

COMMENT: REVISIONS IN
UTILIZATION-ADJUSTED TFP AND ROBUST
IDENTIFICATION OF NEWS SHOCKS

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NEW ADVANCES ON INFORMATIONAL FRICTIONS
IN BUSINESS CYCLES
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TECHNOLOGY AND MEASURED TFP

MODEL

$$Y_t = F(E_t L_t, Z_t K_t, A_t)$$



EMPIRICS

$$\Delta \ln TFP_t = \Delta \ln Y_t - \omega_{L,t} \Delta \ln L_t - (1 - \omega_{L,t}) \Delta \ln K_t$$

$$\Delta \ln TFP_t^U = \Delta \ln TFP_t - \Delta \ln U_t$$

- ▷ TFP \neq Aggregate Technology \rightarrow How is the identification of technology news shocks affected?
- ▷ **New identification** robust to measurement error in TFP_t^U

$$\Delta \ln TFP_t^U = \Delta \ln TFP_t - \Delta \ln U_t$$

- ▷ Empirical measure relies on a variety of modelling assumptions

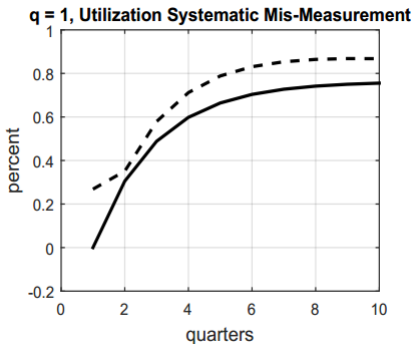
- ▷ In practice:
 - i. Assumptions may not be empirically supported, constant returns to scale, factors shares different from output elasticities,...
 - ii. Systematic mismeasurement of adjustment component
 - iii. Variables transformation
 - iv. ...

CONSEQUENCES FOR IDENTIFICATION OF NEWS SHOCKS

- ▷ Adj-TFP measured with error primarily due to utilization

$$u_t^{ob} = u_t + \mathbf{DS}_t + \sigma_u \varepsilon_{u,t}$$

- ▷ With $\mathbf{D} \neq 0$:

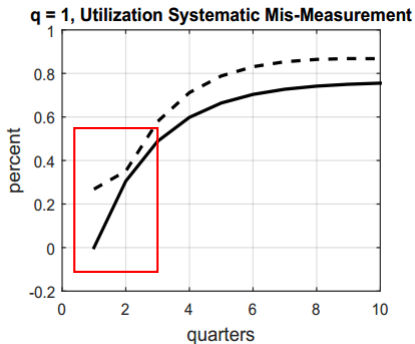


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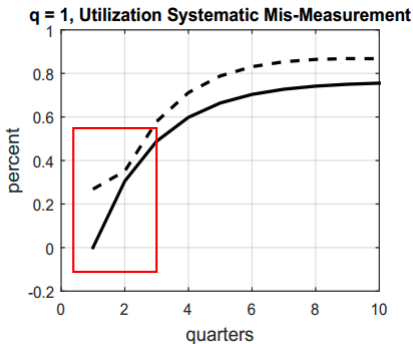


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- ▷ How should we think about this type of error?

REVISIONS IN UTIL AND ADJ-TFP

Properties of Revisions: adj-TFP and Components

	Utilization Revision $y(t)$	Revision (07-16) $y(t)$	Adj-TFP Revision $y(t)$	Revision (07-16) $y(t)$
$y(t-1)$	-0.209*** (-2.67)	-0.194** (-2.27)	-0.146** (-1.98)	-0.121 (-1.54)
$y(t-2)$	-0.280*** (-3.20)		-0.174** (-2.12)	
$y(t-3)$	-0.127 (-1.50)		-0.093 (-1.17)	
$y(t-4)$	-0.093 (-1.16)		-0.008 (-0.12)	
$f1(t-1)$		-0.417** (-2.13)		0.440** (2.19)
$f2(t-1)$		0.542*** (3.11)		-0.524*** (-2.82)
$f3(t-1)$		0.052 (0.26)		-0.122 (-0.56)
$f4(t-1)$		0.146 (0.77)		-0.152 (-0.77)
$f5(t-1)$		0.002 (0.01)		0.065 (0.39)
$f6(t-1)$		0.356** (1.98)		-0.429** (-2.21)
$f7(t-1)$		0.027 (0.15)		0.107 (0.48)
$f8(t-1)$		-0.17 (-1.02)		0.100 (0.51)
$f9(t-1)$		-0.140 (-0.65)		0.277 (1.33)
$f10(t-1)$		0.182 (1.16)		-0.097 (-0.55)
c	0.115 (0.62)	0.031 (0.19)	-0.054 (-0.26)	0.010 (0.05)
F	4.065	2.702	1.898	2.751
P	0.003	0.003	0.113	0.003



- ▷ Vintages of $\Delta \ln TFP_t^U$ remain largely unpredictable
 - i. small autoregressive component
 - ii. no evidence of dependence on past state variables

- ▷ Do we have a way to ‘quantify the damage’ of $\mathbf{D} \neq 0$?

- ▷ Dependence of u_t^{ob} on \mathbf{S}_t suggests that a potential route could be to extend to a data-rich environment [e.g. Forni and Gambetti (2014), Ellahie and Ricco (2017)]

IDENTIFICATION OF KURMANN & SIMS (2017)

- ▷ Drop zero impact restriction on TFP_t^U
- ▷ Max FEV share at $h^* = 80$ quarters

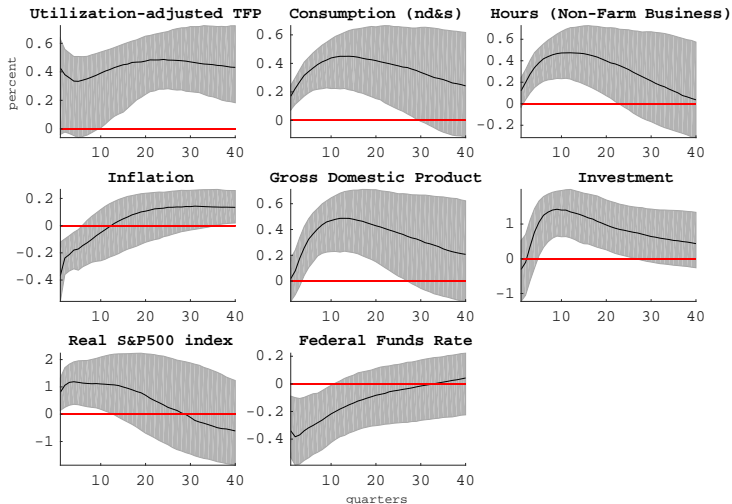
- ▷ Robust to systematic measurement error in u_t^{ob}
- ▷ Consistent with slow diffusion of technology enhancing process
- ▷ Allows news shocks to have non-zero impact effect on Adj-TFP → Big departure from news literature

- ▷ How should we think about news shocks in this framework? How do we distinguish them from contemporaneous TFP innovations?
- ▷ How do we choose the max-share horizon? Model misspecification?

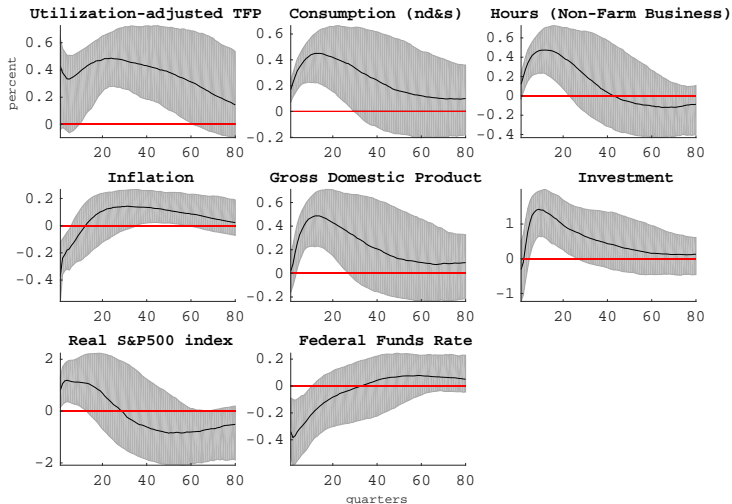
IDENTIFICATION OF KURMANN & SIMS (2017)

- ▷ Adapted code of Kurmann and Otrok (2017)
- ▷ Data as in Kurmann and Otrok (2017) + NFB Hours
- ▷ Sample 1959Q2 to 2005Q2
- ▷ VAR(4) in levels

H=40 – KS(2017) IDENTIFICATION



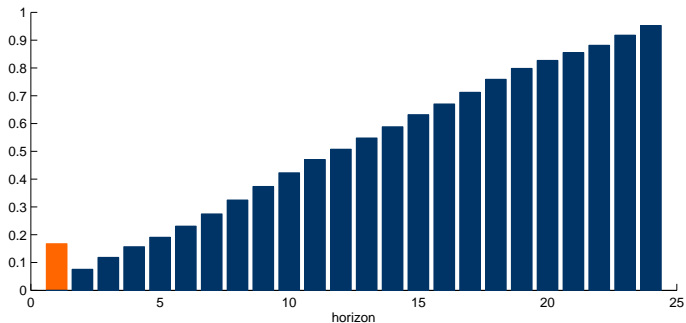
H=80 – KS(2017) IDENTIFICATION



VAR PRIOR AT LARGE HORIZONS

$$B_{BLP}^{(h)} \propto \left(X'X + \left[\Omega_0^{(h)}(\lambda^{(h)}) \right]^{-1} \right)^{-1} \left((X'X)B_{LP}^{(h)} + \left[\Omega_0^{(h)}(\lambda^{(h)}) \right]^{-1} B_{VAR}^h \right)$$

- ▷ Data tend to deviate from VAR prior towards direct LP at large h



[Miranda-Agrippino and Ricco (2016)]

SUMMARY

- ▶ Very good paper! Addresses a relevant question & proposes new identification strategy for news shocks

- ▶ Significant departure from the literature → Perhaps a little more on the intuition
 - i. News vs contemporaneous innovations
 - ii. Slow accumulation & shock to permanent component of technology vs TFP essentially back to trend at $h = 80$
 - iii. Role of missing information for estimation of the dynamic responses of variables to the shocks
 - iv. Some instability of responses → seems to give more weight to news-driven BC hypothesis
 - v. Avoid restrictions by using external information to identify the shocks [e.g. CB news, Miranda-Agrippino (2016), Miranda-Agrippino and Ricco (2016)]