DISCUSSION OF

“CHANGES IN EURO AREA MONETARY TRANSMISSION?”

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“Monetary policy transmission mechanism in the euro area in its first 10 years,”
European Central Bank, Frankfurt, 28 September 2009

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OUTLINE OF DISCUSSION

- Re-cap of main findings
- What implications for euro area modelling? It depends:
  - Mutually offsetting changes in different structural mechanisms?
  - Structural changes offset by changes in policy rule?
- Checking stability neglecting potential sources of instability: Is it really possible?
- Doubts on testing of equality of pre-1996 and post-1998 IRFs
- Aside: Support to the claim that the transition period 1996-1998 was characterised by ‘perturbations’
- Minor points

❖ Bottom line: Very nice paper: (potentially) extremely relevant implications, reached with a simple set-up (always a big plus!); however, a couple of doubts on reliability of findings

SUMMARY OF THE PAPER

- Has the monetary policy transmission mechanism of the euro area *as a whole* changed in the last decades? (EMU, globalisation, financial development)
- VAR estimated over whole sample: counterintuitive features; testing reveals a break in 1996
- Pre-1996 and post-1996 IRFs look rather different (but not qualitatively different)
- Re-estimating the VAR with dummies (for 1996-1998 and post-1998) delivers similar pre-1996 and post-1998 IRFs (1996-1998: period 'perturbated' by convergence process?)
- Bootstrapping experiments support the conclusion that pre-1996 and post-1998 periods do not differ

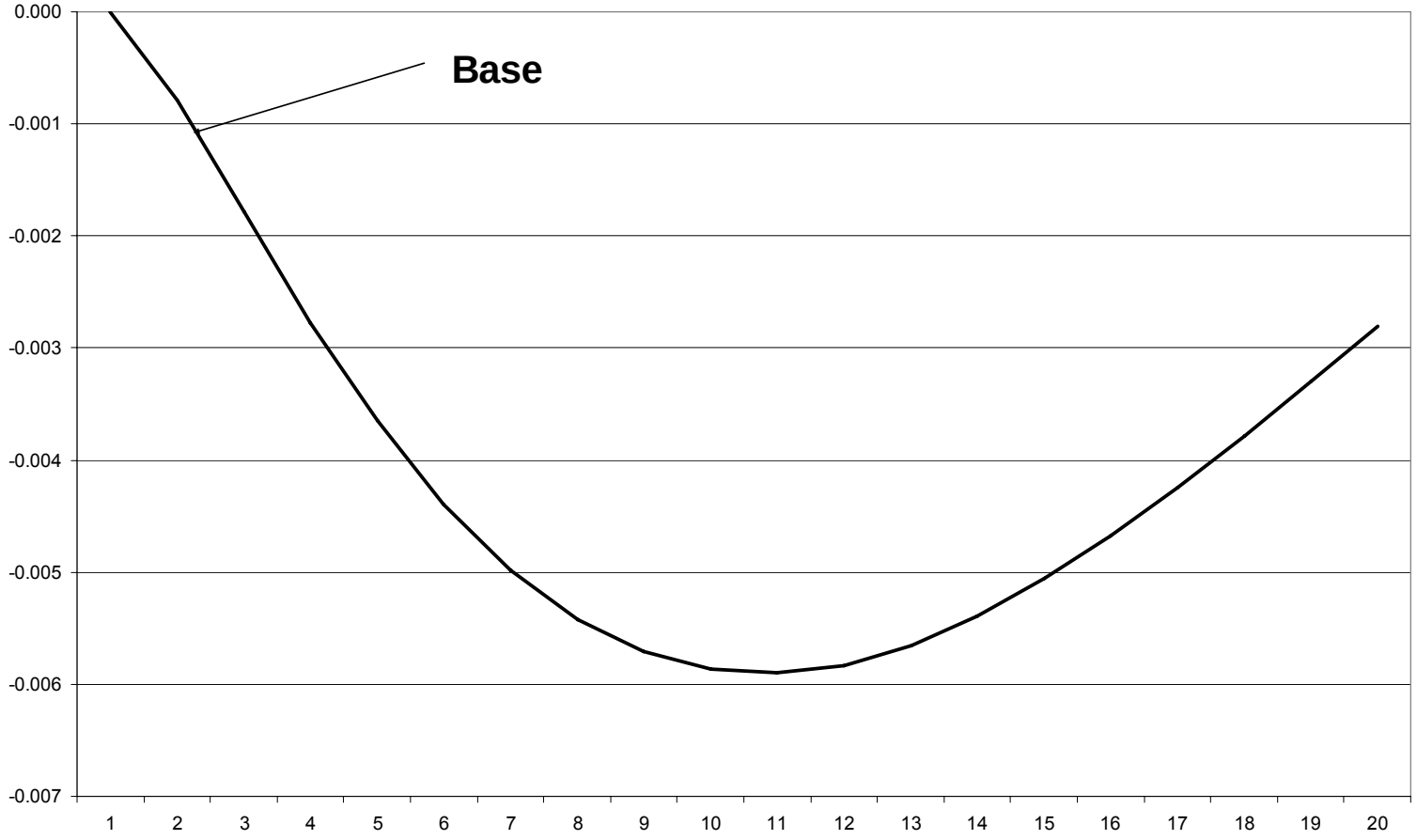
→ Except for the period of run-up to EMU, MTM has remained remarkably stable

IF IRFs ARE STABLE, WHAT IMPLICATIONS? – 1/6

- If IRFs of the VAR are indeed the same for the periods pre-1996 and post-1998 (more on this below) …
- … either no changes occurred in the structural parameters of the economy …
- … or offsetting changes occurred too, so that the reduced form has remained (roughly) the same
- What does this imply? My answer: It depends
- My labelling:
    - Monetary transmission mechanism (MTM): the way monetary policy shocks propagate to the economy (through various channels: exchange rate, cost of capital, etc.)
    - In my reading, MTM does not include policy itself

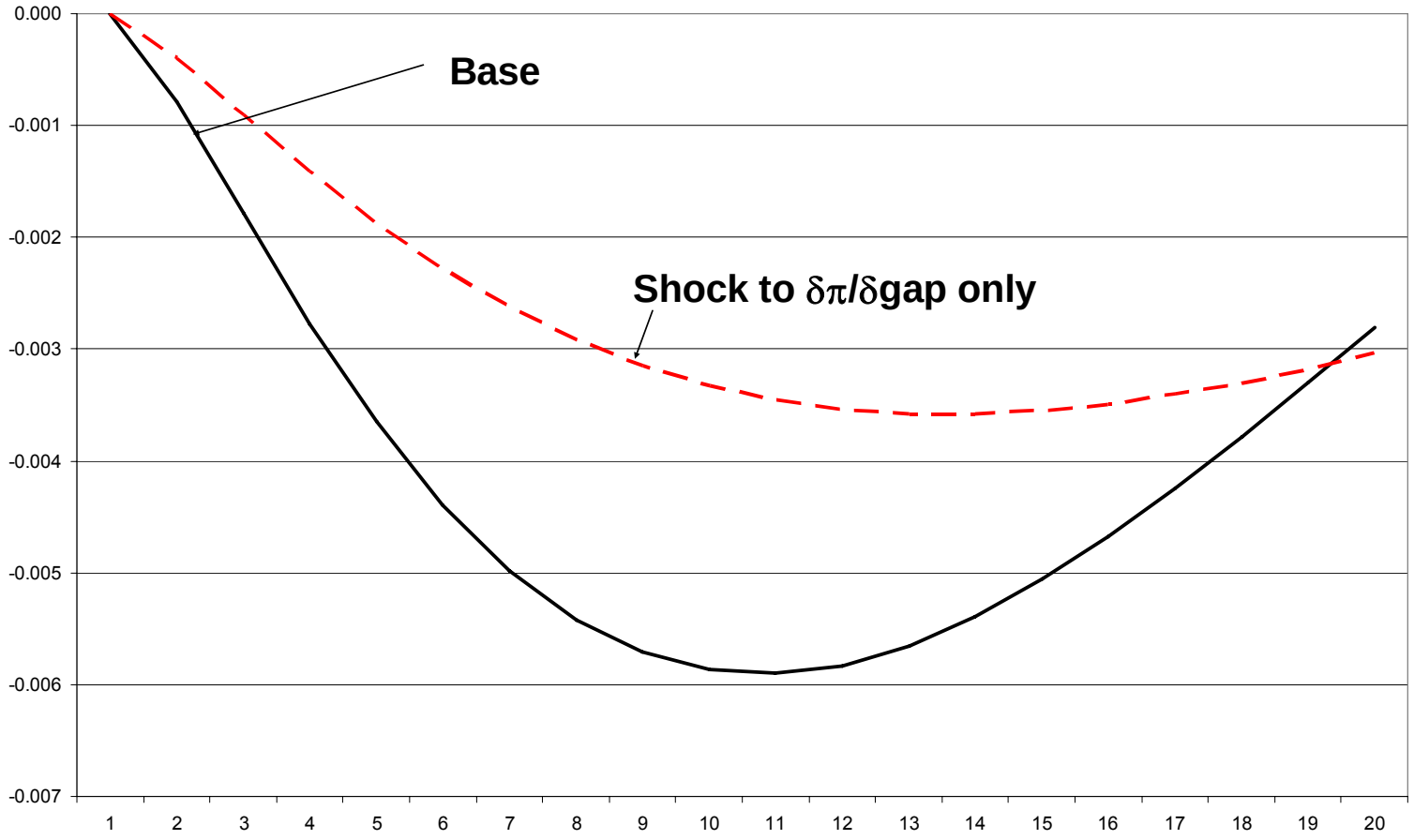
IF IRFs ARE STABLE, WHAT IMPLICATIONS? – 2/6

- Simple AD-AS model with Taylor rule:
  IRF of inflation to monetary policy shock



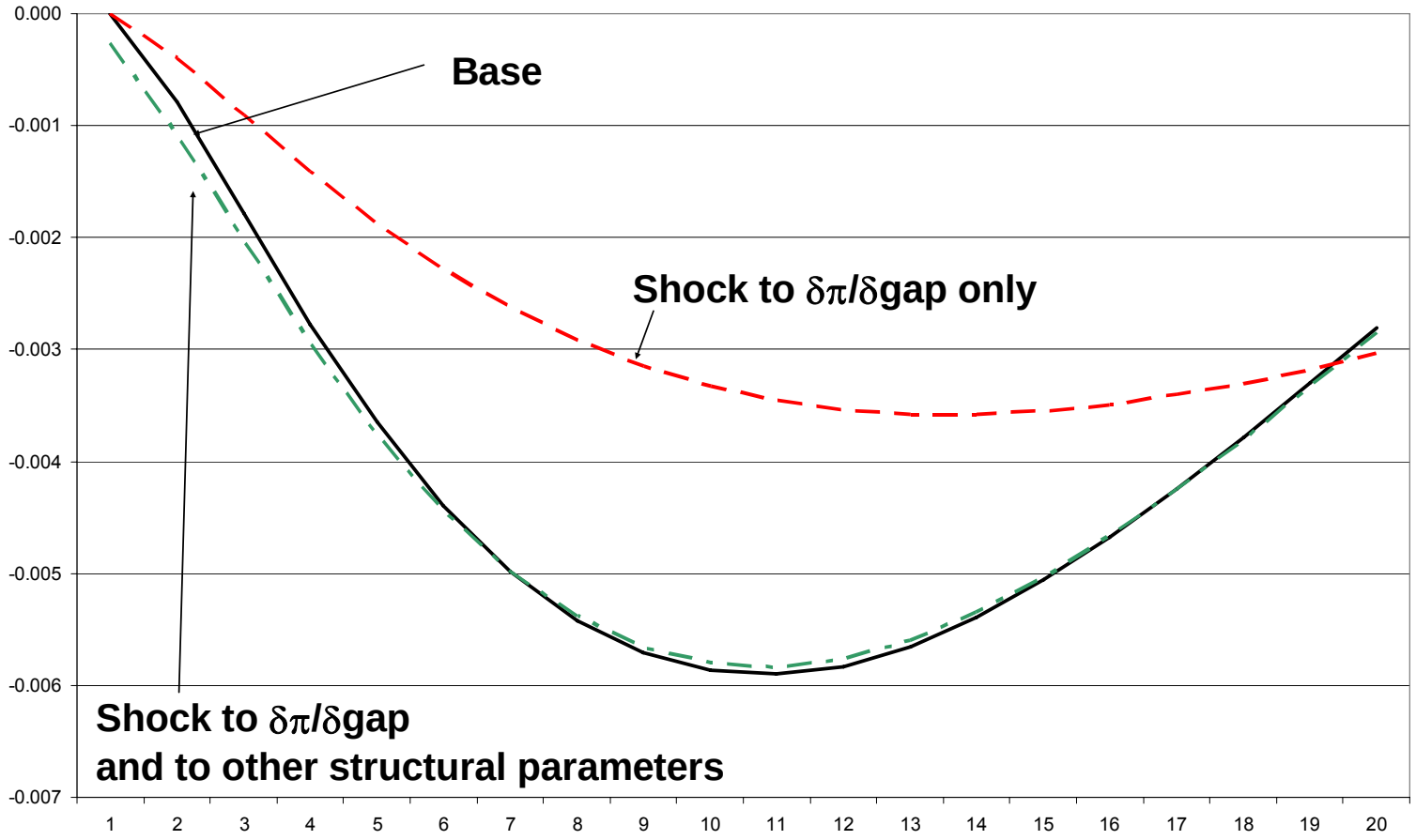
IF IRFs ARE STABLE, WHAT IMPLICATIONS? – 3/6

- Simple AD-AS model with Taylor rule:
  Same IRF after shocking one parameter



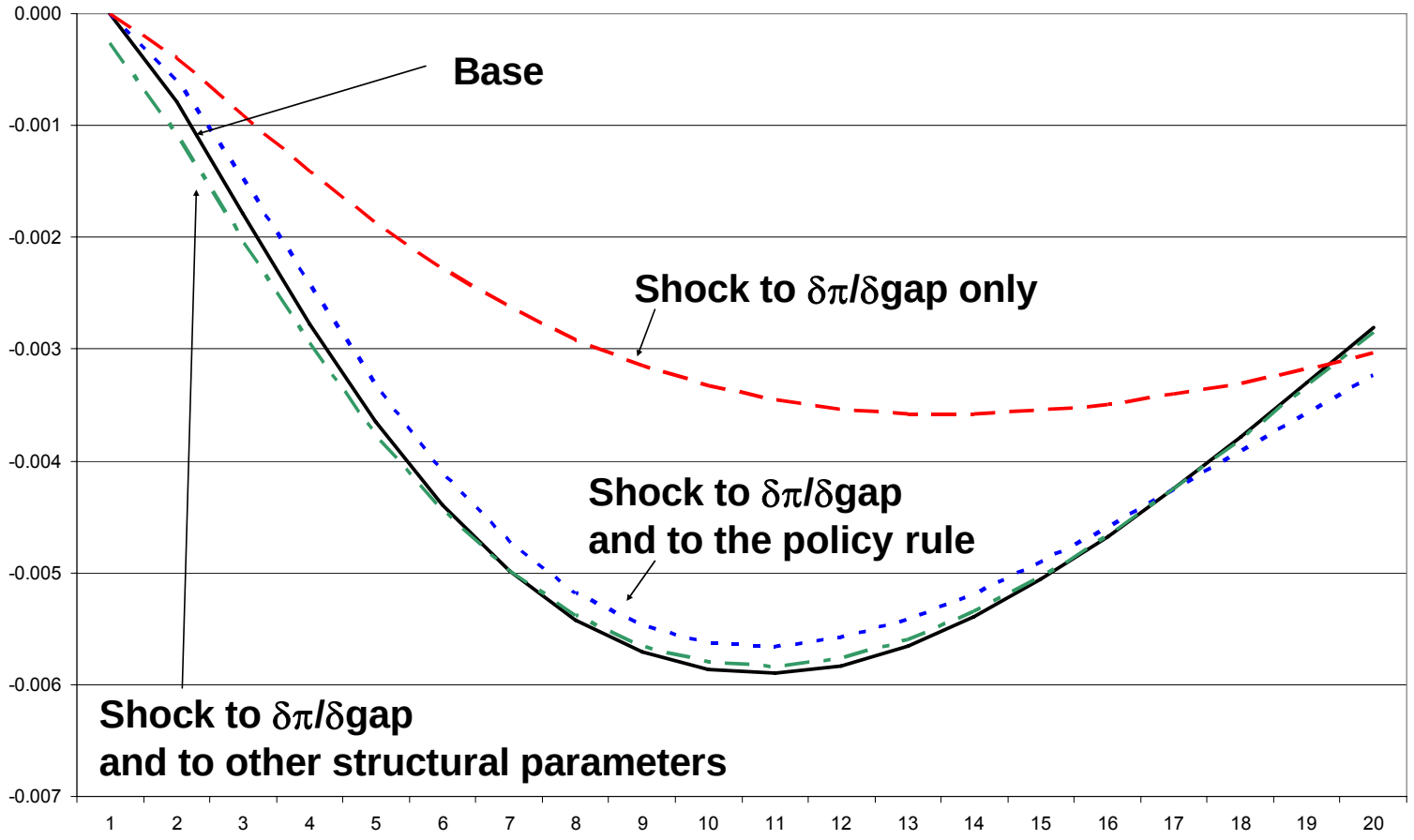
IF IRFs ARE STABLE, WHAT IMPLICATIONS? – 4/6

- Appropriate changes to other policy parameters may generate the same initial IRF, but …



IF IRFs ARE STABLE, WHAT IMPLICATIONS? – 5/6

- … so can appropriate changes to the Taylor rule



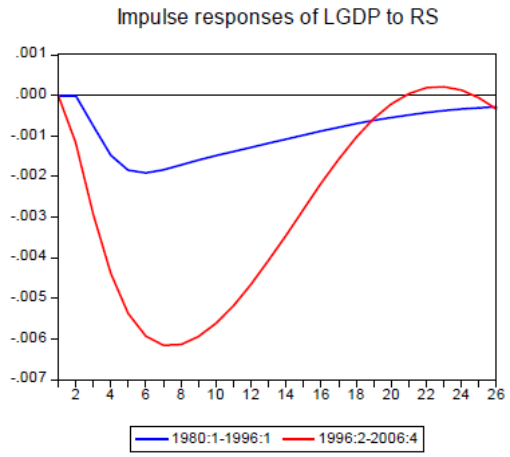
IF IRFs ARE STABLE, WHAT IMPLICATIONS? – 6/6

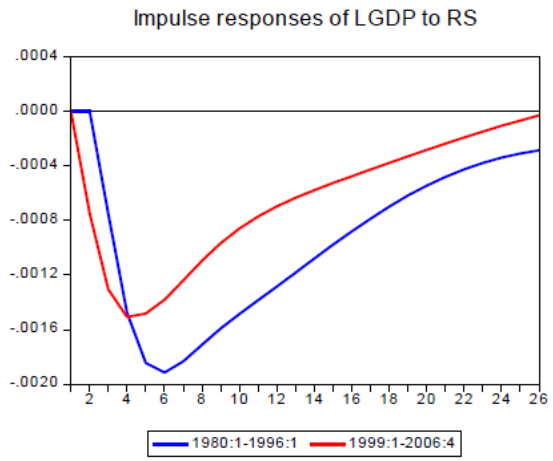
- I would label “no changes in MTM” the situation in which changes in structural parameters are offset by changes in other structural parameters
- I would not use that label if changes in structural parameters are offset by changes in policy parameters (remark: policy parameters are of key relevance in identification of structural shocks)
- In the first case: models estimated on pre-EMU data may still be used for, say, conditional forecasting; in the latter case, they cannot
- If what changed is the identification of structural shocks —on this, more later— even if reduced-form relationships have remained unchanged it does not follow that the model may be safely used, at least for most purposes
- What exactly do the results imply per se, with no knowledge of what happened to which structural parameters?

SPLIT SAMPLE vs. WHOLE SAMPLE WITH DUMMIES, 1/5

split sample ***whole sample with dummies***

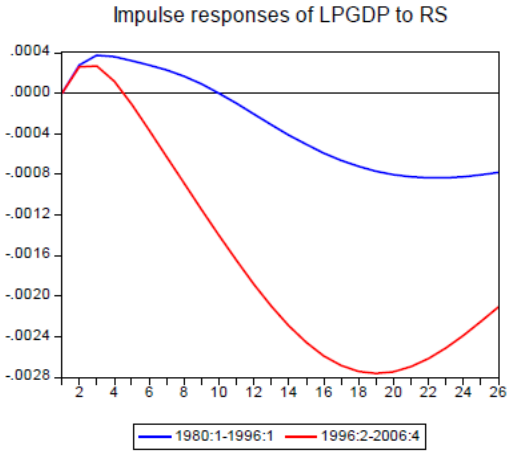
output

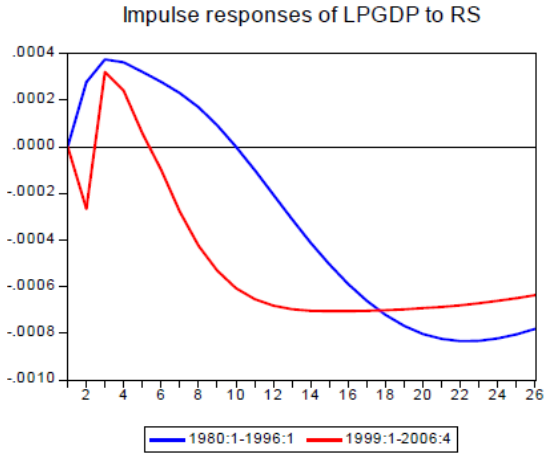




scale!

prices





SPLIT SAMPLE vs. WHOLE SAMPLE WITH DUMMIES, 2/5

- First half of paper: Sample is split in two (break date: 1996), two different Procedures to identify structural shocks are carried out. Resulting IRFs differ considerably in size

$$y_t = A_A y_{t-1} + \varepsilon_{A,t}$$
$$y_t = A_P y_{t-1} + \varepsilon_{P,t}$$

identification $\Rightarrow$

$$y_t = \Gamma_A^{-1} B_A y_{t-1} + \Gamma_A^{-1} v_t$$
$$y_t = \Gamma_P^{-1} B_P y_{t-1} + \Gamma_P^{-1} v_t$$

- Second half of paper (where equality of IRFs is formally tested): Estimation on whole sample, using dummies for pre-1996, post-1998 and 1996-1998; dummies are introduced on all VAR coefficients. Is this enough?

$$y_t = A\, y_{t-1} + D_p A_P y_{t-1} + \varepsilon_t \quad \Rightarrow \quad y_t = \Gamma^{-1} B y_{t-1} + D_p \Gamma^{-1} B_p y_{t-1} + \Gamma^{-1} v_t$$

Here, Γ is unique (Primiceri (2005), Gambetti, Pappa and Canova (2006), Canova and Gambetti (2008) and Galí and Gambetti (2009): time-varying A and time-varying VarCov of ε_t)

SPLIT SAMPLE vs. WHOLE SAMPLE WITH DUMMIES, 3/5

- Reduced-form parameters may not differ between pre-1996 and post-1998, either because no changes occurred in the structural parameters or because those changes, if any, offset one another

- But changes may have taken place in Γ too! (source of shocks is ignored by construction)

- Results from split sample suggest that changes may have occurred in Γ. If so, assuming Γ to be the same results in incorrectly identified structural shocks

- Even changes in structural parameters that leave the reduced-form coefficient matrix A unchanged may require heteroskedastic reduced-form shocks

SPLIT SAMPLE vs. WHOLE SAMPLE WITH DUMMIES, 4/5

- Estimation over two split samples suggest that propagation of shock is qualitatively similar, but variance is very much different (variance of the reduced-form residual in the interest rate equation: first half of the sample about 8 times larger – my own estimate)

- By contrast, estimation with dummies (which in principle should deliver similar results) delivers, by construction, much more similar variance

- Checking for stability without specifying potential sources of instability: Can it be done?

SPLIT SAMPLE vs. WHOLE SAMPLE WITH DUMMIES, 5/5

- Heteroskedasticity is not a dramatic violation of standard assumptions if all we are interested in is A (estimates still consistent)

- But we are interested in the IRF to a structural shock (MP shock), which requires identification (through Cholesky-sation of second-order moment). This makes heteroskedasticity very relevant

- Test of significance of differences of IRFs between the first and the last sub-samples is problematic:

    - "The bootstrap procedure implicitly assumes that the standard deviation of the VAR residuals do not change over time" (p. 16)

- The evidence suggests that the variance-covariance matrix did change over time; estimation with sub-samples dummies, which rules out that possibility by construction, likely invalidates tests

INTERIM PERIOD – 1/2

- Impulse responses from VAR pre-1996 and post-1999 appear to be relatively similar, compared with those of 1996-1998

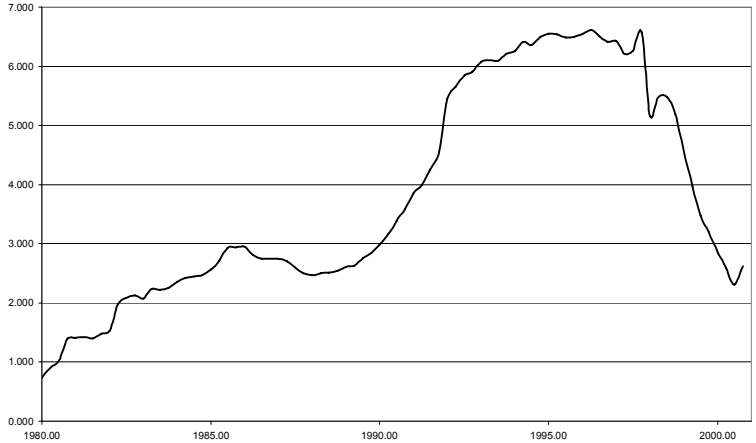
- Why is that? Tentative explanation: “[the break and counter-break are] very much in line with the hypothesis that the run-up to EMU has caused ‘perturbations’ or ‘adjustments’ in the data which seem to disappear afterwards”

- Indeed, other studies find both that the convergence process was somewhat different from previous period and that it was promptly abandoned once convergence was reached (e.g., Busetti, Harvey, Forni and Venditti (2007))

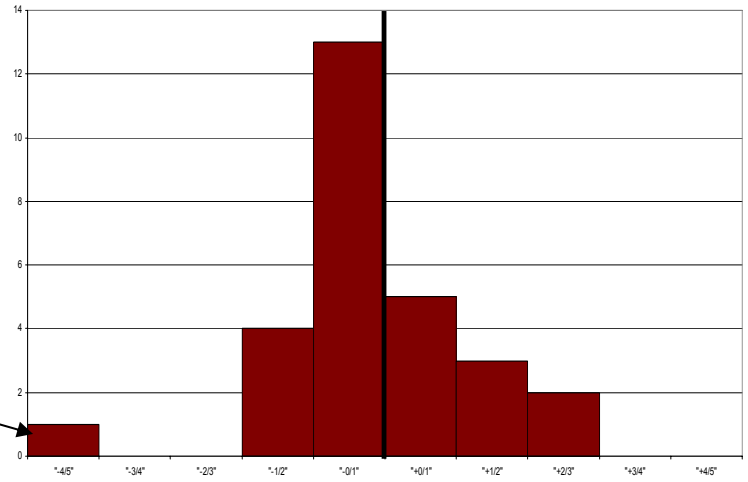
INTERIM PERIOD – 2/2

Claim that second half of 1990's was in some respects different is supported by other evidence, e.g.:

- Taylor-type rule, rolling estimates (12-year window) of reaction to inflation (plot against central point of sample)



- Fiscal policy too was out of the ordinary: Distribution of changes in public deficit/GDP, Italy, 1981-2008



1997

SCATTERED MINOR POINTS

- Two sub-samples IRFs have no price puzzle. Guess: whole sample IRFs should have no price puzzle either. Not true. Why?

- “As […] Chow tests […] identified a break point in 1996 […] it might be difficult to detect a […] subsequent break as the period up to 1999 covers only three additional years” (p. 15). True. But why not applying Chow testing backwards? (starting with last *n* observations, adding previous observations one by one)

- Instead of sharp breakpoints, smooth transitions may be more appropriate. Time varying VARs?

SUMMING UP

- Very nice paper; (potentially) extremely relevant implications reached with a simple set-up (always a big plus!)
- Agree with first part: Split sample evidence convincingly shows that the dynamics of the propagation of shocks present similarities (except when it comes to variances)
- However, this does not imply that (what I would call) the MTM did not change: maybe it did, maybe policy offset those changes. Implications are likely to be different depending on which is which
- Second part: dummy estimation neglects possibility that reduced-form errors are generated by different processes. Several clues go in that direction. Formal testing of equality of IRFs explicitly rules out that possibility
- This leaves the question: Is stability testing really possible without specifying possible (structural) sources of instability?