

# Essays in Consumption

Edmund Crawley

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# Overview

**Chapter 1** Time Aggregation in Panel Data on Income and Consumption

Chapter 2 Consumption Heterogeneity: Micro Drivers and Macro Implications

Chapter 3 Monetary Policy with Many Agents

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# Problem

## Three methods to estimate Marginal Propensity to Consume

- Natural Experiments  $\sim 0.2 - 0.7$
- Ask people  $\sim 0.2 - 0.5$
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**Outlier** downward biased due to the **Time Aggregation Problem**

This paper corrects estimate to be  $\sim 0.25$

## Key to BPP Identification

Income consists of *permanent* and *transitory* shocks

Transitory shock year  $t$

$\Delta y_{t+1} = \Delta p_{t+1} + \Delta \varepsilon_{t+1}$  is a *valid instrument* for  $\varepsilon_t$



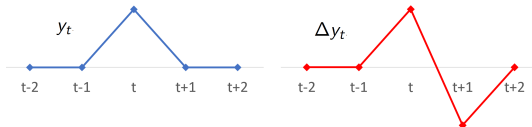
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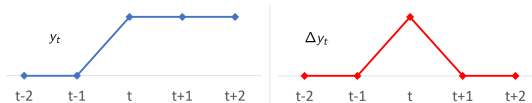
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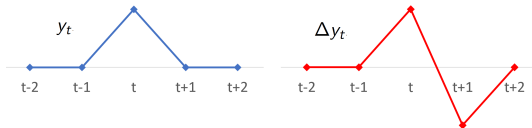
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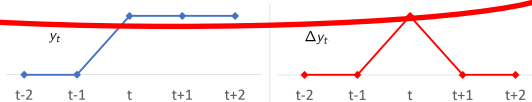
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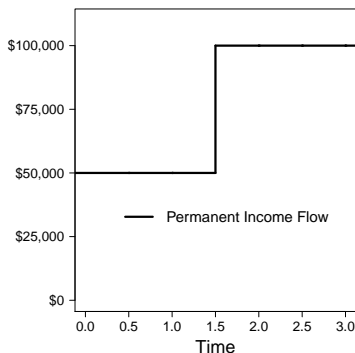
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## Time Aggregation



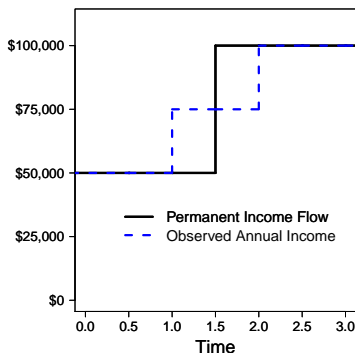
Observed permanent income growth is *positively* autocorrelated

BPP misinterprets *positive* permanent income shocks as *negative* transitory shocks

⇒ Thinks negative transitory shocks result in consumption *increasing*

If the Permanent Income Hypothesis holds, BPP will estimate the MPC to be -0.6

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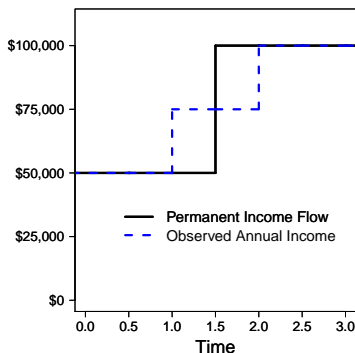
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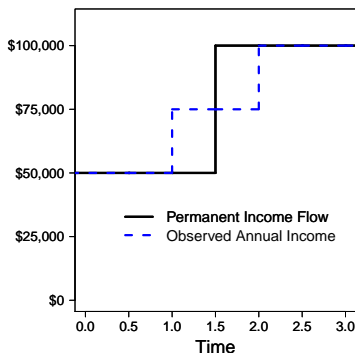
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## Results

Estimate of consumption:  $0.05 \rightarrow 0.24$

- Exact Same PSID data
- Exact Same Moments of the data
- Exact Same Assumptions on consumption behavior

 Adjusted to Continuous Time

BUT: Result is *very* sensitive to short term dynamics of consumption

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## Measuring MPC Heterogeneity

New **method** addresses bias in previous results

New **data** allows sharp focus on household heterogeneity

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Time Aggregation Problem

Robust to short term dynamics



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Sample size in millions  
Detailed balance sheet

## Why Do We Care? (as macroeconomists)

- 1) Heterogenous agent models have testable micro behavior
- 2) Quantify Macro Implications

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e.g. Redistribution in Monetary Policy

## What do we find? (Liquid Wealth)

### Low Liquid Wealth Households:

- Hand-to-Mouth
- Spend 85 cents out of every marginal dollar, both transitory and permanent

### High Liquid Wealth Households:

- Large Response to Transitory Shocks (25 cents per dollar)
- Small Response to Permanent Shocks (60 cents per dollar)

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 $\approx 0.5$



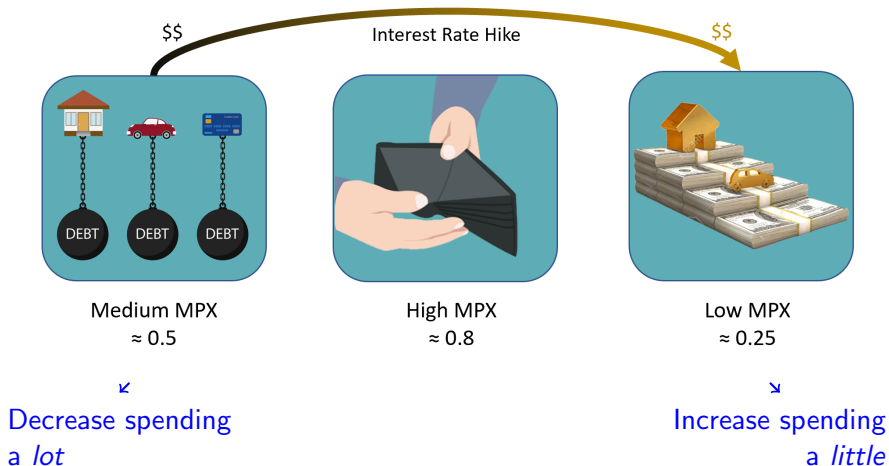
High MPX  
 $\approx 0.8$



Low MPX  
 $\approx 0.25$

MPX: Marginal Propensity to eXpend (includes durables)

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1yr rate ↑ 1%

Aggregate Spending ↓ 26 basis points



Through this redistribution channel *alone*

# How Does Heterogeneity Effect Monetary Policy Transmission?

Chapter 2 Interest Rate Exposure is key *empirically*

This Chapter What drives transmission in New Keynesian models with heterogeneity?

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## Two Agent New Keynesian Model (TANK)

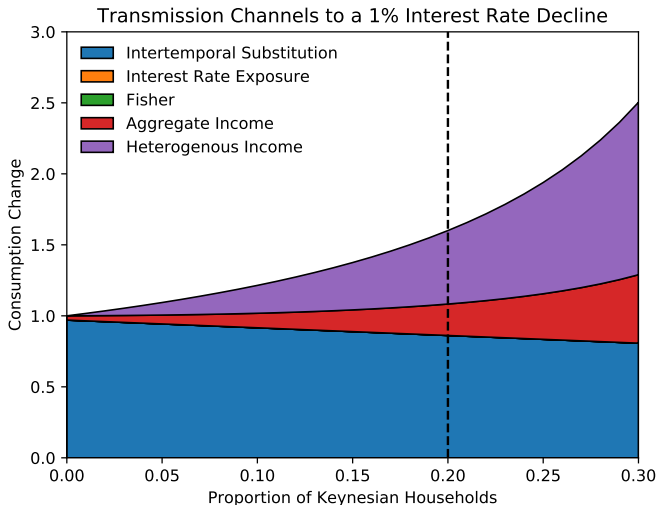
### Ricardian Households

- Behave as Representative Agent NK model

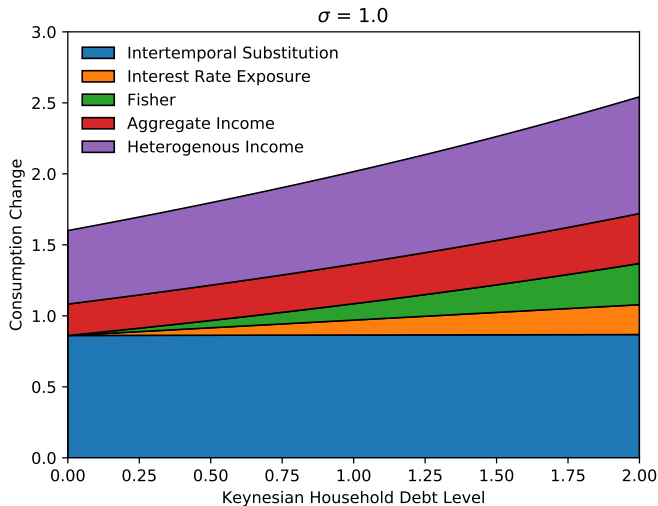
### Keynesian Households

- Live hand-to-mouth
- Only labor income
- Can borrow a fixed fraction of steady-state income

## Monetary Policy Transmission with No Debt



## Monetary Policy Transmission with Debt



## Appicability of Auclert (2017)

### Capital

- Shocks become persistent
- Reasonable adjustment costs reduce persistence

### Heterogeneous Agent New Keynesian (HANK) model

- Change in wealth distribution induces little persistence
- GHH preferences are a big problem

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Thank You!