Profit margins and inflation: A sectoral-level estimation of factors driving inflation in Greece

Dimitris Paitaridis[1] and Christos Pierros[2]

1. Assistant Professor in Political Economy at the Hellenic Army Academy.

2. Post-Doc researcher at the National and Kapodistrian University of Athens, Dpt. Of Economics, and Researcher at the Labour Institute of the General Confederation of Greek Workers INE GSEE. Contact: c.pierros@inegsee.gr.

Goals of this presentation

Current phase of inflation is due to:

1. A (lagged) pass through of energy price shock to rest prices, or
2. Sellers' inflation?

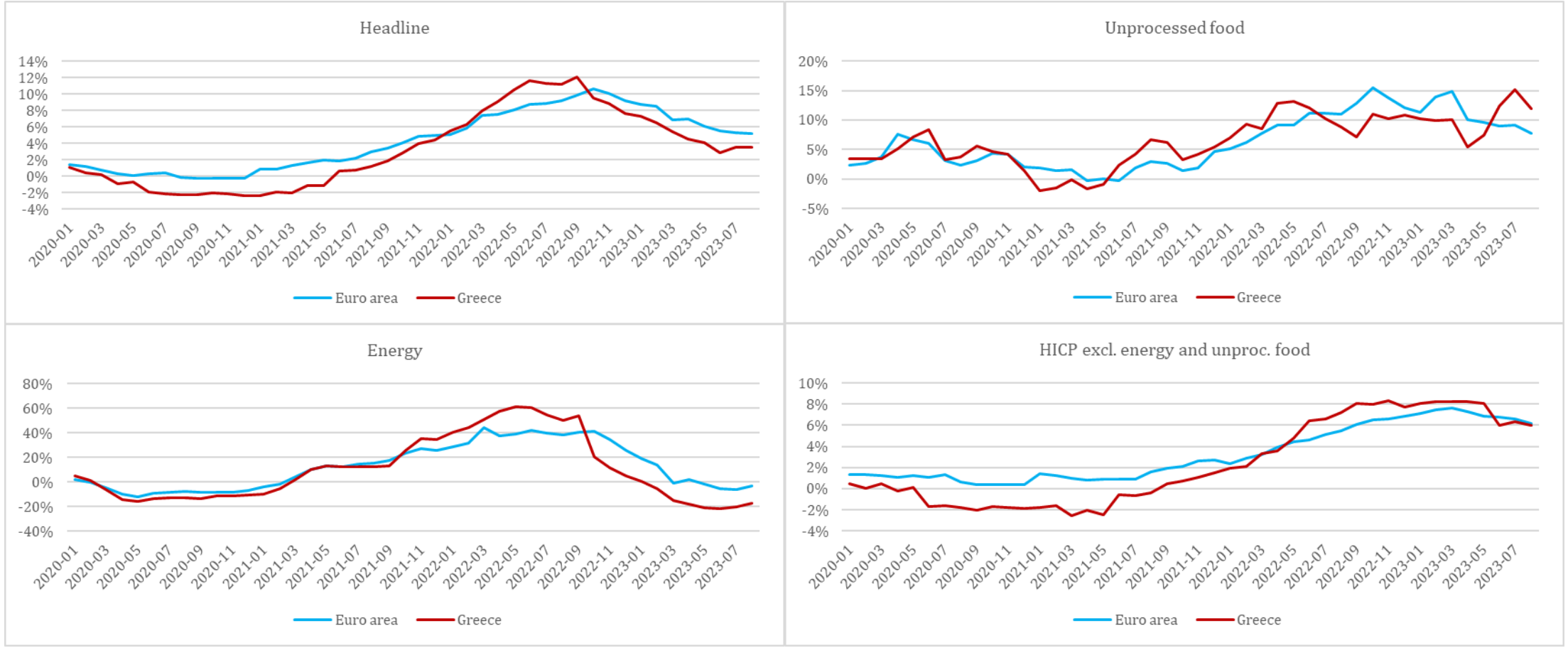
Internal devaluation in Greece:

- Reduced wages aiming to boost cost competitiveness
- Did it succeed?
- Did it have any structural implications and how did it affect income distribution?

Methodology:

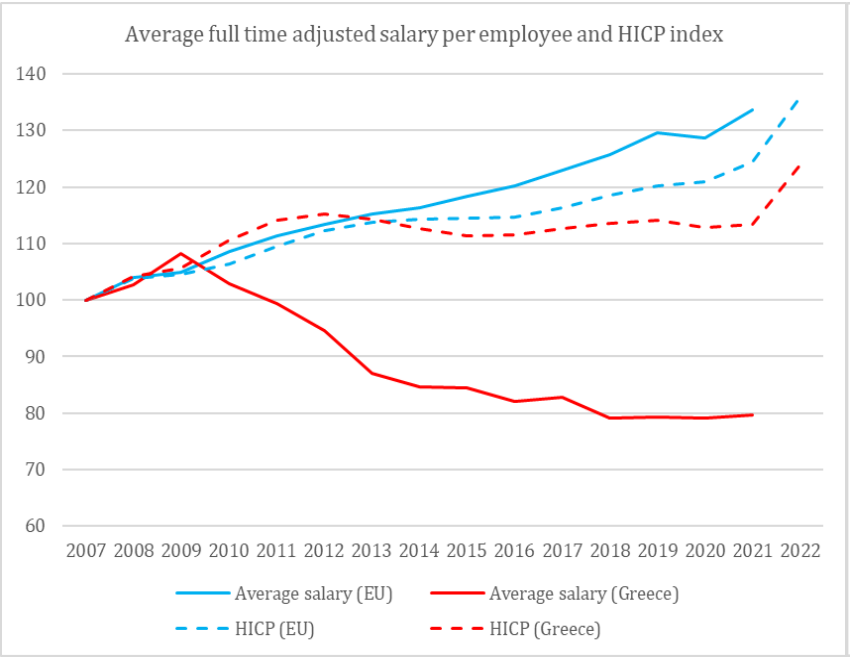
- Eichner's megacorp pricing framework (is it suitable for Greece?)
- Lance Taylor and Nelson Barbosa-Filho's (2021) structural disaggregation of GDP deflator to cost factors

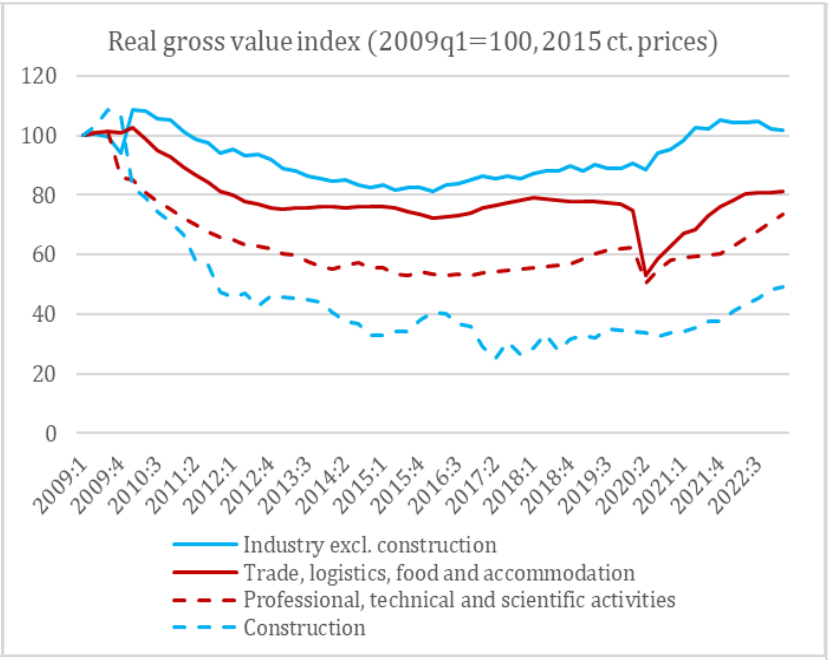
Headline, core, energy and food inflation in Greece and the Euro Area (2020m1-2023m8)

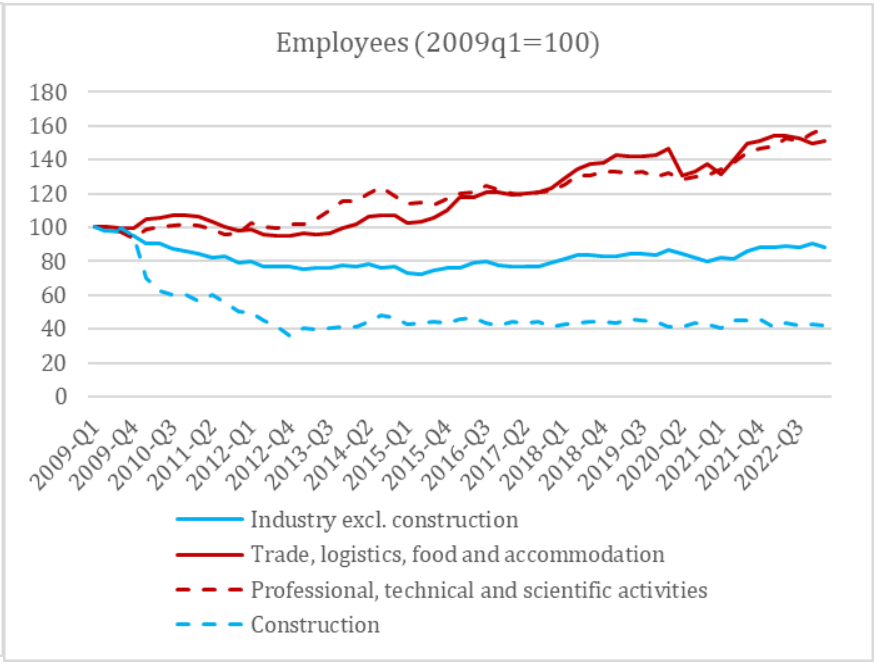


Source: Eurostat

Mean wage and salaries and the structure of the economy







Source: Eurostat

At a first glance

Current inflation:

- Energy prices more responsive to global energy inflation rates vis-à-vis EA.
- Unprocessed food and core inflation persists.
- Tourism seems to have a strong impact on domestic prices

Internal devaluation:

- Nominal mean wage is 20p.p. lower than 2009, while HICP is much higher.
- GVA recovered in industry and employment in services.
- Dual economy

Hypothesis:

- Domestic production has been weakened. Impact of intermediate consumption on prices is higher.
- Economy becomes more labour-intensive. Wage costs more important.
- Weakened labour market institutions and high unemployment. Bargaining power of firms is higher (e.g. easier to increase mark-ups).

Econometric pricing model

- $p_{i,t} = j_{i,t}(m_{i,t} + w_{i,t})$

p: Price
j: Profit margin
m: Unit intermediate input cost
w: Unit labour cost

$$j_{i,t} = e_{i,t}^{a_{i,0}} \cdot \mu_{i,t}^{a_{i,1}} \cdot r_{i,t}^{a_{i,2}} \cdot \tau_{i,t}^{a_{i,3}}$$

μ: Mark-up
r: Interest rate
τ: Tax rate

- Taking logs and differentiating w.r.t. time:

$$\hat{p}_{i,t} = a_{i,0} + a_{i,1} \cdot \hat{\mu}_{i,t} + a_{i,2} \cdot \hat{r}_{i,t} + a_{i,3} \cdot \hat{\tau}_{i,t} + a_{i,4} \cdot \widehat{w}_{i,t} + a_{i,5} \cdot \widehat{m}_{i,t} + u_t$$

- Data: 1996-2021 for 51 sectors of the economy (excl. agriculture, FIRE and housing activities)

Econometric output – Model I

	Random Effects	Arellano Bond	G2SLS
Constant	0.03***	0.03***	0.03***
Wages	0.03***	0.04***	0.03***
Profits	0.01***	0.01***	0.01***
Intermediate consumption	0.04***	0.03***	0.04***
Interest rate	0.07***	0.07***	0.07***
Taxes	0.00	0.00	-
dum10	-0.02***	-0.02***	-0.02***
dum20	0.02***	0.02***	0.02***

Econometric output – Model II

	Random Effects		Arellano Bond		G2SLS	
	1996-2009	2010-2021	1996-2009	2010-2021	1996-2009	2010-2021
Constant	0.03***	0.01*	-	-	0.03***	0.01*
Wages	0.02	0.05**	0.01	-0.02	0.01	0.05**
Profits	0.01**	0.01*	0.01*	0.01	0.01***	0.01***
Intermediate consumption	0.03**	0.04**	0.03	0.06**	0.04***	0.04**
Interest rate	0.04	0.14	0.05***	0.14***	0.04***	0.14***
Taxes	0.00	0.00	0.00	-0.01**	-	-
dum20	-	0.01*	-	0.02***	-	0.02***

Econometric output – Model III

	Random Effects		Arellano Bond		G2SLS	
	Industry	Services	Industry	Services	Industry	Services
Constant	0.03***	0.02***	0.03***	0.02***	0.03***	0.02***
Wages	-0.01	0.00	-0.01	0.00	0.00	0.00
Profits	0.01	0.00	0.01	0.00	0.01	0.00
Intermediate consumption	0.09**	0.01	0.08***	0.01	0.09***	0.00
Interest rate	0.09***	0.01***	0.09***	0.01***	0.09***	0.01***
Taxes	0.00	0.00	0.00	0.00	-	-
dum10	-0.03***	-0.02***	-0.02*	-0.01	-0.03***	-0.02***
dum20	0.02*	0.01	0.03***	0.00	0.02*	0.01

Key findings

- Intermediate input cost has become more important → Production has become weaker.
- Wage costs are more significant → Economy is now more labour-intensive.
- Borrowing costs are the most important factor.
- Pricing framework has strong explanatory power in industry. Weak in services.

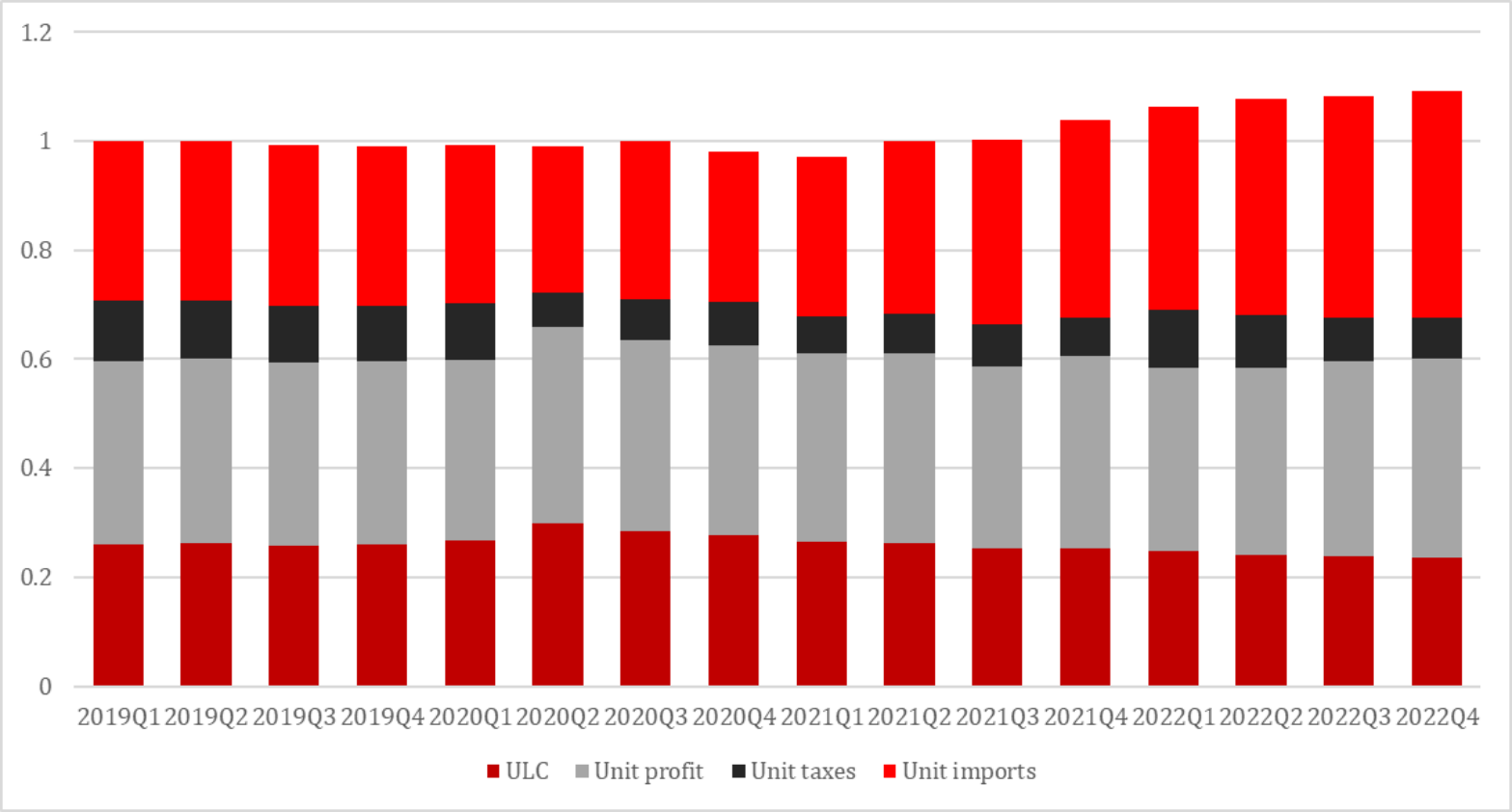
Decomposition of GDP deflator to cost factors (2019q1-2022q4)

- Adding imports to both sides of the GDP income identity and solving for p yields:

$$p = \frac{W + F + INT + p_m \cdot M}{Y + \frac{p_m}{p} M}$$

- Y: Real output
- W: Wage bill
- F: Gross operating surplus/Mixed income
- INT: Net indirect taxes
- M: Real imports
- p: GDP deflator
- p_m: Imports deflator

Decomposition of GDP deflator to cost factors (2019q1-2022q4)

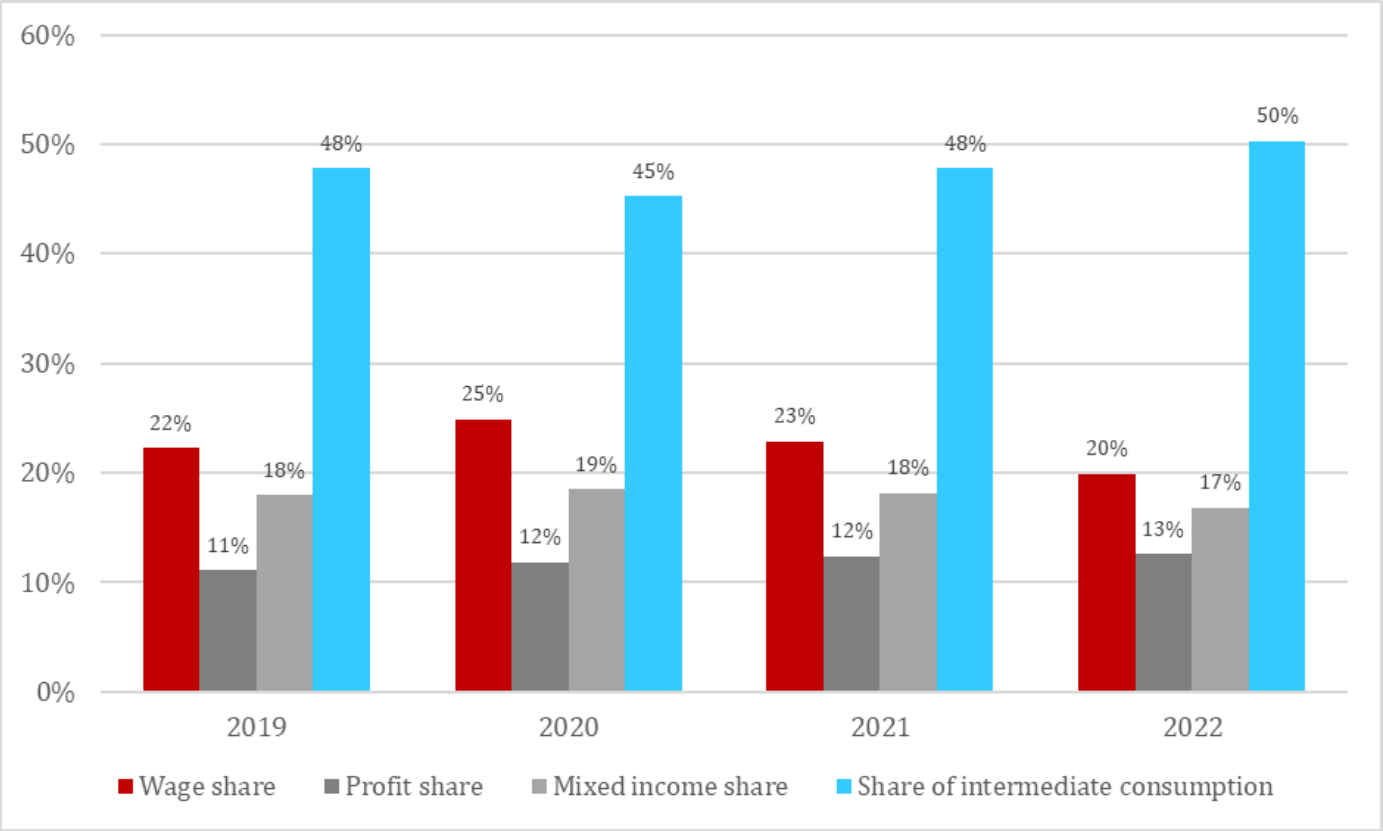


Key findings:

- Strong import pass through, due to weak productive structure.
- Weakened union bargaining power → Wage squeeze.
- For same reason, sellers' inflation.
- Findings supported when examining shares of wages, profits and intermediate consumption in total output.

Source: ELSTAT (own calculations)

Wages, mixed income, profits and intermediate consumption in total output (2019-2022)



Source: ELSTAT (own calculations)

Takeaways and policy implications

Main findings:

- Weakened productive sector → Economy less resilient in external shocks.
- Weakened labour market institutions → Mark-ups more responsive to changes – Wage squeeze.
- Current inflation in Greece is both seller's inflation and result of higher import prices.
- Internal devaluation led to dualism.

Policy implications:

- Industrial policy aiming to boost key sectors
- The Greek Recovery and Resilience Facility program contains very few such targets.
- No consistent energy plans (e.g. no plans for energy gigafactories).
- Public investment constrained by fiscal targets – large part directed to military spending.

Thank you for your attention

c.pierros[at]inegsee.gr