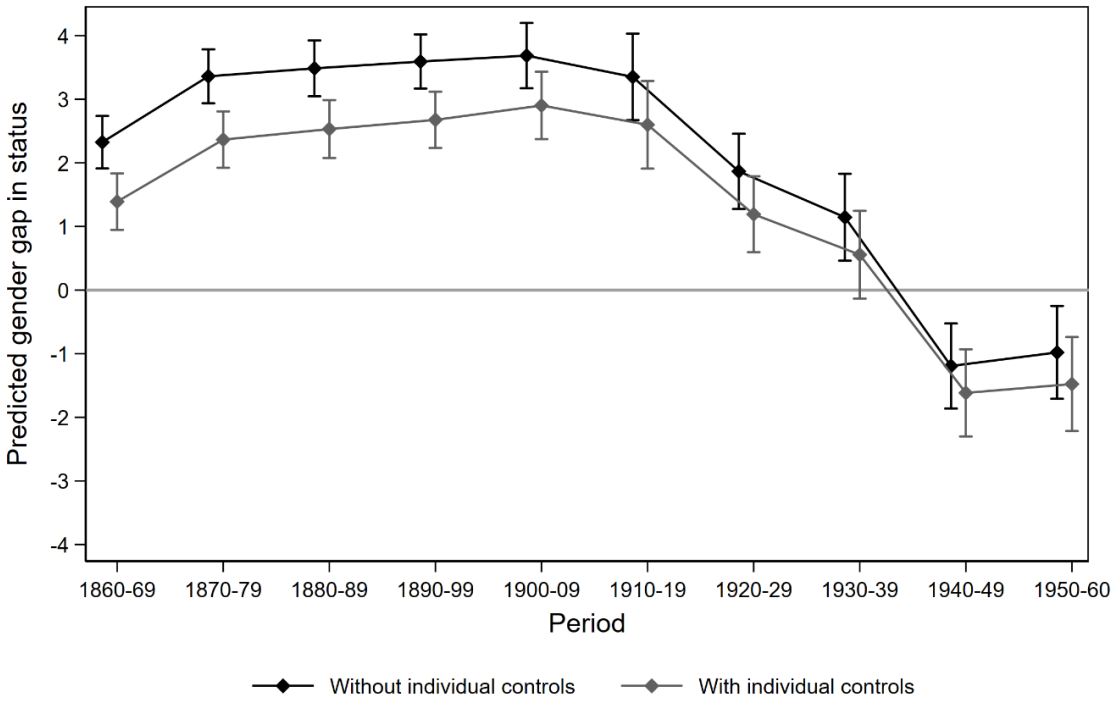

Figure 4: Predicted trend in the status gap without individual controls (solid black) and controlled for experience, father's and mother's status, signature, and type of town (solid gray) (based on models 1 and 2, Table 3, N = 49,820).

and egalitarian values (1890–1960). Their interactions with the gender dummy are included in models 3, 4, and 5 in Table 3, respectively.

The interaction term of gender with educational expansion is positive and statistically significant (see model 3). For every one-unit (i.e., one standard deviation) increase in educational expansion, the gender status gap increased by 0.300 status point ($p < 0.05$). Thus, contrary to expectations, we find that educational expansion is positively related to the gender status gap in favor of men. The spread of egalitarian values is also positively related to the gap, but not statistically significant (0.003, n.s., model 4).

For every one standard deviation increase in the share of professional, administrative, and managerial jobs, the gender status gap decreased by one-third of a status point (model 5: -0.351, $p < 0.05$). More opportunities in the clerical, sales, and service sectors are also negatively related to the gap (-0.323, $p < 0.05$). These results provide support for hypothesis 1b. The size of the agricultural sector is likewise related to a smaller gender gap, but not significantly (-0.414, n.s.). The inclusion of the indicators of labor market opportunities accounts for a small part of the time trend in the gender status gap.

Models 6 and 7 include indicators for technological advancement, in the period 1860–1938 measured as steam power and in the period 1912–1943 measured as electricity consumption. The use of steam power is negatively related to the

Table 3: Context-fixed-effects models of status at marriage.

	Model 1	Model 2	Model 3	Model 4	Model 5
Male	1.554*	0.493	0.651	2.017*	0.439
	(0.760)	(0.730)	(0.733)	(0.980)	(0.802)
Male × period					
1860–1869	Ref.	Ref.	Ref.		Ref.
1870–1879	1.038**	0.937**	0.917**		0.934**
	(0.297)	(0.306)	(0.306)		(0.307)
1880–1889	1.293**	1.235**	1.207**	Ref.	1.313**
	(0.303)	(0.312)	(0.312)		(0.314)
1890–1899	1.411**	1.414**	1.379**	0.014	1.495**
	(0.300)	(0.304)	(0.305)	(0.410)	(0.305)
1900–1909	1.428**	1.506**	1.446**	0.089	1.560**
	(0.336)	(0.337)	(0.338)	(0.430)	(0.340)
1910–1919	0.947*	0.453	0.380	−0.686	0.616
	(0.410)	(0.489)	(0.489)	(0.566)	(0.496)
1920–1929	−0.443	−1.439*	−1.539*	−2.313**	−1.273
	(0.370)	(0.652)	(0.653)	(0.717)	(0.658)
1930–1939	−1.141**	−2.044**	−2.160**	−2.893**	−1.703*
	(0.409)	(0.670)	(0.670)	(0.735)	(0.684)
1940–1949	−3.500**	−4.242**	−4.381**	−3.834**	−3.715**
	(0.404)	(1.040)	(1.041)	(1.231)	(1.061)
1950–1960	−3.258**	−4.121**	−4.334**	−5.370**	−3.591**
	(0.430)	(1.053)	(1.056)	(1.104)	(1.089)
Male × educational expansion			0.300*		
			(0.135)		
Male × egalitarian value: divorces				0.003	
				(0.074)	
Male × HISCO 1-digit (ref. 7–9 manufacturing and transport)					Ref.
0–2 professional, administrative, and managerial					−0.351*
					(0.146)
3–5 clerical, sales, and service					−0.323*
					(0.159)
6 agriculture					−0.414
					(0.244)
Constant	53.928**	52.488**	52.477**	53.008**	52.507**
	(0.077)	(0.403)	(0.404)	(0.558)	(0.404)
N	49,820	49,820	49,820	30,289	49,820

Table 3: (*Continued*)

	Model 6	Model 7	Model 8	Model 9
Male	0.278	2.794	2.268*	2.338
	(0.765)	(1.882)	(1.125)	(2.208)
Male × period				
1860–1869	Ref.			
1870–1879	1.113**			
	(0.311)			
1880–1889	1.403**		Ref.	
	(0.313)			
1890–1899	1.778**		−0.035	
	(0.309)		(0.410)	
1900–1909	1.860**		0.072	
	(0.348)		(0.437)	
1910–1919	1.146*	ref	−0.817	ref.
	(0.511)		(0.579)	
1920–1929	−0.313	−1.192	−2.719**	−1.600*
	(0.677)	(0.718)	(0.742)	(0.783)
1930–1939	−0.816	−1.717*	−3.015**	−2.013*
	(0.707)	(0.759)	(0.775)	(0.810)
1940–1949	−1.711	−3.074**	−3.631**	−2.700*
	(1.220)	(1.183)	(1.279)	(1.327)
1950–1960				
Male × educational expansion			0.118	0.016
			(0.223)	(0.295)
Male × egalitarian value: divorces			0.139	0.053
			(0.086)	(0.377)
Male × HISCO 1-digit				
(ref. 7–9 manufacturing and transport)			Ref.	Ref.
0–2 professional, administrative and managerial			−0.468*	−0.281
			(0.213)	(0.353)
3–5 clerical, sales, and service			−0.350	−0.204
			(0.240)	(0.520)
6 agriculture			−0.926*	0.124
			(0.363)	(0.747)
Male × steam power	−0.363*		−0.211	
	(0.154)		(0.167)	
Male × electricity		−0.482		0.096
		(0.390)		(0.458)
Constant	51.802**	54.387**	52.207**	53.930**
	(0.454)	(1.045)	(0.626)	(1.131)
N	40586	11356	25597	10008

Source: TRA data (multiply imputed); own computations.
Note: Standard errors in parentheses clustered at marriage level; context: teacher marriages in department of birth/5-year period at age 12, steam, electricity, divorces, HISCO 1-digit in department/decade. Controlled for the type of town. $^{*}p < 0.05$, $^{**}p < 0.01$.

gender gap in status (-0.363, $p < 0.05$). The interaction of males with electricity consumption is negative (-0.482, n.s.), but not significant. Thus, the influence of technological development on the gender status gap depends either on the period or on the measure.

Models 8 and 9 include the indicators together with separate models for steam power and electricity. While steam power is negatively related to the status gap when added alone, it is not when the other processes (educational expansion, egalitarian values, and structural labor market changes) are taken into account (-0.211, n.s., model 8). We did not hypothesize on this, but it is in line with what could have been expected. Industrialization affects the gender gap in status primarily through changes in the occupational structure. The effect of electricity consumption remains insignificant when the other indicators are added to the model (0.096, n.s., model 9).

Accounting for the other processes somewhat strengthens the negative association between professional, administrative, and managerial occupational opportunities and the status gap (-0.468, $p < 0.05$). The size of the agricultural sector is now also negatively related to the gender status gap (-0.926, $p < 0.05$). We did not expect this, but it is a logical result of farmers and farmer's wives having equal occupational status. In additional analyses, we excluded brides who indicated to be a farmer. A large agricultural sector is now associated with a larger gender status gap (results available on request).

The unexpected positive effect of educational expansion becomes insignificant when the other processes are taken into account (0.118, n.s.). This is probably due to the negative correlation between educational expansion and the size of the agricultural sector. This creates a negative $\times$ negative is positive path from educational expansion via the size of the agricultural sector to the gender gap. This means that just like technological development, educational expansion also affects the gender status gap through the occupational structure.

In sum, when including them together, but not considering a possible interplay between the processes of socio-economic advancement, some of them are related to a reduction of the gender gap in status (technological development (indirectly), labor market opportunities), and some with a reinforcement of the gap (educational expansion (indirectly)).

In the following, we analyze the interplay of the processes as we expect that favorable labor market opportunities for women condition the effect of educational expansion, technological change, and value change. Table 4 includes the three-way interactions of educational expansion, technological change, and value change with indicators for labor market opportunities and with the gender gap (male). All models additionally include the two-way interactions of all processes with the gender gap.[7]

We start with technological development. We find that labor market opportunities, especially the availability of clerical, sales, and service occupations, condition the effect of technological development on the gender status gap, if we measure technological development with the use of steam power (Table 4, model 1). At average values of the size of the clerical, sales, and service sectors, technological development is positively (but not significantly) related to the gender status gap (0.267, n.s.). When the occupational opportunities in this sector are small (2 s.d.

Table 4: Context-fixed-effects models of status at marriage: three-way interactions.

	Model 1	Model 2	Model 3	Model 4
Male	2.421*	2.588	2.373	2.171
	(1.135)	(2.231)	(2.221)	(2.213)
Male × educational expansion	0.103	0.019	0.085	0.019
	(0.223)	(0.295)	(0.331)	(0.294)
Male × egalitarian value: divorces	0.161	0.105	0.049	0.207
	(0.086)	(0.382)	(0.376)	(0.465)
Male × steam power	0.267			
	(0.227)			
Male × HISCO 1-digit (ref. 7–9 manufacturing and transport)				
0–2 professional, administrative, and managerial	−0.368	−0.295	−0.250	−0.197
	(0.218)	(0.355)	(0.356)	(0.355)
3–5 clerical, sales, and service	−0.087	−0.272	−0.235	−0.106
	(0.242)	(0.529)	(0.521)	(0.534)
6 agriculture	−0.498	−0.096	0.107	0.303
	(0.368)	(0.796)	(0.747)	(0.774)
Male × electricity		0.444	0.100	0.081
		(0.665)	(0.459)	(0.459)
Male × steam power × HISCO major groups (ref. 7–9 manufacturing and transport)				
0–2 professional, administrative, and managerial	0.084			
	(0.164)			
3–5 clerical, sales, and service	−0.537**			
	(0.192)			
6 agriculture	0.302			
	(0.291)			
Male × electricity × HISCO 1-digit (ref. 7–9 manufacturing and transport)				
0–2 professional, administrative, and managerial		−0.089		
		(0.352)		
3–5 clerical, sales, and service		−0.430		
		(0.423)		
6 agriculture		−0.737		
		(0.658)		
Male × educational expansion × HISCO 1-digit (ref. 7–9 manufacturing and transport)				
0–2 professional, administrative, and managerial			−0.171	
			(0.259)	
3–5 clerical, sales, and service			0.184	
			(0.322)	
6 agriculture			0.169	
			(0.378)	
Male × egalitarian value: divorces × HISCO 1-digit (ref. 7–9 manufacturing and transport)				
0–2 professional, administrative, and managerial				−0.316
				(0.327)
3–5 clerical, sales, and service				−0.062
				(0.395)
6 agriculture				−0.124
				(0.552)
N	25,597	10,008	10,008	10,008

Source: TRA data (multiply imputed); own computations.
Note: Standard errors in parentheses clustered at marriage level; controlled for male, male × period, experience and experience squared, signature, status father, type of town, male × World War I, and male × World War II. $^{*}p < 0.05$, $^{**}p < 0.01$.

Table 5: Overview of the hypotheses and findings.

Hypothesis	Socio-economic advancement	Hypothesized effect on gender status gap at marriage	Empirical finding
1a	Technological developments	Decline	Conditionally supported for steam power: only when clerical, service, and sales jobs are available
1b	Employment in clerical, service, and professional jobs	Decline	Supported
1c	Technological developments × employment opportunities	Effect of technological developments depends on the availability of relevant employment	Supported, especially for the availability of clerical, sales, and service jobs
2a	Egalitarian gender values	Decline	Not supported
2b	Egalitarian values × employment opportunities	Effect of egalitarian values depends on the availability of relevant employment	Not supported
3a	Educational expansion	Decline	Not supported: Educational expansion increases the gap via a reduction in the (egalitarian) agricultural sector
3b	Educational expansion × employment opportunities	Effect of educational expansion depends on the availability of relevant employment	Not supported

below the mean), the effect of technological development is clearly positive (0.267 – (2* − 0.537) = 1.341). But if there are many clerical, sales, and service positions available, technological development decreases the gender status gap (0.267 + (2* − 0.537) = −0.807). This supports hypothesis 1c. Technological developments only reduce the gender status gap when paired with opportunities in female-friendly occupational sectors.

For technological development as measured by the use of electricity, we do not find any relationship with the gender status gap, not in general and not when the occupational structure is favorable for women (Table 4, model 2). The same is true for the strength of egalitarian gender values (Table 4, model 4). For educational expansion, the interaction with the size of the occupational sectors is also not significant (Table 4, model 3). This leaves us with the conclusion that educational expansion is positively related to the gender status gap, because it goes hand in hand with a reduction of the agricultural sector. Full tables can be found in the online supplement A6 and A7). See also Table 5 for an overview of the hypotheses and the results.

Conclusion

This study provides new evidence on long-term trends in gender inequality by comparing men's and women's occupational status early in their careers and relating them to socio-economic advancement in France over a century. Our first aim was to document the reversal of the gender status gap. In the mid-nineteenth century, the predicted status gap at marriage was around two status points in favor of men, then increased to around three points, and remained at this level until 1910. From then on, the gap declined, most rapidly between 1910 and 1940. Around 1940, it reversed in favor of women. This is much earlier than often assumed and certainly earlier than the gender gap in educational attainment.

Our second aim was to examine the complex set of factors that contribute to a reduction in gender inequality. Moving beyond dominant, simplified explanations in the literature, we argued that socio-economic advancement can reduce the gender gap when key conditions—such as the emergence of new labor market opportunities—are in place. Some processes of socio-economic advancement indeed contributed to a decrease in the gender status gap. Employment growth in professional, administrative, and managerial occupations and technological change (i.e., the spread of steam power) were both associated with smaller gender disparities. As expected, the effect of technological change depended on the availability of jobs that were attractive to women. While we hypothesized that both higher-level professional and lower-level clerical jobs would amplify this effect, the analyses support this mechanism only for clerical jobs. This does not mean, however, that professional jobs were inaccessible to women. The expansion of the professional sector reduced the gender status gap independently of technological development. Finally, we found that educational expansion was positively associated with a narrowing of the gender gap.

One possible explanation for this unexpected finding is the negative relationship between educational expansion and the size of the agricultural sector. Although

agricultural societies exhibited considerable economic inequality—such as disparities between landowners and laborers—gender inequality in occupational status was relatively low. This is partly due to the nature of the occupational classification, which assigns equal status to men and women within the same occupational category: male and female farmers are classified identically, as are male and female farm workers. As a result, gender gaps in occupational status appeared smaller in agrarian contexts, helping to explain why educational expansion—which contributes to the decline of agriculture—is associated with a widening of these gaps.

An alternative explanation emphasizes selection effects. Women who were employed at the time of marriage—our sample population—were a selective group, particularly in earlier periods. Before the 1940s, women with secondary education often benefited more from their education in the marriage market than in the labor market. In contrast, technological change primarily opened up lower-status employment opportunities for women with fewer resources and less education. Educational expansion may therefore have been associated with a growing gender gap in occupational status, as newly created opportunities disproportionately drew in women entering lower-status positions.

The fact that we do not find a reducing gender gap with the rise of more egalitarian gender values leads us to speculate that these values do not, per se, lead to universalistic views on the role of men and women in society, as surmised by modernization theory. When egalitarian values mean "equal but different", women continue to work in female-typed occupations. Some of these jobs historically being of lower status, this would maintain the gender gap. Alternatively, divorce rates—our measure of egalitarian values—might not be a good indicator of these values for the period that we study. Divorce rates especially increased after 1960. Maybe divorces were too scarce in the earlier decade to be observed by many women and consequently did not affect their view on marital life and the desirability or even necessity to be economically independent.

Our findings should be interpreted with several limitations in mind. First, we examine gender status inequality at the start of married individuals' careers rather than across the full labor force. This focus enhances our ability to connect occupational outcomes to societal change, as younger cohorts are more likely to enter new occupations in response to shifting opportunities. However, it limits generalizability. Because older individuals are less likely to switch to take advantage of new occupational opportunities, the gender status gap in the total labor force was probably larger and closed more slowly than what we observe for early careers (cf. Guinea-Martin et al. 2018). Although this design captures entry positions into the occupational structure, it does not describe women's and men's labor market attachment over their subsequent marital and childbearing years. For the later part of the twentieth century, when suitable data become available, research for France shows that large gender gaps in earnings and employment persisted, driven in particular by differences in working hours, part-time employment, and career interruptions (Meurs and Pora 2019). Comparable data do not exist for the earlier periods we study, but it is clear that convergence in occupational status at marriage should not be interpreted as evidence of gender equality in employment or income. Moreover, while men typically experienced upward mobility after

marriage, many women—particularly from higher-status backgrounds—left the labor force. Over time, this changed: in the twentieth century, more highly educated women remained employed (Goldin 2006; Schulz et al. 2014), likely accelerating the closing of the gender gap. In the earlier part of the period, however, our early career estimates likely underestimate the true gap, while in the later period, they may underestimate the pace of its decline. In addition, our data exclude single individuals. Although a minority, single women likely held occupations closer in status to those of men, suggesting that our estimates may somewhat overstate the gender gap.

Second, we lack data on individuals' educational attainment, preventing us from addressing selection into employment based on education. The gender gap in occupational status may vary at similar levels of educational expansion depending on how many women with secondary education participate in paid work (cf. Chang 2004). For much of the period we study, women from higher-status families were less likely to be employed (Zijdeman et al. 2014), but it remains an open question whether this pattern also applied to women with higher levels of education. While few historical datasets include detailed individual education measures, future analyses using long-term administrative records may help clarify the role of selective labor market participation in shaping gender inequality.

In balance, our study documented the decline and even reversal of the gender gap in status early in men's and women's careers and also revealed that the availability of advantageous labor market opportunities for men and for women shapes the influence of processes of socio-economic advancement on the gap. The implication for future research studying long-term trends in gender inequality is that it is necessary to refine bold claims of evolutionary trends toward gender equity rooted in socio-economic forces by looking at their complex contextual and temporal interplay.

Notes

1 We excluded second and subsequent marriages as they might differ from first marriages since the likelihood of remarriage is determined partially by social status and gender.

2 More detailed information can be found in the HISCI-FR code book, which can be sent by the corresponding author on request.

3 The original metric horsepower was converted into kilowatts by multiplying by 0.735499.

4 We also did analyses with interactions between gender and the years of the Wars, these were never significant.

5 Previous analyses of the same data set showed missing patterns were not strongly related to social status (Maas et al. 2011).

6 See online supplement Table A4 for analyses based on the data with listwise deletion. Overall, the estimates are much less statistically significant. Some patterns remain similar—such as the positive association between educational expansion and the gender gap—but others deviate. For instance, the reduction of the gap associated with the expansion of the clerical sector is no longer observed. This is likely due to the sample size dropping by more than 50%.

7 Due to the inclusion of all two-way interactions of the other modernization processes, the three-way interaction with steam power refers to the period 1880–1939 and the three-way interactions with educational expansion, value change, and electricity consumption refer to the period 1910–1949. Analyses without controlling for the other processes yield results that point in the same direction but are less pronounced and less often statistically significant.

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