The mortgage interest deduction and its impact on homeownership decisions

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Overview

- Look at impact of mortgage interest deduction (MID) on homeownership attainment
  - Does MID alter tenure choice?
- How?
  - Exploit (large) variation in MID across states and over time + HH-moves
    - Sizable MID: CA, DE, ME, MA, and NC
    - No state-level MID: FL, NV, SD, TX, and WY
  - Consider role of supply conditions

Main proposition

- Impact of MID depends on local housing supply conditions
  - In markets with flexible land use controls (elastic supply) expect positive homeownership impact
  - In highly regulated markets (inelastic supply) expect no impact and a possibly negative impact for some groups

Why should we care?

- MID is sizeable
  - 2nd largest federal tax expenditure with $104.5 billion in foregone tax revenue FY 2011
  - Average combined tax subsidy of 26 cents per dollar of mortgage interest
- MID is costly
  - Simulations → annual cost of an additional homeowner: $54,000 in foregone tax revenue (lower bound est.)

Related research

- Rosen (1979), Hendershott and Shilling (1980), Rosen et al. (1984), Berkovec and Fullerton (1994), Rosen (1989), Capozza *et al.* (1996), Green and Vandell (1999), Glaeser and Shapiro (2002), Sinai and Gyourko (2004), Poterba and Sinai (2008), Bourassa and Min (2008), Gervais and Pandey (2008)

Implications

- Impacts of fundamental tax reform depend on assumptions about housing supply elasticity

- Inelastic housing stock ⇨ price effects (not quantity responses)

MID Impacts

- MID increases WTP for owner-occupied housing by the discounted PV of the subsidy
- SR: housing stock (Hs) fixed, house prices rise
- LR: Owner-occupied Hs expands?
  - New construction
  - Conversion of rental units

MID Impacts

- Perfectly *elastic* owner-occupied Hs
  - Subsidy → expanded Hs, zero capitalization, increased homeownership rate
- Perfectly *inelastic* owner-occupied Hs
  - Subsidy → no Hs adjustment, full capitalization, unchanged homeownership rate, change in the composition of homeowners

Some evidence

- Price capitalization evidence: see table A1
  - MID has a stronger positive impact on house prices in more regulated places
  - Consistent with recent studies *(Quigley and Raphael, 2005; Saiz, 2008; Saks, 2008; Hilber et al., 2009)*

Primary data – PSID 1984 to 2007

- Panel Study of Income Dynamics (PSID)
  - wealth data begin in 1984 → start sample in 1984
  - 19 observations for most households
  - 4197 households → 53,279 household-year observations for base models
  - 2,620 households → 29,621 household-year observations for extended models

Primary data - PSID

- Time-varying variables: tenure status, income, wealth, age, marital status, children, unemployment data
- Confidential PSID data indicating the tract and MSA where households reside
  - to merge in secondary data sources

Secondary data – NBER SOI

- NBER SOI Mortgage Subsidy Data
  - combined state and federal MID subsidy

    → average MID tax subsidy by state and year, income dist. held fixed
  - Measures the average tax savings from an additional dollar of mortgage interest for household *i* in state *j* at time *t*
  - Sample mean = .26

Secondary data – Saks (1980) RRI

- Regulatory Restrictiveness Index (RRI) – complied by Saks (2008)
  - measures restrictiveness of land use regulation
  - 83 largest U.S. metropolitan areas
  - scale: mean=0, standard dev.=1
  - ranges in value from -2.4 to 2.21
    - Higher values of RRI → more restrictive
  - reg. restrict. status for late 1970s/early 1980s

Secondary data – Saks (1980) RRI

RRI: good proxy for housing supply elasticity

- Quigley and Raphael (2005)
- Saiz (2008)
- Saks (2008)
- Hilber *et al*. (2009)

Additional data – Census, FHFB and FHFA

- 1980 U.S. Census
  - Tract-level data on composition of housing stock
- Federal Housing Finance Board (FHFB)
  - average effective mortgage interest rates
- Federal Housing Finance Authority (FHFA)
  - house price indexes

Empirical model

Probability that individual *i* in tract *j* in MSA *k* in state *l* at time *t* owns:

$$\Pr(own_{ijklt}) = \alpha_0 + \alpha_1 mrs_{lt} + X_{it}'\beta + L_j'\delta + D_{iklt}'\lambda + \varepsilon_{ijklt}$$

- mrs_{lt} = the average mortgage subsidy rate in state *l* at time *t*
- X_{it} = household characteristics that vary over time
- L_j = location-specific controls: tract *j* housing composition (varies over time as households move locations)
- D_{iklt} = individual FE, MSA FE, state FE, year FE, state*time

Empirical model – why FE?

- household FE capture all unobserved heterogeneity in household characteristics – such as race/ethnicity of the household head – that are time invariant
- to the extent that households don't move, the fixed effects will capture time invariant location characteristics (at neighborhood-, municipality-, county-, state-, region-, and national-level)
- households do move across space and we observe such changes in our panel. As a result, we also include the location controls

Empirical model – extended

- mrs_{lt} * income status
- mrs_{lt} * RRI_k
- mrs_{lt} * income status * RRI_k

Note: RRI_k varies in the panel even though it is time-invariant b/c households move

Empirical results – Table 3 full sample

	Household controls only	Add location controls, FE	Add year FE	Add state*time	mrs*inc
mrs	-0.128 (0.123)	-0.0453 (0.110)	-0.223 (0.380)	-0.0882 (0.380)	
mrs*low inc					-0.272 (0.402)
mrs*mod inc					-0.211 (0.404)
mrs*high inc					-0.0073 (0.390)

Empirical results – Table 4 RRI sample

	Household, location, FE	Add state*time	Add mrs*inc
mrs	0.102 (0.497)	-0.0531 (0.480)	
mrs*RRI	-0.329** (0.137)	-0.485*** (0.154)	
RRI	-0.00613 (0.0746)	0.0384 (0.0781)	
mrs*low inc*RRI			0.149 (0.268)
mrs*mod inc*RRI			-0.544* (0.291)
mrs*high inc*RRI			-0.619*** (0.179)

Key Findings

- mrs_{lt} * RRI_k
  - least regulated: 3.6 pp increase in the prob(own)
  - most regulated: 3 pp *decrease* in the prob(own)
  - "average" degree of reg. restrictiveness: negligible effect
- mrs_{lt} * income status * RRI_k
  - low inc: no impact
  - mod inc: +3.6 pp (least regulated); -3.7 pp (most regulated)
  - high inc: +4.9 pp (least regulated); -3.4 pp (most regulated)
- *Other controls*: coefficients are sensible, intuitive and robust across models

Conclusion

- MID has no impact on prob(own) on average for full sample
- MID has an impact by regulatory and income status
  - increases prob(own) of higher inc households in least regulated places
  - *decreases* prob(own) in highly regulated places
    - Action from movers
    - relative user costs, downpayment constraints, high transaction costs?
  - no impact on lowest income group

Conclusion

Redistributive impacts

- inelastic Hs: an increase in the subsidy boosts wealth of existing owners and keeps lower-wealth renters from owning
- more elastic Hs: MID does not aid homeownership attainment of lowest income groups

Conclusion

- One argument in favor of MID: boosts homeownership attainment in highly urbanized (inner city) areas helping to boost social capital, improve public schools and improve governance
- However, we find MID has no impact on homeownership attainment in these more regulated, typically more urbanized places.
- MID is costly, ineffective and has adverse distributional consequences

Q & A

Thank you!