

**Austria's (Over)Inflation and
Its Main Sources**

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Abstract

Austrian inflation has again been significantly higher than euro area inflation since September 2022. Both domestic and external demand and supply shocks have contributed to this, reflecting the following circumstances: a later implementation of price-dampening measures than in the rest of the euro area, expansive fiscal policies, the resurgence of international tourism, and a delayed pass-through of the decline in wholesale energy prices. By contrast, wage shocks have so far not made a sustained contribution to the inflation (gap), although wage increases have recently been high.

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Deutsche Kurzfassung

Die österreichische Inflation ist seit September 2022 wieder deutlich höher als die Inflation im Euro-Raum. Dazu beigetragen haben sowohl Nachfrage- als auch Angebotschocks aus dem In- und Ausland, in denen sich die folgenden Umstände niederschlugen: eine spätere Umsetzung preisdämpfender Maßnahmen als im restlichen Euro-Raum, eine expansive Fiskalpolitik, das Wiederaufleben des internationalen Tourismus und eine verzögerte Weitergabe des Rückgangs der Energiegroßhandelspreise. Demgegenüber haben Lohnschocks bisher nicht nachhaltig zur Inflation (slücke) beigetragen, obwohl die Lohnerhöhungen zuletzt hoch ausgefallen sind.

Kernaussagen

- Nach einer einjährigen Phase niedrigerer Inflation in Österreich liegt die Inflationsrate seit September 2022 wieder deutlich über jener des Euro-Raums. Seit Jänner 2023 beträgt der Abstand mehr als zwei Prozentpunkte.
- In diesem Research Brief werden die relevanten Treiber der österreichischen Inflation und deren Abstand zur Inflation im Euro-Raum identifiziert.
- Das Wiederauftreten der Inflationslücke Ende 2022 ist hauptsächlich auf inländische Schocks zurückzuführen.
 - Im Gegensatz zu anderen Euro-Raum-Ländern (Deutschland, Italien, Spanien, etc.) gab es keine Eingriffe in die Mehrwertsteuer.
 - Nachfrageseitig stützte die expansive Fiskalpolitik den Inflationsdruck.
- Die Ausdehnung der Inflationslücke ab Jänner 2023 ist hingegen hauptsächlich auf externe Faktoren zurückzuführen.
 - Die Preise im Inland reagieren langsamer auf den Rückgang der Großhandelspreise für Energie als im übrigen Euro-Raum.
 - Der internationale Tourismus profitiert von der Auflösung pandemiebedingter Zwangsparsnisse und wirkt preistreibend.
- Kräftige Tariflohnerhöhungen zu Beginn des Jahres führten vorübergehend auch zu einem Preisauftrieb, doch dieser Impuls hat rasch nachgelassen.
- Das Nachziehen der Energiepreise und die Stabilisierung der Nahrungsmittelpreise sollten den Inflationsabstand bald dämpfen. Bleiben die hohen Ausgaben für Freizeitaktivitäten jedoch vom Wirtschaftsabschwung unberührt, dürften sie die (Über-)Inflation wohl weiter schüren.

Austria's (over)inflation and its main sources

Stefan Schiman-Vukan¹

Main points

- After a one-year period of lower inflation in Austria, the inflation rate has been well above that of the euro area again since September 2022. Since January 2023 the gap has been more than two percentage points.
- This Research Brief identifies the relevant drivers of Austrian inflation and its gap with euro area inflation.
- The reappearance of the inflation gap towards the end of 2022 is mainly due to domestic shocks.
 - In contrast to other euro area countries (Germany, Italy, Spain, etc.), there was no intervention in the VAT.
 - On the demand side, expansive fiscal policy supported inflationary pressures.
- By contrast, the widening of the inflation gap from January 2023 onward is mainly attributable to external factors.
 - Domestic prices react more sluggishly to the fall in wholesale energy prices than in the rest of the euro area.
 - International tourism is benefiting from the unwinding of pandemic-related forced savings and has a price-driving effect.
- Strong minimum wage increases at the beginning of the year also boosted prices in Austria temporarily, but this impetus has faded quickly.
- The drag from energy prices and the stabilization of food prices should soon dampen the inflation gap. However, if high spending on leisure activities remains unaffected by the economic downturn, it is likely to continue to fuel (over)inflation.

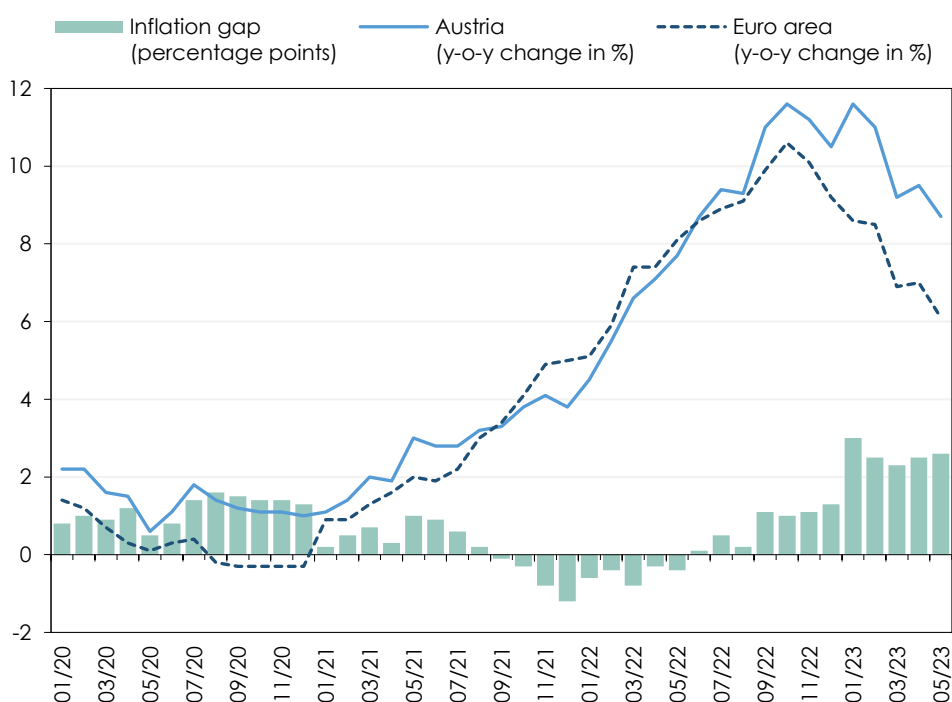
¹ I thank Josef Baumgartner, Benjamin Bittschi, Christian Glocker, Sebastian Koch, Simon Loretz, Philip Piribauer, Marcus Scheiblecker, and Thomas Url for valuable comments, which helped to improve this paper significantly. Astrid Czaloun provided excellent research assistance.

1. Introduction

Since September 2022, consumer price inflation in Austria has been consistently higher than in the euro area (Figure 1). In the decade from 2011 to 2020, higher consumer price inflation was the norm rather than the exception so that the reappearance of this gap didn't cause much excitement among economists or in the media. This changed in January 2023, when euro area inflation continued its downward trend, while the Austrian figure rebounded to its all-time high of October 2022.

While this was an exception and the co-trending behavior has since been restored, the widened gap has persisted. It has continuously exceeded two percentage points (2.6 on average from January to May 2023) compared to 0.7 percentage points on average from 2011 to 2020. This has sparked much talk of Austria having a specific inflation problem apart from the general phenomenon of rapidly rising prices.

Figure 1: **HICP Inflation in Austria and the euro area**



Source: Eurostat, Macrobond.

In this Research Brief I contribute to this debate by providing estimates of the external (euro area-wide) and domestic (Austria-specific) factors that drive consumer price inflation in Austria and its above-average dynamics. To this end, I specify a structural vector autoregression (VAR) with euro area and Austrian variables and a range of macroeconomic shocks that are relevant for this debate and for assessing policy effects.

2. Methodology

Specifically, I estimate a monthly VAR² with euro area and Austrian real GDP (quarterly real GDP interpolated with retail sales and industrial production), euro area and Austrian HICP and the deflated index of agreed minimum wages of Austria.³ This set of variables allows to disentangle euro area-wide demand shocks and euro area-wide supply shocks from Austria-specific demand shocks and Austria-specific supply shocks. Moreover, the inclusion of real wages enables the identification of country-specific wage shocks.

Table 1: **Sign and zero restrictions**

	Euro area real GDP	Euro area HICP	Austrian real GDP	Austrian HICP	Austrian real wages
Euro area demand shock	+	+			
Euro area supply shock	–	+			
Austrian demand shock	0	0	+	+	
Austrian supply shock	0	0	–	+	–
Austrian wage shock	0	0	–	+	+

Note: The shocks are normalized to have a positive impact on the respective consumer price inflation.

Methodologically, I rely on two approaches. To ensure that euro area-wide shocks affect all variables in the system, but that Austrian shocks do not affect the area-wide variables, I use sign and zero restrictions as put forth by Arias et al. (2018). For a proper (i.e., theory-robust) definition of the sign restrictions, I rely on the set of restrictions proposed by Foroni et al. (2018). The sign and zero restrictions, shown in Table 1 and discussed in Chapter 3, are set only in the month of impact.

All variables are in year-on-year growth rates and range from January 2001 to March 2023.⁴ The VAR is estimated with a constant, six lags and a Minnesota prior that shrinks the model to a system of independent random walks. In the euro area equations, a tight zero prior is set on the coefficients of the lagged Austrian variables, which makes the euro area-wide variables strictly exogenous (but mutually dependent) with respect to the Austrian variables.

3. Impulse responses

Several impact responses are determined by the sign restrictions presented in Table 1: An aggregate demand shock is defined as a shock that moves output and prices in the same

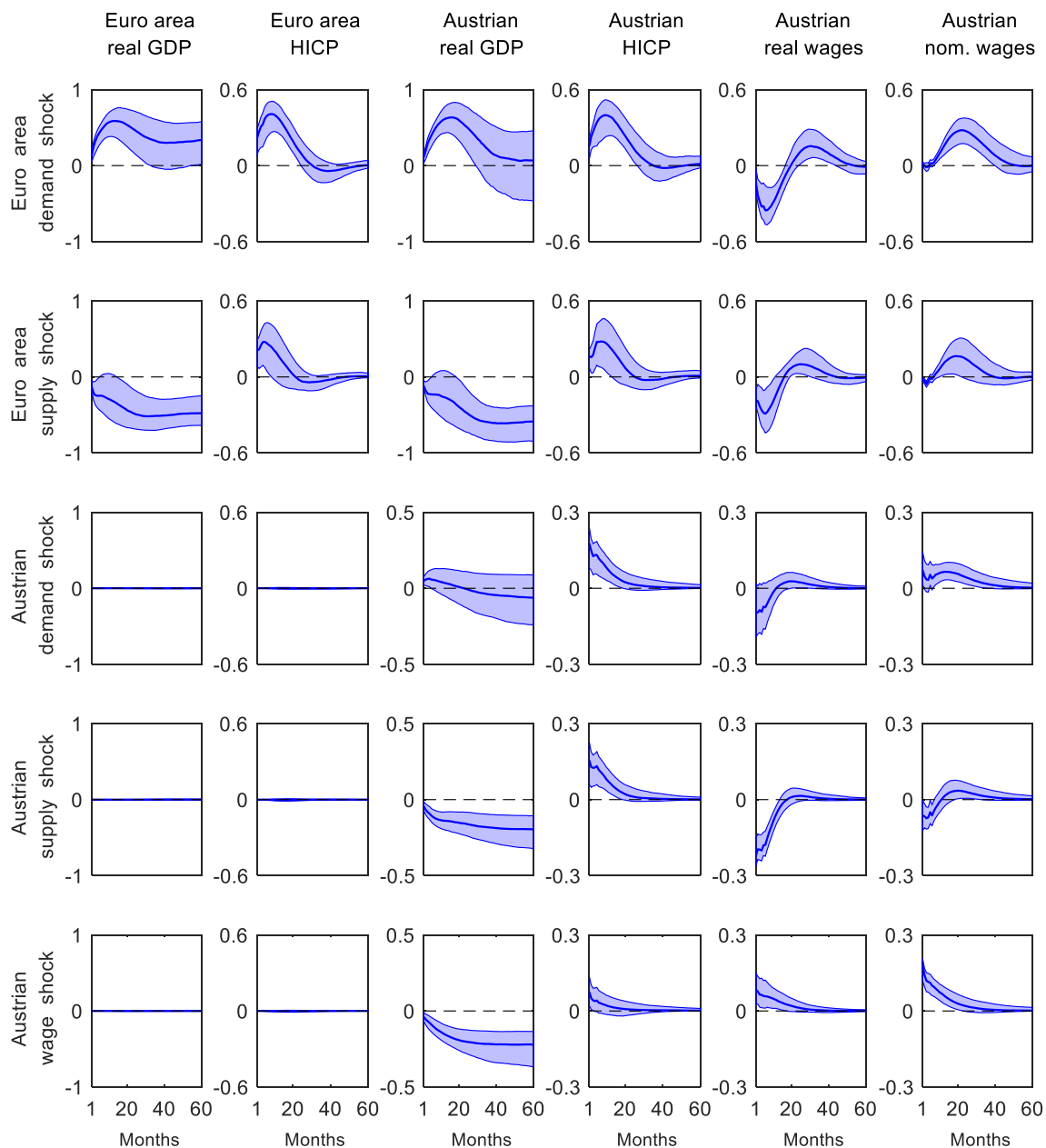
² The results are robust to quarterly data.

³ In the baseline specification, nominal wages are deflated with the HICP. This can be motivated from a consumer perspective, and it allows for the reconstruction of nominal wage growth from within the model and for the computation of respective impulse responses. From a firms' perspective, the GDP deflator might be a more appropriate measure to calculate real wage costs. In a robustness test, I check that all results remain qualitatively intact when wages are deflated with the GDP deflator (interpolated with the core HICP).

⁴ The results are robust for a shorter sample that starts in 2011, when the inflation gap started to widen. In this case, a larger share of the inflation gap is accounted for by the trend term and a smaller share by Austrian demand shocks.

direction, while an aggregate supply shock moves them in opposite directions. A wage shock is a special form of a supply shock, raising real wages and inflation and dampening output, while all other kinds of supply shocks depress real wages on impact.

Figure 2: **Impulse responses**



Notes: Blue lines are median impulse responses, shaded areas are 68% credible sets. For real GDP, cumulative responses (scaled by a factor of one-twelfth) are shown, i.e., the percent effects on the respective levels. For all other variables, the effects are in percentage points of the year-on-year growth rates. The response of nominal wages is calculated ex-post as the sum of the response of inflation and of real wages. Horizon: 60 months (5 years).

Regarding the wage shock, it is important to note, that it is in principle a catch-all shock originating from the labor market and potentially encompassing wage bargaining shocks, labor supply shocks, and matching efficiency shocks. For the analysis at hand, having these shocks packed together is fine, as we want to know whether Austrian consumer price inflation stems from supply factors, demand factors (e.g., due to expansionary fiscal policies), or directly from the labor market (apart from its endogenous response to the former shocks). It is of less importance, at least in a first step, whether the direct labor market effects are due to union bargaining power, labor shortages, or matching inefficiencies.

Figure 2 shows that the effects of these shocks that are not given by a priori restrictions are clear and conclusive. Austrian variables move proportionally to their euro area counterparts in response to area-wide shocks. Austrian output and inflation increase in response to a favorable external demand shock, while output falls and inflation rises in response to an adverse external supply shock. In the medium run, we observe typical Neo-Keynesian patterns: The output effects of demand shocks are more transitory, those of supply shocks more permanent.

Both kinds of shocks have transitory effects on inflation rates (i.e., permanent effects on consumer price levels). While nominal wage growth accelerates in response to a positive demand shock, it does so by less than inflation, implying a deceleration of real wage growth. In contrast, in response to an adverse supply shock, both real wage growth (given by the sign restriction) and nominal wage growth decelerate. The deceleration of nominal wage growth is compensated in the medium run.

4. Historical decompositions

Figure 3 shows the main results of the present analysis: the historical decomposition of Austrian and euro area consumer price inflation. That is, it shows the extent to which inflation rates have been driven by the identified shocks since the start of the pandemic.

4.1 Euro area demand shocks

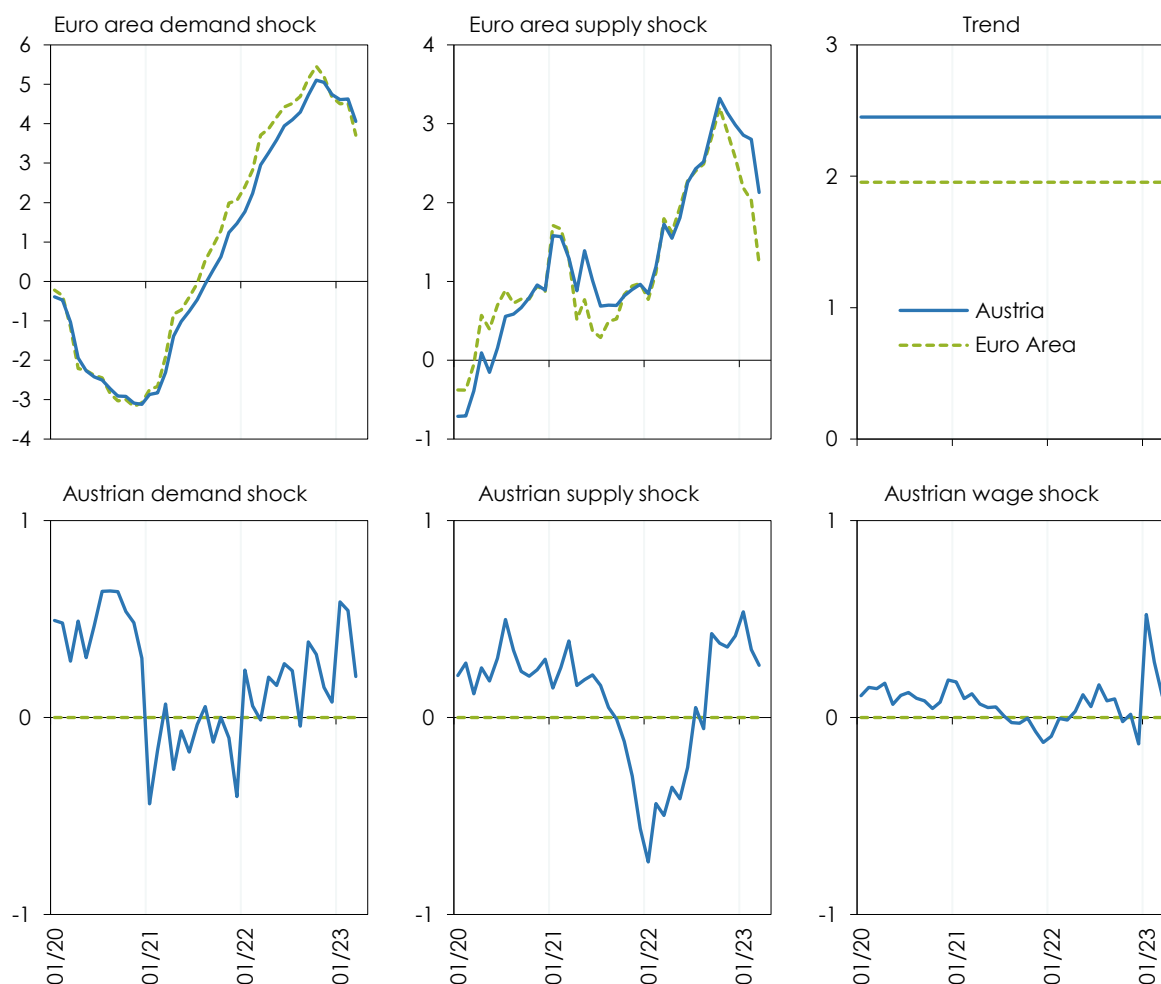
The euro area-wide aggregate demand shock has been shaped by the "covid cycle" since the onset of the pandemic: Pandemic-related closures dampened inflation, while the subsequent rebounds fueled it.⁵ Rebound-induced inflation since mid-2021 outweighs the crisis-induced disinflation that preceded it. Thus, demand has not only fully recovered from the pandemic, but it has also outpaced its impact. Overly expansionary (euro area-wide) economic policies (monetary, fiscal, or both) are a possible candidate cause of this development, as they provided an additional stimulus to private sector spending, which – unlike in "normal" downturns – was not hampered by sustained precautionary savings, but only by temporary pandemic-related savings.⁶

⁵ The appearance of the pandemic as a series of aggregate demand shocks can be rationalized as the result of supply shocks at the sectoral level (Cesa-Bianchi & Ferrero, 2021).

⁶ Lower precautionary savings were due to lower uncertainty, as measured, for example, by the ECB's composite indicator of systemic stress, which has returned to pre-crisis levels faster than in previous recessions.

Euro area-wide demand pressures on prices peaked in October 2022 and have since eased, including in Austria. However, they remain high, accounting for around four percentage points of consumer price inflation in March 2023, both in the euro area and in Austria.

Figure 3: Drivers of inflation in Austria and the euro area



Note: Mean contributions of various shocks to year-on-year HICP inflation in percentage points.

4.2 Euro area supply shocks

By contrast, euro area-wide aggregate supply shocks exerted a price-driving effect since the outbreak of the pandemic, which mirrors the interruption of supply chains. Adverse supply-side shocks intensified with the Russian invasion of Ukraine in February 2022 and the associated rise in commodity prices. The impact on euro area and Austrian inflation peaked at around three percentage points in October 2022 and has fallen sharply since then, as uncertainty about gas stocks in Europe has diminished and markets have stabilized, and more recently due to base effects.

While euro area-wide aggregate supply shocks affect euro area and Austrian inflation rates similarly, there is a slight lag in the response of the latter: It increased with a lag at the start of the pandemic and decreased with a lag during the recent recovery.

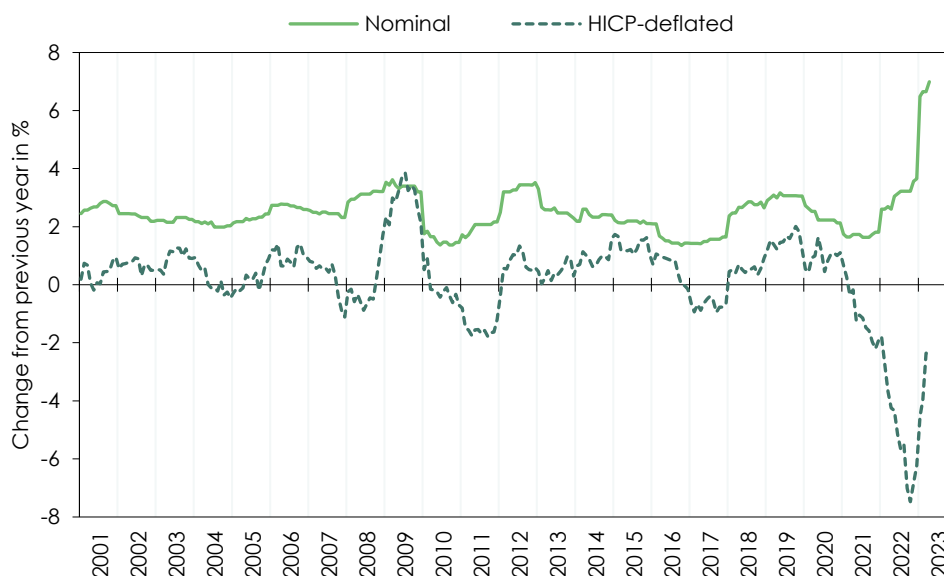
4.3 Trends

The amount of inflation accounted for by the constant term in the estimation ("Trend", top right panel of Figure 3) is around 2% for the euro area and a few tenths of a percentage point more for Austria. This accounts for the fact that inflation in Austria has most of the time been above the euro area average over the past two decades. It cannot explain the gap in inflation rates since January 2023, which has consistently been more than 2 percentage points.

4.4 Austrian wage shocks

In most sectors, collective wages, which are the minimum wages in the respective sectors, are adjusted at the beginning of a new year. In January 2023, year-on-year minimum wage growth accelerated by 2.8 percentage points. While this increase was unprecedented in size, it did not offset the decline in real wages caused by high inflation since 2021 (Figure 4).

Figure 4: **Minimum wage in Austria, year-on-year growth**



Source: Statistics Austria, own calculation; Macrobond.

The bottom right panel of Figure 3 shows that this acceleration is partly captured as a wage shock. However, the shock dissipates quickly. It seems that prices have adjusted gradually to the acceleration in wage dynamics, starting in late 2022 (resulting in negative wage shocks) and continuing in 2023 (resulting in the rapid easing of the January wage shock). This implies that, from a perspective over several months, current wage growth seems to be in line with the wage bargaining process estimated in the past.

This is not to say that wage increases will have no impact on inflation. Wage restraint (negative wage shocks) would help bring inflation down, but so would profit or rent restraint. The point is simply that wages have not risen excessively so far, i.e., positive wage shocks did not significantly outpace negative ones in the last two years. Put differently, current wage growth is not deviating from the established wage-setting behavior of unions and firms, i.e., it is not pushing up consumer prices relatively more than in periods of low inflation.

4.5 Austrian supply shocks

The current debate on Austria's above-average inflation mainly focuses on demand-side factors (see below). But domestic supply shocks have also had a non-negligible impact on consumer price inflation. In 2020 and in the first half of 2021, they contributed around a quarter of a percentage point to Austrian consumer price inflation (and the inflation gap). In the second half of 2021, they changed sign and became disinflationary, before becoming inflationary again in the second half of 2022.

One potential candidate for domestic supply shocks is changes in value-added tax (VAT). In Austria, the VAT on many tourism-related services was reduced to 5% from mid-2020 to the end of 2021. This may partly explain the positive, i.e., price-dampening, supply shocks in late 2021 and the adverse shocks in early 2022. However, the VAT reduction does not appear to have had an immediate price-dampening effect in mid-2020 when it took effect.

Domestic inflationary pressures are also recorded when euro area inflation is dampened by VAT reductions abroad and VAT remains unchanged domestically, like in the second half of 2020, when Germany reduced its standard VAT rates temporarily. This could (at least partially) correspond to an adverse domestic supply shock, since prices at home do not decrease (i.e., they rise relative to abroad). Indeed, it might have contributed to the upward spike in mid-2020 and the downward spike in the second half of 2021, when the effect was reversed in year-on-year inflation figures.

Moreover, in 2022, in contrast to Austria, most euro area countries (among them Germany, France, Spain, Netherlands) cut VAT rates on electricity or gas consumption. This might have added to the adverse Austrian supply shocks recorded by the model, as, again, prices at home remained unaffected, while prices abroad fell, so that the inflation gap widened. In Austria, a significant post-pandemic measure directly affecting consumer prices so far is a cap on electricity prices, which came into effect in December 2022. Since then, domestic supply-side price pressures have eased.

4.6 Austrian demand shocks

The analysis of domestic demand shocks is particularly interesting from a policy perspective, as this type of shock should include the effects of government spending.

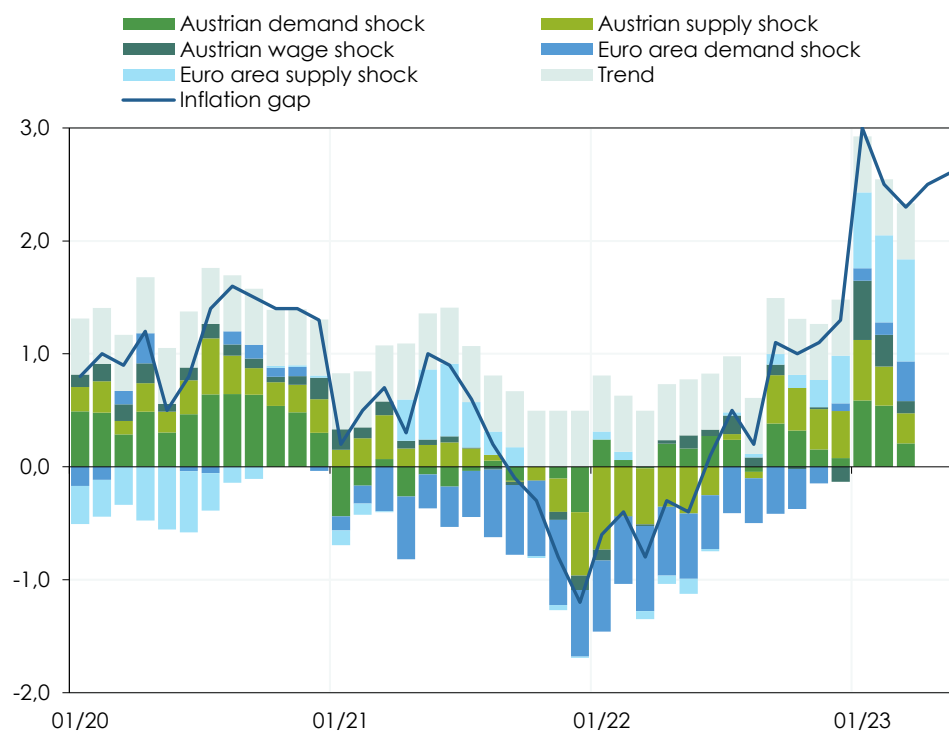
What seems surprising at first glance is that Austria experienced inflationary idiosyncratic demand shocks in the first half of 2020, i.e., during the first wave of the covid pandemic. As noted above, the "covid cycle" is captured by euro area-wide aggregate demand shocks. The absence of such effects here means that the first wave had no further impact on Austrian inflation

beyond its average impact on euro area inflation. Put differently: The first wave of the pandemic had similar effects on consumer prices in Austria as in the rest of the euro area.

Austrian demand shocks added more than half a percentage point to consumer price inflation in 2020. This series of shocks built up over the course of 2019 and, hence, may be partly related to the disbursement of the "family bonus", a generous lump-sum payment to taxpayers with children. This prestige project of the then ruling government had been in place since the beginning of 2019, but it reached taxpayers' pockets gradually and to a large extent only in 2020.

The lockdowns in the winters of 2020/21 and 2021/22 were more severe in Austria than in most other countries, as measured, for example, by the Lockdown Stringency Index of the Blavatnik School of Government at Oxford University. These episodes are therefore recorded as negative shocks to domestic demand and dampened inflation temporarily.

Figure 5: Drivers of the inflation gap between Austria and the euro area



Note: Mean contributions of various shocks to the gap between year-on-year Austrian inflation and year-on-year euro area inflation in percentage points.

The subsequent easing of anti-covid measures led to a recovery in prices. Since then, domestic demand contributes positively to Austrian inflation again, but by less than in 2020. This suggests that expansive fiscal policy measures (like, e.g., the disbursement of the "climate bonus", a lump-sum payment from September 2022, or the elimination of cold progression from January 2023) add to inflation.

5. Summary and conclusion

Figure 5 presents the historical decompositions from Figure 3 in a different way. It shows the contributions of the identified shocks to the gap between Austrian and euro area inflation since 2020. For most of this period, Austrian demand shocks and Austrian wage shocks contributed positively to the inflation gap, while euro area-wide demand shocks reduced it.

This suggests that the "covid cycle", captured by euro area-wide demand shocks, seems to have had a more disinflationary and then a less inflationary effect in Austria than in the rest of the euro area. One possible reason for this could be that the Austrian economy was hit harder by the crisis than other countries because of its high exposure to contact-intensive services due to the large (winter) tourism sector (see Schiman, 2021). This is now changing with the full recovery of tourism and some catch-up in travel supported by forced savings in the past. It would suggest that the positive contribution of euro area-wide demand shocks to the inflation gap may persist for some time, if spending on leisure activities remains unaffected by the business cycle downturn due to large savings.

Euro area-wide aggregate supply shocks, on the other hand, had intensified strongly since January 2023, accounting for half of the inflation gap in March 2023. This may be because Austrian consumer energy prices react more sluggishly to wholesale energy price changes than the euro area average, so that it takes longer before the current price declines are passed on. Catching up to lower energy costs should lower the inflationary contribution of external supply shocks in the months ahead.

Turning to the domestic sources of inflation, the contributions of aggregate demand shocks and wage shocks to the inflation gap have increased in recent months. However, the monthly figures show that the peak of these contributions seems to have been overcome. The wage shock recorded with the acceleration of minimum wage growth at the beginning of 2023 does not seem to have a lasting effect on Austrian inflation. The electricity price cap could reduce the contribution of domestic supply factors to inflation further.

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