Can Deficits Finance Themselves?

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Discussion by Franck Portier

28 September 2023

Hydra in Taormina

Roadmap

1. Preliminary comment
2. Inspecting the mechanism in a 2-period model

Roadmap

1. Preliminary comment: in 3 words
2. Inspecting the mechanism in a 2-period model

1. Preliminary comment

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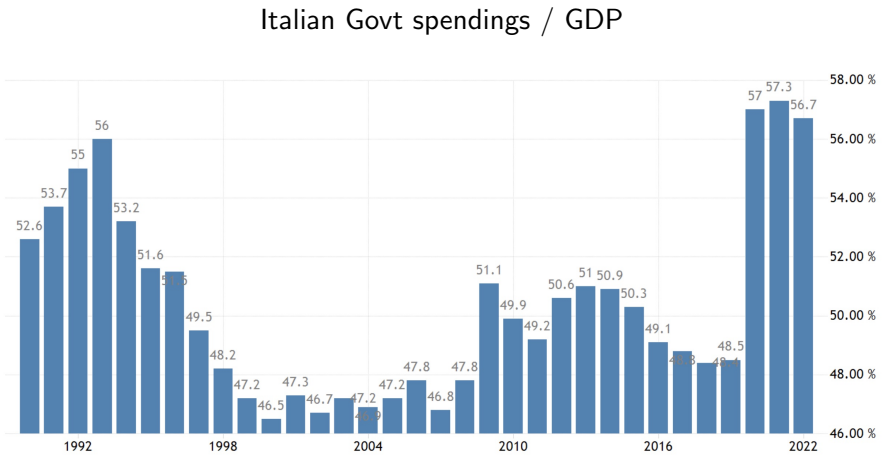
Italian Public Finance



1. Preliminary comment

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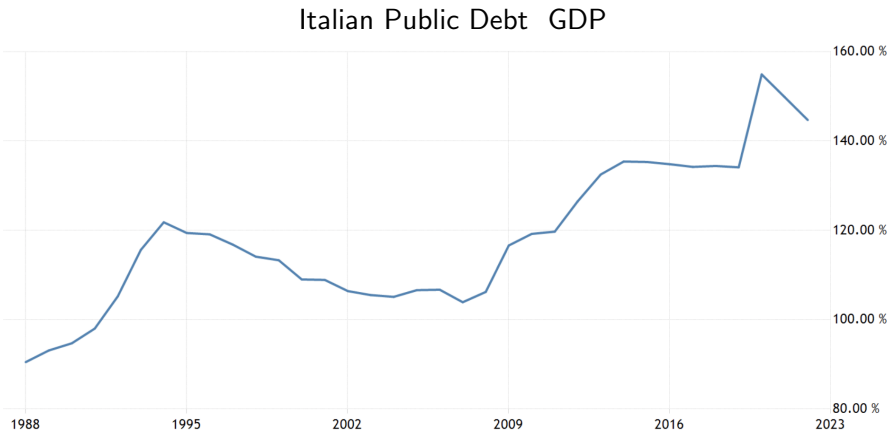

1. Preliminary comment

Italian Public Finance

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Italy raises budget deficit forecast amid mounting economic pressures

Giorgia Meloni's government aims to reach EU rule of 3% of gross domestic product in 2026

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Giorgia Meloni estimates the total 'Superbonus' bill at about €140bn © Bloomberg

Amy Kazmin and Giuliana Ricozzi in Rome YESTERDAY

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1. Preliminary comment

Italian Public Finance

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European bond market hit by Italy's plans for higher borrowing

Yields reach highest level in a decade as investors' deficits worries add fuel to sell-off

Giorgia Meloni's government has raised Italy's fiscal deficit targets and cut its growth forecast for this year and next © Riccardo Antimiani/EPA-EFE/Shutterstock

Martin Arnold in Frankfurt, **Harriet Clarfelt** in London and **Amy Kazmin** in Rome
YESTERDAY

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This would be the same with French data had you presented last year in Nice

1. Preliminary comment

The New York Times

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May 10, 2023

I interviewed Angeletos and Wolf on Tuesday...

1. Preliminary comment

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  Angeletos added:

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  "I wouldn't dare present this paper in Greece, where I'm from, because I don't want to give excuses for running bigger deficits" there, Angeletos said.

  Angeletos added: "And if I had to present this paper in Italy, I would let Christian do it".

1. Preliminary comment

2. A 2-period model

- To better understand the paper (which is already super clear), let me write a 2-period version with full micro-foundations

2. A 2-period model

Fundamentals

- 2 periods
- Mass 1 of households, i
- Preferences

$$U = \log c_{i1} + \beta \log c_{i2}$$

- A mass $\delta \in]0, 1[$ of agents die at the end of period 1, and they know it before taking any decisions (the *unlucky ones* "u")
- They are replaced in period 2 by a mass δ of *newborn* ("b")
- A mass $1 - \delta$ live for the 2 periods (the *lucky ones* "ℓ")
- Endowments ω_1, ω_2
- Government: taxes endowments at rate τ_1 and τ_2, signs a check θ to agents in period 1.
- In each period, everyone is treated in the same way.

–

$$\max \quad \log c_{\ell 1} + \beta \log c_{\ell 2}$$

s.t.

$$P_1 c_{\ell 1} \leq P_1(1-\tau_1)\omega_1 + B + P_1\theta$$
$$P_2 c_{\ell 2} \leq P_2(1-\tau_2)\omega_2 - (1+i)B$$

– Solution:

$$c_{\ell 1} = \frac{1}{1+\beta}\Omega \quad , \quad c_{\ell 2} = \frac{\beta}{1+\beta}\rho\Omega$$

with $\Omega = (1-\tau_1)\omega_1 + \rho(1-\tau_2)\omega_2 + \theta$ and $\rho = \frac{1}{1+r} = \frac{1+\pi}{1+i}$ with $1+\pi = \frac{P_2}{P_1}$

– MPC in period 1 is $\frac{1}{1+\beta}$

- Unlucky agents:

$$c_{u1} = (1 - \tau_1)\omega_1 + \theta$$

- MPC $= 1$
- Newborn agents:

$$c_{b1} = (1 - \tau_2)\omega_2$$

- Budget constraints:

$$P_1\theta = P_1\tau_1\omega_1 + \overline{B}$$
$$(1+i)\overline{B} = P_2\tau_2\omega_2$$

$\rightsquigarrow$

$$\theta = \tau_1\omega_1 + \rho\tau_2\omega_2$$

- Government plan is (τ_1, τ_2), and θ is then derived from the intertemporal budget constraint

- Agents optimize / satisfy their BC
- Markets clear:

$$(1-\delta)c_{\ell 1} + \delta c_{u1} = \omega_1$$
$$(1-\delta)c_{\ell 2} + \delta c_{b2} = \omega_2$$
$$B = -\overline{B}$$

- Equilibrium discount rate is

$$\rho = \frac{\beta + \delta}{1 - \delta(1 - (1 + \beta)\tau_2)} \times \frac{\omega_1}{\omega_2}$$

- If $\delta = 0$, the model is Ricardian

$$\rho = \beta \times \frac{\omega_1}{\omega_2}$$

- With balanced budget ($\tau_2 = 0$)

$$\rho = \frac{\beta + \delta}{1 - \delta} \times \frac{\omega_1}{\omega_2} < \beta \times \frac{\omega_1}{\omega_2}$$

Interest rate is lower when $\delta > 0$.

- Note that deficit ($\tau_2 > 0$) lovers $c_{\ell 1}$ but increase c_{u1}

2. A 2-period model

Money

- Beginning of each period, agents sell endowments against money to a supermarket (operating without costs)
- Then they use the money to buy consumption from the supermarket

$$P_1\omega_1 = M_1$$
$$P_2\omega_2 = M_2$$

- Money is not carried over from one period to another.
- Therefore inflation is

$$\frac{P_2}{P_1} = 1 + \pi = \frac{M_2}{M_1}\frac{\omega_1}{\omega_2}$$

- Equilibrium i is then

$$i = \frac{1+\pi}{\rho} - 1$$

- Consider an increase in τ_2 (which implies an increase in the period 1 check θ)
- No debt erosion here, only tax bonanza can be at play
- Government IBC

$$\theta - \underbrace{\tau_1 \omega_1}_{} = \rho \underbrace{\tau_2}_{} \omega_2$$

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- Obviously no self finance of the deficit as ω_1 is exogenous.

2. A 2-period model

Fix price in period 1

- Assume

$$P_1 = \overline{P}_1 > \underbrace{\frac{M_1}{\omega_1}}_{\text{eq. flex price}}$$

- Notation :

$$\overline{P}_1 = \frac{1}{\phi}\frac{M_1}{\omega_1}, \qquad \phi < 1$$

- Households can sell only a fraction of their endowment to the supermarket against money

$$\widetilde{\omega}_1 = \frac{M_1}{\overline{P}_1} = \phi\omega_1$$

- The rest of the endowment ($\omega_1 - \widetilde{\omega_1}$ is wasted.
- The tax base is $\widetilde{\omega}_1$, not ω_1.

- Equilibrium is as before except
  - × $\widetilde{\omega}_1$ instead of ω_1
  - × M_1 is not neutral
- In particular,

$$\rho = \frac{\beta + \delta}{1 - \delta(1 - (1 + \beta)\tau_2)} \times \frac{\phi\omega_1}{\omega_2}$$

- Government IBC

$$\theta^{\uparrow} - \underbrace{\tau_1 \phi \omega_1}_{\text{self-financing?}} = \rho_{\downarrow} \underbrace{\tau_2^{\uparrow}}_{\text{fiscal adjustment}} \omega_2$$

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- Government IBC

$$\theta^{\uparrow} - \underbrace{\tau_1 \phi \omega_1}_{\text{self-financing?}} = \rho_{\downarrow} \underbrace{\tau_2^{\uparrow}}_{\text{fiscal adjustment}} \omega_2$$

- Again, zero self financing of deficit (although the model cannot be "more Keynesian")

- In ALW, baseline with "neutral" monetary policy – *i.e such that real interest rate stays constant*
- In the fix price equilibrium with constant M_1, r increases

$$\rho = \frac{\beta + \delta}{1 - \delta(1 - (1 + \beta)\tau_2)} \times \frac{\phi\omega_1}{\omega_2}$$

- Consider an expansionary monetary policy that will reduce the increase in real interest rate: $M_1 \to \mu M_1$
-

- In ALW, baseline with "neutral" monetary policy – *i.e such that real interest rate stays constant*
- In the fix price equilibrium with constant M_1, r increases

$$\rho = \frac{\beta + \delta}{1 - \delta(1 - (1 + \beta)\tau_2)} \times \frac{\mu\phi\omega_1}{\omega_2}$$

- To implement a constant real interest rate, one needs expansionary monetary policy: $M_1 \to \mu M_1$
- $\mu > 1$ increases the tax base as available endowments increase from $\phi\omega_1$ to $\mu\phi\omega_1$ $\rightsquigarrow$ self-financing effect

- Government IBC

$$\theta^{\uparrow} - \underbrace{\tau_1 \quad \phi\omega_1}_{} = \rho_{\downarrow} \quad \underbrace{\tau_2^{\uparrow}}_{\text{fiscal adjustment}} \quad \omega_2$$

-

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- Government IBC

$$\theta^{\uparrow} - \underbrace{\tau_1 \ \phi\omega_1}_{} = \rho^{\searrow} \underbrace{\tau_2^{\uparrow}}_{\text{fiscal adjustment}} \omega_2$$

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- Self-financing is indeed positive, but does not come from some Keynesian virtuous demand loop, but from monetary policy.
- In my view, not self-financing deficit but deficit financed by monetary policy

Taking stock

- As always in sticky price models, allocations are dependant on monetary policy.
- Perhaps a bit misleading to interpret the paper as one in which "deficit boosts demand $\rightsquigarrow$ increase in the tax base $\rightsquigarrow$ automatically finance the deficit"

> *In such environments, deficits contribute to their own financing via two channels: a boom in real economic activity, which expands the tax base, and a surge in inflation, which erodes the real value of nominal government debt. [ALW abstract]*

- Not such a thing in the The New Keynesian model.
- The New Keynesian model may not be the best framework
- What about "*Real Keynesian*" models? (models in which "demand" matters absent of sticky prices) (Diamond [1982] coconut model, Marios-Fabrice-Harris, Victor, Beaudry-Portier, BP-Galizia, BP-Hou, etc...)