

Discussion on

*A Cost of Living Dynamic Price
Index, with an Application to
Retirement Accounts*

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Goal of the Paper

- What is the Goal?
 - To offer a new measure to the cost of living index
- How new?
 - Take into account that agents live for many periods
- Consider changes in
 - future prices and/or asset prices
 - as well as changes in current prices

The Specific Question

- When prices change: adjustment to nominal wealth that keeps utility

- Dynamic price index (DPI) defined as scalar

$$\pi_{t+1} :$$

$$V(\pi_{t+1}A_t, P^{t+1}) = V(A_t, P^t)$$

- Where V is maximized expected net present value of consumption and P includes prices of present and future goods and of assets

Conceptually, similar to static problem

- In principle, DPI applies static reasoning to multi period setting (Hicks compensation)
- With respect to CPI, DPI allows for:
 - Intratemporal substitution
 - Substitution across goods within time period
 - Intertemporal substitution
 - Substitution across time periods

The Setup

- Intertemporal optimization where:
 - Consume nondurables at each point in time
 - Consume durables
 - Yield utility and can be resold
 - Can buy assets to transfer wealth in time
 - Equity: buy it today, resell it tomorrow
 - Bonds: buy it today, return certain tomorrow
 - The only source of uncertainty is prices

Impact of prices in the DPI:

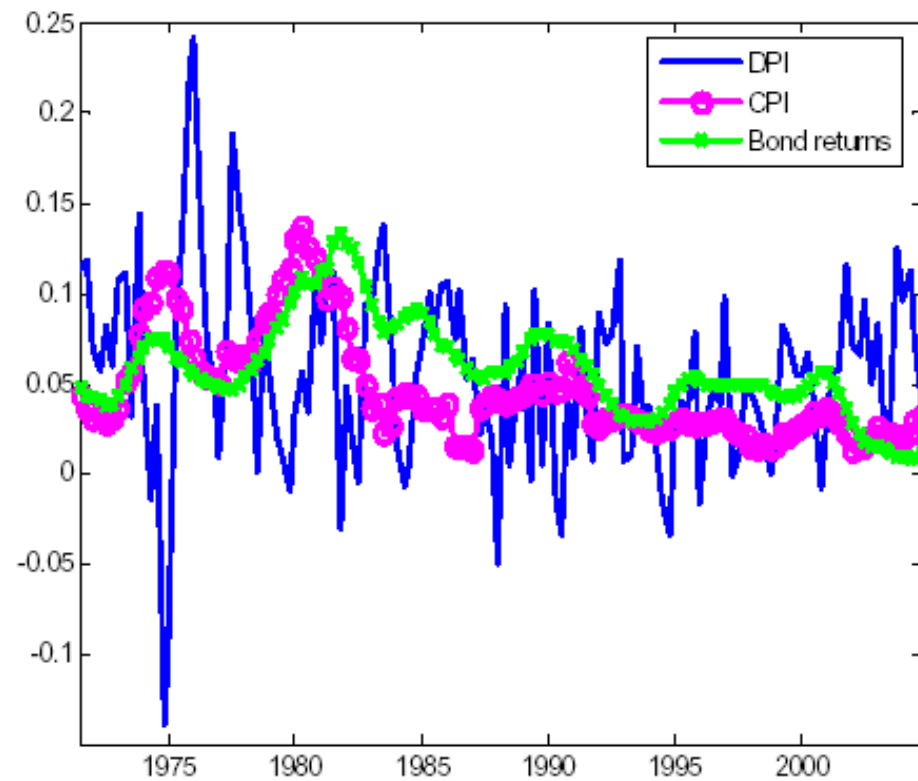
- Nondurable Prices:
 - Impact increases with persistence of change: less scope for intertemporal substitution
- Asset Prices:
 - Equity: impact decreases with persistence of change
 - Return on equity is price change
 - Bonds: impact increases with persistence of change
 - Return on bonds is certain payoff
- Durables:
 - Impact decreases with persistence of change: for i.i.d. prices, capital loss

Main Results

- DPI and CPI both show a decrease in the cost of living between the 70s and 90s
- However, DPI is substantially more volatile. Is due mostly to:
 - Asset prices (equity, bonds)?
 - Housing prices?

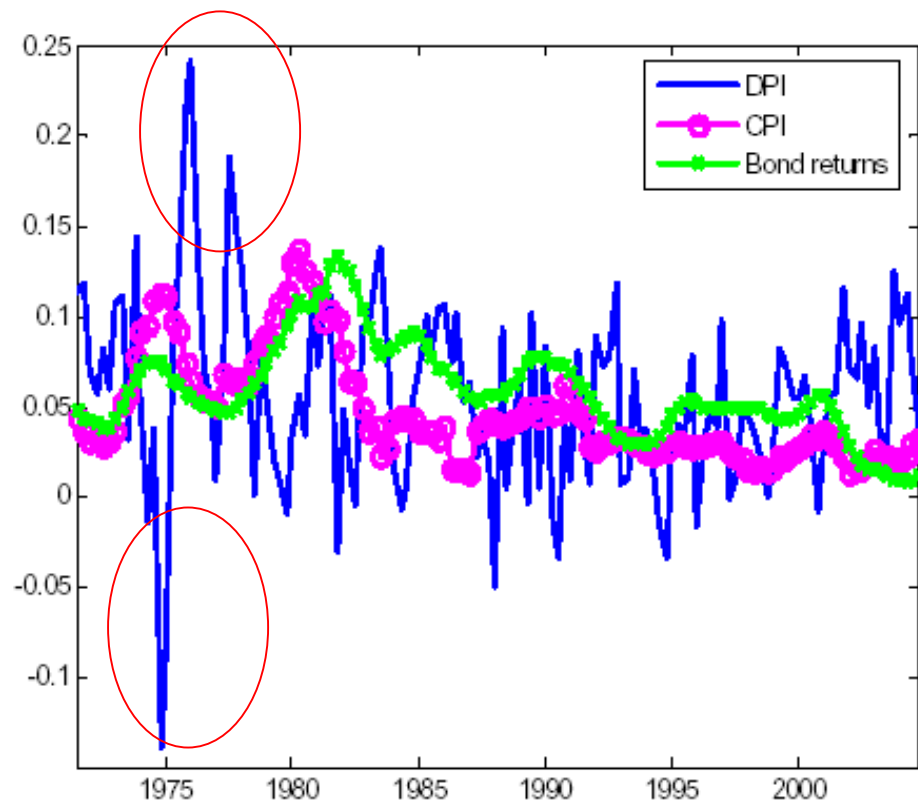
Results I

Figure 4: The annual log DPI, CPI inflation and bond returns



Results II

Figure 4: The annual log DPI, CPI inflation and bond returns



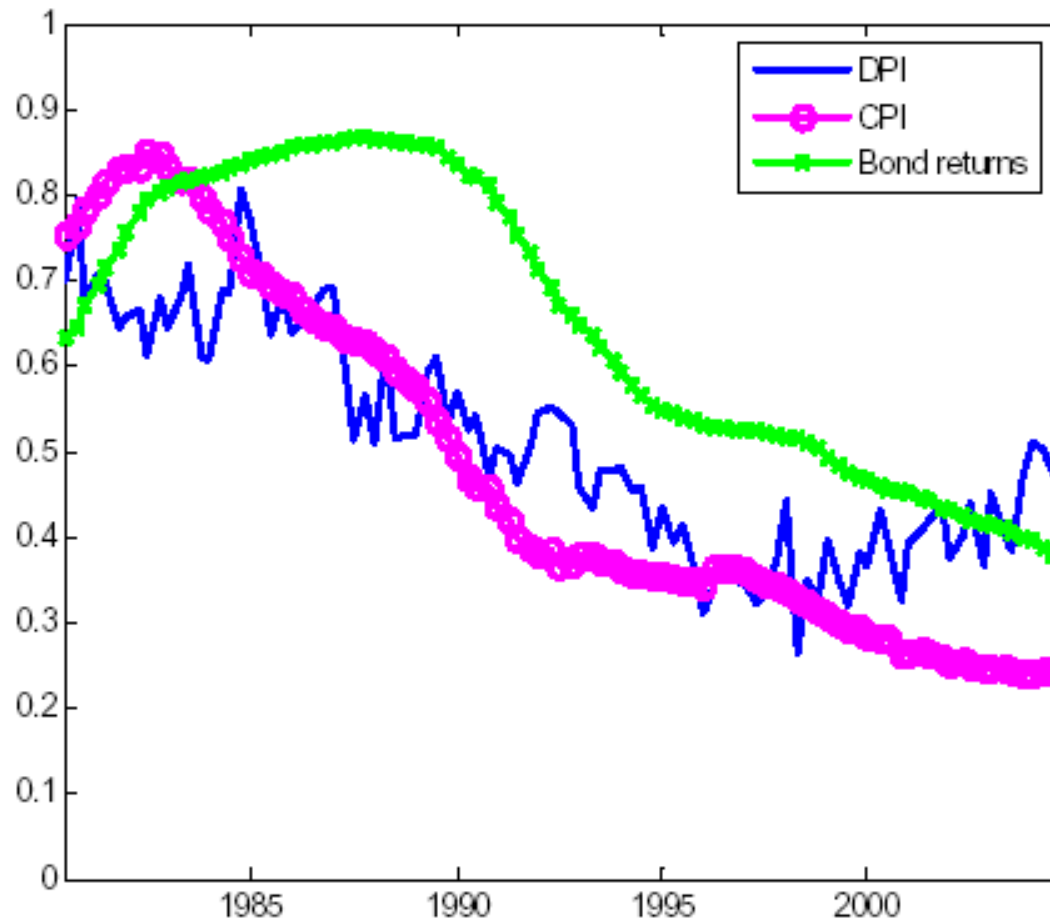
Where does the main difference come from?

- Equity prices:
 - On average, small impact, since they approximately follow a random walk
- Housing Prices: they are very persistent.
 - This should limit their impact on the DPI
- Bond prices:
 - This ends up accounting for a lot
 - Why? Very persistent and they affect the cost of durables

How close can you get with less?

- How much is intertemporal substitution really adding?
- Ultimately, the behavior of the DPI hinges on the interest rate
 - Changes in the nominal rate partly reflect expected inflation: this should limit the impact on the cost of living
 - Changes on the real interest rate are crucial and affect the cost of moving wealth to the future
- A simpler exercise that would be interesting.....
 - We should take into account the real interest rate in the CPI
 - How different would this be from today's CPI and from the DPI?

Decade log of CPI, DPI and Bond Returns



And the real interest rate?



Source: Bloomberg, Haver.

More comments and conclusions

- This paper proposes an index that takes into account dynamics:
 - Is the role of DPI to index retirement accounts?
 - If so, you are compensating for changes in the real interest rate
 - Can't we insure against this already?
- It is crucial to consider heterogeneity
 - In the paper, it is tailored for someone approaching retirement
 - In general, it will depend on the endowment stream of agents
- Potential applications