The evolution of growth models in Mediterranean countries and the role of the demand multiplier

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Motivation

Figure 1: Labour shares of Mediterranean economies

Objective and contribution

Main goal

- Our objective is to combine the GM literature with DR literature to better understand Mediterranean economies' growth dynamic

Contribution

1. Estimate through a single-equations, SURE and multiple equations GMM model the growth model and demand regime of each Mediterranean economy
2. Analyse the importance of growth drivers and the fall of the demand multiplier (imports- and distribution-sensitive)
3. Simulate alternative growth paths:
   - Application of a wage rule $\rightarrow \dot{w} >= \dot{r}$
   - Implementation of an industrial policy that reduces external dependence by decreasing the income elasticity of imports by 0.1 and 0.2 points

Literature Review

Demand Regimes

- Changes in the functional distribution of income on aggregate demand (Lavoie, 2017)
- Long-term and stable relationships, disregarding cyclical effects
- Wage-led vs Profit-led
- Characteristics of a wage-led demand regime:
  1. $c_w > c_r$
  2. low i_π
  3. low x_{reer} and m_{pmp}
  4. low m_Y and high i_y
- Evidence on the DR of Mediterranean economies point to wage-led demand regimes (Onaran and Obst, 2016; Villanueva et al., 2020)

Literature Review

Growth Model

- GM: macroeconomic structures (Baccaro and Pontusson, 2016)
- Short-run growth dynamics. Four criteria:
  1. Consumption and net exports relative importance
  2. How is consumption financed? wages or debt?
  3. Trade-off between consumption and export growth (depends on the price elasticity of the latter)
  4. Income distribution structure and inequality
- Export-led, consumption-led (debt-led)

Evidence on Mediterranean GM

- Prior to 2008 Portugal, Spain and Greece had a debt-led GM and transitioned to a weakly export-led model between 2009-2016 (Hein et al., 2021)
- Greece and Spain transformed into an export-led model between 2010-2019 (Hein and Martschin, 2021)
- Italy, Portugal and Spain as strongly export-led in the 2009-2018 period (Baccaro and Hadziabdic, 2024)

Is there a Mediterranean Growth Model?

Evidence

- Debate on the Mediterranean GM transition
  1. Italy registered a primary surplus prior to the GFC (Notermans and Piattoni, 2019)
  2. Portugal experienced a lower household debt growth in the 2000s
- Same growth drivers with different intensities (Cardenas and Arribas, 2021)

Recent literature

- Additional growth drivers: fiscal policy, house prices, financialization (Stockhammer and Novas Otero, 2022)
- Difficulties in clustering the four economies:
  1. Real export growth is similar pre- and post the GFC (Villanueva et al., 2020; Perez and Matsaganis, 2019)
  2. Small export sector with limited export sophistication (Herrero and Rial, 2023; Bürgisser and Di Carlo, 2023)

Model: Seven single equations

Specifications

- Single-equations model allows for the calculation of the contributions of each factor of the private aggregate demand components (Blecker et al., 2022)
- Quarterly data 1995q1-2023q4 (with the exception of Italy 1996q1)
- Yearly log difference, except for ulc, profit share and the unemployment rate
- Limitations: Fiscal policy (Obst et al., 2020) and real wages are exogenous (Stockhammer and Stehrer, 2011), along with no effect on productivity (Storm and Naastepad, 2012)

$$C = c_o + c_W W + c_R R + c_{dh} Dh + c_{dhy} Dhy + c_r r \tag{1}$$

$$I = i_o + i_y Y + i_\pi \pi + i_{dc} Dc + i_{dpy} Dpy + i_r r + i_{rhp} RHP \tag{2}$$

$$\begin{aligned} Ires = \gamma_o + \gamma_y Y + \gamma_\pi \pi + \\ \gamma_r r + \gamma_{dh} Dh + \gamma_{dc} Dc + \gamma_{dpy} Dpy + \gamma_{rhp} RHP \end{aligned} \tag{3}$$

$$X = x_o + x_{Y*} Y^* + x_{reer} REER \tag{4}$$

$$M = m_o + m_Y Y + m_{pmp} PM/P \tag{5}$$

$$P = p_o + p_{ulc} ULC + p_{pm} PM + p_u U \tag{6}$$

$$PX = px_o + px_{ulc} ULC + px_{pm} PM \tag{7}$$

Estimation coefficients

Function	Coefficient	Greece	Spain	Italy	Portugal
Consumption	βw	0.554***	0.817***	0.649***	0.781***
	βπ	0.318***	0.407***	0.224***	0.349***
	βi	0,000	0,000	0,000	0,000
Investment	iY	1.817***	1.195***	1.267***	0.826***
	iπ	0,000	0,000	0,000	0,000
	icd	0,000	0,000	0,000	0,000
	iRHP	0,000	0.304***	0.759**	0.596***
Residential investment	γY	0,000	1.025***	1.834***	0,000
	γhd	0,000	0,000	0,000	0.346***
	γRHP	2.234***	0.319*	0,000	0,000
Exports	xyw	2.375***	3.013***	2.988***	3.460***
	Ɛpxulc	0,000	0,000	0.075*	0,000
	ƐXpx	-0.601**	-0.492***	-0.636***	-0.529***
	Ɛpulc	0.123***	0.085**	0.278***	0.096***
Imports	my	1.241***	1.640***	1.420***	1.810***
	ƐMp	-0.353***	-0.190***	-0.294***	-0.192***

Moreover

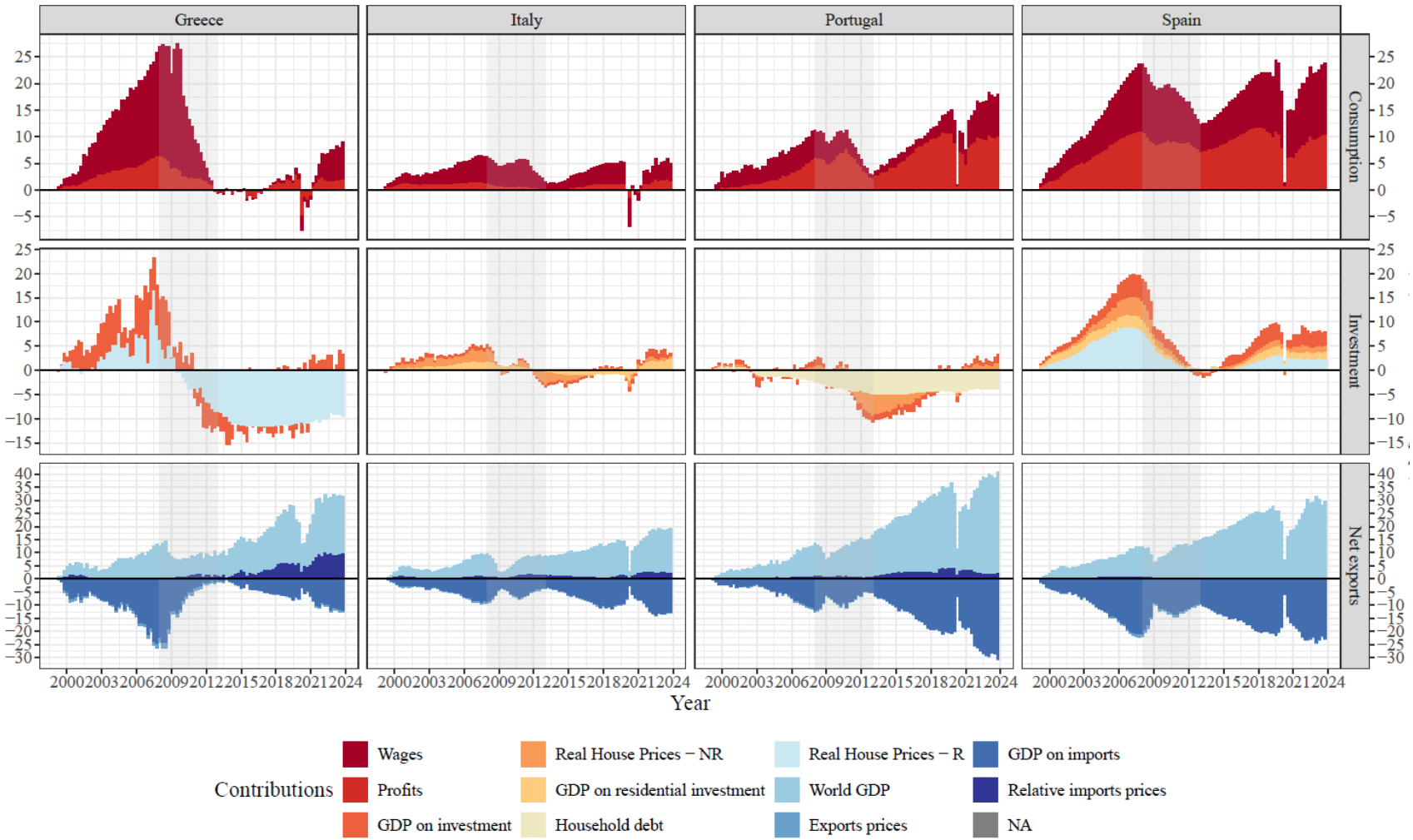
The profitability effect is not significant

$c_W W > c_R R$

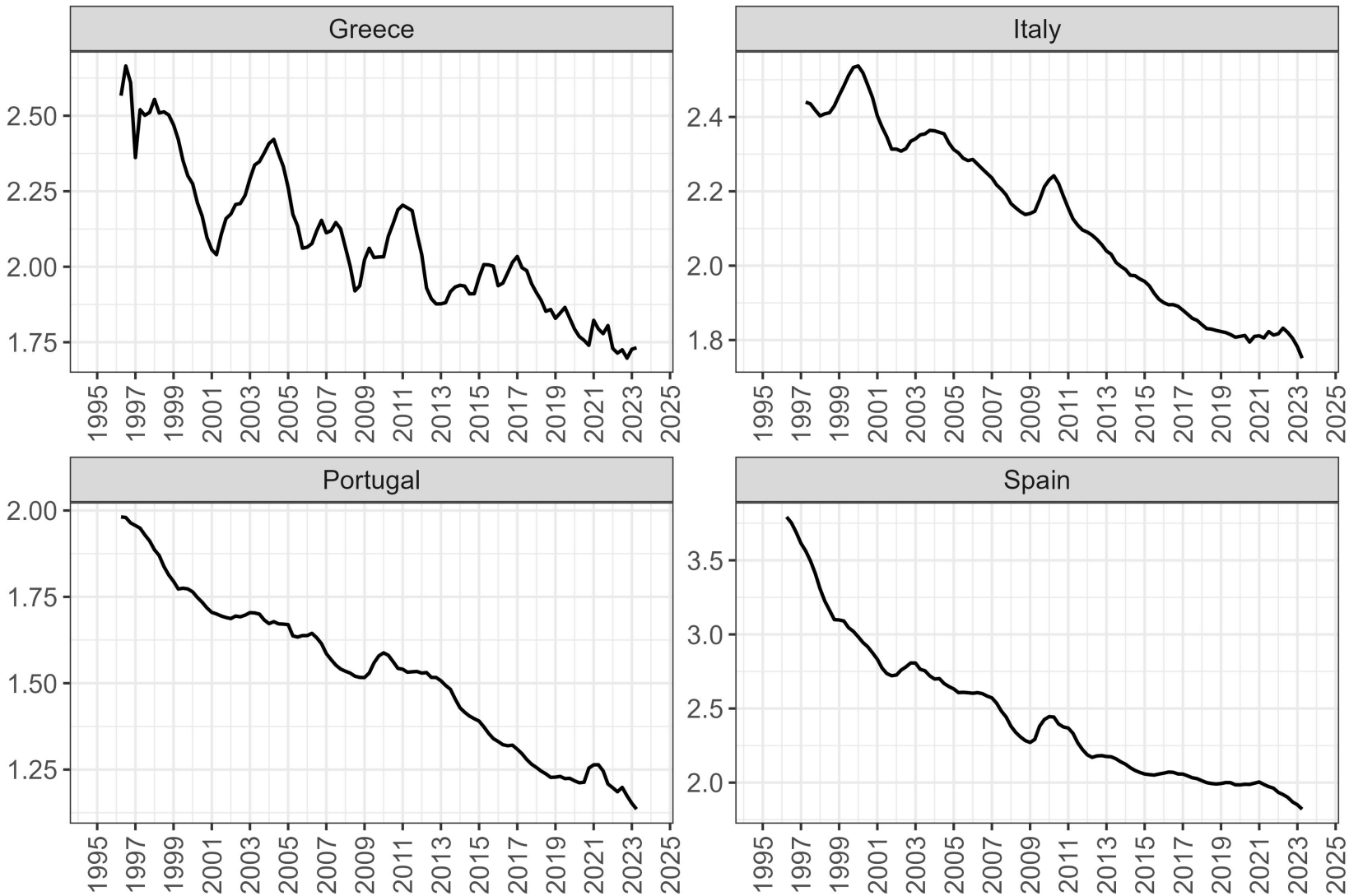
$\Longrightarrow$ the demand regime is wage-led

Real house prices are significant and highly correlated to private debt

Figure 2: Cumulative contributions to GDP growth since 1999



$$\mu = \frac{1}{1 - \left(c_W * \Omega * \frac{C}{W} + c_R * (1 - \Omega) * \frac{C}{R} + i_y * \frac{I}{Y} + \gamma_y * \frac{I_{res}}{Y} - m_Y * \frac{M}{Y}\right)}$$



GDP growth decomposition

		Greece	Italy	Portugal	Spain
Real GDP growth	1. Expansion	3.5	1.5	2.1	3.6
	2. Crisis	-7.6	-1.4	-1.6	-1.5
	3. Expansion	0.5	1.1	1.8	2.5
	4. Covid crisis	-5.3	-8.7	-6.5	-9.2
	5. Post-Covid recovery	3.3	2.8	3.2	2.7
Contribution of autonomous expenditure	1. Expansion	5.4	2.5	4.3	7.2
	2. Crisis	-5.8	0.3	-1.3	0.7
	3. Expansion	0.8	2.7	5.0	3.9
	4. Covid crisis	-3.7	-7.6	-6.2	-8.7
	5. Post-Covid recovery	4.9	3.7	5.4	5.2
Contribution of the demand multiplier	1. Expansion	-1.9	-1.0	-2.2	-3.6
	2. Crisis	-1.8	-1.6	-0.3	-2.2
	3. Expansion	-0.3	-1.7	-3.3	-1.5
	4. Covid crisis	-1.6	-1.1	-0.4	-0.6
	5. Post-Covid recovery	-1.6	-0.9	-2.2	-2.5

Source: authors' own elaboration based on estimated coefficients

4 simulations: 2 policies

Wage rule

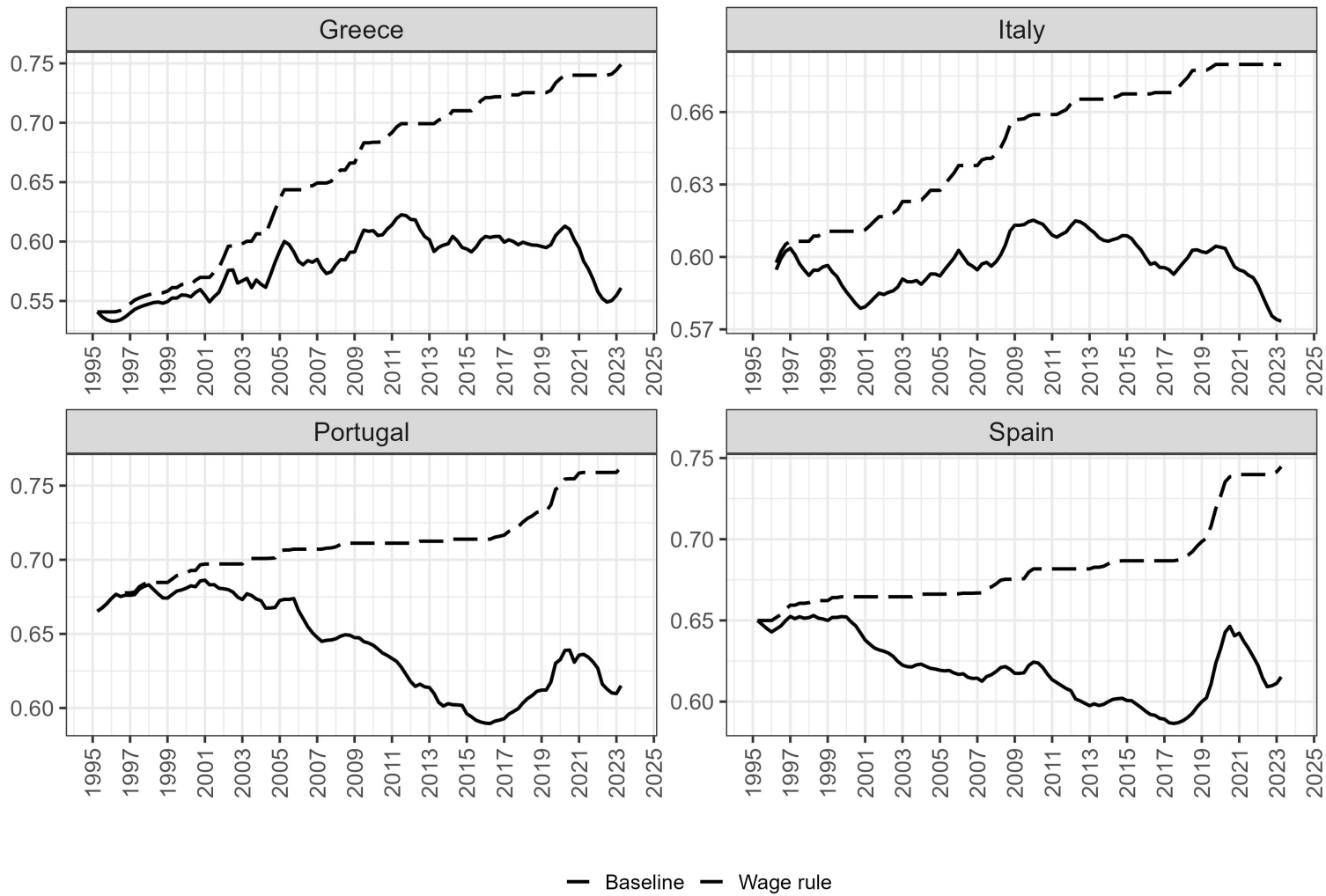
1. The variation of imports is only affected by the change in relative prices $\Longrightarrow$ increased demand in satisfied by domestic production (Wage rule)
2. The variation of imports is affected by the change in relative prices and the demand effect derived from the change in functional income distribution on consumption (similar to the ex-post effect on investment through the accelerator effect) (Wage rule*)

+ Industrial policy

3. Reduction of 0.1 points in each economy's income elasticity of imports (WR &. my -0.1)
4. Reduction of 0.2 points in each economy's income elasticity of imports (WR &. my -0.2)

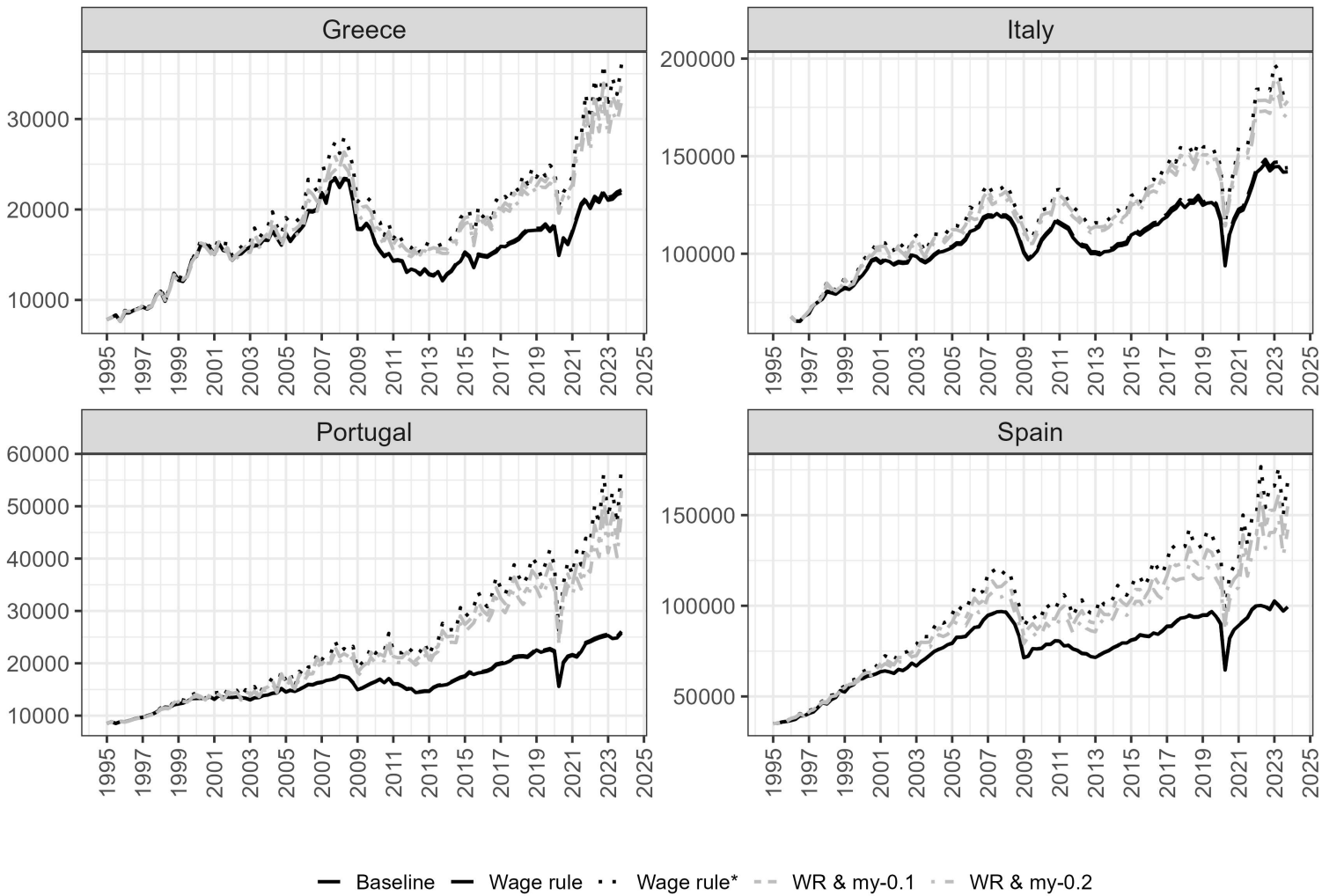
Wage rule simulations

Figure 3: New labour shares after the wage rule



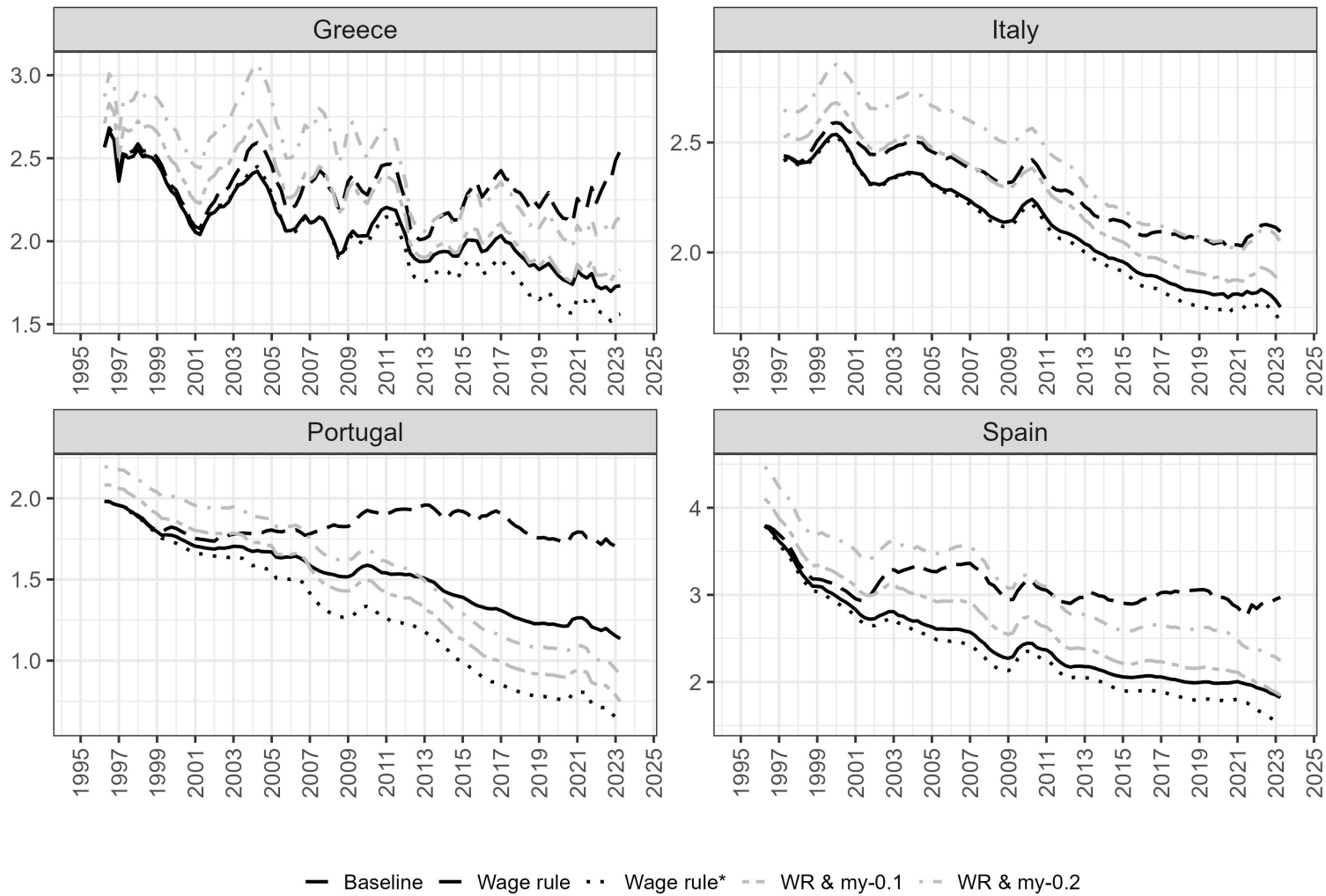
Wage rule + industrial policy simulations

Figure 4: Imports



Wage rule + industrial policy simulations I

Figure 5: New multipliers



Wage rule + industrial policy simulations II

		Real GDP growth					Multipliers				
		Base-line	WR	WR*	WR & my -0.1	WR & my -0.2	Base-line	WR	WR*	WR & my -0.1	WR & my -0.2
Greece	1. Expansion	3.5	4.6	4.2	4.4	4.5	2.3	2.4	2.3	2.5	2.7
	2. Crisis	-7.6	-7.3	-7.3	-7.6	-7.8	2.1	2.3	2.0	2.2	2.5
	3. Expansion	0.5	1.7	0.9	1.0	1.1	1.9	2.3	1.8	2.0	2.2
	4. Covid crisis	-5.3	-3.7	-4.3	-4.4	-4.6	1.8	2.2	1.7	1.9	2.1
	5. Post-Covid recovery	3.3	7.1	5.2	5.6	6.0	1.7	2.3	1.6	1.8	2.1
Italy	1. Expansion	1.5	2.2	2.0	2.0	2.1	2.4	2.5	2.4	2.5	2.7
	2. Crisis	-1.4	-1.0	-1.1	-1.1	-1.2	2.1	2.3	2.1	2.2	2.4
	3. Expansion	1.1	1.8	1.4	1.5	1.6	1.9	2.1	1.8	2.0	2.1
	4. Covid crisis	-8.7	-8.6	-8.3	-8.6	-8.9	1.8	2.0	1.7	1.9	2.0
	5. Post-Covid recovery	2.8	4.7	3.8	4.0	4.2	1.8	2.1	1.7	1.9	2.1
Portugal	1. Expansion	2.4	3.6	2.8	3.0	3.1	1.7	1.8	1.7	1.8	2.0
	2. Crisis	-1.6	0.0	-1.0	-1.0	-1.0	1.5	1.9	1.3	1.4	1.6
	3. Expansion	1.8	2.8	0.9	1.2	1.6	1.3	1.9	0.9	1.1	1.2
	4. Covid crisis	-6.5	-5.6	-4.6	-5.1	-5.6	1.2	1.7	0.8	0.9	1.1
	5. Post-Covid recovery	3.2	5.5	1.8	2.7	3.4	1.2	1.7	0.7	0.8	1.0
Spain	1. Expansion	3.5	4.7	4.1	4.3	4.5	2.9	3.3	2.8	3.2	3.7
	2. Crisis	-1.5	-0.4	-0.8	-0.8	-0.9	2.3	3.0	2.2	2.5	3.0
	3. Expansion	2.5	3.1	2.7	2.8	3.0	2.1	3.0	1.9	2.2	2.6
	4. Covid crisis	-9.2	-9.0	-8.2	-8.7	-9.1	2.0	2.9	1.8	2.1	2.6
	5. Post-Covid recovery	2.7	5.4	3.8	4.2	4.4	1.9	2.9	1.7	2.0	2.4

Source: authors' own elaboration based on estimated coefficients

Central Findings

1. Mediterranean economies are somewhat trapped in a wage devaluation process and despite the positive contribution of exports the fall in the multiplier derived from this process hampers a stable growth path
2. Portugal constitutes a particular case given its low accelerator effect and high income elasticity of imports
3. The implementation of a wage rule, that would ensure an equal distribution between wages and profits during expansions, would have increased the demand multiplier in all of the Mediterranean economies, except for Portugal

Main conclusion

A pro-labor income redistribution along with the implementation of an industrial policy oriented towards the energy transition are key factors in driving the Mediterranean economies' GDP growth

Thank you very much for your attention!

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