

Inflation and Fiscal Policy: Is There a Threshold Effect in the Fiscal Reaction Function?*



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Keywords: fiscal reaction function, inflation, euro area, panel models.

JEL codes: H60, E62, E31, C33.

The euro area, like other advanced economies, faced high inflation over the past years. Despite the recent decline, inflation continues to be above the ECB target. We analyse empirically the impact of inflation on public finances in the euro area, focusing on the question of whether at such high levels, inflation could have a different impact on the primary budget balance. To this end, we estimate a fiscal reaction function for euro area countries and find evidence of non-linear short-term effects of HICP inflation on the primary balance. Over the period 1999-2022, we unveil an inverse U-turn relationship and an inflation turning point - beyond which its short-term (contemporaneous) impact on the primary balance starts being negative. These results reflect primarily the most recent high inflation episode and indicate that in such conditions inflation can be costly for public finance flows even in the shorter run.

*This Policy Brief is based on ECB Working Paper Series No. 2880. The views expressed are those of the authors and do not necessarily reflect those of the ECB.

Introduction

The euro area experienced a very rapid and strong increase in inflation in 2022. Notwithstanding the recent decline, especially in energy prices, inflation has proven more persistent than initially expected. Conventionally, a higher inflation rate is expected to improve public finances, at least in the shorter-term. At a high level, however, inflation may induce a negative fiscal reaction. This may be especially the case on the spending side, through both discretionary fiscal policy measures to support households' purchasing power or firms' costs, as well as through higher nominal adjustments even in cases where automatic indexation schemes are not in place. On the revenue side, adverse fiscal effects could stem from macroeconomic developments reflecting expectations of tightening monetary policy, higher uncertainty, as well as discretionary fiscal stimulus measures on taxes. The actual fiscal implication of an inflationary shock depends on several factors, such as: (i) the nature of the shock (externally generated supply side vs. an internal demand side shock); (ii) the structure and institutional arrangements governing the budget revenue and expenditure, for instance the coverage of indexation rules; and (iii) the size of the inflation shock hitting public finances. With the first two factors analysed in depth in other papers (see Bankowski et al., 2023a,b) we hereby focus on the last one.

Empirical results

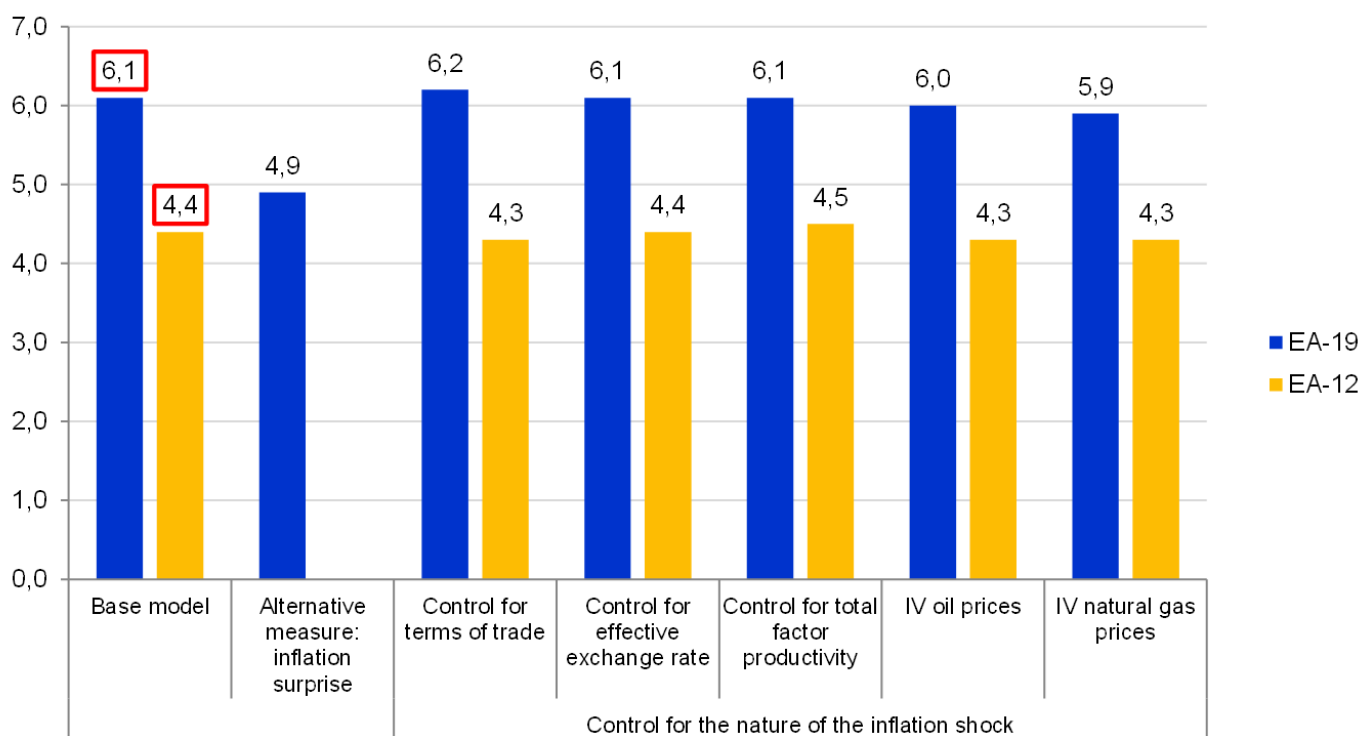
To this end, in a recent paper (Briodeau and Checherita-Westphal, 2023) we estimate a fiscal reaction function (FRF) for euro area countries, following a second-degree polynomial form in inflation:

$$pb_{i,t} = \varphi pb_{i,t-1} + \beta_0 infl_{i,t} + \beta_0' infl_{i,t}^2 + \sum_{j=1}^k \beta_j X_{i,j,t} + \delta_i + \omega_{i,t}, \quad (\text{eq.1})$$

where $pb_{i,t}$ is the primary balance in terms of GDP, $pb_{i,t-1}$ is its one year-lagged value, $infl_{i,t}$ is the HICP inflation rate, $X_{i,j,t}$ is a set of various (macro)economic, institutional and political determinants of the primary balance, δ_i are country fixed effects, while measurement errors and random shocks are captured by the error term $\varepsilon_{i,t}$.

The basic model is estimated for the full panel of euro area countries as of 2022 (EA-19) and, respectively, the first twelve euro area member countries (EA-12), over the period 1999–2022 (with various robustness checks for country and time period sub-samples).

The results indicate a turning point in the contemporaneous impact of HICP inflation on the primary balance, at somewhat above 4% for the sample of mature euro area economies (EA-12) and around 6% for the whole sample (EA-19). After such a turning point is reached, the impact is estimated to be negative. The findings for the full EA-19 sample are broadly confirmed when we use the “inflation surprise”, an alternative variable that may better capture an ex-ante inflationary shock and be less affected by endogeneity. In this case, the turning point is considerably lower (around 5% for EA-19) indicating that, in case of an unexpected inflation shock, public finances may start to be negatively affected at a lower inflation level (see Figure 1 for turning points across various specifications).

Figure 1: Turning points in the contemporaneous impact of HICP inflation on the primary balance


Source: Briodeau C. and C. Checherita-Westphal (2023).

Notes: The chart denotes the (statistically significant) turning points across various specifications, i.e. the level of inflation (or inflation surprise) above which the impact of inflation on the primary balance is estimated to be negative in our samples over 1999-2022. EA-12 refers to the sample of the twelve initial euro area members (Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain). EA-19 includes all members of the euro area as of 2022 (i.e., EA-12 plus Cyprus, Estonia, Latvia, Lithuania, Malta, Slovakia, and Slovenia). IV denotes specifications in which the list of instrumental variables includes the change in oil prices or in natural gas prices.

In terms of channels, the non-linear effects are found to propagate through both the primary expenditure and the revenue ratio, but more robustly through the former, in the EA-12 sample. The quadratic relationship continues to hold, being as expected convex (U-shaped) for expenditures and concave (inversed U-shaped) for revenues. This means that up to a certain level of inflation, primary expenditure (total expenditure less interest payments, as a ratio to GDP) declines in the short-term, but as inflation gets higher this effect vanishes and the expenditure ratio tends to increase above the threshold, possibly because of additional spending pressures. The converse holds for the revenue ratio: as inflation gets above the threshold, the revenue ratio tends to decline, possibly because of higher uncertainty, negative macro developments and discretionary stimulus measures on taxes. The stronger reaction of the primary expenditure ratio in the EA-12 (vs. EA-19) could be explained by the larger government size and more activism in fiscal policies in this sample, which includes the largest euro area economies. For the EA-19 sample, there is no robust evidence for the impact of inflation through either channel separately, which leads us to conclude that the net effect on the primary balance is the one that counts most.

Further, we find that the FRF estimates are robust across various specifications and exclusion of individual countries. However, the results differ according to the time period. When we restrict it to end in 2019 or earlier, we find evidence of non-linear effects of inflation on the primary balance only for the EA-19 sample, which contains more episodes of high inflation. These robustness tests suggest that the periods with particularly high inflation drive the results, with no such consequences on the budget when inflation remains moderate.

As regards other determinants of fiscal positions (higher primary surpluses), we find evidence for persistence in fiscal policy, the co-movement of headline fiscal positions with the economic cycle, and for the twin deficit hypothesis (improved external positions and more openness associated with higher primary surpluses). We also find evidence that euro area governments abide, on average, by the (weak) fiscal sustainability constraint, albeit this evidence is more robust in the full EA sample than in the (higher debt) EA-12 group.

Conclusion

Overall, the results in this paper – along with other recent analyses on the topic (e.g., Bankowski et al, 2023a,b) – sound a cautionary tone on the impact of high inflation on fiscal positions in the euro area. They underscore the need for preserving sound fiscal policies and not relying on high inflation to reduce the large deficit and debt levels accumulated over the recent crises. ■

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