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

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- **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
  - Room-to-adjust=max{0,150000-E(mortgage principal paid down)}
    - E(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

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- **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

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- **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

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- **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

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- **Identification:**
  - Logic:
    - Suppose we aggregate the data at the quarterly level
    - Regression for every individual in the matched spending/mortgage data:

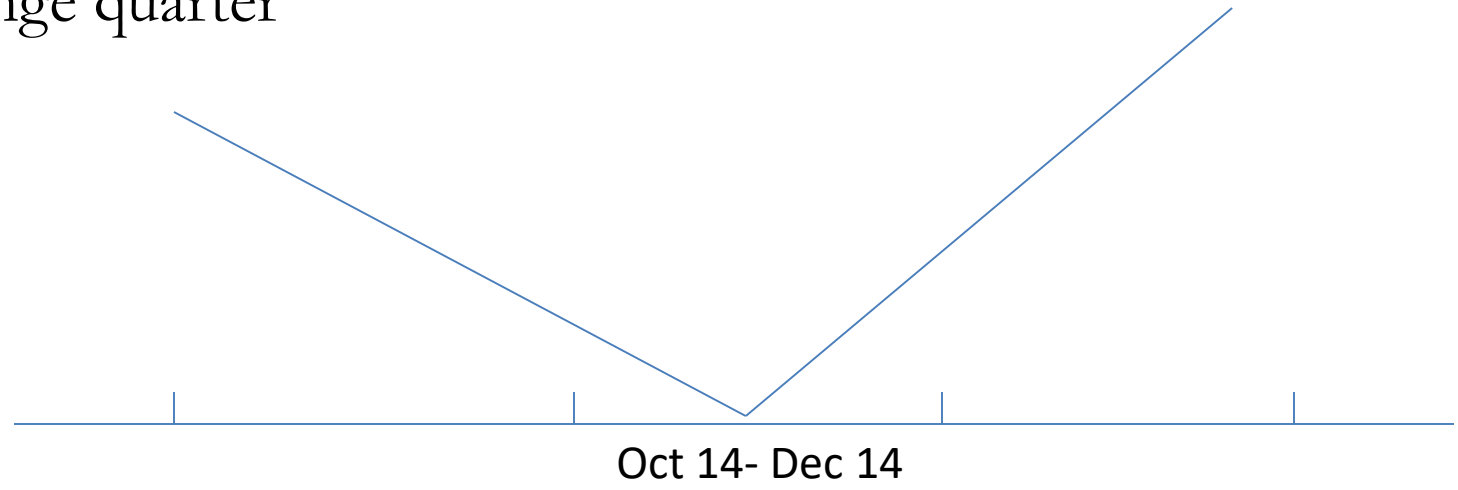
$$P_k^H(t) = \omega_k + \tau_k t + \lambda_k (t - t_k^*) 1\{t > t_k^*\} + \zeta_{k,t}$$

    - 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 penalty function on how far away is the t* (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:

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

Prediction: $\beta < 0$

Thoughts

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- **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

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- Interesting paper on an important topic
  - Recommend reading because I enjoyed it

Thank you!