

THE INCOMPLETE MARKETS MODEL

June 2017

CALIBRATION - DATA SOURCES

For the US consumption, income and wealth distribution data, there are four main data sets:

- ▶ The Survey of Consumer Finances (SCF)
 - ▶ A crosssection of households
 - ▶ Conducted in three year intervals since 1983
 - ▶ A representative sample of about 5000 households
 - ▶ Lengthy interviews (>1h) on every aspect of assets/wealth
 - ▶ Oversamples the rich
- ▶ The Panel Study of Income Dynamics (PSID)
 - ▶ A panel study of households
 - ▶ A representative sample of about 5000 households
 - ▶ Annual from 1968 to 1997, and biennial since then
 - ▶ Substantial detail on income sources and amounts, employment status and history, family composition changes, and residential location

CALIBRATION - DATA SOURCES

For the US consumption, income and wealth distribution data, there are four main data sets:

- ▶ The Consumer Expenditure Survey (CEX)
 - ▶ A rotating panel: each household in the sample is interviewed for four consecutive quarters and then rotated out of the survey (since 1980)
 - ▶ Detailed information about consumption expenditures
- ▶ Current Population Survey (CPS)
 - ▶ Monthly sample of around 60,000 households
 - ▶ The source of official US government statistics on employment and unemployment
 - ▶ The March supplement extends the set of demographic and labor force questions asked in all months to include detailed questions on income

EXTENT OF SELF-INSURANCE

- ▶ Various parametrizations:
 - ▶ Log utility and i.i.d. shocks: $r \approx \frac{1}{\beta} - 1$
 - ▶ CRRA with $\sigma = 5$ and persistent shocks ($\rho = 0.9$):
 - ▶ savings = 14% of aggregate output
 - ▶ CRRA with $\sigma = 2$ and persistent shocks ($\rho = 0.9$):
 - ▶ savings = 5% of aggregate output (25% of savings)

CALIBRATION OF THE MODEL

- ▶ Technology: With Cobb-Douglas production function, pick the capital share α to be equal to $\frac{1}{3}$. Set the depreciation rate δ to 6%
- ▶ Preferences: CRRA utility. Let σ be the coefficient of relative risk aversion. Acceptable values range between 1 and 5, with values at the low end of the range (say $\sigma = 1$ or $\sigma = 2$) being the most commonly chosen.
- ▶ Choose β to match the capital-income ratio (some flexibility is allowed)
- ▶ Labor income process: exogenously matched using the PSID
- ▶ Borrowing constraint: Choose the borrowing limit ϕ to match the fraction of agents with zero/negative assets
- ▶ Choice of infinite horizon/life cycle model

MODEL'S ABILITY TO REPLICATE WEALTH DISTRIBUTION

THE DISTRIBUTION OF EARNINGS (%)

Gini	Quintiles					Top Groups		
	1st	2nd	3rd	4th	5th	90-95	95-99	99-100
0.63	-0.40	3.19	12.49	24.33	61.39	12.38	16.37	14.76

THE DISTRIBUTION OF WEALTH (%)

Gini	Quintiles					Top Groups		
	1st	2nd	3rd	4th	5th	90-95	95-99	99-100
0.78	-0.39	1.74	5.72	13.43	79.49	12.62	23.95	29.55

Source: "Accounting for the U.S. Earnings and Wealth Inequality",
Ana Castaneda, Javier Diaz-Gimenez and Jose-Victor Rios-Rull, JPE,
2002

MODEL'S WEALTH DISTRIBUTION - POSSIBLE REMEDIES

- ▶ Inequality at the bottom:
 - ▶ Social insurance (Social Security, Unemployment Insurance....)
 - ▶ ...some of which are means-tested (Hubbard et al, JPE, 1995)
- ▶ Inequality at the top
 - ▶ Entrepreneurship (higher return on investment) (Quadrini, RED, 2000)
 - ▶ Bequest motive (De Nardi, ReStud, 2003)
 - ▶ High realizations of earnings (Castaneda et al, JPE, 2003)
 - ▶ Heterogeneity in the discount factor (Krusell and Smith, MD, 1997)