

It's in the Tails: The Distributional Income Effects of Monetary Policy



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Summary

Fully understanding the distributional consequences of monetary policy requires looking at its impact over the entire income distribution and not simply at summary inequality measures like the Gini coefficient. Using uncensored administrative income data for Sweden, we show that while a monetary policy loosening substantially increases incomes across the entire income distribution, it does so relatively more in the tails, providing a U-shaped response pattern. The effects in the bottom are primarily driven by changes in labor income, whereas the effects in the top are mainly due to disparities in capital income. The heterogeneity in the labor-income response is due to the earnings heterogeneity channel, whereas that in the capital-income response is due to the income composition channel.

* The opinions expressed in this article are the sole responsibility of the authors and should not be interpreted as reflecting the views of Sveriges Riksbank.

Rising levels of income inequality over the last decades in several advanced economies have led to concerns regarding the stability of more unequal societies. Discussions about the drivers and consequences of higher income inequality have reached academic circles (Auclert 2019) as well as the central banking community (Mersch 2014; Bernanke, 2015), with policymakers paying increasingly more attention to the distributional effects of monetary policy interventions. Yet, how monetary policy decisions affect individuals' income and, thus, its distribution is ambiguous since different channels of the monetary policy transmission mechanism operate in opposite directions (Coibion et al. 2017). For example, as argued by Draghi (2016), if expansionary monetary policy stimulates the real economy and reduces unemployment, poorer households, who are generally more prone to fluctuations in the labor market, would be the main beneficiaries from monetary policy interventions. By contrast, if the impact of a monetary policy change on the real economy is considerably smaller than the one on asset prices, e.g. on stock prices, an expansionary intervention might disproportionately favor richer households, who typically hold larger asset portfolios (Acemoglu and Johnson, 2012). Hence, to properly understand the distributional consequences of monetary policy, one needs to determine not only its overall effects on the distribution of incomes, but also which are the respective roles of the different channels in driving the aggregate effect.

In a recent study, we contribute to such an understanding by presenting novel empirical findings about the individual-level income effects of monetary policy shocks (Amberg et al. 2021). Taken together, our insights shed light on the overall distributional effects of monetary policy, as well as their underlying drivers. Our analysis is conducted on an administrative panel dataset comprising detailed, uncensored income data for every legal resident in Sweden over the period 1999-2018. Thus, contrary to survey data which are typically top-coded, we are able to show that accounting for the extreme right tail of the distribution (the top 1%) is essential to get a better understanding of how monetary policy shapes individuals' income. Our sample comprises 73.5 million individual-year observations and 6.4 million unique individuals. To identify exogenous monetary policy interventions, we apply the most recent state-of-the-art high frequency strategy (Jarocinski and Karadi, 2020). We construct monetary policy surprises as changes in the yield of Swedish Treasury bills around the dates of policy announcements, while also controlling for potential informational effects of monetary policy. To verify our identification strategy, we show that the constructed monetary policy shocks induce aggregate dynamics that are well in line with the standard monetary policy transmission mechanism. In particular, a reduction in the policy rate increases aggregate industrial production and inflation and lowers the unemployment rate.

Next, we run a regression of the change in individuals' income over a given period on the identified monetary policy shock, allowing the estimated slopes to vary according to the income groups that they belong to. Figure 1 reports our main findings. It depicts the effects on total income over a 2-year horizon of an expansionary monetary policy intervention consisting of a cut of 25 basis points in the main policy rate controlled by the Riksbank (Swedish central bank). The income groups are reported on the horizontal axis. We sort individuals into eleven income groups, which correspond to deciles of the distribution of past average income, except when it comes to the top decile, which is split into two: 90th to 99th and above the 99th, respectively. This allows us to precisely capture the income dynamics in the very top of the distribution. While expansionary monetary policy shocks have positive and statistically significant effects on total incomes across the entire income distribution, these effects are particularly large in the tails. More specifically, a 25-basis point reduction in the policy rate increases the total incomes of the poorest and richest individuals by 2.3 and 3.1 percent, respectively, whereas the corresponding response for middle-income individuals is 0.6 percent. Hence, the effects of monetary shocks on total incomes are 4-5 times larger in the tails of the distribution than in the middle, yielding a pronounced U-shaped pattern in the total-income response. Also, note that the total-income response is almost three times as large in the top percentile as in the rest of the top decile; hence, there is substantial heterogeneity within the top decile of the income distribution with the richest individuals gaining the most.

Figure 1: The effects of a -25bp shock on total income over a 2-year horizon

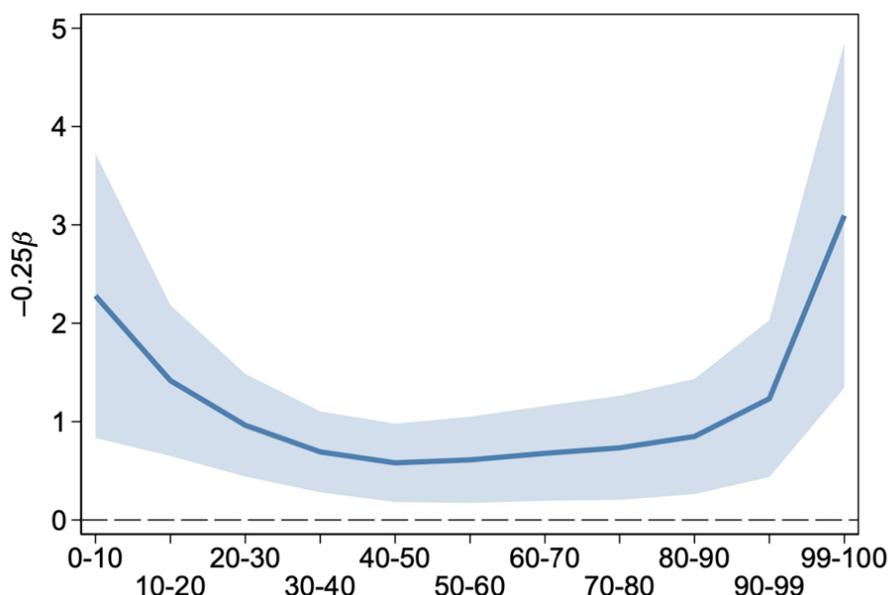
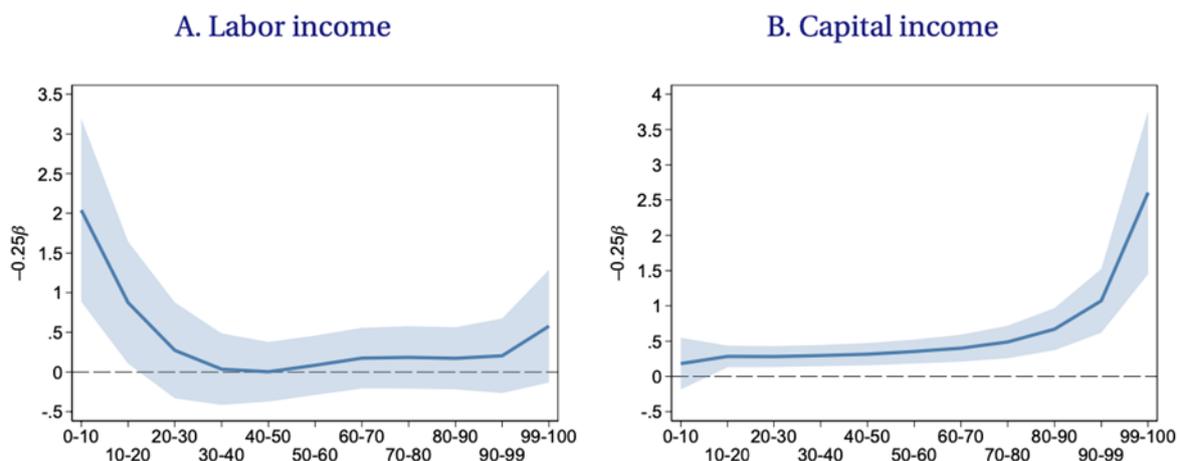


Figure 2 shows the effects on each of the two main components of total income—labor income and capital income. The response of labor income is large and statistically significant in the bottom two deciles, but small and statistically insignificant throughout the rest of the distribution. The capital-income response, on the other hand, is statistically significant across the entire income distribution, with the exception of the bottom decile. Noticeably, the effect is particularly large in the very top—for example, the capital income response is around seven times larger in the top percentile than in the middle part of the income distribution. The underlying drivers of the strong responses of total incomes in the top and bottom of the income distribution are thus different: labor income in the bottom and capital income in the top.

Figure 2: The effects of a -25bp shock on labor and capital income over a 2-year horizon



Moreover, we demonstrate that the heterogeneity in the labor-income response over the income distribution is accounted for by the so-called *earnings heterogeneity channel*—that is, there is a higher sensitivity of labor incomes to monetary shocks in the bottom than elsewhere in the distribution. The heterogeneity in the capital-income response is, on the contrary, entirely due to the so-called *income composition channel*—that is, to the fact that capital income constitutes a larger share of total income for high-income individuals than for low- and middle-income individuals. The sensitivity of capital incomes to monetary shocks is, on the other hand, quite stable over the income distribution.

What do our total income effects of monetary shocks imply for aggregate income inequality? To answer this question, we undertake a counterfactual exercise. We start by computing the values of a number of conventional income inequality indices based on actual microdata. We then simulate the two-year effects of a –25 basis point monetary shock, and finally, we compute the inequality measures for the simulated income distribution and compare them to their initial values on actual data absent the expansionary shock. The results are mixed. The Gini coefficient changes very little after the monetary policy loosening, as the large effects in the top and bottom mostly offset each other. On the contrary, some inequality measures like the top income shares point towards higher income inequality, while others like the standard deviation of log income indicate a lowering of income inequality.

These insights imply that the most commonly used aggregate measures of income inequality—in particular the Gini coefficient—are not well-suited for characterizing the distributional effects of monetary policy. Fully understanding the distributional consequences of monetary policy instead requires a thorough analysis of the impact of monetary policy over the entire income distribution, which can only be done with large-scale, uncensored individual-level administrative data like ours.

Overall, we believe that our findings have relevance beyond Sweden for at least three reasons. First, the Riksbank conducts monetary policy on the basis of a modern inflation-targeting strategy and an institutional framework similar to those of, for example, the Federal Reserve, the ECB, and the Bank of England. Secondly, the trends in income inequality in Sweden in recent decades are similar to those in most other developed economies, with large increases in the Gini coefficient as well as in top-income shares (see, e.g., Roine and Waldenstrom, 2015). Thirdly, we provide evidence that the cross-sectional heterogeneity in the unconditional aggregate earnings risk of Swedish workers is very similar to that of US workers documented by Guvenen et al. (2017), despite the many differences in labor-market institutions between the two countries. Thus, Sweden should be considered as a representative case in at least three dimensions relevant for the question at hand—namely, monetary policy, income inequality, and individuals' aggregate risk exposures—which speaks in favor of the external validity of our findings. ■

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