

# **Measuring Wealth Effects Using U.S. State Data**

**Carroll and Zhou**

**Discussion: Erik Hurst**

# Comments

## Data

- o Paper uses some newly constructed data **at the state level** to assess wealth effects of changing stock and housing wealth on consumption.
- o Necessary:
  - State level stock wealth
  - State level housing wealth
  - State level income data
  - State level consumption data

## Interpretation

- o Why would stock wealth vary across states?
- o Why would housing wealth vary across states?

# State Specific Measures of Stock Wealth Growth

## Why should stock wealth growth differ by state?

- o Financial wealth is “tradable”
- o Simple theory points to individuals holding a diversifiable portfolio of stocks.
- o Hedge labor income risk (correlation between wages and state stocks)?
- o Other home bias stories (information costs)?

**Implication:** A home bias story suggests a “constructed” measure of state stock wealth at the household level should be correlated with state measures of industry stock returns.

# State Variation in Carroll-Zhou Stock Growth Measure

## Interesting Fact:

- o After pulling out a time trend, only 15 states had a positive correlation with Bloomberg state specific stock indices.

## What does that imply about data series?

- o One or both of the series is likely contaminated with measurement error.
- o Random measurement error story (and no true variation in Carroll-Zhou measure across states) will yield some positive, some zero, and some negative correlations with Bloomberg measure.

## An aside:

Before publication, need to augment the paper with much more details on the distribution of these changes across states!

# Is There Noise in Carroll-Zhou Stock Growth Measure?

## Yes!

- o There is huge variation (in some states) that is definitely attributed to noise.
- o They show us this for Florida and Arizona.
- o Movements in their measure generated by the population composition changes in state.
- o This is not variation that is appropriate to estimate wealth effects

## Question

- o How much variation in the stock wealth growth rate differentials across states are due to measurement error?
- o **The more measurement error, the more attenuation bias!**

# Summary: Part 1

## Revision Comments

- o In the revision, a story is needed about why one would expect stock wealth growth to differ across states (in a way that is usable in the wealth effects regressions).
- o In the revision, a table is necessary to describe the cross state variation in stock wealth.

## Overall Conclusions

- o I do not think cross state variation would be what I would use to estimate stock wealth effects.
- o If there is cross state variation, it is likely to be small. Measurement error could severely attenuate estimates (low signal to noise ratio).
- o Things are more complicated if some of the variation is due to individuals trying to insure themselves against labor income risk.

# State Specific Measures of Housing Wealth Growth

## Good News

- o Lots of variation across states in house price growth.
- o Housing is “non-tradable”
- o Hard to diversify housing price growth wealth away.
- o Signal to noise ratio could conceivably be higher (holding measurement error constant). Lower attenuation bias.

## Bad News

- o It is very hard to tell a story where house prices exogenously vary in ways that are unrelated to consumption growth.
- o House prices are not exogenously moved by God.

# State Specific Measures of House Wealth Growth

## Why should housing wealth growth differ by state?

- o Demand and supply determine prices within an area.
- o Spatial equilibrium stories should pin down relative prices within states and across states.

## Demand shocks (that could increase prices, holding supply fixed)

- o Higher income (increase individual consumption)
- o Lower interest rates (could increase consumption)
- o Higher population growth (usually endogenous)
- o Expectations of future income (increase individual consumption)

# State Specific Measures of House Wealth Growth

## Could use “exogenous” measures in supply elasticities

- o Procedure used by Mian and Sufi.
- o They do not use consumption; use changes in debt instead.
- o Good approximation.

## Question

- o Why is this method - with consumption data but not isolating exogenous measures in house prices - better?
- o If the two estimates differ, who should we believe?

# Summary: Part 2

## Revision Comments

- o In the revision, need to strongly discuss why you think cross state variation in housing prices are exogenous to consumption (when theory says most of the variation should not be). What type of variation do you hope to identify off of?
- o In the revision, a table is necessary to describe the cross state variation in housing wealth.
- o Need to discuss Mian and Sufi directly in the paper and discuss why your results should be believed relative to theirs?
- o More discussion will be needed about interpreting housing wealth effects in light of my next comment.

# State Specific Measures of Income/Consumption Growth

- Noise in income growth could load on housing growth measures (given the strong correlation between income growth and housing growth).
- Noise in the income/consumption relationship could potentially bias wealth effect estimates (depending on the nature of the noise).
- **Two facts worth noting about results:**
  - Wealth effects fall when measures of income growth are included.
  - **The estimated relationship between consumption growth and income growth are far away from standard theory AND many, many other empirical estimates.**

# State Specific Measures of Income/Consumption Growth

Table 2:  $\Delta\tilde{c}_{i,t} = \alpha_t + \beta_1\Delta\tilde{y}_{i,t} + \beta_2\Delta\tilde{w}_{i,t}^f + \beta_3\Delta\tilde{w}_{i,t}^h$

	Best Data	Combined Data	Good Data
$\Delta y_{i,t}$	0.76*** (0.25)	2.509** (1.095)	1.519*** (0.537)
$\Delta w_{i,t}^f$	0.073** (0.029)	0.023 (0.059)	0.042 (0.043)
$\Delta w_{i,t}^h$	0.016 (0.01)	0.006 (0.013)	0.012 (0.01)
$\beta_2 = \beta_3$	3.555 (Rejected)	0.088 (Accepted)	0.473 (Accepted)
OBS	48	180	180
$\bar{R}^2$	0.767	0.201	0.251
Partial $\bar{R}^2$	0.309	0.127	0.111

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**Note:** In revision, need to discuss correlation between different income measures (i.e., “best data” vs. “good data” for same states!).

# Summary: Part 3

## General Comments

- o What is driving the non-standard coefficients on the growth of income (estimates  $> 1.5$ )?
- o If you had better income measures, would the estimated effects be attenuated further?
- o Equally puzzling is the fact that lagged income growth (2 periods ago) strongly predict consumption growth!

## Revision Comments

- o In the revision, need to discuss the coefficients on income growth.
- o In the revision, a table is necessary to describe the cross state variation in income growth and consumption growth.

# Overall Conclusions

- **I really like the question!**
- **I really admire the attempt at getting some new data to address this question!**
- **The question:**
  - How much confidence do we have in the wealth effects estimates?
- **The answer:**
  - Both theoretical and measurement error issues remain using this methodology with this data.