

“Quantitative Macroeconomics & Social Insurance - TA 2”

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1 A Simple Complete Markets Test

1. Descriptive statistics.

Year = 2000	Mean	Standard Deviation
<i>Net Income</i>		
Q1	21,648	18,431
Q2	25,354	24,933
Q3	21,244	18,288
Q4	24,713	24,358
<i>Nondurables</i>		
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).

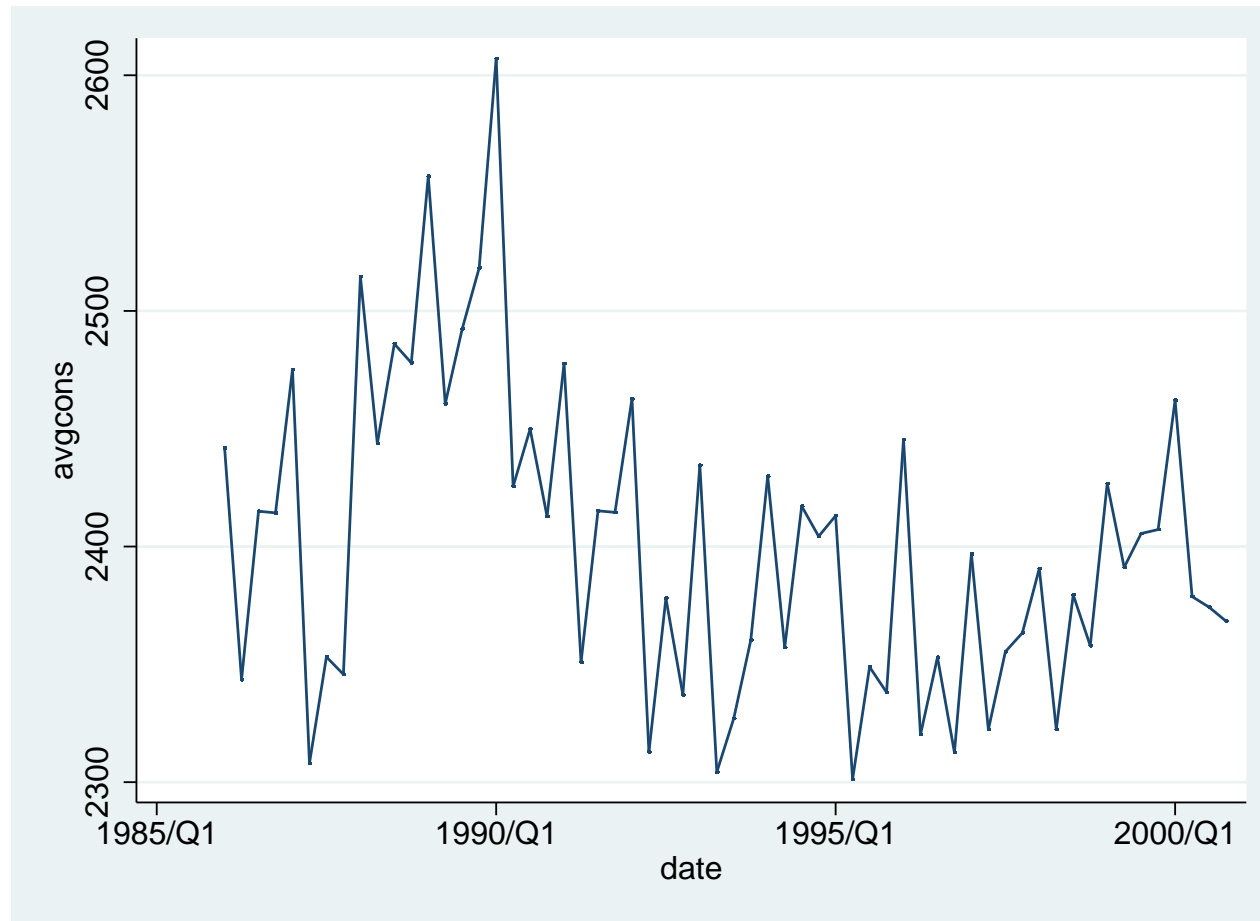


Figure 1: Average Consumption (nondurables).

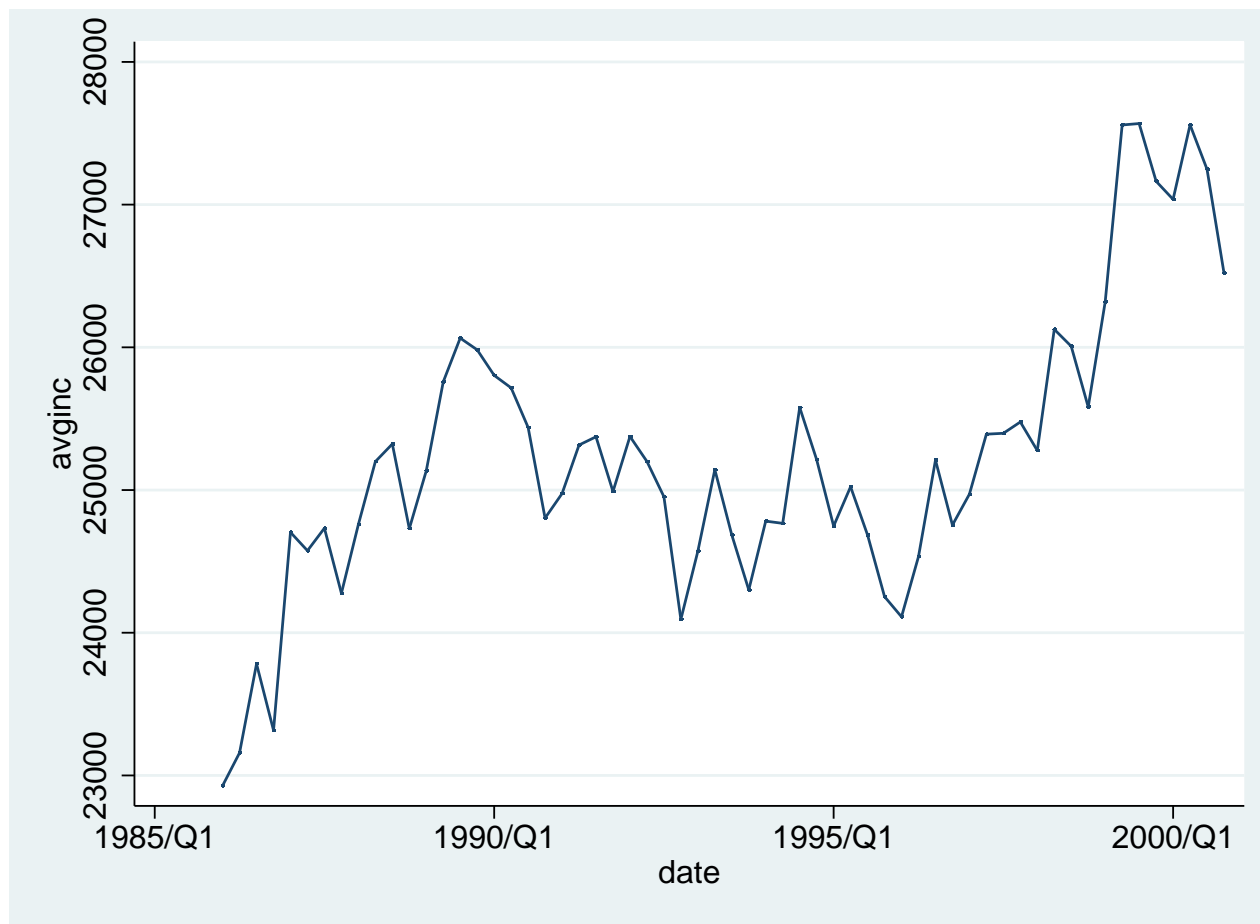


Figure 2: Average Income Before Tax.

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

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 the exception 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 measurement 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

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