

What are we learning from the energy crisis?

An Empirical Stock-Flow Consistent Model of the Italian Economy

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- We assess the impact of the energy crisis on the Italian economy

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- Coding: 11 R files (model upload, tables, in-sample and out-of-sample predictions, figures) + 1 xls file (data reclassification) + 1 csv file (reclassified series)

TABLE 1. BALANCE SHEET, CURRENT PRICES, 2021

	Households	Firms	Government	Banks	ECB	Foreign	Σ
Cash and reserves	200683	0	0	10817	-211500	0	0
Deposits	1428434	0	0	-1428434	0	0	0
Securities	233263	0	-2678397	1366294	868289	210551	0
Loans	-763488	-871902	0	1635390	0	0	0
Shares	1372850	-1372850	0	0	0	0	0
Other net FA	1583746	284629	323282	-1563895	-783662	155900	0
Net financial wealth	4055488	-1960123	-2355115	20172	-126873	366451	0
Σ	0	0	0	0	0	0	0

TABLE 2. TRANSACTIONS-FLOW MATRIX, CURRENT PRICES, 2021

	Households	Firms		Gov.	Banks	ECB	Foreign	Σ
		Current	Capital					
Consumption	-1030124	1030124	0	0	0	0	0	0
Total investment	0	357215	-357215	0	0	0	0	0
Government spending	0	352718	0	-352718	0	0	0	0
Export	0	582192	0	0	0	0	-582192	0
Import	0	-540198	0	0	0	0	540198	0
<i>Memo: GDP</i>	0	[1782051]	0	0	0	0	0	0
Taxes	-483366	0	0	483366	0	0	0	0
Transfers	188601	0	0	-188601	0	0	0	0
Wages	692915	-692915	0	0	0	0	0	0
Interest payments	10905	-2326	0	-60678	29134	13200	9765	0
Corporate profit	738858	-1141970	403112	0	0	0	0	0
Bank profit	29134	0	0	0	-29134	0	0	0
CB seigniorage	0	0	0	13200	0	-13200	0	0
Other payments	-60675	55160	0	275577	-151307	-5171	-113584	0
Change in money	15250	0	0	0	-657	-14593	0	0
Change in deposits	57376	0	0	0	-57376	0	0	0
Change in securities	-30072	0	0	-105432	-77658	103317	109845	0
Change in loans	-27196	0	169601	0	-142405	0	0	0
Change in shares	138716	0	-138716	0	0	0	0	0
Change in other net FA	-67825	0	15012	275577	126789	-93895	-255658	0
Change in net wealth	86249	0	45897	170145	-151307	-5171	-145813	0
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- Generate out-of-sample predictions (up to 2028) – baseline in line with other institutions’ predictions (via exogenisation of export)
- Create alternative scenarios and compare with baseline dynamics

MAIN BEHAVIOURAL EQUATIONS (1/2)

- Real investment of non-financial firms:

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- Real consumption of households:

$$\begin{aligned} \Delta \log(c) = & \alpha_1 \cdot \Delta \log \left(\frac{WB}{p} \right) + \alpha_2 \cdot \Delta \log \left(\frac{YD - WB}{p} \right) + \\ & + \alpha_3 \cdot \Delta \log \left(\frac{V_h^n}{p} \right) - \alpha_4 \cdot \Delta \log \left(\frac{L_h}{p} \right) \end{aligned} \quad (2)$$

MAIN BEHAVIOURAL EQUATIONS (2/2)

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$$\log(X) = \varepsilon_0 + \varepsilon_1 \cdot \log(Y^{row}) + \varepsilon_2 \cdot \frac{w}{pr} - \varepsilon_3 \cdot r^* \quad (3)$$

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- Energy import:

$$M_{en} = \mu_{en} \cdot M, \quad \text{where : } \mu_{en} = \epsilon_1^{en} \cdot \mu_{en,-1} + \epsilon_2^{en} \cdot p_{en} \quad (6)$$

FIGURE 1. SANKEY DIAGRAM OF TRANSACTIONS, 2017

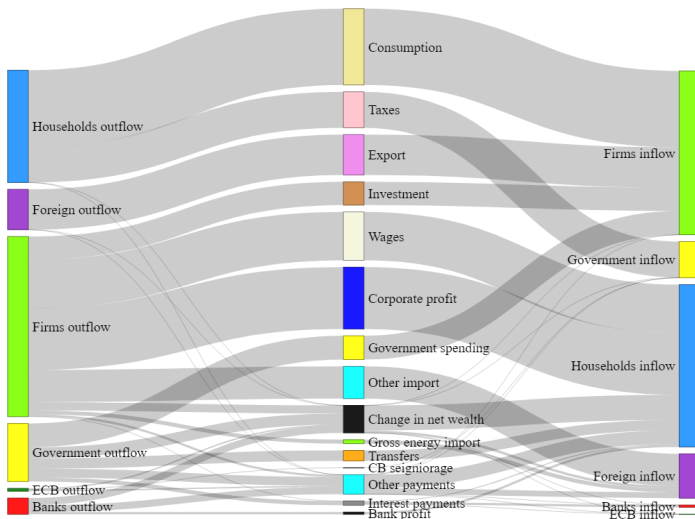


FIGURE 1. SANKEY DIAGRAM OF TRANSACTIONS, 2018

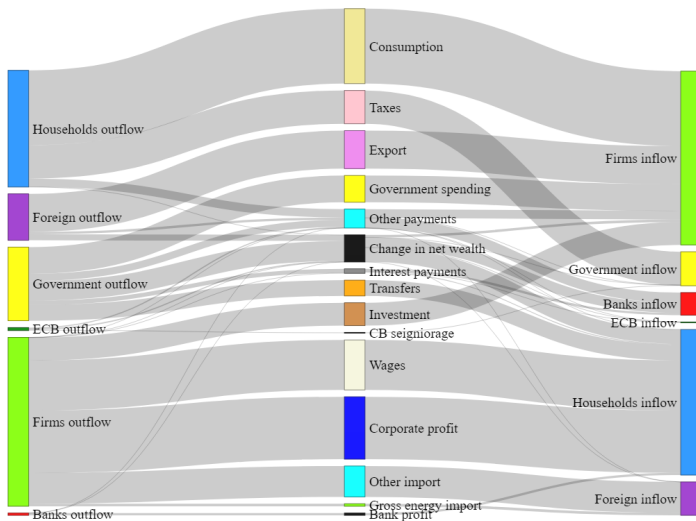


FIGURE 1. SANKEY DIAGRAM OF TRANSACTIONS, 2019

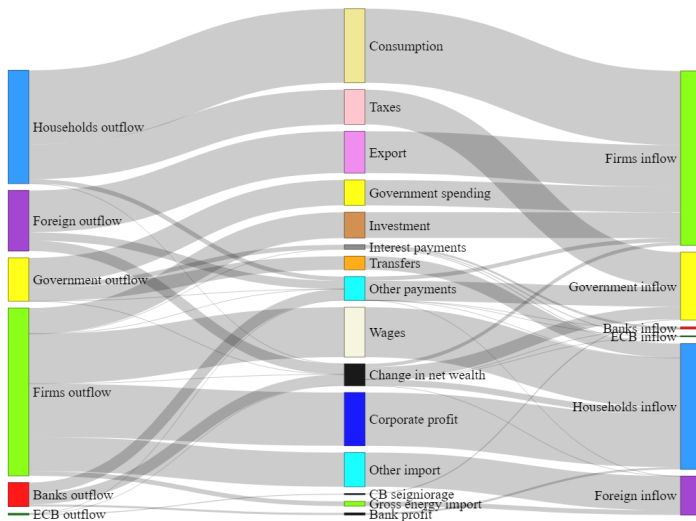


FIGURE 1. SANKEY DIAGRAM OF TRANSACTIONS, 2020

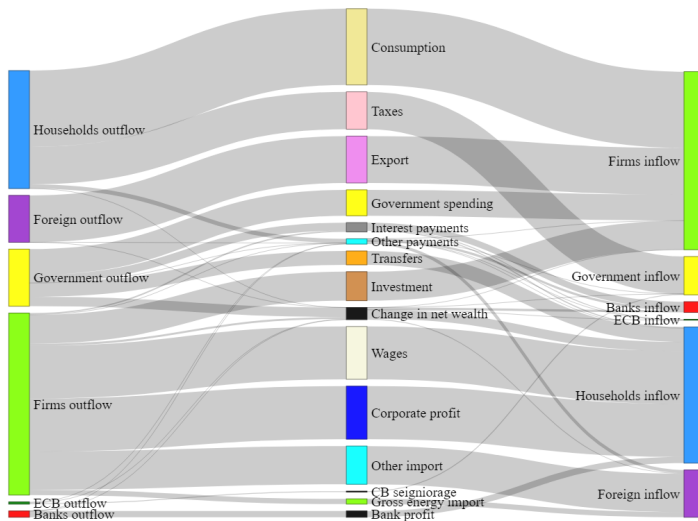


FIGURE 1. SANKEY DIAGRAM OF TRANSACTIONS, 2021

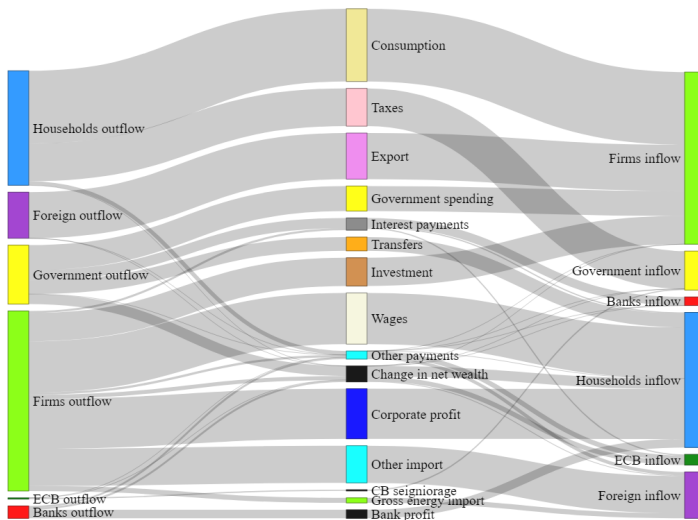


FIGURE 1. SANKEY DIAGRAM OF TRANSACTIONS, 2022

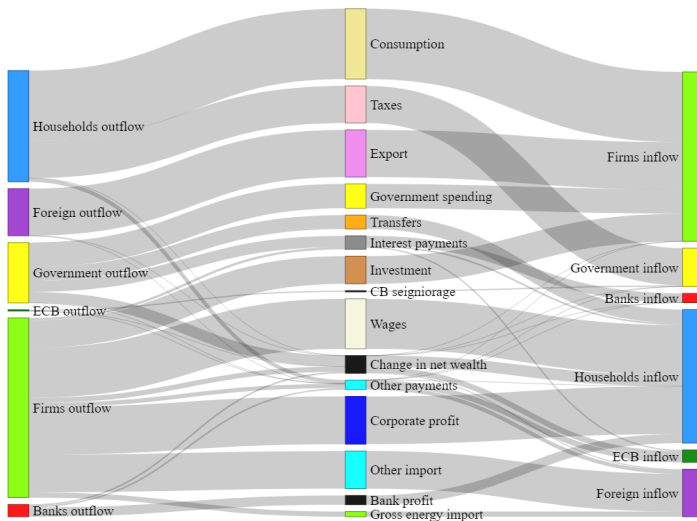


FIGURE 1. SANKEY DIAGRAM OF TRANSACTIONS, 2023

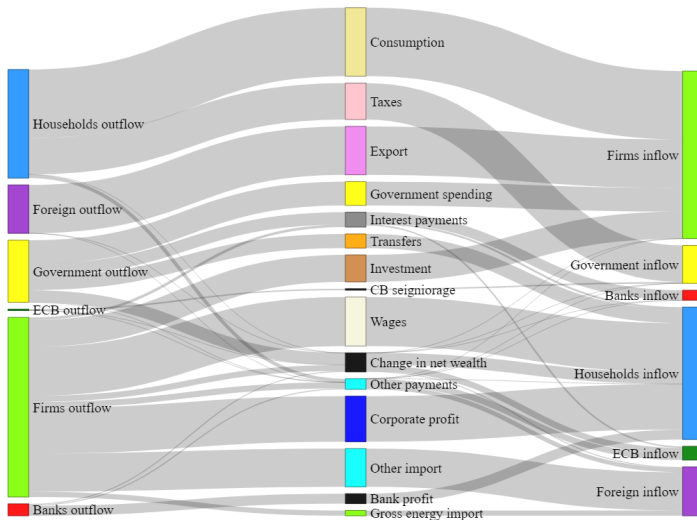


FIGURE 2. SELECTED VARIABLES UNDER ALTERNATIVE SCENARIOS

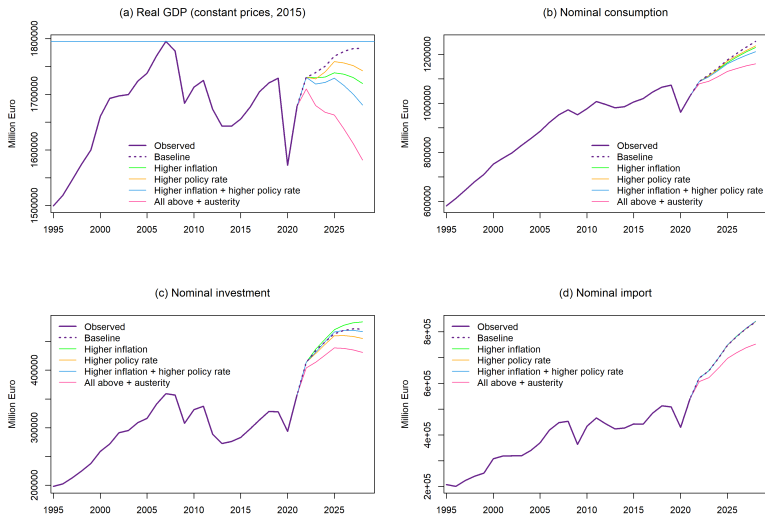


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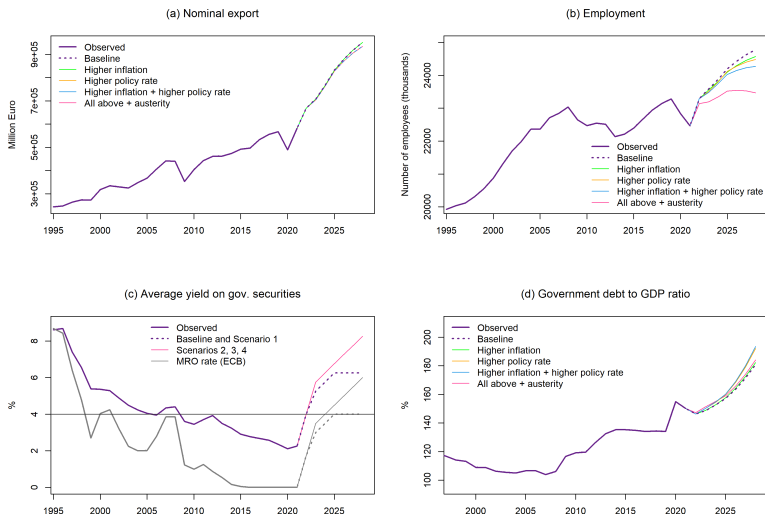


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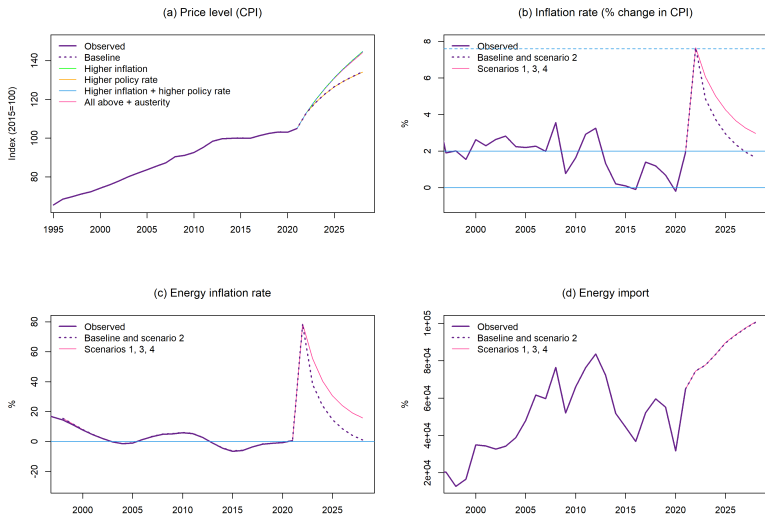


FIGURE 5. SELECTED VARIABLES UNDER ALTERNATIVE SCENARIOS



TABLE 3. PREDICTED VALUES OF SELECTED VARIABLES IN 2022-2024

NADEF (Nov 2022)				IMF (Oct 2022)			EU (Nov 2022)			Bol (Dec 2022)			OECD (Nov 2022)			ISTAT (Dec 2022)			Model baseline		
Variable / period	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024	2022	2023	2024
<i>Growth rates (%)</i>																					
GDP	3.7	0.6	1.9	3.2	-0.2	-	3.8	0.3	1.1	3.8	0.4	1.2	3.7	0.2	1.0	3.9	0.4	-	3.2	0.5	0.7
Consumption	3.9	1.0	1.6	2.8	-0.4	-	2.2	1.4	-	4.5	1.4	0.7	3.4	0.2	0.5	3.7	0.4	-	1.1	-0.7	-0.2
Investment	9.2	3.0	4.1	10.3	3.1	-	6.2	4.1	-	9.7	2.8	2.2	8.7	0.9	3.3	10.0	2.0	-	11.2	1.7	0.8
Import	14.3	1.9	4.3	-	-	-	6.1	4.2	-	15.2	4.8	2.9	12.9	1.7	2.9	13.2	2.2	-	10.3	1.1	4.6
Export	10.4	1.5	4.2	-0.3	-0.1	-	4.9	4.3	-	10.4	1.8	3.3	10.4	1.8	3.2	10.8	2.0	-	10.4	5.7	5.7
GDP deflator	3.0	4.1	2.7	-	-	-	3.1	2.4	-	-	-	-	3.2	4.9	2.7	3.6	3.6	-	4.6	3.3	2.7
CPI	7.0	5.5	2.6	8.7	5.2	-	8.7	6.6	2.3	8.8	7.3	2.6	8.1	6.5	3.0	8.2	5.4	-	7.7	4.8	3.7
<i>Gov. ratios (%)</i>																					
Deficit to GDP	5.6	4.5	3.7	5.4	3.9	-	5.1	3.6	4.2	-	-	-	5.6	4.7	3.8	-	-	-	7.0	7.7	8.7
Debt to GDP	145.7	144.6	142.3	147.2	147.1	-	144.6	143.6	142.6	-	-	-	146.5	144.4	143.3	-	-	-	146.4	148.7	152.5

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- The debt/GDP ratio rose from 106.2% in 2008 to 155.8% in 2020
- Model simulations show that the debt/GDP ratio will keep rising in the next few years (under every scenario)
- A tight monetary policy and/or austerity measures (to reduce inflation) can only make things worse...

REFERENCES

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