

Decline of Food Price Shock Pass-through to Core Inflation

Jason P. Brown

Federal Reserve Bank of Kansas City

February 20, 2020



Disclaimer & Acknowledgment

- The views expressed are those of the presenter and do not necessarily reflect the positions of the Federal Reserve Bank of Kansas City or the Federal Reserve System.
- This presentation uses information from a research working paper, “[Rising Market Concentration and the Decline of Food Price Shock Pass-through to Core Inflation](#)”, coauthored with Colton Tousey.

Motivation

- Federal Reserve has a dual mandate from Congress: conduct monetary policy that promotes price stability and full employment
- Stated inflation (core) target of 2 percent
- Difficult to achieve post-Great Recession
- 2018 Jackson Hole Symposium: “Changing Market Structures and Implications for Monetary Policy”
- Main takeaway: changes in market concentration are influencing pricing dynamics, investment decisions, and inflation

Background

- Inflation in the 1970s was heavily influenced by a number of food price shocks (Blinder and Rudd, 2012)
- Cost-push theory of inflation - raw ag commodity prices pass through to food (Lamm, 1979)
- Increases in food prices were often viewed as a result of special, temporary supply-side factors that would reverse (Lombra and Mehra, 1983)

Background

- Inflation in the 1970s was heavily influenced by a number of food price shocks (Blinder and Rudd, 2012)
- Cost-push theory of inflation - raw ag commodity prices pass through to food (Lamm, 1979)
- Increases in food prices were often viewed as a result of special, temporary supply-side factors that would reverse (Lombra and Mehra, 1983)
- Changes in consumer preferences and industrial structure may have altered food inflation dynamics
 - Changes to patterns of food consumption
 - Maturing supply chains and increase in market concentration

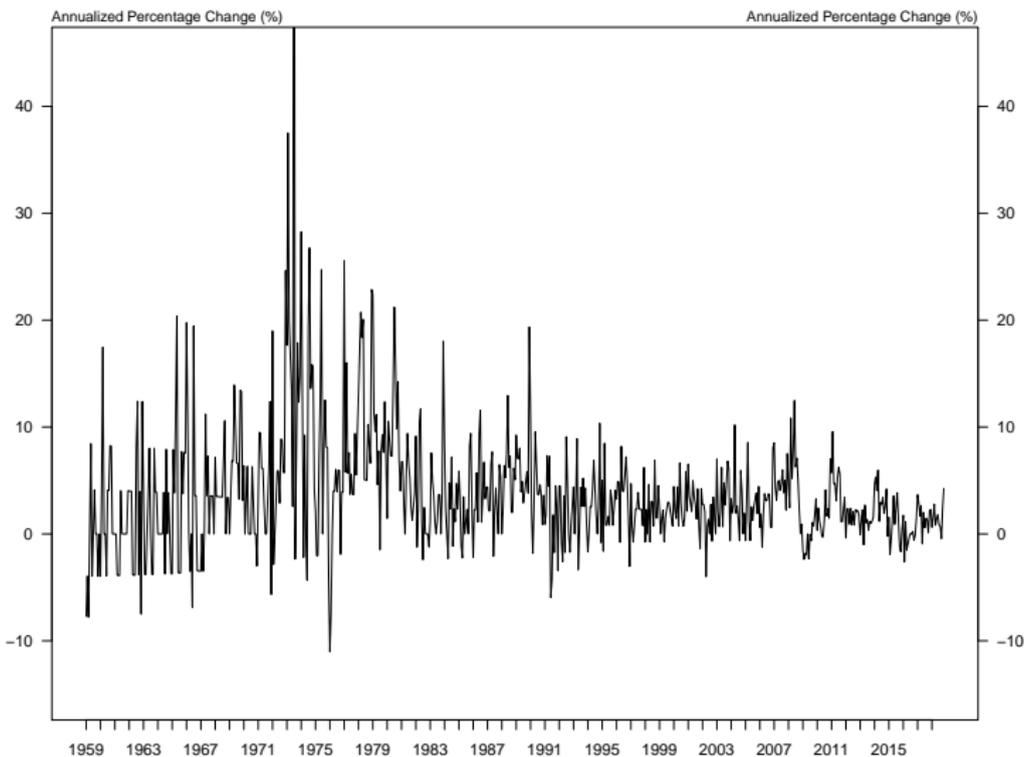
Research Questions

- Has the pass-through of food price inflation into core inflation changed over time?
- What factors help explain changes in food price pass-through into core inflation?

Trends in Food Consumption

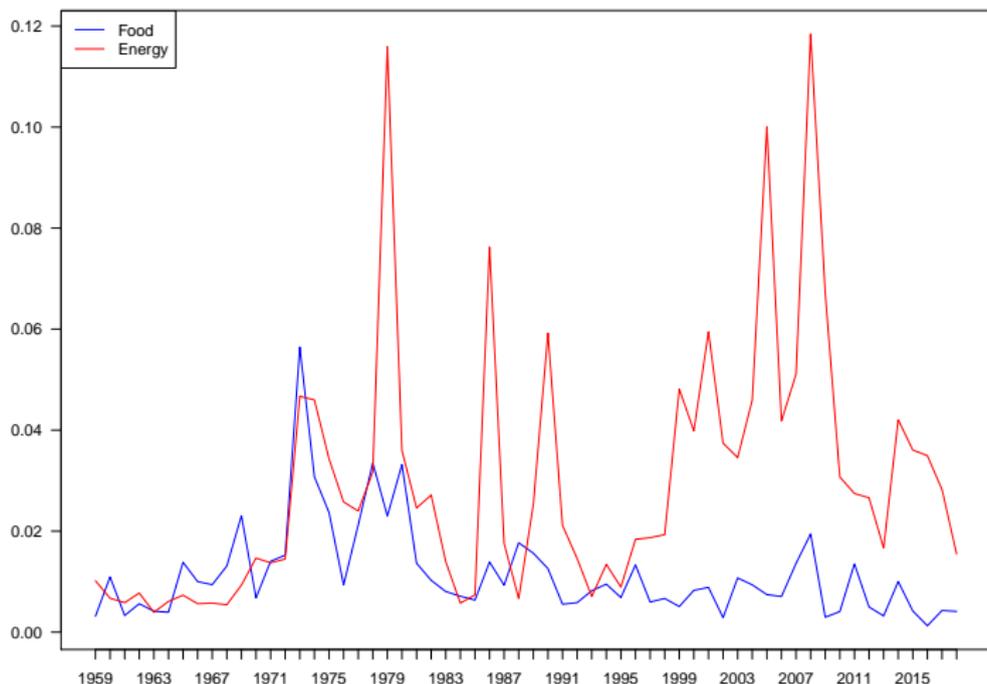
- Food expenditures as share of total expenditures has declined (approximately 16 percent in mid-1980s vs. 13 percent in 2018)
- Food at home contains more items which are perishable and tend to be more subject to price fluctuations
- But, food at home is a declining share of total food consumption
- Consumers in the U.S. are increasingly eating processed or partially processed food, whether at home or elsewhere (Guthrie et al., 2002; Smith et al., 2013)

Food price inflation is lower relative to previous decades



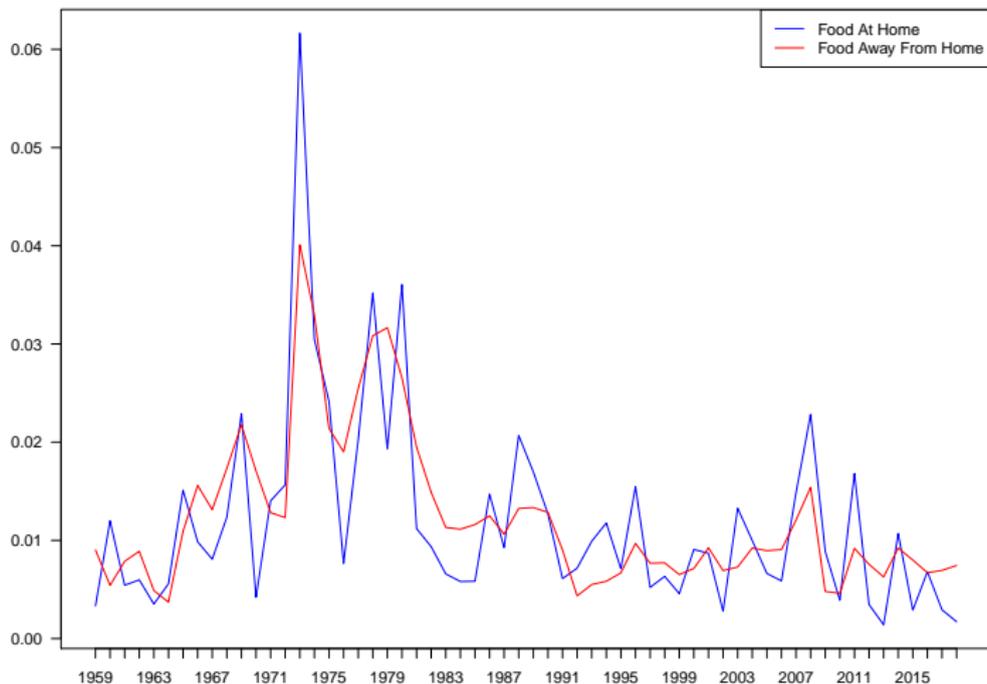
Source: BLS Consumer Price Index

The volatility of food inflation has also declined



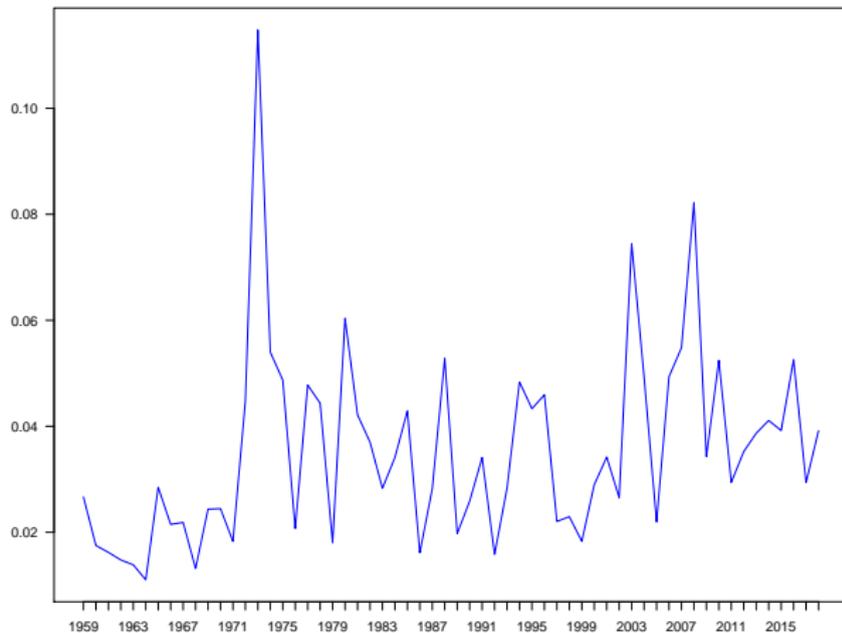
Source: BLS Consumer Price Index

Volatility has declined in both food at home and away



Source: BLS Consumer Price Index

Volatility in farm products price received has not declined in same fashion

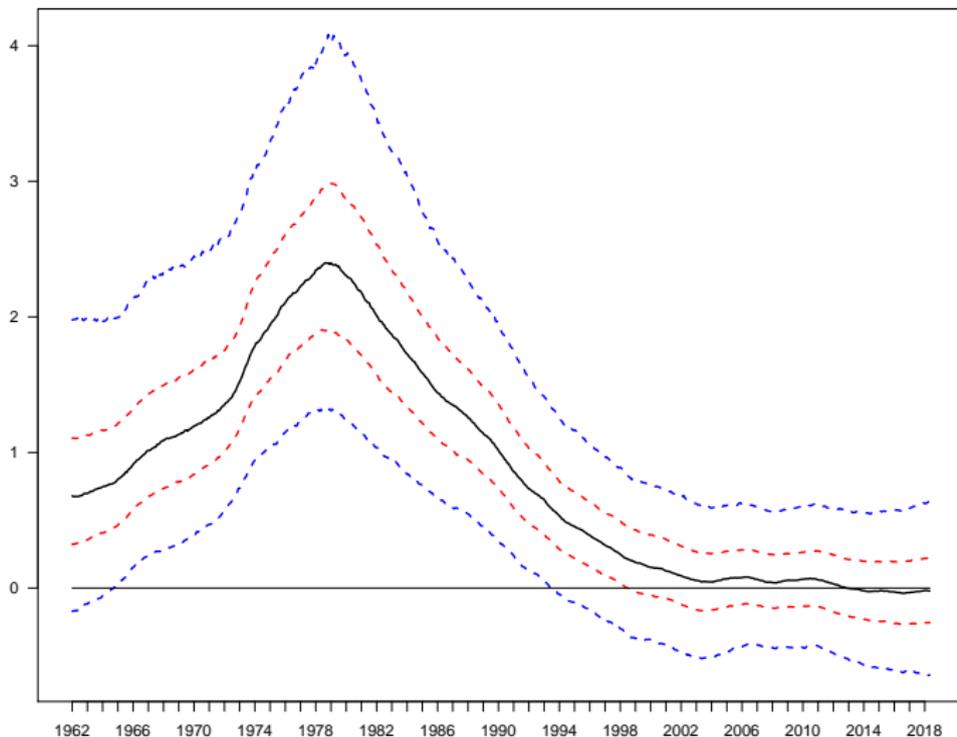


Source: BLS Producer Price Index

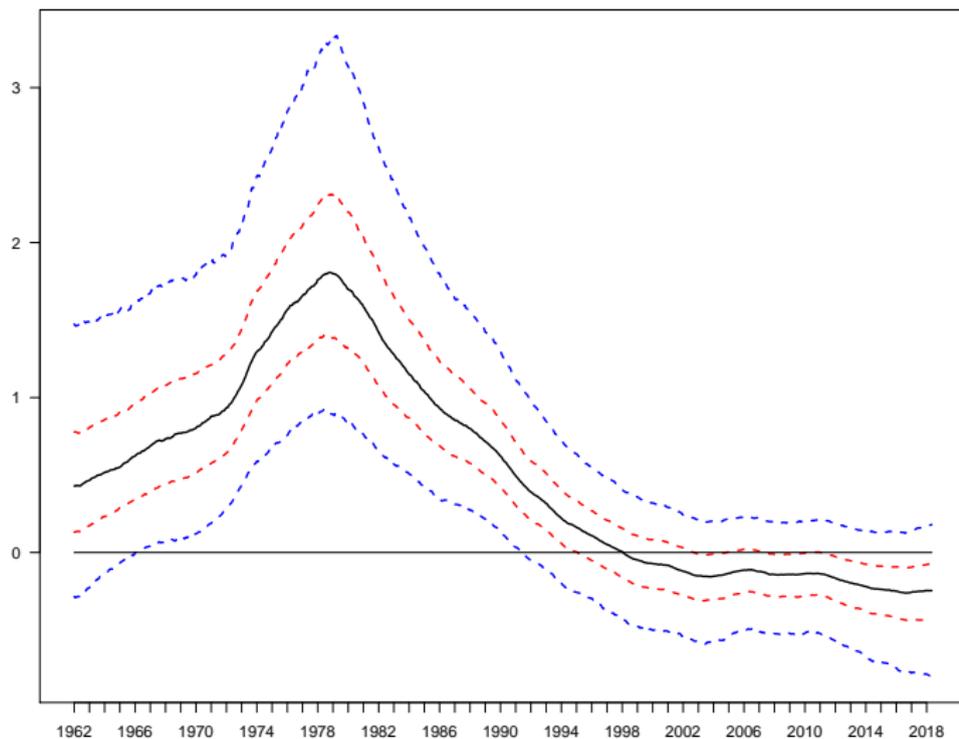
Model-based estimates of food price shock pass-through to core inflation

- A model is chosen that can capture the change in average as well as volatility in food inflation between 1960s to the present
- We account for energy prices as well as food prices (food at home, food away)
- The model allows us to “shock” food prices by 1 percent and measure the subsequent response in core inflation (which excludes food)
- We can assess if this rate of pass-through has changed over time, which provides information on inflation dynamics

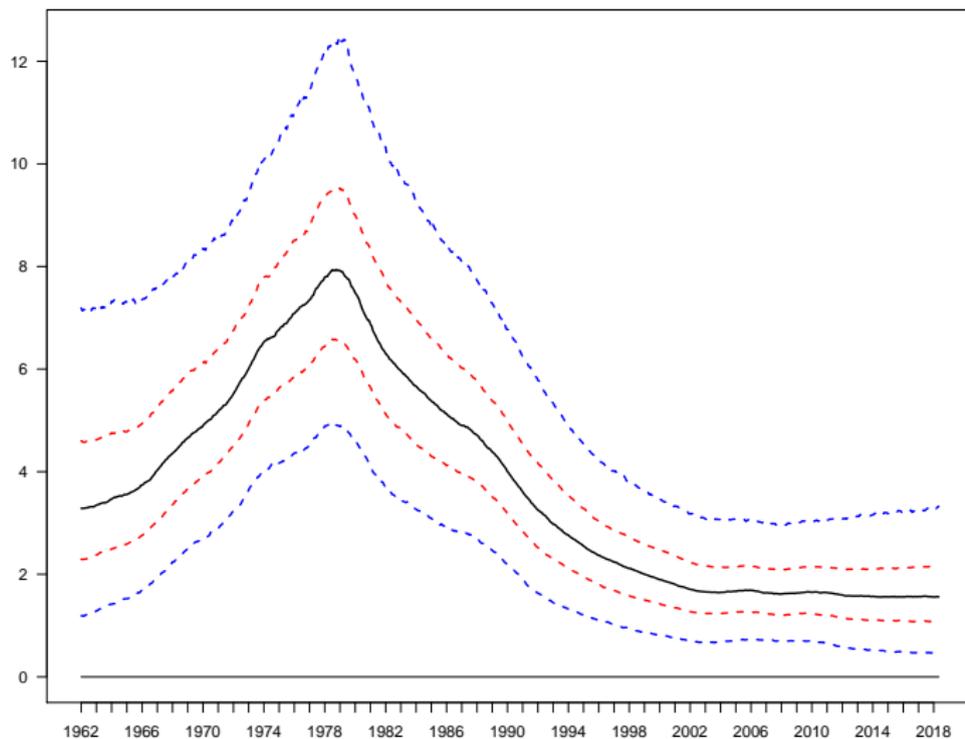
Core inflation has become less responsive to food inflation



Less responsive to changes in food at home



Less responsive to changes in food away from home



Market Concentration and Food Inflation Pass-Through

- Potential causes for declining pass-through: energy-saving technology (Hooker 2002; Bachmeier and Cha 2011)

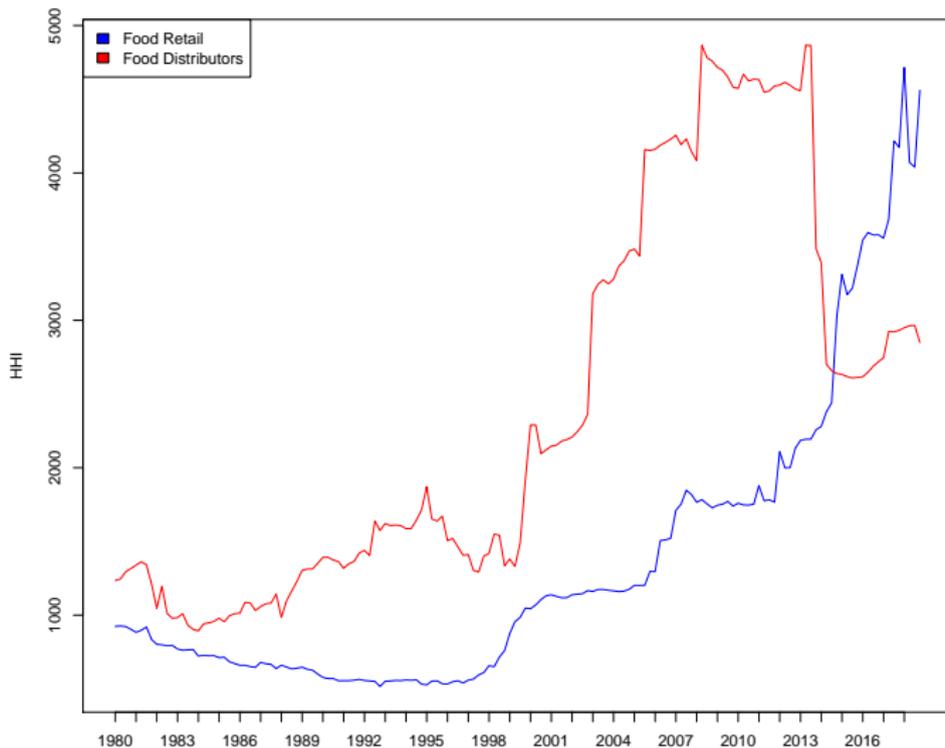
Market Concentration and Food Inflation Pass-Through

- Potential causes for declining pass-through: energy-saving technology (Hooker 2002; Bachmeier and Cha 2011)
- Others have suggested a change in monetary policy response (Blinder and Rudd 2012)

Market Concentration and Food Inflation Pass-Through

- Potential causes for declining pass-through: energy-saving technology (Hooker 2002; Bachmeier and Cha 2011)
- Others have suggested a change in monetary policy response (Blinder and Rudd 2012)
- Conflitti and Luciani (2017) found disaggregate prices are increasingly driven by idiosyncratic dynamics in certain industries
 - One of the idiosyncrasies potentially impacting food price volatility and inflation is market power and the role of supply chains
 - Increasing concentration in the agricultural supply chain is well documented (Sexton and Xia 2018)

Concentration of Food Retail and Food Distributors Sales



Source: Compustat, authors

Effect of Concentration on Pass-Through

- Both food retail and distributor market concentration are negatively correlated with pass-through
- As market concentration increases, the amount of pass-through from food price shocks into core inflation declines
- Concentration measures in food retail and food distributors can account for 60 percent of the variation in estimates of pass-through between 1985 and 2018
- Accounting for other factors does not reduce the correlation
 - relative composition of the food basket, the ratio of food expenditures away versus at home
 - consumer measures of inflation expectations (Univ. Michigan Survey)

Conclusion

- Model-based estimates show:
 - A decline in the persistence of food prices in core inflation
 - A decline in the volatility of food inflation
 - A 75 percent decline in the pass-through of food price shocks into core inflation

- Model-based estimates show:
 - A decline in the persistence of food prices in core inflation
 - A decline in the volatility of food inflation
 - A 75 percent decline in the pass-through of food price shocks into core inflation
- The decline in pass-through was most notable for food away from home, which has been and continues to be a growing share of total U.S. food consumption

- Model-based estimates show:
 - A decline in the persistence of food prices in core inflation
 - A decline in the volatility of food inflation
 - A 75 percent decline in the pass-through of food price shocks into core inflation
- The decline in pass-through was most notable for food away from home, which has been and continues to be a growing share of total U.S. food consumption
- Nearly 60 percent of the variation in pass-through can be explained by changes in food retailers and distributors market concentration

Potential Implications and Future Research

- Results may have important implications for understanding inflation dynamics in other industries that are also experiencing increases in market concentration
- Will other segments of the economy experience less inflation as market concentration increases or as supply chains mature?
- How will the continued integration of on-line distributors and food products impact these trends?
- How does “love of variety” influence overall food inflation?
- Are there changes in food inflation dynamics across the income distribution?