The Measurement of Net Worth in New Zealand
by
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Discussant: Arthur Kennickell
Discussion does not necessarily represent views of the Federal Reserve

Session 8B: Household Wealth: Distribution and Measurement Issues
• 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
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 ΔW?

• 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
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Session 8B: Household Wealth: Distribution and Measurement Issues
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

\[ U_i \left( C_i, B_{iT}, -L_i \mid \Omega_i, \Delta \right) \]

- \( \Omega_i \) 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 the 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:

<table>
<thead>
<tr>
<th></th>
<th>Bot 50%</th>
<th>Top 10%</th>
<th>Top 1%</th>
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<tr>
<td>FIN</td>
<td>2.5</td>
<td>71.5</td>
<td>31.6</td>
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<tr>
<td>HOUSE</td>
<td>11.7</td>
<td>38.2</td>
<td>9.9</td>
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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)\(^{1/2}\), 2002 USD (using PPP)
Specification (3)

• “O” includes age head, age\(^2\), 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 \(Y_p\): correlated with C, FW, HW?
    • Excludes capital income, but is that appropriate?
• 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

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<th>Canada</th>
<th>Finland</th>
<th>Italy</th>
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<tr>
<td>FW</td>
<td>90</td>
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<td>HW</td>
<td>62</td>
<td>67</td>
<td>72</td>
</tr>
<tr>
<td>Debt</td>
<td>68</td>
<td>52</td>
<td>22</td>
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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)

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<th></th>
<th>Canada</th>
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<th>Italy</th>
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<tbody>
<tr>
<td>FW (1)</td>
<td>-0.02*</td>
<td>0.02*</td>
<td>0.03*</td>
</tr>
<tr>
<td>FW (2)</td>
<td>0.01*</td>
<td>0.03*</td>
<td>0.07</td>
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<tr>
<td>FW (3)</td>
<td>-0.01</td>
<td>0.02*</td>
<td>0.04*</td>
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<tr>
<td>HW (1)</td>
<td>0.02*</td>
<td>0.06*</td>
<td>0.10*</td>
</tr>
<tr>
<td>HW (2)</td>
<td>0.17*</td>
<td>0.12*</td>
<td>0.17</td>
</tr>
<tr>
<td>HW (3)</td>
<td>0.12*</td>
<td>0.10*</td>
<td>0.14*</td>
</tr>
</tbody>
</table>
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 ¼ 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