Inflation and the Relative Price Premium

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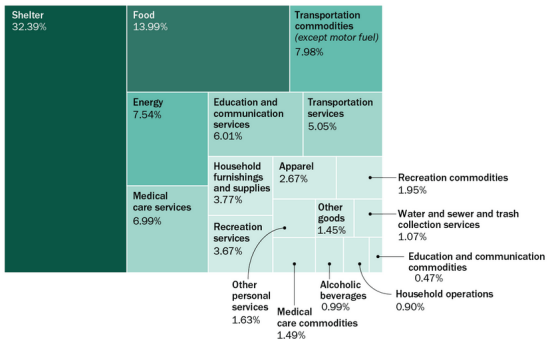
Summary

What goes into the consumer price index?

Relative importance of different expenditure categories, November 2021



Source: U.S. Bureau of Labor Statistics

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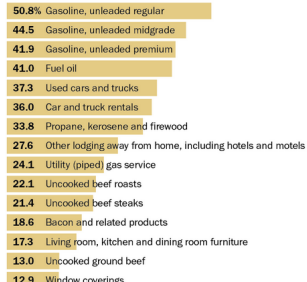
Amid U.S. inflation surge, which prices are rising the most? Fuels, used cars and lodging lead the way

Biggest % increases in consumer prices, December 2020-December 2021



Note: Certain nonspecific "catchall" categories not shown.
Source: U.S. Bureau of Labor Statistics

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Summary

In a standard model with one consumption good - holding a fixed dollar budget - price shocks will afffect the **level of consumption.**

However: Most discussions about inflation have been category specific and implicitly relative:

- Used cars
- Energy
- Food

As soon as category price increases are relatively different we have **differential impacts on firms** and impacts on **consumption shares**

Finding "Notably, firms associated with goods and services that have increased (decreased) in price relative to the headline inflation rate earn high (low) returns."

Summary

1. Calculate relative price change of CPI sub-components

$$RP_{k,t,\tau} = log\left(\frac{CPI_{k,t}}{CPI_{k,t-\tau}}\right) - log\left(\frac{CPI_t}{CPI_{t-\tau}}\right)$$

2. Match firms identified by their four-digit SIC codes from the definition of the Fama-French 49 industry file to the various components of CPI
3. Empirical finding that firms with different average RP have different average returns
4. Consumption based asset pricing model to rationalize the returns - adds a consumption share shock to the pricing kernel

Comment # 1 - Portfolio Return Calculation

$$RP_{k,t,\tau} = log\left(\frac{CPI_{k,t}}{CPI_{k,t-\tau}}\right) - log\left(\frac{CPI_{t}}{CPI_{t-\tau}}\right)$$

- Authors set $\tau = 3$ to focus on quarterly changes in relative prices (to avoid picking up transitory changes)
- Portfolios are sorted monthly based on $RP_{k,t,\tau}$
- Portfolios are held for 3 months
- Returns are overlapping and the authors check robustness of the standard error calculation on the mean return

What about the mean itself - how sensitive is it to variation in τ and the holding period?

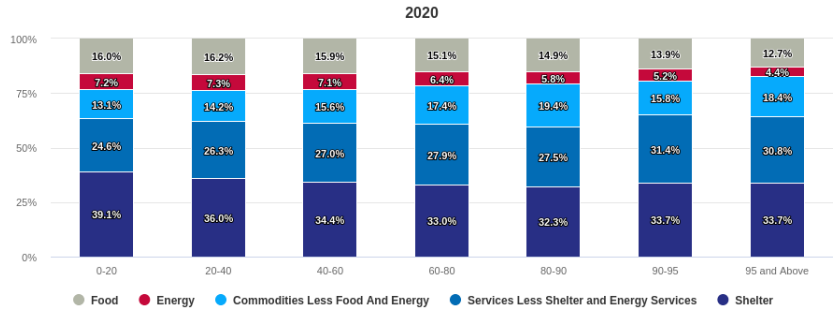
Comment # 2 - Mechanism

To get this result in a rational model investors need to know ex-ante the covariance of each firm return with the RP factor:

- This is a big challenge for consumption based asset pricing - See e.g. Chinco, Hartzmark and Sussman (JF,2022)
- ...not to mention generating it endogenously on the production side...

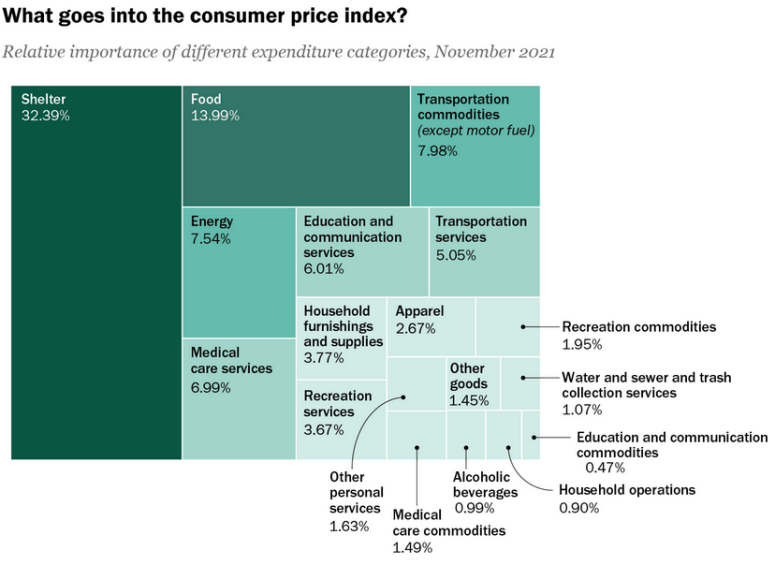
Comment # 2 - Mechanism

Expenditure shares on major groups of items by income groups



- representative investor assumption seems okay!

Comment # 2 - Mechanism



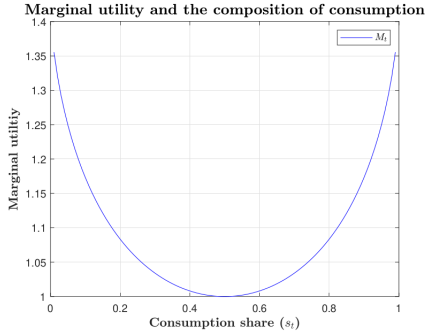
Comment # 2 - Mechanism

What do we expect for goods with large/small expenditure shares and goods that are substitutes/complements?

- Price shocks to high expenditure items should matter more than equivalent shocks to low expenditure items
- Large shocks to categories that the agent can easily substitute would not matter

If the consumption share mechanism drives results then these implications can motivate supporting empirical tests.

Comment # 2 - Mechanism



- The shocks in the model relative to a fixed consumption share - what are the equivalent price shocks needed to generate these consumption share shocks?
  - This is easy due to the duality of utility and expenditure functions
  - Are the shocks of the right magnitude?
- Is it correct to fix shares? In reality we optimize based on prices and may have endogenously variation in optimal shares

Comment # 3 - Alternative Explanation

Alternative explanation is Merton's (1987) investor recognition hypothesis

- What about short term media attention related returns?
- The industries in the high portfolio likely had a lot of attention
- Not implausible that investors perceived these firms would do well
- Industry classifications are based on main line of business ($\approx$output). The matching seems consistent with a naive behavioral assessment rather than an economic assessment of what affects firm cash flows (e.g. market power, input prices, hedging policy, etc matter for cash flows)
- Empirically test by looking at long term returns (reversals?), returns around earnings announcements, media coverage of stocks, google search volume.

Conclusion

- Really nice paper
- Robust empirical results
- Lots of food for thought, well worth reading!