*"Next Generation Fiscal Reform Frameworks to deliver effective counter-cyclical policy: Indian and International Experiences"*
Goa, India – 12-13 December 2014

# The impact of national fiscal rules on the stabilization function of fiscal policy

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# Rationale

- **Large deficits** in **industrialized economies** and the **sovereign debt crisis** in the euro area → *attempts to increase fiscal discipline* (Spilimbergo et al. 2008; Hauptmeier et al. 2011).

- **How?** ***Adoption of fiscal rules*** *to reduce:* deficit bias, political failures, and the discretion of governments (Debrun et al. 2008; Kumar et al. 2009; Cottarelli & Schaechter 2010; European Commission 2011).

- **But…** *Running balanced-budgets is not valuable per se* but **it matters for what it implies for other macroeconomic targets,** *i.e. macroeconomic stabilization.*

- **Adverse** welfare and economic growth **effects of macroeconomic volatility** (i.e. *output and inflation*).

# This paper …

- *aims* at understanding if **national fiscal rules** affects the effectiveness of the governments' **macroeconomic stabilization function**.

- *analyzes* the relationship between **discretionary fiscal policy** (it would be pointless to study automatic stabilizers, their role is clear) and macroeconomic stability, i.e. ***output volatility*** *and* ***inflation volatility***, employing **annual panel** data for **21 OECD countries** over the **1985-2012** period.

- *finds* that:
  - **discretionary fiscal policy** → **higher volatility** of **output and inflation**.
  - when **strict fiscal rules** are introduced → discretionary policy becomes **output-stabilizing** rather than destabilizing.
  - however, **fiscal rules** are **unable** to affect the **inflation-destabilizing** nature of discretionary fiscal policy, if any.

# The related literature 1/2

- ***Studies on macroeconomic stabilization***

  - **Fiscal policy** is better suited for the role of macroeconomic stabilizer (Blinder 2004): automatic stabilizers!

  - The **effects of fiscal policy on macroeconomic volatility** (Gali 1994; Fatas & Mihov 2001, 2003; Rother 2004; Badinger 2009) → aggressive use of fiscal policy reduces macroeconomic stability (of output; unclear on inflation volatility).

  - The **government's discretionary corrections** of expenditure and/or taxation not taken in response to cyclical developments → **destabilizing impact** on the economy (Furceri 2007; Afonso & Furceri 2008; Loayza et al. 2007).

# The related literature 2/2

- ***Studies on fiscal rules***

  - Most studies focus on their **disciplinary effect**…

  - Are rules **effective**? → *Hard to conclude* (Wyplosz 2005, 2011, 2012; Svensson 2005; von Hagen 2006; Guichard et al. 2007; Hallerberg et al. 2007, 2009; Manasse 2007, Debrun et al. 2008; Ljungman 2008; Schick 2010; Lienert 2010; Schaechter et al. 2012).

  - There is not much on the rules' influence on the **relationship between fiscal policy and macroeconomic stability** (mostly USA: Bayoumi & Eichengreen 1995; Alesina & Bayoumi 1996; Fatas & Mihov 2006).

# Fiscal rules and macroeconomic stability?

- **Hard to understand *a priori*** the way in which such rules will influence the role played by governments for macroeconomic stability.

  - *On the one hand,* national fiscal rules can increase the transparency of the public budget, governments' effectiveness and accountability → **avoid unsustainable fiscal policies** and improve fiscal management → ***macroeconomic stability*** (Lavigne 2011; Blume & Voigt 2013).

  - *On the other hand,* fiscal rules normally constrain budgetary variables → smaller public sectors; **against** the **tax-smoothing** theory of budget deficits**; lower governments' flexibility** to react → ***macroeconomic instability*** (Barro 1979; Galì 1994; Alesina & Perotti 1999).

# Our contribution

- Estimate **discretionary fiscal policy** using **several alternative measures of government intervention** (narrowly and broadly defined).

- Analyze the relationship between discretionary fiscal policy and macroeconomic volatility with **panel data** (i.e. three-year periods) **rather than cross-sectional** data → *as done in most of the existing literature.*

- Then, and most importantly, we study **how this relationship is affected** by the existence of **national fiscal rules**.

- In all cases we control for **potential endogeneity** issues that are widely recognized to affect this type of analysis.

# Results – presentation plan

1. How we estimate **discretionary** fiscal policy.

2. **Output volatility – discretionary fiscal policy** model (as in the existing literature).

3. **Output volatility** – discretionary fiscal policy model (enriched **with fiscal rules**, and their interaction with fiscal policy).

4. **Inflation volatility** – discretionary fiscal policy model (as in the existing literature).

5. **Inflation volatility** – discretionary fiscal policy model (enriched **with fiscal rules**, and their interaction with fiscal policy).

# 1. Estimating discretionary fiscal policy

- The stabilizing role of automatic stabilizers is well-known. That is why we need to study **discretionary policy**, and it has to be estimated (standard approach in the literature: Fatas and Mihov 2001, 2003, 2005).

$$\Delta \ln spending_{t} = \alpha_0 + \alpha_1 \Delta \ln spending_{t-1} + \alpha_2 \Delta \ln gdp_t + \beta_1 \pi + \beta_2 \pi^2 + trend + \varepsilon_t^{discr_fp}$$

  - **2SLS estimations** for each country of our sample over the period 1961-2012.
  - Robustness: three alternative *spending_* series: ***consumption***; ***consumption plus investment***; ***primary expenditure*** (*basically: from narrowly-defined to broadly-defined discretionary policy*).
  - Our measure of discretionary fiscal policy: **standard deviation over three-year periods of the fiscal shocks** just estimated.

# 2. Discretionary fiscal policy and output volatility 1/2

- **The standard model**

$$\ln \sigma^{gdp}_{i,[t,t+2]} = \varphi_1 discr_fp_{i,[t,t+2]} + \phi_1 \mathbf{W}_{i,[t,t+2]} + \mu_i + \eta_t + \upsilon_{i,t}$$

  - **Dep. var.** → *standard deviation of the growth rate of real GDP per capita over the three year periods,* standing for **output volatility** (robustness: *private output volatility*).
  - ***Main explanatory variable*** → *discretionary fiscal policy*
  - **W** → vector of controls including government size, trade openness, log real GDP per capita.

- Sign of $\varphi_1$ indicates whether **discretionary fiscal policy contributes to the output stability** of the countries under observation (i.e. $\varphi_1 < 0$).

- **Methodology: FE** with **DK standard errors**; **Sys-GMM** estimator.

# 2. Discretionary fiscal policy and output volatility 2/2

**FE-DK** **sys-GMM**

| | Macro volatility: GDP | | | Macro volatility: GDP | | |
|---|---|---|---|---|---|---|
| | *discr_gpe* | *discr_gci* | *discr_gc* | *discr_gpe* | *discr_gci* | *discr_gc* |
| *discr_fp* | 5.50*** | 6.66 | 11.59** | 9.26 | 21.1* | 29.2** |
| | (3.40) | (1.03) | (2.11) | (1.28) | (1.68) | (2.32) |
| *gov_size* | 0.001 | 0.001 | -0.001 | 0.015 | 0.0097 | 0.018 |
| | (0.04) | (0.07) | (-0.06) | (0.51) | (0.41) | (0.87) |
| *open* | -0.12 | -0.008 | -0.002 | -0.0075 | -0.011 | -0.025* |
| | (-1.06) | (-0.71) | (-0.17) | (-0.47) | (-0.73) | (-1.81) |
| *gdp_level* | 0.32 | 0.18 | -0.12 | 0.77 | 0.84* | 0.86* |
| | (0.91) | (0.65) | (-0.37) | (1.28) | (1.72) | (1.72) |
| No. of obs. | 181 | 181 | 183 | 181 | 181 | 183 |
| R^2 | 0.64 | 0.64 | 0.65 | | | |
| AR(2) | | | | 0.99 | 0.40 | 0.49 |
| Hansen | | | | 0.92 | 0.96 | 0.97 |

- **Positive relationship** as in previous studies → **government spending volatility adversely affects output stability** *(a 1% increase in volatility of discr_fp → GDP volatiliy increase by between 0.10 and 0.19 pp.)*

# 3. Discretionary fiscal policy, output volatility, and fiscal rules 1/5

- **The effect of fiscal rules** (1985-2012)

$$\ln \sigma^{gdp}_{i,[t,t+2]} = \gamma_1 discr_fp_{i,[t,t+2]} + \gamma_2 rule_{}_{i,[t,t+2]} + \gamma_3 discr_fp * rule_{}_{i,[t,t+2]} + \mu_1 \mathbf{W}_{i,[t,t+2]} + \mu_i + \eta_t + \upsilon_{i,t}$$

  - ***rule*** → index from **0 to 5** measuring the extent of fiscal rules; **5 stricter** rules (source IMF: Kinda et al. 2013).
  - **Coverage**: *national,* covering at least the central government.
  - **Type:**
    - Budget balance *(rule_bb)*
    - Debt *(rule_d)*
    - Expenditure *(rule_e)*
    - Revenue *(rule_r)*
    - Overall index *(rule_overall)*

- **FE-DK and Sys-GMM** → to deal with the potential endogeneity of the interaction term between discretionary policy and fiscal rules (*discr_fp*rules*).

# 3. Discretionary fiscal policy, output volatility, and fiscal rules 2/5

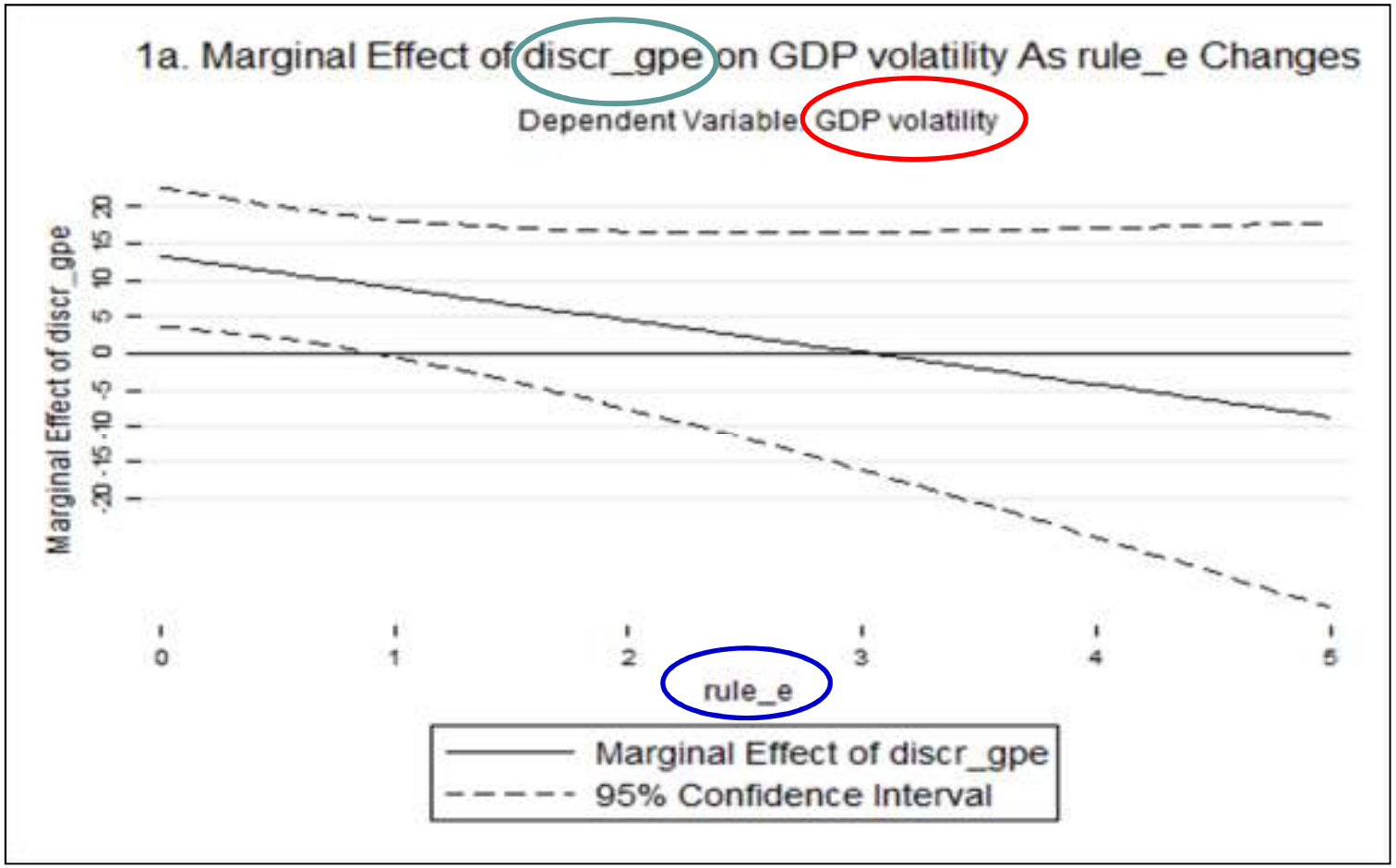
- **Results** *(discr_fp = **primary expenditure**)*

| | FE estimates | | | | | GMM estimates | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Rules: | *rule_e* | *rule_r* | *rule_bb* | *rule_d* | *rule_overall* | *rule_e* | *rule_r* | *rule_bb* | *rule_d* | *rule_overall* |
| *discr_gpe* | 6.88*** | 7.47*** | 8.55*** | 8.18*** | 8.10*** | 13.1*** | 12.9** | 17.7*** | 14.2*** | 15.4*** |
| | (3.26) | (4.12) | (2.61) | (3.72) | (3.48) | (2.73) | (2.35) | (5.45) | (2.98) | (3.86) |
| *interaction* | -1.98** | -3.41*** | -3.01* | -4.26*** | -3.01*** | -4.34 | -5.72*** | -13.25*** | -7.37** | -7.49*** |
| | (-2.24) | (-4.38) | (-1.65) | (-3.39) | (-2.94) | (-1.53) | (-2.70) | (-3.26) | (-2.54) | (-2.70) |
| *rule_* | 0.11*** | 0.13*** | 0.06 | 0.03 | 0.08** | 0.14 | 0.17** | 0.33*** | 0.23*** | 0.22** |
| | (2.61) | (3.93) | (1.26) | (0.53) | (2.14) | (1.46) | (2.16) | (2.87) | (2.68) | (2.24) |
| *gov_size* | 0.008 | 0.004 | 0.006 | -0.004 | 0.003 | 0.010 | 0.008 | 0.002 | 0.005 | 0.003 |
| | (0.58) | (0.28) | (0.04) | (-0.30) | (0.25) | (0.43) | (0.34) | (0.11) | (0.25) | (0.13) |
| *open* | -0.013 | -0.011 | -0.012 | -0.011 | -0.012 | -0.007 | -0.002 | -0.009 | -0.002 | -0.002 |
| | (-1.25) | (-0.96) | (-1.03) | (-0.97) | (-1.06) | (-0.75) | (-0.15) | (-0.98) | (-0.21) | (-0.17) |
| *gdp_level* | 0.37 | 0.40 | 0.34 | 0.37 | 0.38 | 0.57 | 0.79 | 0.55 | 0.63 | 0.65 |
| | (0.95 | (1.05) | (0.90) | (0.99) | (1.00) | (1.17) | (1.57) | (1.27) | (1.56) | (1.41) |
| No. of obs. | 181 | 181 | 181 | 181 | 181 | 181 | 181 | 181 | 181 | 181 |
| R^2 | 0.65 | 0.65 | 0.65 | 0.65 | 0.65 | | | | | |
| AR(2) | | | | | | 0.95 | 0.95 | 0.82 | 0.94 | 0.99 |
| Hansen | | | | | | 0.999 | 0.999 | 1.00 | 1.00 | 1.00 |

- Discretionary fiscal policy is **output-destabilizing** when **rules** are **not stringent enough** (index < 3); **the opposite** when **rules** (particularly those on balanced budgets) are **stringent!**

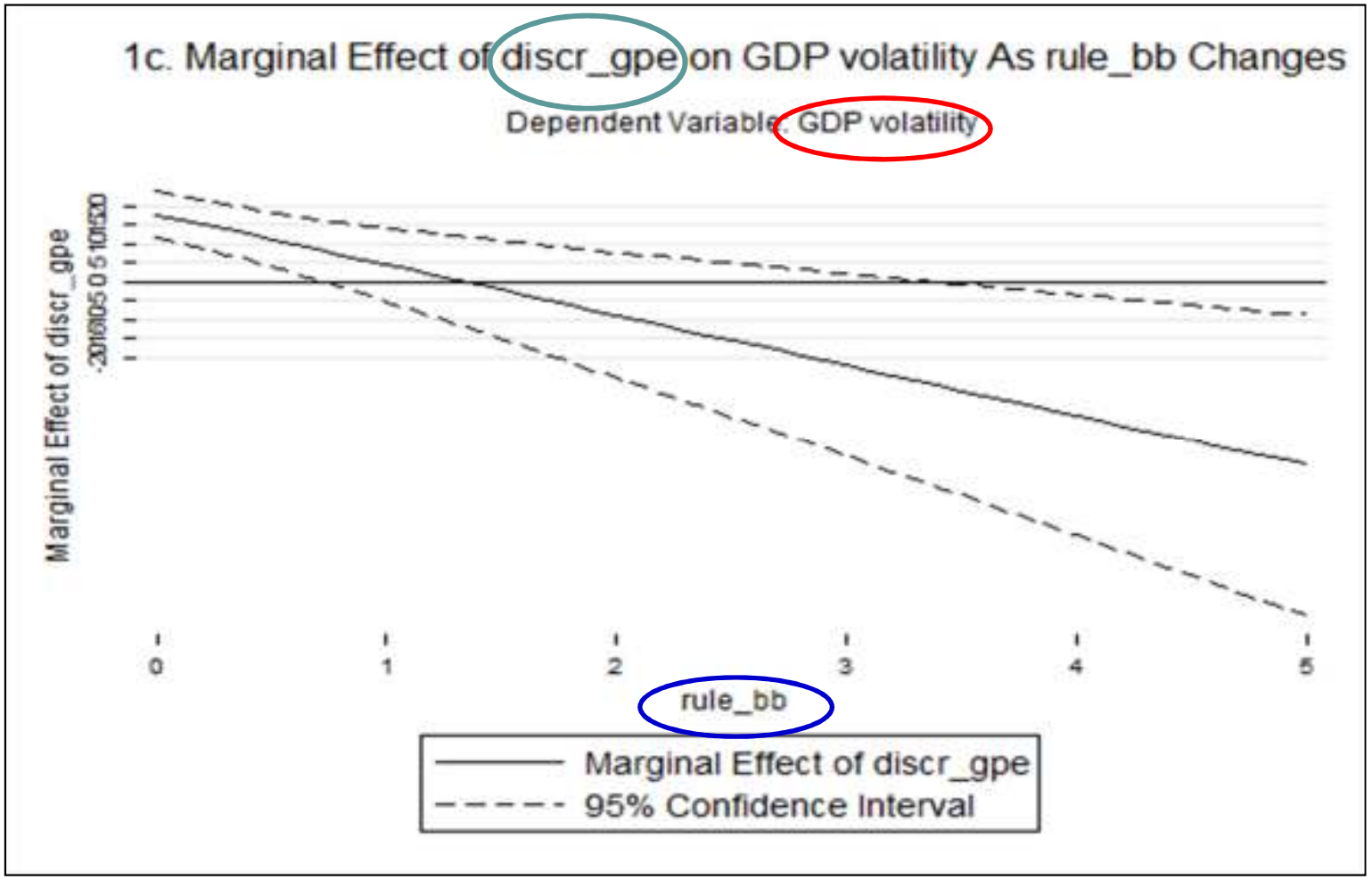
# 3. Discretionary fiscal policy, output volatility, and **fiscal rules** 3/5

- **Results** (*discr_fp* = ***primary expenditure;*** **expenditure** rule)



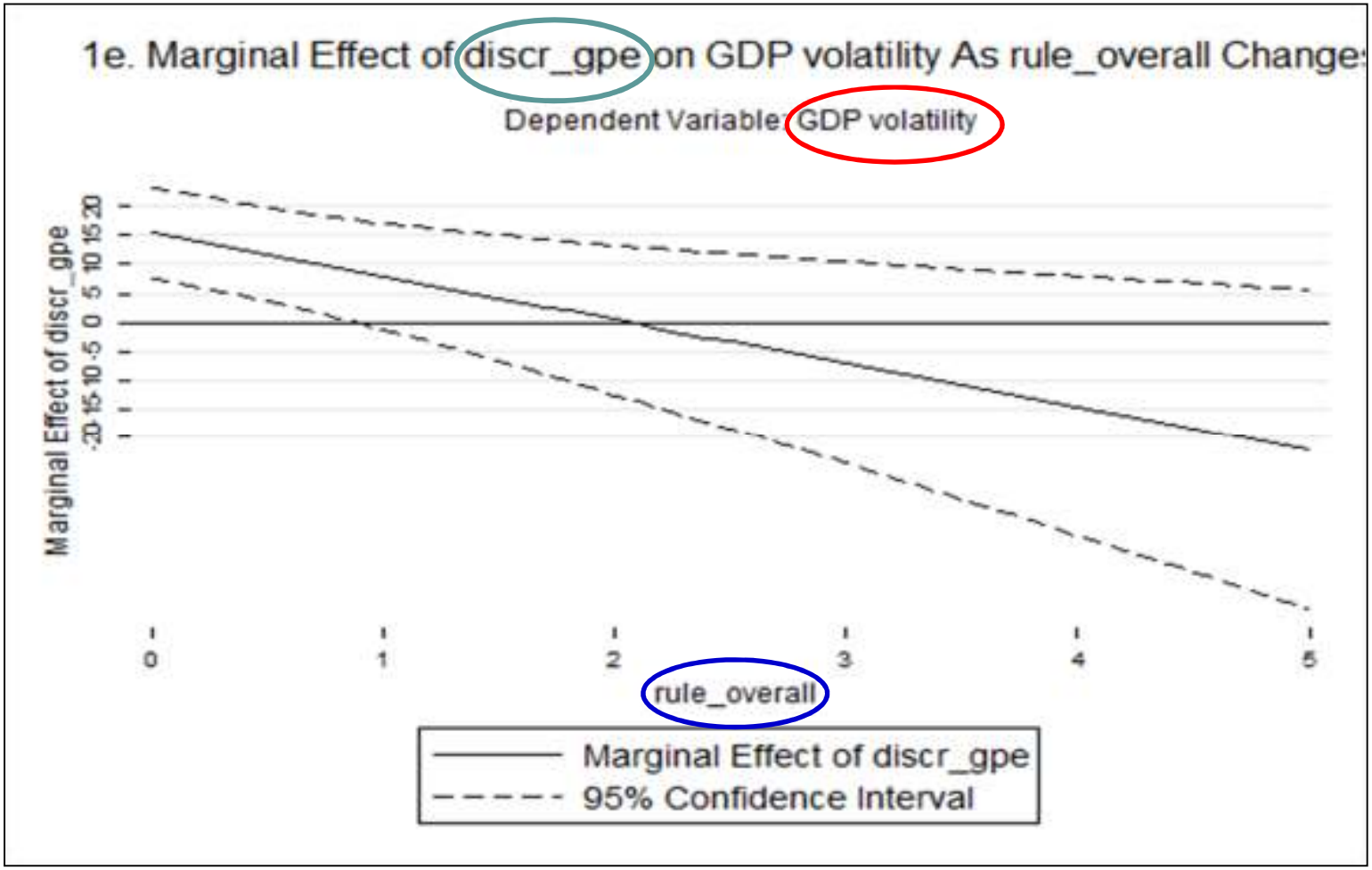
# 3. Discretionary fiscal policy, output volatility, and **fiscal rules** 4/5

- **Results** (*discr_fp = **primary expenditure;** **budget balance** rule*)



# 3. Discretionary fiscal policy, output volatility, and **fiscal rules** 5/5

- **Results** (*discr_fp* = ***primary expenditure;*** **overall** rule)



# 4. & 5. Discretionary fiscal policy, inflation volatility, and fiscal rules

- **4. Results** from the **standard model** of the literature estimated with panel data:
  - Only weak evidence that **narrowly-defined discretionary** fiscal policy (*i.e. government consumption + investment*) is **inflation-destabilizing;** no effects of broadly-defined policy (*i.e. government primary expenditure*).

- **5. Results** from model enriched **with fiscal rules:**
  - **No role of fiscal rules.**
  - Possible explanation: *inflation management has more to do with* ***central banks*** *than governments, the lack of influence of fiscal rules had to be expected!*

# Robustness checks

- Estimate **alternative specifications of model (1)** using the following: ***primary receipts, net lending,*** *and* ***cyclically-adjusted net lending*** → *positive relationship between GDP volatility and discretionary policy.*

- Estimate the **standard model through 2SLS** instead of sys-GMM → *results reassuringly confirm the above findings (i.e. the positive relationship between discretionary fiscal policy and GDP volatility).*

- Estimate the standard model over **4-year and 2-year periods; changing the specific 3-year periods** → *the findings effectively confirm the benchmark results.*

# Discussion and summary

- **Output-destabilizing effects** of discretionary expenditure, particular of **public investment** and **government consumption**
  - *Recently, **governments** in the **EU** have focused on **cutting the latter** in order to implement **austerity** measures to improve public finances.*

- When **strict rules** are **implemented**, **discretionary primary expenditure** becomes **output-stabilizing.**
  - *Rules on balanced budgets are more effective in mitigating the output-destabilizing effects of discretionary policy than rules focusing on only expenditure or revenue* ➔ ***not all types of rules are equally effective.***

- **Discretionary fiscal policy** increases (to a lesser extent) **inflation instability.**

- **Fiscal rules** do not affect the latter relationship.
  - *This seems legitimate, given that the task of maintaining a stable inflation rate is in **the hands of central banks**, rather than governments.*

# Policy implications

- **Fiscal rules** always debated for their role in ensuring **fiscal discipline.**

- Our results suggest that **certain types of strict fiscal rules**, particularly if targeting balanced budgets, can affect the **stabilization function of fiscal policy.**

- Since there is evidence of **adverse welfare and growth effects of output volatility**, our results may imply a **beneficial role of fiscal rules** unrelated to the disciplinary one, if any.

- This **welfare-enhancing effect of fiscal rules** seems to be particularly relevant given austerity policies negatively affecting economic growth (IMF 2012). Our results suggest that the **existence of rules** guiding the policy-makers behavior may **mitigate those adverse effects**.

# Thank you for your attention!

If you have any further doubts/comments/questions...

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