Keith Küster and Volker Wieland’s

Insurance Policies for Monetary Policy in the Euro Area

discussion by:

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Related Literature

Levin-Wieland-Williams (Taylor 1999)

Levin-Wieland-Williams (AER 2003)

Levin-Williams (JME 2003)

This paper:

Four Models for Policy Analysis

1. AW: “Area-Wide” model
2. CW-T: Coenen-Wieland (2003) with Taylor contracts

Models closed with Taylor-type monetary policy rule:

\[ r_t = \rho r_{t-1} + \alpha \pi_t + \beta y_t \]

Rules evaluated using Loss function:

\[ Var(\pi) + \lambda_y Var(y) + \lambda_{\Delta r} Var(\Delta r) \]
Results

<table>
<thead>
<tr>
<th>( \lambda_y )</th>
<th>CW-F rule evaluated in</th>
<th>CW-T rule evaluated in</th>
<th>SW rule evaluated in</th>
<th>AW rule evaluated in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CW-T</td>
<td>SW</td>
<td>AWM</td>
<td></td>
</tr>
<tr>
<td>0.0</td>
<td>.15</td>
<td>.16</td>
<td>.56</td>
<td></td>
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<tr>
<td>0.5</td>
<td>.10</td>
<td>.11</td>
<td>.79</td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td>.13</td>
<td>.19</td>
<td>.93</td>
<td></td>
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</tbody>
</table>

Implied Inflation (Variability) Premium relative to first-best simple rule for each model (in percentage points). The notation “∞” indicates that the implemented rule results in instability; the notation “ME” indicates that the implemented rule results in multiple equilibria. Shown is the case \( \lambda_{\Delta r} = 0.5 \) for loss function (2).

Note: rules compared using “implied inflation premia” (\( = \Delta \text{s.s. } \pi \)) units.
Results

The preceding is a Levin-Williams-Wieland type of result:

Result #1: “Optimized model-specific rules are not robust”

Obvious question: What is the optimal policy taking into account uncertainty across models?

Küster-Wieland (also Levin-Williams (2003)):

1a) Bayesian: specify flat priors across four models
or
1b) Minimax: minimize worst-case loss across models

and

2) commit forever to $\alpha$, $\beta$, $\rho$ no matter what you might learn in the future
Results

Obviously, first-best policy is to optimally filter every period and update policy every period.

This is hard, but not totally intractable:

Bayesian:
  Cogley, Colacito, Sargent (2005)
  Svensson-Williams (2005)
  Swanson (2005)

Minimax:
  Hansen-Sargent (2005)
Results

Levin-Williams (2003) and Küster-Wieland is second-best (?) approximation — can you tell a story that would help to rationalize the method?

Results:

Table 5: Flat Bayesian Priors versus Model-Specific Simple Rules

<table>
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<td>.12</td>
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<tr>
<td>0.5</td>
<td>.09</td>
<td>.08</td>
<td>.14</td>
<td>.26</td>
</tr>
<tr>
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<td>.11</td>
<td>.12</td>
<td>.21</td>
<td>.32</td>
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This yields a “super”-Levin-Williams (2003) type of result:

Result #2: “Optimized Bayesian rules perform very well”
Results

What is optimal policy rule with Minimax loss across models?

Note: Minimax is only across models, loss within each model is Bayesian:

\[
\min_{\alpha, \beta, \rho} \max_{m \in M} \left\{ \text{Var}(\pi|m) + \lambda_y \text{Var}(y|m) + \lambda_{\Delta r} \text{Var}(\Delta r|m) \right\}
\]

This “hybrid Minimax” loss unsatisfying in many ways:

1) policymakers have priors on parameters of any given model, but not across models—is there a story that would rationalize this?

2) can “back out” priors across models that would yield Minimax policy (because # models > # of first-order conditions) (only locally true, and not unique) (?)

3) ignoring policymaker learning seems particularly problematic here

Much better approach would be full Minimax (Hansen-Sargent) generalized to multiple reference models
## Results

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Table 6: Minimax Policy Relative to Model-Specific Rules
A Caveat: “Trembling Hand” Fault Tolerance

Minimax:

Bayesian:
Results

The above yields a new result:

Result #3: “Optimal Minimax rules may not be trembling-hand-robust”

Additional extensions:

Ambiguity-averse policy:

\[
\min \left\{ (1 - e) \sum_{m \in M} p_m L_m + e \max_{m \in M} L_m \right\}
\]

Non-quadratic loss functions:

\[
E|\pi|^{\xi} + \lambda_y E|y|^{\xi} + \lambda_{\Delta r} E|\Delta r|^{\xi}
\]
Conclusions

• More attention should be directed toward computing *first-best* policy in the face of model uncertainty (e.g., Wieland (1995, JME 2000, JEDC 2000))

• Results in the paper are for policies that are very far from first-best
  Not clear how seriously we should take those results, given that:
  − policymakers will learn about the model over time
  − policymakers will revise their policies as new information comes in
  − true model may change over time (e.g., regime change)

• Implied Inflation Premium

• Trembling-Hand Fault Tolerance