Consumption and Housing

Contents

1. Core Definitions

- **Total wealth**:
    - Human wealth + Non-human wealth
- **Human wealth**:

  Estimated present value of after-tax labor income likely to be over the span of his working life.
- **Non-human wealth**:
    - Financial wealth + housing wealth.
- **Financial wealth**:
    - Stocks, bonds, checking accounts, saving accounts (which is also the estimated present value of after-tax financial income, e.g., dividends from stocks (=S), interest rate from bonds (=B))
- **Housing wealth**:
    - Value of owned-house minus mortgage still due.
- How do people decide how much to consume and how much to save?
- In our first model, we ignored the effect of wealth on this decision.
- Now, we would like to make more accurate description and characterization recognizing effects other than current disposal income.
- Notice that consumption accounts for the cheer size of GDP, so it is important to be more accurate.

- A rational consumer would:
    - Try to smooth her future consumption based (positively) on her expected total wealth.
    - Increase large purchases (i.e., housing) when finance is cheaper.
    - Account for the "free" retirement income from employer or government.
    - Increase saving (decrease consumption) when uncertainty/worry about health and life expectancy.
    - Increase saving (decrease consumption) to satisfy his desires for leaving bequests.

- There are two economic theories (hypotheses) that recognize and endogenize some of the above effects:
    - **Life Cycle Hypothesis**, by Franco Modigliani from MIT, emphasizes that consumers' natural planning horizon is their entire life.
    - **Permanent Income Hypothesis**, by Milton Friedman from Chicago, emphasizes that consumers look beyond current income.

- Life Cycle and Permanent Income Hypotheses both:
  - Recognize current consumption choices reflect thinking about lifetime income (their total wealth rather than income only) and spending.
  - Consumers' spending should be smoothed from year to year (rather than vary widely from year to year).
  - Predict short-run MPC < APC.
  - Expect dissaving in retirement years.

- **<u>Note:</u>**
  - *Is the age distribution of population (*Demographics*) important?*
  - How expectation for future higher output affect today's consumption? (Hint: how will this affect future wages and dividends?)
  - *How do liquidity constrains affect the consumption spending decision under the Life Cycle and Permanent Income Hypotheses? How does their relaxation affect the consumption spending decision?*
  - How would a tax change affect the consumption? (hint: does that depend whether it is finance through change in G or government debt?). **Barro theory (Ricardian equivalence or Ricardo-Barro proposition)** intriguing but does not fair well empirically (Consider how lagged responses create a multiplier that changes over time).

2. A Simple Model of Consumption

- A realistic model would account, inter alia, for:
  - Lifecycle restrictions
  - Liquidity restriction
  - Uncertainty and risk aversion
  - Bounded rationality

- Therefore, based on the aforesaid, a simple model would be of the form:

$$C_t = C(\text{Total wealth}_t, \text{Cost of Consumption}_t, \text{expected remaining life})$$

- Or:

$$C_t = C(Y^D_t, \text{Total future wealth}_t, P_t, r_t, \text{expected remaining life})$$

- When real interest rate is high, then it means that
  - Today's consumption leads to a greater forfeit of future consumption
  - Higher motivation for saving (lower for dissaving)
  - Lower present value of future wealth.

- Assuming P is given (zero inflation), therefore, r=i and P affects the intercept.
- Therefore, a good specification would be of the following:

$$\mathbf{C_t = c_0 + c_1\, Y^D_t + c_3\, TW_{t+1}}$$

- Or, another helpful characterization would be:

$$\mathbf{C_t = c_0 + c_1\, Y^D_t + c_4\, Y^D_{t-1} + c_5\, d_t TW}$$

  - Assuming a given interest rate and prices;
  - Fixed effects (current and future incomes and interest rate) are showing up in the intercept;
  - The changes from last year are what motivate the changes in consumption (the PIH).

- In the long-run (steady-state), $Y^D_t = Y^D_{t-1}$ and $d_t TW = \kappa Y^D_t$, therefore:

$$\mathbf{C = c_0 + (c_1 + c_4 + c_5\, \kappa)\, Y^D}$$

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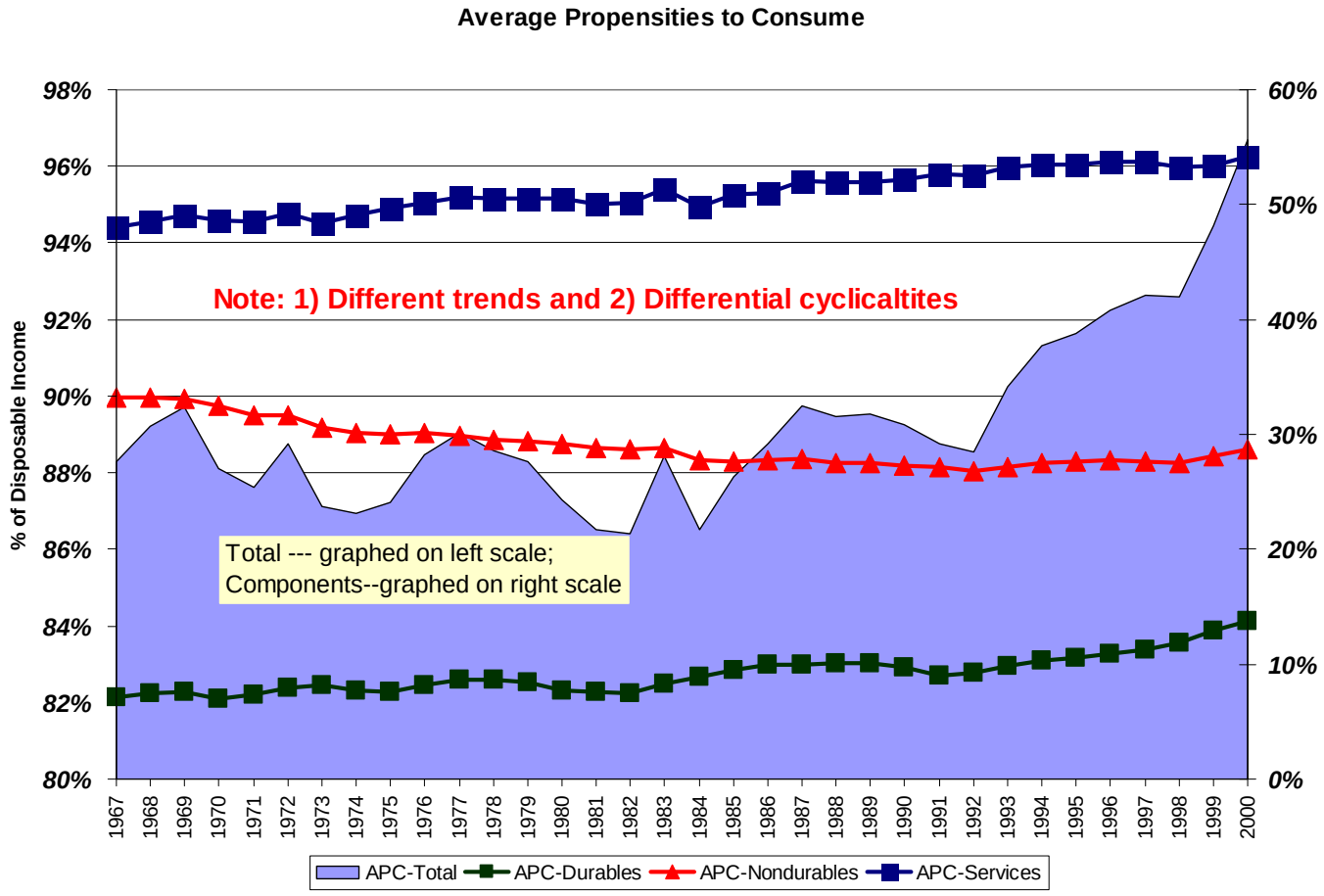
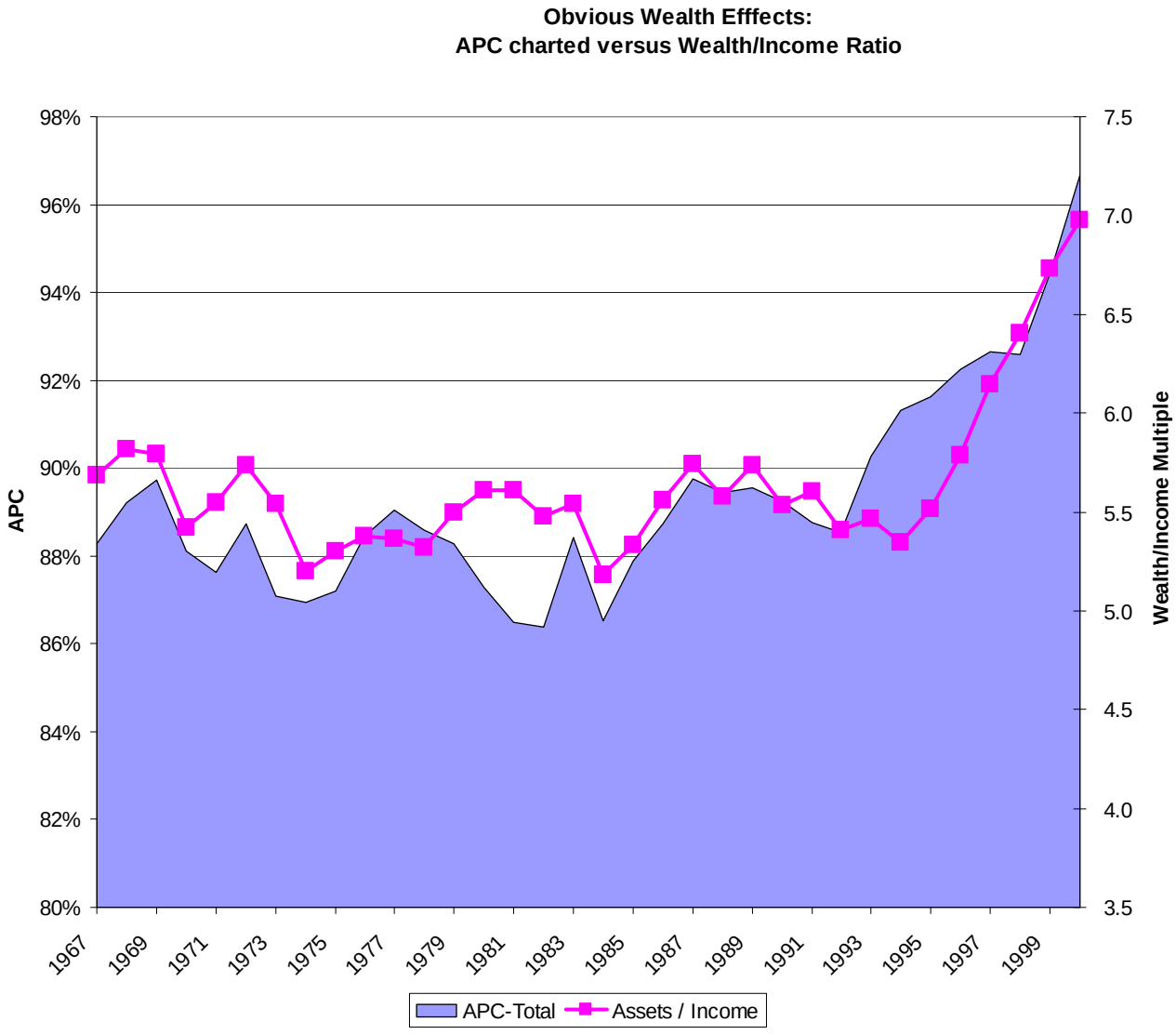
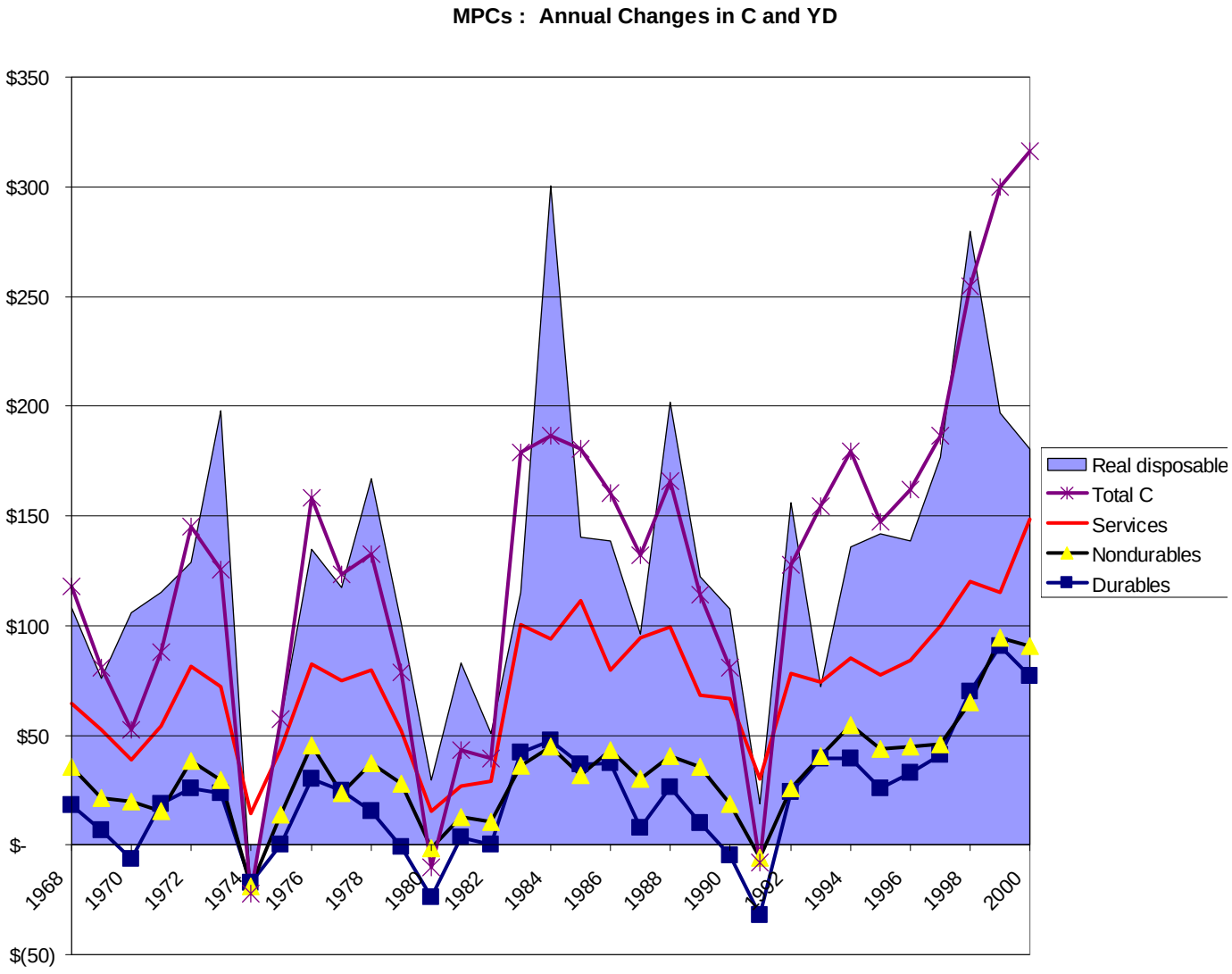
- Therefore, we can define two different Propensities to Consume:
  - ***Average Propensity to Consume*** *(APC): Level of Consumer Spending/ Level of Disposable income- C_t/Y^D_t ($\equiv c_0/Y^D$ +MPC)*
  - **Marginal Propensity to Consume** (MPC): *for any specific time interval =* Absolute change in spending / Absolute change in disposal income- d_tC/d_tY^D ($\equiv c_1$ for the short run, and $\equiv c_1 + c_4 + c_5\,\kappa$ for the long run).
  - ***Elasticity of Consumption ($\eta_{C,Y}$):*** *Percentage change in spending / Percentage change in disposal income ($\equiv RC/RY=[dC/\Delta Y] / [C/Y] = MPC / APC$).*
- So if "autonomous consumption$\equiv c_0$" is small enough, then the **long-run MPC=APC**, and therefore, **the LR elasticity is approximately 1.**
- In the "Long-Run", both APC and MPC appear to be close to 95% for the US in the postwar period.


Average Propensities to Consume
% of Disposable Income
98%
96%
94%
92%
90%
88%
86%
84%
82%
80%
60%
50%
40%
30%
20%
10%
0%
Note: 1) Different trends and 2) Differential cyclicaltites
Total --- graphed on left scale;
Components--graphed on right scale
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
1990
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
APC-Total
APC-Durables
APC-Nondurables
APC-Services


Obvious Wealth Efffects:
APC charted versus Wealth/Income Ratio
APC
Wealth/Income Multiple
98%
96%
94%
92%
90%
88%
86%
84%
82%
80%
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
APC-Total
Assets / Income



- Durables are less volatile than income
- Durables are less volatile than non-durables