The Effect of the Tax Cuts and Jobs Act on the Housing Market

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TCJA and the housing market

- The Tax Cut and Jobs Act of 2017 (TCJA)
  - doubles the standard deduction, repeals personal exception
  - imposes a $750,000 cap on the mortgage interest (MID) deduction
  - imposes a $10,000 cap on State and Local Taxes (SALT) deductions
  - lowers marginal tax rates and alters tax brackets
  → unprecedented reduction to preferential tax treatment of housing, combined with a massive tax cut

- Tax expenditure on MID estimated to decline from 60 billion in 2017 to 34 billion in 2019

- Tax expenditure on SALT estimated to decline from 101 billion in 2017 and 21 billion in 2019

- Fraction of households itemizing their tax returns declined sharply from 28% to 10%
A hotly-debated question

- What is the effect of the TCJA on
  - house prices
  - rents
  - homeownership
  - welfare

in environment with endogenous house prices, rents, and tenure choice?

- TCJA likely has differential effects on households, depending on household income, mortgage debt, and itemization status
Framework

- Starts with an incomplete markets economy with
  - agents heterogeneous in terms of income and wealth
  - multiple assets: houses, deposits, mortgages
  - endogenous house price and rent; fixed housing supply

- Adopts stylized U.S. tax system
  - realistic progressive tax function
  - standard deduction vs itemized deductions

- Adds standard frictions related to home-ownership
  - lumpy transaction costs (buying and selling cost)
  - borrowing frictions (access to collateralized debt, down payment)

- Endogenizes a decision to become a landlord a la Chambers, Garriga, Schlagenhauf (2009)
  - rental properties owned by households
  - tax treatment of landlords as business entities
  - decision to become landlord is result of optimal investment strategies
Related Literature

- Extensive literature on how taxation affects user cost of housing

- Recent literature on effects of the MID on the housing market

- Studies most related to ours:
  - The MID leads to an overconsumption of housing by the wealthy, increases leverage, and can crowd-out low-income households out of homeownership through price effects
Outline of households’ problem

- At period’s beginning, households observe
  - idiosyncratic labor income shock $w$
  - holding of financial assets: deposits $d$ and mortgages (HELOC) $m$
  - holdings of non-financial asset: housing $h$

- Households make joint choices w.r.t.
  - non-durable consumption $c$
  - shelter consumption $s$
  - current holdings of deposits $d'$, mortgages $m'$, and housing $h'$

- Choices determine whether a household is
  - renter ($h' = 0$)
  - owner-occupier ($h' = s$)
  - landlord ($h' > s$)

- Assumption: same-size rental and owned units yield identical services
Households solve

\[ V(h, d, m, w) = \max_{c,s,h',d',m'} \frac{(c^\alpha s^{1-\alpha})^{1-\sigma}}{1-\sigma} + \beta EV(h', d', m', w') \]

s.t.

\[ c + \rho (s - h') + d' - m' + q(h' - h) + I^s\tau^s qh + I^b\tau^b qh' \leq w + (1 + r)d - (1 + r^m)m - \tau^p w - T(\tilde{y}) - \tau^s y - (\tau^h + \delta)qh' - \phi I^{h'>s} \]

\[ m' \leq (1 - \theta) qh' \]

\[ m' \geq 0 \]

\[ d' \geq 0 \]

\[ h' \in \{0, h_1, ..., h_m\} \quad \text{(lumpy housing choice)} \]

\[ s \in \{s, h_1, ..., h_m\} \quad \text{(lumpy shelter choice)} \]

Process for \( T(\tilde{y}) \) defined next ...
Total income taxes paid by an individual are

\[ T = \eta(\tilde{y}) \]

where marginal tax rate varies over \( K \) levels of taxable income:

\[ \eta_1 \text{ for } 0 \leq \tilde{y} < \pi_1 \]
\[ \eta_2 \text{ for } \pi_1 \leq \tilde{y} < \pi_2 \]
\[ \vdots \]
\[ \eta_K \text{ for } \pi_{K-1} \leq \tilde{y} < \pi_K \]

Taxable income \( \tilde{y} \) defined next ...
Process for taxable income \( \tilde{y} \)

- **Total income**
  \[
  y = w_{\text{labor income}} + rd_{\text{interest income}} + NRI_{\text{net rental income}}
  \]

- **Taxable income**
  \[
  \tilde{y} = y - \psi(j) \quad j \in \{R, O, L\}
  \]
  where \( R = \text{renter}, \quad O = \text{occupier} \) and \( L = \text{landlord} \)

Net rental income \((NRI)\) and deductions’ function \( \psi \) defined next ...
Landlords offset rental income $\rho(h' - s)$ with business expenses prior to income taxation so that net rental income ($NRI$):

$$NRI = \underbrace{\rho(h' - s)}_{\text{rental income}} - \underbrace{\tau^m r^m m \frac{h' - s}{h'}}_{\text{mortgage interest on rental space}} - \underbrace{\tau^h q(h' - s)}_{\text{prop. tax rental space}} - \underbrace{\delta h q (h' - s)}_{\text{maint. rental space}} + \underbrace{- \tau^{LL} q (h' - s)}_{\text{depr. rental structure}}$$
Allowable deductions’ function $\psi$: 

$$
\psi(R, O, L) = 
\begin{cases} 
    e + \max\{\xi, \tau^s y\} & \text{if renter } (R) \\
    e + \max\{\xi, (\tau^s y + r^m m(\frac{s}{h'}) + \tau^h qs)\} & \text{if owner } (O, L)
\end{cases}
$$

- Households itemize if dollar value of itemized deductions exceeds standard deduction $\xi$
Equilibrium

- Stationary equilibrium

- Markets clear:
  - Housing market clears: \( \int h'(x) d\lambda = H \), where \( H \) is fixed
  - Shelter market clears: \( \int (h'(x) - s(x)) d\lambda = 0 \)
Calibration strategy

- Chooses parameter values for
  - minimum down payment requirement
  - interest rate and mortgage rate
  - maintenance costs and transaction costs
  - tax rates (plus taxable income cutoffs) and tax deductions
  - risk aversion and income process

from data or other studies

- But also estimates values for
  - discount factor
  - Cobb-Douglas share of non-durable consumption
  - fixed cost of being a landlord
  - state income tax rate
Calibrate 4 parameters ($\alpha$, $\beta$, $\phi$, and $\tau^s$) by matching 5 moments from US cross-section using over-identified simulated method of moments

<table>
<thead>
<tr>
<th>Moment</th>
<th>Data</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home-ownership rate</td>
<td>0.65</td>
<td>0.648</td>
</tr>
<tr>
<td>Landlord rate</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Expenditure share on housing</td>
<td>0.25</td>
<td>0.247</td>
</tr>
<tr>
<td>Fraction of homeowners with collateral debt</td>
<td>0.65</td>
<td>0.655</td>
</tr>
<tr>
<td>Agg. ratio of SALT to Federal income taxes</td>
<td>0.278</td>
<td>0.279</td>
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</tbody>
</table>

Calibrated parameters: $\alpha = 0.684$, $\beta = 0.986$, $\phi = 0.055$, and $\tau^s = 0.03$

NB: State income tax rates vary across regions. We estimate $\tau^s$ so that the relative local income tax burden matches the U.S. data
Tax experiments

1. Partial reform
   - Doubles standard deduction, repeals personal exemption, imposes caps on SALT and MID
   - Results can be compared to a straightforward MID repeal

2. Full reform
   - Additionally lowers tax rates, alters tax brackets
   - Accounts for the majority of the tax cut
Partial reform induces a sharp drop in the itemization rate; reduces house prices and leverage; boosts homeownership

Full reform reverses the price declines through further tax cuts
Partial reform: Mechanisms

- Itemization rate plummets ⇒ doubling of the standard deduction generates tax savings for HHs who no longer itemize
- For these HHs, housing consumption is no longer subsized by MID and property taxes ⇒ HHs shift consumption away from housing to nondurables
- This drop in housing demand induces a price decline
- Lower prices + tax windfall allow non-itemizing HHs enter homeownership or buy more shelter
- Remaining itemizers also increase their housing consumption as the housing subsidy is still operative and house prices are lower
Full reform: Mechanisms

- A big tax windfall – federal income tax revenue declines by 18%
- Boost demand for housing (and other goods) by the now wealthier households
- Increases in demand for housing bids up house prices to nearly their pre-reform level
- Homeownership rate remains elevated as higher disposable incomes increase housing affordability even at pre-reform prices
- Itemization rate declines a touch, as lower marginal tax rates reduce size of housing subsidy (ceteris paribus)
Doubling of the standard deduction has large effect on the itemization rate

- Post-reform, remaining itemizers are in the top quintile of income distribution
- Typically have large homes financed by mortgage debt

<table>
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<tr>
<th>Fraction itemizing</th>
<th>Baseline</th>
<th>Partial</th>
<th>Full</th>
</tr>
</thead>
<tbody>
<tr>
<td>Itemized deduction amount</td>
<td>0.284</td>
<td>0.019</td>
<td>0.017</td>
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<tr>
<td>0.313</td>
<td>0.419</td>
<td>0.413</td>
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</table>

<table>
<thead>
<tr>
<th>Fraction Itemizing by Wage Quintile</th>
<th>Baseline</th>
<th>Partial</th>
<th>Full</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st quintile (bottom)</td>
<td>0.070</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>2nd quintile</td>
<td>0.182</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>3rd quintile</td>
<td>0.261</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>4th quintile</td>
<td>0.357</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>5th quintile (top)</td>
<td>0.574</td>
<td>0.116</td>
<td>0.108</td>
</tr>
</tbody>
</table>
(Loss of) Preferential tax treatment of housing affects housing demand

- HHs who no longer itemize reduce housing demand
- Housing reallocated to HHs in the top and bottom quantiles of the income distribution
(Loss of) Preferential tax treatment of housing also affects non-durable consumption

- HHs who no longer itemize shift away from housing to nondurables
- Non-itemizing HHs spend part of tax windfall on non-durables, too
- Remaining itemizers increase consumption only in response to the marginal tax cuts
How large is the tax windfall?

- Under the partial reform, percentage decline in total tax burden is the largest for the bottom income quintile.
- Under the full form, decline similar across the income distribution.
- 80% of the total tax cut comes from changes to marginal tax rates and tax brackets.
What is the effect on progressivity of the tax code?

- Under the partial reform, the share of the total tax burden rises with income, increasing the tax code’s progressivity.
- The full reform undoes the effect.
Welfare Gains (CEV)

- Partial reform: lower house prices, progressive tax windfall, and re-optimization of consumption produce equitable welfare gains.
- Full reform: Added tax cuts further boost welfare gains but skew them toward the wealthy.
Not everybody (but nearly) gains welfare

- Heterogeneity to be explored ...
Conclusions

- Build and calibrate a model of the housing market with endogenous house prices, rents, tenure choice, and fully specified U.S tax code.
- Study the equilibrium effects of the TCJA.

Overall, the TCJA

- Affects housing demand through two opposing channels: reduction in preferential tax treatment vs tax saving. (In equilibrium the two forces roughly offset, leading to no change in house prices)
- Boosts homeownership rate through price and income effects.
- Improves welfare but with greater gains for the top income quantiles. (But remember, in our model, nobody has to pay for it ... )
- Keeps preferential tax treatment at the very top of the income distribution.
- Could be a progressive tax reform had it not been for cuts to marginal tax rates and adjustments to tax brackets.