The Greek economy under the twin-deficit pressure: a demand orientated growth approach

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Motivation

- Greece as a special economy with failure in the Eurozone

- Internal and External constraints to take into account

- A more appropriate model to explain the twin deficit hypothesis in Greece

- Detect structural drawbacks in the economy

- Design scenarios that possibly lead to higher growth

Basic literature review

- Demand orientated approaches

- Aggregate BoP constrained growth – Thirlwall's Law (1979)

- The Twin-Deficit constrained growth – Soukiazis-Cerqueira-Antunes (2012)

- **The aim**: whether the extended model is more appropriate to explain the current situation in Greece.

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The profile of the Greek economy

Period	GDP growth (average growth rate - %)	Deficit (%GDP)	Debt (% GDP)	Current account (% GDP)
1981-2014	0.95	-7.6	91.57	-5.32
1981-2000	1.6	-8.81	67.59	-2.19
2001-2014	0.02	-6.47	125.84	-9.81

The Balance of Payments equilibrium growth rate

$$\dot{p}_d + \dot{x} = \dot{p}_f + \dot{m}$$

$$\dot{m} = \psi(\dot{p}_f + \dot{e} - \dot{p}_d) + \pi\dot{y}$$

$$\dot{x} = h(\dot{p}_f + \dot{e} - \dot{p}_d) + \varepsilon\dot{y}^*$$

$$\dot{y}_{BP} = \left[(1 + \eta + \psi)(\dot{p}_d - \dot{p}_f - \dot{e}) + \varepsilon\dot{y}^*\right]/\pi$$

$$\dot{y}_{BP} = \frac{\dot{x}}{\pi} \qquad or \quad \dot{y}_{BP} = \frac{\varepsilon}{\pi}\dot{y}^*$$

Table 1. Computation of the balance of payments equilibrium growth rate in Greece, 1995-2014.

$\dot{x}$	π	ε	$\dot{y}^*$	$\dot{y}_{BP} = \dfrac{\dot{x}}{\pi}$	$\dot{y}_{BP} = \dfrac{\varepsilon}{\pi}\dot{y}^*$	$\dot{y}$	$\dot{y}$-$\dot{y}_{BP}$	Current account (%GDP)
4.080	1. 865			2.188		1.055	-1.132	-8.44
		4.518	2.154		5.218		-4.319	

Notes: $\dot{x}$ is the annual growth of real exports, π the income elasticity of the demand for imports, ε the income elasticity of the demand for exports, $\dot{y}^*$ the growth rate of real GDP of the OECD countries, $\dot{y}$ the growth rate of real GDP in Greece, and $\dot{y}_{BP}$ the balance of payments equilibrium growth rate (own calculations).

$$\dot{m} = \pi_c \dot{c} + \pi_g \dot{g} + \pi_x \dot{x} + \pi_k \dot{ik} + \delta_m(\dot{p}^* + \dot{e} - \dot{p})$$

$$\dot{x} = \varepsilon_x \dot{y}^* + \delta_x(\dot{p}^* + \dot{e} - \dot{p})$$

$$\dot{c} = \varepsilon_c \dot{y}_d$$

$$\dot{ik} = \varepsilon_K \dot{y} + \varepsilon_r \dot{r}$$

$$G_n + iB_H + i^*B_F = tYP + D$$

$$XP + D_F e - i^*B_F e = MP^* e$$

The reduced form of the growth rate of domestic income

$$\dot{y}_{ext} = \frac{A}{B}$$

$$A = \left[\begin{array}{l} \left(\varepsilon_x - \frac{w_M}{w_X}(\frac{P*e}{P})\pi_x \varepsilon_x \right)\dot{e}* + \left(\delta_x(1 - \frac{P*e}{P}\frac{w_M}{w_X}\pi_x) - \delta_m \frac{w_M}{w_X}(\frac{P*e}{P}) \right)(\dot{e}* + \dot{e} - \dot{P}) + \\[2ex] \dot{e} + (1-\xi)\frac{w_D}{w_X}(\dot{e} - i*) - (1-\xi)\frac{w_B}{w_X}\Delta i* - \\[2ex] -\frac{P*e}{P}\frac{w_M}{w_X}\left\{ \begin{array}{l} \frac{(\Delta i - \Delta \dot{P})\xi w_B}{(1-t) + r\xi w_B}(\pi_c \varepsilon_c) + \pi_k \varepsilon_r (\Delta i - \Delta \dot{P}) + \\[2ex] + \pi_g\left[-\Delta i\frac{\xi w_B}{w_G} - \Delta i*e(1-\xi)\frac{w_B}{w_G} \right] + \dot{e}* + \dot{e} \end{array} \right\} \end{array} \right]$$

$$B = \frac{w_M}{w_X}(\frac{P*e}{P})\left\{ \pi_c \varepsilon_c + \pi_k \varepsilon_k + \pi_g\left(\frac{t}{w_G} + \frac{w_D}{w_G} - \frac{i\xi w_B}{w_G} - i*e(1-\xi)\frac{w_B}{w_G} \right) \right\} -$$

$$-(1-\xi)\frac{w_D}{w_X}$$

Table 2. Computation of the growth rates of domestic income. Greece, 1995-2014

ε_x	π_x	ε_c	π_c	ε_k	π_k	π_g	ε_r	δ_m
4.540	0.712	0.997	0.233	2.610	0.336	0.209	0.165	0.360
δ_x	t	r	$\dot{p}$	$\dot{y}^*$	w_D	w_G	w_B	ξ_D
0.141	0.387	0.052	0.032	0.022	0.071	0.427	1.196	0.541
ξ_B	w_M	w_X	i	i^*	Δi	Δi^*	e	$\dot{e}$
0.541	0.331	0.231	0.084	0.040	-0.007	-0.003	1.023	-0.002
$(\frac{\dot{p}^* \cdot e}{p})$	$\dot{p}^* + \dot{e} - \dot{p}$	$(\Delta i - \Delta \dot{p})$	$\dot{p}^*$	$(\dot{p} - i^*)$				
1.065	-0.017	-0.001	0.017	-0.006				

$\dot{y}_{ext}$	$\dot{y}_{BP}$	$\dot{y}$
0.776 %	2.188 %	1.055 %
	Thirlwall's Law	Actual growth

Notes: small Greek letters are the elasticities taken from Table D.1 of Appendix D and other variables are average growth rates for the whole period. ξ_D and ξ_B was computed by the authors as an average for the period 1997:4 to 2013:4 (Central Bank of Greece)

A simulation approach (towards internal equilibrium)

i) Policies to reduce internal imbalances: If we set the GSP targets of a 3% deficit and 60% debt the estimated growth rate in Greece is around 0.702% which is slightly lower than the prevailing rate of 0.776%. Reducing simultaneously the share of public spending from the observed rate w_G=0.427% to 0.30% the growth rate is even lower, 0.613%. Therefore, **austerity measures** towards fiscal discipline are **not growth enhancing** at this stage of economic performance in Greece.

ii) Lower financial costs: Domestic interest rate is on average *i*=8.4% which is much above the foreign interest *i**=4.0%. Assuming a **more favorable monetary policy of the ECB** towards a reduction in the cost of financing the economy, i.e. setting a 2% interest rate, could help the economy to grow around 0.922% a bit faster than the observed rate, 0.776%.

iii) Higher taxes and lower government spending: If taxes on income increase from the average rate *t*=38.7% to 45% and government spending (as percentage of GDP) falls from the average rate w_G=42.7% to 30%, income growth falls from 0.776% to 0.611%. Again, **austerity measures are not friendly to higher growth**.

A simulation approach (towards **external equilibrium**)

(i) *Policies to reduce the exports dependence on imports*: Reducing the high dependence of exports on imports from π_x=0.712 to π_x=0.60, the estimated growth rate in Greece boosts from the prevailing rate of 0.776% to 1.666% which is a significant achievement. Therefore, policies should be developed **to encourage the use of national inputs in the export sector.**

(ii) *Policies towards trade equilibrium*: Equalizing the exports share to that of imports w_m=w_x=33.1% the estimated growth rate increases to 3.828%, or alternatively, reducing the imports share to the exports level w_m=w_x=23.6% the growth rate increases to 4.106%, which are both remarkable achievements. Therefore **policies towards trade equilibrium boost economic growth** in Greece.

(iii) *Constant relative prices*: If we assume that relative prices stay constant in the long-run $\dot{p}* + \dot{e} - \dot{p}$ =0, and (P*e)/P =1, then the estimated growth slightly drops from 0.776% to 0.741%. Two main remarks can be made with respect to this finding. First, **relative prices are not neutral** in the growth process. Second, **its impact on growth is not very substantial** and this is in line with Thirlwall's argument that international competition is mostly non-price competition.

Conclusions

- Thirlwall's model fails to explain the Greek economic performance in the last decades.

- The extended model that takes into account <u>not only external but also internal constraints</u> (the twin-deficit hypothesis) and <u>relaxes the assumption that relative prices are neutral</u> in the long-run growth is more accurate in predicting actual growth in Greece.

- The most efficient policy to achieve higher growth in Greece is related to external imbalances and to a less extent to internal imbalances.