The Redistributive Effects of Inflation: a Microsimulation Analysis for Italy

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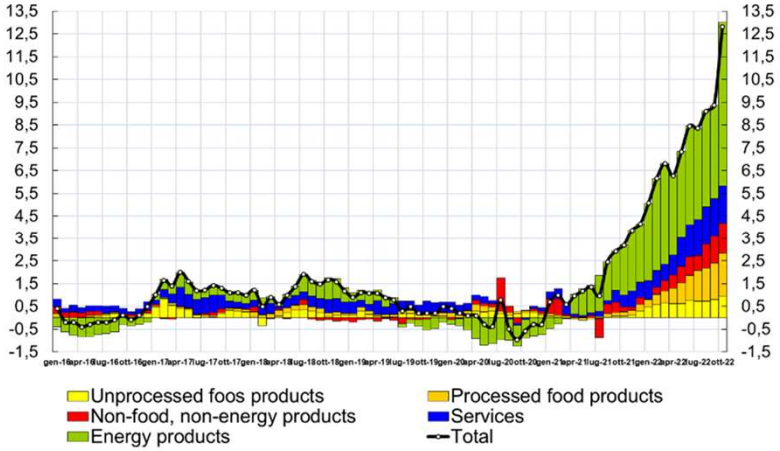
Introduction

- Inflation rose significantly in Italy since mid-2021 reaching 12.6% in October 2022, a historical high
- The last October Bank of Italy forecast for the average inflation in 2022 is 8.5%
- The same forecast for 2022 average inflation elaborated in July 2021 was 1.3%
- This indicates how big the inflationary shock was

Figure 1: Harmonized inflation rate (HICP)



Source: computation on Istat data.
Note: monthly data, percent and percentage points.

The motivation of our work

- Inflation affects the distribution of purchasing powers for different income levels through two channels:
  - differences in the composition of consumption baskets among households (the composition effect)
  - differences in the share of income that each household consumes (the average propensity to consume effect)
- The distributional effects of inflation on households' purchasing power have been mitigated by Government measures: some addressed to all consumers, others more targeted

The aim of the analysis

- Show redistributive effects of the inflationary shock, with and without Government measures
- Identify the two components of the total effect: the composition effect and the average propensity to consume effect
- Depict the distribution of the effects by quintiles of disposable income and by prevailing income types
- Assess measures effectiveness in reducing the effects on inequality: targeted vs untargeted measures

Methodological issues

- Estimating the distributional impact of inflation requires (survey) microdata on households income, wealth and expenditures as well as detailed information on inflation by consumption items
- Once data requirements are fulfilled, one needs to model household reactions to changing prices
- Alternatively, it can be assumed that consumed quantities remain fixed even after a price change
- Under such assumption:
  - persistence of consumption habits or a high degree of necessities (especially for some goods and services consumed by poor households) can be advocated to justify the choice
  - the focus of the analysis is more short-term: it identifies a sort of “day-after” effect

The novelty of our work

- Our paper is the first in Italy that exploits micro level information about incomes, wealth and consumptions of households in estimating the impact of the inflationary shock on households
- Bella (2022) and UPB (2022) present analyses based only on data for household expenditures. They reach similar conclusions but looking at the distribution of equivalent expenditures (rather than equivalent disposable incomes)
- Moreover, in attributing price changes to consumption items, we use a finer disaggregation of HICP data than in those papers
- Finally, we exploit Bank of Italy macroeconomic forecast to estimate inflation rates for the entire 2022

What's following? The plan of the presentation

- Our methodological choices and assumptions
- A short description of the Italian Government interventions
- The results:
    1. The heterogeneity of the household specific «inflation rates»
    2. The incidence of the inflationary shock
    3. The effectiveness of the Government measures in reducing the unequal effects of inflation

Our methodological choices

- We employ the Bank of Italy's tax and benefit microsimulation model (BIMic)
- BIMic is based on the Bank of Italy Survey on Household Incomes and Wealth (SHIW; currently the 2016 wave)
- Thanks to a statistical matching with the Istat Household Budget Survey, BIMic exploits a unique dataset that allows a joint analysis of Italian households' income, wealth and detailed consumption patterns

The assumption of fixed consumed quantities

- Main assumption: price changes do not affect consumed quantities -> changes in HH expenditures reflect price changes one-to-one

- Interpretation: we simulate the additional expenditure needed to purchase the same quantities as before the shock (i.e. the reduction in purchasing power) -> it is an upper bound of the welfare loss suffered by HHs

- Caveat: we do not take into account the effect of the inflationary shock on HH net wealth and its implication on their consumption choices

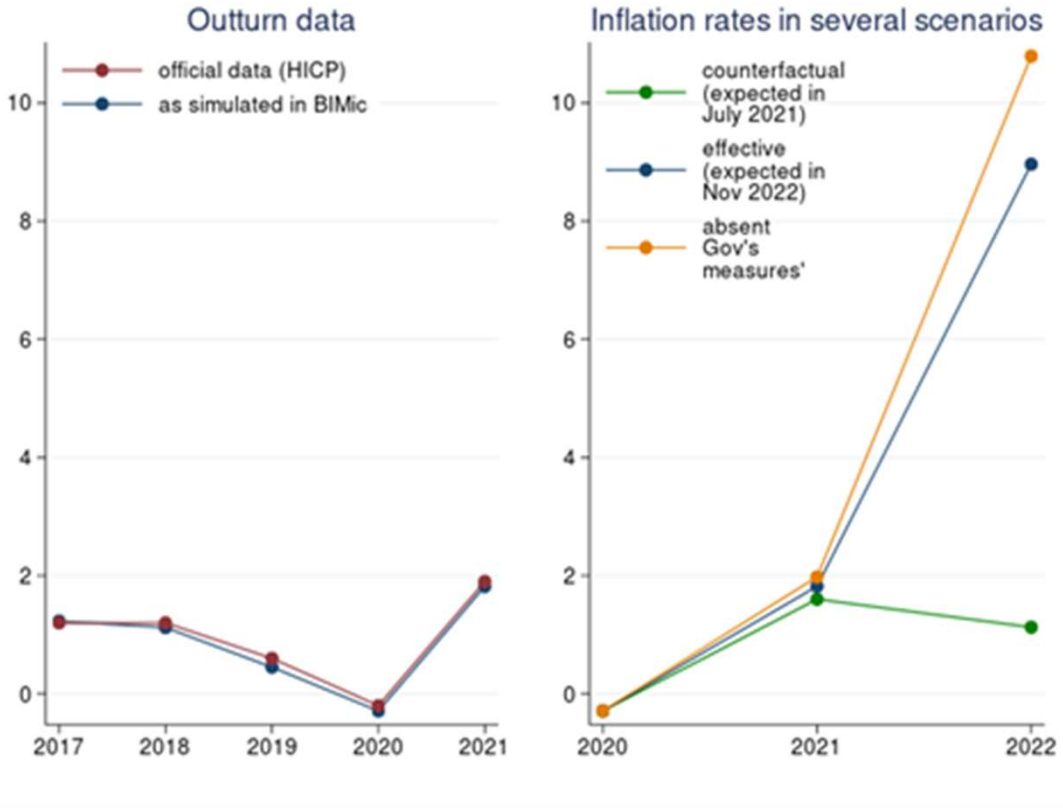
Defining the inflationary shock and three scenarios

- Definition of the inflationary shock: difference between 2022 HICP inflation as forecast by Bank of Italy in October 2022 (8.5%) and the same rate as forecast in July 2021 (1.3%)
- Under the assumption of no quantity changes, we define three scenarios:

1. The realized scenario: 2022 HHs expenditures as resulting from the application of 2022 HICP inflation forecast in Oct 2022
2. The pre-shock scenario: 2022 HHs expenditures as resulting from the application of 2022 HICP inflation forecast in July 2021
3. The no-Government intervention scenario: 2022 HHs expenditures as resulting from the application of 2022 HICP inflation forecast in October 2022, after cancelling the effects of the Government intervention on inflation rates

The replication of the inflation rate using BIMic

- For each household we have expenditures on 480 items of goods and services referring to year 2016
- We apply an item-specific inflation rate to each of the expenditure items
- We are able to replicate the national inflation rate until 2021
- For 2021-2022 we can estimate also the effect of the Government measures over the inflation rate



The Government measures

- Since mid-2021, Italian Government intervened to contrast the effects of high inflation on household purchasing power. We classify the measures taken in four categories:

1. Measures addressed to the general public and affecting expenditures for energy and fuel (untargeted): cancellation of the general system charge, cut of excise duties on fuel, cut of VAT due on gas bill;

2. Measures addressed to poor households to reduce the energy bills (fully targeted): the enhancement of the social bonus for electricity and gas bills (which are conditional on Isee, an indicator of households' income and wealth);

3. One-off allowances (partially targeted): one-off payments (200 euros and 150 euros) addressed to all individuals with a positive taxable income (and conditional to individual income) and to the minimum income scheme beneficiaries;

4. Other measures affecting take-home pay (partially targeted): the cut in social security contributions paid by employees; the anticipation to 2022 of part of the pension indexation provided for 2023.

The impact of the measures on household purchasing power

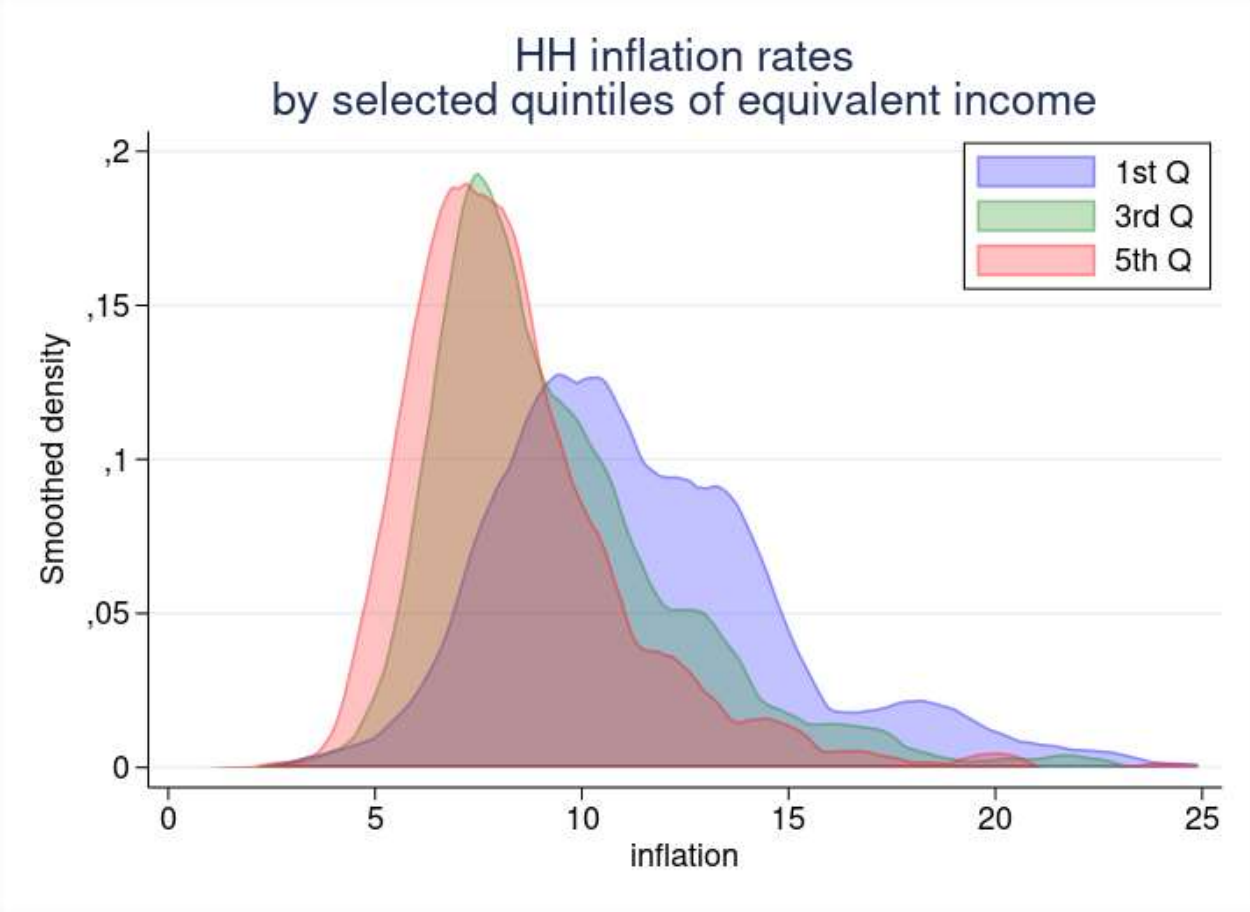
	Total impact *(bn euros)*	**Average impact on houselholds' purchasing power *(euros)***					
		Total	Quintiles of disposable income				
			1	2	3	4	5
Total effect without Government intervention: (a)	81.3	3,186	2,305	2,675	3,160	3,497	4,292
Total effect with Government intervention: (b)	49.6	1,944	998	1,320	1,955	2,273	3,176
Attenuation of the total effect due to Government intervention: (a) - (b)	31.7	1,241	1,307	1,356	1,205	1,224	1,115
of which:							
- measures on general system charges, excise duties and VAT	*16.2*	*635*	*468*	*567*	*642*	*685*	*811*
- social bonus on energy bills	*3.1*	*120*	*365*	*206*	*27*	*3*	*0*
- one-off allowances	*8.9*	*347*	*392*	*441*	*374*	*341*	*189*
- other measures affecting take-home pay	*3.6*	*139*	*82*	*142*	*162*	*195*	*116*

(a) = no-Government intervention scenario – pre-shock scenario

(b) = realized scenario – pre-shock scenario

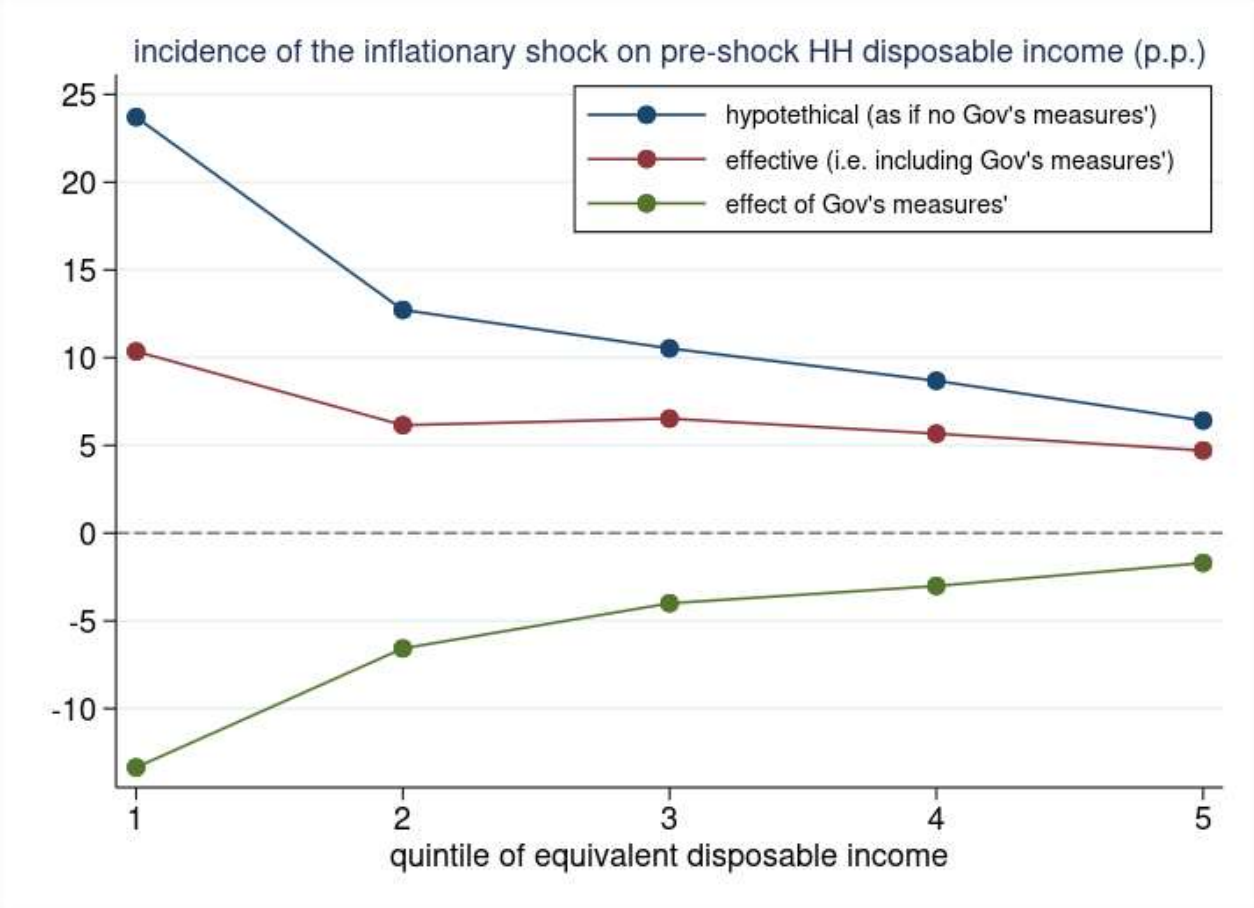
“Inflations” rather than inflation: the first channel of the incidence of the shock over quintiles of disposable income

- Heterogeneity in consumption baskets and different item-specific inflation imply highly differentiated inflation rates perceived by households
- Not only average but also dispersion of consumption baskets’ price change is different among income quintiles
- This is a representation of the first channel behind the higher impact of the inflationary shock over poor households



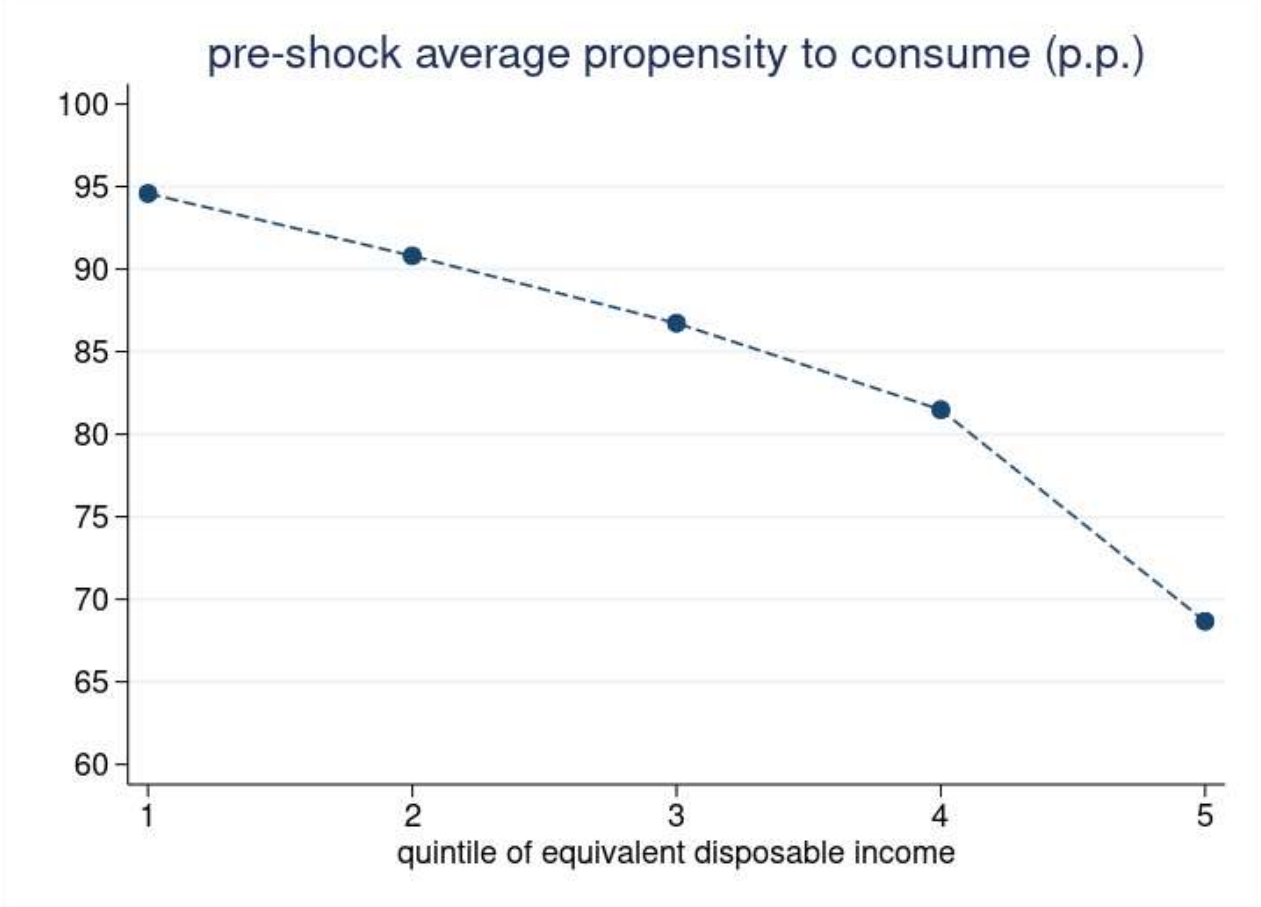
The incidence of the inflationary shock on purchasing power

- The impact of the shock on purchasing power of low-income households is two times that of high-income ones
- The difference would have been much higher (almost four times) in case of no-Government intervention



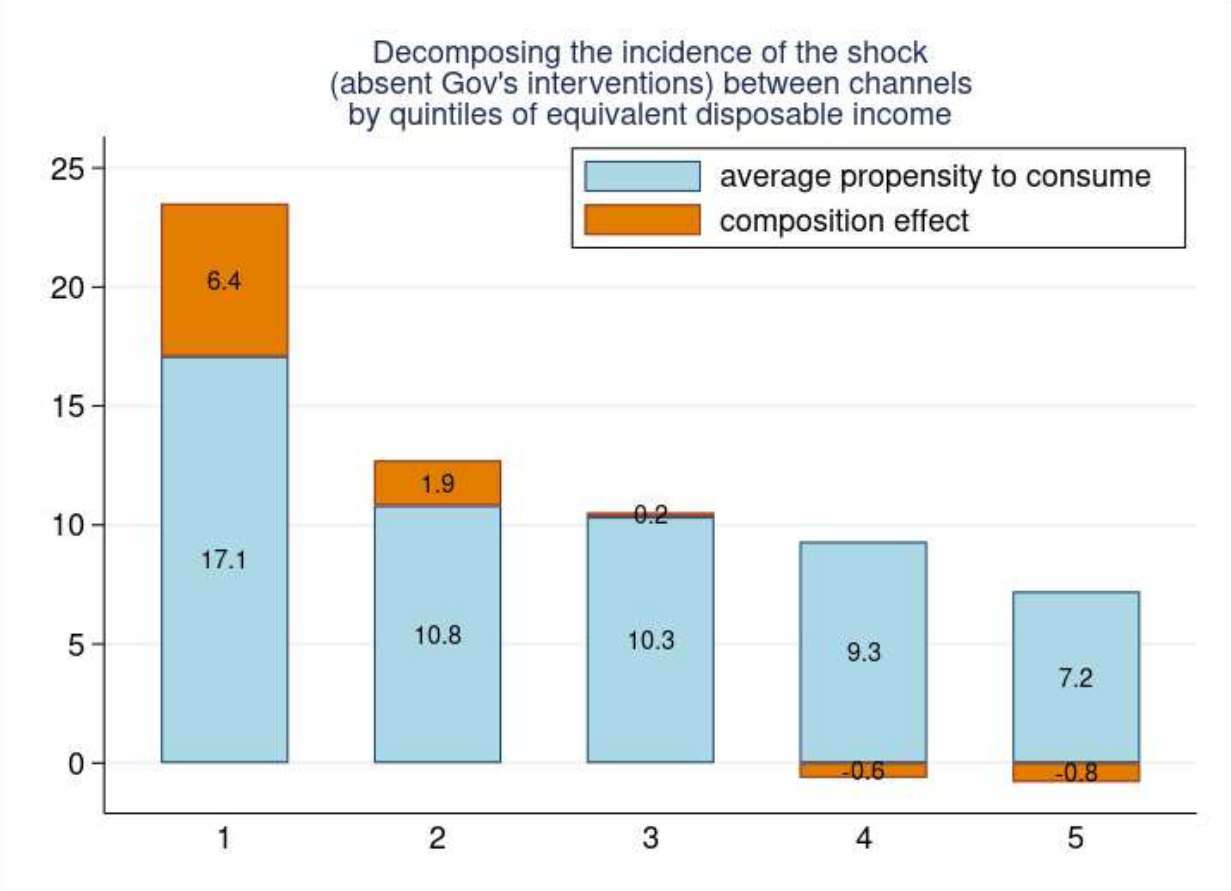
The average propensity to consume: the second channel of the incidence of the shock over quintiles of disposable income

- C/Y decreasing as Y increases
- Even if price changes were perfectly the same for each consumption item, the shock would hit low-income households more than high-income ones



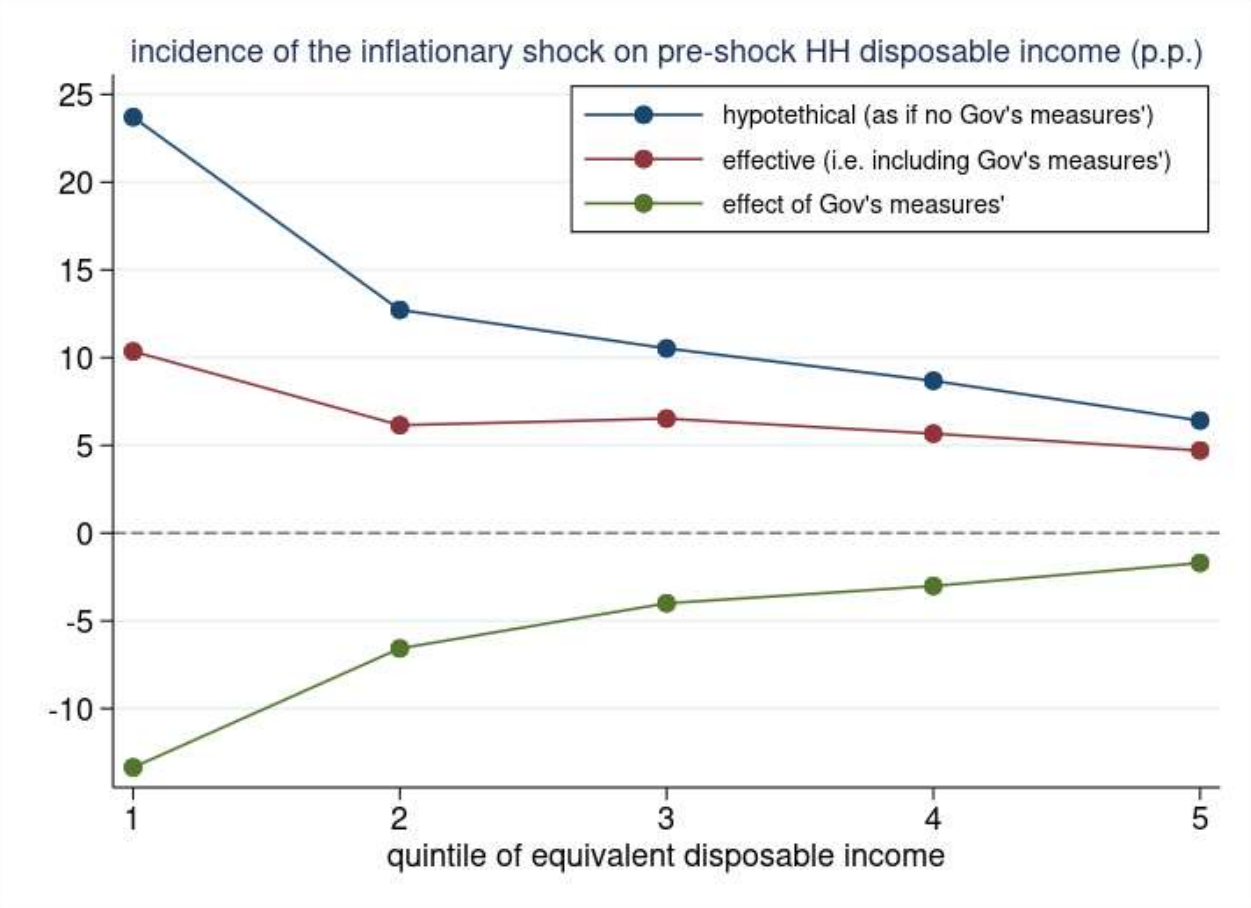
Decomposing the inflationary shock incidence over purchasing power

- We decompose the impact of the shock in the no-Government intervention scenarios between the two effects
- C/Y explains most of the shock effect
- For low income HHs, a relevant role is played also by the composition effect



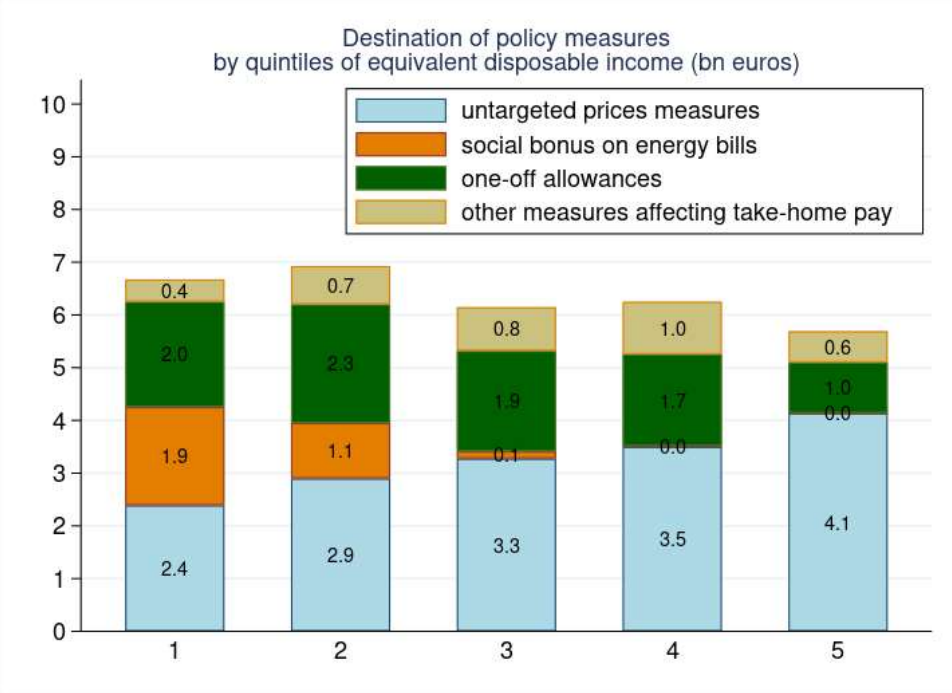
The effectiveness of Government intervention in attenuating inequality

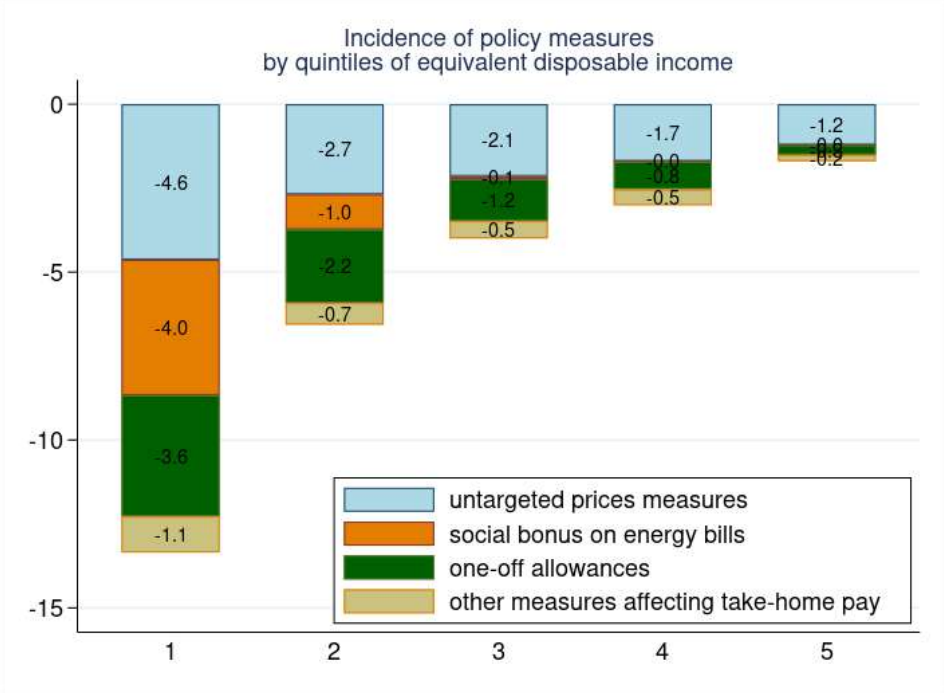
- After the Government intervention, the «residual» impact of the shock exhibits a flatter pattern.
- Government measures impact (as percentage of disposable income) is much higher for low income households
- Notwithstanding this, not all the differential impact of the inflationary shock has been absorbed



To which measures do the credits go for attenuating inequality?

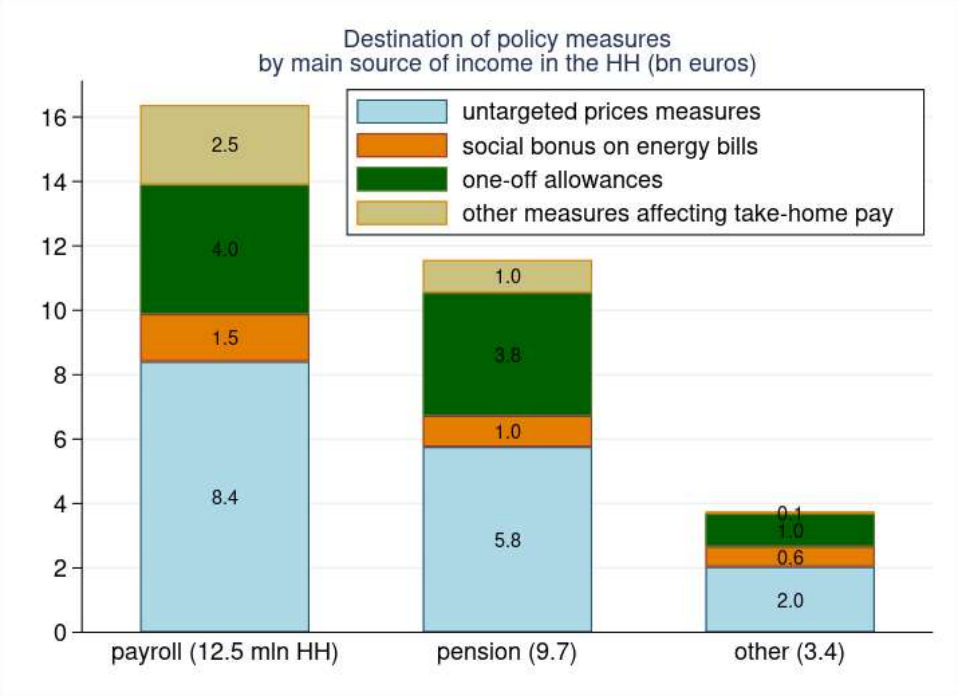
- The social bonus benefits low income households exclusively
- The other measures are pocketed also by higher-income households

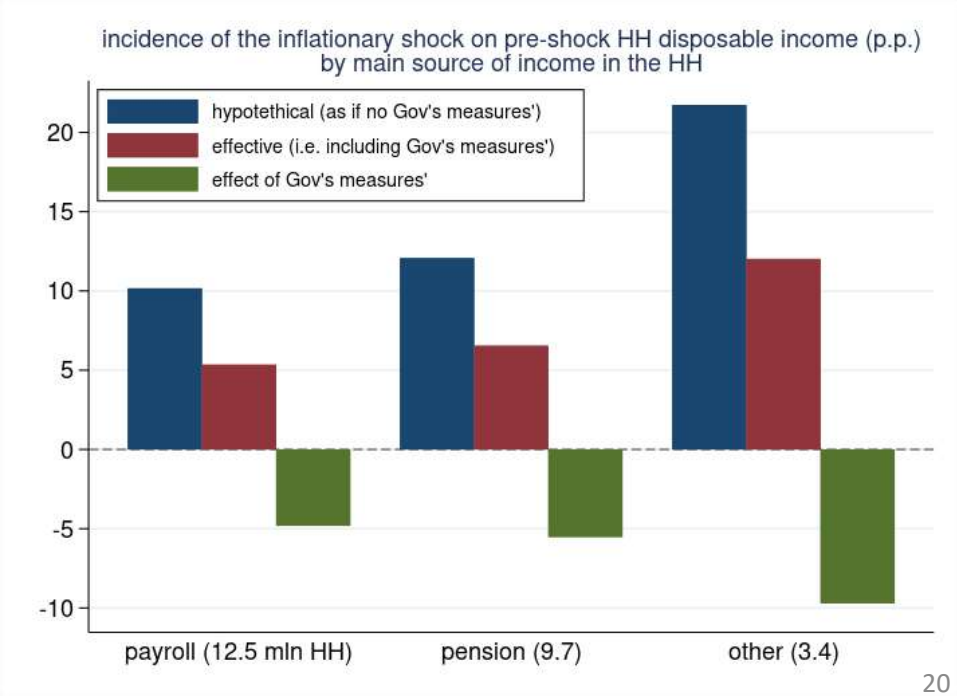




Breaking households down by prevailing income

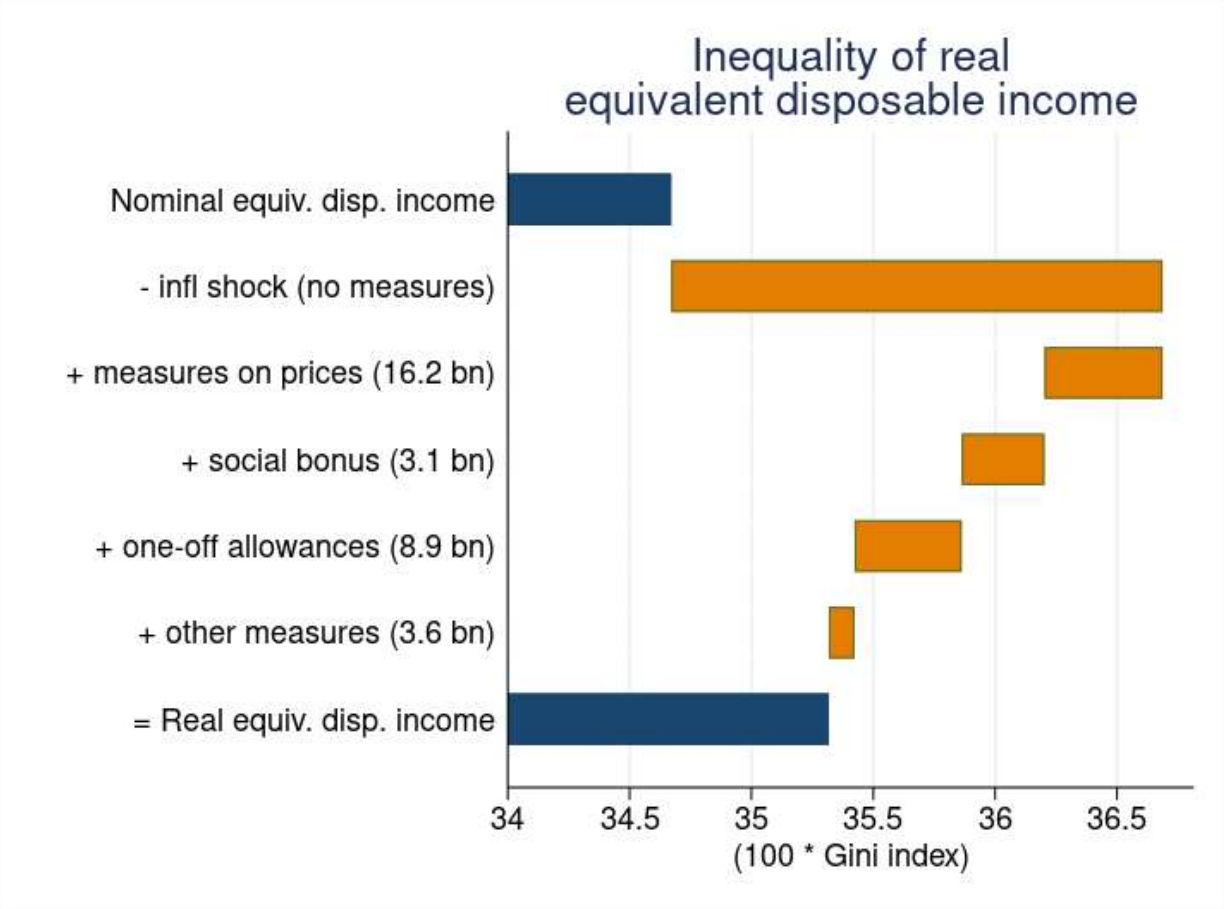
- No remarkable differences between payroll employees and retirees
- However, retirees pocket almost € 12bn (versus € 16bn to employees) and many of them will benefit a high pension indexation from January 2023





A synthetic indicator for the redistributive effect

- Without Government measures, the Gini index would have gone up by about 2 pps
- About 70% of this greater inequality has been sterilized by the Government
- The enhancement of the social bonus is the more effective measure for inequality reduction



Conclusions

The inflationary shock hit hardly the purchasing power of low-income households (more than 10% of the pre-shock disposable income); high-income households were hit more softly (the effect on the highest quintile was about 5%)

Without Government measures, the effect would have been much more unequal, ranging from more than 23.5% for the lowest quintile to 6.4% for the highest

A synthetic indicator, like the Gini index of purchasing powers, show that the most effective measures in reducing inequality was the enhancement of social bonus on energy bills, not surprisingly the best targeted one.

Thanks for your attention

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