Discussion of

“Pipeline Pressures and Sectoral Inflation Dynamics”

F. Smets, J. Tielens & J. Van Hove

by

Klaus Adam
Summary

• Bayesian estimation of augmented Smets & Wouters model

• Augmented along following dimensions
  • Intermediate goods production
    7 sectors: capital, labor & intermediate goods < BEA input output matrix
  • Intermediate consumption good production
    4 consumption goods: CES-aggregate of intermediate goods < BEA bridge tables
  • Final consumption good:
    CES aggregate of the 4 intermediate consumption goods < Cons. exp. shares
  • Capital producers:
    Investment is CES aggregate of intermediate goods < BEA investment flow tables

• Sticky prices: interm. goods & interm. cons. goods < Wedge between PPI & PCE
• Sticky wages: sector specific wages (sector specific labor & capital inputs)
Summary

• Bayesian estimation of augmented Smets & Wouters model

• Augmented set of observables:
  standard aggregate variables, but with aggregate PPI & PCE inflation
  sectoral variables: PPI inflation, hours, wages, output, investment
    intermediate cons. good inflation

• Model is involved (model description completed on p. 17)
Contribution

• Model similar to Nakamura and Steinsson (QJE 2010)

• But here: estimated rather than just calibrated

• Full set of shocks, instead of just MP shocks & transmission

• Can decompose inflation dynamics:
  Which shocks drive aggregate ppi/pce inflation and how?
Contribution

Proposes (forecast error variance) decomposition:

\[ \sigma^2(\pi) = \sigma^2(\alpha) + \sigma^2(\beta) + \sigma^2(\gamma) \]

- \( \sigma^2(\alpha) \): variance contribution from aggregate shocks
- \( \sigma^2(\beta) \): variance contribution of sector j shocks on sector j PPI inflation
- \( \sigma^2(\gamma) \): variance contribution of the pipeline
  1. sector j inflation affected by shocks in other sectors
  2. covariance term I: sector j shocks affects inflation in sectors k and l
  3. covariance term II: covariance since sector j shocks affect sector j and k inflation
Contribution

- Forecast error variance decomposition (h=infinity)

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<thead>
<tr>
<th></th>
<th>$\sigma^2(\alpha)$</th>
<th>$\sigma^2(\beta)$</th>
<th>$\sigma^2(\gamma)$</th>
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<tbody>
<tr>
<td>(aggregate)</td>
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<tr>
<td>Aggregate PPI:</td>
<td>69%</td>
<td>9%</td>
<td>21%</td>
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<tr>
<td>Aggregate PCE:</td>
<td>45%</td>
<td>26%</td>
<td>28%</td>
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(12% for h=1) (24% for h=1)
Comments

• Forecast error variance decomposition
  - Uncertainty bands around the contribution?
  - Understanding the channels better
Understanding the pipeline channels better I

Decompose pipeline contribution:

(1) sector $j$ inflation affected by shocks in other sectors

(2) covariance term I: sector $j$ shocks affects inflation in sectors $k$ and $l$

(3) covariance term II: covariance since sector $j$ shocks affect sector $j$ and $k$ inflation
Understanding the pipeline channels better II

What economic mechanisms give rise to the pipeline contribution?

- shut down price rigidity (at different levels)
- shut down wage rigidity
- isolate the contributions of different kinds of shocks
Understanding the pipeline channels better II

• Currently quantification of pipeline pressure based on calibrated model
  “In order to present more disaggregated results, we use the estimated of the baseline model with \{J=7,Z=4\} to calibrate a disaggregated version of the economy with \{J=35,Z=17\}. The relevant structural tables and other details are in appendix E.”

• Unclear why?

• Possibly affects results. Appendix E:
  - Use more disaggregated input/output & bridge tables: Fine!
  - “For the shock processes..., we assume the processes of the “parent sector” are the same for the underlying sectors”:
    Reasonable? Now shocks all uncorrelated? Sector level less volatile?
Conclusions

• First paper to structurally \emph{estimate} a New Keynesian model with substantial supply-side heterogeneity

• Range of interesting features, including
  - double price rigidity
  - wedge between aggregate PCE & PPI inflation

• Interesting substantive economic results:
  - how sector-level shocks operate through the production chain
  - how do sector-level shocks contribute to aggregate inflation
Discussion of

“The Flattening of the Phillips Curve and the Learning Problem of the Central Bank”

Jean-Paul L’Huillier and William R. Zame

by

Klaus Adam
The Problem Analyzed

• CB wants to counteract nominal demand pressures => stabilize prices

• CB learns about nominal demand pressures from price pressures

• Paradox:
  If prices reveal demand pressures
  ⇒ CB can completely stabilize prices
  ⇒ Prices will not reveal demand pressures
  ⇒ CB cannot completely stabilize prices

• Learning from prices: EQ non-existence (Bernanke & Woodford (1997))
Structure of Discussion

- Place the problem in the paper into wider context of the literature

- Remarks about the specific problem under study:

  Relative to existing literature has interesting twist:
  Dynamic setting (three periods)
  Commitment to long-run price stability interacts with ability to learn & stabilize short-run demand pressures
Wider context: self-defeating prophecies

Siemroth (JET, 2019):

- makes important progress on REE models where policymakers learn from prices

- learning from asset prices: bank regulator learning from bank bond prices

- problem has same structure as learning from consumer prices
Wider context: self-defeating prophecies

Siemroth (JET, 2019):
Learning form market prices possible in EQ (EQ existence!), but depends on
- uninformed policymaker who only learns from prices
  vs. policymaker with independent additional information
- for uninformed policymaker: market ‘noise’ vs. no noise
- for policymaker w independent info: policymaker preferences
  preferences for complete vs. incomplete stabilization
Wider context: self-defeating prophecies

L’Huillier & Zame: uninformed policymaker & absence of market noise

Siemroth (2019) provides cook-book recipe for checking existence:

- Derive optimal actions $M(S)$
  - assuming state $S$ is revealed to policymaker by market prices
- Check if the EQ mapping $P(S)$ implied by $M(S)$ is invertible
- If not, then no EQ with learning from prices
- Clearly: if policymaker wants to implement $P(S)=P$, invertibility fails!
Wider context: self-defeating prophecies

Results in Siemroth (2019) suggest that:

- noisy observation of the price level $P(S)$ by policymaker may help
- independent information about $S$ by the policymaker may help

Committing or not-committing to *long-run* price stability in $t=3$:
Appears to exactly generate the kind of noisy information that leads to existence!
Specific context: self-defeating prophecies

What is the role of ‘long-run’ price stability in L’Huillier&Zame:

- not-perfectly stabilizing prices in t=3
  => makes it more attractive for price setters to move prices in t<3

- and since prices in t=3 move, it is not optimal for policymaker to completely stabilize in t<3

- mapping P(S) is then again invertible: EQ with learning from prices back
Specific context: self-defeating prophecies

How plausible is the proposed mechanism?

Allowing prices to move in the “long-run”
⇒ generates price adjustments in the short-run
⇒ allows learning about short-term demand pressures

Why are “long-run” prices relevant for short-term price setting?

More plausible: near-term prices are relevant for short-run price-setting...

Setup can plausibly rationalize: medium-term orientation to price stability
Summary

• Interesting problem studying trade-off between policymaker’s stabilization objectives & learning objective

• Message/findings in the context of existing literature

• Very interesting:
  Alternative rationalization of medium-term orientation to price stability