Discussion of “Unconventional fiscal policy in times of high inflation”

By Giancarlo Corsetti[1]

Abstract

In spite of many reservations on cost-effectiveness and adverse effects on incentives to save energy, Unconventional Fiscal Policy (UFP) measures mitigated the consequences of the energy shock in 2022, smoothing its impact over time. The aggregate assessment by Dao et al. (2023) is well in line with early in-depth disaggregated analyses at country level. Underlying their assessment is the finding that core inflation is largely a by-product of the propagation of past inflationary shocks. My discussion provides context to this result; it raises issues in the measurement of economic slack employed in the analysis; and it highlights policy-trade-offs now facing EA policymaking.

1 Introduction

Through 2022, many countries adopted fiscal policy measures aimed to redress potential economic and social disruption caused by the sharp rise in energy (and commodities) prices following the Russian invasion of the Ukraine. The overarching objectives of these measures included mitigating the effects on households incomes and firms production costs. Firms cost competitiveness was helped both directly (via the price of energy inputs) and indirectly (via a contained wage demands vis-à-vis a sharp deterioration of the costs of living).

Since these measures were mostly financed in deficit, they also sustained aggregate demand via fiscal expansion. This explains the label *unconventional* attached to them: targeted to reduce inflation by distorting prices and costs, they are financed in deficits hence result in higher demand---creating inflationary pressures. In principle, the overall impact can have had either sign. A key task of the excellent and timely contribution by Dao et al. (2023) is to assess which of the two forces---deflationary or inflationary---prevailed in the recent experience of the European countries that adopted them, and why. The comparison with the US experience provides insight on the circumstances under which they may work.

There is a lot to like in the paper. The authors venture on a difficult journey, especially in light of early criticisms sharply opposing any unconventional policy. Specifically, these criticisms pointed out that, by distorting price signals, UFP

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reduced the incentives to save energy; in addition, in practice, proposed UFP measures were not well targeted, hence costly and/or inefficient. These general issues are not part of the assessment carried out in the paper: wisely, at this early stage, the authors steer away from a comprehensive analysis.

Specifically focusing on the effects of the UFP measures on inflation and output, the authors assessment is overall positive. Ex ante, it is fair to say that success (in containing adverse consequences of inflation) was far from obvious. The authors emphasize that the positive outcome is in significant part due to 'luck' (energy prices have been falling since the end of 2022). Reliance on luck should not be necessarily taken as a sign of "bad policymaking". On the contrary, in a world with high uncertainty, risk management is crucial. Policies implementing UFP should be assessed in the context of a general strategy of "smoothing" large shocks, (rationally) counting on better times ahead. In related work, Mackowiak and I have reconsidered a long strand of literature discussing the trade off between "adjustment now "vs. "deeper adjustment in the future *with some probability"* if the shocks persist, that seems to be increasingly relevant in a world experiencing large, overlapping shocks (see Corsetti Mackowiak 2023). Most crucially, recent theoretical work on the optimal design of fiscal policy in response to energy shocks produce recommendations much in line with the experience of the EA (see, e.g., Kharroubi and Smets 2023). [2]

I will articulate my comments as follows. Section 2 puts some flesh on the bones of the model and the econometrics in the paper using an example of a study of the impact of UFP on the cost of living conducted in Italy. Section 3 delves into a discussion of methodology, results, and policy implications. Section 4 places the exercise in context, offering a narrative of the inflation crisis that highlights the need to understand better the propagation mechanism in the presence of shocks that have strongly asymmetric effects across sectors and alter relative prices significantly. Section 5 discusses the challenges to modelling the current inflation crisis, in relation to contrasting signals from indicators of economic slack. Section 6 concludes with remarks on monetary and fiscal interactions.

2 UFP in practice: the Italian experience

The Italian Ufficio Parlamentare di Bilancio (UPB) has recently conducted a data-rich analysis of the *impact* of the UFP on the cost/affordability of the consumption basket of Italian households. The results are presented at the aggregate and disaggregated levels, by income decile, taking the pre-crisis consumption basket(s) as the (fixed) reference benchmark (Ufficio Parlamentare di Bilancio 2023). The UPB staff combined the effects of tariff reductions and income support in an "inflation equivalent" measure. In spite of differences in methodologies and measurements, it

[2] Based on a heterogenous model with an energy sector and non-homotetic preferences, Kharroubi and Smets (2023) concludes that, in response to a negative energy shock, implementing the first-best allocation requires subsidizing the poor and taxing the rich, running deficits especially if the shock is large and the economy's overall energy intensity is low.

should be apparent that the messages from this Italian study and the Dao et al. paper are very much aligned.

At the aggregate level, the UPB conclusions are as follows. In 2022, *without UFP*, Italian households would have faced a rise of the price of their pre-crisis consumption basket by 9,6%---in large part (7 percentage points) due to the spike in the price of energy. *With UFP in place*, however, the price change was 4,5 percentage point lower (1,6 percentage points of the difference due to tariffs discounts , the rest due to transfers/income support). Overall, UFP almost halved the “effective inflation” faced by Italian households, from 9,6 to 5,1%.

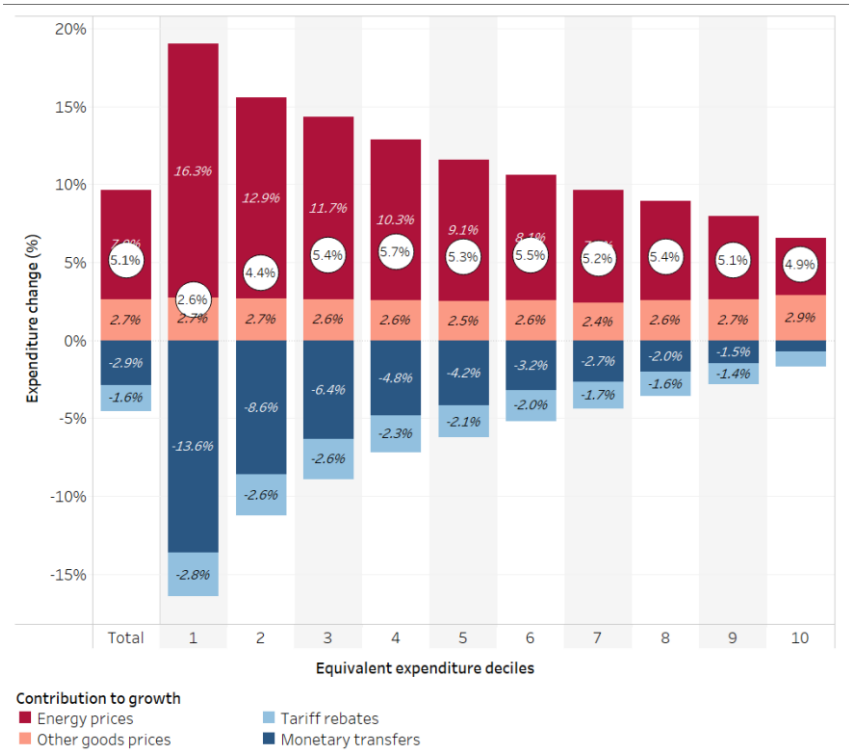
In 2023, the government has been unwinding at least in part its UFP. Because many of the measures were discontinued, the price of the consumption basket is estimated to rise by 5,4%, higher than in the absence of UFP (4,8%) and slightly higher than in 2022. UFP measures clearly smoothed inflation across time.

In addition, looking at the data disaggregated by income deciles, UFP also led to substantial smoothing across income classes. Figure 1, reproduced from UPB (2023) shows that, in 2022, absent UFP measures, households in the lower decile of the income distribution would have faced an increase in the price of the consumption basket as high as 16,3%, three times higher than the 5% faced by the richest decile. Transfers and, to a much lesser extent, tariff discounts reduced poorer households effective inflation by 14 percentage points, down from 16% to 2,6%. The effect of UFP on the richer households is much more contained, although not insignificant---about 2 percentage points.

Note that, by assumption, the consumption baskets used in this study are not representative of households consumption in 2022. Vis-à-vis large relative price changes, it is reasonable to expect substantial substitution across items in the basket (see e.g. Noord 2023, recipient of the young scholar award in Sintra). This is a relevant concern. However, one should keep in mind that substitution is especially relevant for richer households, who can always trade down the quality of the products they buy. Poorer households do not have much scope for trading down quality.

Figure 1

Changes in household expenditure as a result of price dynamics between 2021 and 2022 by equivalent expense deciles before and after state support measures



Source: PBO's microsimulation on model

Mirroring the aggregate trend, the unwinding of the UFP measures in 2023 is estimated to *raise* inflation for the poor much more than average. The bottom income decile will face a (fixed-basket) inflation as high as 6,9%, against the 5,6% faced by the richest top decile.

In relation to smoothing consumption inflation, the Italian UFP measures discussed above seem to have been successful---in line with the discussion by Dao et al. (2023). Of course an open issue is whether these measures were appropriately targeted and cost effective. But this is for future research to figure out.

3 UFP was overall effective in smoothing the inflationary consequences of the energy shock in the EA

A good synthesis of the assessment conducted by Dao et al. (2023) is provided in Chart 18 in the paper. UFP significantly reduced headline inflation in 2022 and the beginning of 2023---in particular they smoothed the peak in 2022. However, inflation is projected to be higher than without UFP in 2024. Remarkably, UFP is projected to prevent inflation from falling below target over time.

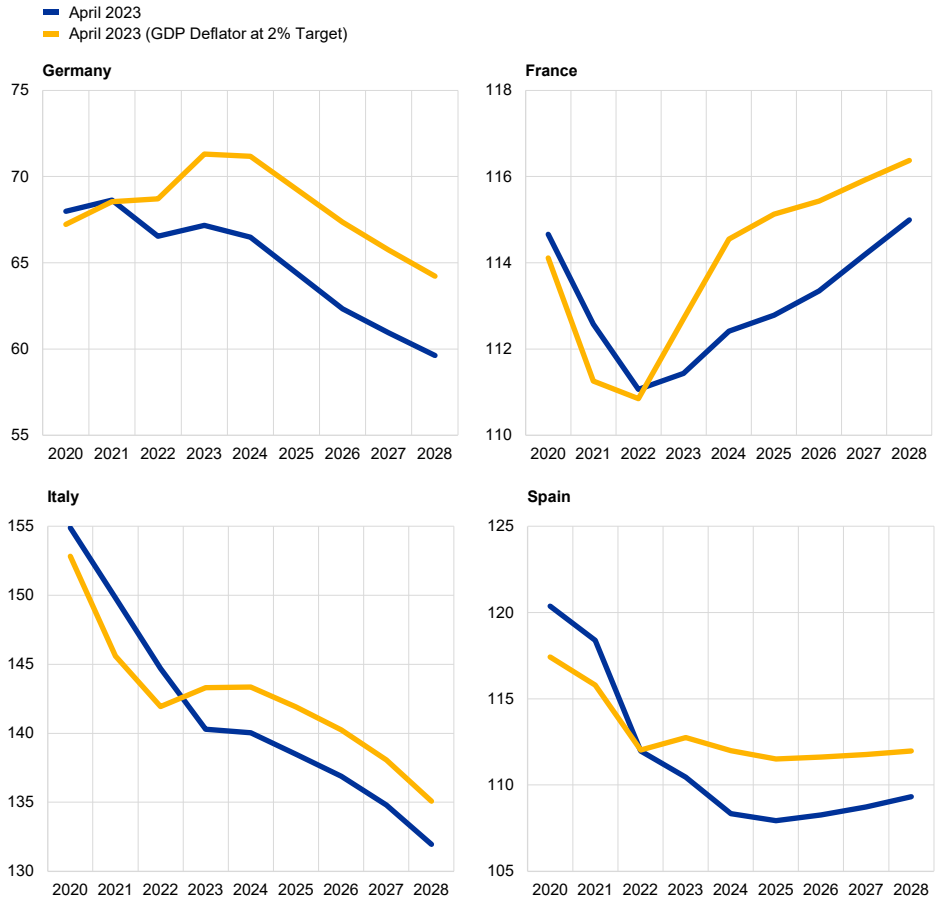
Altogether, the response of the headline inflation is appreciable, but not dramatic. As an instructive exercise, it would be interesting to conduct a related exercise focusing

on the effects of UFP measures on the GDP-deflator inflation, and assess their implications for the dynamic of the Debt-to-GDP. The Figure 2 below shows the evolution of this ratio for four countries (Germany France Italy and Spain) based on IMF projections. The solid line is drawn using the GDP deflator inflation. The dashed line is drawn by setting, counterfactually, the GDP deflator at target (2%). A reasonable conjecture is that, in each country, zeroing UFP measures would only marginally increase the gap between the solid and the broken line. In each graph, however, zeroing the UFP-related deficits would have tilted both lines downward.

3.1 Methodology

On empirical grounds, the authors assessment of UFP is based on a regression model of the Phillips Curve with two distinctive characteristics. First, the model employs the decomposition of inflation into core inflation and inflationary shocks proposed by Ball et al. (2023), where these shocks are measured as deviation from the median price adjustment in a number of industries. A key implication of this decomposition is that it classifies much of the initial swing in relative prices across sectors following the pandemic (see my discussion below) as “headline inflation shocks”---and much of the subsequent overall price adjustment in sectors and industries as “core”.

Figure 2
IMF WEO: Debt-to-GDP



Second, the model tests for nonlinearities in the response of core inflation not only to economic slack, but also to the "memory" (twelve month average) of inflationary shocks in the past. The main idea is that the empirical model should have current core inflation respond not only to a contemporaneous market tightness---possibly nonlinearly---but also to the process of inflation propagation ignited by past shocks---again, possibly nonlinearly---.

For the EA, the authors preferred measure of economic slack is the unemployment gap, "U gap", estimated by the IMF. Core inflation---net of inflation expectations from surveys---is regressed on the U gap (and its squared) and a 12 month average of headline inflation shocks, "H", (and its squared). The model is run on the samples 1999---2019 and 1999—2023.

The regression model for the US differs in three respects. The sample is longer (it starts in 1985), the model include both squared and cubic terms, and, most crucially, the measure of economic slack is different. For the US, the authors employ the vacancy ratio. Relative to the regression results shown in the paper, for comparison with the EA case, I report regression results omitting the cubic terms in the table 1.

Table 1
The US Phillips Curve Estimates by Dao et al. (2023) Reproduced Omitting the Cubic Term

	(1)	(2)
VARIABLES	1985-2019	1985-2023
V/U	4.342***	1.078
	(1.446)	(0.930)
V/U-squared	-2.006**	0.809*
	(0.999)	(0.447)
H	0.132**	0.201***
	(0.066)	(0.051)
H-squared	0.065	0.103***
	(0.047)	(0.032)
Constant	-1.855***	-1.082***
	(0.473)	(0.392)
Observations	420	460
Rbar-squared	0.244	0.570

Notes: Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

3.2 Nonlinearities and asymmetries across the Atlantic

Dao et al. (2023) show that, after adding the post-COVID years, the (linear) slope of the U gap becomes somewhat steeper, but the U gap squared is no longer significant (it is significant in the early sample). The H inflation shock instead becomes stronger and non-linear. This means that, in the counterfactual exercises using the sample encompassing the post-COVID years, the H term becomes dominant relative to the U gap term.

For the US, the pattern is different: both the economic slack term and the term in headline inflation shocks enter non-linearly in the longer sample. The asymmetry characterizing the EA is not there---the H term would not dominate in counterfactual exercises. The main conclusions policy implications are derived from a comparison of the results for the two (shorter and longer) samples, across the EA and the US. First, the cumulated lagged headline inflation shocks enter non linearly in both the EA and the US. In both, past shocks are key drivers of current core inflation. Second, relative to the US, the Phillips curve in the EA is steeper but linear in the measure of economic slack (the U-gap). In the US, the term in the vacancy ratio enters non-linearly. This suggests a strong asymmetry across the Atlantic. In the authors' interpretation, in the US, a super tight labor market means that deficit-financed UFP would tend to have a strong positive effect of inflation by raising demand further. In the EA, markets are not as tight. The deficits associated to UFP measures are much less consequential for inflation.

Most crucially, in the EA, the linearity of the Phillips Curve suggests that leaning against the (non linear) propagation of headline inflation shocks by cutting demand would be quite costly. The sacrifice ratio is high for monetary policy. By the same token, the contribution of fiscal policy to disinflation can be expected to be marginal.

4 The propagation of inflation shocks

To provide context to the authors' results, the Figure 3 below reproduces a graph from the 2023 Barcelona report. The two panels in this figure, one for the EA and one for the US, plot core inflation (HICP excluding goods and energy) against output, in billion euros or dollars, at quarterly frequency, over the period March 2020 to January 2023. To avoid misinterpretation: the two figures are not Phillips curves. Plotting a Phillips curve would require taking a stand on (i) potential output (so to derive a measure of economic slack in difference from actual output); (ii) expectations of inflation; and (iii) the effect of energy and other shocks---(ii) and (iii) acting as curve shifters.

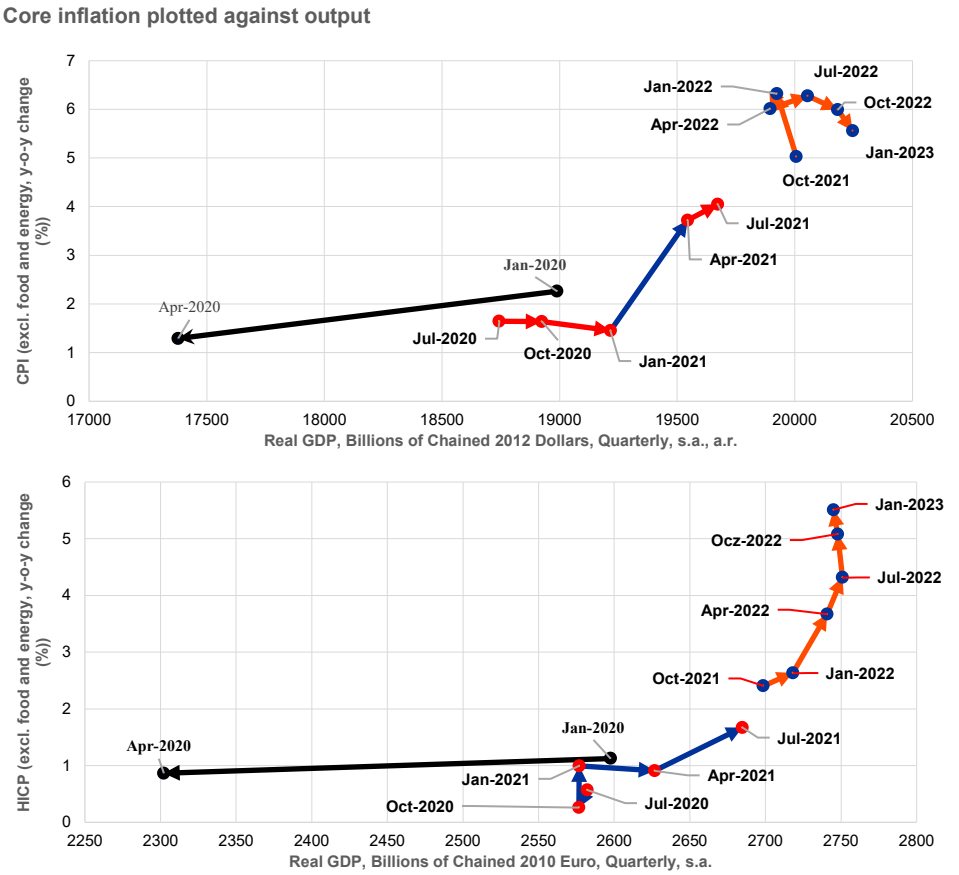
Rather, the graph is drawn as a visual help to structure a three-phases narrative of the macroeconomic response to the COVID-19 pandemic and the shocks following the Russian aggression against the Ukraine. The first phase corresponds to the eruption of the pandemic (first two quarters of 2020), and is marked by a sharp decline in output accompanied by mild deflation, reflecting behaviour dictated by fear of contagion and diffuse policy measures limiting people mobility. The second phase, the reopening, runs from the last two quarters of 2020 through the first two quarters of 2021. It is marked by a sharp rebound of output and early signs of inflation. The last phase coincides with the "inflation crisis" we are living through---a spike in headline inflation, igniting a strong and persistent dynamic in the "core", despite the monetary contraction from the second half of 2022 onwards.

In the first phase, in large part by virtue of the strong policy response to the pandemic, especially among advanced countries, the global economy steered away from the risks of a systemic collapse. Total output contracted sharply, but for a limited time. However, the outburst of the pandemic coincided with an unprecedented reallocation of demand and supply across sectors, creating diffuse granular imbalances of opposite signs in the markets for goods and services, associated with sharp relative price swings (exacerbated by diffuse bottlenecks). The labour market correspondingly polarized. Already in this phase the indicator of economic slack (output gap, unemployment, participation, employment, vacancy ratios) stopped moving together, and started to give contrasting indications.

Through the first and the second phase, the demand for goods hiked almost everywhere. Goods are tradable (hence cross-border prices tend to align) and relatively intense in energy and commodities. This meant that, through the reopening, the early swing in demand activated a global driver of inflation in these markets. Through the reopening, the monetary and fiscal stance---arguably for good reasons---remained expansionary, accommodating the hikes in goods prices and, later, the catch up of the price of services and eventually of wages. In the

terminology of the paper, over time, H shocks (in some sectors and markets) propagated and fed core inflation. On top of this, the energy crisis following the Russian aggression against the Ukraine created a divide across the Atlantic, with a sharp terms of trade deterioration in Europe and other energy-dependent regions in the world, but not in the US.

Figure 3
The three phases of the inflation crisis



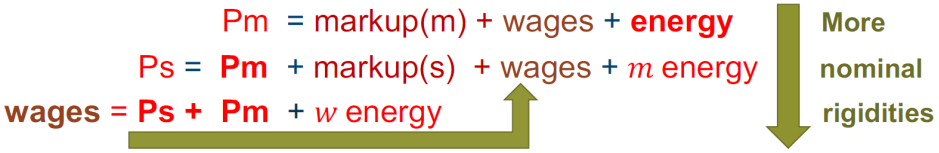
The narrative of the inflation crisis just laid out underlies the need to dig deeper into the logic and the dynamics of propagation of shocks that induce very large relative price movements across sectors. By way of example, the authors of the 2023 Geneva report propose a multisector model, featuring energy, manufacturing and services (Guerrieri et al. 2023). In the model, prices are stickier in the service sector than in the manufacturing sector, flexible in the energy sector. Wages are stickier than any of these prices.

The following Figure 4 shows a super-stylized but extended graphical representation of their model, where “m” stands for manufacturing, “s” for services. The degree of nominal rigidities is increasing going from the first to the third line. Repeating the narrative of the crisis above using this model: the sectoral divergence at the outburst of the pandemic moved markups in the manufacturing and the service sectors opposite. Over time, however, the relative price of services started to realign

because of increasing costs of inputs (Pm). The energy crisis impacted prices in the M-sector more than in the S-sector but also added pressures on wages. Costs in S-sector rose more gradually reflecting Pm and wages (the impact of energy in this sector is smaller, 1>*m*>*w*). Models with a related structure, adding complexity, are discussed ,e.g., by Elisa Rubbo 2023 (with an analysis of sectoral/industry bottleneck); Lorenzoni and Werning 2023; Benigno and Eggertsson 2023.

Figure 4

A stylized model of relative price misalignment and inflation propagation



Given the propagation patten above, in principle, the monetary (and fiscal) authorities can decide to set average inflation (around which relative prices adjust in time) at any level they want. Different rates of average inflation however will correspond to sharply different dynamic of output and employment. Keeping inflation low in the process requires monetary policy to implement a contractionary stance from the outburst of the shocks. Sticky service prices and wages mean that the low average inflation will come at the cost of exacerbating the downturn caused by the shocks themselves. In contrast, keeping a sufficiently high level of employment and output requires policymakers to accommodate a sufficiently high level of inflation over the period required by the propagation mechanism to realign relative prices and real wages.

Dao et al. (2023) provides empirical evidence consistent with this narrative. Together, they contribute to a realistic assessment of the costs of correcting the inflationary implications of relative price adjustment in the experience of the US and the EA.

As already mentioned, at times of high uncertainty policy making is inherently risk management. A low inflation path exposes the economy to the risk of deep downturn plagued by all kind of adverse (belief-driven) dynamics in, say, investment, debt costs etc.. A high inflation path may expose the economy to the risk of de-anchoring expectations. In either case, political disagreement on distribution and budget policies may complicate the dynamics of propagation.

5 A tight labour market, a tight spot for policy making

In their empirical model for the EA and the US, the authors motivate the choice of using two different measures of slack arguing that they appropriately account for the differences in macroeconomic stance across the Atlantic. They specifically refer to the fact that the Vacancy Ratio has shifted outward in the US---but not in the EA (although in the EA recent data are on the steeper side of the curve).

While indicators of output and labour market tightness have stopped moving in the same direction at the outburst of the pandemic, in many countries in Europe there are unequivocal signs that the labour market is relatively tight. These include the level of employment and participation (for men and women). Concerning vacancies, there could be measurement issues that weigh on the reliability of this indicator in the EA. The casual observation of the number of posted vacancies in shops in all the Italian cities that I have recently visited prompt me to misquote the Solow paradox: “vacancies seems to be everywhere except in the vacancy ratio statistics”.

Overall, it would be advisable to look into this issue more extensively, with appropriate robustness exercises exending the empirical model. The U gap estimates by the IMF suggests that the EA labour and goods markets were much tighter before the Global Financial Crisis and in the 1990s than today---which is surprising.

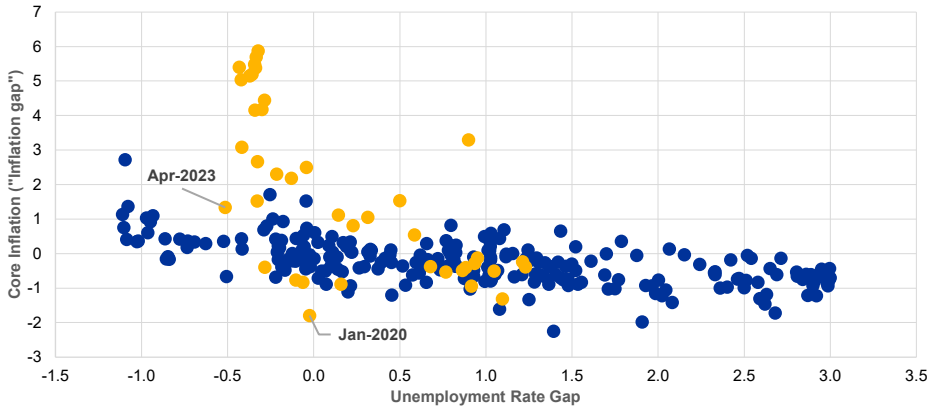
In Figure 5 below I plot the dependent variable the authors use in their regressions for the EA (core inflation net of expectations) against the U gap. The observations corresponding to the 1999---2019 sample are in dark blue. Red dots refer to the most recent observations. Recall that the quadratic term is significantly different from zero only in the sample up 1999---2019. Naively, looking at the figure, one may conclude that the addition of the latter points should reinforce the non-linearity. This is not picked up by the regression in part because the H term acts as a Phillips Curve shifter. In part, because the red dots align vertically over a different U-gap (around zero) relative to the (smaller) analogous vertical alignment in the early sample (around -1).

Whether or not there are non-linearities in the Phillips curve, however, one should also consider another consequential difference across the Atlantic. In the US, the economic rebound (arguably boosted by sustained fiscal expansion) has brought private consumption above the pre-COVID trend. The labour market is tight vis-à-vis a buoyant private and public demand. In the EA private consumption is still below trend on average. In part, EA income are suffering from the deterioration of the terms of trade in the region, heavily energy dependent. But the problem is arguably deeper.

In the EA labour markets are nonetheless tight because of the contribution of government spending as well as export dynamics. The trade-offs in redressing inflationary pressure in this context are clearly more complex than in the US. In addition to the contractionary effects of the ongoing monetary cycle, one may expect fiscal policy to consolidate soon in a number of countries. Trends in the world economy may also reduce the contribution of external demand. On top of this, an overall tight labour market coexists with large geographical and granular differences. The employment and output risks of leaning excessively against the propagation of past inflationary shocks may be high---perhaps higher than suggested by the estimates in the paper.

Figure 5

Core inflation and the unemployment gap 1999-2019, 2019-2023



6 Concluding remarks

The main results of the Dao et al. (2023) paper can be interpreted in both a backward and a forward looking manner. Looking back at the effect of UFP in the EA, the authors offer a substantially positive assessment. Success is attributed to a combination of factors: a relatively less over-heated state of the EA economy in comparison to the US, and a large dose of luck---it paid to gamble on the temporary nature of the energy shock. Looking forward, the paper results amount to a warning about leaning too strongly against the ongoing dynamic adjustment to past inflationary shocks. Their results imply high macroeconomic costs of monetary tightening and fiscal consolidation to reduce core inflation at a fast pace.

Looking forward, indeed, macroeconomic, financial and price stability will be crucially predicated on pursuing consistent fiscal and monetary strategies. This is true everywhere in the world, but there are important differences across regions. The institutional governance of the euro area will be challenged to prevent political division and divergence across borders from causing market fragmentation and risk polarization in the monetary union.

it is plausible to expect an increasing role of fiscal policy in rebalancing demand. As shown in the 2023 Barcelona report, IMF projections suggests that, for all EA member states, there is a path of primary surpluses that is in principle economically feasible. For high debt countries, this path is narrow. In particular, fiscal sustainability can be easily derailed if the governance of the area fails to deal with the risk of belief-driven sovereign risk crises---high debt countries are particularly vulnerable to this risk.

The social value of economic cohesion around sound principles and rules, and a credible monetary backstop of government debt, is very high in the EA. On the one hand, monetary policy independence and credibility are a prerequisite for effective interaction with fiscal policy. In an economy where inflation expectations are not well

anchored, no effective monetary backstop is possible---belief-driven borrowing costs crisis could arise driven by anticipation of high inflation (and debt debasement) raising nominal interest rates, rather than by sovereign risk premia. On the other hand, once fiscal policy is on a sustainable path, equilibrium stability will require the central bank to adopt rules and strategies that keep debt dynamic on this path, without prejudice for its credibility. This type of interaction may be expected to become crucial in the coming years---which policy model will be able to deliver virtuous and effective interactions is yet to be defined.[3]

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[3] Fiscal and monetary interactions are discussed in Chapter 2 of the 2023 Barcelona Report and in Corsetti (2023). Corsetti and Dedola (2016) articulate the theoretical foundations of the monetary backstop, building on Calvo (1988).

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