

Discussion of  
The Cyclicity of Add-On Pricing  
Boskovic/Kapoor/Markiewicz/Scholnick

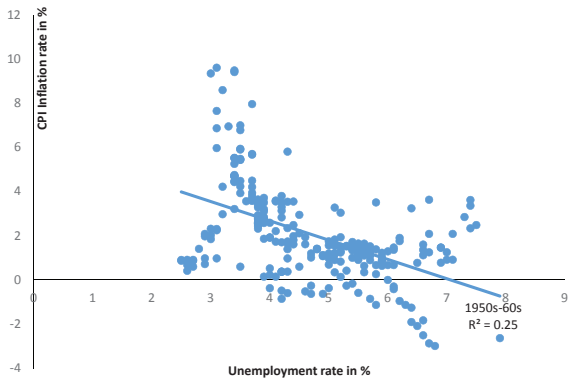
Konstanz Seminar 2018

Discussant: Sarah Lein

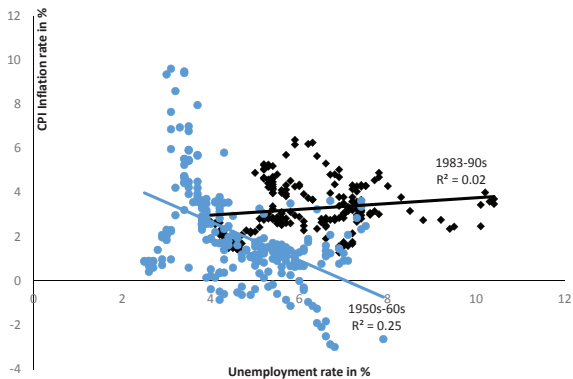
University of Basel

May 16, 2018

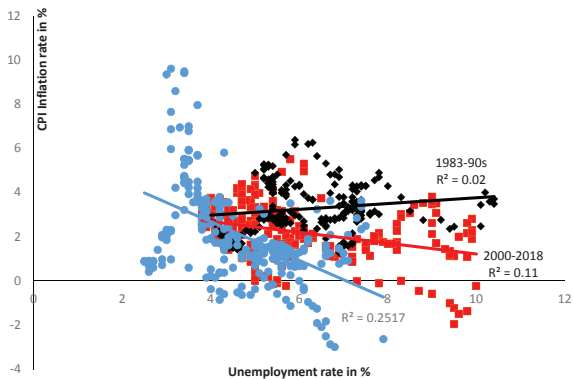
# The Phillips Curve 1950s–1960s



# The Phillips Curve 1980s–1990s



# The Phillips Curve 2000–2018



# This paper

What explains the disappearance of the relationship between unemployment and inflation?

- ▶ Mismeasurement of price indices: add-on prices are not accounted for in standard price indices

$$p_{ist} = p_{ist}^{base} + p_{ist}^{addon}$$

- ▶ Prices of add-ons are more procyclical than prices for base goods
- ▶ Add-ons became more prevalent over recent decades

# This paper

Data from a nationwide Canadian retailer of household durable goods (“base goods”), including information on prices for extended warranties (“add-on goods”).

- ▶ 6 million transactions, 35,000 goods, 3 million consumers, 12/1999–12/2009.
- ▶ Identification: regional variation in prices for base goods, prices for add-ons, and unemployment rates.

# Main findings

## Micro level:

- ▶ Add-on prices co-move with regional unemployment rates. Base good prices do not.
- ▶ Reductions in add-on prices are used to boost sales of base goods, in particular in regions with higher unemployment

## Macro level:

- ▶ Aggregate inflation rates including add-on prices co-move more with unemployment rate than inflation rates that neglect add-on prices.

# Comments I: Levels vs. Differences in Micro Regressions

The estimation equation

$$P_{scm,t} = \beta u_{r(s),t-l} + \rho P_{scm,t-l} + \alpha_{r(s)} + \gamma_{cm,t} + \varepsilon_{scm,t},$$

where  $s$  is store in region  $r$ ,  $c$  is product category,  $m$  manufacturer.

- ▶ The dependent variable is an average price  $P_{scm,t}$  over transactions and unique products  $P_{si(c)m,t}$ .
- ▶ For example, Frigidaire Freezers vary between \$399 and \$1099, depending on the unique product.
- ▶ Composition of products across regions within a product category-manufacturer-month might differ a lot in terms of quality, and along other dimensions (not captured in the FEs), which may correlate with the regional unemployment rate.



# Comments I: Levels vs. Differences in Micro Regressions

Why not aggregating changes in log-prices for unique products  $\Delta_{t,t-12} p_{si(c)m,t}$  in the first step?

The differences in price levels for different products will drop out.  
Any other product-FE will drop out.

$$\Delta p_{scm,t} = \beta u_{r(s),t-\ell} + \rho \Delta p_{scm,t-\ell} + \alpha_{r(s)} + \gamma_{cm,t} + \varepsilon_{scm,t},$$

This would also come closer to the interpretation of the results, which often refer to inflation rates.

## Comments II: Levels vs. Differences in Macro Regressions

Paper assesses the cyclical nature of *inflation* by estimating the specification

$$\pi_t = \alpha + \beta_\ell \Delta \ln(u_{t-\ell}) + \varepsilon_t,$$

where  $\pi_t$  is inflation for durable+non-durable+services.

- ▶ The unemployment rate is included as a growth rate in unemployment? Easier to interpret if it was included as a level or in first differences or as an unemployment gap.
- ▶ Only durable prices differ between the retail-price based inflation rates and the official CPI. Would be interesting to show durable inflation and their covariance separately.
- ▶ Why are no lags of inflation included? The fact that the sum of lagged  $\beta_\ell$  is significant might be driven by omitted lagged inflation variable.

## Further Questions

- ▶ Where would the actual service prices for servicing an extended warranty go to in the CPI? Into services prices? Would including  $p_{ist}^{addon}$  into durable goods prices lead to a double-count?
- ▶ Why is the aggregate price series for durables not plotted? Means and standard deviations do not say much about how comparable the retail-price series are to the official durable goods CPI. Add correlation coefficients.
- ▶ Use expenditure weights instead of population weights per region.
- ▶ Costs for warranty servicing and costs for the base good are included in the data. Say sth about markups and cyclicity of markups.

# Summary

**Very interesting paper, great data, highly relevant research question.**

- ▶ One component in durable goods prices is a services component, which is not accounted for in the data.
- ▶ Adding this component helps to resurrect the Phillips-curve relation.
  
- ▶ Use log-changes in prices for unique products in the first stage of the data aggregation.
- ▶ Exploit the fact that the dataset includes prices and costs.