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The division of spoils in a booming industry

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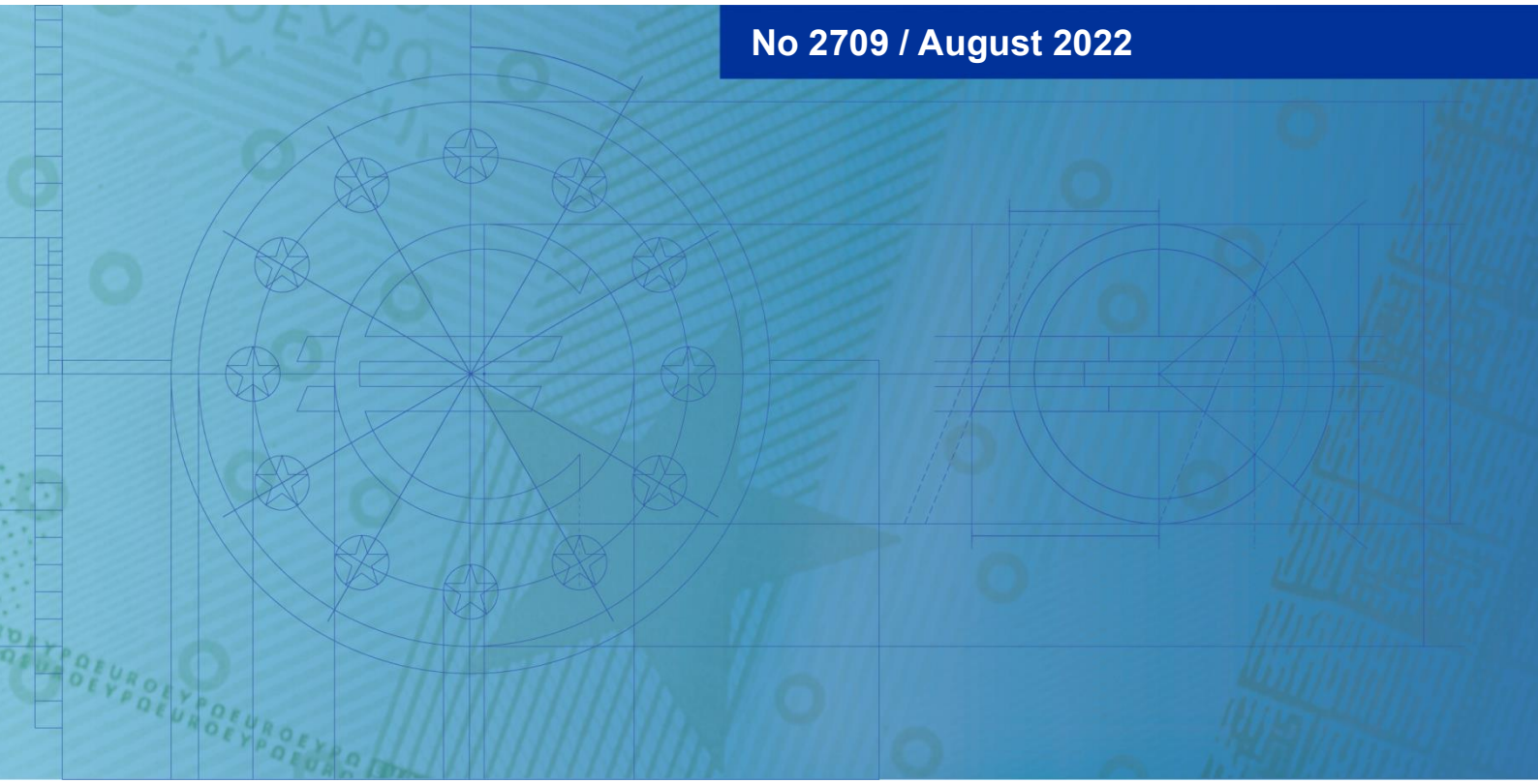

Abstract

Between 2000 and 2007, the gender gap in earnings in the US real estate sector increased, especially in local markets where house prices appreciated relatively more. Firm frictions and the presence of small children in the household do not explain the widening of the gender gap, while sorting on entry and gender identity in relative income do. First, the industry attracted relatively more females with no prior experience, especially in booming local housing markets. Second, labor supply increased relatively more for experienced males with at least some college education who earn less than their spouses.

JEL classification: J16, L85, O18

Keywords: Gender earnings gap; Housing booms; Real estate.

Non-technical summary

There has been a substantial convergence in earnings between men and women over the course of the past half-century. Conventional explanations typically involve long-run phenomena: the introduction of oral contraception which facilitated women's investment in their careers; the waning social stigma surrounding married women's work outside the home; the increase in years of education for women relative to men; the advent of time-saving technologies embodied in the home-production sector; medical progress that reduced health complications around pregnancy and birth; and the growth of the service sector. At the same time, a residual gender gap in earnings still persists, largely due to firm-level factors like discrimination, differential employment promotion standards, the presence of young children in the household, and differences in bargaining skills and in willingness to compete for promotion. The evidence therefore suggests that rationalizing a declining, but not disappearing gender gap requires the confluence of two separate factors: a structural development in the market or in the society, and the presence of firm-level frictions.

At the same time, little is known about what happens to the gender gap—and why—in a setting abstracted from these conditions: in a booming industry, and outside the firm. This is important, for two reasons. First, an increasing number of individuals are self-employed, which reduces the importance of frictions within the firm in explaining the evolution and persistence of the gender gap in earnings. Second, individual sectors in the economy are often subject to sudden shocks that can interfere with long-term structural trends. Examples include the rapid increase in the demand for labor in construction during the 2000s, in fracking during the shale oil revolution of the 2010s, and in home delivery during the COVID-19 epidemic.

I study the evolution of the gender gap in earnings in the US real estate sector during the housing boom of the early-to-mid 2000s as a function of local house prices. The US real estate sector is ideal for the purpose of my study, for a number of reasons. First, because of the unprecedented boom in residential house prices during the early-to-mid 2000s, the sector as a whole experienced a substantial increase in economic rents. Second, entry in the sector is largely unrestricted. Third, real estate agents' earnings are proportionate to the number and value of their individual transactions, and are little affected by firm-specific factors. Last but not least, unlike brawn-heavy sectors like construction or fracking, real estate is an industry where no gender has an obvious ex-ante comparative advantage.

I find that the gender gap in total earnings in US real estate increased significantly between 2000 and 2007, especially in local markets where house prices appreciated by relatively more. This development runs contrary to the rest of the US service sector, where over the same time period the gap between males' and females' earnings did not widen. I also find that the increase in the gender gap in total earnings co-exists with a divergence in earnings per hour and with a divergence in hours worked. This suggests that over the sample period in question, males in real estate both increased their productivity relative to women, and spent more time in the field. A similar pattern is absent for otherwise similar individuals in otherwise similar sectors such as insurance, financial services, and advertising. This suggests a divergence in earnings that is concentrated in a sector with a particularly large increase in potential rents during the sample period.

I next turn to the empirical mechanisms. First, the gender gap in earnings widens only for those in real estate who are self-employed, ruling out firm-level frictions as an explanation for a diverging gender gap in income. Second, the gender gap did not increase for individuals with pre-school-age children present in the household, eliminating prominent potential explanations related to the motherhood penalty in earnings. Third, the widening of the gender gap is largest among experienced real estate agents with some college education who earn less than their spouse. This suggests that males in the real estate sector who happen to earn less than their wives are more likely to increase their labor supply in response to rising economic rents, and this effect is more pronounced if they are better educated. Finally, the widening of the gender gap in earnings is also driven by an influx of females with no prior experience into the sector. Such entrants may plausibly be attracted by flexible work arrangements, to the detriment of pay.

The evidence suggests that policies aimed at reducing the gender gap need to primarily focus on weakening gender norms, on making sure that women do not forgo too much human capital during the early stages of motherhood, and to some extent on improving females' willingness to compete. It also suggests that as long as the conditions studied in this paper are in place, the insights from my analysis can generalize to other segments of the gig economy.

1 Introduction

There has been a substantial convergence in earnings between men and women over the course of the past half-century (Goldin, 2014). Conventional explanations typically involve long-run phenomena, such as the introduction of oral contraception which facilitated women's investment in their careers (Goldin and Katz, 2002), the waning social stigma surrounding married women's work outside the home (Fernandez, Fogli, and Olivetti, 2004), the increase in years of education for women relative to men (Blau and Kahn, 2006), the advent of time-saving technologies embodied in the home-production sector (Greenwood, Seshadri, and Yorukoglu, 2005), medical progress that reduced health complications around pregnancy and birth (Albanesi and Olivetti, 2016), and the growth of the service sector (Olivetti and Petrongolo, 2016; Ngai and Petrongolo, 2017). At the same time, a residual gender gap in earnings still persists, largely due to firm-level factors like discrimination, differential employment promotion standards, the presence of young children in the household, and differences in bargaining skills and in willingness to compete for promotion (e.g., Babcock and Laschever, 2003; Gneezy, Niederle, and Rustichini, 2003; Niederle and Vesterlund, 2007; and Azmat and Ferrer, 2017).

The evidence therefore suggests that rationalizing a declining, but not disappearing gender gap requires the confluence of two separate factors: a structural development in the market or in the society, and the presence of firm-level frictions. At the same time, little is known about what happens to the gender gap—and why—in a setting abstracted from these conditions. This is important, for two reasons. First, in 2019, 28.2% of Americans were self-employed at some point during a given week, and for 14% of workers, being an independent contractor was their primary job (Gallup, 2019). The steady rise of the gig economy and of various non-traditional work arrangements (e.g., Abraham, Haltiwanger, Sandusky, and Spletzer, 2018; Oyer, 2020) is reducing the importance of frictions within the firm in explaining the evolution and persistence of the gender gap in earnings. Second, individual sectors in the economy are often subject to sudden shocks that can interfere with long-term structural trends. Examples include the rapid increase in the demand for labor in construction during the 2000s, in fracking during the shale oil revolution of the 2010s, and in home delivery during the COVID-19 epidemic. Motivated by these observations, in this paper I set to answer the following question: what happens to the division of rents between genders in a booming industry, and outside the firm?

To answer this question, I study the evolution of the gender gap in earnings in the US real estate sector during the housing boom of the early-to-mid 2000s as a function of local house prices. To that end, I use data on around 13,500 individuals employed in real estate from the Current Population Survey (CPS), observed between 2000 and 2007. In terms of local markets, I focus on the evolution of house prices in Metropolitan State Areas (MSAs). The US real estate sector is ideal for the purpose of my study, for a number of reasons. First, because of the unprecedented boom in residential house prices during the early-to-mid 2000s, the sector as a whole experienced a substantial increase in economic rents. Second, entry in the sector is largely unrestricted. Third, real estate agents' earnings are proportionate to the number and value of their individual transactions, and are little affected by firm-specific factors. Last but not least, unlike brawn-heavy sectors like construction or fracking, real estate is an industry where no gender has an obvious ex-ante comparative advantage.

My first finding is that the gender gap in total earnings in US real estate increased significantly between 2000 and 2007, especially in local markets where house prices appreciated by relatively more.[1] This development runs contrary to the rest of the US service sector, where over the same time period the gap between males' and females' earnings did not widen. I also find that the increase in the gender gap in total earnings co-exists with a divergence in earnings per hour and with a divergence in hours worked. This suggests that over the sample period in question, males in real estate both increased their productivity relative to women, and spent more time in the field.

Because the divergence in the gender gap in earnings increases with the size of the house price shock, it suggests that the pattern I document is driven by localities with the highest increase in potential economic rents. Supporting this conjecture, I find that a similar pattern is absent for otherwise similar individuals in otherwise similar sectors such as insurance, financial services, and advertising. This suggests a divergence in earnings that is concentrated in a sector with a particularly large increase in potential rents during the sample period.

I next exploit the mechanisms responsible for the divergence in the gender gap in earnings. First, I find that this gap widens only for those in real estate who are self-employed, as opposed to salaried workers. The evidence thus helps rule out, to a large extent, the presence of firm-level frictions as an

[1] The gender gap in income was already sizeable before the episode in question. Controlling for demographic factors and regional effects, the data suggest that in 2000, females in real estate earned around 40% less than their male counterparts.

explanation for a diverging gender gap in income.

Second, I find that the gender gap did not increase for individuals with pre-school-age children present in the household. The evidence thus further eliminates prominent potential explanations related to the motherhood penalty in earnings (e.g., (Adda, Dustmann, and Stevens, 2017; Kleven, Landais, and Søgaard, 2019; Petrongolo and Ronchi, 2020).

Third, I find that the widening of the gender gap is largest among those with some college education, and among those who earn less than their spouse. The same male individuals are also more likely to increase the number of hours worked per week. This suggests that males in the real estate sector who happen to earn less than their wives are more likely to increase their labor supply in response to rising economic rents, and this effect is more pronounced if they are better educated. The evidence is thus consistent with the notion that gender norms interact with relative income in the household. The observed pattern also relates to prior evidence in the literature that more educated males are more likely to marry women who earn more than them (Bertrand, Kamenica, and Pan, 2015). My findings suggest that in addition, such men are also more likely to try to bridge the gap when an earning opportunity arises.

Finally, I find that the widening of the gender gap in earnings is also driven by a selection mechanism: during the period in question, females with no prior experience in the sector are more likely to enter the market than are males with no prior experience. Digging deeper, I find that experienced males in real estate earn substantially more than inexperienced ones in the same local market. The increased influx of females with no prior experience into the sector therefore further helps explain the divergence in male and female incomes. Such entrants may plausibly be attracted by flexible work arrangements, to the detriment of pay (Petrongolo, 2004; Mas and Pallais, 2017; Wiswall and Zafar, 2018).

The latter mechanism runs contrary to the evidence in an influential paper by Mulligan and Rubinstein (2008). They find that part of the gradual decline in gender inequality between the 1970s and the 1990s is driven by a selection into the marketplace of women whose skills dominated the average working man. The pattern I document appears to have the opposite driver: selection of less experienced women leading to rapidly rising inequality between genders. The evidence thus lends support to the conjecture that the gender gap can persist because of a potential specialization of women in low- or middle-tier occupations that are more permeable to non-standard work arrangements (Petrongolo and Ronchi, 2020).

The main result in the paper is robust to a number of confounding factors. First, it obtains after controlling for a wide host of individual background characteristics that can determine labor market outcomes, such as age, race, education, marital status, home ownership status, number of children, and relative income. It also survives when I allow for the impact of those individual characteristics on income to fluctuate over time. Crucially, I hold a host of unobservable background forces constant by including in the regressions interactions of geography, time, and gender dummies. In particular, I include $MSA \times Year$ dummy interactions which control for any unobservable region-specific time-varying factors that affect all economic agents in an MSA equally, such as changes in housing demand. I also include $MSA \times Female$ dummy interactions which control for MSA-specific time-invariant factors that affect men and women differently, such as local cultural norms prior to the sample period. I am thus fairly confident that the results are driven neither by unobservable time-invariant differences between men and women in local markets, nor by unobservable location-specific trends that affect both genders equally.

My paper contributes to a large literature that has sought to identify and quantify the gender gap in labor market outcomes, such as the gap in labor force participation (Greenwood, Seshadri, and Yorukoglu, 2005; Popov and Zaharia, 2019), in wage income (Bayard, Hellerstein, Neumark, and Troske, 2003), in hiring (Neumark, Bank, and Van Nort, 1996), and in bargaining (Castillo, Petrie, Torero, and Vesterlund, 2013). While some analysts have argued that this gap is primarily driven by male-female differences in productivity and in work experience (O'Neill and Polachek, 1993; Mulligan and Rubinstein, 2008), a more wide-ranging view is that equally productive men and women face different job prospects and strike different wage bargains with their employers (Card, Cardoso, and Klein, 2016). Altonji and Blank (1999) find that after controlling for education, experience, personal characteristics, city of residence, occupation, industry, government employment, and part-time status, only about 27 percent of the gender wage gap turns out to be explained by differences in observable characteristics. Goldin, Kerr, Olivetti, and Barth (2017) show that the gender gap widens with age, especially 15 to 20 years after leaving school. They argue that this widening is split between men's greater ability or preference to move to higher paying firms and positions and their better facility to advance within firms.

I contribute to this line of research by documenting and analysing the evolution and the determinants of the gender gap in a sector with free entry and outside of firm-level frictions, and by demonstrating the importance of both individual and local factors. Specifically, I show that the increase in the gender gap

in real estate over time is largely driven by incumbents who have at least some college education and who earn less than their spouse, as well as by an influx of females with no prior industry experience. This is suggestive of two mechanisms. First, gender norms dictate that males who earn less than their spouses should take advantage of higher earnings opportunities, once such arise. Second, a sorting mechanism is in place whereby females with no prior experience are more prone to enter the market than males with no prior experience, potentially attracted by non-pecuniary benefits like flexible work arrangement. While the motherhood penalty has already been shown to explain a large portion of current earning gaps (Adda, Dustmann, and Stevens, 2017; Petrongolo and Ronchi, 2020), I demonstrate that it does not contribute, in this particular setting, to the divergence in the gender gap in the short run.

Moreover, I show that the increase in the gender gap is only driven by the self-employed in real estate, and not by salaried workers. This is important because it demonstrates that firm-level frictions are not necessary when trying to explain the widening of the gender gap in the data. Finally, my analysis shows that the divergence between male and female incomes is stronger in localities which experienced a relatively larger increase in housing prices. To the extent that larger potential rents tend to intensify competition, one potential interpretation of the evidence is that men exhibit a higher propensity to compete for monetary rewards than women (Gneezy, Niederle, and Rustichini, 2003). Because I also show that hours of work and productivity diverge, too, especially among the educated and those making less than their spouse, the evidence is also consistent with the idea that at least some experienced males in real estate are able extract proportionately higher rents in a booming housing market.[2]

My paper is also related to studies that have looked at various aspects of the gender gap in finance. Black and Strahan (2001) show that after the US banking deregulation between the mid-1970s and mid-1990s, the wage gap between male and female banking employees declined. Their evidence suggests that in a regulated environment, firms are able to discriminate against women by sharing rents disproportionately with male workers. Huang and Kisgen (2013) demonstrate that male executives exhibit relative overconfidence in significant corporate decision making compared with women. Seagraves and Gallimore (2013) find no differences in net selling price for residential real estate across male and female agents.[3] Cronqvist, Previtero, Siegel, and White (2016) document gender differences in risk taking and trading

[2]Turnbull and Waller (2018) show that this is not the case for top performing agents.

[3]Other relevant contributions to the literature on the male/female paradigm of negotiations include Andersen, Marx, Nielsen, and Vesterlund, 2021; Hernandez-Arenaz and Iriberri, 2018; and Pham, Turnbull, and Waller, 2022.

among investors. Fang and Huang (2017) demonstrate that male Wall Street analysis benefit more than their female colleagues from connections in both job performance and the subjective evaluation by others. I contribute to this literature by documenting a clear widening of the gender gap in earnings in the sector "Finance, insurance, and real estate" during a specific historical episode, and by investigating the demographic and local factors driving the divergence in male and female earnings.

2 US real estate brokerage: Institutional setting

There are four features of the US real estate market that are central to this study. First, residential real estate brokerage in the US is characterized by a high degree of competition and a large number of firms. Entry in the sector is relatively costless, and obtaining a licence is based on a minimal set of requirements, including a limited number of classroom hours, an exam, and a licensing fee. As a result, agents enter and exit on a regular basis. There appear to be no economies of scale in the market, suggesting that small firms and individual brokers can compete effectively with larger firms (Anderson, Lewis, and Zumpano, 2000). This is not surprising given the nature of the production process whose primary input is labor and human capital.

Second, the work arrangement that the industry offers is very flexible, which is particularly attractive to agents that want to work part-time. Longitudinal analysis from the period that I study shows that many small brokers are in and out of the market, selling a house or two one year and zero houses the next year (Beck, Scott, and Yelowitz, 2010).

Third, despite the competitive nature of the real estate industry, a pervasive and seemingly rigid six-percent commission rate structure exists in local real estate brokerage markets across the country. This means that remuneration is strictly proportionate to the total value of real estate transactions that an agent/broker records. This distinguishes the sector from other similar services, such as law, where remuneration is largely based on hours billed.

Lastly—and partially explaining the third feature of the market—the geographic scope of the market is local rather than national. A joint report on the state of the real estate industry published by the Federal Trade Commission and the Department of Justice at the peak of the housing boom of the early-to-mid 2000s asserted that "competition among brokers is primarily local because real estate is fixed in

a geographic location, and buyers and sellers want some in-person interaction with a broker who has experience and expertise relevant to that particular location" (FTC/DOJ, 2007). This conclusion is seconded by Sawyer (2005) who describes the US real estate industry as a collection of many local real estate markets.

Therefore, the US real estate sector has four important features that I explore in the empirical analysis: there are low barriers to entry; working time is flexible; remuneration is directly proportionate to the value of transactions; and the relevant market is the local one.

3 Data

I use individual-level information on various types of income and hours worked, as well as on a number of demographic and financial characteristics, from the Integrated Public Use Microdata Series (IPUMS) (Flood et al., 2015). I am interested in yearly observations from the US Current Population Survey (IPUMS-CPS).

The sample consists of the survey years 2000–2007 which allows me to capture the peak of the US housing boom of the early-to-mid 2000s. In the main analysis, I focus on individuals in real estate (IND1990 code 712), later distinguishing between those who are self-employed (CLASSWKR code 13 or 14) and salaried workers. For the 7-year period considered in the analysis, the final sample contains a total of 13,513 individuals with full income and demographics information. In robustness tests, I extend the analysis to sales agents in other occupations, such as insurance or financial services, and to workers in other sectors of the economy.

The main dependent variable in the analysis is the natural logarithm of 'total income', which captures the individual's total income for the year. Figure 1 plots the evolution of median total income by gender between 2000 and 2007. An increasing trend for both genders, as well as an increasing gap between males and females, is readily apparent.

The CPS also contains information on 'wage income', which captures a fixed component of total income, but not on earned income. At the same time, it is reasonable to assume that for the self-employed, earned income is identical to total income. Because real estate agents charge a fixed commission in the

neighborhood of 6% (FTC/DOJ, 2007), differences in earned income reflect differences in individual productivity. I also look at 'hours worked', which measures the amount of hours during the usual week that those in real estate spend working. Finally, because I also have information on the number of weeks worked last year, I can calculate each individual's average hourly wage.

In terms of demographics, I include information on the individual's age, race, marital status, education, number of children, home ownership, and housing debt. To account for the fact that ability and skills may be inverse-U shaped over the life cycle, I also include the square of age in the regressions. Race is split into 'White' and 'Black', with everyone else as the reference category. In terms of marital status, I distinguish between 'married' and 'divorced or widowed', with 'single' (i.e., those never married) as the reference category. I also classify the respondents into three educational categories: 'high-school or less' (includes all persons with 0 to 12 years of schooling), 'college drop-outs' (includes all respondents who have at least one but less than four years of college education), and 'college or more' (includes all respondents with at least a college degree). I also include information on the number of children under the age of 5 living in the household. I also take advantage of information on whether the individual is a home owner or not, and whether the individual has a mortgage. Finally, I include information on whether the individual earns more or less than his/her spouse, as well as on the extent of their prior experience in real estate.[4]

Table 1 presents summary statistics for the variables in the final dataset, based on the full sample period. 51% of those in the sample are female. Average total earnings are around 50,790 USD. Wage income is on average 37,020 USD. Real estate agents work on average 33.9 hours per week and 47.3 weeks per year. This corresponds to hourly earnings of 31.40 USD.

Table 1 further reports summary statistics for the individual demographic characteristics of interest used in the analysis. The table shows that the average individual in the sample is around 45 years old, white, married, with some college education, and a home owner. On average, those in the sample earn more than their spouses, and were already employed in real estate the previous year.

Table 1 also reports information on the index of house prices which I use. This information is MSA-specific and data come from the Federal Housing Finance Agency. There is large dispersion in this index,

[4]The data do not allow to control for individual characteristics that are difficult to quantify, yet may play a role in real estate transactions, like attractiveness (Salter, Mixon, and King, 2012; and Arndt, Harrison, Lane, Seiler, and Seiler, 2017.

with a minimum of 89.11 and a maximum of 329.74.

Table 2 further reports differences between males and females in the real estate sector in 2000, i.e., at the start of the sample period. I first notice that in terms of total income, wage income, hours worked per week, and weeks worked per year, there is a substantial gender gap whereby males earn and work more. Additionally, females are slightly younger, and more likely to be white, divorced or widowed, and home owners. At the same time, they less likely to be married, to have a college degree, and to have children under 5 years of age. While females are substantially more likely to make less than their spouse than males, around 1/4 of males report earning less than their wife.

Table 2 suggests that there are a number of dimensions along which males and females in real differ. For this reason, I later look beyond the full sample to sub-samples of individuals that are more similar in terms of observable demographic characteristics.

Several caveats are in order. The CPS data do not contain information on the type of license, and so they do not allow the researcher to distinguish among real estate employees based on these. This is potentially important and may complicate the analysis. For example, agents can be licensed as salespersons, associate broker, or principal brokers. Turnbull, Waller, and Wentland (2021) show that principal brokers tend to have a more long-term approach in terms of preserving reputational capital. It is difficult to know whether the widening of the gender gap is because brokers have the power to extract larger parts of the increasing rents than their associated salespersons, when negotiating commission splits. If women are more likely to be salespersons, and men are more likely to be brokers, this may explain a large part of the gender gap itself. Second, I only observe entrants into the sector year-on-year. At the same time, most salesperson licensing requirements are good for two years before requiring renewal, and so many new entrants may not be immediately committed to selling real estate. Third, I do not know if the individuals in my sample specialize in residential or in commercial real estate. Although the barriers to entry are similar, commercial real estate typically requires a longer lead time to establish networks and build relationships. Finally, while the data allow me to separate the self-employed from the salaried workers, real estate salespersons must have their licenses held by a principal broker (brokerage firm) which does have ultimate control as to the commission split between broker and salesperson. The combination of these factors may suggest that I am not perfectly able to eliminate firm-level frictions as an explanation for the documented empirical patterns.

4 Empirical specification

I aim to quantify the evolution of the income gender gap in real estate between 2000 and 2007 as a function of local house prices. To that end, I estimate the following model:

$$\begin{aligned} Log(Income)_{i,l,t} = \beta_1 Female_{i,l,t} \times Log(HPI)_{l,t} \\ + \beta_2 X_{i,l,t} + \beta_3 X_{i,l,t} \times Log(HPI)_{l,t} \\ + \Psi_{l,t} + \Phi_{l,f} + \varepsilon_{i,l,t} \end{aligned} \tag{1}$$

The dependent variable, $Log(Income)_{i,l,t}$, denotes the total income of individual i in MSA l during year t. $Female_{i,l,t}$ is an indicator variable equal to one if individual i in MSA l during year t is a female. $Log(HPI)_{l,t}$ is the natural logarithm of the local house price index. The regression framework therefore is able to capture simultaneously average difference in income between males and females, as well as the evolution of this difference over time, as a function of changes in local house prices. The main coefficient of interest is β_1 and it measures by how many percentage points females' income increase/decrease, relative to males', for a percentage point change in local house prices. For example, $\beta_1 = -0.1$ will imply that ceteris paribus, and compared to an observationally similar male, a female in real estate in the same geographic locality is experiencing a decline in income by 10 percentage point in an MSA in which house prices have doubled.

In addition, I include a vector of individual-level covariates, $X_{i,l,t}$. It contains the individual control variables summarized in Table 1, or derivatives thereof: age and age squared, two marital status dummies, two education dummies, one race dummy, the number of children under five, a home ownership dummy, and a dummy equal to one if the individual earns less than his or her spouse. I further augment the empirical specifications with interactions of all individual demographic characteristics with $Log(HPI)_{l,t}$. This alleviates concerns that time-varying observable heterogeneity across men and women is driving the results.

I also saturate the model with interactions of local market, year, and gender fixed effects. $\Psi_{l,t}$ is a matrix of $MSA \times Year$ dummies which control for unobservable temporal shocks that are common to all individuals in a MSA-year. This is important because any variation at the local level in labor market conditions, labor demand, or growth opportunities can affect the estimates. $\Phi_{l,f}$ is a matrix of

$MSA \times Female$ dummies which control for locality-wide differences that are persistent over time and that affect women and men differently, such as cultural attitudes in place already before the housing boom of the early-to-mid 2000s.

Note that I cannot include the variable $Female_{i,l,t}$ and the variable $Log(HPI)_{l,t}$ on their own. The direct effect of the former is subsumed by the combination of the variables $Female_{i,l,t} \times Log(HPI)_{l,t}$ and $\Phi_{l,f}$. In turn, the direct effect of the latter is subsumed in $\Psi_{l,t}$. However, I do report results from less saturated specifications which allow for inclusion of the variable the variables $Female_{i,l,t}$ and $Log(HPI)_{l,t}$, and thus for the estimation of the average gender gap in total income over the course of the sample period, as well as for the overall effect of changes in house prices.

The sample period is 2000–2007. It coincides with the peak of the boom in residential property prices. Nationally, real home prices rose by around 50% between the fourth quarter of 2000 and the fourth quarter of 2007 (Shiller 2007), but there were large regional differences. For example, over this period home prices more than doubled in Miami, FL, but they only increased by 8% in Kokomo, IN. Figure 2 plots the evolution of the house price index between 1980 and 2011. It clearly illustrates that the period of the most accelerated growth in residential property prices was indeed between 2000 and 2007. Figure 3 zooms onto the sample period, depicting MSA-level changes in the house price index between 2000 and 2007. It readily illustrates the enormous geographic heterogeneity in house price changes during the housing boom.

I focus on individuals 18 years of age an older. I estimate the regression using OLS. Finally, I cluster the standard errors at the MSA level, which corresponds to the unit where the shock is realized (Bertrand, Duflo, and Mulainathan, 2004; Petersen, 2009). Finally, all estimates are weighted using sampling weights provided by the CPS that ensure the representativeness of the CPS sample with respect to the full population.

5 Empirical evidence

5.1 Main result

I report the estimates from Equation (1) in Table 3 where the dependent variable is the natural logarithm of total individual income. In column (1), I start with a simplified version where I do not include individual controls, $MSA \times Female$ dummies, and $MSA \times Year$ dummies. Instead, I only include MSA dummies. The point estimate of β_1 is negative and significant at the 10-percent statistical level, suggesting that as house prices increase, the gender gap in total earnings widens.

In column (2), I include all demographic factors. The inclusion of these variables improves dramatically the explanatory power of the regression, with the $R-squared$ increasing from 0.09 in column (1) to 0.33 in column (2). The point estimate of the coefficient of interest $\beta 1$ is fairly steady, and is now significant at the 5-percent statistical level.

What is the overall effect? Take the MSA with the lowest $Log(HPI)$ and the MSA with the highest $Log(HPI)$ (corresponding to a difference of 3). The coefficients on $Female$, $Log(HPI)$, and $Female \times Log(HPI)$ suggest that relative to the lowest-HPI MSA, in the highest-HPI MSA females' earnings are 28 percent lower.[5]

The evidence also implies that a number of demographic factors exhibit a significant statistical association with overall earnings. For one, age has an inverse-U shaped relation to income, with income peaking at 55 years of age. Second, the point estimate on the *Black* dummy is -0.1922, suggesting that black agents earn about 18 percent less than the rest. Third, marital status appears to matter, too, with married and divorced or widowed agents reporting higher earnings than single ones. Fourth, more years of tertiary education are progressively associated with higher earnings. Fifth, home owners have on average 30-percent higher earnings than renters. Fifth, individuals who make less than their spouse also earn less on average. Finally, individuals who were already employed in real estate in the previous year earn on average 42% more than individuals who entered the sector this year.

In column (3), I also include add interactions of $MSA \times Year$ dummies. Once again, the point estimate of $\beta 1$ is fairly stable at -0.1277, and it continues to be significant, at the 10-percent statistical

[5] Because the dependent variable is a log transformation, and the variable $Female$ is a dummy variable, the interpretation of β_1 is that the difference in total earnings between males and females in real estate is $e^{\beta_1} - 1$ percent

level.

In column (4), I add a matrix of $MSA \times Year$ dummies. Now the overall effect of a rise in house prices can no longer be identified. At the same time, the explanatory power of the regression increases further, to 0.39. Here, the point estimate of $\beta 1$ is -0.1615, and is once again significant at the 5-percent statistical level.

Finally, in column (5) I add a matrix of $MSA \times Female$ dummies. Because of this, the individual effect of the variable $Female$ can no longer be identified. In this most saturated version of the regression model, the point estimate of $\beta 1$ is -0.254, and still significant at the 5-percent statistical level. Numerically, it implies that a doubling of house prices increases female earnings by 22.1 percent less than it increases male earnings. Using a more plausible scenario, take the average increase in house prices between 2000 (HPI = 129) and 2007 (HPI = 202), which is 56.5 percent. The estimates therefore imply that during the same period, the gender gap in earnings in real estate increased by 14.4 percent.[6]

Does widening income disparity play a role in the results I document? If women ex-ante were in the bottom of the income distribution (which Table 2 shows), and if that continues to hold, then by default the gender gap will widen if incomes become more dispersed. If so, then other groups at the bottom of the income distribution may experience a similar trend. The tests in Table 3 take a stab at this question. Two other proxies for an individual being in the bottom of the income distribution (as suggested by Table 2) are the dummy 'Black' and the dummy 'High school or less'. If the above concern is valid, then individuals in these two categories should experience the same decline in income as women do. However, as Table 3 shows, this is not the case. While black individuals and individuals with at most high school degree are on average in the lower tail of the income distribution, their incomes grow faster in MSAs with booming house prices, relative to white individuals and to individuals with a college degree, respectively. This provides support to the notion that the main result of the paper is driven by widening income differences between men and women, rather than by general income dispersion.

[6]To further strengthen the idea that the widening of the gender gap is actually due to price changes, in Appendix Table A1 I replicate Equation (1) on CPS data between 2008 and 2011. During this period, the MSA-specific housing price index (HPI) declined from an average of 202 in 2007 to an average of 168 in 2011, after which it started rising again. The coefficient on the main interaction term of interest $Female \times Log(HPI)$ is negative and significant. Given that the HPI is declining during this period, I interpret this as evidence that declining house prices have increased relative female incomes, suggesting a reduction in the gender gap.

5.2 Addressing endogeneity

5.2.1 Selection on observables

The identification strategy is based on comparing trends in income for men and for women who work in the same sector (real estate sales). One issue with this approach is that men and women can differ across dimensions that are likely to be correlated with income. This is indeed confirmed by the comparison-in-means in Table 2. The evidence summarized there suggests that in the sample observed in 2001 (i.e., right before the beginning of the sample period), males and females differed significantly across a number of dimensions. In particular, males are more likely to be older, black, and married, to have finished college, and to have young children, and they are less likely to be white, divorced or widowed, college drop-outs, and home owners, and to make less than their spouse. All of these differences are significant. I address this question in one way already, namely, by controlling in the regressions for these observable factors, as well as for their interaction with the time trend. But, this may not be sufficient if there is not a sufficient overlap in the distributions of these variables across males and females (see Rosenbaum and Rubin, 1983).

To address this issue, and following Abadie and Imbens (2006; 2016), I conduct a propensity score matching procedure to match men and women. To choose a sub-sample of comparable individuals, I match them based on those observable characteristics that exhibit significant differences according to the statistical analysis presented in Table 2. I use a probit model to estimate propensity scores conditional on the following variables: Age, $Black$, $Married$, $Divorced$, $College\ drop-out$, $College\ or\ more$, $children\ under\ 5$, $Owner$, and $Makes\ less\ than\ spouse$. For each female I identify one unique male match from the same MSA, and I require that the absolute difference in predicted propensity scores is not larger than 0.05.[7]

The point estimates of Equation (1) using this alternative method and reduced sample are reported in Table 4. The point estimate of β_1 is once again significant at the 1-percent statistical level. Moreover, it is substantially larger in magnitude than the one reported in Table 3, column (5), suggesting that not

[7] Arguably, the propensity score matching approach does not account for differences in unobservable characteristics. For example, top performing agents tend to focus on high-end properties. Nonetheless, some of the individual characteristics that I match on are acceptable proxies for ability (e.g., education), while others are an acceptable proxy for experience (e.g., age).

accounting for selection introduces a downward bias in the estimation.

5.2.2 Omitted variable bias

Another natural concern is related to omitted variable bias. For example, individuals with a higher propensity to be self-employed may disproportionately reside in areas with booming local economies where house prices increase more. If the areas that experienced the largest house price booms during the early to mid-2000s happen to be latently entrepreneurial too, and if men are more likely than women to become self-employed (including in the real estate market), then a positive association between rising house prices and an increasing gender gap in earnings may be largely driven by failure to account for an important unobservable factor.

To tackle this possibility, I need to employ an empirical proxy which will capture exogenous local house price developments, but will be uncorrelated with the gender gap of the evolution thereof. One such empirical proxy that has been established in the literature is the elasticity of the housing supply in the respective MSA. Saiz (2010) makes forcefully the point that the US housing boom of the early-to-mid 2000s was due to a US-wide shock, and that the extent to which house prices reacted depended on local regulation and relief proximity to sea or mountains. In MSAs with a high elasticity of housing supply (e.g., because there are few construction regulations, or because there is a lot of cheap available land), building new residential units is easy. In such localities, the increase in housing demand is accommodated on the quantity margin, and so house prices do not increase much. In contrast, in MSAs with a low elasticity of housing supply (e.g., because construction is heavily regulated, or because the city is on a peninsula), building new residential units is difficult. In such localities, the increase in housing demand is accommodated on the price margin, and so house prices increase substantially.[8] For these reasons, the elasticity of housing supply is a more exogenous proxy for expected changes in house prices than realized changed in house prices. I take that information from Saiz (2010), matching it to the individuals in the dataset at the MSA level.[9]

[8]The local housing supply elasticities calculated by Saiz (2010) only reflect the ease of constructing new properties in a given location, based on how much available space there is and how easy it is to build on this space, per local regulations, but do not take into account the presence of "destination locations," such as beaches and theme parks.

[9]It is unfortunately not possible to test formally the validity of the exclusion restriction. At the same time, it is highly unlikely that the skill or gender composition of the population will be correlated with housing regulation or with the local

The estimates from this 2SLS regression are reported in columns (2) and (3) of Table 4.[10] Column (2) reports the first stage. The estimates strongly suggest that there is a very high statistical correlation between the instrument and the endogenous variable: higher inverse elasticity of housing supply (i.e., lower ease of constructing new residential units) is positively and significantly correlated with changes in house prices. The F-statistics is 148.16, which is comfortably above the threshold for the IV to have less than 10% of the bias of the OLS. In column (3), I report the second stage. The point estimate of β_1 continues to be negative and significant at the 1-percent statistical level, alleviating concerns that the main results in the paper are driven by omitted variable bias.

5.3 Types of income and hours worked

I next dig deeper into the changes across genders in income. In Table 5, I analyse what types of income and activity drive the increase in the gender gap I document in Tables 3 and 4. As noted already, the distinction between wages and earnings is especially important among real estate agents whose earned income can be (and typically is) higher than their wage income. Moreover, because real estate agents charge a fixed commission of between 5% and 6%, differences in earned income reflect differences both in hours worked and in individual productivity. Individuals in the CPS do not report information on their earned income, but they do report waged income.

The first column of Table 5 reports the estimates from Equation 1 where the main dependent variable is the natural logarithm of wage income, rather than total income. I find that unlike the gender gap in total income, the one in wage income did not widen significantly between 2000 and 2007. While negative, the point estimate on β_1 is not significant at any acceptable statistical level. The data thus strongly support the idea that changes in income across genders are largely driven not by the fixed, but by the variable component of income, which in itself is linked to individual performance.

I next note that total income is the combination of two components: number of hours or weeks worked (a proxy for labor supplied), and hourly output (a proxy for labor productivity). Given the structure of

relief. As an example, both Austin, TX and San Francisco, CA have a thriving high-tech sector, so workers with very similar profiles tend to reside in both. Yet in the former, for reasons related to regulation and geography, it is much easier to construct new housing units than in the latter.

[10] In practice, I use the interaction $Female \times InverseElasticity$ as an instrument for $Female \times Log(HPI)$, where $Inverse\ Elasticity = 1/Elasticity$.

the tests so far, I cannot say whether female and male incomes are diverging because men are working relatively more over time, or because they are earning relatively more per hour worked. In the remainder of Table 5, I set to answer this question. To do so, I first estimate a version of Equation (1) where the dependent variable is hourly income (column (2)). I calculate hourly income by dividing total income by the product of hours worked per week and weeks worked per year. I already reported in Table 1 that during the sample period, the average respondent in real estate in the sample worked 47 week per year, and 34 hours per week. Given total annual income, this suggests an average hourly income of $31.4. The point estimate from this regression suggests that total income per hour increased relatively more for males than for females, and this effect is significant at the 10-percent statistical level. At -0.4052, it implies that given the average increase in house prices between 2000 and 2007, female earnings increased by 33.3% less than male earnings.

I next turn my attention to the labor-supply component of total income, namely, the time spent providing real estate services. In Table 2 I already reported significant differences across genders in time worked at the start of the sample period. In particular, males in real estate work 1.5 more weeks per year than their female counterparts. They also work almost 3.8 hours more per week. I find that the two margins of the labor supply do not respond equally. The point estimate reported in column (3) suggests that during the sample period, males in real estate increased their number of working hours per week, relative to women. The effect is significant at the 10-percent statistical level. The magnitude is -0.1251, and it implies that given the average increase in house prices between 2000 and 2007, females' hourly income in real estate increased by 11.8% less than male income. At the same time, the number of weeks worked per year does not diverge over time (column (4)).

Taken together, the evidence presented in Tables 3–5 suggests a very distinct pattern: 1) the gender gap in earnings in the real estate sector increased significantly between 2000 and 2007; 2) the widening of the gender gap was higher in local markets where house prices appreciated relatively more; 3) this effect is not driven by a widening of the gender gap in wages; and 4) it is both due to men working more, and to men earning higher income per hour. In other words, male agents increase the time they spend in the field, and in addition either sell more expensive houses, or make more deals, per unit of time.

5.4 Salaried versus self-employed workers

Because the CPS does not contain information on earned income, the hypothesis that the widening of the gender gap in total earnings is due to a widening of the gender gap in earned income cannot be tested formally. At the same time, the CPS allows the researcher to distinguish between salaried and self-employed (code CLASSWKR). It is natural to conjecture that for the former, the fixed component of earnings will be the bulk of total earnings, and for the latter, it will be the variable one. If I find that the gender gap in total earnings is diverging more for the self-employed, this will further point to the importance of changes in relative earned income in explaining the overall pattern.

In Table 6, I take this question to the data.[11] I first look at those in real estate who identify themselves as salaried workers. In the data, for this group, salaries and wages cover around 90% of their total income. This number is only 36% for those who identify themselves as self-employed. This strongly suggests that the combination of the fixed and the variable components is much more skewed towards the fixed component in the case of salaried workers. Therefore, for this group, intra-firm considerations play a much larger role in determining total income. The evidence in column (1) of Table 6 suggests that the gender gap in income did not move one way or another for this group of individuals between 2000 and 2007.

In contrast, in column (2) where I estimate Equation (1) on the sub-sample of those who identify themselves as self-employed, I continue to find a significant widening in the gender gap in earnings between 2000 and 2007. The coefficient is -0.7948, and it is significant at the 10 percent statistical level. Numerically, the magnitude implies that given the average increase in house prices between 2000 and 2007, self-employed females' earnings increased by 55% less than self-employed males' earnings in real estate.

The evidence in Table 6 thus allows me to further rule out firm-level frictions as an explanation for the diverging of the gender gap documented so far. One caveat is related to the fact that women may value salaried positions more than men do, especially if salaried position offer more job security. If high-performing women gets the salaried positions because they value job security, and high-performing men choose self-employment because they like a competitive environment, then the self-employed group may

[11] For brevity, I only report the main coefficient of interest. The full results are reported in Appendix Table A2.

consist of high-performing men and low-performing women. As economic rents go up, high performing agents will benefit more and we'll see a widening of the gender gap, but this is due to gender differences in selection into self-employment. Unfortunately, the data do not allow to easily distinguish between high and low "performance", as well as across different tasks performed.

5.5 Other sectors and occupations

The evidence so far paints a consistent picture of a widening gender gap in income in the real estate sector between 2000 and 2007. My hypothesis is that this development is organically linked to the US housing boom of the early-to-mid 2000s, whereby rapidly rising residential property prices were associated with increasing rents for real estate agents, which men took advantage of to a larger extent. At the same time, this underlying rationale would be compromised if during the sample period, the same trend was observed in other service sectors of the US economy that did not experience a similar increase in economic rents.

To establish this link more forcefully, I now proceed to test formally the possibility that the trend I have documented so far is not restricted to a particular type of activity in a particular sector. In Table 7, I re-estimate Equation (1) on a number of different samples, in terms of sectors and occupations.[12] Throughout the Table, I report tests based on the most saturated version of Equation (1) presented in Table 3, column (5). That is, I control for both the average and the time-varying impact of a host of demographic characteristics, and I hold constant unobservable factors that are common to both men and women in particular geographic locality over time, as well as time-invariant factors that affect men and women differently in a particular geographic locality. To make the analysis more consistent with the nuanced evidence coming from Table 6, I run the regressions on the sub-sample of self-employed in the respective sectors.

In column (1), I repeat the main test on individuals employed in the broader service sector. This sample includes all those classified as working in: Wholesale trade; Retail trade; Finance, insurance, and real estate; Business and repair services; Personal services; Entertainment and recreation services; and Professional and related services. In contrast to the evidence so far, the point estimate of β_1 is not significant at any acceptable statistical level. This suggests that the divergence in the gender gap among the self-employed in real estate documented so far is not part of a US-wide trend in the broader service

[12] For brevity, I only report the main coefficient of interest. The full results are reported in Appendix Table A3.

sector.

The widening of the gender gap in real estate is also not part of a divergence in male and female incomes in the broader financial sector, either. In column (2), I restrict the sample to those working in: Banking; Savings institutions, including credit unions; Credit agencies, n.e.c.; Security, commodity brokerages, and investment companies; and Insurance. I find that in those sectors, the gender gap did not change in a significant statistical fashion during the sample period. In contrast to Table 3, column (5), the point estimate of β_1 is indistinguishable from zero.

Finally, I hypothesize that there may be something special about sales persons in all financial services. In column (3), I look at those in Insurance (OCC1990=253), Financial services (OCC1990=255), and Advertising (OCC1990=256). The data fail to reject the hypothesis that the incomes of males and females classified as working in these occupations did not change over time. This evidence thus strongly suggests that the trend documented in Tables 3–6 is linked to developments in one particular sector, rather than in sales opportunities offered to a variety of agents in a variety of financial services.

6 Mechanisms: Marriage, children, education, relative income, and selection

The evidence reported so far suggests that between 2000 and 2007, in a trend absent in the rest of the service industry, the gender gap in earnings in real estate widened markedly and significantly. This pattern continues to obtain when I analyze a sample where men and women are matched on observable characteristics; when I look at types of earnings and hours worked; and when I look at self-employed, as opposed to salaried workers. Taking into account the evolution in hours of labor supplied over the same period, I conclude that the widening of the gap in overall earnings is due to earnings per hour increasing relatively less for females, as well as to males working longer hours.

This robust finding raises the question, why do men reap higher rents from the demand boom in the industry than women? The literature has proposed a number of candidate explanations. The principal ones among these are differences in experience, discrimination, differential employment promotion standards, the presence of young children, differences in bargaining skills, and differences in willingness

to compete (e.g., Babcock and Laschever, 2003; Gneezy, Niederle, and Rustichini, 2003; Niederle and Vesterlund, 2007; and Azmat and Ferrer, 2017). In this Section, I set out to test for the validity of some of these theories.

I have already shown that the evidence is strongest in the case of the self-employed in real estate. I am therefore immediately able to dismiss theories that rely on the unequal application across genders of employment standards, like promotion and salary setting. It remains possible that women had a harder time reaping the economic rents from the housing boom because: 1) they were held back by the unequal burden of child rearing; 2) gender norms give men relatively higher incentives to compete for economic rents; and 3) relatively more inexperienced women enter the industry, potentially attracted by certain non-pecuniary benefits that women place a higher value on, such as flexible work arrangements.

In the following two subsections, I put these hypotheses to the test by studying the role that certain demographic factors played in the widening of the gender gap over time.

6.1 The role of demographics factors

To answer the above questions, I employ the demographic data at my disposal to evaluate the theoretical arguments outlined above. I first look at the role of demographic factors among experienced individuals in real estate. To that end, I need to study changes in the sub-sample of individuals who are not new entrants into the industry. The CPS includes a field where individuals also report the sector (if any) where they worked in the previous year. Armed with these data, I re-estimate Equation (1) on various samples, splitting individuals across a number of demographic factors.

The estimates from these tests are reported in Table 8.[13] I begin by estimating the full Equation (1) on the sub-sample of those who were also employed in real estate in the previous year, to ensure consistency with the full sample. In Panel A, I report estimates from regressions where the dependent variable is the natural logarithm of total earnings. The point estimate of β_1 is negative and significant at the 1-percent statistical level. The magnitude of -0.49 suggests that given the average increase in house prices between 2000 and 2007, females' earnings increased by 39% less than males' earnings, in the group of incumbents in real estate.

[13] For brevity, I only report the main coefficient of interest. The full results are reported in Appendix Table A4.

Next, I turn to evaluating Equation (1) on different sample splits. I start by looking at the role of marital status. One prominent strand of the literature has argued that being married is a key factor responsible for the unequal outcomes in labor markets (e.g., Mulligan and Rubinstein, 2008; Goldin, 2014). In column (2), I run Equation (1) on the sample of married individuals, and in column (3), I do the same for single, divorced, and widowed individuals. I find that the gender gap in total earnings widened in both sub-samples, as house prices increased. The evidence thus suggests that being married is not the primary factor that explains the widening of the gender gap in real estate between 2000 and 2007. Goldin, Kerr, Olivetti, and Barth (2017) who show that the gender earnings gap is an expanding statistics over the life cycle, and this widening is greater for married individuals. While this may still be the case on average, marriage does not appear to hold females in real estate back.

In columns (4) and (5), I run Equation (1) on the sub-sample of individuals with and without children under 5 years of age, respectively. I find that the presence of young children in the household does not explain the widening of the gender gap in earnings between 2000 and 2007. On the contrary, the pattern documented so far only obtains in the sub-sample of those without children under 5 years of age (column (5)).[14] Azmat and Ferrer (2017) find that the presence of young children in the household is one of the primary reason for the gender gap observed among lawyers. My finding is not necessarily inconsistent with the evidence in that paper. It can still be the case that women with young children earn less than men with young children. At the same time, the presence of pre-school-age children in the household does not appear to explain the widening of the gender gap over time, in response to rising house prices.

In the next two columns, I split the sample into those with at least some college education (column (6)), and those with at most a high school education (column (7)). I find that among those with some college education, the gender gap increased significantly between 2000 and 2007, more so in MSAs where house prices increased relatively more. Among those with high school education, the same development is absent. The evidence thus suggests that education plays a role: among the more educated, men are the ones who are more likely than women to take advantage of rising economic rents.

Finally, I turn to the effect of relative income within the household. The CPS contains information both on total personal income and on total household income. This makes it possible, for each individual,

[14] In unreported regressions, I also find that this is driven by individuals whose children are older than 5, rather than by those without children.

to calculate whether she/he is earning more or less than her/his spouse. The literature has already suggested that relative income matters both for marriage and for labor marker dynamics. In particular, Bertrand, Kamenica, and Pan (2015) document that men are less likely to marry women who earn more, that married women who earn more than their spouses take on more household chores, and that marriages where men earn less are more likely to dissolve. This prompts me to hypothesize that relative income can play a role in the evolution of the gender gap over time in the face of rising economic rents, too.

I now re-run Equation (1) on the sub-sample of married individuals who contribute less (column (8)) and on the sub-sample of those who contribute more (column (9)) than their spouse to the family finances. The evidence strongly supports the notion that among those earning less than their spouse, the gender gap widens significantly more over time. In contrast, among those who make more than their spouse, the gender gap does not move one way or another. The point estimate of β_1 is negative and significant at the 1-percent statistical level. The evidence from the last two columns of Table 8, Panel A thus confirms the notion that men who make less than their spouse are more likely to take advantage of increasing profit opportunities, presumably to close the intra-couple gap in earnings. This evidence contrasts with that in Zinovyeva and Tverdostup (2021) who use data from Finland and document convergence of earnings in co-working couples associated with an increase in the relative earnings of women, rather than a decrease as predicted by the norm.

In the next two Panels of Table 8, I test for the impact of these same demographic factors on the two components of total income: earnings per hour (Panel B) and hours worked (Panel C). The evidence reported in Panel B suggests that as house prices increased, the gender gap in earnings per hour widened relatively more among individuals who are not married (column (3)), who have children under 5 years of age (column (4)), who have some college education (column (6)), and who make less than their spouse (column (8)).

Finally, the evidence presented in Panel C suggests that as house prices increased, the gender gap in working hour widened relatively more among individuals who are not married (column (3)), who do not have children under 5 years of age (column (4)), who have some college education (column (6)), and who make less than their spouse (column (8)). The evidence in Panels B and C of Table 8 thus suggests that educated men who earn less than their spouse increased both their working hours and the amount of business per hour, in response to rising economic rents. At the same time, young children play a role

only in the adjustment of working hours.

The data thus lend support to some, but not to all, theories that have been put forth to explain the persistence of the gender gap over time. In particular, I eliminate the role of firm-level frictions, as well as (to some extent) the presence of young children in the household, as explanations for the trend I observe in the data. At the same time, the data confirm the importance of gender norms in relative income that appear to push men to make an additional effort to increase their earnings.

6.2 The role of entry into the sector

In Table 9, I examine the role of entry. Waller and Jubran (2012) document an influx of new entrants during the housing boom, as well as a waning in the number of salespersons that renew their license following the housing crisis. This natural raises the question of gender bias in entry. To answer it, and in contrast to the previous sub-section, I now focus on the sample of "entrants", that is, of individuals who were employed in real estate in the year when they were last surveyed, but not in the year before.[15]

In Panel A, I test for changes in the gender composition of real estate agents over time. I compare the share of females, overall as well as among entrants, between the early stage of the housing boom (2000-2002) and the late stage of the housing boom (2005-2007). The evidence suggest that the real estate sector transformed from being slightly male-dominated (50.2% males in 2000-2002) to being female-dominated (51.5% females in 2005-2007) over time. The evidence further suggests that this is explained by two separate forces: an increase in entry by women, and a decline in entry by men. In particular, the share of new female real estate agents (i.e., real estate agents entering the sector within the past year) increased from 8.1% to 8.6%, while the share of new male real estate agents declined from 8.4% to 7.3%. In all three cases, these changes are statistically significant.

The analysis so far strongly suggests that the widening of the gender gap in overall earnings is positively correlated to the size of the local house price shock. I now hypothesize that such local-market conditions played a differential role in entry into the sector, too. In Panel B, I look at the bottom-quartile of MSAs in terms of the increase in house prices between 2000 and 2007. In these MSAs, the data reject

[15] In the table, 'Females' denotes the share of females in real estate out of the total population of individuals in real estate. 'Female entrants' denotes the share of females that entered real estate this year, out of all females in real estate. 'Male entrants' denotes the share of males that entered real estate this year, out of all males in real estate.

the notion that more individuals, either male or female, were drawn into the sector.

In Panel C, I look at the top-quartile of MSAs in terms of the increase in house prices between 2000 and 2007. In contrast to the evidence presented in Panel B, I now observe a robust increase in the share of new females in real estate. Numerically, the share of female entrants into the sector increases from 7.3% in 2000-2002 to 8.8% in 2005-2007. This increase is significant at the 10-percent statistical level.

Finally, in Panel D, I compare the earnings of incumbents (i.e., those who were already working in real estate two years ago) and entrants. As expected, incumbents earn significantly more in the same local market. The difference is 18,163 USD in the full sample, and larger for males (21,531 USD). That difference is also significant in the group of females in real estate (14,191 USD).

The evidence presented in Table 9 is thus consistent with the notion that the observed divergence in income between men and women in real estate during the early-to-mid 2000s was to some extent driven by sorting of less experienced women—potentially after years of focusing on home production and away from the labor market—into the industry. Indeed, both the rising share of females and the fact that they have no prior experience are contributing factors to the widening gender gap. The evidence is also consistent with the notion that women place a higher value on flexible work arrangements and the opportunity of working from home than men, to the detriment of pay (Petrongolo, 2004; Mas and Pallais, 2017; Wiswall and Zafar, 2018).

This development runs contrary to the evidence in Mulligan and Rubinstein (2008). They find that part of the gradual increase in gender equality between the 1970s and the 1990s is driven by a selection into the marketplace of women whose skills dominate the skills of the average working man. The pattern I document appears to have the opposite driver: selection of less experienced women into a booming sector, leading to rapidly rising inequality between genders, especially for those at entry levels.[16]

[16]In Appendix Table A5, I account for the role of experience differently. In it, I include in the main model a triple interaction of house price changes, gender, and experience. The coefficient is positive and significant. This strongly suggests that during the sample period, the gender gap increased more among the inexperienced. This evidence lends further support to the notion that sorting on entry must be one of the primary explanations for the phenomenon I document.

6.3 Discussion

Why did the gender gap only diverge in real estate during the sample period, and not in other similar sectors and occupations? One prominent factor that I proposed already in the initial discussion is related to the rapid increase in economic rents in the sector during the early-to-mid 2000s, which is not mirrored in most other sectors in the economy.

In Table 10, I compare the change in median income over the sample period for the different sectors and occupations studied in Table 7. The table shows strong evidence that individuals in real estate experienced by far the largest boom in earnings over the sample period. In particular, median income increased by 8.1% in the full economy, by 10% in the service sector and by 12.6% among sales agents in finance and insurance. In contrast, the median income in real estate increased by almost 16.7% during the same period.

The evidence presented here thus strongly supports the notion that for the gender gap to diverge, three conditions need to be in place. First, the industry in question needs to experience a rapid increase in potential economic rents. Second, there needs to be free entry in the industry, so that self-employed entrants can compete with the incumbents and against each other. And third, neither sex should have an ex-ante comparative advantage in performing the main tasks of the job. The real estate sector over the period 2000–2007 clearly fulfils all three conditions. The increase in economic rents attracts into the sector individuals with different levels of experience, and in particular less experienced females. Entrants earn substantially less than incumbents. The increased entry rates of relatively less experienced females into the industry therefore helps explain why the division of spoils from the boom are disproportionately reaped by male agents.

At the same time, other service professions (like retail, insurance, or advertising) did not experience the same increase in potential earnings, and so they do not fulfil the first condition. Regulated professions, such as doctors or lawyers, do not fulfil the second condition. Finally, brawn-heavy sectors, such as construction or fracking do not fulfil the third conditions. Therefore, even though there was a pronounced boom in construction during the early-to-mid 2000s (see Charles, Hurst, and Notowidigto, 2018) and in fracking during the 2010s (see Gilje, Loutskina, and Strahan, 2016), these booms are not comparable to the boom in a sector where females and males can conceivably compete for rents. While this suggests

that the results presented here do not generalize to all sectors of the economy, they are general enough with respect to all booming sectors with free entry and no gender-based comparative advantage, such as online retail during the covid-19 pandemic.

One important caveat is that the analysis in this paper abstract from potential factors on the demand side. For example, men may be more likely than women to sell in the boom and men may own more expensive real estate than women. If men tend to pick male real estate agents, then the gender gap would also increase, but as a result of demand. The same reasoning will apply if male real estate agents are more likely to service professional investors who trade during the boom. While the inclusion of interactions of gender, geography, and time dummies goes along way to alleviating this concern, they do not perfectly control for such unobservable factors.

7 Conclusion

Motivated by a large literature that has documented a declining, but not disappearing, gender gap in labor markets, researchers have sought to identify factors that explain the size and the evolution of the male-female divergence. Understanding what forces are at play is of first-order importance, given the large negative aggregate consequences of the misallocation of talent in the economy (Hsieh, Hurst, Jones, and Klenow, 2019). Pinning down the precise channels whereby this divergence is realized is also critical, because the optimal approach to addressing the issue can be radically different. One set of policies must be adopted if the main driver of the gender gap is taste-based discrimination (e.g., Becker, 1981), and a very different one if it is gender-based differences in willingness to bargain and compete.

In this paper, I document a robust novel fact: the gender gap in total earnings in the US real estate sector increased significantly between 2000 and 2007, more so in local markets that experienced a relatively higher house price appreciation. This development ran against the rest of the US service sector, where over the same period the gender gap did not increase. The evidence also points to an increase in the gender gap in earnings per hour and in hours worked. Further tests indicate that this effect is strongest among the self-employed and non-existent among salaried workers, and that it is driven by both a widening of the gap in earnings per hour and of the gap in hours worked. The real estate sector during this period was special because the U.S. was experiencing an unprecedented residential housing boom,

whereby house prices increased by more than 50% over the course of 7 years. The evidence in this paper suggests that in a booming sector with increasing economic rents, males can capture a higher share of those rents than females.

I next exploit individual heterogeneity in order to tease out the forces behind the divergence in male and female outcomes. I eliminate explanations related to frictions within the firm and to the presence of young children in the household. The evidence suggests that while the presence of young children can explain a large share of the gender gap in earnings in a firm where earnings are performance-based (Azmat and Ferrer, 2017), it does not explain the widening of the gender gap in US real estate between 2000 and 2007, especially among the self-employed. At the same time, I find that the widening of the gender gap was strongest among experienced real estate agents who have some college education and who earn less than their spouse. This finding points to the importance of gender norms and relative income in providing incentives to individuals to take advantage of increasing economic rents.

I also find that over time, entrants into real estate skew disproportionately female. The evidence is thus consistent with the sorting of less experienced women (plausibly entering the market after spending years taking care of young children) into a sector that offers non-pecuniary benefits—such as flexible working hours—even at the expense of lower pay. The evidence thus suggests that policies aimed at reducing the gender gap need to primarily focus on weakening gender norms, on making sure that women do not forgo too much human capital during the early stages of motherhood, and to some extent on improving females' willingness to compete. It also suggests that as long as the conditions studied in this paper are in place, the insights from my analysis can be applied to parts of the gig economy.

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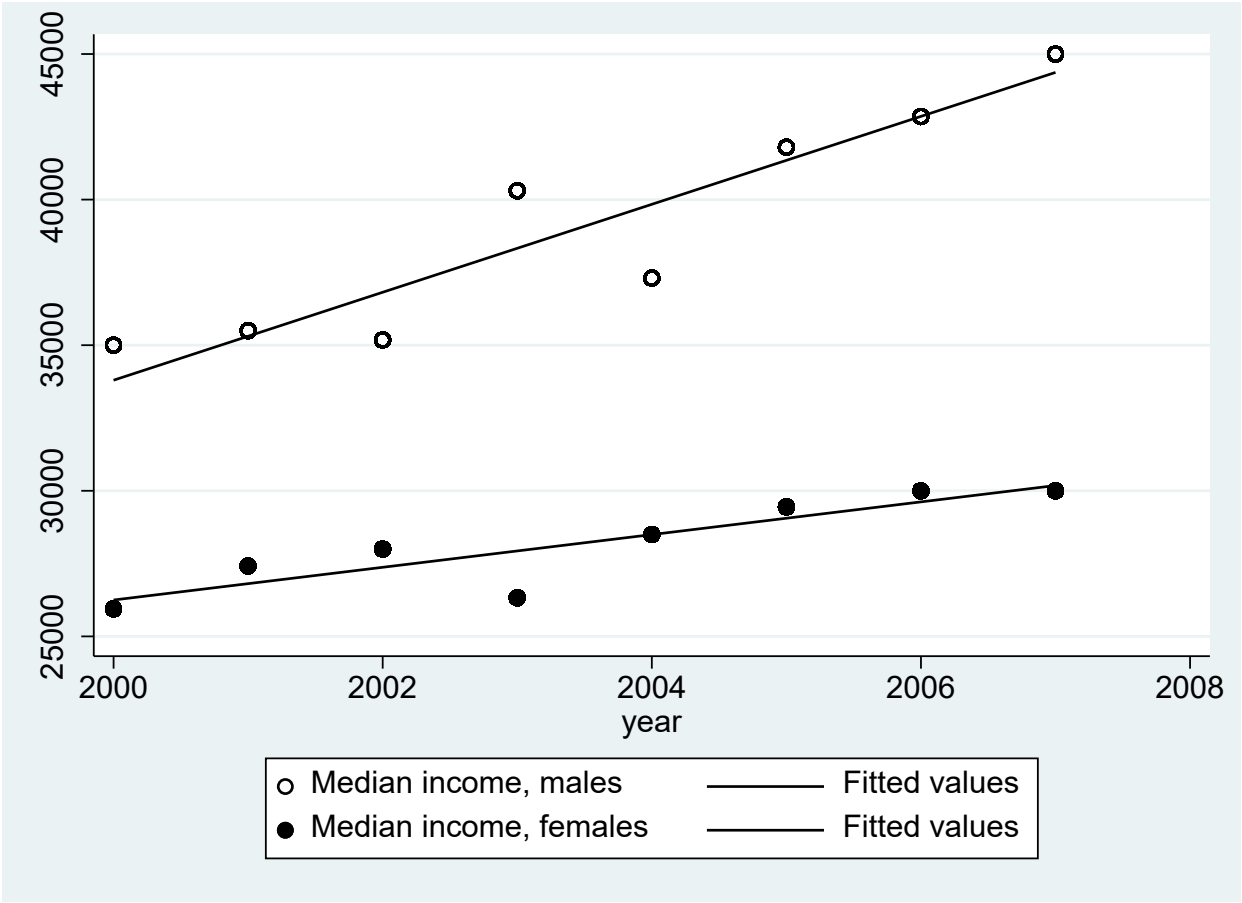
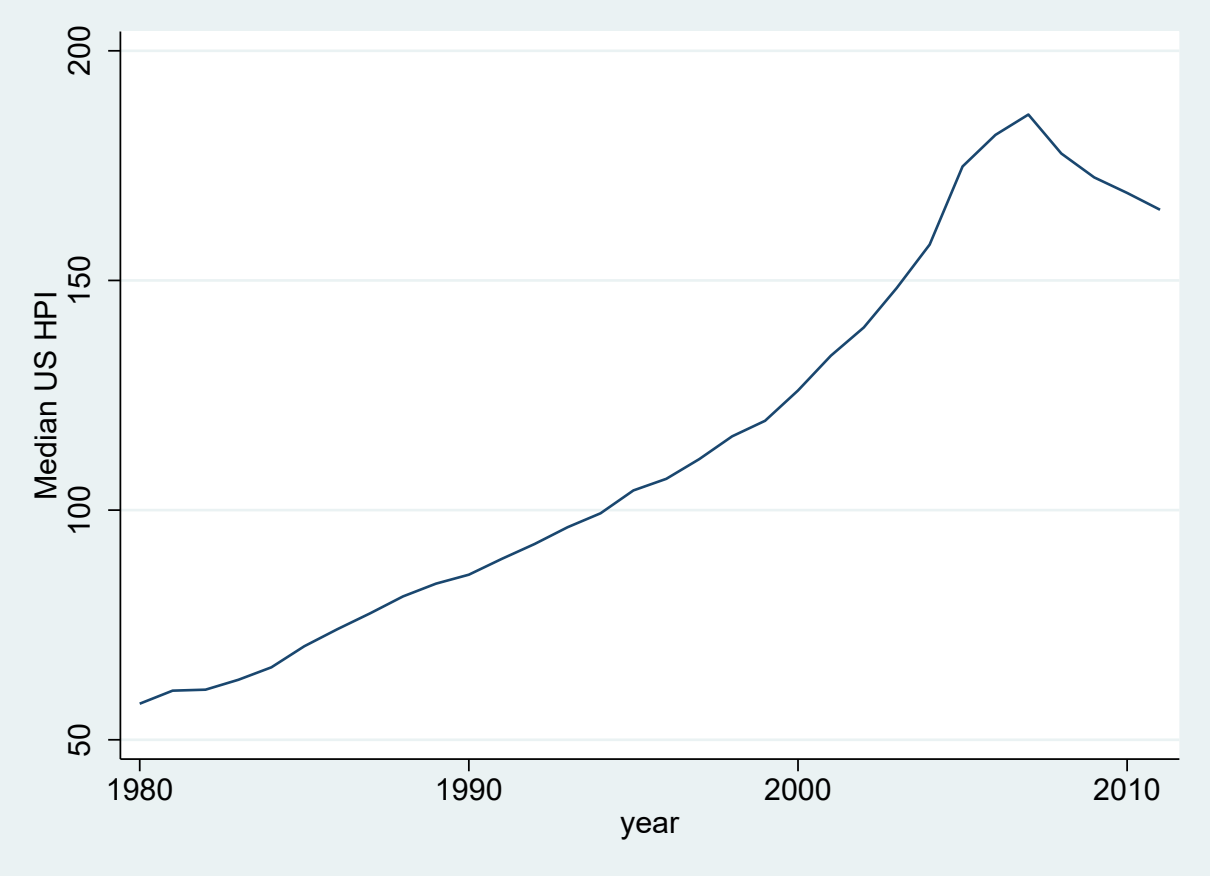
Figure 1. Median income, male versus female agents in real estate



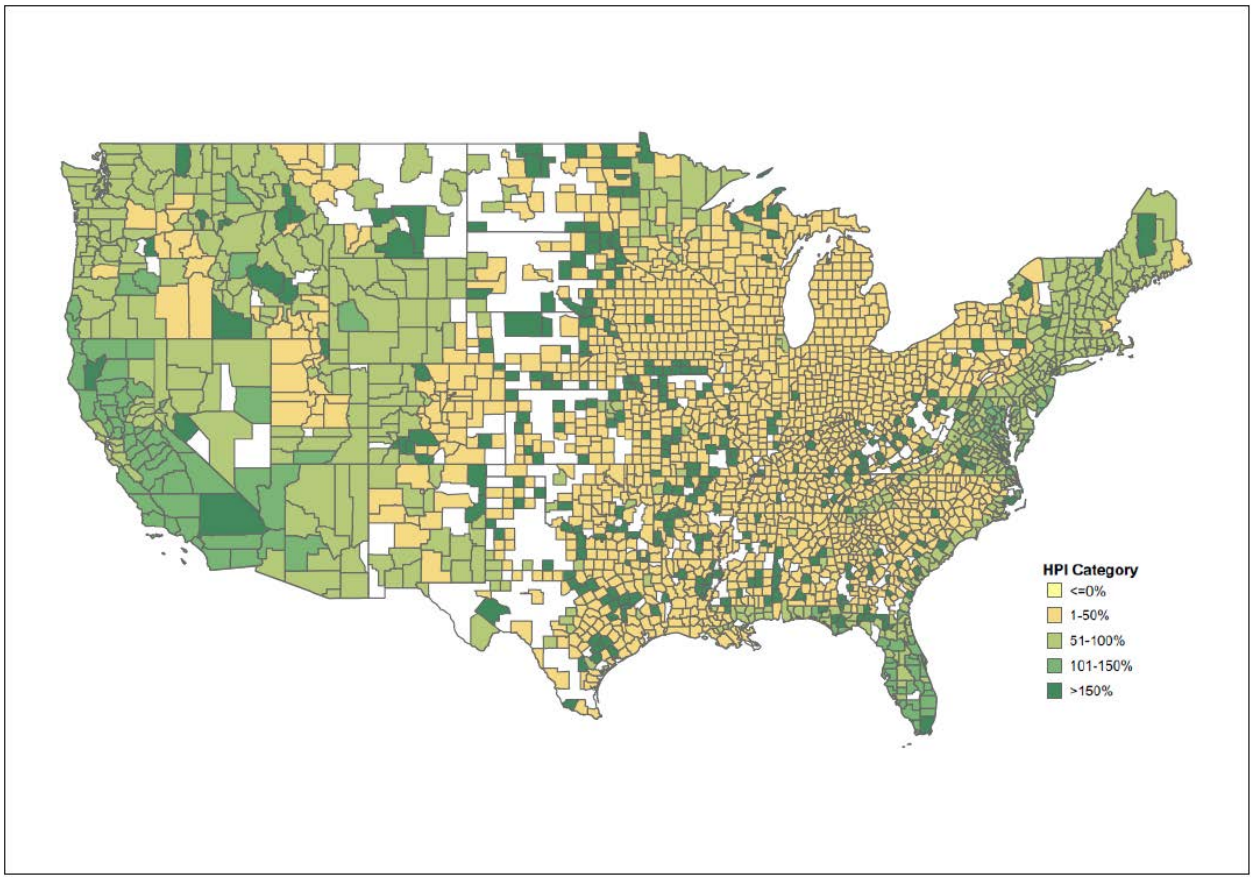
Note: The Chart plots median income between 2000 and 2007, for male versus female real estate agents.
Source: IPUMS-CPS.

Figure 2. Changes in US house prices, 1990—2011



Note: US-wide house Price Index, 1980—2012. Data come from the Federal Housing Finance Agency.

Figure 3. Changes in US house prices, 2000—2007, by county



Note: Changes in county-level house prices between 2000 and 2007. Data come from the Federal Housing Finance Agency.

Table 1. Summary statistics 2000–2007, full sample

	Mean	St. dev.	Min	Max
	(1)	(2)	(3)	(4)
Female	0.51	0.50	0	1
Total income ('000s)	50.79	64.59	0	1,112
Wage income ('000s)	37.02	56.49	0	560
Total income per hour	31.40	100.92	0	125
Hours worked per week	33.91	17.57	0	99
Weeks worked	47.29	12.28	0	52
Age	44.67	13.47	16	94
White	0.84	0.36	0	1
Black	0.09	0.29	0	1
Married	0.65	0.48	0	1
Divorced or widowed	0.18	0.38	0	1
Single	0.17	0.38	0	1
High school or less	0.36	0.48	0	1
College drop-out	0.32	0.47	0	1
College or more	0.32	0.47	0	1
# children under 5	0.17	0.47	0	5
Home owner	0.74	0.44	0	1
Makes less than spouse	0.42	0.49	0	1
Experienced	0.84	0.37	0	1
HPI	175.17	47.88	89.11	329.74
Housing supply elasticity	1.85	0.97	0.60	7.84
Observations	13,513			

Note: The Table presents summary statistics on the variables used in the empirical analysis, over the sample period 2000–2007. '*Female*' is a dummy variable equal to 1 if the individual is a female. '*Total income ('000s)*' is total individual income in '000 of USD for the past year. '*Wage income ('000s)*' is individual wage income in '000 of USD for the past year. '*Total income per hour*' is total individual income divided by the product of weeks worked and hours worked per week for the past year. '*Hours worked per week*' denotes number of hours worked in the usual week last year. '*Weeks worked*' denotes number of weeks worked last year. '*Age*' denotes the respondent's age, in years. '*White*' is a dummy variable equal to 1 if the respondent is white. '*Black*' is a dummy variable equal to 1 if the respondent is black. '*Married*' is a dummy variable equal to 1 if the respondent is married. '*Divorced or widowed*' is a dummy variable equal to 1 if the respondent is divorced or widowed. '*Single*' is a dummy variable equal to 1 if the respondent is single. '*High school or less*' is a dummy variable equal to 1 if the respondent has a high school degree at most. '*College drop-out*' is a dummy variable equal to 1 if the respondent dropped out from college, '*College or more*' is a dummy variable equal to 1 if the respondent has at least a college degree. *'# children under 5'* is the number of children under the age of 5 in the household. '*Home owner*' is a dummy variable equal to 1 if the respondent is a home-owner rather than a renter. *'Makes less than spouse'* is a dummy equal to 1 if the respondent's income is lower than the spouse's income. '*Experienced*' is a dummy equal to 1 if the respondent was employed in real estate in the previous year. '*HPI*' is the MSA-level index of housing prices. '*Housing supply elasticity*' is the MSA-level elasticity of housing supply. The

sample is comprised of all individuals in real estate (IND1990 code 712). The sample period is 2000–2007. Sources: IPUMS-CPS, FHFA, Saiz (2010).

Table 2. Gender income gap in real estate sales in 2000: Summary statistics

	All	Male	Female	Difference
	(1)	(2)	(3)	(4)
Total income ('000s)	44.62	55.55	33.05	22.50***
Wage income ('000s)	30.54	37.07	23.66	13.41***
Total income per hour	25.96	24.70	27.31	-2.61
Hours worked per week	39.54	41.43	37.65	3.78***
Weeks worked	47.38	48.11	46.61	1.51**
Age	45.81	47.40	44.12	3.28***
White	0.88	0.86	0.90	-0.04**
Black	0.08	0.10	0.06	0.04*
Married	0.66	0.71	0.60	0.11***
Divorced or widowed	0.18	0.14	0.22	-0.08***
Single	0.17	0.15	0.18	-0.03*
High school or less	0.37	0.38	0.36	0.02
College drop-out	0.33	0.26	0.40	-0.14***
College or more	0.30	0.36	0.24	0.12***
# children under 5	0.14	0.16	0.11	0.05**
Home owner	0.68	0.65	0.71	-0.05**
Makes less than spouse	0.40	0.24	0.57	-0.33***
Experienced	0.83	0.84	0.83	0.01
Observations	1,144	587	557	

Note: The Table presents summary statistics and estimates from a Mann-Whitney t-test in 2000. '*Total income ('000s)*' is total individual income in '000 of USD for the past year. '*Wage income ('000s)*' is individual wage income in '000 of USD for the past year. '*Hours worked per week*' denotes number of hours worked in the usual week last year. '*Weeks worked*' denotes number of weeks worked last year. '*Age*' denotes the respondent's age, in years. '*White*' is a dummy variable equal to 1 if the respondent is white. '*Black*' is a dummy variable equal to 1 if the respondent is black. '*Married*' is a dummy variable equal to 1 if the respondent is married. '*Divorced or widowed*' is a dummy variable equal to 1 if the respondent is divorced or widowed. '*Single*' is a dummy variable equal to 1 if the respondent is single. '*High school or less*' is a dummy variable equal to 1 if the respondent has a high school degree at most. '*College drop-out*' is a dummy variable equal to 1 if the respondent dropped out from college, '*College or more*' is a dummy variable equal to 1 if the respondent has at least a college degree. *'# children under 5'* is the number of children under the age of 5 in the household. '*Home owner*' is a dummy variable equal to 1 if the respondent is a home-owner rather than a renter. *'Makes less than spouse'* is a dummy equal to 1 if the respondent's income is lower than the spouse's income. '*Experienced*' is a dummy equal to 1 if the respondent was employed in real estate in the previous year. The sample is comprised of all individuals in real estate (IND1990 code 712). The sample period is 2000. Source: IPUMS-CPS.

Table 3. Gender income gap in real estate sales, 2000—2007: Main test

	Log (Total income)				
	(1)	(2)	(3)	(4)	(5)
Female	0.3248	0.6071*	0.4970	0.6673*	
	(0.4156)	(0.3528)	(0.3517)	(0.3799)	
Log (HPI)	0.3317***	0.2337***	0.3163		
	(0.1108)	(0.0813)	(0.4580)		
Female × Log(HPI)	-0.1434*	-0.1484**	-0.1277*	-0.1615**	-0.2540**
	(0.0807)	(0.0682)	(0.0678)	(0.0734)	(0.1039)
Age		0.0407***	0.0579	-0.0961*	-0.1047*
		(0.0053)	(0.1029)	(0.0570)	(0.0571)
Age squared		-0.0004***	-0.0003	0.0013**	0.0014**
		(0.0001)	(0.0010)	(0.0006)	(0.0006)
Black		-0.1922***	-0.8300	-0.6160	-0.3557
		(0.0386)	(0.7632)	(0.7500)	(0.7321)
Married		0.2470***	0.9749	1.2888**	1.4294**
		(0.0341)	(0.5997)	(0.5737)	(0.5923)
Divorced or widowed		0.0762*	0.1428	0.4961	0.4601
		(0.0395)	(0.7469)	(0.7110)	(0.7304)
High school or less		-0.5141***	-1.6350***	-1.8933***	-1.8720***
		(0.0272)	(0.6119)	(0.6953)	(0.7219)
College drop-out		-0.3195***	-1.1127	-1.2517*	-1.1819
		(0.0284)	(0.7015)	(0.7054)	(0.7217)
# children under 5		-0.0348	0.8576**	0.8935**	0.9971**
		(0.0211)	(0.3791)	(0.4179)	(0.4151)
Home owner		0.2606***	0.0340	0.1736	0.0049
		(0.0228)	(0.4146)	(0.4439)	(0.4338)
Makes less than spouse		-0.8373***	0.3185	0.4458	0.4217
		(0.0265)	(0.4324)	(0.4655)	(0.4954)
Experienced		0.3502***	-0.5026	-0.4031	-0.4584
		(0.0404)	(0.7971)	(0.8142)	(0.8174)
Age × Log(HPI)			-0.0034	0.0267**	0.0286**
			(0.0201)	(0.0113)	(0.0112)
Age squared × Log(HPI)			-0.0000	-0.0003***	-0.0004***
			(0.0002)	(0.0001)	(0.0001)
Black × Log(HPI)			0.1257	0.0891	0.0393
			(0.1487)	(0.1465)	(0.1434)
Married × Log(HPI)			-0.1408	-0.2040*	-0.2305**
			(0.1177)	(0.1120)	(0.1155)
Divorced or widowed × Log(HPI)			-0.0115	-0.0838	-0.0751

			(0.1446)	(0.1375)	(0.1415)
High school or less × Log(HPI)			0.2176*	0.2673**	0.2635*
			(0.1182)	(0.1345)	(0.1398)
College drop-out × Log(HPI)			0.1536	0.1803	0.1675
			(0.1369)	(0.1372)	(0.1405)
# children under 5 × Log(HPI)			-0.1725**	-0.1781**	-0.1969**
			(0.0724)	(0.0802)	(0.0796)
Home owner × Log(HPI)			0.0438	0.0137	0.0462
			(0.0803)	(0.0860)	(0.0836)
Makes less than spouse × Log(HPI)			-0.2242***	-0.2473***	-0.2423**
			(0.0846)	(0.0909)	(0.0966)
Experienced × Log(HPI)			0.1665	0.1506	0.1624
			(0.1561)	(0.1586)	(0.1593)
MSA	Yes	Yes	Yes	No	No
MSA × Year dummies	No	No	No	Yes	Yes
MSA × Female dummies	No	No	No	No	Yes
Observations	12,515	12,466	12,466	12,081	12,013
R-squared	0.09	0.33	0.33	0.39	0.41

Notes: The table reports OLS estimates of the gender gap in income over time. The dependent variable is the natural logarithm of total individual income. '*Female*' is a dummy variable equal to 1 if the individual is a female. '*Log (HPI)*' is the natural logarithm of the MSA-level index of housing prices. '*Age*' denotes the respondent's age, in years. '*Age squared*' denotes the square of the respondent's age, in years. '*Black*' is a dummy variable equal to 1 if the respondent is black. '*Married*' is a dummy variable equal to 1 if the respondent is married. '*Divorced or widowed*' is a dummy variable equal to 1 if the respondent is divorced or widowed. '*High school or less*' is a dummy variable equal to 1 if the respondent has a high school degree at most. '*College drop-out*' is a dummy variable equal to 1 if the respondent dropped out from college. *'# children under 5'* is the number of children under the age of 5 in the household. '*Home owner*' is a dummy variable equal to 1 if the respondent is a home-owner rather than a renter. *'Makes less than spouse'* is a dummy equal to 1 if the respondent's income is lower than the spouse's income. '*Experienced*' is a dummy equal to 1 if the respondent was employed in real estate in the previous year. The sample is comprised of all individuals in real estate (IND1990 code 712). The sample period is 2000–2007. Data come from IPUMS-CPS. All regressions include dummy interactions as specified. All estimates are weighted using sampling weights provided by the CPS. Standard errors clustered at the MSA level are included in parentheses, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Table 4. Gender income gap in real estate sales, 2000—2007: Matched sample and 2SLS regressions

	Log (Total income)		
	Matched sample	2SLS	
		Fist stage	Second stage
	(1)	(2)	(3)
Female × Inverse elasticity		5.6765***	
		(0.3839)	
Female × Log(HPI)	-0.4351***		-0.0320***
	(0.1308)		(0.0054)
Age	0.0110	0.2852**	-0.0992*
	(0.1251)	(0.1300)	(0.0582)
Age squared	0.0007	-0.0028*	0.0013**
	(0.0012)	(0.0015)	(0.0006)
Black	0.3453	0.3715	-0.6448
	(0.7318)	(0.9775)	(0.7388)
Married	1.4981**	-0.1776	1.3549**
	(0.7461)	(0.7023)	(0.5966)
Divorced or widowed		1.7145	0.7777
		(1.1195)	(0.7140)
High school or less	-0.8760	-0.1925	-1.8468**
	(0.9887)	(0.6005)	(0.7232)
College drop-out	-0.6234	1.6420*	-1.2256*
	(0.9342)	(0.8587)	(0.7336)
# children under 5	1.8269***	-0.2666	0.9307**
	(0.6707)	(0.4114)	(0.4159)
Home owner	-0.5521	-0.1185	0.2176
	(0.4567)	(0.5220)	(0.4610)
Makes less than spouse	-0.6240	3.4061***	0.7371
	(0.6490)	(1.0957)	(0.4577)
Experienced	0.5631	-0.7078	-0.4286
	(1.3620)	(0.5711)	(0.8167)
Age × Log(HPI)	0.0012	-0.0539**	0.0272**
	(0.0242)	(0.0247)	(0.0115)
Age squared × Log(HPI)	-0.0002	0.0005*	-0.0003***
	(0.0002)	(0.0003)	(0.0001)
Black × Log(HPI)	-0.1016	-0.0847	0.0951
	(0.1387)	(0.1854)	(0.1442)
Married × Log(HPI)	0.9403	0.0411	-0.2158*
	(0.7528)	(0.1297)	(0.1162)
Divorced or widowed × Log(HPI)	1.2022	-0.2799	-0.1377

	(0.8006)	(0.2117)	(0.1384)
High school or less × Log(HPI)	0.0595	0.0295	0.2580*
	(0.1869)	(0.1131)	(0.1397)
College drop-out × Log(HPI)	0.0478	-0.3050*	0.1747
	(0.1762)	(0.1607)	(0.1426)
# children under 5 × Log(HPI)	-0.3592***	0.0505	-0.1858**
	(0.1329)	(0.0786)	(0.0800)
Home owner × Log(HPI)	0.1706**	0.0244	0.0051
	(0.0865)	(0.0979)	(0.0892)
Makes less than spouse × Log(HPI)	-0.0228	-0.5862***	-0.3033***
	(0.1277)	(0.2120)	(0.0895)
Experienced × Log(HPI)	-0.0393	0.1516	0.1556
	(0.2623)	(0.1098)	(0.1588)
MSA × Year dummies	Yes	Yes	Yes
MSA × Female dummies	Yes	Yes	Yes
F-statistics		148.160	
Observations	6,847	11,824	11,421
R-squared	0.39	0.86	0.29

Notes: The table reports OLS (column (1) and 2SLS (columns (2)–(3)) estimates of the gender gap in income over time. The dependent variable is the natural logarithm of total individual income (columns (1) and (3)) and the interaction *Female × Log(HPI)* (column (2)). '*Inverse elasticity*' is one divided by the elasticity of the MSA housing supply. '*Female*' is a dummy variable equal to 1 if the individual is a female. '*Log (HPI)*' is the natural logarithm of the MSA-level index of housing prices. '*Age*' denotes the respondent's age, in years. '*Age squared*' denotes the square of the respondent's age, in years. '*Black*' is a dummy variable equal to 1 if the respondent is black. '*Married*' is a dummy variable equal to 1 if the respondent is married. '*Divorced or widowed*' is a dummy variable equal to 1 if the respondent is divorced or widowed. '*High school or less*' is a dummy variable equal to 1 if the respondent has a high school degree at most. '*College drop-out*' is a dummy variable equal to 1 if the respondent dropped out from college. *'# children under 5'* is the number of children under the age of 5 in the household. '*Home owner*' is a dummy variable equal to 1 if the respondent is a home-owner rather than a renter. *'Makes less than spouse'* is a dummy equal to 1 if the respondent's income is lower than the spouse's income. '*Experienced*' is a dummy equal to 1 if the respondent was employed in real estate in the previous year. The sample is comprised of all individuals in real estate (IND1990 code 712). The sample period is 2000–2007. Data come from IPUMS-CPS. The OLS regression in column (1) is based on a propensity-score matched sample derived using demographic variables exhibiting significant differences in 2000 (see Table 2). In column (3), the interaction '*Female × Inverse elasticity*' is used as an instrument for '*Female × Log(HPI)*'. All regressions include dummy interactions as specified. All estimates are weighted using sampling weights provided by the CPS. Standard errors clustered at the MSA level are included in parentheses, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Table 5. Gender income gap in real estate sales, 2000—2007: Types of income, hourly income, and hours worked

	Log (Wage income)	Total income per hour	Log (Hours worked per week)	Log (weeks worked)
	(1)	(2)	(3)	(4)
Female × Log(HPI)	-0.1171	-0.4052**	-0.1251*	-0.0406
	(0.1324)	(0.2014)	(0.0725)	(0.0509)
Age	0.0543	-0.0607	0.0022	0.0111
	(0.0478)	(0.0646)	(0.0299)	(0.0246)
Age squared	-0.0007	0.0008	-0.0000	-0.0000
	(0.0005)	(0.0008)	(0.0003)	(0.0003)
Black	-1.7686*	-1.2523	-0.3626	-0.4040
	(0.9087)	(0.9763)	(0.3427)	(0.3554)
Married	1.2160**	1.5357	0.0100	0.0597
	(0.5984)	(0.9676)	(0.3205)	(0.2037)
Divorced or widowed	1.6296*	-0.2982	0.3506	-0.2486
	(0.8657)	(1.0468)	(0.3593)	(0.2598)
High school or less	-1.6523***	-1.5837**	-0.0382	0.1349
	(0.4904)	(0.7119)	(0.2281)	(0.1877)
College drop-out	-1.6564***	-1.3196*	0.1608	-0.0663
	(0.6095)	(0.7574)	(0.2229)	(0.2218)
# children under 5	0.6571	0.9039**	0.0421	0.1211
	(0.4373)	(0.4293)	(0.1931)	(0.1660)
Home owner	-0.5481	-1.6730***	-0.0587	-0.0236
	(0.5818)	(0.5691)	(0.2678)	(0.2388)
Makes less than spouse	0.1311	0.8101	-0.1519	-0.2035
	(0.4570)	(0.4950)	(0.2498)	(0.1629)
Experienced	-0.5866	-0.0379	0.3870	-0.0888
	(0.5906)	(0.6972)	(0.3404)	(0.3138)
Age × Log(HPI)	0.0074	0.0107	0.0068	0.0017
	(0.0093)	(0.0121)	(0.0058)	(0.0047)
Age squared × Log(HPI)	-0.0001	-0.0001	-0.0001	-0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Black × Log(HPI)	0.3179*	0.2055	0.0700	0.0727
	(0.1763)	(0.1838)	(0.0642)	(0.0681)
Married × Log(HPI)	-0.1940*	-0.2611	0.0007	-0.0082
	(0.1164)	(0.1830)	(0.0615)	(0.0393)
Divorced or widowed × Log(HPI)	-0.3205*	0.0638	-0.0654	0.0443
	(0.1688)	(0.2012)	(0.0690)	(0.0506)
High school or less × Log(HPI)	0.2255**	0.2032	0.0003	-0.0271

	(0.0938)	(0.1377)	(0.0440)	(0.0366)
College drop-out × Log(HPI)	0.2653**	0.1895	-0.0319	0.0091
	(0.1159)	(0.1445)	(0.0424)	(0.0432)
# children under 5 × Log(HPI)	-0.1209	-0.1689**	-0.0140	-0.0228
	(0.0837)	(0.0814)	(0.0372)	(0.0328)
Home owner × Log(HPI)	0.1518	0.3688***	0.0120	0.0028
	(0.1145)	(0.1074)	(0.0494)	(0.0455)
Makes less than spouse × Log(HPI)	-0.1584*	-0.2604***	0.0028	0.0226
	(0.0886)	(0.0959)	(0.0492)	(0.0319)
Experienced × Log(HPI)	0.1392	0.0163	-0.0621	0.0345
	(0.1138)	(0.1307)	(0.0661)	(0.0615)
MSA × Year dummies	Yes	Yes	Yes	Yes
MSA × Female dummies	Yes	Yes	Yes	Yes
Observations	10,012	10,328	10,129	11,800
R-squared	0.41	0.33	0.27	0.18

Notes: The table reports OLS estimates of the gender gap in income over time. The dependent variable is the natural logarithm of individual wage income (column (1)), total individual income per hour (column (2)), the natural logarithm of hours worked per week (column (3)), and the natural logarithm of weeks worked (column (4)). '*Female*' is a dummy variable equal to 1 if the individual is a female. '*Log (HPI)*' is the natural logarithm of the MSA-level index of housing prices. '*Age*' denotes the respondent's age, in years. '*Age squared*' denotes the square of the respondent's age, in years. '*Black*' is a dummy variable equal to 1 if the respondent is black. '*Married*' is a dummy variable equal to 1 if the respondent is married. '*Divorced or widowed*' is a dummy variable equal to 1 if the respondent is divorced or widowed. '*High school or less*' is a dummy variable equal to 1 if the respondent has a high school degree at most. '*College drop-out*' is a dummy variable equal to 1 if the respondent dropped out from college. *'# children under 5'* is the number of children under the age of 5 in the household. '*Home owner*' is a dummy variable equal to 1 if the respondent is a home-owner rather than a renter. *'Makes less than spouse'* is a dummy equal to 1 if the respondent's income is lower than the spouse's income. '*Experienced*' is a dummy equal to 1 if the respondent was employed in real estate in the previous year. The sample is comprised of all individuals in real estate (IND1990 code 712). The sample period is 2000–2007. Data come from IPUMS-CPS. All regressions include dummy interactions as specified. All estimates are weighted using sampling weights provided by the CPS. Standard errors clustered at the MSA level are included in parentheses, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Table 6. Gender income gap in real estate sales, 2000—2007: Types of workers

	Log (Total income)	
	Salaried	Self-employed
	(1)	(2)
Female × Log(HPI)	-0.0550	-0.7948*
	(0.1167)	(0.4349)
MSA × Year dummies	Yes	Yes
MSA × Female dummies	Yes	Yes
Observations	8,099	3,323
R-squared	0.44	0.45

Notes: The table reports OLS estimates of the gender gap in income over time. The dependent variable is the natural logarithm of total individual income. '*Female*' is a dummy variable equal to 1 if the individual is a female. '*Log (HPI)*' is the natural logarithm of the MSA-level index of housing prices. The regressions include all control variables and double interactions from Table 3 (full results reported in Appendix Table A2). The sample is comprised of all individuals in real estate classified as salaried workers (column (1)) and of all individuals in real estate classified as self-employed (column (2)). The sample period is 2000–2007. Data come from IPUMS-CPS. All regressions include dummy interactions as specified. All estimates are weighted using sampling weights provided by the CPS. The regressions include all control variables and double interactions from Table 3 (full results reported in Appendix). Standard errors clustered at the MSA level are included in parentheses, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Table 7. Gender income gap in real estate sales, 2000—2007: Other sectors and occupations

	Log (Total income)		
	Services	Finance and insurance	
	All	All	Sales agents
	(1)	(2)	(3)
Female × Log(HPI)	-0.0837	-0.0053	0.2706
	(0.0506)	(0.3534)	(0.3709)
MSA × Year dummies	Yes	Yes	Yes
MSA × Female dummies	Yes	Yes	Yes
Observations	111,709	2,858	2,637
R-squared	0.32	0.50	0.48

Notes: The table reports OLS estimates of the gender gap in income over time. The dependent variable is the natural logarithm of total individual income. '*Female*' is a dummy variable equal to 1 if the individual is a female. '*Log (HPI)*' is the natural logarithm of the MSA-level index of housing prices. The regressions include all control variables and double interactions from Table 3 (full results reported in Appendix Table A3). The sample is comprised of all individuals in the service sector (column (1)), all individuals in the finance and insurance sector (column (2)), and all sales agents in finance and insurance (column (3)) who are self-employed. The sample period is 2000–2007. Data come from IPUMS-CPS. All regressions include dummy interactions as specified. All estimates are weighted using sampling weights provided by the CPS. The regressions include all control variables and double interactions from Table 3 (full results reported in Appendix). Standard errors clustered at the MSA level are included in parentheses, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Table 8. Gender income gap in real estate sales, 2000—2007: The role of demographic factors among experienced agents

Panel A. Total earnings

	Log (Total income)								
		Married		# children under 5		Some college education		Makes less than spouse	
	All	Yes	No	>0	=0	Yes	No	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Female × Log(HPI)	-0.4900***	-0.3299**	-0.5214***	-0.6611	-0.5208***	-0.6148***	-0.2165	-0.9418***	0.1584
	(0.1202)	(0.1480)	(0.1610)	(0.8806)	(0.1515)	(0.1718)	(0.2075)	(0.2890)	(0.1883)
MSA × Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MSA × Female dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,100	6,527	3,015	1,002	8,660	6,348	3,174	2,747	3,246
R-squared	0.44	0.45	0.50	0.56	0.44	0.42	0.46	0.29	0.44

Panel B. Earnings per hour

	Total income per hour								
		Married		# children under 5		Some college education		Makes less than spouse	
	All	Yes	No	>0	0	Yes	No	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Female × Log(HPI)	-0.1801**	-0.0399	-0.3013**	-0.6846***	-0.1314	-0.1594*	-0.1483	-0.1745	0.1980
	(0.0781)	(0.1171)	(0.1383)	(0.2301)	(0.0837)	(0.0948)	(0.1265)	(0.1329)	(0.1498)
MSA × Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MSA × Female dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,491	5,512	2,470	850	7,231	5,294	2,635	2,237	2,751
R-squared	0.29	0.32	0.38	0.53	0.30	0.30	0.38	0.35	0.34

Panel C. Hours worked

	Log (Hours worked per week)								
		Married		# children under 5		Some college education		Makes less than spouse	
	All	Yes	No	>0	0	Yes	No	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Female × Log(HPI)	-0.4811**	-0.3848	-0.5833**	0.1332	-0.6551***	-0.5408**	-0.3905	-0.6745*	-0.6666*
	(0.1970)	(0.3109)	(0.2908)	(1.2598)	(0.1942)	(0.2656)	(0.3300)	(0.3670)	(0.3923)
MSA × Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MSA × Female dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,836	5,733	2,596	870	7,556	5,502	2,759	2,327	2,880
R-squared	0.35	0.37	0.46	0.49	0.35	0.35	0.39	0.32	0.41

Notes: The table reports OLS estimates of the gender gap in income over time. The dependent variable is the natural logarithm of total individual income (Panel A), the natural logarithm of total income per hour (Panel B), and the natural logarithm of hours worked per week (Panel C). '*Female*' is a dummy variable equal to 1 if the individual is a female. '*Log (HPI)*' is the natural logarithm of the MSA-level index of housing prices. The regressions include all control variables and double interactions from Table 3 (full results reported in Appendix Table A4). The sample is comprised of all individuals in real estate who also worked in real estate in the previous year. The sample period is 2000–2007. Data come from IPUMS-CPS. All regressions include dummy interactions as specified. All estimates are weighted using sampling weights provided by the CPS. Standard errors clustered at the MSA level are included in parentheses, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Table 9. Mechanisms: The role of entry into the industry

Panel A. Composition of gender over time

	Share		
	(1)	(2)	(3)
	2000-2002	2005-2007	Difference
Females	0.498	0.515	-0.016**
Female entrants	0.081	0.086	-0.005*
Male entrants	0.084	0.073	0.011**

Panel B. Entry by gender, MSAs with bottom-25% house price growth

	Share		
	(1)	(2)	(3)
	2000-2002	2005-2007	Difference
Female entrants	0.081	0.071	-0.010
Male entrants	0.094	0.057	-0.037***

Panel C. Entry by gender, MSAs with top-25% house price growth

	Share		
	(1)	(2)	(3)
	2000-2002	2005-2007	Difference
Female entrants	0.073	0.088	0.015*
Male entrants	0.070	0.065	-0.005

Panel D. Total income, entrants versus incumbents

	Total income		
	(1)	(2)	(3)
	Entrants	Incumbents	Difference
All	35,583.41	53,746.74	18,163.33***
Females	26,879.33	41,069.89	14,190.57***
Males	45,122.81	66,653.74	21,530.93***

Notes: 'Females' denotes the share of females in real estate out of the total population of individuals in real estate. 'Female entrants' denotes the share of females that entered real estate this year, out of all females in real estate. 'Male entrants' denotes the share of males that entered real estate this year, out of all males in real estate. 'Entrants' are defined as real estate agents who did not work in real estate in the previous year. 'Incumbents' are defined as real estate agents who also worked in real estate in the previous year. Data come from IPUMS-CPS.

Table 10. Change in income for different occupations, 2000-2007

	Median total income		
	2000-2002	2005-2007	% change
Real estate	30,000	35,000	16.7%
Finance and insurance	35,500	40,000	12.6%
Services	22,500	25,000	10.0%
Full economy	18,500	20,000	8.1%

Notes: The table summarizes median total income in USD across different industries and occupations. Data come from IPUMS-CPS.

Appendix Table A1. Gender income gap in real estate sales, 2008—2011: Main test

	Log (Total income)
Female × Log(HPI)	-2.8616***
	(0.7364)
Age	-0.3510
	(0.3869)
Age squared	0.0019
	(0.0040)
Black	4.3611
	(2.7356)
Married	3.4045
	(2.8369)
Divorced or widowed	1.3657
	(3.3411)
High school or less	2.9253
	(2.9918)
College drop-out	2.7508
	(3.1666)
# children under 5	-0.9545
	(2.1663)
Home owner	5.5747
	(3.4152)
Makes less than spouse	1.0339
	(2.3420)
Experienced	-2.3729
	(3.7298)
Age × Log(HPI)	0.0675
	(0.0745)
Age squared × Log(HPI)	-0.0004
	(0.0008)
Black × Log(HPI)	-0.8627
	(0.5208)
Married × Log(HPI)	-0.5967
	(0.5471)
Divorced or widowed × Log(HPI)	-0.2244
	(0.6453)
High school or less × Log(HPI)	-0.6591
	(0.5699)
College drop-out × Log(HPI)	-0.6315
	(0.6090)

# children under 5 × Log(HPI)	0.1901
	(0.4220)
Home owner × Log(HPI)	-0.9755
	(0.6585)
Makes less than spouse × Log(HPI)	-0.3368
	(0.4532)
Experienced × Log(HPI)	0.5745
	(0.7214)
MSA	No
MSA × Year dummies	Yes
MSA × Female dummies	Yes
Observations	1,486
R-squared	0.48

Notes: The table reports OLS estimates of the gender gap in income over time. The dependent variable is the natural logarithm of total individual income. '*Female*' is a dummy variable equal to 1 if the individual is a female. 'Log (HPI)' is the natural logarithm of the MSA-level index of housing prices. '*Age*' denotes the respondent's age, in years. '*Age squared*' denotes the square of the respondent's age, in years. '*Black*' is a dummy variable equal to 1 if the respondent is black. '*Married*' is a dummy variable equal to 1 if the respondent is married. '*Divorced or widowed*' is a dummy variable equal to 1 if the respondent is divorced or widowed. '*High school or less*' is a dummy variable equal to 1 if the respondent has a high school degree at most. '*College drop-out*' is a dummy variable equal to 1 if the respondent dropped out from college. *'# children under 5'* is the number of children under the age of 5 in the household. '*Home owner*' is a dummy variable equal to 1 if the respondent is a home-owner rather than a renter. *'Makes less than spouse'* is a dummy equal to 1 if the respondent's income is lower than the spouse's income. '*Experienced*' is a dummy equal to 1 if the respondent was employed in real estate in the previous year. The sample is comprised of all individuals in real estate (IND1990 code 712). The sample period is 2008–2011. Data come from IPUMS-CPS. All regressions include dummy interactions as specified. All estimates are weighted using sampling weights provided by the CPS. Standard errors clustered at the MSA level are included in parentheses, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Appendix Table A2. Gender income gap in real estate sales, 2000—2007: Types of workers, full results

	Log (Total income)	
	Salaried	Self-employed
	(1)	(2)
Female × Log(HPI)	-0.0550	-0.7948*
	(0.1167)	(0.4349)
Age	-0.0993	-0.0871
	(0.0639)	(0.1632)
Age squared	0.0015**	0.0012
	(0.0007)	(0.0016)
Black	-0.1898	-0.9114
	(0.8352)	(1.2842)
Married	0.6550	2.9146*
	(0.6609)	(1.7593)
Divorced or widowed	0.4040	-0.7900
	(0.7442)	(2.6274)
High school or less	-1.3666**	-2.5368
	(0.5337)	(1.9782)
College drop-out	-1.0766**	-1.0034
	(0.5155)	(2.0287)
# children under 5	1.7852***	-0.2956
	(0.5141)	(0.9084)
Home owner	-0.2188	-0.9022
	(0.5242)	(1.0296)
Makes less than spouse	0.1956	0.4823
	(0.5025)	(1.0000)
Experienced	0.0435	-1.2015
	(1.0019)	(1.8009)
Age × Log(HPI)	0.0292**	0.0231
	(0.0123)	(0.0327)
Age squared × Log(HPI)	-0.0004***	-0.0003
	(0.0001)	(0.0003)
Black × Log(HPI)	0.0100	0.1302
	(0.1628)	(0.2449)
Married × Log(HPI)	-0.0901	-0.4766
	(0.1285)	(0.3433)
Divorced or widowed × Log(HPI)	-0.0751	0.2174
	(0.1429)	(0.5171)
High school or less × Log(HPI)	0.1527	0.4295
	(0.1027)	(0.3855)

College drop-out × Log(HPI)	0.1420	0.1487
	(0.0992)	(0.3994)
# children under 5 × Log(HPI)	-0.3495***	0.0620
	(0.1002)	(0.1735)
Home owner × Log(HPI)	0.0880	0.1952
	(0.1010)	(0.1965)
Makes less than spouse × Log(HPI)	-0.1781*	-0.3080
	(0.0969)	(0.1960)
Experienced × Log(HPI)	0.0536	0.3400
	(0.1944)	(0.3493)
MSA × Year dummies	Yes	Yes
MSA × Female dummies	Yes	Yes
Observations	8,099	3,323
R-squared	0.44	0.45

Notes: The table reports OLS estimates of the gender gap in income over time. The dependent variable is the natural logarithm of total individual income. '*Female*' is a dummy variable equal to 1 if the individual is a female. '*Log (HPI)*' is the natural logarithm of the MSA-level index of housing prices. '*Age*' denotes the respondent's age, in years. '*Age squared*' denotes the square of the respondent's age, in years. '*Black*' is a dummy variable equal to 1 if the respondent is black. '*Married*' is a dummy variable equal to 1 if the respondent is married. '*Divorced or widowed*' is a dummy variable equal to 1 if the respondent is divorced or widowed. '*High school or less*' is a dummy variable equal to 1 if the respondent has a high school degree at most. '*College drop-out*' is a dummy variable equal to 1 if the respondent dropped out from college. *'# children under 5'* is the number of children under the age of 5 in the household. '*Home owner*' is a dummy variable equal to 1 if the respondent is a home-owner rather than a renter. *'Makes less than spouse'* is a dummy equal to 1 if the respondent's income is lower than the spouse's income. '*Experienced*' is a dummy equal to 1 if the respondent was employed in real estate in the previous year. The sample is comprised of all individuals in real estate classified as salaried workers (column (1)) and of all individuals in real estate classified as self-employed (column (2)). The sample period is 2000–2007. Data come from IPUMS-CPS. All regressions include dummy interactions as specified. All estimates are weighted using sampling weights provided by the CPS. Standard errors clustered at the MSA level are included in parentheses, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Appendix Table A3. Gender income gap in real estate sales, 2000—2007: Other sectors and occupations, full results

	Log (Total income)		
	Services	Finance and insurance	
	All	All	Sales agents
	(1)	(2)	(3)
Female × Log(HPI)	-0.0837	-0.0053	0.2706
	(0.0506)	(0.3534)	(0.3709)
Age	0.0002	-0.0920	0.1183
	(0.0229)	(0.1489)	(0.2835)
Age squared	0.0002	0.0015	-0.0005
	(0.0003)	(0.0018)	(0.0031)
Black	-0.0485	3.4432*	-0.7962
	(0.3483)	(1.8898)	(1.8540)
Married	1.1130***	1.0551	-0.5566
	(0.3876)	(1.6766)	(3.0569)
Divorced or widowed	0.5768	0.2138	-3.9395
	(0.4824)	(2.5422)	(3.3000)
High school or less	-1.7132***	1.8541	0.3433
	(0.3095)	(1.4069)	(1.1580)
College drop-out	-1.3836***	0.8090	-0.4563
	(0.2650)	(1.2468)	(1.3144)
# children under 5	-0.3134	1.1142	-0.5107
	(0.2155)	(1.1159)	(1.1532)
Home owner	-0.0293	0.3585	-0.9864
	(0.2406)	(2.0427)	(1.5524)
Makes less than spouse	-0.8000***	-1.7693	-1.6963
	(0.2573)	(1.1575)	(1.1107)
Experienced	0.8041**	5.6543*	-1.3349
	(0.3810)	(3.0213)	(4.0884)
Age × Log(HPI)	0.0104**	0.0232	-0.0173
	(0.0043)	(0.0279)	(0.0556)
Age squared × Log(HPI)	-0.0001**	-0.0003	0.0000
	(0.0001)	(0.0003)	(0.0006)
Black × Log(HPI)	0.0001	-0.6854*	0.1361
	(0.0679)	(0.3653)	(0.3587)
Married × Log(HPI)	-0.1664**	-0.1482	0.1906
	(0.0764)	(0.3152)	(0.6107)
Divorced or widowed × Log(HPI)	-0.1034	-0.0163	0.8058
	(0.0950)	(0.4814)	(0.6463)

High school or less × Log(HPI)	0.1854***	-0.4309	-0.1211
	(0.0608)	(0.2734)	(0.2276)
College drop-out × Log(HPI)	0.1702***	-0.2329	0.0293
	(0.0520)	(0.2421)	(0.2614)
# children under 5 × Log(HPI)	0.0553	-0.2237	0.0948
	(0.0420)	(0.2148)	(0.2250)
Home owner × Log(HPI)	0.0539	-0.0039	0.2582
	(0.0458)	(0.3963)	(0.3046)
Makes less than spouse × Log(HPI)	-0.0225	0.1303	0.1686
	(0.0509)	(0.2234)	(0.2148)
Experienced × Log(HPI)	-0.1095	-1.1288**	0.1920
	(0.0746)	(0.5665)	(0.8095)
MSA × Year dummies	Yes	Yes	Yes
MSA × Female dummies	Yes	Yes	Yes
Observations	111,709	2,858	2,637
R-squared	0.32	0.50	0.48

Notes: The table reports OLS estimates of the gender gap in income over time. The dependent variable is the natural logarithm of total individual income. '*Female*' is a dummy variable equal to 1 if the individual is a female. '*Log (HPI)*' is the natural logarithm of the MSA-level index of housing prices. '*Age*' denotes the respondent's age, in years. '*Age squared*' denotes the square of the respondent's age, in years. '*Black*' is a dummy variable equal to 1 if the respondent is black. '*Married*' is a dummy variable equal to 1 if the respondent is married. '*Divorced or widowed*' is a dummy variable equal to 1 if the respondent is divorced or widowed. '*High school or less*' is a dummy variable equal to 1 if the respondent has a high school degree at most. '*College drop-out*' is a dummy variable equal to 1 if the respondent dropped out from college. *'# children under 5'* is the number of children under the age of 5 in the household. '*Home owner*' is a dummy variable equal to 1 if the respondent is a home-owner rather than a renter. *'Makes less than spouse'* is a dummy equal to 1 if the respondent's income is lower than the spouse's income. '*Experienced*' is a dummy equal to 1 if the respondent was employed in real estate in the previous year. The sample is comprised of all individuals in the service sector (column (1)), all individuals in the finance and insurance sector (column (2)), and all sales agents in finance and insurance (column (3)) who are self-employed. The sample period is 2000–2007. Data come from IPUMS-CPS. All regressions include dummy interactions as specified. All estimates are weighted using sampling weights provided by the CPS. Standard errors clustered at the MSA level are included in parentheses, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Appendix Table A4. Gender income gap in real estate sales, 2000—2007: The role of demographic factors among experienced agents, full results

Panel A. Total earnings

	Log (Total income)								
		Married		# children under 5		Some college education		Makes less than spouse	
	All	Yes	No	>0	=0	Yes	No	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Female × Log(HPI)	-0.4900***	-0.3299**	-0.5214***	-0.6611	-0.5208***	-0.6148***	-0.2165	-0.9418***	0.1584
	(0.1202)	(0.1480)	(0.1610)	(0.8806)	(0.1515)	(0.1718)	(0.2075)	(0.2890)	(0.1883)
Age	0.0032	0.0976	0.0273	-0.6140	0.0376	0.0284	-0.0990	0.0512	0.1167
	(0.1382)	(0.1914)	(0.1302)	(1.1990)	(0.1371)	(0.2225)	(0.1140)	(0.2451)	(0.2231)
Age squared	0.0004	-0.0005	-0.0002	0.0078	0.0001	-0.0000	0.0018	-0.0004	-0.0006
	(0.0014)	(0.0020)	(0.0013)	(0.0156)	(0.0014)	(0.0023)	(0.0012)	(0.0026)	(0.0023)
Black	-0.5483	-0.4279	-1.4863	1.5255	-0.1964	-1.5815**	1.8037**	-0.3810	-0.4680
	(0.5999)	(0.9223)	(1.0531)	(2.3670)	(0.6927)	(0.6851)	(0.8548)	(1.2118)	(1.1045)
Married	1.2457*			6.5138**	0.8585	-0.0317	2.3653**		
	(0.6532)			(2.9875)	(0.6641)	(0.7972)	(1.1291)		
Divorced or widowed	0.5699		0.2798	1.3426	0.3191	-0.4720	0.1784		
	(0.7177)		(0.8239)	(2.5846)	(0.7714)	(0.9134)	(1.2020)		
High school or less	-1.4801**	-0.5568	-2.0567**	-1.6781	-1.1796			-1.5104	0.4085
	(0.7162)	(1.0092)	(0.9418)	(1.7801)	(0.7784)			(1.3463)	(1.3113)
College drop-out	-0.9760	-0.7496	0.0917	0.0009	-0.9338	-0.6216		-1.7641	0.3163
	(0.6933)	(0.8238)	(1.0080)	(1.7136)	(0.7760)	(0.6896)		(1.4288)	(1.0211)
# children under 5	0.6377	1.0915**	-1.0299	-0.0713		0.6689	-0.3284	-0.1175	2.0601***
	(0.5080)	(0.5243)	(1.2805)	(1.3217)		(0.6991)	(0.7996)	(1.2752)	(0.4556)
Home owner	0.1633	0.4703	-0.2806	-0.9895	0.1213	0.3828	-0.3221	-0.1544	1.1054
	(0.4672)	(0.5865)	(0.8347)	(2.2868)	(0.5194)	(0.7006)	(0.7737)	(1.1196)	(0.9349)
Makes less than spouse	0.4147	1.1261*	-0.7600	-0.9879	0.6081	0.6723	-0.1330		

	(0.4068)	(0.6382)	(0.7942)	(1.6633)	(0.4726)	(0.6003)	(0.7739)		
Experienced	0.0074	-0.0135	0.0059	0.1424	0.0006	0.0031	0.0267	-0.0056	-0.0159
	(0.0271)	(0.0377)	(0.0250)	(0.2353)	(0.0269)	(0.0438)	(0.0221)	(0.0481)	(0.0441)
Age × Log(HPI)	-0.0001	0.0000	-0.0001	-0.0018	-0.0001	-0.0001	-0.0004*	0.0000	0.0000
	(0.0003)	(0.0004)	(0.0002)	(0.0031)	(0.0003)	(0.0005)	(0.0002)	(0.0005)	(0.0004)
Age squared × Log(HPI)	0.0709	0.0569	0.2499	-0.3340	0.0051	0.2741**	-0.3962**	0.0743	0.0520
	(0.1158)	(0.1755)	(0.2058)	(0.4508)	(0.1347)	(0.1321)	(0.1631)	(0.2304)	(0.2135)
Black × Log(HPI)	-0.1975	1.1018		-1.2531**	-0.1240	0.0452	-0.4115*	0.7911	1.1101
	(0.1265)	(0.9173)		(0.5685)	(0.1279)	(0.1538)	(0.2214)	(1.0785)	(1.0642)
Married × Log(HPI)	-0.0977		-0.0494	-0.2765	-0.0495	0.1006	-0.0152		
	(0.1396)		(0.1600)	(0.4899)	(0.1496)	(0.1745)	(0.2361)		
Divorced or widowed × Log(HPI)	0.1827	0.0161	0.2731	0.2272	0.1237		0.6479	0.2251	-0.2005
	(0.1385)	(0.1980)	(0.1794)	(0.3319)	(0.1511)		(0.5704)	(0.2630)	(0.2588)
High school or less × Log(HPI)	0.1252	0.0972	-0.1078	-0.0429	0.1134	0.0596		0.3111	-0.1237
	(0.1341)	(0.1603)	(0.1948)	(0.3322)	(0.1508)	(0.1328)		(0.2755)	(0.2009)
College drop-out × Log(HPI)	-0.1241	-0.2180**	0.2075	0.0165		-0.1320	0.0681	0.0129	-0.4003***
	(0.0977)	(0.1009)	(0.2443)	(0.2512)		(0.1355)	(0.1575)	(0.2469)	(0.0877)
# children under 5 × Log(HPI)	0.0224	-0.0129	0.0822	0.2403	0.0308	-0.0282	0.1235	0.0923	-0.1133
	(0.0898)	(0.1112)	(0.1607)	(0.4501)	(0.0998)	(0.1331)	(0.1510)	(0.2170)	(0.1761)
Home owner × Log(HPI)	-0.2334***	-0.3746***	0.0203	0.0519	-0.2686***	-0.2911**	-0.1078		
	(0.0801)	(0.1243)	(0.1500)	(0.3114)	(0.0932)	(0.1175)	(0.1528)		
Makes less than spouse × Log(HPI)	0.7534		0.7870	-1.2911	0.9687	0.5631			
	(0.6605)		(0.6449)	(4.0674)	(0.6910)	(1.0727)			
Experienced × Log(HPI)	-0.4900***	-0.3299**	-0.5214***	-0.6611	-0.5208***	-0.6148***	-0.2165	-0.9418***	0.1584
	(0.1202)	(0.1480)	(0.1610)	(0.8806)	(0.1515)	(0.1718)	(0.2075)	(0.2890)	(0.1883)
MSA × Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MSA × Female dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,100	6,527	3,015	1,002	8,660	6,348	3,174	2,747	3,246
R-squared	0.44	0.45	0.50	0.56	0.44	0.42	0.46	0.29	0.44

Panel B. Earnings per hour

	Total income per hour								
		Married		# children under 5		Some college education		Makes less than spouse	
	All	Yes	No	>0	0	Yes	No	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Female × Log(HPI)	-0.1801**	-0.0399	-0.3013**	-0.6846***	-0.1314	-0.1594*	-0.1483	-0.1745	0.1980
	(0.0781)	(0.1171)	(0.1383)	(0.2301)	(0.0837)	(0.0948)	(0.1265)	(0.1329)	(0.1498)
Age	0.0668	-0.0785	0.1082	-0.1719	0.0880	0.0680	-0.0377	-0.0381	-0.0664
	(0.0664)	(0.0973)	(0.0814)	(0.2396)	(0.0736)	(0.0807)	(0.1324)	(0.1893)	(0.1159)
Age squared	-0.0007	0.0006	-0.0010	0.0021	-0.0009	-0.0009	0.0005	-0.0000	0.0006
	(0.0007)	(0.0010)	(0.0009)	(0.0031)	(0.0007)	(0.0008)	(0.0014)	(0.0020)	(0.0012)
Black	-0.0896	-0.2901	-0.2199	1.4209**	-0.1980	-0.3739	-0.2931	-0.8603	-0.4041
	(0.2348)	(0.3107)	(0.3815)	(0.5978)	(0.2619)	(0.3173)	(0.3805)	(0.7702)	(0.3080)
Married	0.1048			1.3147	-0.0133	-0.0092	0.3367		
	(0.2385)			(0.8787)	(0.2548)	(0.2927)	(0.3734)		
Divorced or widowed	0.3987		0.1129	-0.5547	0.4226	0.3797	0.6012		
	(0.3296)		(0.4512)	(1.5296)	(0.3390)	(0.4609)	(0.5782)		
High school or less	-0.1247	0.0825	-0.2760	-0.9200*	-0.1247			0.8438	-0.0937
	(0.2273)	(0.2532)	(0.4469)	(0.5514)	(0.2634)			(0.6988)	(0.3566)
College drop-out	0.0539	0.1221	-0.2131	0.0490	0.1446	0.2570		0.6364	0.3175
	(0.2394)	(0.3033)	(0.3918)	(0.8521)	(0.2543)	(0.2418)		(0.6944)	(0.4037)
# children under 5	-0.0579	-0.3512	-0.2114	-0.6387		-0.3422	0.1848	-0.6624	-0.1458
	(0.1893)	(0.2247)	(0.3500)	(0.5904)		(0.2594)	(0.4069)	(0.4914)	(0.1933)
Home owner	0.1721	0.8268	-0.3523	-0.8634*	0.3522	0.4983	-0.1149	0.9397	1.1416**
	(0.2957)	(0.5847)	(0.3418)	(0.5059)	(0.3428)	(0.4459)	(0.3338)	(0.9136)	(0.5083)
Makes less than spouse	-0.2396	0.0064	-0.3722	0.0765	-0.2075	-0.2619	-0.0875		
	(0.2568)	(0.3138)	(0.3813)	(0.5487)	(0.2778)	(0.3379)	(0.3779)		
Experienced	-0.0057	0.0210	-0.0128	0.0321	-0.0095	-0.0067	0.0149	0.0136	0.0181

	(0.0129)	(0.0189)	(0.0158)	(0.0460)	(0.0142)	(0.0158)	(0.0258)	(0.0374)	(0.0224)
Age × Log(HPI)	0.0001	-0.0002	0.0001	-0.0004	0.0001	0.0001	-0.0002	-0.0001	-0.0002
	(0.0001)	(0.0002)	(0.0002)	(0.0006)	(0.0001)	(0.0002)	(0.0003)	(0.0004)	(0.0002)
Age squared × Log(HPI)	0.0169	0.0590	0.0347	-0.2641**	0.0357	0.0675	0.0632	0.1772	0.0696
	(0.0457)	(0.0594)	(0.0759)	(0.1149)	(0.0510)	(0.0612)	(0.0747)	(0.1488)	(0.0580)
Black × Log(HPI)	-0.0184	-0.4105		-0.2771*	0.0045	0.0040	-0.0623	-0.2631	-0.2064
	(0.0457)	(0.4591)		(0.1648)	(0.0492)	(0.0564)	(0.0738)	(0.9576)	(0.5900)
Married × Log(HPI)	-0.0763		-0.0261	0.1039	-0.0817	-0.0706	-0.1203		
	(0.0637)		(0.0883)	(0.2862)	(0.0658)	(0.0884)	(0.1149)		
Divorced or widowed × Log(HPI)	0.0169	-0.0185	0.0383	0.1763*	0.0149		-0.0794	-0.1570	0.0099
	(0.0441)	(0.0482)	(0.0873)	(0.1034)	(0.0512)		(0.5897)	(0.1326)	(0.0674)
High school or less × Log(HPI)	-0.0124	-0.0210	0.0259	-0.0022	-0.0303	-0.0501		-0.1126	-0.0594
	(0.0454)	(0.0573)	(0.0755)	(0.1594)	(0.0485)	(0.0457)		(0.1339)	(0.0781)
College drop-out × Log(HPI)	0.0048	0.0563	0.0502	0.1165		0.0550	-0.0338	0.1049	0.0252
	(0.0365)	(0.0430)	(0.0682)	(0.1095)		(0.0500)	(0.0791)	(0.0944)	(0.0372)
# children under 5 × Log(HPI)	-0.0328	-0.1507	0.0626	0.1651*	-0.0665	-0.0917	0.0180	-0.1683	-0.2104**
	(0.0552)	(0.1103)	(0.0658)	(0.0984)	(0.0639)	(0.0825)	(0.0646)	(0.1754)	(0.0947)
Home owner × Log(HPI)	0.0203	-0.0271	0.0529	-0.0474	0.0157	0.0236	-0.0037		
	(0.0505)	(0.0607)	(0.0754)	(0.1061)	(0.0547)	(0.0660)	(0.0724)		
Makes less than spouse × Log(HPI)	0.3018		0.5713	-0.2210	0.4013	0.2265			
	(0.3209)		(0.3915)	(1.0185)	(0.3487)	(0.3879)			
Experienced × Log(HPI)	-0.1801**	-0.0399	-0.3013**	-0.6846***	-0.1314	-0.1594*	-0.1483	-0.1745	0.1980
	(0.0781)	(0.1171)	(0.1383)	(0.2301)	(0.0837)	(0.0948)	(0.1265)	(0.1329)	(0.1498)
MSA × Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MSA × Female dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,491	5,512	2,470	850	7,231	5,294	2,635	2,237	2,751
R-squared	0.29	0.32	0.38	0.53	0.30	0.30	0.38	0.35	0.34

Panel C. Hours worked

	Log (Hours worked per week)								
		Married		# children under 5		Some college education		Makes less than spouse	
	All	Yes	No	>0	0	Yes	No	Yes	No
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Female × Log(HPI)	-0.4811**	-0.3848	-0.5833**	0.1332	-0.6551***	-0.5408**	-0.3905	-0.6745*	-0.6666*
	(0.1970)	(0.3109)	(0.2908)	(1.2598)	(0.1942)	(0.2656)	(0.3300)	(0.3670)	(0.3923)
Age	-0.0684	0.0273	-0.0869	-2.0485	-0.0036	-0.0267	-0.1863	-0.3936	0.0617
	(0.1588)	(0.2319)	(0.1926)	(1.6244)	(0.1605)	(0.2424)	(0.1693)	(0.3285)	(0.2990)
Age squared	0.0009	0.0001	0.0006	0.0265	0.0004	0.0003	0.0026	0.0041	-0.0004
	(0.0016)	(0.0025)	(0.0019)	(0.0215)	(0.0016)	(0.0025)	(0.0019)	(0.0037)	(0.0031)
Black	-1.2118	-1.1121	-1.1433	-3.8253	-0.3712	0.0464	-0.4274	-0.4245	-1.7704
	(0.9754)	(1.3757)	(1.5565)	(2.4185)	(1.0209)	(1.1416)	(1.4320)	(2.3447)	(1.8882)
Married	1.5048			5.7684	0.8060	0.4684	2.6662		
	(0.9526)			(4.5028)	(0.9926)	(0.9448)	(1.8292)		
Divorced or widowed	-0.0508		-0.4657	0.2569	-0.8169	-0.7421	-0.5840		
	(1.0582)		(1.1393)	(4.3392)	(1.0832)	(1.2567)	(1.5831)		
High school or less	-1.7429**	-0.8223	-2.3780*	-1.8240	-1.3112*			-3.0240*	0.5705
	(0.7820)	(1.1635)	(1.2120)	(2.3144)	(0.7814)			(1.6200)	(1.4144)
College drop-out	-1.8331**	-1.8816*	-0.2166	0.4804	-2.0219**	-2.0699***		-2.3895	-1.2026
	(0.7583)	(0.9651)	(1.3790)	(1.9171)	(0.8141)	(0.7879)		(1.6236)	(1.2592)
# children under 5	1.1098*	1.5960**	-1.5544	-1.3296		1.8613***	-1.7251*	-0.2954	2.3440***
	(0.5813)	(0.6317)	(1.7674)	(1.3476)		(0.5895)	(1.0178)	(1.6239)	(0.6750)
Home owner	-1.3934**	-1.6782**	-0.9128	1.5809	-1.5522**	-1.8024**	0.0166	-1.3509	-2.0842**
	(0.6583)	(0.8126)	(0.9356)	(2.4887)	(0.6883)	(0.8745)	(0.9445)	(1.4823)	(1.0044)
Makes less than spouse	0.7421	1.2616	-0.1793	-1.0174	0.9062	1.4931*	-1.3493		
	(0.5894)	(0.8802)	(1.0994)	(1.8724)	(0.7027)	(0.8724)	(0.8697)		
Experienced	0.0117	-0.0054	0.0141	0.4121	-0.0012	0.0052	0.0327	0.0719	-0.0102

	(0.0308)	(0.0451)	(0.0363)	(0.3097)	(0.0311)	(0.0470)	(0.0321)	(0.0629)	(0.0585)
Age × Log(HPI)	-0.0001	-0.0000	-0.0001	-0.0053	-0.0000	-0.0001	-0.0005	-0.0007	0.0001
	(0.0003)	(0.0005)	(0.0004)	(0.0041)	(0.0003)	(0.0005)	(0.0004)	(0.0007)	(0.0006)
Age squared × Log(HPI)	0.1959	0.1776	0.2014	0.6855	0.0382	-0.0300	0.0370	0.0688	0.2984
	(0.1827)	(0.2576)	(0.2952)	(0.4593)	(0.1914)	(0.2129)	(0.2705)	(0.4429)	(0.3538)
Black × Log(HPI)	-0.2590	0.3129		-1.0496	-0.1282	-0.0663	-0.4760	-1.4454	-0.0540
	(0.1807)	(0.9634)		(0.8507)	(0.1873)	(0.1793)	(0.3452)	(1.2589)	(1.3321)
Married × Log(HPI)	0.0165		0.0949	-0.0452	0.1620	0.1468	0.1188		
	(0.2039)		(0.2206)	(0.8171)	(0.2080)	(0.2416)	(0.3020)		
Divorced or widowed × Log(HPI)	0.2341	0.0703	0.3276	0.2500	0.1532		0.1653	0.5324*	-0.2266
	(0.1517)	(0.2275)	(0.2261)	(0.4265)	(0.1512)		(0.7645)	(0.3135)	(0.2762)
High school or less × Log(HPI)	0.2876**	0.3057	-0.0371	-0.1205	0.3235**	0.3356**		0.4329	0.1555
	(0.1456)	(0.1878)	(0.2562)	(0.3764)	(0.1562)	(0.1508)		(0.3156)	(0.2413)
College drop-out × Log(HPI)	-0.2084*	-0.2981**	0.2849	0.2541		-0.3480***	0.3240*	0.0610	-0.4442***
	(0.1097)	(0.1203)	(0.3333)	(0.2555)		(0.1122)	(0.1918)	(0.3143)	(0.1258)
# children under 5 × Log(HPI)	0.3190**	0.3845**	0.2102	-0.2612	0.3481***	0.3869**	0.0590	0.3028	0.4838**
	(0.1254)	(0.1546)	(0.1773)	(0.4830)	(0.1303)	(0.1665)	(0.1813)	(0.2834)	(0.1930)
Home owner × Log(HPI)	-0.2517**	-0.3582**	-0.0600	0.0971	-0.2821**	-0.4046**	0.1642		
	(0.1155)	(0.1705)	(0.2038)	(0.3569)	(0.1374)	(0.1695)	(0.1684)		
Makes less than spouse × Log(HPI)	0.0524		-0.2691	-7.5905	0.4226	-0.0582			
	(0.6752)		(0.8489)	(5.3305)	(0.6954)	(1.0553)			
Experienced × Log(HPI)	-0.4811**	-0.3848	-0.5833**	0.1332	-0.6551***	-0.5408**	-0.3905	-0.6745*	-0.6666*
	(0.1970)	(0.3109)	(0.2908)	(1.2598)	(0.1942)	(0.2656)	(0.3300)	(0.3670)	(0.3923)
MSA × Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MSA × Female dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,836	5,733	2,596	870	7,556	5,502	2,759	2,327	2,880
R-squared	0.35	0.37	0.46	0.49	0.35	0.35	0.39	0.32	0.41

Notes: The table reports OLS estimates of the gender gap in income over time. The dependent variable is the natural logarithm of total individual income (Panel A), the natural logarithm of total income per hour (Panel B), and the natural logarithm of hours worked per week (Panel C). '*Female*' is a dummy variable equal to 1 if the individual is a female. '*Log (HPI)*' is the natural logarithm of the MSA-level index of housing prices. '*Age*' denotes the respondent's age, in years. '*Age squared*' denotes the square of the respondent's age, in years. '*Black*' is a dummy variable equal to 1 if the respondent is black. '*Married*' is a dummy variable equal to 1 if the respondent is married. '*Divorced or widowed*' is a dummy variable equal to 1 if the respondent is divorced or widowed. '*High school or less*' is a dummy variable equal to 1 if the respondent has a high school degree at most. '*College drop-out*' is a dummy variable equal to 1 if the respondent dropped out from college. *'# children under 5'* is the number of children under the age of 5 in the household. '*Home owner*' is a dummy variable equal to 1 if the respondent is a home-owner rather than a renter. *'Makes less than spouse'* is a dummy equal to 1 if the respondent's income is lower than the spouse's income. '*Experienced*' is a dummy equal to 1 if the respondent was employed in real estate in the previous year. The sample is comprised of all individuals in real estate who also worked in real estate in the previous year. The sample period is 2000–2007. Data come from IPUMS-CPS. All regressions include dummy interactions as specified. All estimates are weighted using sampling weights provided by the CPS. Standard errors clustered at the MSA level are included in parentheses, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

Appendix Table A5. Gender income gap in real estate sales, 2000—2007: Gender gap and experience

	Log (Total income)
Female × Experienced × Log(HPI)	0.0666***
	(0.0184)
Female × Log(HPI)	-0.3288***
	(0.1013)
Age	-0.1197**
	(0.0584)
Age squared	0.0016***
	(0.0006)
Black	-0.3420
	(0.7360)
Married	1.4574**
	(0.6047)
Divorced or widowed	0.3890
	(0.7388)
High school or less	-1.8425**
	(0.7150)
College drop-out	-1.1657
	(0.7228)
# children under 5	1.0136**
	(0.4121)
Home owner	0.0034
	(0.4337)
Makes less than spouse	0.3567
	(0.4969)
Experienced	-0.2875
	(0.8159)
Age × Log(HPI)	0.0315***
	(0.0115)
Age squared × Log(HPI)	-0.0004***
	(0.0001)
Black × Log(HPI)	0.0367
	(0.1440)
Married × Log(HPI)	-0.2356**
	(0.1181)
Divorced or widowed × Log(HPI)	-0.0609
	(0.1432)
High school or less × Log(HPI)	0.2571*
	(0.1386)

College drop-out × Log(HPI)	0.1640
	(0.1406)
# children under 5 × Log(HPI)	-0.2000**
	(0.0790)
Home owner × Log(HPI)	0.0462
	(0.0836)
Makes less than spouse × Log(HPI)	-0.2304**
	(0.0971)
Experienced × Log(HPI)	0.0954
	(0.1591)
MSA	No
MSA × Year dummies	Yes
MSA × Female dummies	Yes
Observations	12,013
R-squared	0.41

Notes: The table reports OLS estimates of the gender gap in income over time. The dependent variable is the natural logarithm of total individual income. '*Female*' is a dummy variable equal to 1 if the individual is a female. '*Log (HPI)*' is the natural logarithm of the MSA-level index of housing prices. '*Age*' denotes the respondent's age, in years. '*Age squared*' denotes the square of the respondent's age, in years. '*Black*' is a dummy variable equal to 1 if the respondent is black. '*Married*' is a dummy variable equal to 1 if the respondent is married. '*Divorced or widowed*' is a dummy variable equal to 1 if the respondent is divorced or widowed. '*High school or less*' is a dummy variable equal to 1 if the respondent has a high school degree at most. '*College drop-out*' is a dummy variable equal to 1 if the respondent dropped out from college. *'# children under 5'* is the number of children under the age of 5 in the household. '*Home owner*' is a dummy variable equal to 1 if the respondent is a home-owner rather than a renter. *'Makes less than spouse'* is a dummy equal to 1 if the respondent's income is lower than the spouse's income. '*Experienced*' is a dummy equal to 1 if the respondent was employed in real estate in the previous year. The sample is comprised of all individuals in real estate (IND1990 code 712). The sample period is 2000–2007. Data come from IPUMS-CPS. All regressions include dummy interactions as specified. All estimates are weighted using sampling weights provided by the CPS. Standard errors clustered at the MSA level are included in parentheses, where ***, **, and * indicate significance at the 1, 5, and 10 percent statistical level, respectively.

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