The Gender Gap in Housing Returns

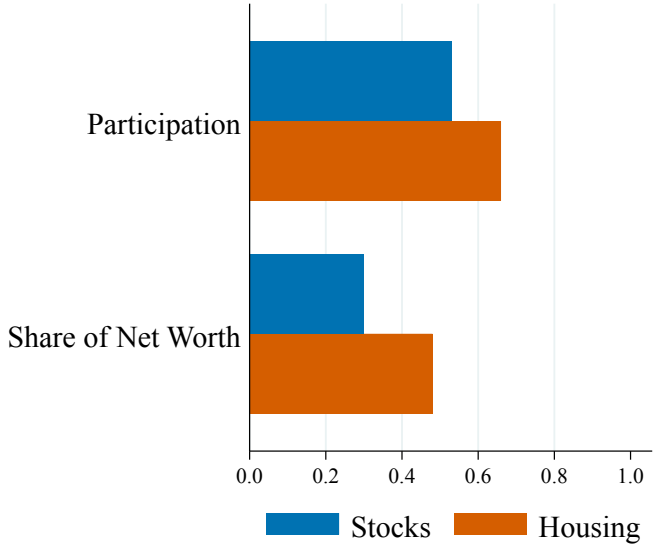
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Housing wealth is the dominant form of savings for US households

- Housing is ...
  - Illiquid
  - Heterogeneous
  - Priced through bilateral negotiation
- Research showing gender differences in ...
  - Financial sophistication
  - Preferences for e.g. risk, competition, and agreeability
  - Negotiation
- Do men and women differ in their financial returns on housing?



Source: Survey of Consumer Finances

Data on 53M US housing transactions reveals …

1. Women earn **1.5 pp lower annualized unlevered returns than men**
   - Increases to **7.9 pp** after accounting for **leverage**
   - **45%** of the gap is explained by gender differences in **market timing**
   - Couples also earn lower raw returns, but outperform women after adjusting for timing

2. Remaining gender gap arises primarily from gap in **execution prices**
   - Using repeat sales, women buy for 2% more and sell for 2% less
   - Women buy for more, list for less, and get worse negotiated discounts off the list price
   - Prices and discounts vary with the gender match between buyers and sellers

3. Less important: what happens in between purchase and sale
   - Property risk or characteristics associated with higher returns
   - Maintenance investment

Measurement and data

Data

Corelogic county deed records (53M obs)

- Restrict to arms-length transactions, exclude refinancings
- Sale price, property address, names on both sides of transaction
- Most US states, 1991-2017

Linked to MLS property listings (20M obs)

- Listing date, list price, close date, sale price
- Property features, e.g. number bedrooms, upgrades, age of house

Supplement with data from Census and American Housing Survey

- Demographics

Identification of gender and relationships

Deed records contain full names of buyers and sellers

- Identify number of parties on each side of the transaction
- Measure probability that first name is male or female
  - Following Chari and Goldsmith-Pinkham 2019; Tang et al. 2011
- Assign gender for names with probability $\geq 95\%$, else treat as unidentified gender

Categorization

- Single female: one person, identified female
- Single male: one person, identified male
- Couple: two people with identified gender
- Other: everybody else (including unidentified gender and institutions)

Measuring housing returns

Property i bought in year b for P_{ib} and sold in year s for P_{is}

- Restrict to identified female, male, and couples
- Name, gender, and family structure of buyer in b must match seller in s
- 9.4M obs after these filters

Annualized unlevered return

$$r_{is} = \left(\frac{P_{is} - P_{ib}}{P_{ib}} \right)^{\frac{1}{(s-b)}} - 1$$

Real return on housing is typically a levered return

- Majority of US homeowners buy homes using debt, with LTV $\geq$ 80%
- Initial leverage persists because amortization schedules mainly pay interest upfront

Baseline empirical results

Estimation approach

Baseline return regression

$$r_{is} = \text{Female}_{is}\beta_1 + \text{Couple}_{is}\beta_2 + X_{is}\tau + \epsilon_{is}$$

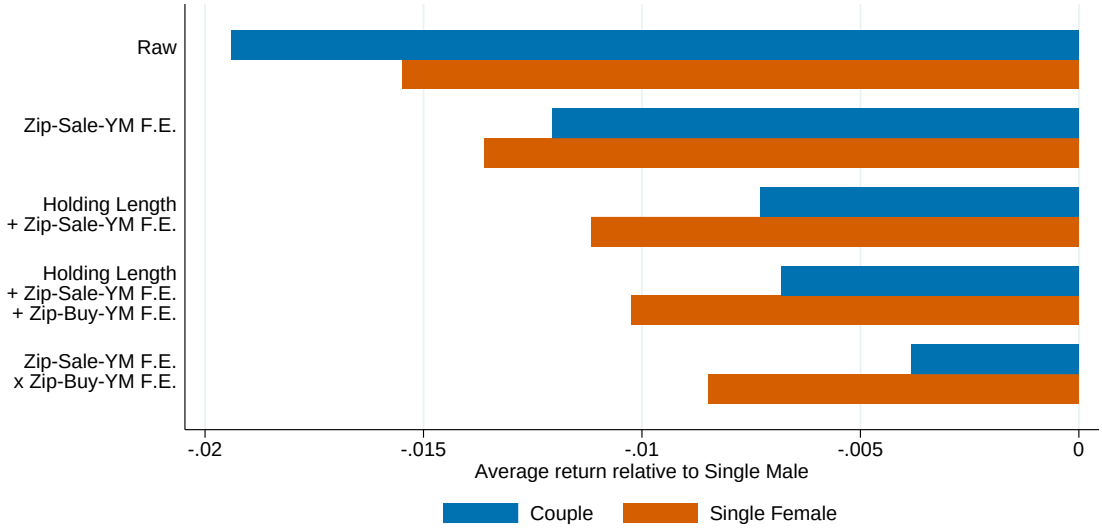
- β_1 and β_2 capture difference in returns compared to Male_{is}
- X_{is} are controls such as five-digit zipcode $\times$ sale-year-month FE
- Standard errors clustered by zipcode

Examine other outcomes such as transaction price

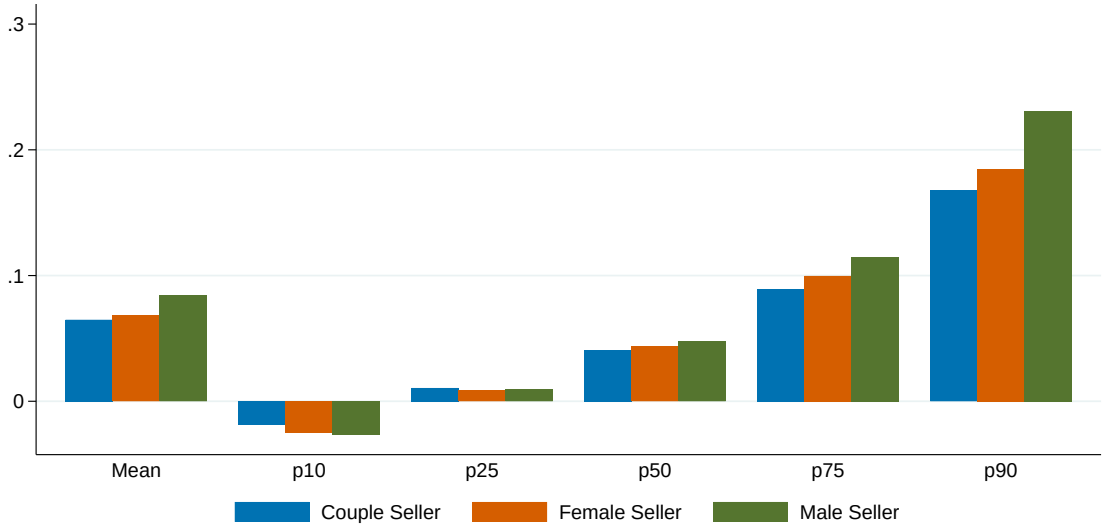
$$Y_{it} = \text{Female}_{it}\beta_1 + \text{Couple}_{it}\beta_2 + \text{Other}_{it}\beta_3 + X_{it}\tau + \epsilon_{it}$$

- Exploit repeat sales: X_{it} includes property FE
- Use other transactions outside the returns sample to better estimate property FE

Housing returns: unlevered

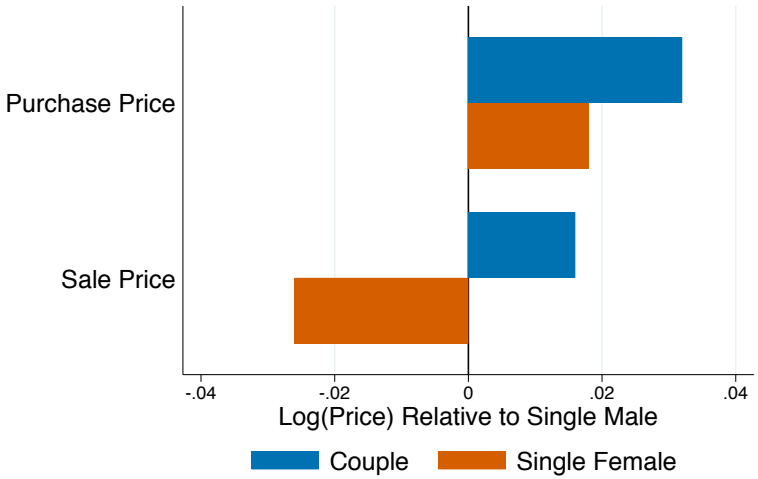


Annualized unlevered returns by gender



Gender gap in execution prices

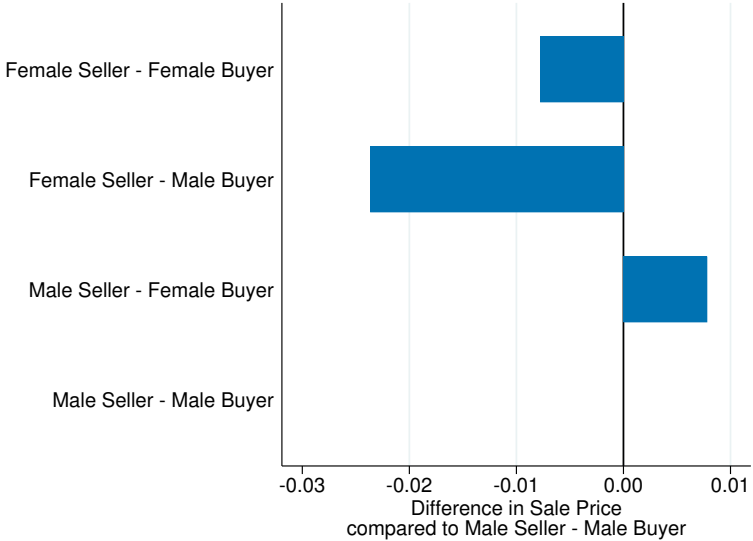
Transaction price



Controlling for

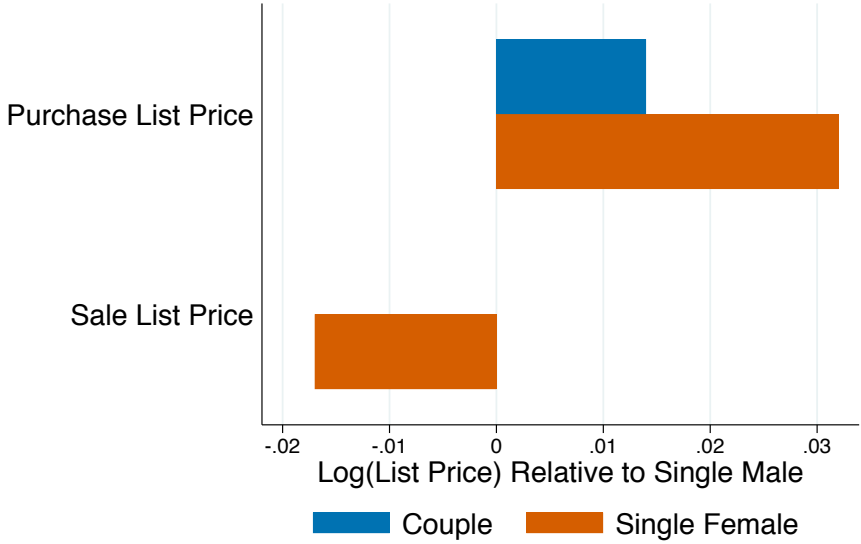
- Property FE:
  Exploit repeat sales
- Zip-year-month FE:
  Compare transactions in the same location-time

Transaction price by buyer-seller gender pairing



- Base group:
  male seller - male buyer
- Lowest prices:
  female seller - male buyer
- Highest prices:
  male seller - female buyer

List price


Purchase List Price
Sale List Price
-.02
-.01
0
.01
.02
.03
Log(List Price) Relative to Single Male
Couple
Single Female

Discount relative to listing price

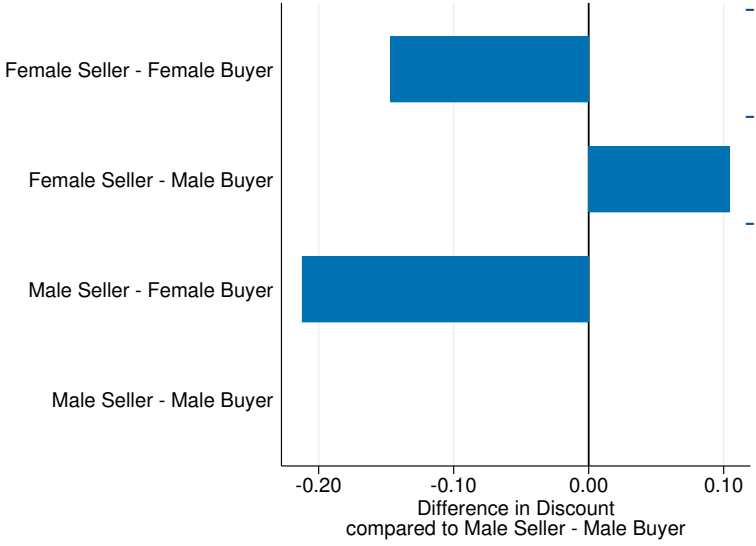


- Discount $=$

$$\frac{(\text{list price} - \text{transaction price})}{\text{list price}} \times 100$$

- Larger discount benefits the buyer and hurts the seller

Discount by buyer-seller gender pairing



- Base group:
  male seller - male buyer
- Largest discounts:
  female seller - male buyer
- Smallest discounts:
  male seller - female buyer

Other potential channels

Other potential channels

1. **Men buy riskier homes or with characteristics associated with higher returns**
   → Controlling for property characteristics does not affect gap

2. **Men invest more in upgrades or maintenance**
   → Similar gap for homes that have not been upgraded
   → American Housing Survey (AHS): no gap in maintenance *amounts*

3. **Women are older, have more children, less educated, etc.**
   → AHS: Similar gender gap after controlling for demographics
   → Having children predicts lower returns, but being female $\approx$ 3 children

4. **Women employ worse real estate agents**
   → Similar gap after controlling for listing agent fixed effects
   → But same agent may interact differently with male and female clients

(1) and (2) are also inconsistent with variation by **holding length** and **market tightness** ...

Execution prices and holding length

So far, we've shown that women buy the same property for $\approx$ 2% more and sell for 2% less

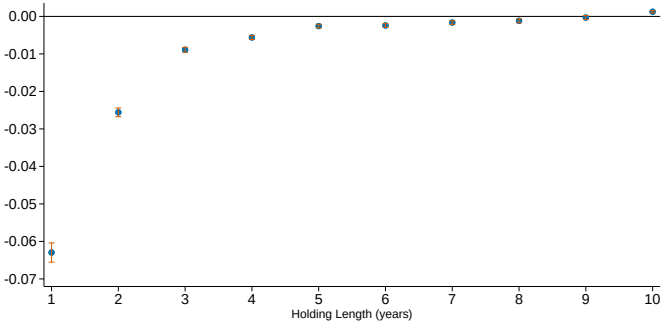
- Equivalent to women getting worse **execution prices** on real estate investment
- Differences in execution prices matter less for returns of "long term" investors

Simple framework

- Holding length t
- Let δ be the female fractional disadvantage in execution prices
- Let γ be the gender gap in returns due to men investing more in maintenance or preferring properties with naturally higher returns

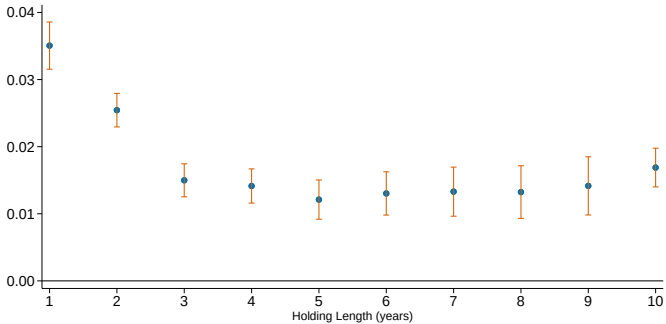
$$r^{\text{female}}(t) \approx r^{\text{male}}(t) - \left(\frac{2\delta}{t} + \gamma\right)$$

Gender gap in annualized unlevered returns by holding length



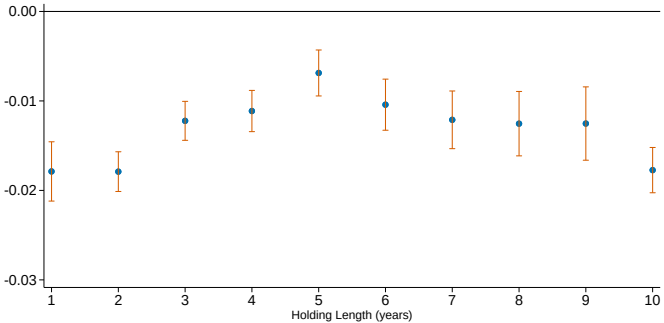
- Gender gap $= -\left(\frac{2\delta}{t} + \gamma\right)$
- Gender gap asymptotes toward 0, implying $\delta > 0$ and $\gamma \approx 0$
- Suggests gender gap arises primarily from differences in execution prices, not maintenance or preferences for properties with naturally higher returns

Gender gap in **purchase price** by holding length



- Gender gap in purchase price does not asymptote toward 0
- But the impact of the gender gap in purchase price on annualized returns decreases with holding length

Gender gap in **sale price** by holding length



- Gender gap in sale price does not asymptote toward 0
- But the impact of the gender gap in sale price on annualized returns decreases with holding length

Variation by market tightness

Market tightness $\equiv$ fraction of listings sold within each county-month

In tight markets, multiple buyers compete in quasi-auctions

- Bilateral negotiation should matter less

As the market tightens, gender gap in returns, prices, and discounts shrink toward zero

- Inconsistent with men buying riskier properties or investing more in maintenance/upgrades
- Inconsistent with women getting more utility from housing (as the only explanation), because they would bid higher

Conclusion

Large gender gap in housing returns

- Arises due to differences in market timing and execution prices (within the same zip-year-month)
- Gender matters for housing negotiation: listing prices and discounts

Implications

- Gender gap in housing returns contributes to the gender wealth gap
- Women may be better off holding for longer or sorting toward tighter markets
- We show that women have worse negotiated outcomes in housing, but...
  - Does not necessarily imply women are doing anything wrong (Exley et al. 2018)
  - *Women don't ask* or *Women don't get*? (Ayres and Siegelman 1995)

Magnitudes

For the typical levered homeowner, gender gap in **returns** exceeds the **equity premium**

Large gender gap in **dollars**

- For the median house price of $200K and holding period of 5 years, women lose $1,600 per year relative to men
- Equal to half the unexplained **gender wage gap** of $2800/year (Blau and Kahn 2017)

Women with median level of wealth have 70% of net worth invested in housing

- Gender gap in housing can explain 30% of the gender gap in **wealth accumulation** at retirement for single men and women