

# The Measurement of Net Worth in New Zealand

by  
Diane Ramsay

*Discussant: Arthur Kennickell*  
*Discussion does not necessarily represent  
views of the Federal Reserve*

# Content

- Examination of two wealth surveys for NZ
  - Household Saving Survey (HSS)
    - Cross section conducted Aug. to Nov. 2001
    - I had small involvement with this survey
  - Survey of Family Income and Employment (SoFIE)
    - Panel survey begun in October 2002
    - Wave 2, 1 Oct. 2003 to 30 Sept. 2004 included wealth questions
    - Even-numbered waves expected to collect wealth data up to last wave (8)

# Motivation

- Wealth measurement was begun to serve policy and research needs:
  - Low saving rate, rising debt, government student loan schemes, disparities (esp. Māori), use of home equity for saving, etc.
  - Continuing need for wealth data
- Fitness of data for intended uses
- SoFIE sufficient to meet ongoing needs?
- Important methodological issues

# Household Saving Survey (HSS)

- Sponsored by Retirement Commissioner
- Core sample of 6,600 households
  - 73% response rate
- Supplemental sample of 6,600 screened for Māori residents
  - 82% response rate
    - Screening rate?
- Total 5,374 completed interviews
- Household residents, aged 18+, usual residents of NZ
  - One respondent per household
  - Area-probability sample
- Data collected for non-partnered individuals and partnered couples
  - Most wealth data for unit, not individuals
  - Wide range of assets/liabilities, pensions, and Māori communal assets
    - Recreational equipment worth more than \$1,000
  - Range card offered where firm value could not be obtained
  - Could not find questionnaire or indication of missing data rates
  - Reference period? Time of interview?

THE  
net worth  
OF NEW ZEALANDERS



# SoFIE

- Target population: residents in NZ households
- Original sample of 15,000 households
  - 11,500 (77%) participated in wave 1 (22,000 adults=OSM)
  - 87% of OSM responded in wave 2 (about 20,000 OSM)
- Continuous interviewing: reinterviews approximately one year apart
- Most data collected at the person level
  - OSM + new family members while in HH (newly over-15 children too?)
    - Range card offered where firm value could not be obtained
      - Might do well to offer other options as well
- Wealth questions part of a larger set of questions on income, labor force participation, demographics, etc.
  - To control length, more compact set of wealth questions than in HSS
  - Does not cover value of Māori communal assets (but incl. ownership?)
  - Include retirement schemes that where individual does not contribute?
  - Farms appear not to be included
  - Includes household goods
  - Wealth reference period is time of interview

# Summary of Main Differences

- **Focus of surveys**
- Age: HSS: 18+, SoFIE: 15+
- HSS: 2001, SoFIE: 2003-4
- Measurement unit: HSS: couples/singles, SoFIE: individuals
- Detail covered
  - Differences in wording
    - **Potentially very important: framing**
    - **May lead to differences in classification and omitted assets/debts**
  - HSS generally more detailed, but limited data on durables
  - SoFIE durables included, but less detail on trusts, pensions, property, businesses, farms
    - HSS has valuation of defined-benefit pensions, not SoFIE
  - Communal Māori assets only values in HSS
    - Only ownership asked in SoFIE
- Differences in allowable \$ limits???
- **Initial nonresponse in both, but continuing attrition in SoFIE**

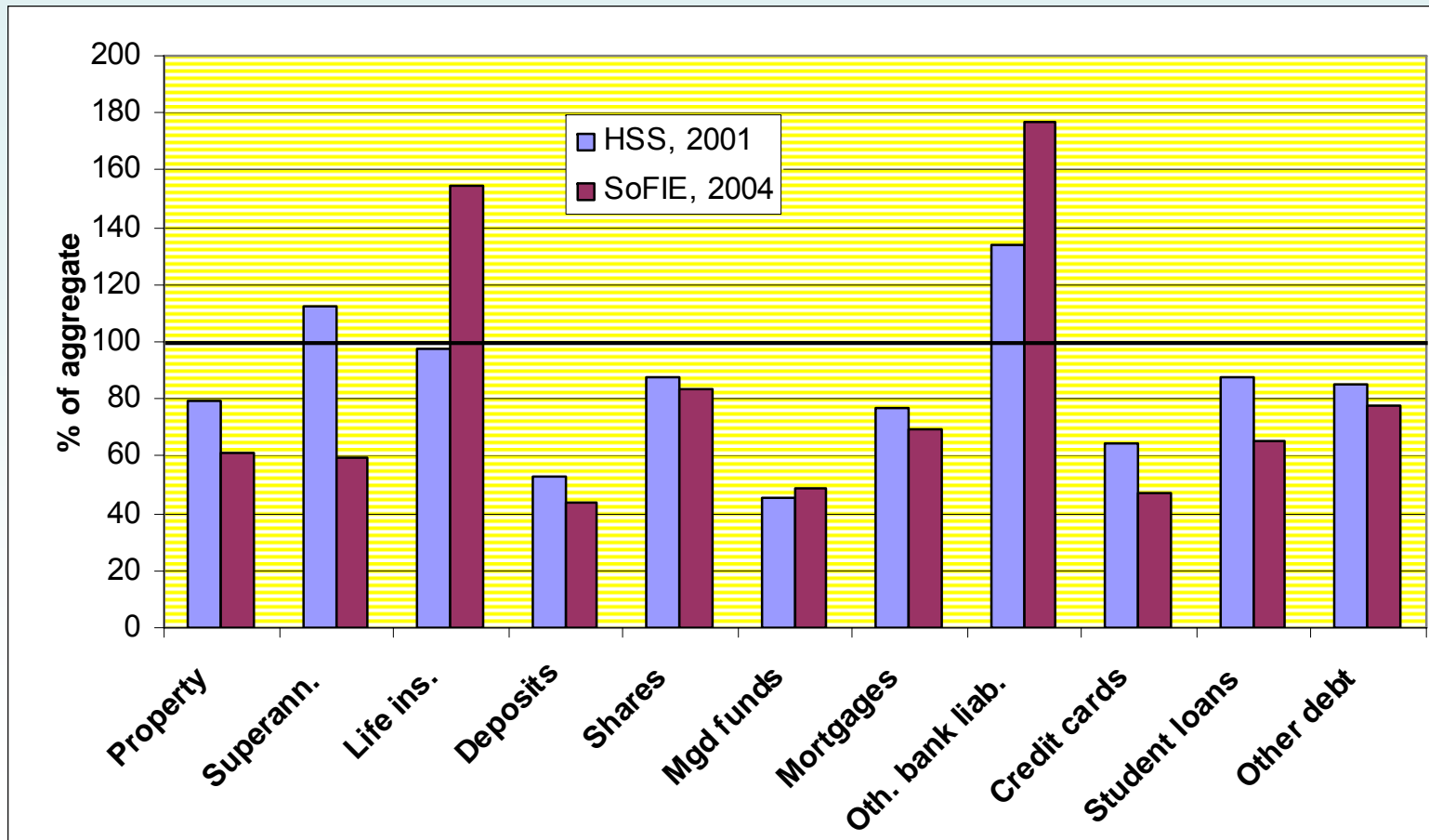
# Aggregate Data

- Household balance sheets estimated annually by Reserve Bank of New Zealand
- Include domestic wealth of larger population
  - Overseas residents (citizens and foreign investors)
  - Residents of nursing homes, hospitals, military barracks, student dormitories, etc.
  - **But excludes foreign holdings of domestic residents?**
- Exclude privately-traded businesses and farms (likely to be substantial), trusts
- **May be conceptual/technical differences**
  - E.g., treatment of float
  - In US, household sector is largely a residual



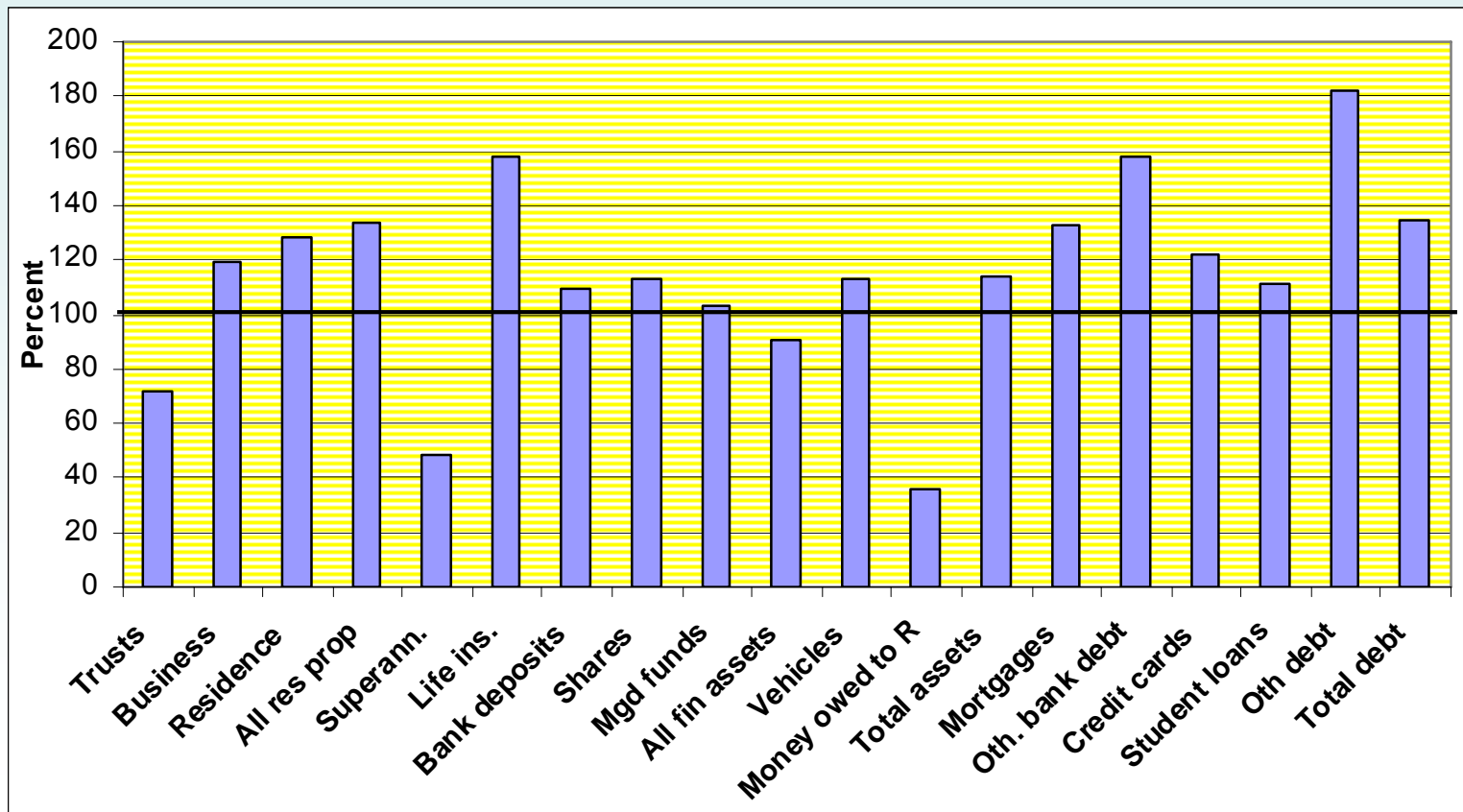
# HSS and SoFIE as % Aggregates

- Many items that cannot be compared

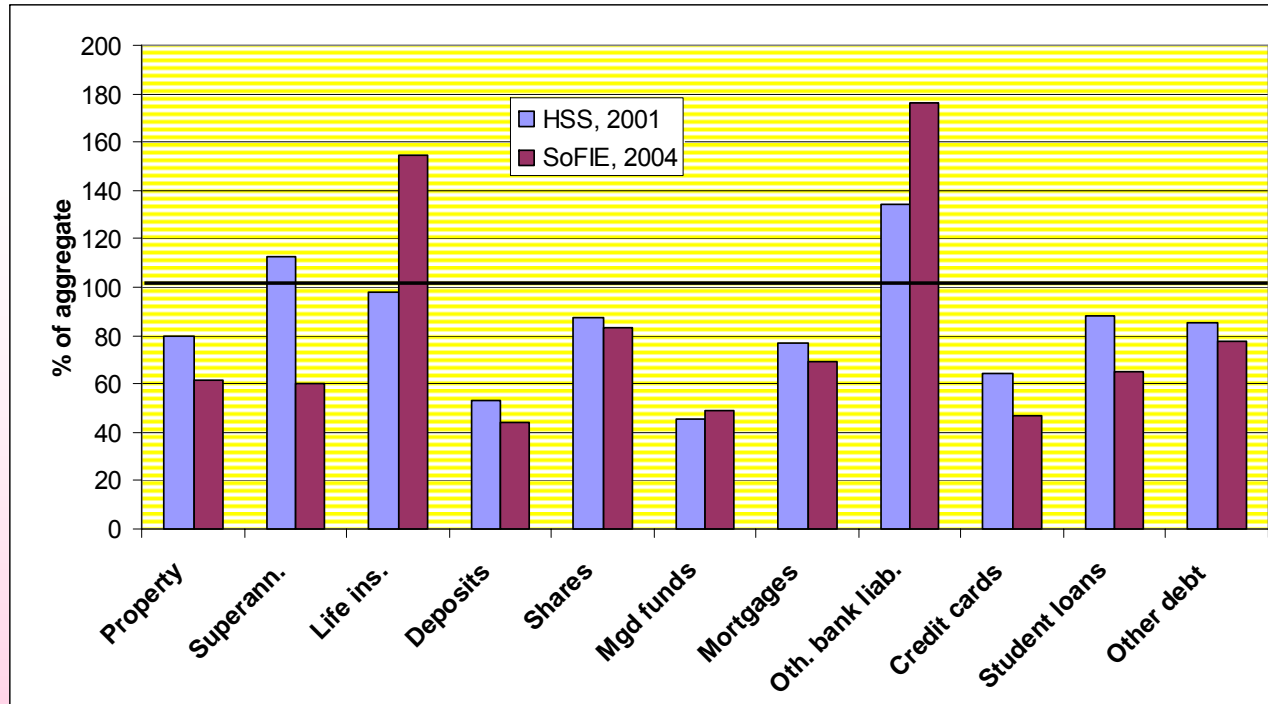


# SoFIE as % of HSS

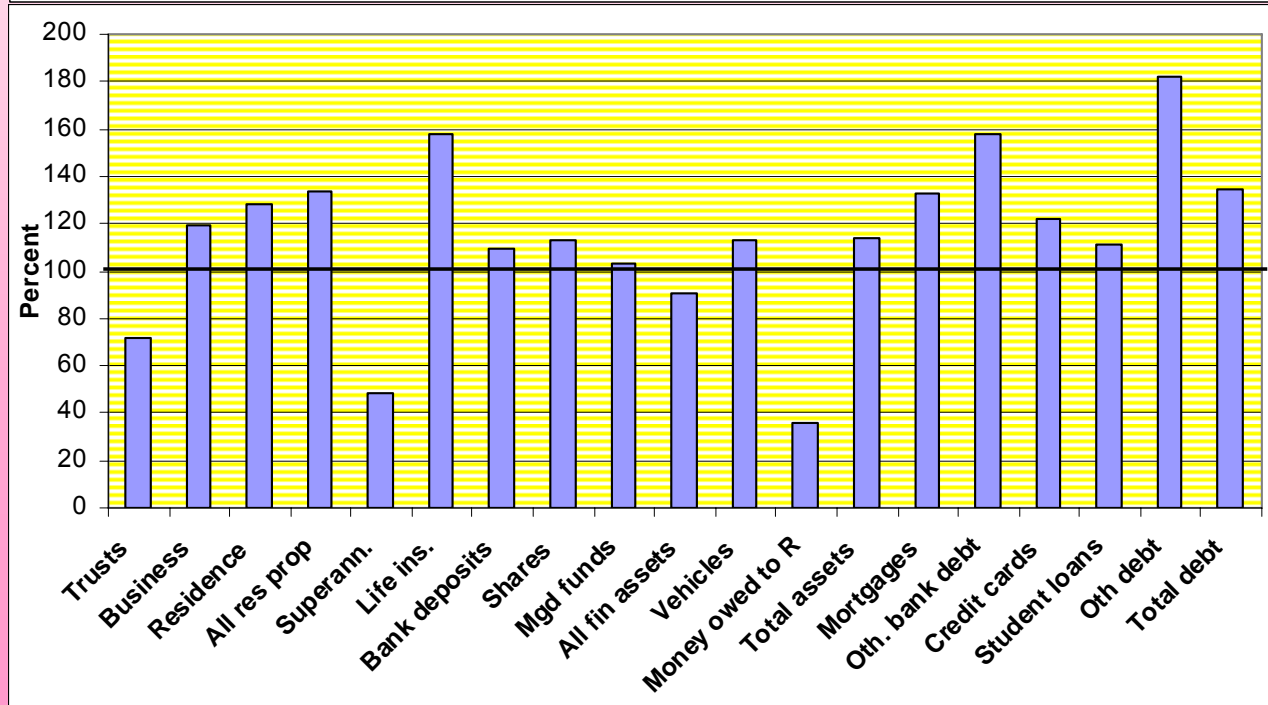
- For approx. comparable definitions



# Survey/ Aggregate



# SoFie/ HSS



# Outcome Differences

- Consider trusts, properties and mortgages, business wealth, bank deposits, superannuation
  - Comparability of concepts
    - SoFIE more compact
      - Misclassification/forgetting more likely?
- Missing the upper tail
  - Sampling + differential nonresponse
  - Different survey purposes from R's view
  - Estimation of aggregates is sensitive

# Trusts

- Setting up trusts is popular
  - Houses, farms, financial assets
- Valuation difficult: complex arrangements
- Value intended to be that from the settlor's view
  - Only amount still owed to household
  - No information on beneficiaries
  - Tough problem: what matters behaviorally?
    - Do people always understand this as intended?
    - If still own and use assets, how people think of it?
- SoFIE value much less than HSS
  - Differences in wording or context of question?

# Property

- Rs asked to provide “registered valuation” for residential property
  - HSS and SoFIE
  - Quotable Value Ltd. provides valuations to local authorities
  - Figures often dated, due to cycle of valuation
  - May understate value by about 30%
  - Understatement relative to aggregate appears worse problem in SoFIE
  - Any external data on ownership rates?

# Mortgages

- Understated in both surveys
  - Also credit cards, student loans, other debt
  - Other bank loans overstated
    - Possibly some misclassification
  - Loans against trust assets may explain some
  - Top of distribution missing?
  - In SoFIE, less understated than property
    - Different set of owners?

# Business Wealth

- No reliable aggregate figure
- Neither survey particularly good estimator of business wealth/farms/commercial prop.
- Many such assets included in trusts
  - Uncertain whether included in survey
- More detail might help Rs to think more carefully, but at cost of additional time



# Bank Deposits

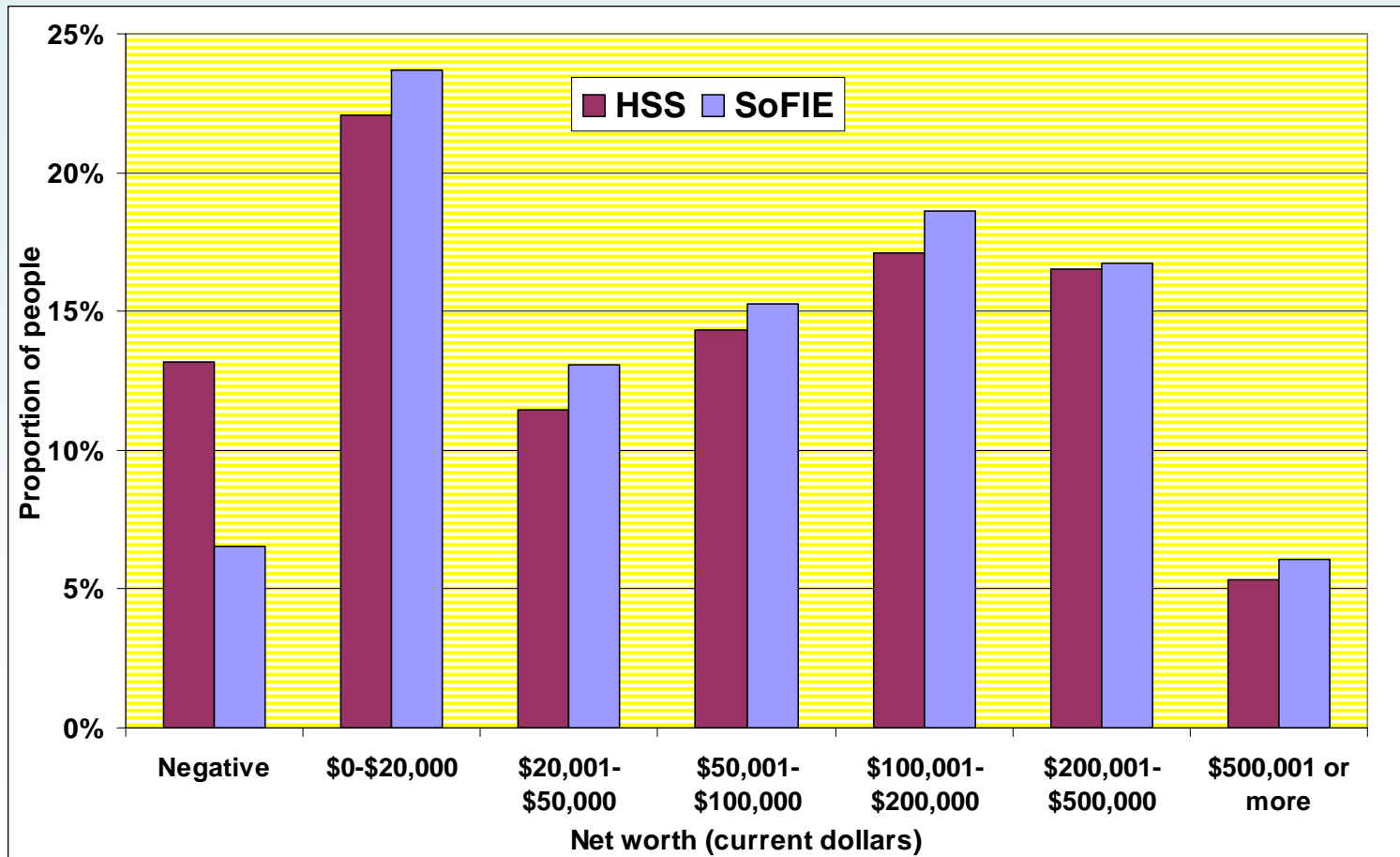
- Both survey understate aggregate by a lot
  - Missing top of distribution
    - Does this appear in the income data? How much?
  - Noncoverage of elderly in rest homes
  - Assets of children excluded
  - New Zealanders abroad excluded
- In US: part may be explained by float & inclusion of nonprofits in aggregates
- Also understatement of shares and especially managed funds
  - Why shares so much better than managed funds?

# Superannuation

- HSS overstates aggregate somewhat
  - Possible classification issue
    - Bank accounts and mutual funds often used
- SoFIE understates by a good bit
  - Omission of valuation of defined-benefit plans enough to explain?
  - Maybe some confusion with life insurance?
    - Overstated by a lot in SoFIE

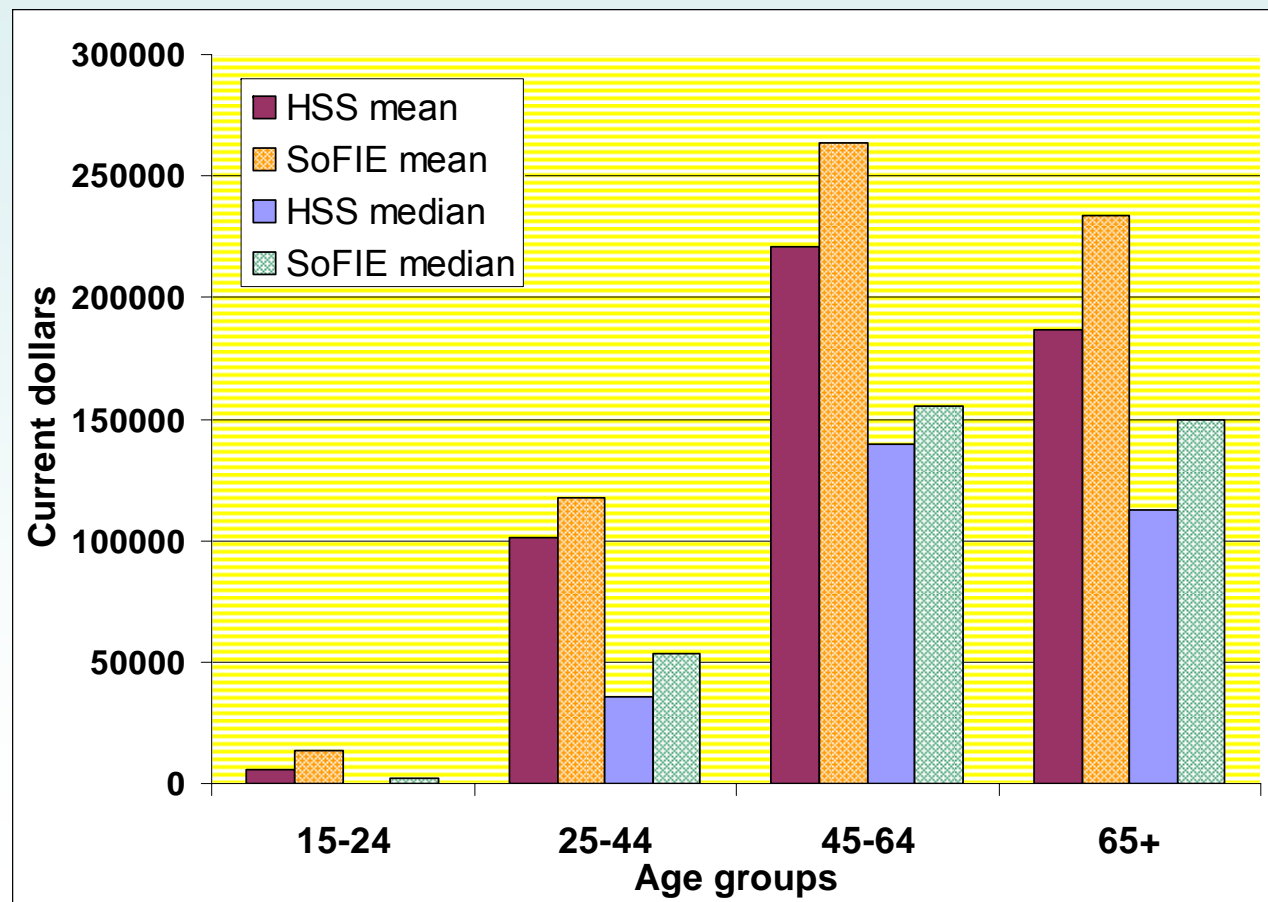
# Pct. of People in NW Bands

- SoFIE wealthier, fewer negative (driven by inclusion of household goods?) + growth



# HSS & SoFIE: Mean & Median Net Worth by Age Group

- Similar patterns in two surveys



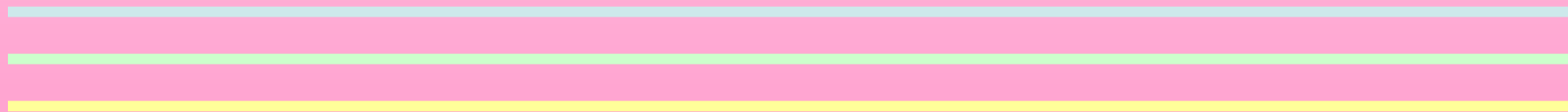
# Other Issues

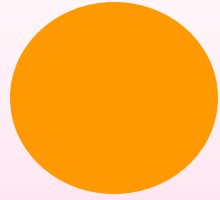
- What should SoFIE panel represent over time?
  - Including people who move into OSM households may well overstate wealth
    - Emigration/Immigration/return a large issue?
  - Nonignorable attrition may cause additional problems
    - Any work on attrition from Wave 1 of SoFIE?
- OK to miss upper tail, if interests are elsewhere
  - But helpful to try to calibrate distribution (even indirectly) or use robust methods
- Trust assets
  - Any way to evaluate at least estimates of prevalence
    - Tax register data?
- NZ assets held by out-of-scope people
  - Any industry or tax data on residents of rest homes? Healthcare surveys?
  - Do foreign holders matter for any research/policy purposes?
    - Might start from a sample of domestic assets and go to owners
- Saving
  - Very hard problem, but maybe SoFIE will be useful
    - Saving as  $Y-C$  or  $\Delta W$ ?
- Precision of estimates?
- Access to data?

# Future Data Collection

- Periodic HSS-like benchmark survey
  - Review other wealth surveys for useful saving and other behavioral indicators
- Dynamics from SoFIE-like survey
- Different statistical indicators of the same thing
  - Need better understanding of differences to use both
  - Other distributional comparisons would be helpful
- Work on developing alternative means of calibrating data
- Do cognitive testing of HSS/SoFIE questions to understand differences
  - Overlap future HSS and a wave of SoFIE?

A remarkable achievement for NZ!







# **Wealth Effects out of Financial and Housing Wealth**

by

**Eva Sierminska and  
Yelena Takhtamanova**

*Discussant: Arthur Kennickell*

*Discussion does not necessarily represent  
views of the Federal Reserve*

# Content

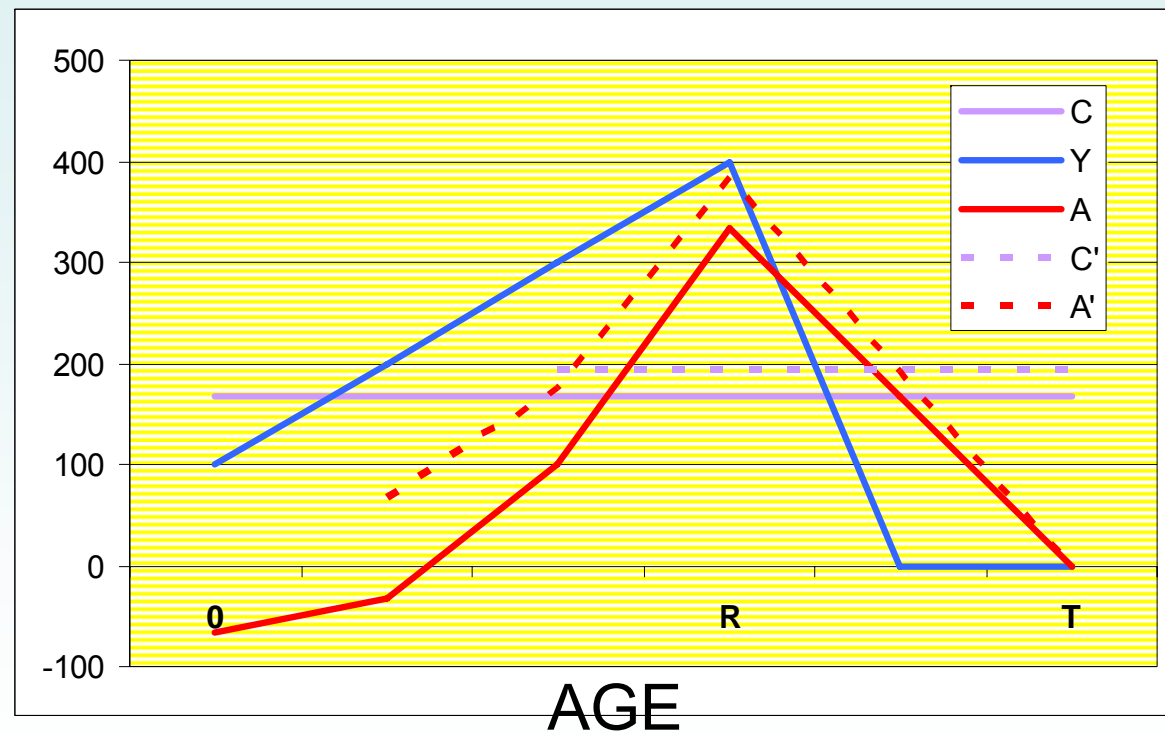
- “Wealth effect”: marginal effect of wealth on consumption
  - Distinguish two types of wealth: financial assets and housing wealth
- Luxembourg Wealth Study (LWS)
  - Canada, Finland, Italy
  - First LWS analytical results

# Motivation

- Swings in assets prices may affect consumption
  - Financial assets boomed in later 1990s
  - Recent boom in real estate
  - May affect monetary policy
    - If  $\frac{\partial A}{\partial r} < 0$  and  $\frac{\partial C}{\partial A} > 0$  , then stimulative monetary policy implies higher consumption through wealth effect
- Aging population
  - Differential responses by age?

# Basic Theory

- Classic life-cycle model



- Later wealth shock comes, the more C increases

# Broader Model

- Lifetime budget constraint at time=0:

$$e^{-rT} B_T + \sum_{i=0}^{T-1} e^{-ri} C_i = A_0 + \sum_{i=0}^{T-1} e^{-ri} w_i L_i$$

- Shock to wealth must go somewhere
  - Question of period in which effect operates
  - Whether there is an aggregate effect
- Labor supply/retirement age, bequest, C
- Wealth at time t:

$$A_t = e^{rt} A_0 + \sum_{i=0}^t e^{r(t-i)} (w_i L_i - C_i)$$

# Preferences

$$U_i(\underline{C}_i, B_{iT}, -\underline{L}_i \mid \Omega_i, \Delta)$$

- $\Omega_i$  includes risk preferences, subjective discount factors, financial ability, access to information, family structure, etc.
- $\Delta$  includes institutional constraints and other rules
- Implies portfolio choices and consumption/saving/work profile + bequest

# Differential Wealth Effects

- Life cycle model treats all wealth same
- Paper splits financial and housing wealth
  - Financial assets may be sold to finance consumption
    - Also generate an income stream
  - Housing may be tapped through downsizing or borrowing against equity
    - Service flow
- Difficult to hypothesize how wealth effects might differ
  - But some reasons they think they might

# Supporting Considerations

- Liquidity (“liquification”) constraints
- Transaction costs differ across assets
  - Tax considerations
- Uncertainty
  - “Permanence” of gains
    - Need to carry wealth to retirement
- Informational constraints
- Mental accounting
- Risk perceptions/preferences/loss aversion



# Other Issues (1)

- Change in housing wealth has direct implication for service flow
  - Authors wind up modeling non-housing consumption
- Supply of land (relatively) fixed
  - Open question whether there could be aggregate housing wealth effect
    - Clearly possible for individual
- Financial assets vary widely in characteristics
  - Should savings accounts affect behavior like stocks?
    - Hard to know what a wealth shock would mean in an account where nominal loss is ruled out and gain is all interest
- Does asset price change reflect change in long-term productivity or change in discount rate?
  - If latter, effect is purely redistributive in aggregate
  - Lower  $r$  implies future consumption “more expensive”

# Other Issues (2)

- Differences in ownership shares over wealth groups
  - US figures for 2004:

	Bot 50%	Top 10%	Top 1%
FIN	2.5	71.5	31.6
HOUSE	11.7	38.2	9.9

# Macro Evidence

- Literature supports dividing financial & housing wealth
- Long-running debate in macro modeling
- Wide variation in estimates
- Time series and regional variation used for identification
- Common factors may influence C and A
  - If (BIG if) aggregation were not issue, could deal with this: e.g., VAR or structural model

# Virtues of Micro Approach

- Avoid aggregation assumptions
- Control for a variety of demographic factors
- Explore different measures of consumption
- (Could do both with aggregate data)
  
- Limited previous comparable micro results
  - Wide variation in estimates of housing effect
    - Englehardt even finds effect asymmetric!
  - Less on financial wealth than housing
    - Probably data limitation responsible

# Specification (1)

$$C = \alpha FW + \beta WH + \delta Y + \sum_{j=0}^J \gamma_j O_j$$

- Underlying model not explicitly specified
- “Wisconsin-style” model
  - Use  $Y$  and  $O$  to condition out extraneous variation
  - Take  $\alpha$  and  $\beta$  as true marginal effects
  - Identified by variation across different people
  - Assumes no confounding idiosyncratic effects
- Additional interactive models: age, family type, gender, country

# Specification (2)

- C, FW, HW and Y in logs (elasticities)
  - Simple LC model calls for levels
  - “We fear that using [a] specification of levels of monetary variables might pick up differences in [the] average rather [the] marginal propensity to consume.”
    - Model too “approximate” or worried about outliers?
- Monetary variables normalized by (family size)<sup>1/2</sup>, 2002 USD (using PPP)

# Specification (3)

- “O” includes age head, age<sup>2</sup>, gender head, number of children, parental status, marital status, place of residence(?), urban/rural(?), employment status of head, education of head, “risk”, quartiles harmonized net worth
  - Risk: stock/financial assets
  - How “head” defined/how comparable?
- Tested (Finland) for endogeneity of FW and HW
  - Find OLS consistent: I am skeptical
  - Power/robustness of Durbin-Wu-Hausman test?
    - Sensitivity to specification?
    - Ought to show the test and list the instruments
  - What about income?
    - Measurement error in Y<sup>p</sup>: correlated with C, FW, HW?
    - Excludes capital income, but is that appropriate?

# Specification (4)

- Authors worry a bit about possible selection issues in homeownership
- Specification implicitly models ownership choices/portfolio allocation, reasons for having low/no assets, liquidity constraints, precautionary motives, deviations from  $Y^p$  etc.
  - Housing wealth may be good proxy for  $Y^p$ ?
  - Is the framework adequate?
  - Omits business wealth?
    - Other wealth?
  - How should leverage enter the model?
    - Included only through NW dummies & net residential wealth



# Data (1)

- LWS: “harmonized” data
  - Canada: 1999 Survey of Financial Security
  - Finland: 1998 Household Wealth Survey
  - Italy: 2002 Survey of HH Income and Wealth
  - “Interesting” period in financial markets
- XS, but ideology would argue for panel data
- Total expenditures: sum of “available expenditure components”
  - How reliable/comparable are these amounts?
    - No separate nondurable consumption data for Canada
  - No descriptive statistics given on C
  - Timing of variables?

# Data (2)

- Canada highest college, young children
  - Highest employment, income (mean or median?)
- Finland highest proportion of stocks
  - Lowest wealth
- Italy oldest, most married & parents
  - Largest fraction homeowners, lowest FW & Y
    - Serious known measurement problem in FW
- Ownership of FW & HW

	Canada	Finland	Italy
FW	90	92	81
HW	62	67	72
<b>Debt</b>	<b>68</b>	<b>52</b>	<b>22</b>

# Estimation (1)

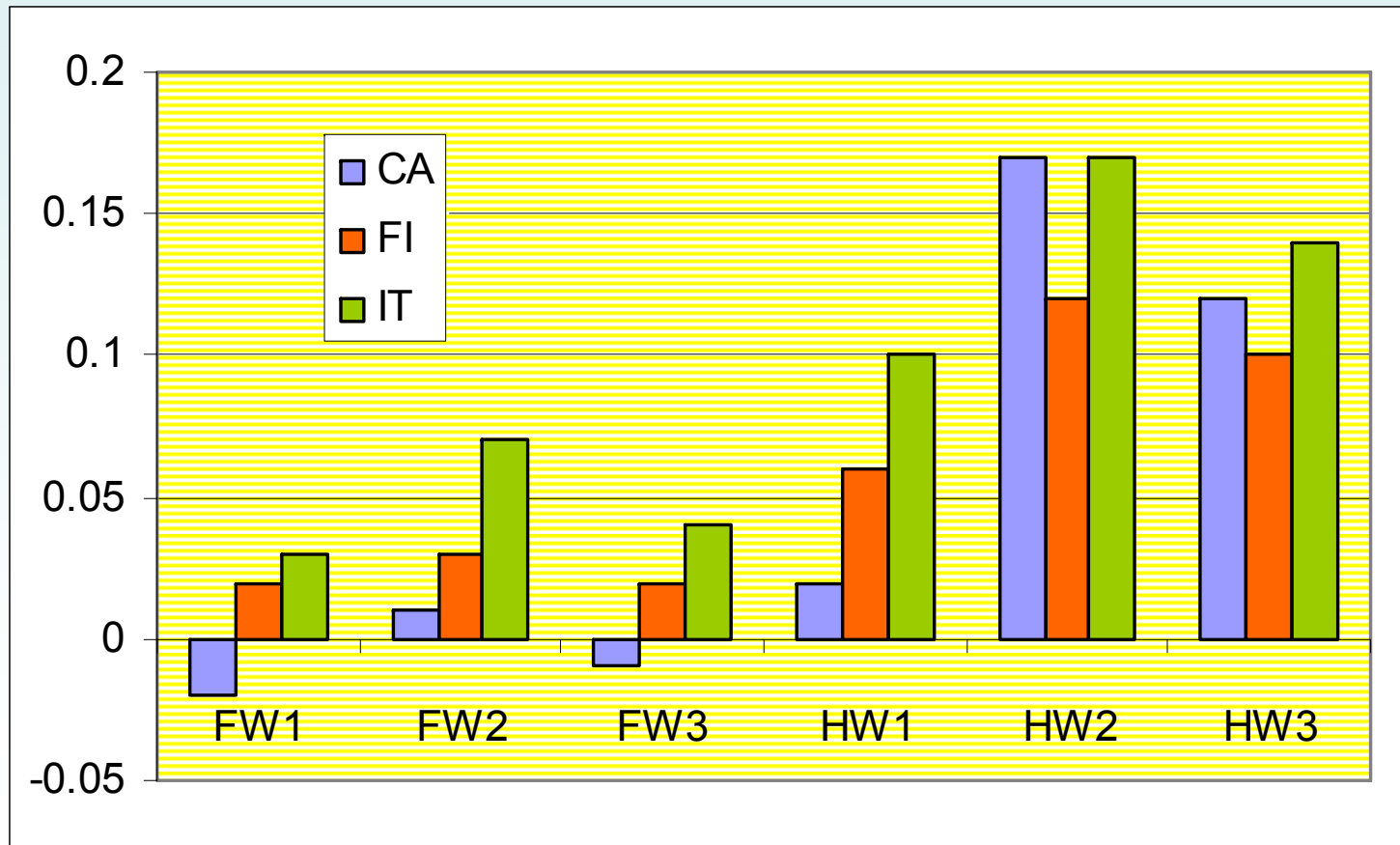
- Three basic models:
  - (1)  $C = \alpha FW + \beta HW + \delta Y$
  - (2) Remove income and augment with “O”-“risk”
  - (3) Then with income and “O” including “risk”
- By country and age (and other groups)
- **I will largely ignore O-effects**
  - Consumption declines with age
    - In part a cohort effect?
  - Consumption rises with education
    - Education a proxy for  $Y^p$ ?—or something else?

## Estimation (2)

•	Canada	Finland	Italy
FW (1)	-0.02*	0.02*	0.03*
FW (2)	0.01*	0.03*	0.07
FW (3)	-0.01	0.02*	0.04*
HW (1)	0.02*	0.06*	0.10*
HW (2)	0.17*	0.12*	0.17
HW (3)	0.12*	0.10*	0.14*

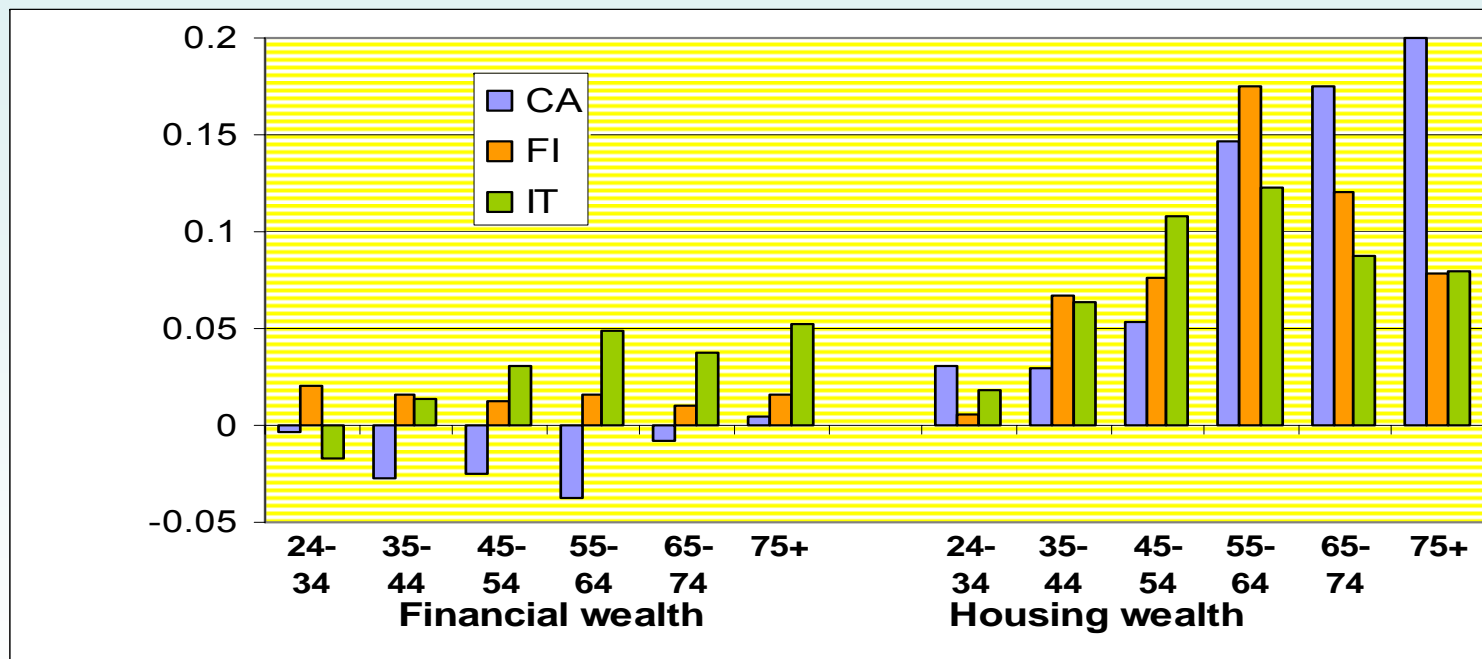
# Estimation (2)

- Models 1-3, by country



# Estimation (3)

- Age interactions with FW/HW



- Statistically inconsistent/weak (ex. HW CA)
- Est'd income effect declines over age

# Estimation (4)

- Family type and gender do not generate strong differences
  - Not sure what to expect here or how one would interpret differences if there were any
- Differences across countries may reflect: preferences, institutions, measurement
  - For measurement, important to look beyond the categorical concerns

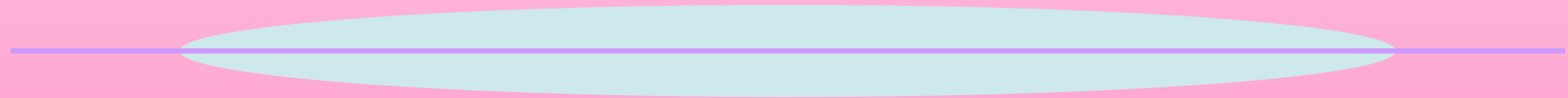
# Conclusions

- Some evidence of wealth effect
  - Larger effects for housing wealth
    - Is size plausible? Permanently increase C by so much?
    - In US, HHs directly extracted equity for
      - 42% for housing-related expenses, 10% investment, 10% vehicles, 24% debt consolidation: amounts extracted similar %
      - May have indirectly reduced saving?
    - May be  $Y^p$  proxy
  - For inter-country comparisons, need to identify institutional differences
  - E.g., existence of instruments for home equity borrowing
- Only about  $\frac{1}{4}$  of 2004 SCF said spending affected by increases in wealth
- Suspect a more complicated mixture of behaviors than can be captured in the simple specification



- **Good start for LWS!**

**Certainly a contribution the literature  
But “more research needed”**



**END**

