Consumption and Savings Response to a Tax-Subsidized Savings Policy: Evidence from India

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Summary

• How does consumption and savings respond to an increase in tax subsidies on qualified savings?

• Very important issue, as it is critical to understand the effectiveness – and ‘side-effects’ – of different policy vehicles in actually changing savings profile

• Paper exploits changes in India’s tax structure in July 2014

  • These changes increased thresholds for pre-tax income deductions on a certain list of qualified “long-term savings” items
Summary

• Mortgage owners are disproportionately affected

• The deductible income limit on mortgage principal repayment is raised to Rs.150,000 from Rs. 100,000
  • Interest deductible is also raised from Rs. 150,000 to Rs. 200,000

• Instead of paying down your mortgage principal, you could also utilize the new hike in deductible income limits by increasing your savings in the PPF account by Rs. 50,000.

• This is not going to be an optimal strategy for a rational mortgage holder as long as $R_b > R_s$
Summary

- **Tax recalibration effects:**
  - 31% of consumers with a mortgage increase the annual repayment on the principle portion of a mortgage
    - Median annual increase in the principal repayment amount is about Rs. 18,500 – 37% of the change in limit
    - Relative to consumers without a mortgage, mortgage-holders reduce their consumption by about Rs. 12,000 in the fiscal tax year
      - This decline in consumption comes from mortgage-holders who did indeed increase repayment of principal
  - Consumption reduction is more pronounced among male, single, younger or lower income mortgage borrowers
Summary

• Interesting paper, first order issue

• Carefully and clearly written, although an early draft

• Fantastic data:
  • Mortgage information
  • Debit and credit card transactions
  • PPF balance data
  • One of the credit/debit card datasets can be merged to the mortgage data with proper identifiers

• Detailed empirical analysis

• Thought through many potential issues
Thoughts

• **Data:**

  – More description is needed.

• Random sample of accounts?

• Discuss the PPF data – this is new and special

• How does the covariate (e.g., age, gender etc.) balance in the data relate to the covariate balance in the population?

• Some back-of-the-envelope macro-type calculations would be interesting

  • Take your estimates, adjust for differences between covariate balance in your sample vs. data and provide some numbers on what your estimates imply for aggregates
Thoughts

• **Identification:**

• Comparing mortgage holders to non-holders allows for unobservables to affect outcomes

• Although the authors show the lack of pre-trends in the data, anything that happened around July 2014 which is likely to change the economic profiles of mortgage holders relative to non-holders would produce some pattern

• Modi swept into power in May 2014.
Thoughts

• Identification:

  • Even the test where you restrict the sample to mortgage-holders and compare whether or not the mortgage-holder actually pays back the mortgage principal is likely to suffer from endogeneity

  • The decision to pay down your principal is endogenous
Thoughts

• An alternative strategy

• Focus on the credit/debit card data that can be matched to the mortgage data

• Calculate a “Room-to adjust” variable for all mortgage holders

\[ \text{Room-to-adjust} = \max \{0, 150000 - E(\text{mortgage principal paid down})\} \]

• \(E(\text{mortgage principal paid down})\) can be backed out from loan value, tenure, principal paid down year before reform

• Then compare what happens to principal pay down and spending in the post period across borrowers matched on mortgage and home value, but different according to this measure
Thoughts

• Identification:

  • Consider “Room to adjust” = max{0, 150000-E(mortgage principal paid down)}

    • This is at the heart of variation among mortgage-holders

    • Kind of like comparing those who were ex-ante paying down more than the current exemption limit with those that were well below

    • As long as what the government would set the new limit at was unpredictable, this difference is somewhat random

    • Not based on what people actually did, but how much they are expected to adjust
Thoughts

• Identification:

• Of course, the concern will still be that those who were paying down more of their mortgage are different from those who were not

  • One way to get around this is to do the same test, but in 2013
    • Compare the exact same mortgage-holders in a no-reform period

  • Another way to get around this is to do the same test, by creating a bunch of pseudo cutoffs:
    • RTG1 = max{0, 100000-mortgage principal paid down},
      RTG2 = max{0, 50000-mortgage principal paid down}, …
Thoughts

• **Identification:**

  • One way to make this a bit better would be to interact this design with time-discontinuity in reform execution

  • For example, using measures of structural breaks in consumption.
Thoughts

• Identification:

• Logic:

  • Suppose we aggregate the data at the quarterly level

  • Regression for every individual in the matched spending/mortgage data:

    \[ P_k^H(t) = \omega_k + \tau_k t + \lambda_k (t - t_k^*) 1\{t > t_k^*\} + \zeta_{k,t} \]

  • Vary \( t^* \) each time. Each of these regressions estimate a single structural break.

  • Search for the location of the break which maximizes \( R^2 \)

    • Bai (1997), Bai and Perron (1998), applied recently in Charles, Hurst, Notowidigdo (AER 2018)
Thoughts

**Identification:**

- Now run a cross-sectional regression:
  \[ Y = a \text{ penalty function on how far away is the } t^* \text{ (where the empirically determined structural break is) relative to the policy change quarter} \]

Or, more stringent \[ Y = 1(t^* = 2014). \]
Thoughts

• Identification:

• Now run a cross-sectional regression:

\[ Y = \alpha + \beta \cdot \max\{0, 150000 - E(\text{mortgage principal paid down})\} \]

Prediction: \( \beta < 0 \)
Thoughts

• Identification:

• Underlying logic is that you are looking for this empirically estimated ‘structural break’ to be exactly where you expect this to be

• And you expect this to be true for those that received the underlying treatment that caused the structural break

• For example, using measures of structural breaks in consumption. Almost like using a time-discontinuity in identification.
Conclusion

• Interesting paper on an important topic

• Recommend reading because I enjoyed it

Thank you!