

2023

IARIW–BANK OF ITALY CONFERENCE “CENTRAL BANKS, FINANCIAL MARKETS AND INEQUALITY”

Paper Prepared for the IARIW-Bank of Italy Conference, Naples, Italy, March 29-April 1, 2023

The Effect of Monetary Policy on Inflation Heterogeneity along the Income Distribution

Michael Ehrmann

Miguel Ampudia

Georg Strasser

The possible distributional effects of monetary policy have attracted considerable attention in recent years, especially since the introduction of unconventional monetary policy tools such as asset purchases or negative interest rates (see, e.g., Lenza and Slacalek 2018, ECB Working Paper No. 2190). Redistribution is not just a side effect of monetary policy, but has been identified as a channel through which monetary policy affects macroeconomic aggregates (Auclert 2019, *American Economic Review*). The literature so far focussed on the effects on wealth, income or consumption. But monetary policy could also exert distributional effects if it impacts inflation differently across consumers. This channel has been studied less, but is particularly relevant at the current juncture where high inflation rates impose a disproportionately large burden on low-income households. A distributional effect of monetary policy via inflation could arise, for example, if the products consumed by different household groups differed in their price stickiness. Cravino et al. (2020, *Journal of Monetary Economics*), for example, find that in the United States the prices of the products consumed by high-income households respond less to monetary policy shocks than those consumed by the middle class.

In Europe, income inequality is lower than in the United States. It is therefore not obvious that ECB monetary policy shocks affect income groups differently. The proposed paper studies the effect of monetary policy shocks on the inflation differentials between income groups. We use the (pure) monetary policy shocks constructed by Jarocinski and Karadi (2020, *American Economic Journal: Macroeconomics*) in a setup analogous to Cravino et. al (2020). As in the latter paper, we start with inflation series for different income groups, which account for the heterogeneity in spending shares along broad product categories. This covers the full spectrum of (HICP) consumption, and thereby provides a direct link to aggregate inflation. These series by construction abstract from differences in product choice within a product category and

differences in prices paid between income groups. Furthermore, the underlying consumption baskets are updated only infrequently. A considerable part of the heterogeneity in inflation between households, however, stems from variation in prices paid for the same types of goods (Kaplan and Schulhofer-Wohl 2017, *Journal of Monetary Economics*). Hence, we will also rely on inflation series constructed at the household level for typical everyday shopping items, which allows us to study both price and quantity effects, and their relation to household income.

To capture the effect of monetary policy shocks on inflation heterogeneity, we generate impulse responses based on local projections (Jorda 2005, *American Economic Review*). For the full HICP spectrum of product categories (and thus more aggregated data), monetary policy has significant effects on inflation inequality. This effect is primarily driven the differential responsiveness of food, energy and housing to monetary policy shocks, and the variation in consumption shares of these categories between income groups.

Diving deeper into this effect with household-level data provides a more nuanced picture. The effect of monetary policy on within-country income-related inflation inequality (for typical household everyday purchases) varies across euro-area countries. In Austria for instance, we do not identify an effect of monetary policy on inflation differential between high- and low-income households. In Belgium, however, the inflation experienced by high-income households declines significantly more following a monetary tightening than the one experienced by low-income households. In contrast, in Spain it is the low-income inflation that declines more. After one to two years, the gaps tend to become smaller and statistically insignificant. The typical inflation differential after two years does not exceed 0.2 percentage points in either direction, which is nevertheless more than twice the magnitude of the US effect shown in Cravino et al. (2020). Importantly, however, the different impact in the various euro area countries cautions against generalising the results of Cravino et al. (2020) to the entire euro area.

Outside of the euro area, after one year ECB monetary policy shocks tend to affect the low- more than the high-income groups. In Denmark and the UK, the differential becomes positive about one year after the shock, and significant after approximately two years. In Sweden, initially high-income inflation responds more, but this becomes insignificant within one year. The effect is most pronounced in Denmark, a country with a fixed exchange rate with the euro area, with a cumulative inflation differential of up to one percentage point over four years.

Taken together, the evidence suggests that ECB monetary policy has very heterogenous distributional consequences via inflation across Europe, most of it with substantial lags. It is well-known that (aggregate) inflation has redistributive effects because of the heterogeneity of households in terms of their asset holdings (e.g., for the euro area, Adam and Zhu 2016, *Journal of the European Economic Association*), which in turn affects the households' consumption. The

proposed paper suggests that monetary policy can have a direct, but small, effect on consumption heterogeneity as well, as it can generate heterogeneity in inflation rates among households.