“Quantitative Macroeconomics & Social Insurance - TA 2”

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1 A Simple Complete Markets Test

1. Descriptive statistics.

Year = 2000	Mean	Standard Deviation
Net Income		
Q1	21,648	18,431
Q2	25,354	24,933
Q3	21,244	18,288
Q4	24,713	24,358
Nondurables		
Q1	2,415	1,676
Q2	2,374	1,661
Q3	2,414	1,827
Q4	2,368	1,696

Notes: Data source CEX. Thousands of dollars (adjusted).

2. Business cycles: 90-91 recession (NBER).

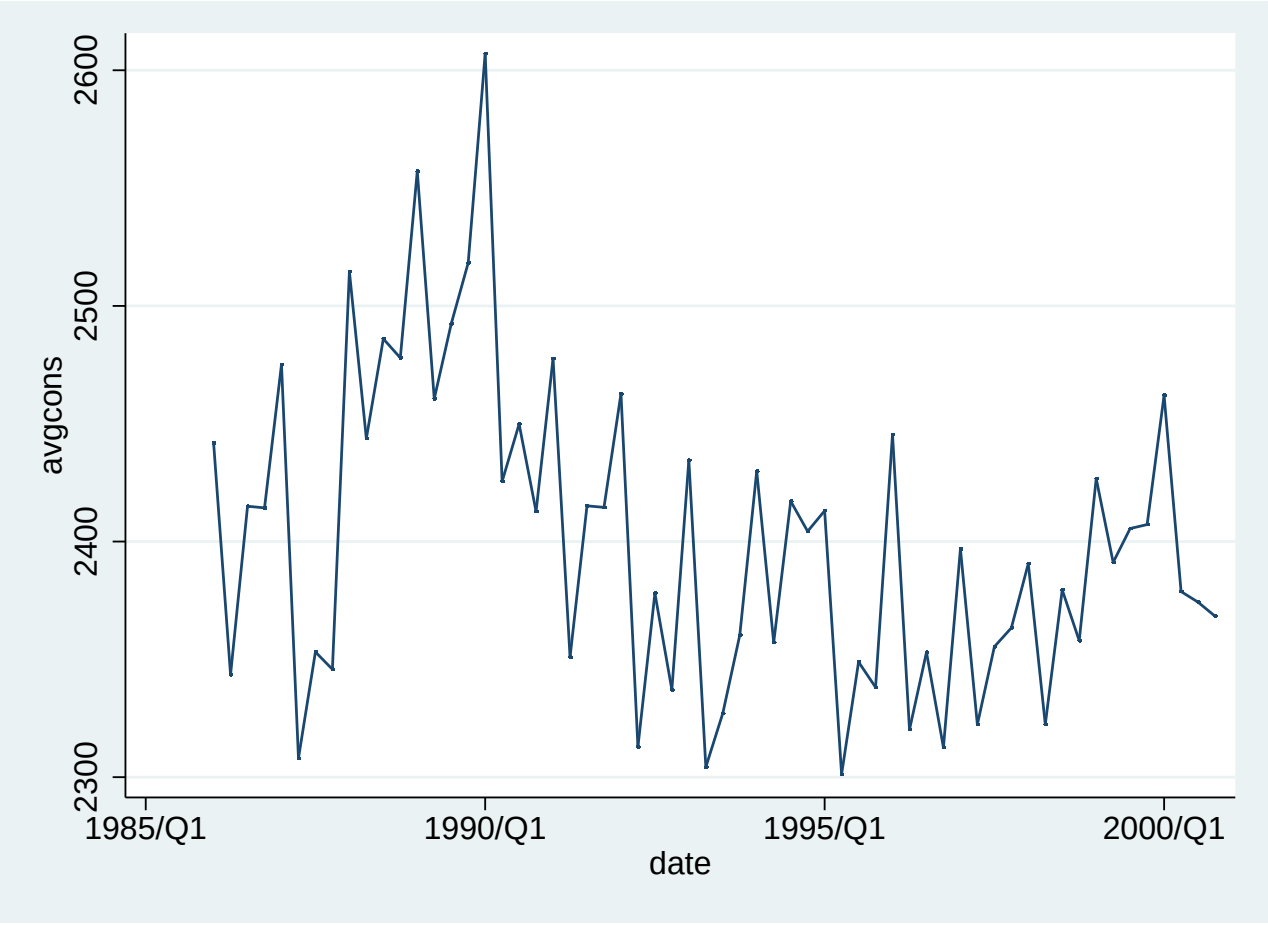

Figure 1: Average Consumption (nondurables).

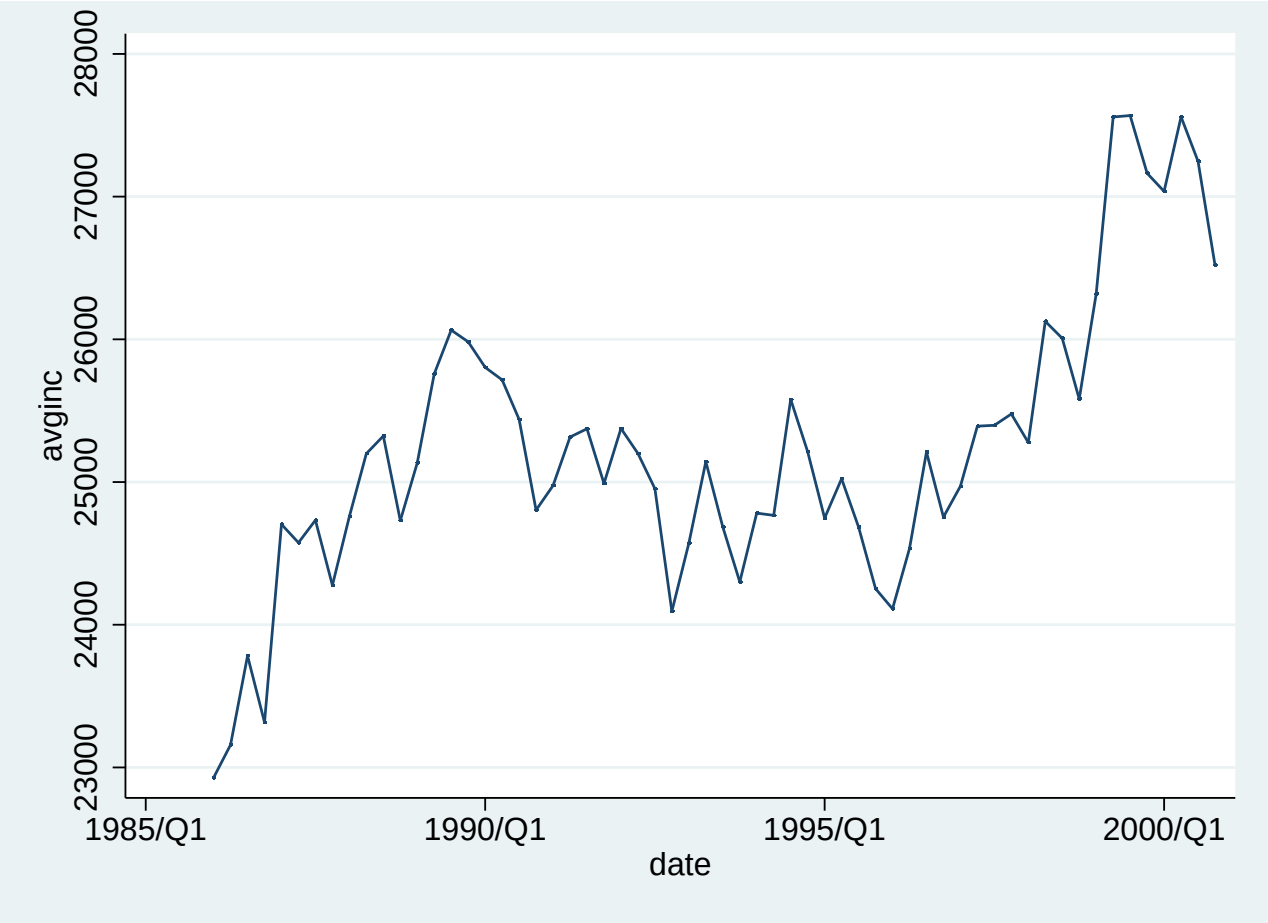

Figure 2: Average Income Before Tax.

3. A simple test for complete markets with CRRA preferences

$$\Delta \ln c_t^i = \beta_0 + \beta_1 \Delta \ln c_t + \beta_2 \Delta \ln y_t^i + u_{it},$$

Remarks:

- $c_t = n^{-1} \sum_{i=1}^{n} c_t^i$.
- Sample restriction:
  - Only 2nd and 5th interviews report primary income (3 quarters).
  - Non-negative income.
  - Drop households that participate only one time in each year.
- $\Delta \ln y_t^i$: growth rate of yearly income over 3 quarters.
- $\Delta \ln c_t^i$: growth rate of quarterly consumption over 3 quarters.
- $\Delta \ln c_t$: growth rate of quarterly average consumption over 3 quarters.
- Complete markets: $\beta_1 = 1, \beta_2 = 0$.

Table 1: Test Complete Markets Hypothesis

$\Delta \ln c_t^i$	Food	Nondurables	Total Consumption
$\Delta \ln c_t$	.604	.601	.530
	(.183)	(.247)	(.170)
$\Delta \ln y_t^i$	.048	.049	.089
	(.006)	(.008)	(.008)
CM test	$F_{2,N-1}$ = 25.94	$F_{2,N-1}$ = 18.88	$F_{2,N-1}$ = 63.09
	p-value = .000	p-value = .000	p-value = .000

Notes: Data source CEX. Estimates are obtained by pooled OLS. Standard errors are clustered at household level. Coefficients are significant at 1 percent level with exeption of food aggregate consumption. Sample sizes: 11,822, 11,839, 11,840 households. CM test: $H_0 : \beta_1 = 1, \beta_2 = 0$.

Conclusion:

- Many caveats, e.g. mismatch variables frequency, sample weights.
- Overall, reject complete markets hypothesis.
- Income measurament errors might lead to attenuation bias.
  - Hardly changes the main conclusion.
- Is income coefficient really low?
  - Comparing 60% and 4% you might think that income is not important.
  - Mean consumption growth is $-.018$.
  - A coefficient of 4% represents an absolute increase in the mean level of

$$\frac{.04}{.018} > 2$$