

Discussion of:

Short-run restrictions: an identification device?

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Zurich, August 2006

Examine the “...ability of short-run restrictions to properly identify the deep parameters of DSGE models”

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What are deep parameters for CFM?

“...parameters robust to short-run identification scheme used to identify shocks”

How do CFM test for this?

- Estimate $\hat{\theta}$ in \mathcal{M}_2 , model with zero restrictions
- Estimate $\tilde{\theta}$ in \mathcal{M}_1 , model without zero restrictions
- Compare IRFs and $\hat{\theta}$ vs. $\tilde{\theta}$

If $\mathcal{M}_2(\hat{\theta}) \neq \mathcal{M}_1(\tilde{\theta})$ parameters are NOT "deep"

If $\mathcal{M}_2(\hat{\theta}) = \mathcal{M}_1(\tilde{\theta})$ but $\hat{\theta} \neq \tilde{\theta} \rightarrow$ parameters are NOT "deep"

If $\mathcal{M}_2(\hat{\theta}) = \mathcal{M}_1(\tilde{\theta})$ and $\hat{\theta} = \tilde{\theta} \rightarrow$ parameters are "deep"

Results

Timing restrictions modify significantly:

1. the dynamics of the model
2. parameters' estimates

→ As a consequence, the econometric approach of minimum distance estimation with short-run restrictions does not treat parameters as deep

“... questioning the “depth” of such estimation technique”

Comments

Restricting the info sets of agents corresponds to selecting a specific model (also a zero in the contemporaneous matrix of a SVAR selects a specific model)

I do not expect that by estimating 2 different (however similar) models, I would obtain the same parameter values, under **any** econometric method.

True model: estimates will converge to the true value

Misspecified: estimates will converge somewhere else (pseudo-true)

Let's go back to deep parameters

"...parameters robust to short-run identification scheme used to identify shocks"

If a set of short-run restrictions is a model, the definition becomes:

"...parameters robust to the choice of the model"

???

The conclusion is that the estimation method is good, when the two models are very similar!

→ **I am not sure what's the point**

Suppose that I estimate the two models with Maximum Likelihood.

Parameter values will differ between the two models.

Does this invalidate ML because parameters depend on the model?

Does ML is good when the models have similar implications?

An alternative experiment (not what is done in the paper)

Is the information structure imposed in the VAR innocuous?

For example, in the model all variables respond simultaneously but the VAR imposes a timing restriction.

→ specification error!

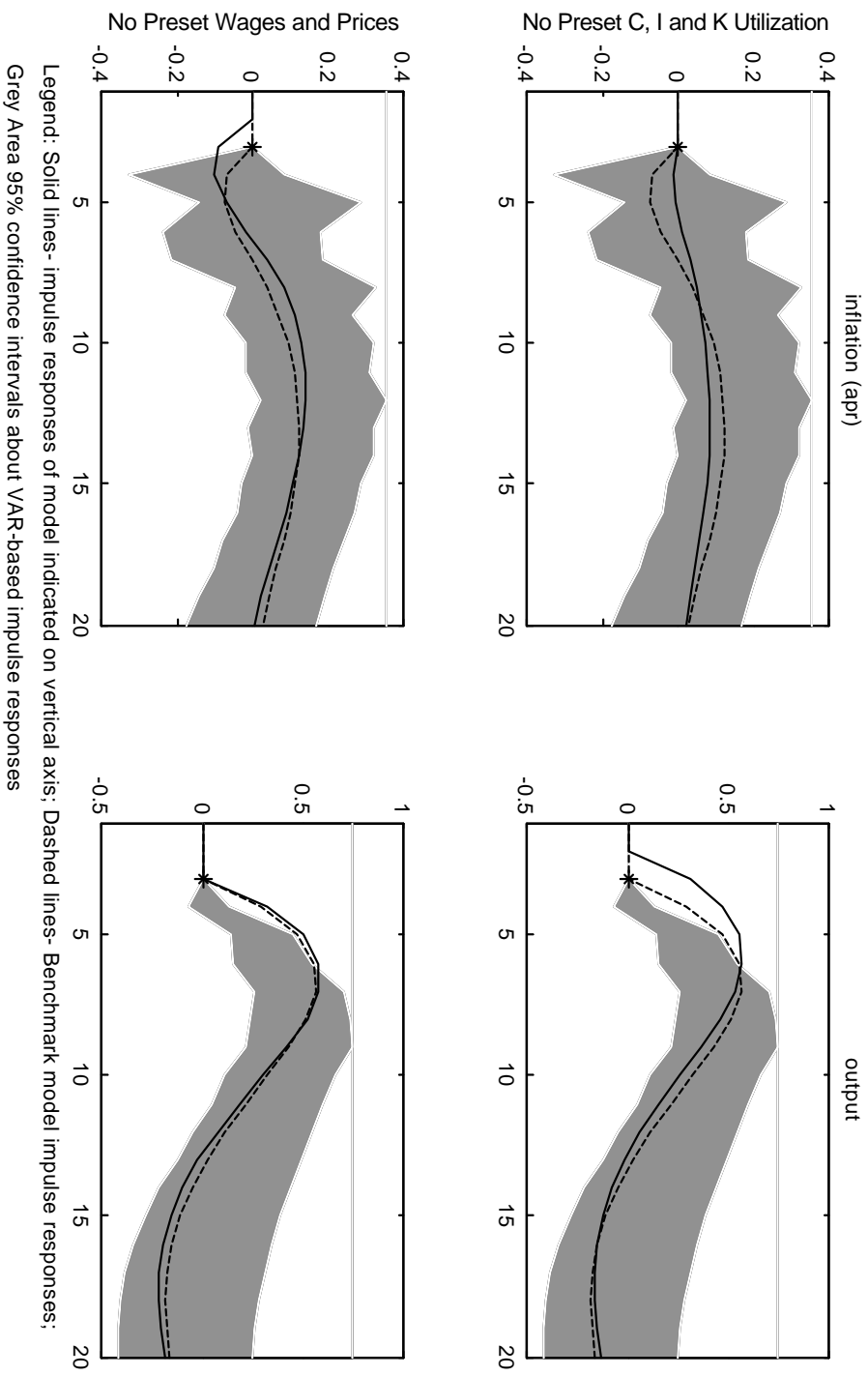
Empirical question: how big is the error?

Is it really persistence?

CFM claim that endogenous persistence is the cause of the problem.

Christiano et al. show a model with a lot of endogenous persistence whose IRFs are pretty robust to timing assumptions

Figure 5. Role of Timing in Model Dynamics



What I find interesting

Limited information approaches may be insufficient to give identification:

$$\mathcal{M}_2(\hat{\theta}) = \mathcal{M}_1(\tilde{\theta}) \quad \rightarrow \quad \text{Observational equivalence}$$

2 models, under a particular loss function, have the same fit.

In CFM, this is one of the two conditions necessary for the estimation method to “work well”

→ Isn't a peculiar requirement?

→ What's the connection with zero restrictions?

Tension between two issues - Robustness vs. Identification

1. Robustness: same implications, no matter the "details" (i.e. parameter values or timing)

- calibration: implications of a model are the same for wide range of parameter values

2. Identification: different implications for different "details"

- estimation: implications of a model must be different for different parameter values

Adapted from Christiano, Eichenbaum and Vigfusson, 2006:

“McGrattan dismisses short-run identification schemes as hokey (syn: cheap and nasty).

One possible interpretation is that McGrattan can imagine models in which the identification scheme is incorrect. The problem with this interpretation is that all models are a collection of strong identifying assumptions, all of which can be characterized as hokey.

Another interpretation is that McGrattan view short-run restrictions as not compatible with dynamic equilibrium theory. This view is simply incorrect (see Sims and Zha, 2006).

A third interpretation is that no one finds short-run identifying assumptions interesting...”

What I have learned

- The assumption of predetermined hours in an extended RBC model has important consequences for the dynamics.
- Another example where there are identification problems under limited information loss functions

What I have **not** learned

- The minimum distance estimator based on short-run restrictions is questionable, because the estimates depend on the model.
- The minimum distance estimator based on short-run restrictions is good, when there are two observationally equivalent models.