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Labor Supply and Gender Differences in Occupational Choice

Elisa Keller *

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ABSTRACT

This paper uses data on the task content of occupations to study the role of labor supply in occupational choice. In 1970, married women were less likely to choose occupations characterized by analytically intensive tasks than were men. By 2010, gender differences in occupational choice had narrowed significantly. I use the Dictionary of Occupational Titles to measure the value of skill in an occupation and find an increase in this value with the analytical intensity of occupational tasks. I argue that, as a significant part of skill is accumulated on the job, sources that encourage women to commit to market work contributed to the gender convergence in occupational choice. A quantitative exercise measures that labor-saving technical change in the household sector, occupation-biased technical change in final good production, declining gender gaps in wages and schooling account for 58% of the gender convergence in occupational choice, via the labor supply channel.

JEL: JT, J24, O40.

Key words: Occupational choice. Labor supply. Technological progress. Calibration.

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1 Introduction

Since 1970 we have witnessed a convergence in the occupational choices between married men and women. Consider white individuals in the United States. In 1970, 35% of married men and 18% of married women chose to work in occupations that are characterized by analytically intensive tasks (hereafter, “complex occupations”). By 2010, the picture looks much more homogeneous, with only a 1% difference in the rate at which married men and women choose complex occupations.¹ I argue that the contemporaneous and well-documented rise in hours worked by married women is a crucial factor in the convergence of occupational choice by gender. The logic behind my argument relies on the observation that complex occupations likely put more weight on skill, a significant part of which is accumulated while on the job. In 1970, married women worked 30% of the number of hours married men worked in the market, thus bearing the loss of accumulated skill. The higher value of skill implies that women had less incentives than men to work in complex occupations. Because gender differences in hours of market work are halved, for married persons, by 2010, it might be expected that women would be choosing complex occupations at rates that are increasingly similar to those of men. Circumstantial evidence in favour of my argument is provided by the labor market outcomes of *never-married* women. Between 1970 and 2010, this group shows only a slight increase in market hours and a negligible convergence in its occupational distribution toward that of married men.

Understanding gender differences in occupational choice is important due to, at least in part, the tight link of these differences with skill misallocation and aggregate productivity. The idea that occupational choice is related to labor supply dates back to [Polachek \(1981\)](#). This paper uses data on the task content of occupations to discipline the link between labor supply and occupational choice and study the 1970-2010 convergence in the occupational choices between married men and women. I develop a quantitative theory that encompasses standard explanations for the recent rise in female labor supply and grounds the link to occupational choice on occupational heterogeneity in the value of skill. The Dictionary of Occupational Titles (DOT) allows me to rank occupations by their analytical task content and measure the value of skill. My theory attributes 58% of the gender convergence in occupational choice to the rise in female labor supply.

The observation that complex occupations put more weight on skill finds support in data that show steeper age-wage and schooling-wage profiles for individuals employed in complex occupations. The slopes of these profiles alone, however, are not a good measure

¹Similar patterns of gender convergence in the occupational distribution have previously been documented in the literature for occupations ranked by their skill intensity, under various definitions of skill. See, among others, [Blau \(1998\)](#), [Goldin \(1990\)](#), [Goldin \(2006\)](#), [Goldin and Katz \(2012\)](#), and [Hsieh, Hurst, Jones, and Klenow \(2013\)](#).

of occupational heterogeneity in the value of skill, as they reflect both individual and occupational characteristics.² To tackle this measurement problem, I use the additional information of the tasks contents of occupations. If on the one hand individual characteristics define the mapping from market work to an individual's skill via learning, tasks contents offer information on the mapping from skill to occupational output. For example, it is expected for individuals of differing levels of skill to be similarly productive when employed in occupations that are characterized by relatively little analytical content. However, this is not the case if they are employed in occupations that are intense in analytical tasks. I think of occupations of different complexity as having different elasticities of occupational outputs to skill. To discipline these differences I use data on the analytical and motor contents of occupational tasks as measured by estimating a multiple correspondence model on DOT data merged with U.S. Census data.³

I embed this concept of occupational heterogeneity in a framework that features Beckerian home production and learning by doing. Importantly, time allocation and occupational decisions are endogenous for both men and women. My framework encompasses the two standard explanations for the growth in female market work observed in the data: wage-based and non-wage-based theories. Wage-based theories entail an increase in female market hours in relation to the narrowing of the gender wage gap. In line with these theories, a labor market wedge facing women changes exogenously over time to residually match the evolving gender wage gap. Among non-wage-based theories, [Greenwood, Seshadri, and Yorukoglu \(2005\)](#) show the quantitative importance of labor-saving technological change in home production.⁴ In line with these theories, the observed decline in the price of household appliances relative to consumption is fed into the model as a proxy for technological change in the production of household capital.

In addition, my framework embeds two more forces that were likely central to the labor market outcomes of the 1970-2010 period. First, during this period of time, I document demand shifts biased toward high-complexity occupations. In my framework, I allow for an occupation-specific bias in technological change in final good production and discipline

²Individuals arguably have different productivities in learning new skills through labor market work; thus, even within the same occupation, the more productive ones show steeper market hours-wage and age-wage profiles. Then, when complex occupations consistently attract more productive individuals and skills are not entirely observable, differences in the slopes of the age-wage profiles overestimate differences in the value of skill across occupations.

³Relatedly, [Goldin \(2014\)](#) documents occupational heterogeneity in the elasticity of annual earnings with respect to weekly hours of market work.

⁴A largely isomorphic alternative non-wage-based explanation for the rise in women's market hours is one of evolving preferences. The "consumerism" theory argues that tastes shifted from home goods and toward market goods over time (see among others [Heathcote, Storesletten, and Violante, 2010](#)). In addition, [Goldin and Katz \(2002\)](#) demonstrate the importance of innovations in contraception technology for women's occupational choices in the 1960s-1970s. [Erosa, Fuster, and Restuccia \(2010\)](#) explore the link between fertility and the lifecycle dynamics of the gender wage gap.

it with the path of occupational choice of men.⁵ Second, over the same period of time, the gender gap in schooling reversed (Goldin, Katz, and Kuziemko, 2006). I feed this gap directly into the model via gender differences in the labor market talent.⁶

The framework developed here is matched with US data in 1970. The procedure targets the occupational choice, wages by occupations, and time allocation decisions of both men and women. The model predictions for 2010 are then compared with the corresponding US data. Among female labor market outcomes, the model produces time allocation decisions, occupational choices and average wages by occupations that are close to the data. Importantly, the model generates the rise in female market hours as well as the entire convergence in their occupational choices toward those of men, recorded in the data between 1970 and 2010. By encouraging women to commit to market work, the exogenous forces in the model narrow the gender gap in skill and incentivize women to choose complex occupations at rates that increasingly resemble those of men, over time. The key ingredients for this result are learning by doing and occupational heterogeneity in the value of skill. These imply that market hours have an occupation-specific second-round effect on earnings along with the immediate scaling up.

Technological progress in the household sector accounts for 22% of the gender convergence in occupational choice. The decline in the relative price of household appliances increases the likelihood of women choosing high-complexity occupations by 4.4 p.p., closing the gap with men from 18.5 p.p. to 13.4 p.p. With technological progress in the household sector, female labor is less valued at home, and women's market hours increase along with women's comparative advantages in complex occupations. The findings suggest that technological progress in the household sector is the dominant factor in the rise of women's market hours from 1970 to 2010, accounting for 47% of it. Greenwood, Guner, Kocharkov, and Santos (2016) reach similar conclusions for the rise in female labor force participation.

The decline in the labor market wedge facing women and the reversal of the gender gap in schooling increase the cost of the married woman's labor input in home production relative to that of household capital and the married man's labor. In response, home production moves toward capital and man's labor inputs. The fraction of time women dedicate to market hours increases by 4.79 p.p. and 5.00 p.p. in relation to the decline in the wedge and the closing of the gap in schooling, respectively. The implications

⁵There is vast evidence in the literature of a bias in the recent technological change. Beginning in the late 1970s, the earnings of skilled workers relative to those of unskilled workers systematically rise concurrently with an increase in the supply of skilled workers (see, among others, Acemoglu and Autor, 2011, Restuccia and Vandenbroucke, 2013 and Goldin and Katz, 2008). Comparable patterns emerge for workers grouped by the analytical task contents of their occupations and are reported in Section 2.

⁶Schooling is modelled exogenously as the focus of the paper is on capturing its effect on occupational choice via the labor supply channel. Studies that analyze the reversal of the gender gap in schooling include, among others, Olivetti and Petrongolo (2016) and Guvenen and Rendall (2015).

for occupational choice are quantitatively important. The decline in the labor market wedge facing women accounts for 14% of the convergence in occupational choice, while the reversal in the gender gap in schooling accounts for 24% of such a convergence.

Overall, labor supply accounts for 58% of the gender convergence in occupational choice, between 1970 and 2010. The remaining portion is explained by the direct effect that the increasing attainment of schooling by women has on their labor market talent. Occupation-biased technical change, on the other hand, moves against the current. Despite being the most important driver of the shift in the occupational composition of both men and women toward higher-complexity occupations, it affects men more than it does women. In particular, it generates an increase of 12 p.p. in the fraction of male workers in complex occupations, compared to the 9 p.p. increase recorded in the data between 1970 and 2010. At the same time, such technological changes show the same statistics for women, but of a smaller amount: 9 p.p. The elasticity of the occupational choice to technological change depends on an individual's comparative advantage, determined in relation to his/her skill. The lower market hours of women and their lower schooling level result in a smaller elasticity compared to that of men.

My paper contributes to the literature on the determinants of gender differences in labor market outcomes. Given this emphasis, the papers closest to mine are those of Knowles (2009), Yamaguchi (2013) and Rendall (2010). In terms of the mechanism considered herein, my work is closely related to Knowles (2009), who studies the occupational choice of women born in the 1950s in relation to labor supply decisions. With a different scope, my paper accounts for the evolution of gender differences in occupational choice from 1970 to 2010 and considers occupations that are grouped according to their task content. Yamaguchi (2013) and Rendall (2010) use similar data on the task content of occupations and study the role of skill-biased technological change in women's occupational choice. Skill-biased technological change can be traced back to occupation-specific technological change in my framework. Compared to Yamaguchi (2013), I endogenize labor supply by occupation and allow for technological change in home production to also play a role in explaining the differences in occupational choice. Compared to Rendall (2010), I consider occupational heterogeneity in the value of skill as a determinant of occupational choice. My work also contributes to the literature in macroeconomics that assesses the role of technological progress in a variety of trends (see Greenwood and Seshadri, 2005 and references therein). To my knowledge, this study is the first to quantitatively assess the effects of technological change in the production of household capital and occupation-specific technological change on the recent gender occupational convergence.

The next section summarizes the central aspects of data that pertain to my study. The model is outlined in Section 3 and calibrated in Section 4. Section 5 presents the main findings, and Section 6 concludes.

2 Facts

I summarize the central aspects of data that pertain to my study below. I first focus on the evolution of occupational choice and labor supply by gender in the U.S., from 1970 to 2010. Then, I present evidence supporting the link between labor supply and occupational choice studied in this paper. Last, I document the exogenous forces I consider in my framework by presenting data on the price and diffusion of household appliances, male wages and their occupational choice, along with the gender gaps in wages and schooling. My datasources include the following: (i) the 1977 version of the DOT and the decennial U.S. Census for labor market data and (ii) Gordon (1990) and the National Income and Product Account (NIPA) tables for household appliances data.

2.1 Data sources

Dictionary of Occupational Titles. I use the fourth version of the DOT, which was published in 1977. This version contains information on 12,099 occupations defined by worker performed tasks. Each occupation is rated regarding approximately 50 characteristics including aptitudes, temperaments, and capacities necessary for adequate performance. To ease the interpretation of the data, I use the information in the DOT to build an index of occupational complexity on the basis of which occupations are aggregated and which labor market outcomes analyzed. I follow Yamaguchi (2013) and work under the assumption that tasks are broadly categorized as either analytical or motor. By examining the textual definitions of the DOT variables, I select a few variables to measure the analytical and the motor content of each task, and those variables are listed in the Online Appendix. I then augment the DOT sample with 1970 Census sample weights and use a multiple correspondence analysis (MCA) to collapse the information contained in my selected variables into a single index for analytical tasks content, *Brain*, and a single index for motor tasks content, *Brawn*.⁷ Figure 1 shows the distribution of occupations on the *Brain* and *Brawn* dimensions for the 1970 three-digit coding system of the Census. *Brain* and *Brawn* are negatively correlated with an (un)weighted correlation of (-0.58) -0.61. Finally, I define my index of occupational complexity at the level of the *Brain* factor.⁸

⁷The two aggregate indices constructed by MCA account for 47% (*Brain*) and 37% (*Brawn*) of the inertia in the 1970 CPS sample.

⁸As a robustness check, I also construct the aggregate indices for *Brain* and *Brawn* using (i) the Occupational Information Network (O*NET) dataset and (ii) the 1991 version of the DOT combined with a definition of motor skills that comprises fine motor skills as in Yamaguchi (2013). The indices computed using the various datasets show strong positive correlations. The correlation matrix can be found in the Online Appendix along with details regarding the variables used to compute O*NET and DOT-1991 indices.

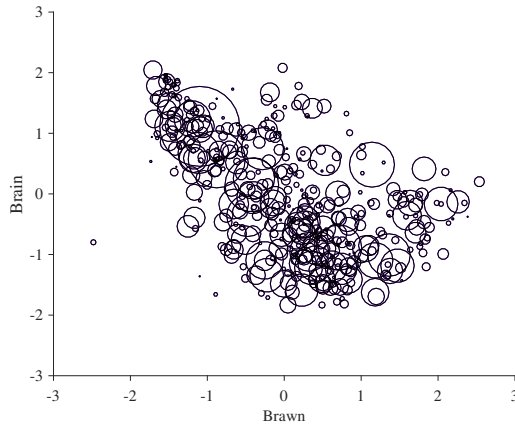


Figure 1: Occupations on the *Brain* and *Brawn* dimensions. *Brain* and *Brawn* indices at the DOT occupational level are aggregated at the level of the 1970 Census coding system by taking weighted means using sample weights. *Brain* and *Brawn* are normalized to mean zero and standard deviation one. The size of datapoint is proportional to the number of individuals in the sample choosing that occupation. Source: 1977 DOT and 1970 Census.

Census. To document patterns of labor supply and occupational choice over time, I use decennial Census data for the 1970 to 2010 period. Using a consistent categorization of occupations from IPUMS-USA, I observe 152 occupations. I order these occupations by increasing complexity and document patterns for each decile of the frequency distribution. I focus on prime-age (ages 25-55), white married workers with at least 400 hours of market work over a year. Individuals are grouped in age bins that are 10 years in length and aggregate statistics are reported as averages across age-bin statistics to control for age-composition effects.

Household appliances data. The time-series on the price of household appliances uses the data from [Gordon \(1990\)](#) for the 1970-1985 period and the National Income and Product Accounts (NIPA) tables for the remaining years. The price estimates from [Gordon \(1990\)](#) correct for quality changes by means of hedonic regressions. I measure the diffusion of household appliances from data on investment in and stock of household appliances both on a per-capita basis and as a percentage of GDP. Data sources for those computations include standard NIPA tables on investment and stock of household appliances and Census data on the size of the working-age population.

More details on datasources and samples selection are in the Online Appendix.

2.2 Fact summary

My focus is on two patterns in the U.S. labor market: occupational choice and labor supply by gender. Consider labor supply first. Between 1970 and 2010, there has been a

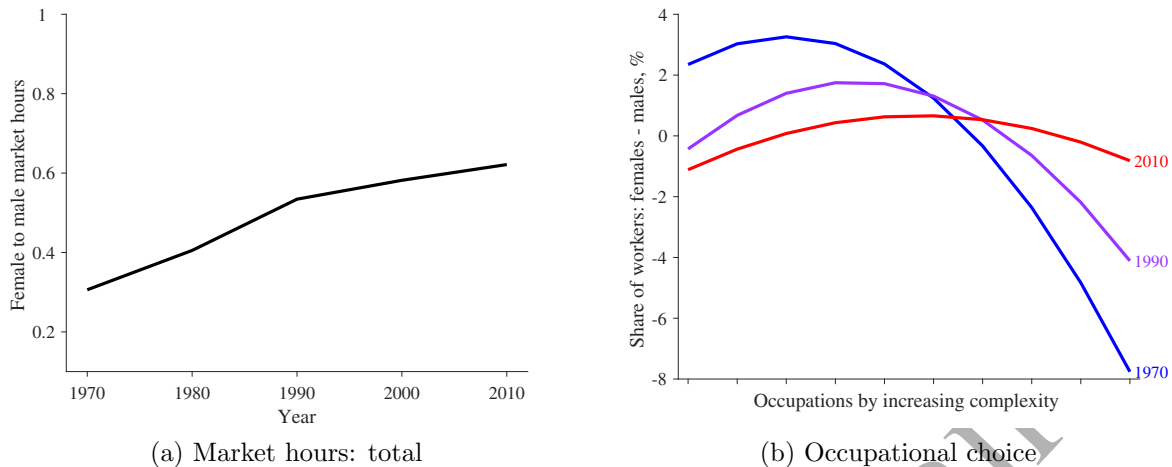


Figure 2: Gender convergence in market hours and occupational choice. Panel (a) shows female to male total market hours. Panel (b) shows the occupational distribution by gender. Source: IPUMS-USA and DOT.

significant increase in the amount of market hours supplied by women (Figure 2, panel (a)). In 1970, women supply an average of 29% of the market work hours supplied by men. By 2010, this percentage increases to 64%. Notably, the strongest increase in women's market hours is observed in occupations characterized by higher complexity.

Figure 2, panel (b), shows men and women choose different occupations (on average), with the peculiarity that men systematically choose higher complexity occupations more frequently. However, gender dissimilarities in occupational choice have become more reduced over time. In 1970, 35% of men work in occupations with complexity in the highest quartile, compared with only 18% of women. By 2010, 45% of men and 44% of women choose occupations in the highest quartile, leading to a net difference of only 1%. To summarize the gender convergence in the occupational distribution I use the index of occupational similarity proposed by Hsieh, Hurst, Jones, and Klenow (2013):

$$\Psi = 1 - \frac{1}{2} \sum_{i=\{d_1, \dots, d_{10}\}} |\hat{p}_{f,i} - \hat{p}_{m,i}|$$

where $\hat{p}_{g,i}$ indicates the fraction of individuals of gender g choosing occupation i and d refers to a decile of the frequency distribution of occupational complexity. This index takes a value of 1 when the occupational distributions of men and women are identical and 0 when the distributions do not overlap. This index equals 85% in 1970 and grows 12 p.p. between 1970 and 2010.

The link between labor supply and occupational choice. As a preliminary evaluation of the link between market hours and occupational choice, in Table 1 I juxtapose the

	MARRIED WOMEN			NEVER-MARRIED WOMEN		
	1970	2010	Δ	1970	2010	Δ
Market hours relative to married men	29%	64%	+35%	65%	71%	+6%
Index of occupational similarity wrt married men	85%	97%	+12%	93%	95%	+2%

Table 1: Married women vs. Never-married women. The table reports the labor supply and the occupational choices of married women and those of never-married women, in 1970 and 2010. Source: IPUMS-USA and DOT.

patterns discussed above with equivalent statistics for never-married women. The positive cross-group correlations between increases in market hours and occupational similarities that emerge provide anecdotal evidence of such link. In 1970, never-married women supply 65% of the volume of hours supplied by married men to market work, on average. Between 1970 and 2010, the ratio of market hours of never-married women to married men rises by only 6 p.p. Turning to occupational choice, the index of occupational similarity between never-married women and married men is 93% in 1970 and increases by only 2 p.p. between 1970 and 2010. Similar patterns emerge for women of different age groups, with a stronger divergence in gender occupational convergence by marital status for younger groups. Focusing on individuals who just passed the average marriage age, i.e. 35- to 45-year olds, the index of occupational similarity between married women and married men increases by 17 p.p. (from 79% to 96%), while that between never-married women and married men increases by 7 p.p. (from 88% to 95%). Most of the action comes for more complex occupations: 37% of married men, 25% of never-married women and 16% of married women choose occupations with complexity in the fourth quartile in 1970, while the fraction of individuals choosing these occupations was about the same for all three groups in 2010 (45%).

The link between market hours and occupational choice I explore builds on the idea that more complex occupations offer steeper skill-wage profiles. To assess this idea, I consider two facets of skill, those accumulated with schooling and those accumulated on the job, and report, for each one of them, skill-wage profiles across occupations. These profiles are shown in Figure 3 for male workers between 1970 and 2010. The figure documents that workers with higher schooling attainment and higher accumulated work experience are rewarded proportionally more in more complex occupations. For example, panel (a) shows that college graduates in occupations with complexity in the fourth quartile make, on average, 1.91 times the amount of money workers with no high-school education make, compared to 1.74 and 1.46 times in occupations with complexity in the third quartile and bottom half of the distribution, respectively. Similarly, panel (b) shows that 45- to 55-year

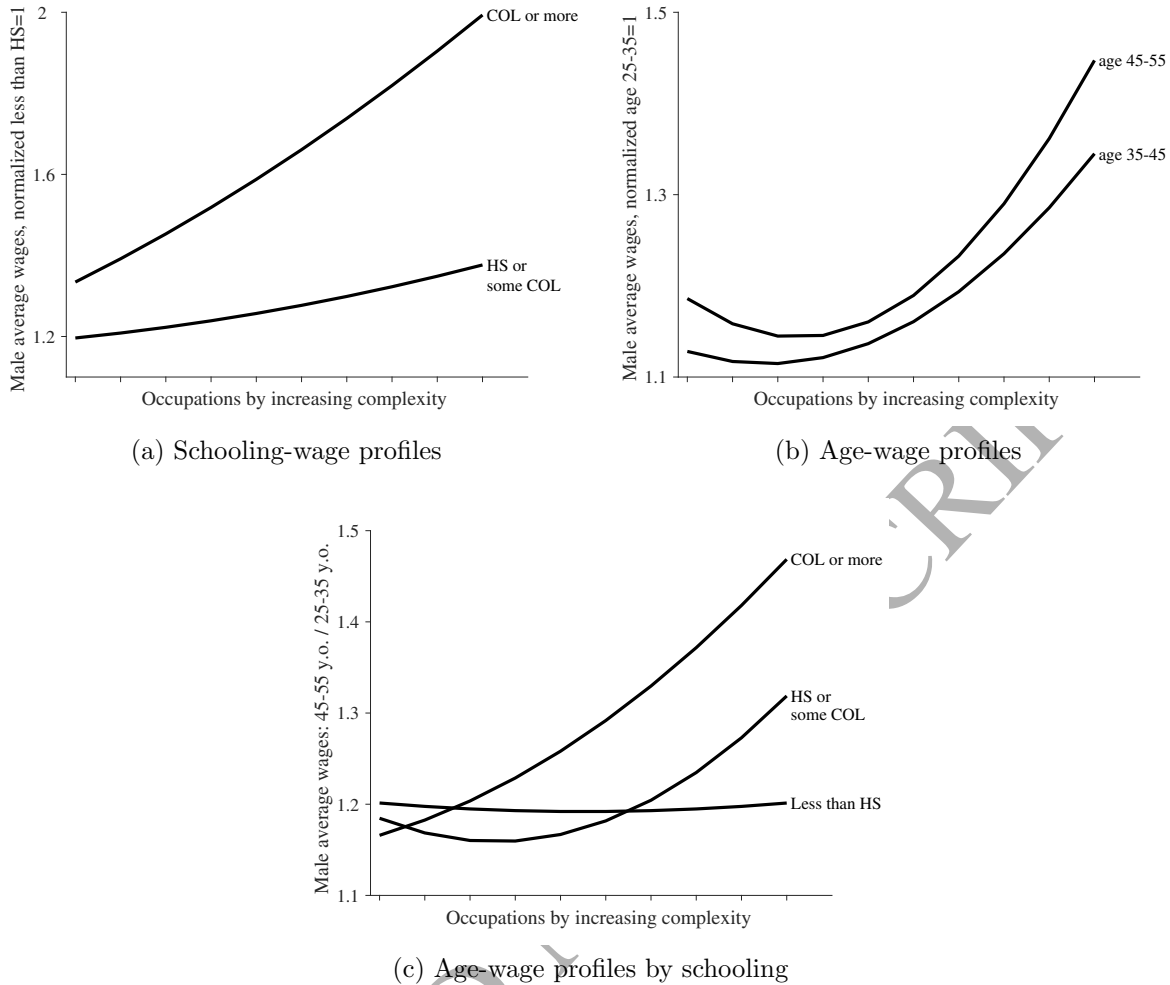


Figure 3: Skill-wage profiles across occupation of increasing complexity. Panel (a) shows the cross-sectional schooling-wage profile, while panel (b) shows the cross-sectional age-wage profile. Panel (c) plots the cross-sectional age-wage profile by education groups. All the profiles are drawn for male workers and computed as the average of over the 1970-2010 period. Source: IPUMS-USA and DOT.

olds in occupations with complexity in the fourth quartile make on average 1.43 times the amount of money individuals in their late-twenties / early-thirties make, compared to 1.19 and 1.17 times in occupations with complexity in the third quartile and bottom half of the distribution, respectively. The steeper slopes of both the schooling-wage profile and the age-wage profile that characterize more complex occupations are systematic across cohorts and over time.

Last, Panel (c) of the Figure 3 documents the relationship between the slope of the age-wage profile and the complexity of the occupation, across schooling groups. In occupations with complexity in the bottom half of the distribution all schooling groups face similar rewards to labor market experience. As the level of complexity of the occupation increases, the age-wage profiles of the three groups diverge as their slopes grow faster the

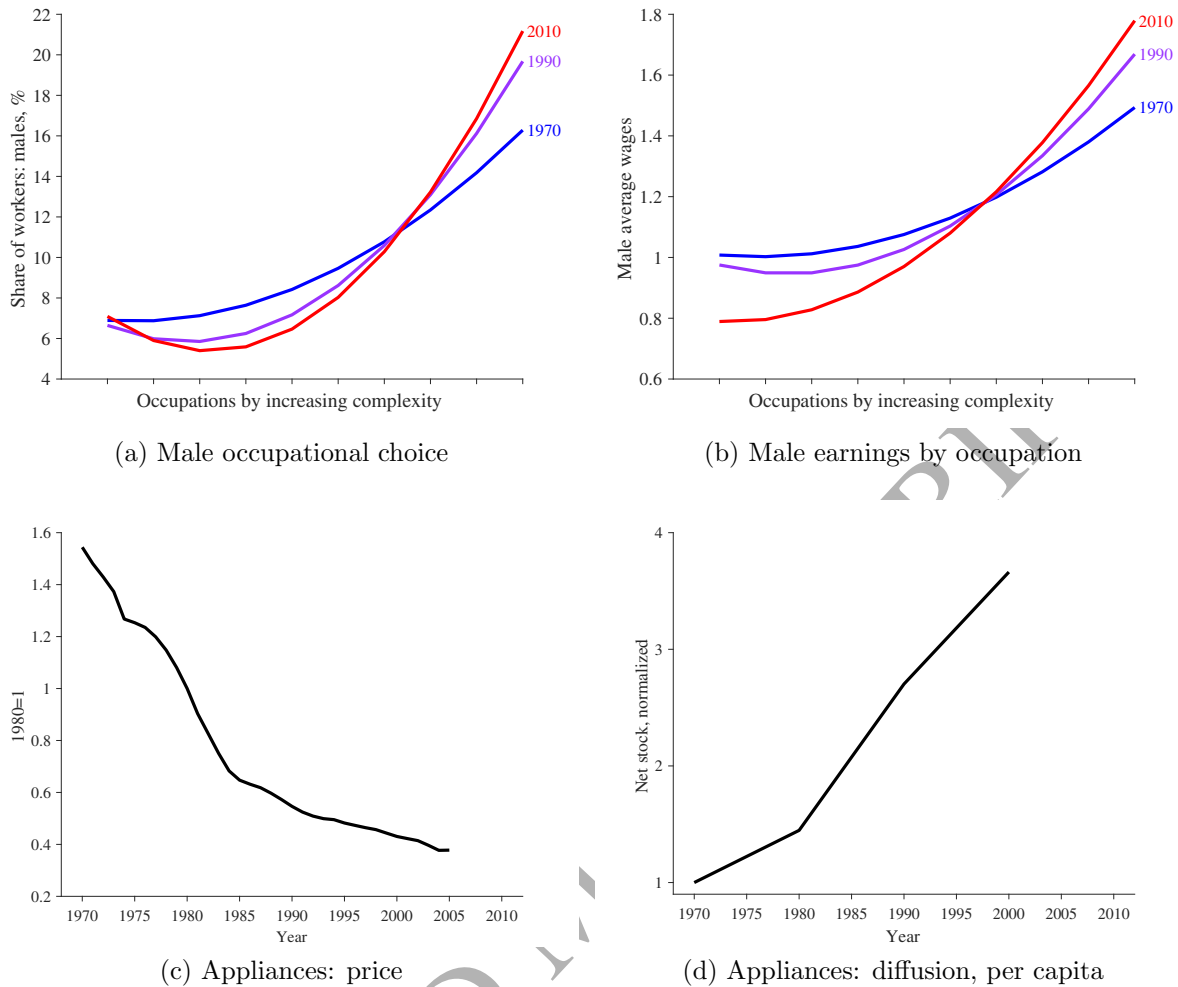


Figure 4: Sources of convergence: technical change. The first two panels show the occupational choices and the average wages by occupation for men workers, respectively. The remaining two panels show the price and the diffusion of household appliances, respectively. Source: IPUMS-USA, DOT, Gordon (1990) and NIPA tables.

higher the schooling level of the group. For example, in occupations with complexity in the highest decile, the slope of the age-wage profile that college graduates face is 15 p.p. higher than the one high-school graduates face.

Sources of convergence. I now focus on the exogenous forces behind the convergence in labor supply and occupational choice by gender. First, I examine sources that relate to technology: occupation-biased technical change in final good production and investment-specific technical change in the production of household capital. Figure 5, panels (a) and (b) plot the evolution of the occupational choice and average wages of male workers between 1970 and 2010. These figures show that wages rise faster in more complex occupations over the years, at the same time when the occupational distribution of male workers shifts toward these same occupations, testifying to occupation-biased technical

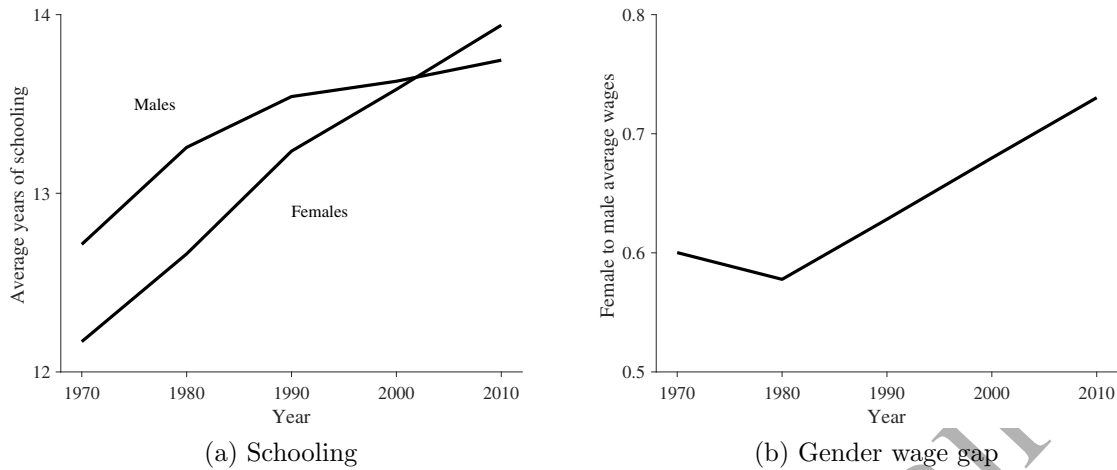


Figure 5: Sources of convergence: gender gaps. Source: IPUMS-USA.

change. For example, from 1970 to 2010, male wages in occupations with complexity in the fourth quartile increase by 39% relative to those with complexity in the third quartile, concurrently with a 10 p.p. increase in the fraction of male workers choosing occupations with complexity in the fourth quartile. I infer the technology embodied in household capital from the price of household appliances relative to consumption. Such price decreases an average of 3.49% per year between 1970 and 2010 (Figure 5, panel (c)).⁹ Panel (d) of Figure 5 also reveal a strong upward trend in the stock of household appliances per capita: the per capita value of household appliances increases 3.7 times between 1970 and 2000.

Second, Figure 5 shows two additional forces that were likely central to the labor market outcomes by gender of the 1970-2010 period. The gender gap in wages and that in schooling have been closing over time. Average female to male wages increase from 0.60 to 0.73, between 1970 and 2010. Over the same period of time, females went from attaining, on average, 2.2 years of schooling above the minimum required by law to attaining 3.9 years above the minimum. The same statistics for men grew from 2.7 years to 3.7 years.

3 Model

This section presents an occupational choice model that connects evolving gender disparities in labor supply and occupational choice.

⁹Note that the decreasing trend in the relative price of household appliances seems to be stronger in the early years, which correlates with the data used in Gordon (1990), compared with the later years, when NIPA data are used. This difference may in part reflect a different degree of correction for quality changes.

The economy is populated by households consisting of a male m and a female f . Individuals are heterogenous with respect to their labor market talent, z , which summarizes an individual's talent to learn and perform tasks that are valuable in the labor market. They are endowed with one unit of time, which can be spent on home work, ℓ_x , leisure activities, ℓ_{nw} , and market work. Time is partially divisible. There is a maximum number of hours $\bar{\ell}$ that an individual can supply to home work and leisure, once in the labor market: $\ell = \ell_x + \ell_{nw}$, $\ell \in \{1\} \cup [0, \bar{\ell}]$. Home work generates home goods, which – along with market goods – contribute to household consumption. Market work generates labor earnings in relation to an individual's skill and occupation. An individual's skill depends on his/her exogenous talent along with time spent on market work via learning by doing. Occupations differ by their complexity, which determines: 1) the level of skill required to perform, and 2) the elasticity of occupational output to skill. This modelling choice reflects the notion that the complexity of tasks of an occupation determines the mapping from an individual's skill into the output produced. If an occupation involves (complex) simple tasks, there is (large) little value for skill and (large) little room for improvement such that workers with high skill turn out to be (more) similarly productive (than) to those with low skill.

An individual's labor market talent is a result of innate ability $a \in \mathfrak{R}^+$ and schooling κ ,

$$z = a\kappa^\mu, \quad \kappa = A_g a^{\frac{1}{1-\mu}}, \quad \text{for } g \in \{f, m\}.$$

Innate ability is distributed according to a cumulative distribution function $\Phi(a)$ and is shared by both members within a household. Schooling is a gender-specific function of innate ability. In the quantitative analysis, I set A_m to 1 and feed the gender gap in schooling attainment observed in the data to the model via A_f .

Talent and time (market hours) are inputs in the production of skill, s :

$$s = z + \Delta \underbrace{z(1-\ell)^\psi}_{\text{learning by doing}}.$$

Time contributes to an individual's skill through learning by doing. Individuals with high talent are more efficient in learning new skills.

There is a finite number of occupations I that are indexed by their complexity i . An individual can be employed in occupation i if his/her skill is at least at level o_i . o_i measures the skill requirement of an occupation, takes non-negative values, and increases with i . When occupation i is filled by an individual of skill s , he/she produces $h_{g,i}(s)$ units of *occupational output* (“occupational output” and “occupational efficiency unit”

are used interchangeably hereafter):

$$h_{g,i}(s) = \begin{cases} 0 & \text{if } s < o_i, \\ s^{o_i \rho} & \text{otherwise.} \end{cases} \quad (1)$$

Output is more sensitive to individuals' skills when occupations are more complex: the elasticity of output to skill in occupation i equals ρo_i .

Labor market earnings are given by:

$$E_{g,i}(s) = \underbrace{(1 - \tau_{g,i})}_{\text{wedge}} \underbrace{w_i}_{\text{price}} \underbrace{h_{g,i}(s)(1 - \ell_{g,i})}_{\text{efficiency units}},$$

where w_i denotes the price per efficiency unit of labor in occupations i and h_i denotes the efficiency units of labor supplied by the individual. The $\tau_{g,i}$'s denote gender- and occupation-specific labor market wedges. These wedges capture, among other forces, taste-based discrimination by the employer as in [Becker \(1957\)](#), attitudes toward working women as in [Fernández \(2013\)](#) and gender differences in raw labor (brawn) endowment as in [Galor and Weil \(1996\)](#). In the quantitative exercise, I normalize $\tau_{m,i}$ to equal zero in each occupation. I split $\tau_{f,i}$ in two components, one that is common across all occupations, τ_f , and one that is occupation-specific, $\hat{\tau}_{f,i}$ – that is, $\tau_{f,i} \equiv \tau_f + \hat{\tau}_{f,i}$. The former component is allowed to change over time to match the evolving gender wage gap, while the latter is constant and calibrated residually to match the occupational choices of women at one point in time.

Two things are important to note. First, market hours influence earnings per unit of time (hereafter, “wage”) and therefore have a second-round effect on earnings along with the immediate scaling up. Second, the elasticity of wages with respect to market hours is proportional to the occupational skill requirements, so that more complex occupations show higher elasticities. This is a result of the non-linearity in the production of efficiency units that depends on the skill requirement. Therefore, market hours influence the occupational decision.

Household preferences are defined over joint consumption of market goods, home goods and leisure hours:

$$\log c + \beta \frac{1}{1 - \zeta} x^{1 - \zeta} + B \frac{1}{1 - \sigma_f} \ell_{nw,f}^{1 - \sigma_f} + B_m \frac{1}{1 - \sigma_m} \ell_{nw,m}^{1 - \sigma_m}.$$

where c is the household consumption of the market good, x is the household consumption of the home good and $\ell_{nw,g}$ is leisure hours, i.e. non-working time. I choose a separable specification in line with [Greenwood, Guner, Kocharkov, and Santos \(2016\)](#) and [Olivetti \(2006\)](#). Consumption is a public good within the household.

Home goods are produced using a combination of labor, ℓ_x , and household capital (durable goods), d :

$$x = [\theta d^\alpha + (1 - \theta)\ell_x^\alpha]^{\frac{1}{\alpha}}, \quad \ell_x = (\omega \ell_{x,f}^v + (1 - \omega)\ell_{x,m}^v)^{\frac{1}{v}}.$$

The parameter α governs the degree of substitutability between durables and labor in home production. Household capital can be bought at price P_d . Labor is an aggregator of the time of the wife and that of the husband, with elasticity of substitution $\frac{1}{1-v}$.

Lastly, I assume that individuals observe their endowments before making any decision, credit markets are complete, and there is no uncertainty.

Household problem. Households maximize lifetime utility by choosing the occupation of the husband, i_m , that of the wife, i_f , the household's time allocation, expenses in durable goods, and household consumption of both the market good and the home good. In particular, a household with innate ability a solves:

$$\begin{aligned} & \max_{\{\ell_{x,g}, i_g, \ell_{nw,g}, i_g, d, c, x\}_{g \in \{m, f\}}} \log c + \beta \frac{1}{1-\zeta} x^{1-\zeta} + B \frac{1}{1-\sigma_f} \ell_{nw,f}^{1-\sigma_f} + B_m \frac{1}{1-\sigma_m} \ell_{nw,m}^{1-\sigma_m} \\ \text{s.t.} \quad & c + dP_d = E_{m,i_m} + E_{f,i_f}, \\ & [\theta d^\alpha + (1 - \theta)(\omega \ell_{x,f}^v + (1 - \omega)\ell_{x,m}^v)^{\frac{\alpha}{v}}]^{\frac{1}{\alpha}}, \\ & E_{g,i_g} = (1 - \tau_{g,i_g}) w_{i_g} h_{g,i_g}(s_g)(1 - \ell_{g,i_g}), \\ & s_g = z_g(1 + \Delta(1 - \ell_{g,i_f})^\psi), \\ & \ell_{g,i_g} = \ell_{x,g,i_g} + \ell_{nw,g,i_g}, \quad \ell_{g,i_g} \in \{1\} \cup [0, \bar{\ell}], \\ & z_g = a\kappa_g^\mu, \\ & h_{g,i}(s) = \begin{cases} 0 & \text{if } s < o_i, \\ s^{o_i\rho} & \text{otherwise.} \end{cases} \end{aligned} \tag{2}$$

and subject to eq. 1.

The relevant first order conditions, for an interior solution, read:

$$\begin{aligned}
d \text{ and } \ell_x \text{ mix:} \quad & \underbrace{\frac{P_\ell}{P_d}}_{\text{price ratio}} = \underbrace{\frac{(1-\theta)}{\theta} \left(\frac{d}{\ell_{x,i}} \right)^{1-\alpha}}_{\text{tech. rate of sub.}} \\
& P_\ell = \left(\omega^{\frac{1}{1-v}} P_{\ell,f}^{\frac{-v}{1-v}} + (1-\omega)^{\frac{1}{1-v}} P_{\ell,m}^{\frac{-v}{1-v}} \right)^{\frac{v-1}{v}} \\
\ell_{x,f} \text{ and } \ell_{x,m} \text{ mix:} \quad & \frac{\ell_{x,f}}{\ell_{x,m}} = \left(\frac{\omega}{1-\omega} \frac{P_{\ell,m}}{P_{\ell,f}} \right)^{\frac{1}{1-v}} \\
c \text{ and } x \text{ mix:} \quad & d^\zeta = c\beta \frac{\theta}{P_d} \left(\theta + (1-\theta) \left(\frac{P_d}{P_\ell} \frac{1-\theta}{\theta} \right)^{\frac{\alpha}{1-\alpha}} \right)^{\frac{1-\alpha-\zeta}{\alpha}} \\
c \text{ and } \ell_{nw,f} \text{ mix:} \quad & P_f = \frac{B}{\beta} \frac{c}{\ell_{nf,f,i_f}^\sigma} \\
\ell_{nw,m} \text{ and } \ell_{nw,f} \text{ mix:} \quad & \frac{P_m}{P_f} = \frac{B_m}{B} \frac{\ell_{nf,f,i_f}^\sigma}{\ell_{nm,m,i_m}^\sigma} \\
& c = E_{m,o_m} + E_{f,o_f} - dP_d
\end{aligned}$$

where $P_{\ell,g} = w_{i_g}(1 - \tau_{g,i_g}) \left(h_{g,i_g} - \frac{\partial h_{g,i_g}}{\partial \ell} (1 - \ell_{g,i_g}) \right)$.

The benefits of supplying hours to market work depend on an individual's skill, whereas the costs do not. Substituting home hours or leisure hours with market hours entails the direct benefit of higher earnings, $wh(1-\ell)$. Learning by doing implies the additional benefit of the higher wages that result from the additional skills accumulated while working. The benefit of supplying hours to home work is the utility derived from consumption of the home good produced while working. A decrease in the price of durables, a decrease in the labor market wedge and an increase in schooling attainment, all trigger a shift toward durables and away from labor in the production of the home good. Further, when the decrease in the wedge and the increase in schooling is proportionally stronger for women than for men, the optimal combination of inputs shifts away from female labor and toward male labor, in relation to the degree of substitutability between the two labor inputs. Note that the final effect on home hours also depends on a household's total earnings. As total earnings increase, household's resource allocation tilts toward the good with the least-concave utility function and the elasticity of substitution evolves in relation to the curvature of the utility function. Total labor market earnings also have a negative income effect on the supply of market hours.

Husband and wife optimally choose one occupation to which they supply their productive time. Let $V(i_m, i_f \mid a, \mathbf{w}, P_d, \tau)$ denote the household's utility value of the husband choosing occupation i_m and the wife choosing occupation i_f . Household's occupational

choices can be expressed as follows:

$$\{i_f^*(a, \mathbf{w}, P_d, \tau), i_m^*(a, \mathbf{w}, P_d, \tau)\} = \max_{\{i_f, i_m\}} V(i_f, i_m \mid a, \mathbf{w}, P_d, \tau)$$

where \mathbf{w} is the vector of prices of occupational efficiency units. Sorting across occupations by innate ability may not be perfectly assortative due to the household's income effects on labor supply.

The Online Appendix characterizes the decisions of the household in more detail.

Market good production. There is one homogeneous final market good, Y , which is produced by a representative firm that combines the aggregate occupational outputs:

$$Y = \mathcal{A} \left(\sum_i (\varpi_i H_i)^\gamma \right)^{\frac{1}{\gamma}},$$

where H_i is the aggregate output of occupation i and $\mathcal{A}\varpi_i$ is the productivity of occupational output i . The representative firm maximizes profits as follows:

$$\max_{\{H_i\}_{i=1}^I} Y - \sum_{i=1}^I w_i H_i.$$

The solution of the firm problem implies that prices for each occupational output equal their marginal products, $w_i = \frac{\partial Y}{\partial H_i}$.

Aggregation. The aggregate output (efficiency units) of occupation i is:

$$H_i^S = \sum_{g=\{f,m\}} \int_a (1 - \ell_{g,i}(a)) h_{g,i}(a) d\Phi(a).$$

This equation sums total occupational output i produced by males and females in each household considered in the model. Total consumption of market goods and home goods are, respectively:

$$\begin{aligned} C &= \int_a c(a) d\Phi(a), \\ X &= \int_a x(a) d\Phi(a), \end{aligned}$$

where $c(a)$ and $x(a)$ are the policy functions for market good and home good consumptions for a household with innate ability a . Finally, total expenditures on households durables are:

$$D = \int_a d(a) d\Phi(a).$$

Equilibrium. Given a price of household durables P_d and a set occupational wedges $\{\tau_{f,i}\}_{i=1}^I$, a competitive equilibrium consists of (1) allocations for households of each type z : $\{\{\{\ell_{x,f,i}(a), \ell_{nw,f,i}(a)\}_{i=1}^I, i_g(a)\}_{g=\{m,f\}}, c(a), x(a), d(a)\}$, and allocations for the firm: $\{H_i\}_{i=1}^I$; (2) prices $\{w_i\}_{i=1}^I$; Such that:

1. The allocations of the households solve the optimization problem of each household's a given prices;
2. The allocations of the firm solve the firm's optimization problem given prices;
3. The price of the output of each occupation, w_i , clears the labor market for each occupation, i.e., $H_i = H_i^S$;
4. Aggregate output is given by the production function of final (market) good, i.e., the aggregate resource constraint holds: $Y = C + DP_d + Tot\ Wedges$.

The Online Appendix outlines the steps of the numerical solution of the equilibrium.

3.1 Gender dissimilarity in labor supply and occupational choice

In this subsection, I study dissimilarities in occupational choice between genders in relation to dissimilarities in hours of market work. I work with a simplified version of the framework above, in which households do not derive utility from leisure, i.e. $B = B_m = 0$, and female time is the only labor input in home production, i.e. $\omega = 1$. Hence, the husband supplies all his time to market work, while the wife optimally splits her time between home and market work.

In its simplified version, the model produces perfect positive sorting of men by innate ability (and labor market talent) across occupations of increasing complexity. The husband's decision rule, $i_m^*(a, \mathbf{w})$ is characterized by a simple threshold rule:

$$i_m^*(a, \mathbf{w}) = i, \quad \text{iff } a \in [\underline{a}_m^i, \bar{a}_m^i],$$

for:

$$\begin{aligned} \underline{a}_m^i &= \begin{cases} a_{lb} & \text{if } i = 1 \\ \max \left\{ \left(\frac{1}{A_m^{\mu(1-\mu)}} \Gamma_i^{\frac{1}{\rho}} \frac{(1+\Delta(1-\ell_{m,i-1}^*)^\psi)^{o_{i-1}}}{(1+\Delta(1-\ell_{m,i}^*)^\psi)^{o_i}} \right)^{\frac{1-\mu}{o_i - o_{i-1}}}, a_{lb} \right\} & \text{otherwise,} \end{cases} \quad (3) \\ \bar{a}_m^i &= \begin{cases} a_{ub} & \text{if } i = I \\ \underline{a}^{i+1} & \text{otherwise,} \end{cases} \end{aligned}$$

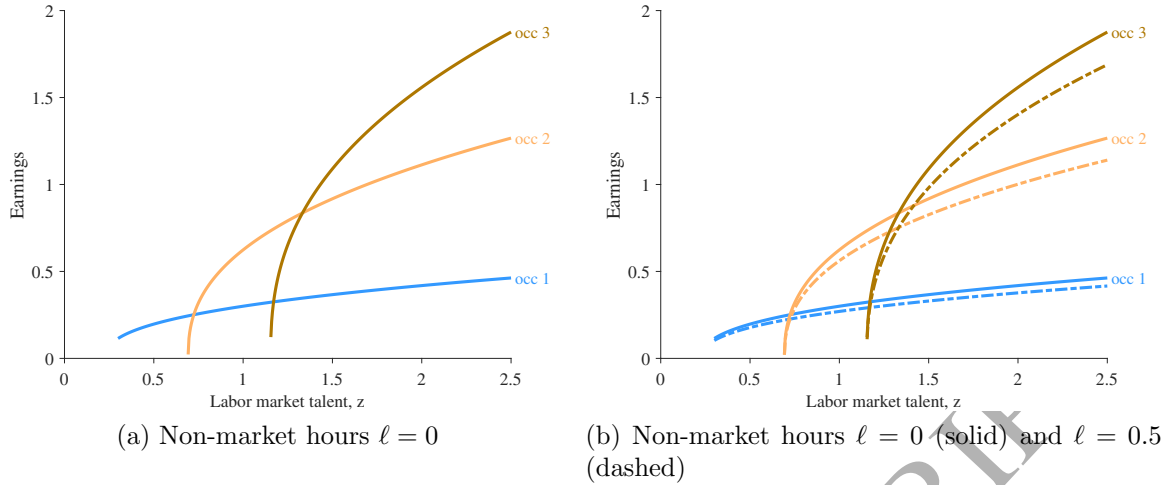


Figure 6: Talent-earnings schedules.

where $\Gamma_i = \frac{(1-\tau_{g,i-1})w_{i-1}}{(1-\tau_{g,i})w_i}$, a_{lb} and a_{ub} are the lower and upper bounds of the innate ability's domain and $\ell_{m,i}^*$ is the optimal time allocated to non-market work conditional on being employed in occupation i – that is, $\ell_{m,i}^* = 0$. Individuals sort across occupations based on their comparative advantage, which is determined by a combination of the individual's skill in addition to the occupational complexity. Men with high talent are comparatively more productive in more complex occupations. Moreover, higher talent – and therefore higher skill – also offers access to more complex occupations. Panel (a) of Figure 6 graphically characterizes the occupational problem of the husband by showing an example of the talent-earnings profiles for three occupations.

From the thresholds describing the occupational choice in eq. 3, the endogeneity of the time allocation decision of the wife implies that her optimally chosen hours of market work influence her occupational choice. A proportional increase in the supply of hours to market work across all occupations commands a higher fraction of individuals in more complex occupations. Panel (b) of Figure 6 represents this graphically by showing the talent-earnings schedules for three occupations when market hours are exogenously set to 1 in all occupations (solid lines), $\ell_{f,i}(z) = 0$, and 0.5 (dashed lines), $\ell_{f,i}(z) = 0$. When market hours are low, talent-skill profiles are flatter, and earnings schedules intersect at higher values of talent. Note that the wife's occupational choice may also not be perfectly assortative by labor market talent across occupations. Optimal market hours vary with household's innate ability and, in particular, may not increase with it due to income effects linked to husband's labor market earnings. For illustration purposes, in the following analysis, I consider a model parameterization leading to positive occupational sorting by innate ability (or labor market talent) with respect to women and an interior

solution for female market hours, i.e., $\ell_{f,i} > 0$.¹⁰

Two technological forces influence gender dissimilarity in occupational choices via labor supply: (i) technical change in the production of household capital, and (ii) occupation-specific technical change in final good production. The former is modelled as a decline in the relative price of household appliances, P_d . For the purpose of the analysis, it encompasses the similar reasonings that apply for the case of a change in the gender gap in wages, via τ_f , and in schooling, via A_f . Occupation-biased technical change is modelled as a change in the occupational output shares, i.e. ϖ_i .¹¹ As output shares for more complex occupations grow, the importance of labor supply for occupational choice increases as these occupations offer a higher elasticity of earnings to market hours. That is, returns to market hours increase.

I study males' and females' choices between two occupations, $i-1$ and i . The derivative of the thresholds describing the occupational choice with respect to a variable $\vartheta \in \Theta = \{\varpi_i, P_d\}$ reads:

$$\frac{\partial \underline{a}^i}{\partial \vartheta} = \frac{\underline{a}^i(1-\mu)}{o_1^i - o_1^{i-1}} \left\{ \frac{1}{\rho\Gamma_i} \frac{1}{A_g^{\mu(1-\mu)}} \frac{\partial \Gamma_i}{\partial \vartheta} + \Delta \left(\frac{o_1^i}{1 + \Delta(1 - \ell_{g,i}^*)^\psi} \frac{\partial \ell_{g,i}^*}{\partial \vartheta} - \frac{o_1^{i-1}}{1 + \Delta(1 - \ell_{g,i-1}^*)^\psi} \frac{\partial \ell_{g,i-1}^*}{\partial x} \right) \right\}, \quad (4)$$

where $o_i - o_{i-1} > 0$ by assumption.

Consider first the occupational choice of men. Only changes in the prices of occupational efficiency units yield changes in males' occupational choices. In a partial equilibrium exercise, an increase in ϖ_i decreases Γ_i and, as a result, \underline{a}^i , which shows that a larger number of men choose the more complex occupation i .

The response of females' occupational choice to a change in ϖ_i , in a partial equilibrium exercise, is a composite of two forces: the first is identical to the response of males' occupational choice to a change in ϖ_i and the second is working on the labor supply margin. The adjustment in female market hours depends on whether the substitution effect of own wages or the income effect of the household's income on female market hours prevails. Hence, it may lead to an increase or a decrease in the similarity of the occupational choices between genders. Females' occupational choice depends on the price of durables and occupational wedges, along with the price vector of occupational efficiency units, $v_f^*(a, \mathbf{w}, P_d, \tau)$. In particular and turning to technological change in the production of household capital, a decrease in P_d generates an increase in the hours of market work of women. The occupational distribution of women converges toward that of men in

¹⁰The Online Appendix gives a set of sufficient restrictions on the parameters for the first condition to hold.

¹¹The concept of occupation-biased technical change relates to that of skill-biased technical change, as defined in Acemoglu (2002), when workers' skills are measured by their occupation rather than by their education.

relation to the adjustment of female market hours across occupations.¹²

4 Calibration

To quantitatively assess the effect of the narrowing labor supply gap on gender dissimilarity in occupational choice, I calibrate the model. I choose parameters such that the model economy replicates features of the data for married households in 1970. In particular, I target married men's and married women's time allocation, occupational choice and wages. In Section 5, the model economy will be simulated using 2010 schooling, household durable goods prices, labor market wedge facing females and final production structure and the resulting trends will be examined in comparison to the data.

I work with three groups of occupations, defined by aggregating the deciles of occupational complexity defined in Section 2. These occupations are low-complexity occupations, medium-complexity occupations and high-complexity occupations. Occupations characterized by low (L) complexity are defined as those with occupational complexity in the first and second quartiles and are those occupations with the lowest average complexity. Occupations characterized by medium (M) and high (H) complexity are defined as those with occupational complexity in the third and fourth quartiles, respectively.

Below, I first list the parameters that are chosen without solving the model, either set a-priori or taken from the data. Then, I discuss the calibration targets of the remaining parameters and model performance.

Parameters set without solving the model. I measure skill requirements across occupations, average productivity in learning by doing, and the lower bound of the innate ability distribution directly from the data. I parametrize skill requirements across occupations in relation to the analytical and motor contents of occupational tasks:

$$o_i = \frac{e^{Brain_i}}{e^{Brain_i} + e^{Brawn_i}}.$$

where e is the exponential operator. The skill requirement of low, medium and high complexity occupations are, respectively, $o_L = 0.24$, $o_M = 0.50$, $o_H = 0.84$.

I use data on the age differentials of males' cross-sectional earnings to discipline the parameter Δ of the skill-production technology. Consider male wages with and without

¹²Note that for the case of a change in product market wedges, $\frac{\partial \ell}{\partial (1-\tau)} < 0$ and the occupational distribution of women shifts toward occupation i , resembling that of men more closely. It can be shown that the first inequality holds when the parameter restrictions sufficient for $\frac{\partial \ell}{\partial z} < 0$ hold.

learning on the job, as specified by the model:

$$\begin{aligned}
 \text{w/o Learning on the job:} & \quad E_{m,i}^{\text{w/o Learn}} = w_i z^{o_i \rho}, \\
 \text{w/ Learning on the job:} & \quad E_{m,i}^{\text{w/ Learn}} = w_i z^{o_i \rho} (1 + \Delta \ell_{m,i_m}^\psi)^{o_i \rho}, \\
 \Rightarrow & \quad \frac{E_{m,i}^{\text{w/ Learn}}}{E_{m,i}^{\text{w/o Learn}}} = (1 + \Delta \ell_{m,i_m}^\psi)^{o_i \rho}.
 \end{aligned}$$

I map $E_{m,i}^{\text{w/o Learn}}$ to average hourly wages of men 25-30 years of age and $E_{m,i}^{\text{w/ Learn}}$ to the average hourly wages of men 50-55 years of age in 1970. Then, for values of ψ and ρ that I calibrate within the model, I solve for $\Delta = 1.07$:

$$\Delta = \sum_{i \in \{L, M, H\}} \left(\hat{p}_{m,i} \left(\frac{\hat{E}_{m,i}^{\text{w/ Learn}}}{\hat{E}_{m,i}^{\text{w/o Learn}}} \right)^{\frac{1}{o_i \rho}} - 1 \right) \frac{1}{\ell_{m,i}^\psi},$$

where $\hat{p}_{m,i}$ is the proportion of men in occupation i and $\ell_{m,i}$ is males' average market work hours, as measured from the data.

I assume that innate ability follows a rescaled Beta distribution:¹³

$$\frac{a - a_{lb}}{a_{ub} - a_{lb}} \sim \text{Beta}(\nu_1, \nu_2).$$

I set the lower bound to a value of $a_{lb} = 0.77$, so that all individuals have access to the low-complexity occupation. The remaining parameters are calibrated within the model. I normalize the schooling productivity of men to $A_m = 1$ and set the schooling productivity of women to match the gap in schooling attainment between males and females in the data. Schooling attainment is defined by the number of years of schooling in excess of the mandatory minimum of 10. The ratio of female to male average schooling attainment is 0.799 in 1970 and, hence, I set $A_f = 0.80$. The curvature of the innate ability-schooling profile is borrowed from [Heckman, Lochner, and Taber \(1998\)](#) and set to $\mu = 0.85$.¹⁴ As shown at the end of this section, the model economy predicts a variation in average schooling attainment across occupations that is close to the one observed in the data. This prediction gives confidence to the parameterization of the schooling outcomes in the model economy.

I set the curvature of the utility function on leisure to $\sigma = 3.00$, following [Heathcote, Storesletten, and Violante \(2010\)](#). The implied Frisch elasticity of labor supply for males is 0.41, well within the range of gender-specific micro estimates. The household produc-

¹³A similar functional assumption for the distribution of innate ability is taken, among others, by [Kong, Ravikumar, and Vandenbroucke \(2018\)](#).

¹⁴The curvature of the innate ability-schooling profile is hard to identify, without data on pre-labor market human capital stocks. [Heckman, Lochner, and Taber \(1998\)](#) estimates this curvature for high-school and college graduates. I follow [You \(2014\)](#) and set μ to the average of the two estimates.

PARAMETER	SYMBOL	VALUE	SOURCE
Utility function, leisure elasticity	σ	3.00	Heathcote et al. (2010)
Home good prod., elasticity	α	0.19	McGrattan et al. (1997)
Home good prod., shares	θ	0.21	McGrattan et al. (1997)
Schooling, elasticity	μ	0.85	Heckman et al. (1998)
Schooling, efficiency	$\{A_m, A_f\}$	$\{1, 0.80\}$	
Innate ability, lower bound	a_{lb}	0.77	
Skill requirements	$\{o_L, o_M, o_H\}$	$\{0.24, 0.50, 0.84\}$	
Learning by doing, efficiency	Δ	1.07	
Upper bound on non-work time, when in the labor market	$\bar{\ell}$	0.93	
Final good prod., elasticity	γ	0.67	

Table 2: Calibration: parameters chosen without solving the model.

PARAMETER	SYMBOL	VALUE	PARAMETER	SYMBOL	VALUE
Innate ability, upper bound	a_{ub}	3.08	Home production, female share	ω	0.50
Distribution of a :	ι_1	5.37	Home production, elasticity	v	0.72
	ι_2	53.64	Skill production, elasticity	ψ	0.68
Market good production, productivities:	ϖ_L	0.40	Occupational output, elasticity	ρ	0.59
	ϖ_M	0.30	Utility, $\ell_{nw,f}$ share	B	0.14
	ϖ_H	0.30	Utility, $\ell_{nw,m}$ share	B_m	0.27
Wedges	τ_f	0.24	Utility, x share	β	0.37
	$\hat{\tau}_{f,M}$	-0.04	Utility, x elasticity	ζ	1.53
	$\hat{\tau}_{f,H}$	-0.06			

Table 3: Calibration: parameters chosen by solving the model.

tion technology has been estimated by McGrattan, Rogerson, and Wright (1997). Their numbers for the capital share θ and the elasticity α are used here. In line with the sample restrictions in Section 2, I set the maximum number of hours that an individual can supply to home work and leisure once in the labor market to $\bar{\ell} = 0.93$. This corresponds to minimum of 400 hours of market work in a year, assuming 2/3 of available time in discretionary (i.e. non required sleeping time). There is little information regarding the elasticity of substitution across occupational outputs, γ . I avoid the perfect substitution case following Firpo, Fortin, and Lemieux (2011) and set γ to 2/3 as in the baseline experiment of Hsieh, Hurst, Jones, and Klenow (2013).

Table 2 lists the parameters that I calibrate outside the model. In addition, I normalize labor market wedges for males, $\tau_{m,i}$, and the occupation-specific component of female wedges in the first occupation, $\hat{\tau}_{f,L}$, to equal 0. The productivity of final output production \mathcal{A} is normalized to equal 1.

Parameters calibrated by solving the model. The list of the remaining parameters to be calibrated is:

$$\Lambda = (a_{ub}, \iota_1, \iota_2, \varpi_M, \varpi_H, \tau_f, \hat{\tau}_{f,M}, \hat{\tau}_{f,H}, \rho, \omega, v, \psi, P_d, \zeta, \beta, B, B_m),$$

I calibrate this set of parameters to match the following data moments in 1970:

1. Average hourly wages of male workers across occupations;
2. Same as above for women;
3. Distribution of male workers across occupations;
4. Same as above for women;
5. 80/20 percentile differential in male wages;
6. Time allocation of men across market work, home work, and leisure activities;
7. Same as above for women;
8. Difference in average work hours between occupation H and occupation L ;
9. Gender difference in average market hours for occupations L and H .

The values of the calibrated parameters are reported in Table 3. Although these are chosen simultaneously to match the data targets, each parameter has a first-order effect on some targets. The distribution of talent, as described by $(a_{ub}, \iota_1, \iota_2)$, is parameterized to match the distribution of hourly wages of males – that is, the occupational wage differentials (target 1) and the 80/20 percentile wage differential (target 5). The allocation of male workers across occupations (target 3) identifies the shares of occupational output in final good production, ϖ_i . The same statistic for women (target 2) identifies the occupation-specific component of the product market wedges facing women, $\hat{\tau}_{f,i}$. To note that these wedges decline with the complexity of the occupation, going from $\hat{\tau}_L = 0$ to $\hat{\tau}_H = -0.06$. This is consistent with the lower brawn requirements that characterize higher complexity occupations along with the lower brawn endowment of women compared to men documented by Rendall (2010). Low-complexity occupations have an average of 76% of their tasks requiring brawn, compared to an average of 50% in middle-complexity occupations and of 16% in high-complexity occupations. The common component of the occupational wedges is instead set to match the ratio of female to male hourly wages, $\tau_f = 0.24$ (target 4).

Female wages across occupations identify the elasticity of skill to time, ψ , and the elasticity of occupational output production to skill, ρ . On the one hand, the differential in market hours across individuals impacts the differential in wages via the learning-by-doing effect on skill as specified by ψ . On the other hand, given skill requirements o_i , as ρ increases, the distribution of skill maps into a more and more dispersed distribution of wages.

	MODEL			DATA		
	MARKET	HOME	LEISURE	MARKET	HOME	LEISURE
HOURS:						
males	0.45	0.06	0.49	0.44	0.06	0.49
female	0.14	0.39	0.47	0.13	0.38	0.49
OCCUPATIONS:	L	M	H	L	M	H
distribution, males	40%	26%	34%	39%	26%	35%
distribution, females	51%	34%	15%	52%	31%	18%
occupational similarity		81%			82%	
wages, males	1.00	1.11	1.49	1.00	1.14	1.42
wages, females	1.00	1.14	1.52	1.00	1.10	1.56
hours, females - males	0.27	0.32	0.35	0.30	0.31	0.33
female/male wage		0.60			0.60	
schooling, males	1.00	1.67	3.34	1.00	1.57	2.89
schooling, females	0.88	1.73	3.55	0.92	1.40	2.65
hrs: occ H /occ L		0.08			0.09	
80/20 male wage differential		1.65			1.68	
80/20 female wage differential		1.60			1.65	

Table 4: Calibration: model fit to the 1970 economy. Entries in cursive highlight moments that are not a target of the calibration exercise.

Turning to time allocation, I use the information in the dataset provided by [Aguir and Hurst \(2007\)](#) as compiled by [Bar and Leukhina \(2011\)](#) to measure leisure and home production hours for married men and women¹⁵. The fraction of time spent in home production by men is used to identify the share parameter of the labor aggregator input in home production, ω . The share parameters in the utility function for the home good and leisure hours, β , B and B_m , are important for matching the fraction of time spent in home production and leisure by women and that spent in leisure by men (targets 6 and 7). These share parameters imply a weight on market good consumption of 0.56. Note also that the share parameter of the husband's leisure is higher than that of the wife.¹⁶

The curvature of the utility function on home hours and the elasticity of substitution between male and female time in home production determine the allocation of time at the household level and between husband and wife, as income varies. Therefore, I parameterize these two parameters so that the model's profile of market hours across occupations and the model's gender differential in market hours by occupation are as close as possible to the data (targets 8 and 9). To note that the degree of curvature of the utility function for the home good is calibrated to a higher value than that of the market good, in line with [Greenwood, Guner, Kocharkov, and Santos \(2016\)](#). This implies a shift toward market good consumption as household resources rises, consistently

¹⁵The sample focuses on male-earner and two-earner households. Similar patterns of home production and leisure hours across the entire population are provided by [Ramey \(2009\)](#) and [Ramey and Francis \(2009\)](#), respectively.

¹⁶Alternatively, one could allow for gender-specific curvatures on leisure hours. [Olivetti \(2006\)](#) calibrates a higher curvature on the disutility of market hours for men than for women.

with “consumerism” theory among the preference-based explanations of the rise in female labor supply.

The model is solved numerically. The calibration algorithm consists of minimizing the following equation:

$$\min_{\Lambda} \sum_{u=1}^{17} \left(\frac{\pi_u(\Lambda) - \tilde{\pi}_u}{\tilde{\pi}_u} \right)^2,$$

For a given Λ , I compute the model moments, $\pi_u(\Lambda)$, that correspond to the targets described above, $\tilde{\pi}_u$. Table 5 lists the targeted moments in the data and in the model economy. Additionally, in cursive, the table reports moments that are not targets of the calibration exercise, but describe the model fit to the 1970 US economy. As it transpires from this table, the model matches most of the moments successfully. The model has some difficulty mimicking the fact that the occupation-wage profile of men is steeper than that of women between occupation L and M and flatter between occupation M and H . Note however that the distance to the data is relatively small. Last, the model replicates the non-targeted variation of schooling attainment across occupations quite well. Men in high complexity occupations have 3.3 times the schooling attainment of those in low-complexity occupations in the model, compared to 2.9 in the data.

5 Findings

The objective of the quantitative exercise is to quantify the role of labour supply for the gender convergence in occupational choice. For this reason, I simulate the model economy in 2010, with two key goals. The first is to evaluate the merit of the model based on a set of moments that is not a calibration target. The second is to assess the importance of the forces outlined in Section 2 for the convergence in occupational choice, via the labor supply channel. A good fit of the model in 2010 is desirable to pursue this latter goal.

To simulate the model in 2010, I first set $A_{f,2010}$ to 1.05, as the average schooling attainment of women grew to be 1.05 that of men, by 2010. I adjust the price of appliances to reflect its 177% decline between 1970 and 2010, as measured in the data.

Next, I choose the shares of occupational output in 2010 so to generate an allocation of male workers across occupations that is as close a possible to the one in the data. The share of occupational output of high-complexity occupations rose from 30% in 1970 to 26% in 2010, compared to that of medium- and low-complexity occupations which, respectively, remained constant and declined from 40% to 35%. This path indicates a bias of technical change in final good production toward occupations with higher relative contents of factor *Brain*, consistently with data evidencing a recent shift in labor factors toward brain-intensive tasks (see for example [Rendall, 2010](#) and [Pitt, Rosenzweig, and](#)

		1970	2010
Female schooling	A_f	0.80	1.05
Talent upper bound	a_{ub}	3.08	3.93
Wedge	τ_f	0.34	0.72
Productivity	\mathcal{A}	1	0.89
OCCUPATIONS: share	ϖ	L 40% M 30% H 30%	L 33% M 29% H 37%

Table 5: Model economy in 2010: parameter values.

	MODEL			DATA		
	MARKET	HOME	LEISURE	MARKET	HOME	LEISURE
HOURS: males	0.40	0.09	0.51	0.43	0.13	0.44
female	0.31	0.24	0.45	0.28	0.25	0.47
female/male wage	0.74			0.73		
occupational similarity	100%			100%		
OCCUPATIONS: distribution, males	L 31%	M 26%	H 43%	L 34%	M 21%	H 45%
distribution, females	L 31%	M 26%	H 43%	L 34%	M 22%	H 44%
wages, males	0.95	1.07	1.57	0.82	1.16	1.62
wages, females	1.07	1.24	1.87	1.01	1.32	1.86

Table 6: Model economy in 2010: model fit.

Hassan, 2012).

Last, between 1970 and 2010, the average wages of women relative to those of men increased from 0.60 to 0.73. Matching this target in the model economy implies a decline in the labor market wedge facing women from 0.34 to 0.28. At the same time, male wages increased, on average, of 5.7% and their average schooling attainment increased of 1.03 years. I adjust the productivity of final output production and the upper bound of the distribution of ability to generate these two trends in the model economy, respectively.

Table 5 summarizes the differences in the parameters between the 1970 and the 2010 model economy. These embody the forces outlined in Section 2 as likely central to a quantitative theory of labor supply and occupational choice: (i) the decline in price of household appliances, (ii) the technological bias in final good production toward occupations of higher complexity, (iii) the decline in the labor market wedge facing women (exogenous component of the gender wage gap), and (iv) the reversal of the gender gap in schooling.

Table 6 shows the model fit on the 2010 labor market outcomes of men and women. With the exception of the occupational choice of men and the gender wage gap, all the listed moments are not targeted. Overall, the model does a good job matching these

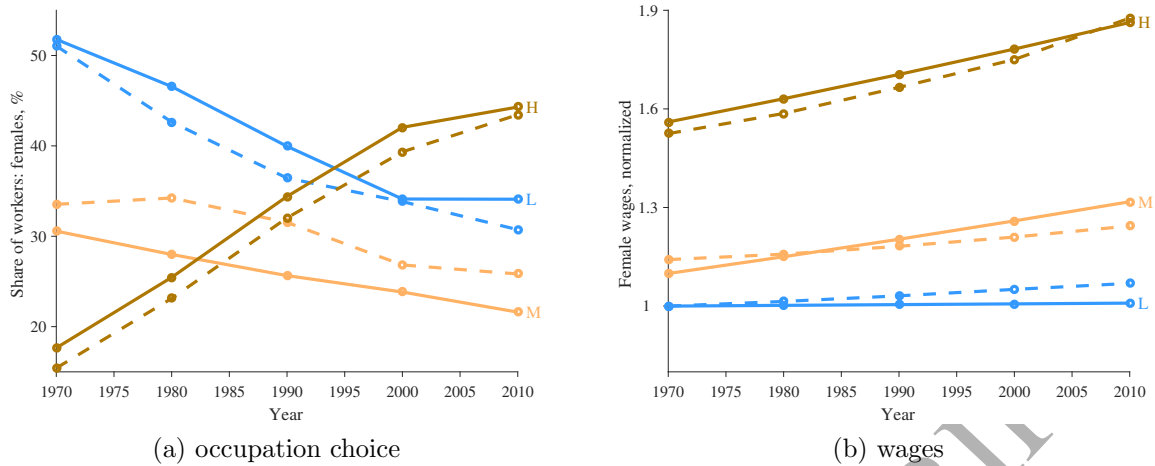


Figure 7: Results: Labor market outcomes of women, 1970 to 2010. Data (solid lines) vs. Model (dashed lines). Wage data are normalized to the average wages in occupation *L* in 1970.

outcomes. Consider first the occupational choice and average wages of female workers. To zoom in on these, Figure 7 plots their levels, year-by-year, for the 1970-2010 period. These are computed by interpolating the parameters in Table 5 for each year, feeding into the model the relative price of household durables to consumption and simulating the model economy. The model delivers the increase in the fraction of women choosing higher complexity occupations recorded in the data (panel(a)). It generates a 28 p.p. increase in the share of women in high-complexity occupations (from 15% to 43%), compared to the 26 p.p. increase recorded in the data. Similarly, the fraction of women in low-complexity occupations declines of 20 p.p. in the model and of 18 p.p. in the data. The model also delivers the stronger rise in the average wages of female workers in more complex occupations, recorded in the data (panel (b)). Average wages in high-complexity occupations reach the level of 1.87 in the model economy in 2010 (expressed in 1970 occupation *L* wages), compared to the level of 1.86 recorded in the data. The model underplays the rise in average wages of middle-complexity occupations and overplays that of low-complexity occupations. In the former set of occupations average wages of women increase by 6 p.p. in the model while in the latter set they increase by 10 p.p., between 1970 and 2010. The same statistics in the data show an increase of, respectively, 1 p.p. and 22 p.p. Notice that similar observations apply for the fit of the model on the evolution of occupational wages of men.

I now turn to analyze the model implications for the time allocation decisions of men and women in 2010 (first two rows of Table 6). In the model economy, the average fraction of time dedicated by women to market work increases by 17 p.p. (from 0.14 to 0.31) compared to the 15 p.p. increase recorded in the data (from 0.13 to 0.28), between 1970

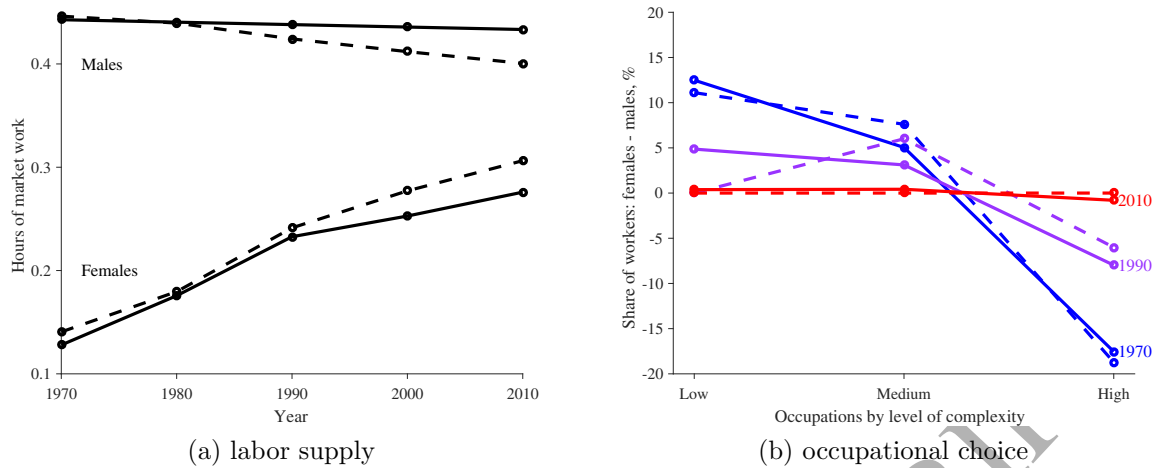


Figure 8: Results: labor supply and occupational convergence, 1970 to 2010. Data (solid lines) vs. Model (dashed lines). Source: DOT, Census, and author.

and 2010. Both in the model and in the data, the bulk of this increase is generated by a reduction in the fraction of time they dedicate to home production, which declines by 15 p.p. in the model (from 0.39 to 0.24) and by 13 p.p. in the data (from 0.38 to 0.25). Female home production hours drop as a response to the decline in the price of household durables and to the increase in female to male wages. The former shifts home production inputs away from labor and toward capital. The latter shift the composite labor input toward a higher share of male time compared to female time. The fraction of time men dedicate to home production increase from 6% to 12%, between 1970 and 2010. The model generate 40% of this increase.¹⁷ At the same time, the model is broadly in line with the shift in the composition of the labor input in home production. The ratio of female to male home production hours declines from 6.0 to 2.0 in the data and from 6.2 to 2.8 in the model, between 1970 and 2010.

Lastly, the model generates a stronger decrease in the fraction of time men dedicate to leisure activities than that recorded in the data. This fraction declines of 4.6 p.p. in the model compared to 0.9 p.p. in the data. A decrease in the weight of male leisure hours in the utility function, B_m , from 0.27 to 0.18 is sufficient for the model economy to be aligned to the time allocation decision of men in the data. To note that the results presented in the next section are robust to such a variation.

The thesis of the paper links the gender differences in occupational choice to gender

¹⁷A reason for the under-performance of the model in this dimension is that the change in the female to male wages recorded in my sample is smaller compared to other measures in the literature. In my sample this ratio increases by 13 p.p., whereas standard measures record an increase of about 20 p.p. (see, for example, Greenwood, Guner, Kocharkov, and Santos, 2016 and Siegel, 2017). When the model is made to match such an increase in the gender wage gap (of 22 p.p.), the decrease in male home hours double, reaching 4.6 p.p. points, 2/3 of the increase recorded in the data.

disparities in market hours. Figure 8 shows the path of these two moments between 1970 and 2010, both in the model economy and in the data. The gender gap in market hours closes: it decreases from 31 p.p. in 1970 to 16 p.p. in 2010. In the model economy, this gap declines from 31 p.p. to 10 p.p. Over the same period of time, the model generates a gender convergence in the occupational choice of women toward that of men of the same magnitude as the one recorded in the data. The index of occupational similarity grows by 19 p.p. point between 1970 and 2010 in the model and by 17 p.p. in the data. In 1970, the price of household durables is high and the market value of female time is low because of the high wedge women face and their large gap to the schooling attainment of men. Optimally, females spend most of their time in non-market activities, home production in particular, and have lower incentives to choose high-complexity occupations than males have. As the price of household appliances declines, the labor market wedge facing women decreases, the schooling gap closes and the returns to choosing complex occupations increase, women shift their time allocation away from home work and toward market work. A stronger commitment to market work incentivizes women to choose high-complexity occupations at rates resembling those of men.

5.1 Sources of convergence

This section assesses the quantitative importance of labor supply in explaining gender differences in occupational choice. To do so, I measure the contribution of the exogenous sources featured in my framework to the gender convergence in labour supply and occupational choice and isolate the effect that comes on the latter via the former. These exogenous sources are technological change in the production of household capital, occupation-biased technological change in final good production, declining labor market wedge facing women and gender convergence in schooling attainment.

I conduct a decomposition exercise in which I take the model economy in 1970 and progressively add, one by one, the characteristics of the 2010 economy. This consists of running a total of five experiments. Starting from the model economy in 1970, in the first experiment, I include background trends that drive the rise in schooling and average wages of males – that is, the upper bound in innate ability, $a_{ub,2010}$, and the productivity in final-good production, \mathcal{A}_{2010} . In the second experiment, I include the occupational bias in the final good production technology in 2010 – that is, the shares of occupational outputs, $\varpi_{i,2010}$. In the third experiment, I include the technology embodied in household capital in 2010 as captured by the relative price of appliances to consumption $P_{d,2010}$. In the fourth experiment, I include the labor market wedge facing women in 2010, $\tau_{f,2010}$. Lastly, in the fifth experiment, I include the closing of the gender gap in schooling attainment, as captured by $A_{f,2010}$. This last experiment returns the model economy in

	BASELINE	+ $a_{ub,2010}$,	+ $\varpi_{i,2010}$		+ $P_{d,2010}$		+ $\tau_{f,2010}$		+ $A_{f,2010}$	
	1970 (a)	\mathcal{A}_{2010} (a)	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Ψ	81%	84%	81%	84%	86%	86%	88%	88%	100%	93%
\hat{p}_{mL}	51%	46%	35%	45%	32%	32%	31%	31%	31%	29%
$\hat{p}_{m,M}$	34%	33%	34%	33%	32%	33%	32%	32%	26%	29%
$\hat{p}_{m,H}$	15%	21%	31%	22%	35%	35%	38%	38%	43%	41%
$\hat{p}_{f,L}$	40%	37%	27%	37%	27%	27%	28%	28%	31%	28%
$\hat{p}_{f,M}$	26%	26%	24%	26%	23%	24%	23%	23%	26%	23%
$\hat{p}_{f,H}$	34%	37%	49%	38%	49%	50%	49%	49%	43%	48%
gwg	0.60	0.59	0.59	0.59	0.61	0.61	0.67	0.62	0.74	0.69
$\ell_{w,f}$	0.14	0.14	0.13		0.21		0.26		0.31	
$\ell_{w,m}$	0.45	0.45	0.45		0.45		0.43		0.40	
$\ell_{x,f}$	0.39	0.39	0.40		0.32		0.28		0.24	
$\ell_{x,m}$	0.06	0.06	0.06		0.05		0.07		0.09	
$\ell_{nw,f}$	0.47	0.47	0.47		0.47		0.46		0.45	
$\ell_{nw,m}$	0.49	0.49	0.49		0.50		0.50		0.51	
Y	0.21	0.20	0.23		0.25		0.26		0.29	

Table 7: Decomposition exercise. The column “Baseline 1970” refer to the baseline economy in 1970. The column “+ $a_{ub,2010} + \mathcal{A}_{2010}$ ” refer to the first experiment. The columns grouped under “+ $\varpi_{i,2010}$ ” refer to the second experiment. The columns grouped under “+ $P_{d,2010}$ ” refer to the third experiment. The columns grouped under “+ $\tau_{f,2010}$ ” refer to the fourth experiment. The columns grouped under “+ $A_{f,2010}$ ” refer to the fifth experiment. The columns indexed by (a) report the results of the main counterfactual experiments as described in the text. The columns indexed by (b) report the statistics for an economy that features only the labor supply implied by the forces added in exercise (a) and not the forces themselves.

2010.¹⁸

The results are reported in Table 7, which shows, for the model economy in 1970 and each of the experiments: (i) the index of occupational similarity, Ψ , (ii) the occupational distribution by gender, \hat{p} , (iii) female to male wages, gwg , (iv) the time allocation by gender, ℓ , and (v) labor productivity, Y . In each of the experiments, labor supply and occupational choice change simultaneously as the various forces are added. To separately measure the role of labor supply for occupational choice, I further report the occupational choice resulting exclusively from the variation in labor supply induced by an experiment – that is, when including an additional force, I compute the optimal occupation choice of individuals that choose in an economy without such a force but are bounded to the optimal labor supply they’d choose in an economy that embeds such a force. These are shown in the columns marked with (b), compared to the main experiments shown in the columns marked by (a).

The gender convergence in occupational choice is accounted for by technological progress in the production of household capital, the declining wedge facing women and the rise in

¹⁸The Online Appendix presents the results of alternative decomposition exercises where I vary the ordering of the experiments. The main results presented in the paper are robust to these variations. Labor supply accounts for between 57.8% and 61.0% of the gender convergence in occupational choice.

average schooling attainment of women relative to that of men. They account for 22%, 14% and 62% of such convergence, respectively, as measured by changes in the index of occupational similarity (Table 7, row Ψ).¹⁹ Occupation-biased technical change in final good production moves against the current, pushing down the index of occupational similarity by 3 p.p., from 84% to 81%. Such technological change is the most important driver of the shifts in occupational composition toward higher complexity occupations for both men and women. However, it affects men more than it does women. It generates an increase of 12 p.p. in the fraction of male workers in high-complexity occupations, compared to the 9 p.p. increase recorded in the data, between 1970 and 2010. About 3/4 of this divergence in occupational choice is explained by the fact that the elasticity of occupational choice to technical change of women is smaller than that of men, due to the lower market hours and schooling attainment of women. Indeed, such an elasticity depends on an individual's comparative advantage, which is determined in relation to his/her skill. The remaining portion of the gender divergence is accounted for by the labor supply channel. The income effect of the rising returns in high-complexity occupations pushes the labor supply of women with high talent down. Notice indeed that the fraction of time women dedicate to market work decreases going from Exercise 1 ($+a_{ub,2010} + \mathcal{A}_{2010}$) to Exercise 2 ($+\varpi_{i,2010}$).²⁰

Technological change in the production of household capital and the declining wedge facing women influence the occupational choice via the labor supply channel. Technological change in the production of household capital is the most important driver of the 1970-2010 rise in women's market hours, accounting for 47% of it. Most of the rise in female market hours comes out of the home production margin and this form of technological change accounts for the bulk of it – that is, 54%. Greenwood, Guner, Kocharkov, and Santos (2016) reach similar conclusions regarding the main driving forces behind increased female labor force participation, over the same period of time. In the presence of technological progress in the production of household capital, female labor is less valued at home and women's market hours increase along with women's comparative advantages in high-complexity occupations. The implications for occupational choice are quantitatively important: the likeliness of women choosing high-complexity occupations increases by 4.4 p.p., closing the gap to men from 18.5 p.p. to 13.4 p.p.

The decline in the wedge facing women explains 29% of the rise in female market hours

¹⁹The contribution of source x for variable y is the difference between the value of variable y in the counterfactual where source x is first added and the value of variable y in the counterfactual right before that. The percentage contribution is the ratio of this contribution to the difference in variable y between the baseline economy in 2010 and the baseline economy in 1970.

²⁰The income effect generates an adjustment on hours that is disproportionate toward females, because of the high labor market wedges they face in 1970 and the high price of household appliances. In an alternative decomposition experiment where the 2010 economy is taken as a baseline and the exogenous sources are shut down one by one, occupation-bias technical change increases female labor supply and generates 6.4% of the gender convergence in occupational choice.

between 1970 and 2010. The fraction of time dedicated to market work by women decreases by 4.89 p.p., 3.78 p.p. coming from the reallocation of home production time. Similarly, [Heathcote, Storesletten, and Violante \(2010\)](#) measure that a narrowing of the gender-specific labor prices between 1970 and 2000 explains 38% of the rise in hours of market work of married women. As the wedge facing women declines, the opportunity cost of female time relative to the cost of capital and to the opportunity cost of men time increases.²¹ The latter reallocation force rises the fraction of time men dedicate to home production by 1.4 p.p. and makes this force the second most important driver of the increase in male home production hours, accounting for 22% of the increase observed in the data.

Turning to schooling, its effect on the gender convergence in occupational choice is twofold. A direct effect rises the level of skill of women by rising their labor market talent. An indirect effect rises the level of skill of women by rising their labor supply. The direct effect rises the index of occupational similarity by 7.1 p.p. point, accounting for 37% of the gender convergence in occupational choice. The indirect effect accounts for 24% of such a convergence: it increases the index of occupational similarity by 4.5 p.p. This last effect acts via a 4 p.p. decrease in the fraction of time dedicated to home production by women and via a 5 p.p. increase in the fraction of their time they dedicate to market work. Schooling attainment accounts for 27% and 30% of the decrease in home hours and the increase in labor supply, respectively. It is also the most important factor behind the rise in the fraction of time dedicated by men to household production, rising it by 1.8 p.p. Overall, the increase in the opportunity cost of female time, as described by the decline in the wedge and rise in schooling attainment, generates 53% of the rise in home production hours of men (3.2 p.p. increase out of the observed 6.2 p.p.). [Siegel \(2017\)](#) finds that this channel can account the entire rise in home production hours. In my sample of occupations, the measured gender gap in wages decreases of a smaller amount over time.

Overall, labor supply account for 58% of the gender convergence in occupational choice, as measured by the increase in the index of occupational similarity. It increases this index by 10.9 p.p. via: (i) technological progress in the production of household capital, by 4.2 p.p. (accounting for 22.5%), (ii) declining wedges facing women, by 2.7 p.p. (accounting for 14.4%), (iii) bridging the gender gap in schooling attainment, by 4.5 p.p. (accounting for 24.1%) and (iv) occupation-biased technical change, by -0.5 p.p. (accounting for -2.7%).

Next, I consider the main drivers behind the observed closing of the gender gap in wages.

²¹The decline in female market hours that is not accounted for by the decline in the wedge facing women and in the relative price of appliances is accounted for by a decline in the share of household income dedicated to home good expenditures.

Female to male wages increase by 14.6 p.p. (from 0.60 to 0.75), between 1970 and 2010. In the model economy, a part of this increase is exogenous, via the decline in the wedge facing women, and another part is endogenous, via the rise in female labor supply. The declining wedge generates a 5.3 p.p. increase in the ratio of female to male wages, 36% of the entire increase. Instead, the rise in female labor supply generates a 4 p.p. increase in the ratio of female to male wages, 27% of the total increase. This latter effect is the composite of two major forces: technological change in the household sector and the closing of the gender gap in schooling. The former force accounts for 13% of the entire rise of female to male wages. The latter force accounts for 54% of the rise, 14% of which is attributable to labor supply. If the pattern of labour supply is imposed on Experiment 4, i.e. in an economy with no convergence in schooling, the ratio of female to male wages increases from 0.67 to 0.69.

Last, I consider the sources of labour market productivity growth, which amounts to a 40% rise between 1970 and 2010 in the model economy. The most sizeable contributions come from the two forms of technological change considered here and from schooling, each one of them accounting for about 1/3 of the total rise. The remaining 10% comes from the decreasing labor market wedge facing women. This finding is broadly in line with [Hsieh, Hurst, Jones, and Klenow \(2016\)](#), who measure a contribution of improved skill allocation of women (due to labor market frictions) in the order of a 21% (2.5%) increase in labor productivity between 1980 and 2010 and an 22% (7.3%) increase between 1960 and 2010. In their framework, occupational wedges are identified and measured as the only driver of occupational dissimilarities between genders, whereas I consider the feedback of labor supply on occupational choice via learning by doing across heterogeneous occupations.

6 Conclusions

In this paper, I study the evolution of gender differences in occupational choice. In 1970, 35% of married men and 18% of married women chose occupations that are characterized by analytically intensive tasks. By 2010, gender differences in occupational choice amount to barely a 1% difference in the rate at which married men and women choose such occupations. I argue that the well-documented and contemporaneous rise in married women's market hours is key in the convergence in occupational choice by gender. In particular, the higher weight on skills that characterizes occupations with analytically intensive tasks, make these occupations more attractive to married women over time as their market hours increase and converge toward those of married men.

To impose discipline on the link between labor supply and occupational choice, I develop a model featuring occupations that differ by their elasticity of output to skill and measure this elasticity from data on the task contents of occupations. My model encompasses the

forces that are likely to be at the hearth of the labor supply and occupational decisions. Among these forces, labor-saving technological change in the production of household capital accounts for 47% of the rise in market hours of married females and for 22% of the convergence in their occupational choice to that of married men.

The quantitative analysis indicates that 58% of the convergence in occupational choice between married men and women is accounted by the rise in female labor supply. The remaining part is explained by the closing in the gender gap in schooling observed between 1970 and 2010. To note that 1/4 of the effect that labor supply has on the occupational convergence comes via a decline in the labor market wedge facing women. Extending my framework to endogenize the determinants of such a wedge might yield additional insights.

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